ACT/015/019-91F

PACIFICORP

ELECTRIC OPERATIONS

1991 EAST MOUNTAIN DRILLING PLAN

EM-66

APPLICANT:

PacifiCorp Electric Operations
One Utah Center
201 South Main
Suite 2100
Salt Lake City, Utah 84140-0021
(801) 220-2000

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
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

May 28, 1992

Mr. Val Payne, Sr. Environmental Engineer
PacifiCorp Electric Operations
P.O. Box 1005
Huntington, Utah 84528

Dear Mr. Payne:

Re: Approval to Reclaim Drill Holes EM-66 and EM-148, Exploration Drilling, PacifiCorp, Cottonwood/Wilberg Mine, ACT/015/019-91B (EM-148) and ACT/015/019-91F (EM-66), Folder #3 and Exploration Folders, Emery County, Utah

The Division is in receipt of your notice, dated May 22, 1992, to reclaim drill sites EM-66 and EM-148 early next month. Per your letter, you noted that the reclamation work would proceed as approved. The Division appreciates notification of the proposed reclamation schedule and approves reclamation to begin for these two holes. Reclamation at these two sites will be inspected this fall.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

cc: Henry Sauer

PACIFICORP

ONE UTAH CENTER

201 SOUTH MAIN • SUITE 2100 • SALT LAKE CITY, UTAH 84140-0021 • (801) 220-2000

ACT/015/019 #2
Exploration
Folders

May 22, 1992

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

RE: RECLAMATION OF DRILL HOLE EM-66, EXPLORATION DRILLING, PACIFICORP, COTTONWOOD/WILBERG MINE, ACT/015/019, FOLDER #3 AND EM-148, 1991 EAST MOUNTAIN DRILLING PROGRAM, PACIFICORP, CEP/015/019B, FOLDER 33, EMERY COUNTY, UTAH

Dear Ms. Grubaugh-Littig:

During 1991, two (2) drill holes were completed on East Mountain within PacifiCorp's Cottonwood/Wilberg Mine Permit area. Hole EM-66 was drilled on property to which PacifiCorp holds the surface rights and EM-148 was drilled on BLM property.

The drilling plan for EM-66 specified that reclamation work was planned to be completed during the fall of 1991. This did not occur due to onset of winter weather prior to complete drying of the mud pit. However, the area was stabilized (bermed, etc.) pending conditions allowing access in 1992.

PacifiCorp proposes to reclaim the EM-66 drill site when access is possible in early June, 1992. Reclamation will be accomplished in accordance with the approved Drilling Plan. As stated in the plan, reclamation of the drill pad is expected to require three (3) working days.

Drill hole EM-148 was established to facilitate a rock mass deformation study, in cooperation with the Bureau of Mines, using Time Domain Reflectometry. As discussed in the approved drilling plan, after EM-148 was drilled and logged, electronic monitoring equipment was installed at the site. The intent was to monitor rock mass deformation during extraction of the Cottonwood 14th West longwall panel and for two (2) years following mining. Therefore, the plan specified reclamation of the drill site following

Talked to Tom Rasmussen

completion of drilling in 1991 and removal of the monitoring equipment and reclamation of the access road in the fall of 1993.

Monitoring results indicate that continuation of the study is superfluous; therefore, PacifiCorp proposes to remove the monitoring equipment and reclaim the access road successively with EM-66 in early June, 1992. Reclamation will be completed in accordance with the approved drilling plan for EM-148. As stated in the plan, removal of the monitoring equipment and reclamation of the access road will require approximately ten (10) working days.

Please consider this submittal as amendments to the previously discussed drilling plans.

Your early attention to this matter will be appreciated. If you have questions or require further information please call me at 653-2312.

Sincerely,

Val Payne
Sr. Environmental Engineer

VP/dw

cc: J. Blake Webster
File

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
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

September 20, 1991

Mr. Blake Webster
PacifiCorp Electric Operations
Fuel Resources
One Utah Center; Suite 2100
210 South Main
Salt Lake City, Utah 84140-2100

Dear Mr. Webster:

Re: Approval of Exploration Drilling EM-66, PacifiCorp Electric Operations, Cottonwood/Wilberg Mine, ACT/015/019, Folder #3 and Exploration Folder, Emery County, Utah

91F

The exploration drilling for Hole #EM-66 has been reviewed and approved. Per conversations with Gary Johnson in the BLM Price Office on September 18, 1991, the 1984 approval of this hole is still valid because it is inside the Cottonwood/Wilberg Mine permit area.

Please notify the Division upon commencement and completion of this hole. If you have any questions, please call me.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

PGL/jbe
AT015019E

PACIFICORP
ELECTRIC OPERATIONS

ONE UTAH CENTER

201 SOUTH MAIN • SUITE 2100 • SALT LAKE CITY, UTAH 84140-0021 • (801) 220-2000

File ACT/015/019-Sp #2 and Exploration Folder

September 17, 1991

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

RE: 1991 EAST MOUNTAIN EXPLORATION DRILLING APPLICATION, FOR REMOVAL OF LESS THAN 250 TONS OF COAL, PACIFICORP ELECTRIC OPERATIONS, EMERY COUNTY, UTAH

EM-66

Dear Ms. Littig:

Enclosed please find PacifiCorp's proposal to drill a surface exploration drill hole on East Mountain, within the Cottonwood Mine Permit area as follows:

DRILL HOLE #	LOCATION	DEPTH	SURFACE OWNER	OBJECTIVE
EM-66	560' S 150' W of NE Corner Sec. 19 T17S, R7E	1800'	PacifiCorp	Evaluate coal quality and nature of rock associated with Hiawatha Seam.

Drill hole EM-66 was originally proposed and approved as part of Utah Power and Light Company's 1984 East Mountain Exploration Plan. However, the hole was not drilled at that time. PacifiCorp proposes to complete EM-66 as originally approved.

The following information is submitted for your review:

TEXT- 1991 East Mountain Drilling Plan EM-66,

DRAWING- East Mountain Property
1991 Surface Drilling
EM-66
(Drawing is 8 1/2" x 11" portion of CE-10424-EM, Surface Exploration Drill Holes, Packet 2-1 Cottonwood/Wilberg Mine Permit Application Package.)

ATTACHMENTS-

1. DOGM memo regarding Revegetation Seed Mix for East Mountain Coal Exploration.
   One page.

2. BLM Coal Exploration Stipulations PacifiCorp 1991 East Mountain Drilling.
   Three pages.

3. USFS Extension of 1990 East Mountain Road Use Permit for 1991 drilling.
   Eight pages.

4. AERC Archeological Clearance for 1984 East Mountain Exploration Plan.
   Six pages.

5. BLM Approval Letter for 1984 East Mountain Exploration Plan.
   Two pages.

6. USFS Decision Notice and Finding of No Significant Impact and Environmental Assessment for 1984 East Mountain Exploration Plan.
   Ten pages.

7. UP&L 1984 East Mountain Exploration Plan.
   Twenty-nine pages.

8. PacifiCorp Reclamation Cost Estimate for EM-66.
   One page.

As discussed in the submitted material, PacifiCorp holds the surface rights to the property upon which Drill Hole EM-66 is located. Access is via the existing East Mountain road system and approximately 0.8 mile of existing access road. The drill pad will be located immediately adjacent to the access road; therefore, surface disturbance will be minimized.

PACIFICORP

ELECTRIC OPERATIONS

1991 EAST MOUNTAIN DRILLING PLAN

EM-66

It is planned to conduct surface drilling above the Deer Creek and Cottonwood Mines located near Huntington, Utah. Less than 250 tons of coal will be removed.

Proposed is one (1) drill hole, EM-66, as shown on the enclosed map. The hole will be located adjacent to an existing road approximately 560 feet south and 150 feet west of the Northeast corner of Section 19, Township 17 South, Range 7 East. It will be drilled to a depth of 1,800 feet.

After drilling is completed the hole will be geophysically logged to the full depth and the hole will be plugged in accordance with BLM requirements.

In accordance with federal regulations 30 CFR 211 and the Utah Permanent Coal Mining Regulations, the following is submitted:

Name and address of responsible person:

Mr. Dale Wilson
PacifiCorp Electric Operations
Huntington Field Office
PO Box 1005
Huntington, Utah 84528
(801) 653-2312

Surface Ownership other than United States:

PacifiCorp

Subsurface Ownership other than United States:

None

harrowing the disturbed areas after seeding. However, on level areas, if topsoil was not removed during pad construction, the site will be ripped prior to seeding to break up compaction resulting from drilling activities. No fertilizer is planned unless stipulated by the surface owner.

Type and Mixture of Seeds (see Attachment 1):

COMMON NAME	SCIENTIFIC NAME	LBS/ACRE PLS	PLS/ft^2
Thickspike Wheatgrass	Agropyron dasytachyum	8	28
Mountain Brome	Bromus marginatus	8	23
Yellow Sweetclover	Melilotus officinalis	4	24
Louisiana Sagewort	Artemisia ludoviciana	.2	20

Method of Planting:

All seeds are broadcast by a hand-held rotary broadcaster. Areas seeded are cultivated and raked with a tractor-drawn tooth harrow. The rate of application is approximately 20.2 pounds per acre.

Estimated Timetable and Completion Date for Reclamation Work:

Once reclamation of a drill site begins all phases are continuous, that is, cat work, spreading topsoil, ditching, seeding, and harrowing.

Included in this submittal are 8 1/2" x 11" portions of the East Mountain Drill Hole map showing existing roads, major drainages, surface ownership and the proposed drilling site.

COAL EXPLORATION STIPULATIONS
PACIFICORP 1991 EAST MOUNTAIN DRILLING

1. The Chief of the Price Coal Office shall be notified 48 hours prior to the start and completion of the program.

2. The lessee\licensee is responsible to see that all personnel contracted or otherwise doing work on the exploration program are aware of these approval requirements and abide by all regulations governing this program. Any changes to the approved exploration plan must receive approval from the Chief of the Price Coal Office prior to implementation.

3. When artesian flows or horizons with possible development potential are encountered, the Chief of the Price Coal Office shall be notified immediately so that a determination may be made concerning their development potential. When possible, water samples shall be collected by the operator for analysis by the BLM. A written report is required upon completion of exploration as noted by Stipulation 8 H.

4. Upon completion of down-hole procedures, all drill holes shall be properly sealed by emplacing cement through tubing from the bottom of the hole to the collar. Any variance from the procedures itemized below must be approved in advance by the Chief of the Price Coal Office.

5. If adverse down-hole conditions prevent a completed drill hole from being properly plugged after attempting all standard industry plugging procedures, the Chief of the Price Coal Office will be contacted immediately to make a determination as to a final plugging method.

6. The hole location is to be marked by placing an approved marker made of galvanized steel, brass, aluminum or similar noncorrosive metal in the concrete plug. Such markers are to show hole number, year drilled, lessee/licensee name, and as feasible, the section, township, and range in which the hole is located. Top of concrete plug, if located in cultivated field must be set below normal plow depth (10 to 12 inches). In noncultivated areas, all marker caps should not protrude above the ground level. All drill holes shall be surveyed in to assure proper location. An exact survey of each drill hole location will be submitted to the Chief of the Price Coal Office.

7. The Chief of the Price Coal Office shall be notified 24 hours in advance as to the time when each hole is to be plugged so that a representative of the BLM may arrange to observe the plugging procedure.

6. Upon completion of exploration activities, two reports as required by 43 CFR 3485.1 shall be submitted to the Chief of the Price Coal Office, Moab District. The reports at a minimum must contain the following:

A. Location(s) and serial number(s) of lands under Federal lease or license on which exploration was completed.

B. A description of the completed exploration operations that includes the number of holes drilled, total depth of each hole, and completion date of each hole.

C. A map showing the locations of all holes drilled, other excavations, and the coal outcrop lines as appropriate. The scale of the map shall not be less than 1 inch equals 1 mile.

D. Analysis of coal samples and other pertinent tests obtained from exploration operations.

E. Copies of all in-hole mechanical or geophysisical stratigraphic surveys or logs, such as electric logs, gamma ray-neutron logs, sonic logs, or any other logs. The records shall include a lithologic log of all strata penetrated and conditions encountered such as water, gas, or any unusual conditions.

F. Status of reclamation of the disturbed areas.

G. Any other information requested by the District Manager.

H. Hydrologic reports using the attached form.

File ACT/015/019 #2
Copy Plan

PACIFICORP
ELECTRIC OPERATIONS

ONE UTAH CENTER

201 SOUTH MAIN • SUITE 2100 • SALT LAKE CITY, UTAH 84140-0021 • (801) 220-2000

September 17, 1991

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

RE: 1991 EAST MOUNTAIN EXPLORATION DRILLING APPLICATION, PACIFICORP ELECTRIC OPERATIONS, EMERY COUNTY, UTAH

EM-66

Dear Ms. Littig:

Enclosed please find PacifiCorp's proposal to drill a surface exploration drill hole on East Mountain, within the Cottonwood Mine Permit area as follows:

DRILL HOLE #	LOCATION	DEPTH	SURFACE OWNER	OBJECTIVE
EM-66	560' S 150' W of NE Corner Sec. 19 T17S, R7E	1800'	PacifiCorp	Evaluate coal quality and nature of rock associated with Hiawatha Seam.

Drill hole EM-66 was originally proposed and approved as part of Utah Power and Light Company's 1984 East Mountain Exploration Plan. However, the hole was not drilled at that time. PacifiCorp proposes to complete EM-66 as originally approved.

The following information is submitted for your review:

TEXT- 1991 East Mountain Drilling Plan EM-66,

DRAWING- East Mountain Property
1991 Surface Drilling
EM-66
(Drawing is 8 1/2" x 11" portion of CE-10424-EM, Surface Exploration Drill Holes, Packet 2-1 Cottonwood/Wilberg Mine Permit Application Package.)

ATTACHMENTS-

1. DOGM memo regarding Revegetation Seed Mix for East Mountain Coal Exploration.
   One page.

2. BLM Coal/Tar Sand Exploration Drilling Stipulations.
   Three pages.

3. USFS Extension of 1990 East Mountain Road Use Permit for 1991 drilling.
   Eight pages.

4. AERC Archeological Clearance for 1984 East Mountain Exploration Plan.
   Six pages.

5. BLM Approval Letter for 1984 East Mountain Exploration Plan.
   Two pages.

6. USFS Decision Notice and Finding of No Significant Impact and Environmental Assessment for 1984 East Mountain Exploration Plan.
   Ten pages.

7. UP&L 1984 East Mountain Exploration Plan.
   Twenty-nine pages.

8. PacifiCorp Reclamation Cost Estimate for EM-66.
   One page.

As discussed in the submitted material, PacifiCorp holds the surface rights to the property upon which Drill Hole EM-66 is located. Access is via the existing East Mountain road system and approximately 0.8 mile of existing access road. The drill pad will be located immediately adjacent to the access road; therefore, surface disturbance will be minimized.

PacifiCorp desires to complete drilling and reclamation of EM-66 during the Fall of 1991. Your assistance in facilitating this project is greatly appreciated. If you require additional copies of this submittal or further information, please contact me at 220-4584 or Val Payne at 653-2312.

Sincerely,

Val Payne FOR

J. Blake Webster
Permitting Administrator

VP/dw
Enclosure

cc: R. Fry
V. Payne

PACIFICORP

ELECTRIC OPERATIONS

1991 EAST MOUNTAIN DRILLING PLAN

EM-66

It is planned to conduct surface drilling above the Deer Creek and Cottonwood Mines located near Huntington, Utah. Less than 250 tons of coal will be removed.

Proposed is one (1) drill hole, EM-66, as shown on the enclosed map. The hole will be located adjacent to an existing road approximately 560 feet south and 150 feet west of the Northeast corner of Section 19, Township 17 South, Range 7 East. It will be drilled to a depth of 1,800 feet.

After drilling is completed the hole will be geophysically logged to the full depth and the hole will be plugged in accordance with BLM requirements.

In accordance with federal regulations 30 CFR 211 and the Utah Permanent Coal Mining Regulations, the following is submitted:

Name and address of responsible person:

Mr. Dale Wilson
PacifiCorp Electric Operations
Huntington Field Office
PO Box 1005
Huntington, Utah 84528
(801) 653-2312

Surface Ownership other than United States:

PacifiCorp

Subsurface Ownership other than United States:

None

harrowing the disturbed areas after seeding. However, on level areas, if topsoil was not removed during pad construction, the site will be ripped prior to seeding to break up compaction resulting from drilling activities. No fertilizer is planned unless stipulated by the surface owner.

Type and Mixture of Seeds (see Attachment 1):

COMMON NAME	SCIENTIFIC NAME	LBS/ACRE PLS	PLS/ft^2
Thickspike Wheatgrass	Agropyron dasytachyum	8	28
Mountain Brome	Bromus marginatus	8	23
Yellow Sweetclover	Melilotus officinalis	4	24
Louisiana Sagewort	Artemisia ludoviciana	.2	20

Method of Planting:

All seeds are broadcast by a hand-held rotary broadcaster. Areas seeded are cultivated and raked with a tractor-drawn tooth harrow. The rate of application is approximately 20.2 pounds per acre.

Estimated Timetable and Completion Date for Reclamation Work:

Once reclamation of a drill site begins all phases are continuous, that is, cat work, spreading topsoil, ditching, seeding, and harrowing.

Included in this submittal are 8 1/2" x 11" portions of the East Mountain Drill Hole map showing existing roads, major drainages, surface ownership and the proposed drilling site.

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
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

September 20, 1991

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Susan M. White, Reclamation Biologist SMW

RE: 1991 East Mountain Exploration Application, Drill Hole EM-66, Removal of Less than 250 Tons of Coal, PacifiCorp Electric Operations, Cottonwood Mine, ACT/015/019, Folder #2, Emery County, Utah

Synopsis and Analysis

Drill Hole EM-66 was originally proposed and approved as part of a 1984 drilling program. The hole was never drilled. PacifiCorp has resubmitted the application, updated as required. The surface ownership at the proposed location is PacifiCorp and is within the Cottonwood Mine permit area. The subsurface owner is the United States.

PacifiCorp has addressed all of the R614 Coal Mining Rules under the requirement of R614-201-200 "Minor Coal Exploration Permits". Name and address of the applicant is on page 1. The exploration area is described on page 1 and shown on a map. Page 6 describes the duration of drilling, which is to be completed and reclaimed in 1991. Pages 2 through 7 describe the methods of drilling and reclamation of the drill hole and pad. Disturbance is expected to be less than one acre. No roads are to be built.

Recommendation

The drill application can be approved. The applicant should be reminded to notify the Division upon commencement and completion of the hole.

jbe
AT015019.005

PACIFICORP

ELECTRIC OPERATIONS

1991 EAST MOUNTAIN DRILLING PLAN

EM-66

It is planned to conduct surface drilling above the Deer Creek and Cottonwood Mines located near Huntington, Utah.

Proposed is one (1) drill hole, EM-66, as shown on the enclosed map. The hole will be located adjacent to an existing road approximately 560 feet south and 150 feet west of the Northeast corner of Section 19, Township 17 South, Range 7 East. It will be drilled to a depth of 1,800 feet.

After drilling is completed the hole will be geophysically logged to the full depth and the hole will be plugged in accordance with BLM requirements.

In accordance with federal regulations 30 CFR 211 and the Utah Permanent Coal Mining Regulations, the following is submitted:

Name and address of responsible person:

Mr. J. Brett Harvey
Fuel Resources
PacifiCorp Electric Operations
One Utah Center
201 South Main
Salt Lake City, Utah 84140-0021

Surface Ownership other than United States:

PacifiCorp

Subsurface Ownership other than United States:

None

METHOD OF DRILLING

It is proposed to drill one (1) drill hole to a depth of 1800 feet. Drilling will be accomplished by means of surface drilling utilizing a rotary drill rig.

Drilling Equipment:

Drill Rig:

1 - 1500 rotary drill rig

The drilling rig will require supporting vehicles as follows:

1 - Water truck, 80 to 100 barrel capacity

1 - Flat-bed truck for carrying drill pipe and casing

1 - D8H Crawler Tractor

1 - Landscape Tractor/Trailer

1 - Semi-Truck/Flat Bed Trailer

1 - Logging Truck (Geophysical Probe Truck)

1 - 4 Pickup Trucks (Crew Transportation)

1 - 700 CFM Compressor and Booster

The drilling pad and mud pits will be constructed using a crawler tractor and backhoe. On near flat areas blade work will be minimal, only the low growing brush will be removed by back-blading the surface.

Preservation of topsoil is managed by stripping the drill pad and stockpiling the topsoil adjacent to the drilling site.

Drilling sequence is as follows:

A crawler tractor constructs a minimum width road from the existing road system to the proposed site. This rough construction road is built balancing the cuts and fills. The drill pad, usually

50 x 75 feet is laid out to fit the slope of ground allowing for the least amount of cut.

If the drill site is level the area is back-bladed to remove the vegetation leaving the topsoil in place, otherwise, the site is cleared of brush and topsoil stripped and stockpiled awaiting reclamation work. Mud pits are then excavated. Upon completion of the site the drill rig is driven to the site and set up to begin drilling. Ancillary equipment such as compressors, booster, water truck and flat-bed (drill pipe) trucks are positioned on the pad.

Once drilling has begun it continues until the exploration hole is completed or in the case of a planned core hole, casing is set at the prescribed depth. During the drilling period, drilling materials and cement are delivered to the site awaiting plugging of the hole.

After reaching the planned depth the drill string is removed from the hole and the geophysical logging truck is positioned to probe the hole. Upon recording the necessary data (geophysical logs) the hole is plugged using a two to one cement/water slurry plugging the entire length of the hole drilled. The drilling rig and support equipment are then moved from the site. The drilling site is cleaned of waste and trash and reclamation of the site will begin as soon as the mud pits have lost their fluids.

POLLUTION CONTROL MEASURES

Fire Prevention:

In the past fire hazard has not been a major problem. The clearing of drill sites reduces the chance of machine related

ignitions and the storing of combustible fuels in a safe area further lessens any fire hazards associated to drilling. Each drilling rig is attended both day and night and if needed, a 3,000 gallon water truck is available for fire suppression.

Soil Erosion:

Short-term soil erosion protection is accomplished by road design, that is, during road construction the roads are designed to the minimum grade possible and out-sloped for drainage. Reclamation work requires all roads not obliterated to have water bars installed and all disturbed areas will be seeded.

Water Pollution Control Measures:

What little surface water exists on East Mountain is found in the form of springs, seeps and small ponds. These waters are used primarily for stock and wildlife and some are developed with tanks and troughs. All access roads and pads located across or adjacent to live or intermittent streams will require culverts or other protective measures to safeguard water quality. Ground water encountered during drilling will be evaluated for monitoring purposes.

Present DOGM regulations are specific in monitoring ground water (hydrologic balance) for determining future impacts associated with mining. Measures to protect the migration of ground water will be to cement the hole completely.

Air Pollution:

We anticipate no significant impact to the air quality due to the drilling and other than watering roads for dust suppression no

specific measures are planned.

Damage to Fish and Wildlife:

The area of drilling is abundant with wildlife and is known primarily for its deer and elk harvest each Fall. Past experience has proven the wildlife disturbance is minimal. The drilling period occurs after the calving season and the area of drilling activities is small and isolated.

Fisheries:

There are no major fisheries within the drilling influence zone.

OTHER NATURAL RESOURCES

The drill hole is located adjacent to an existing road; therefore, impacts will be minimal. Disturbance will involve construction of the drill pad on the road. It is estimated that a total of approximately 1 acre will be disturbed. For the most part, this disturbance will occur on open grass-covered range land. Specific action to reduce this impact will be revegetive seeding.

PUBLIC HEALTH AND SAFETY

Due to the remoteness of the drilling area, public safety involvement is small.

PacifiCorp requires by contract that the drilling contractor is knowledgeable and complies with all state and local laws related to his drilling operations and that all equipment used in conjunction with this project meet the safety standards of the federal, state and local governing agencies.

Method of Plugging Drill Holes:

After the hole is drilled and geophysically logged, a proper cement slurry shall be placed in the hole through the open-ended drill pipe using 200 foot segmented lifts for inducing a pressure grout for plugging the drill hole. A hole location marker shall be placed on the surface of the hole to witness its location. This procedure will achieve compliance with the BLM hole plugging requirements.

SURFACE RECLAMATION

Reclamation Schedule:

It is planned to reclaim the drill site as soon after completion of drilling as possible. We have found from prior drilling in this area that the mud pits require at least two weeks or more to dissipate their fluids. After the reclamation sequence has started it will continue until complete.

The average time to drill a 2,000 foot hole in this area is about four days, reclamation work per site will average two days. We are planning to complete the reclamation work during 1991.

Grading and Backfilling:

Pad removal will be completed in the fall of 1991, in accordance with the surface management agency's stipulations.

Using a crawler tractor, mud pits will be filled in, the drill pad bladed, contoured to its original shape and the previously stockpiled topsoil spread evenly over the disturbed area.

Method of Soil Preparation and Fertilizer Application:

There is not special soil preparation planned excepting

harrowing the disturbed areas after seeding. No fertilizer is planned unless stipulated by the surface owner.

Type and Mixture of Seeds (see Attachment 1):

COMMON NAME	SCIENTIFIC NAME	LBS/ACRE PLS	PLS/ft^2
Thickspike Wheatgrass	Agropyron dasytachyum	8	28
Mountain Brome	Bromus marginatus	8	23
Yellow Sweetclover	Melilotus officinalis	4	24
Louisiana Sagewort	Artemisia ludoviciana	.2	20

Method of Planting:

All seeds are broadcast by a hand-held rotary broadcaster. Areas seeded are cultivated and raked with a tractor-drawn tooth harrow. The rate of application is approximately 20.2 pounds per acre.

Estimated Timetable and Completion Date for Reclamation Work:

Once reclamation of a drill site begins all phases are continuous, that is, cat work, spreading topsoil, ditching, seeding, and harrowing.

Included in this submittal are 8 1/2" x 11" portions of the East Mountain Drill Hole map showing existing roads, major drainages, surface ownership and the proposed drilling site.

1991 PROPOSED DRILLING

EAST MOUNTAIN

EM-66

Drill Hole Number	Location	Sec.	Township	Range	Total Depth Feet	Lease Number	Surface Owner
EM-66	NE NE	19	17S	7E	1800	U-083066	PACIFICORP

ENVIRONMENT

The area of exploration is located on East Mountain in the high plateau and canyonland area of eastern Utah near Huntington.

Soils

In the general vicinity of Huntington, soils range from deep, alkaline types in the valleys to very shallow soils and bare rock on the steep slopes of East Mountain (Wilson, et al, 1975). The dry, desert soils of the valley east and south of the mines are used mainly for range and pasture. Irrigated cropland occurs in small areas where water is available. These valley soils receive 8 to 14 inches of precipitation annually and have a low to moderate erosion potential (Wilson, et al, 1975).

The soil types of the mountainous areas surrounding the exploration area are characteristic of canyon slopes, geologic folds and faults. Bare rock and shallow soils over sandstone bedrock occur over most of the area. These soils support valuable watersheds, recreational areas and wildlife habitat. Runoff in these areas is high and contributes to heavy sedimentation and erosion problems. These erosion characteristics indicate that the revegetation potential is poor (Wilson, et al, 1975).

Vegetation

The dominant vegetation types are characteristic of central Utah (Foster, 1968). Pinion-juniper woodland is on the dry, south slopes and intergrades with sagebrush and grassland types at higher elevations on East Mountain. Spruce-fir Douglas fir forest occupies the ravines, ridge top, and the more mesic north slopes at elevations above 8,000 feet (Holmgren, 1972). Riparian woodland occurs along Deer Creek in the northern portion and trees are scattered along Grimes Wash. In mesic areas surrounding springs and seeps on the mountain tops, small meadows are present.

Pinion pine (Pinus edulis), juniper (Juniperus osteosperma), mountain mahogany (Cercocarpus spp.), and serviceberry (Amelanchier utahensis) are the common woody plant species. These forms provide an open canopy. Pinion pine and juniper density in the vicinity of the mine ranges from 240 to 420 trees/acre (University of Utah Research Institute, 1975b). The understory of pinion-juniper habitat is sparse and consists of scattered clumps of Indian ricegrass (Oryzoposis hymenoides) and forbs. Total vegetative cover in this area is generally less than 10 percent (University of Utah Research Institute, 1975b) because of steep slopes and southern exposure. Much of the remaining surface is bare rock.

White fir (Abies concolor), Douglas fir (Pseudotguga menziesii), and Engelmann spruce (Picea engelmanii), are the characteristic overstory species in the spruce-fir Douglas fir vegetation type. Stands of aspen (Populus tremuloides) are scattered throughout the conifer vegetation. The understory

associated with the conifers includes snowberry (Symphoricarpos oreophilus), buffaloberry (Shepherdia canadensis), twinflower (Linnaea borealis), blueberry (Vaccinium caespitosum), and miterwort (Mitella stenopetala). Annuals make up a very minor part of the cover. Conifer density on Horn Mountain, southeast of the mine property, ranged from 150 to 230 trees/acre (University of Utah Research Institute 1975b). Vegetative cover in this area is approximately 25% (University of Utah Research Institute 1975b).

The riparian woodland is limited to Deer Creek and scattered trees along Grimes Wash. Cottonwood (Populus angustifolia) and willows (Salix spp.) dominate the streamsides. A frequent shrub is narrow leaf rabbitbrush (Chrysothamnus linifolius) and grasses occur in abundance.

Six listed threatened or endangered plants occur in Emery County (Table 1), but no rare or T&E species are known from the immediate area (Welsh, et al, 1975). Most of the endangered plant species in Emery County occur in the San Rafael Swell (Welsh, et al, 1975) in the eastern part of the county.

Fish and Wildlife

The southern area is in pinion-juniper habitat. A number of important vertebrate species are typical of this habitat within the region. The sparse vegetation and steep, dry conditions present at the Cottonwood/Wilberg portal are less suitable for wildlife than are densely vegetated portions of pinion-juniper habitat on gently sloping terrain south and east of the mine property. The mule deer is the most conspicuous large mammal in pinion-juniper habitat

TABLE 1
THREATENED AND ENDANGERED PLANT SPECIES OCCURRING IN EMERY COUNTY[1,2]

PLANT	STATUS[3]	LOCATION
Cycladenia humilis var. jonesii	T	San Rafael Swell. Eriogonum-ephedra, mixed desert shrub, juniper communities; 1340 to 1830 m; Cutler, Summerville, Chinle formations.
Erigeron maguirei var. maguirei	E	San Rafael Swell. Canyon bottoms; 1640 to 1740 m; Wingate (?) and Navajo formations.
Townsendia aprica	T	Salt desert shrub, pinyon-juniper communitites; 1860 to 2440 m; Mancos Shale (Blue Gate Member).
Echinocereus triglochidiatus var. inermis	E	Blackbrush, ephedra, sagebrush, pinyon-juniper, mountain brush, aspen communities; 975 to 2562 m.
Pediocactus despainii	E	San Rafael Swell. Open pinyon-juniper community on limestone gravels; ca 1830 m.
Sclerocactus wrightiae	E	Salt desert shrub, shrub-grass to juniper communities; 1460 to 1865 m; Mancos Shale (Blue Gate, Tununk, Emery, Ferron Members), Dakota, Morrison, Summerville, Entrada formations.

1 - USDI, USFWS 1990
2 - Welsh, et al 1987
3 - T = Threatened
E = Endangered

in the mine vicinity. Other mammal species found in this habitat include black-tailed jackrabbit, mountain cottontail, coyote, badger, striped skunk, deer mouse, pinion mouse, least chipmunk, hoary bat, and western big-eared bat (Brown, et al, 1958).

Typical birds in pinion-juniper habitat include the mourning dove, pinion jay, western bluebird, western kingbird, American kestrel, and chipping sparrow (Brown, et al, 1958). Chukar partridge inhabit the rock escarpment areas near the Cottonwood/Wilberg portal.

Dry surface conditions and the absence of standing water virtually preclude the presence of amphibians from pinion-juniper habitat in the immediate vicinity, but several reptile species are common. The side-blotched lizard, eastern fence lizard, sagebrush lizard, racer, gopher snake, and western rattlesnake are representative species in this habitat type through the region (Stebbins, 1966).

Open stands of spruce-fir Douglas fir forest with Douglas fir as a dominant species occur on sheltered north-facing slopes at higher elevations within the exploration area. Spruce-fir Douglas fir and pinion-juniper habitats intermingle in canyon bottoms and at intermediate elevations to form a transition zone between the two vegetation types. Aspen groves in the spruce-fir Douglas fir communities offer excellent calving areas for elk (US Forest Service, 1976). Mule deer, snowshoe hare, and blue grouse are important game species in forested areas. Non-game mammals which inhabit forest areas include bobcat, beaver, porcupine, red

fox,coyote, mountain vole, deer mouse, hoary bat, and silver-haired bat.

Many bird species frequent the forested portions of East Mountain. Conspicuous breeding birds include band-tailed pigeon, plain titmouse, Clark's nutcracker, raven, turkey vulture, great horned owl, red-tailed hawk, and golden eagle.

Amphibian species such as the chorus frog and western toad inhabit mesic areas of the site. Reptiles are probably not abundant, but the short-horned lizard, sagebrush lizard, gopher snake, and western terrestrial garter snake inhabit sagebrush and forest-sagebrush ecotones in the site region.

Sagebrush and grassland habitat, and some mesic vegetation types occur on the relatively flat upper benches of East Mountain. Meadow habitat is limited to small drainage areas and a few springs. These habitats, combined with the forest edge ecotonal areas, are suitable for elk, mule deer, sage grouse, ruffed grouse, blue grouse, and snowshoe hare.

The additional moisture, increased vegetation, and structural diversity of the vegetation in the forest-sagebrush and forest-grassland ecotones provide habitat for more vertebrate species than is provided by pinion-juniper woodland.

Although there are no fisheries in the immediate vicinity, the tributaries which drain some of the area flow into Huntington Creek which does support a fishery (US Forest Service, 1976). According to the US Forest Service (1976) the upper portions (32 miles) of Huntington Creek are rated as Class III (of significant importance

to the State fishery program) whereas the lower 24 miles are rated Classes V and VI (of little or no value to the State fishery program). The tributaries (Deer Creek and Meetinghouse Creek) enter Huntington Creek in the lowest reaches of the Class III segment. Fish species which may be found in the Class reaches of Huntington Creek include brown trout, cutthroat trout, rainbow trout, brook trout, speckled dace, mountain sucker, and mottled sculpin.

Important Species

Important wildlife species are defined as those which are of recreational or economic value, are essential to the structure and function of the ecosystems in which they occur, or which have special status (e.g. endangered, declining, protected, etc.) within the region.

Several important species occur on and near East Mountain. The status, known distribution in the region and general habitat preference of each are discussed below.

- Mule Deer (Odocileus hemionus) - Mule deer range throughout all habitats on East Mountain. Pinion-juniper on the lower slopes of East Mountain are used as winter range. During other seasons deer concentrations are greater at high elevations. Although deer popultaions have declined over the past several years, the deer herd and habitat in the mine vicinity are in good condition (Dalton, 1977).

- Elk (Cervus Canadensis) - Elk inhabit the sagebrush and forest areas at the upper elevations on East Mountain, but do not ordinarily range into pinion-juniper habitat. The seven year average of elk censused on East Mountain (1970-1976) was 76 antlerless and two antlered individuals seen per year (Dalton, 1977). This census included larger groups only and does not reflect a total population estimate (Dalton, 1977).
- Mountain Lion (Felis concolor) - This species inhabits rugged mountains and forest areas in the region and may occasionally occur on East Mountain (Dalton, 1977).
- Snowshoe Hare (Lepus americanus) - this species occurs in forested portions of mountainous areas in the region. It inhabits higher elevations on East Mountain (Dalton, 1977).
- Mountain Cottontail (Sylvilagus nuttalli) - Mountain cottontails inhabit brushy areas and forests, particularly on rocky slopes throughout the region (USDI Bureau of Land Management, 1976).
- Blue Grouse (Dendragapus obscurus) - Open conifer stands with brushy understory at higher elevations provide suitable habitat for this species. Blue grouse occur on East Mountain. The greatest density of the species in Utah is in the northern Wasatch Range (Rawley and Bailey, 1972).

- Ruffed Grouse (Bonasa umbellus) - Brushy woodlands (aspens, willows and conifers) near streams and springs are suitable habitat. This species occurs at higher elevations on East Mountain.
- Chukar Partridge (Alectoris graeca) - This species prefers steep, rock semiarid slopes with low shrubs and rock outcrops. This species was introduced in Utah from 1951 to 1968. During this period 185,911 individuals were released at 191 different locations (Rawley and Bailey, 1972). The species is now widely distributed throughout Utah and other western states.
- Mourning Dove (Zenaidura macroura) - This is an important game bird in many parts of North America. Mourning doves prefer open field and forest edge habitat, but occur over a broad range of vegetation types throughout the 48 conterminous United States. The species occurs in pinion-juniper and forest edge habitat on East Mountain.

Special Status Species

No federally listed endangered or threatened species are known to occur on the site property (USDI, Fish and Wildlife Service, 1976). The black-footed ferret (Mustela nigripes), a federally endangered species, has been reported near Ferron, several miles south of the site (Dalton, 1977). This species is not likely to occur on site because preferred habitat (a prairie dog town) (USDI Bureau of Land Management, 1972a) is not present. American peregrine falcon (Falco peregrinus anatum) has been observed within

25 miles of the site in the winter (Dalton, 1977). It is probably a winter visitor in the area (USDI Bureau of Land Management, 1972b), although, historically peregrine falcon aeries existed in the San Rafael swell area 30 miles southeast of the site.

Land Use:

Land in the exploration area of East Mountain is used for range forage, wildlife habitat, timber, recreation, and mineral extraction. The timber value of spruce and fir in the area is minimal. Most of the timber is classified as non-commercial (USDI Forest Service and BLM, 1976) since inaccessibility, size class distribution and market conditions limit the economic feasibility of commercial operations.

This area includes range allotments, the Gentry Mountain Cattle and Horses Allotment on the Ferron Ranger District. Areas occurring in the Gentry Mountain Cattle and Horses Allotment are classified as non-range because of the steep terrain, inaccessibility, and scarcity of vegetation. A portion of the East Mountain Cattle and Horses Allotment is primary range (includes preferred forage-producing areas that are accessible and have available water). The range condition in this unit is fair and improving (USDI Forest Service and BLM, 1976). Some of the principal species are western yarrow, orange sneezeweed, Kentucky bluegrass, crested wheatgrass, big sagebrush, and twistleaf rabbit brush. The range allotments are managed on a rest-rotation grazing cycle (USDI Forest Service and BLM, 1976).

GEOLOGY

The area of interest for exploration is centered on East Mountain, a part of the Wasatch Plateau located near Huntington in Emery County.

East Mountain is a prominent topographical mesa rising over 5,000 feet from the flatlands of Castle Valley. The eastern limits are marked by precipice sandstone cliffs intersected by narrow and steep drainages. Particularly the exploration area lies within the drainages of Straight Canyon and Cottonwood Canyon on the south and west respectively, and Huntington Canyon on the north.

Significant geologic conditions in the project area pertain to the stratigraphy and structure of the area. The sedimentary strata in which the coal seams are enclosed generally consist of massive and bedded sandstones which are interbedded with siltstones and mudstones.

The lithologic logs of surface drill holes from locations drilled on the property also show the stratigraphic formations of the area. These logs indicate the two coal seams are of minable thickness in the area. The upper, or Blind Canyon Seam, and the lower, or Hiawatha Seam, are both interstratified with the lenticular sandstones, siltstones, and mudstones of the lower portion of the Blackhawk Formation. The Hiawatha Seam forms the basal unit of the Blackhawk Formation and is underlain by the massive Starpoint Sandstone.

The Blackhawk Formation which ranges from 700 feet to 800 feet thick in the area, consists of ever-increasing amounts of sandstone

in its upper portions, and is conformably overlain by the Castlegate Sandstone. The Castlegate averages about 200 feet thick in the area and consists nearly entirely of massive, medium to coarse-grained sandstone. The Castlegate forms a massive cliff and is conformably overlain by the lenticular sandstones of the Price River Formation. The Price River is about 600 feet thick and grades upward from predominantly sandy beds to interbedded sandstone, siltstone, and mudstone. The formation is overlain conformably by the slope-forming mudstones, siltstones, sandstones, and occasional limestone lenses of the North Horn Formation. The North Horn Formation ranges from 900 feet to 1100 feet thick in the area and is unconformably overlain by the lowermost remnants of the Flagstaff Limestone.

The weathering of strata in the area has resulted in the exposure of the coal seams along lower canyon walls and mesa cliffs. The sediments which enclose the coal seams form steep slopes which are capped by the cliff-forming Castlegate Sandstone. The earth materials just above the Castlegate form steep slopes that gradually lessen in intensity higher in the stratigraphic section, particularly in the North Horn Formation. The Flagstaff Formation caps the highest points of the East Mountain Mesa.

Structurally, the area is fairly simple. The gentle down-folded strata crossing the area from the southwest to northeast form the Straight Canyon Syncline. Dips into the syncline range from 2 to 4 degrees. The Flat Canyon Anticline is located just to the north of the subject area.

The coal-bearing strata is locally offset and displaced as much as 150 feet by a series of north-south trending normal faults near the escarpments that face Castle Valley. These faults are usually "clean" and do not have significant amounts of fault gouge or other fractures associated with them.

Only a few widely spaced drill holes have been completed in the northern portion of the property, the reliability of interpretations concerning coal seam distributions and thicknesses is lower than that for the mine areas that have been intensely drilled and mapped.

WATER

Surface waters within the exploration area are mostly mountain springs and seeps which have improvements of small ponds and troughs for stock watering.

A large portion of East Mountain is relatively flat, intersected by numerous steep canyons that contain intermittent streams that feed two major drainages.

The higher and steeper northern section of East Mountain is drained by Huntington Creek whereas the lower southern portion flows into Cottonwood Creek.

East Mountain is a narrow plateau with steep slopes and extends for about twelve miles in a northwest to southeasterly direction. The northern and eastern slopes drain into Huntington Creek while the western and southern slopes drain into Spoon Creek and Upper Joes Valley and into Cottonwood Creek. Both Huntington Creek and Cottonwood Creek drain to the southeast into the Castle

Valley System.

The peaks on the East Mountain range in elevation between 10,706 feet in the northwest to 9,600 feet in the southeast. The plateau varies in topography from flat to steeply sloping, and ranges from a quarter of a mile to a mile in width. The southwestern slope of the mountain drops 2,750 feet in 1.5 miles while the northeastern slopes are more gentle and decrease from the 10,200 foot to the 7,000 foot elevations in a horizontal distance of about 3.5 miles.

The primary year-round water resources on the mountain result from scattered seeps along the upper slopes draining the mountain's sandstone aquifers which are supplied by seasonal patterns of precipitation.

ARCHEOLOGY

Because of the mountain's steep slopes, access to its upper meadows and terraces is most easily accomplished on foot by climbing its long, narrow eastern ridges above Huntington Creek, or by climbing the western slopes in the vicinity of Upper Joes Valley and Flat Canyon. Prehistoric access to the plateau was probably predominantly accomplished on those slopes since the steepness and the frequent sandstone cliffs along the southwestern, southern, and southeastern slopes probably discouraged easy movement between and higher meadows and Castle Valley.

As an aid to determining the extent and location of presently known prehistoric sites distributed in the area, a records search was carried out involving files of the Antiquities Section of the

Division of State History and files of the Environmental Research Section of Utah Power & Light Company. As a result of these file checks, known prehistoric sites within the East Mountain area can be categorized into three sets, i.e., lower elevation sites located between 5,800 and 7,200 feet, middle elevation sites located between 7,200 and 9,000 feet, and higher elevation sites located above 9,000 feet.

Existing records and current research have demonstrated that prehistoric human activity in the area has diminished as elevation is increased. Newly discovered sites along Grimes Creek, the sites found adjacent to the new Huntington Power Plant and site 42Em176 near the mouth of Huntington Canyon can all be considered as falling in the lower elevation category and are predominantly within the pinion-juniper ecosystem. In 1971, Raymond Matheny's field crews identified a number of archeological sites in Huntington Canyon which have since been covered by the Huntington Reservoir. Those sites and site 42Em722 in Crandall Canyon can all qualify as falling within the second and middle elevation category which consists primarily of the montane ecosystem.

The higher elevation category which involves the upper montane and sub-alpine ecosystems includes only one known site, 42Em721, which is located on Trail Mountain to the west of East Mountain. This site and the majority of sites situated in the middle elevations consist of lithic fragment scatters having low to marginal significance in National Register terms. In contrast, the sites found in the lower elevation zone are not only more abundant,

but often are of greater significance, having been the foci of year-round habitation related activities.

During past years archeological sweeps (surveys) were limited to planned exploration disturbances.

In 1977, public law 95-87 was enacted. Regulations promulgated under this act expanded environmental requirements for permitting coal mines.

One such requirement was to broaden cultural resource information above underground mining activities.

A 15 percent random survey was conducted during the summer of 1980 and the report of the survey is included in the Mining and Reclamation Plan.

Archeological information pertaining to the current project is found at Attachment 4.

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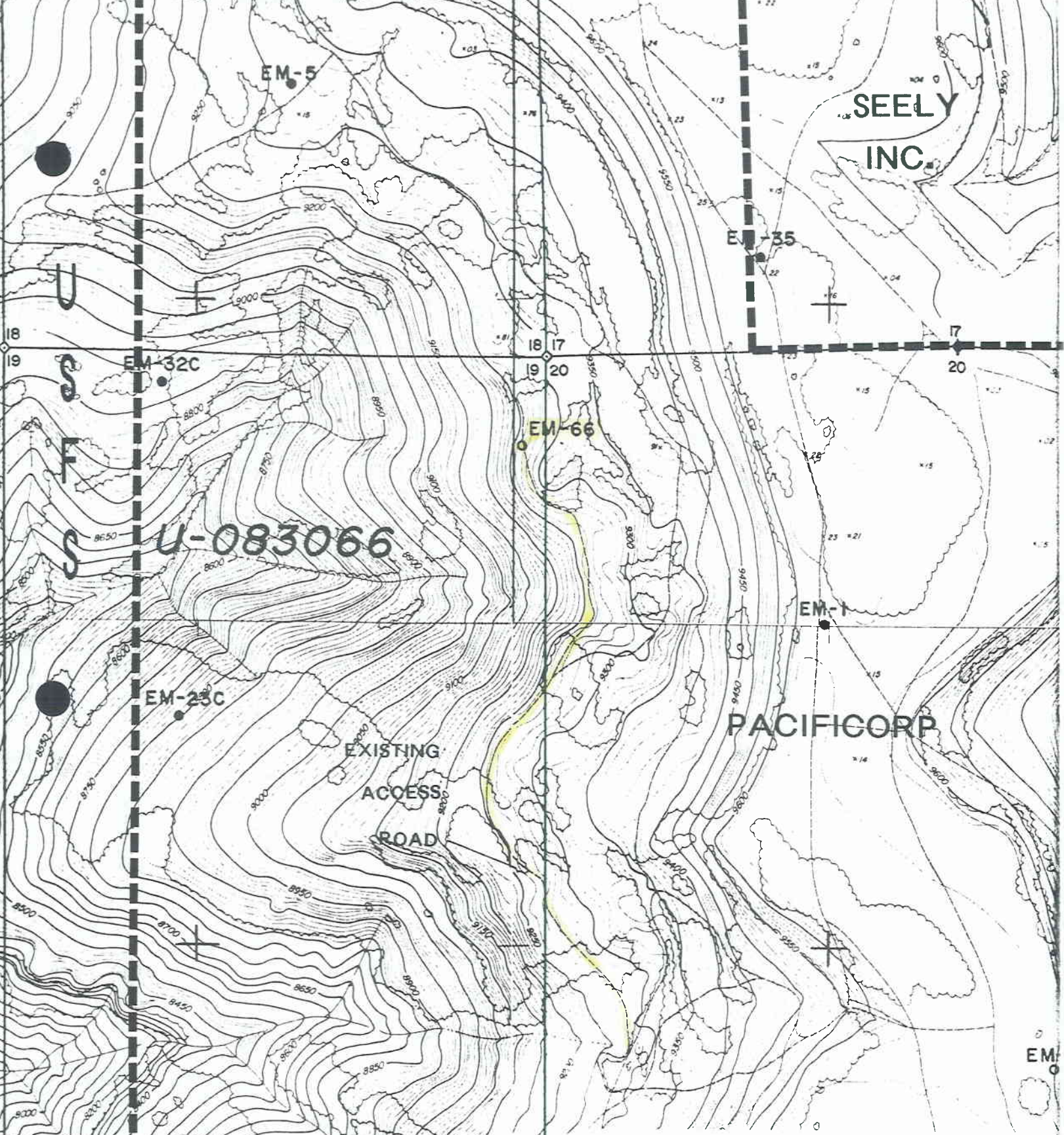

EAST MOUNTAIN PROPERTY

EMERY COUNTY, UTAH

1991 SURFACE DRILLING
EM-66

PACIFICORP ELECTRIC OPERATIONS
FUEL RESOURSES

SEPT. 13 1991
SCALE: 1"=800'

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STATE OF UTAH
NATURAL RESOURCES
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April 19, 1988

TO: John Whitehead, Permit Supervisor

FROM: Brent Stettler, Reclamation Biologist Brent

RE: Revegetation Seed Mix for Coal Exploration, 1988 East Mountain Project, Utah Power and Light Company, CEP/015/033-87A, Emery County, Utah

I was asked to resolve the conflict between the seed mixes recommended by the Division and Bureau of Land Management (BLM) for this Utah Power and Light Company (UP&L) project. I consulted with Merv Miles of the BLM office responsible for Natural Resource Surface Protection in Emery County.

I also called Ray Christensen about the agreed-upon seed mix. He stated that a revised permit, including additional drill hole locations, had just been mailed. The revised permit included the seed mix recommended by the BLM in 1981 and reiterated in correspondence dated March 21, 1988. Ray did not think there would be a problem with changing the seed mix as part of the review process.

The following seed mix is approved for use in reclaiming drill holes EM-68 and EM-139 (T17S, R7E, sections 8 and 33 respectively). The mix may be suitable for the new drill hole locations as well.

Common Name	Scientific Name	lbs/acre PLS	PLS/ft^2
Thickspike Wheatgrass	Agropyron dasytachyum	8	28
Mountain Brome	Bromus marginatus	8	23
Yellow Sweetclover	Melilotus officinalis	4	24
Louisiana Sagewort	Artemisia ludoviciana	.2	20

Justification: UMC 815.15(f)(1-2) Requires prompt re-establishment of vegetative cover and recovery of productivity, using the same seasonal varieties native to the disturbed area. Prompt cover re-establishment, soil stabilization, and initial productivity will be provided by the forbs. Grasses will take over in the long-term. The seed mix consists of three native and one introduced species. The introduced species, yellow sweetclover, is non-persistent. Rate of seeding is heavy to compensate for broadcast seeding, and to assure adequate soil protection. Natural invasion of reclaimed areas is expected to enhance diversity.

djh
cc: R. Christensen, UP&L
J. W. Dryden, BLM
1369R/21

ATTACHMENT 1

COAL EXPLORATION STIPULATIONS
PACIFICORP 1991 EAST MOUNTAIN DRILLING

1. The Chief of the Price Coal Office shall be notified 48 hours prior to the start and completion of the program.

2. The lessee\licensee is responsible to see that all personnel contracted or otherwise doing work on the exploration program are aware of these approval requirements and abide by all regulations governing this program. Any changes to the approved exploration plan must receive approval from the Chief of the Price Coal Office prior to implementation.

3. When artesian flows or horizons with possible development potential are encountered, the Chief of the Price Coal Office shall be notified immediately so that a determination may be made concerning their development potential. When possible, water samples shall be collected by the operator for analysis by the BLM. A written report is required upon completion of exploration as noted by Stipulation 8 H.

4. Upon completion of down-hole procedures, all drill holes shall be properly sealed by emplacing cement through tubing from the bottom of the hole to the collar. Any variance from the procedures itemized below must be approved in advance by the Chief of the Price Coal Office.

5. If adverse down-hole conditions prevent a completed drill hole from being properly plugged after attempting all standard industry plugging procedures, the Chief of the Price Coal Office will be contacted immediately to make a determination as to a final plugging method.

6. The hole location is to be marked by placing an approved marker made of galvanized steel, brass, aluminum or similar noncorrosive metal in the concrete plug. Such markers are to show hole number, year drilled, lessee/licensee name, and as feasible, the section, township, and range in which the hole is located. Top of concrete plug, if located in cultivated field must be set below normal plow depth (10 to 12 inches). In noncultivated areas, all marker caps should not protrude above the ground level. All drill holes shall be surveyed in to assure proper location. An exact survey of each drill hole location will be submitted to the Chief of the Price Coal Office.

7. The Chief of the Price Coal Office shall be notified 24 hours in advance as to the time when each hole is to be plugged so that a representative of the BLM may arrange to observe the plugging procedure.

ATTACHMENT 2

8. Upon completion of exploration activities, two reports as required by 43 CFR 3485.1 shall be submitted to the Chief of the Price Coal Office, Moab District. The reports at a minimum must contain the following:

A. Location(s) and serial number(s) of lands under Federal lease or license on which exploration was completed.

B. A description of the completed exploration operations that includes the number of holes drilled, total depth of each hole, and completion date of each hole.

C. A map showing the locations of all holes drilled, other excavations, and the coal outcrop lines as appropriate. The scale of the map shall not be less than 1 inch equals 1 mile.

D. Analysis of coal samples and other pertinent tests obtained from exploration operations.

E. Copies of all in-hole mechanical or geophysical stratigraphic surveys or logs, such as electric logs, gamma ray-neutron logs, sonic logs, or any other logs. The records shall include a lithologic log of all strata penetrated and conditions encountered such as water, gas, or any unusual conditions.

F. Status of reclamation of the disturbed areas.

G. Any other information requested by the District Manager.

H. Hydrologic reports using the attached form.

ATTACHMENT 2 (cont)

COAL/TAR SAND EXPLORATION DRILLING STIPULATIONS

BLM Coal Explor. Pacific

1. The BLM Area Manager shall be notified 48 hours prior to start and completion of the program.

2. The lessee/licensee is responsible to see that all personnel contracted or otherwise doing work on the exploration program are aware of these approval requirements and abide by all regulations and stipulations governing this program. Any changes to the approved exploration plan must receive approval from the Area Manager prior to implementation.

3. When artesian flows or water horizons with possible development potential are encountered, the BLM Area Manager shall be notified immediately so that a determination may be made concerning their development potential. When possible, water samples shall be collected by the operator for analysis by the BLM. A written report is required upon completion of exploration as noted by Stipulation 9 H.

4. Upon completion of down-hole procedures, all drill holes shall be properly sealed from the bottom to the collar. Any variance from the procedures itemized below must be approved by the Area Manager.

A. Drill holes in coal deposits amenable to underground mining must be cemented from the bottom of the hole to at least 50 feet above the highest minable coal bed (4 feet thick or more) or aquifer.

B. The remainder of the hole to within 5 feet of the surface may be filled with a gel rather than cement which meets or exceeds the following standards:

1) Ten-minute gel strength of 20 pounds/100 square feet.

2) Filtrate volume should measure 13.5 cc on an API standard filter test.

3) The marsh funnel viscosity should be a minimum of 50 seconds.

C. The 5-foot void at the surface will be plugged with cement except as required in stipulation #7.

5. Drill holes in tar sand deposits may be plugged with cement or plugging gels. Gels must meet the specifications identified in 4 B above. The 5-foot surface plug would still apply. Cementing aquifers would also be applicable as above.

6. If adverse downhole conditions prevent a completed drill hole from being properly plugged after attempting all standard industry plugging procedures, the Area Manager will be contacted immediately to make a determination as to a final plugging method.

ATTACHMENT 2

7. The hole location is to be marked by placing an approved marker made of galvanized steel, brass, aluminum or similar non-corrossive metal in the concrete plug. Such markers are to show hole number, year drilled, lessee/licensee name, and as feasible, the section, township, and range in which the hole is located. Top of concrete plug, if located in cultivated field, must be set below normal plow depth (10 to 12 inches). In noncultivated areas, all marker caps should not protrude above the ground level.

8. The Area Manager shall be notified as to the time when the first hole is to be plugged so that a representative of the BLM may arrange to observe the plugging procedure. Subsequent observations of other holes being plugged will be arranged as appropriate.

9. Upon completion of exploration activities, a report as required by 43 CFR 3485.1 (formerly 30 CFR 211.62) shall be submitted to the Moab District Office. The report at a minimum must contain the following:

A. Location(s) and serial number(s) of lands under Federal lease or license on which exploration was conducted.

B. A description of the completed exploration operations that includes the number of holes drilled, total depth of each hole, and completion date of each hole.

C. A map showing the locations of all holes drilled, other excavations, and the coal or tar sand outcrop lines as appropriate. The scale of the map shall not be less than 1 inch equals 1 mile.

D. Analysis of coal or tar sand samples and other pertinent tests obtained from exploration operations.

E. Copies of all in-hole mechanical or geophysical stratigraphic surveys or logs, such as electric logs, gamma ray-neutron logs, sonic logs, or any other logs. The records shall include a lithologic log of all strata penetrated and conditions encountered such as water, gas or any unusual conditions.

F. Status of reclamation of the disturbed areas.

G. Any other information requested by the District Manager.

H. Hydrologic reports using the attached form.

10. An individual lease or license bond in an amount to be determined by the Area Manager shall have been filed with the proper office before commencement of exploration activities. The bond shall be used as required to cover costs incurred by the BLM to correct any violation of this program.

REPORT OF WATER OBSERVED

Company: _____ Lease/License Number: _____

Address: _____ Drill Hole Number: _____

_____ Date Completed: _____

_____ Total Depth: _____

Company Contact: _____

Phone Number: _____

Drilling Contractor: _____

Address: _____

_____

_____

Company Contact: _____

Phone Number: _____

Location of Hole: T.___S., R.___E., SLB&M, Section ___: ___¼ ___¼ ___¼

Collar Elevation of Hole: _____ Hole Diameter: _____

Drilling Method/Medium: _____

Static Water Level: _____

Acquifer #1

Depth below Collar Elevation: _____ Formation: _____

Rock Type: _____ Yield(GPM): _____

Date Reported to BLM:* _____ Requirements of BLM:* _____

_____ Water Sample Provided to BLM? _____

Acquifer #2

Depth below Collar Elevation: _____ Formation: _____

Rock Type: _____ Yield(GPM): _____

Date Reported to BLM:* _____ Requirements of BLM:* _____

_____ Water Sample Provided to BLM? _____

---

* Refer to Stipulation Number 3

ATTACHMENT 2 (cont)

United States Department of Agriculture | Forest Service | Manti-LaSal National Forest | 599 W. Price River Dr. Price, Utah 84501

Reply to: 2820/7730

Mr. Scott M. Child
Pacific Power-Utah Power
324 South State
P.O. Box 26128
Salt Lake City, Utah 84126-0128

Dear Mr. Child:

Your application for Road Use Permit for use of the Cottonwood Canyon (FDR#50040), Trail Mountain (FDR#50034), and East Mountain (FDR#50060) Roads for the completion of your 1990 drilling program on Trail Mountain and addition of two holes for your 1991 drilling program on East Mountain can be authorized by: the extension of the Termination dates under clause 12 to terminate on October 31, 1991, adding the following road segment: Forest Development Road (FDR) #50060 from the junction with FDR #50040 to private lands beginning on the north section line of Section 17, T. 17 S., R. 7 E., SLB & M for a distance of 5.8 miles (excluding 1.35 mile of Sate of Utah land with the Forest), and payment of $211 under clause 4 a. Maintenance and Resurfacing Requirements and Specifications. Under clause 13 traffic rules date should be change to July -7, July 24, Aug. 31 - Sept. 2, Oct. 2-6, and Oct. 19-21, 1991.

M.M. CAN. Private Lands

Your payment of the Maintenance and Resurfacing Required fee and continuation of bonding will verify your continued acceptance of the terms and condition of the extended permit. Please notify us of the completion of your drilling program so that a final inspection of the road can be made and your bonds released.

Sincerely,

for
GEORGE A. MORRIS
Forest Supervisor

B.Barney:bb

cc: D-2

ATTACHMENT 3

U.S.D.A. - FOREST SERVICE

ROAD USE PERMIT
(Ref: F.S.M. 7731.44)

Authority: Acts of 6/30/14, 4/24/50, 6/12/60, --/14/64, and 10/21/76 (16 U.S.C. 498,572,530, and 532-38; and 43 U.S.C. 1702, 1761, 1764, and 1765).

June 11, 1990

PacificCorp dba Pacfic Power - Utah Power
[redacted]4 South State
P.O. Box 26128
Salt Lake City, Utah 84126-0128

(hereafter called the permittee) is hereby granted use of the following road(s) or road segments:

Forest Development Roads (FDR) #50040 (Cottonwood) from the interior Forest Boundary 3.1 miles from the junction with Forest Highway 8 northward to its junction with FDR #50034 (Trail Mountain) for a distance of 6.65 miles (excluding 0.5 miles of fee land within the Forest) and FDR #50034 southward from its junction with FDR #50040 to it terminus in Section 34 of T. 17 S., R. 6 E. for a distance of 12 miles, on the Manti-LaSal National Forest, subject to the provisions of this permit, including clauses 1 through 13, on page(s) 1 through 4 for the purpose of transporting personnel, equipment, supplies and materials for road maintenance and coal exploratory drilling.

The exercise of any of the privileges granted in this permit constitutes acceptance of all the conditions of the permit.

1. Compliance with Laws, Regulations, and Rules Governing Use. The permittee, in exercising the privileges granted by this permit, shall comply with the regulations of the Department of Agriculture and all Federal, State, County, and [redacted]unicipal laws, ordinances, or regulations which are applicable to the area or [redacted]perations covered by this permit. The permittee, its agents, employees, contractors, and guests of the permittee shall comply with the rules and regulations prescribed by the Forest Service for the control and safety in the use of the road and to avoid damage to the road. Such rules and regulations shall include:

a. Closing the road or restricting the use when required by any government agency which, by law, has jurisdiction to authorize such closing or restrictions.

b. Upon reasonable notice, closing the road during periods when, in Forest Service judgment, there is extraordinary fire or avalanche danger.

c. Traffic controls which, in the judgment of the Forest Service, are required for the safe and effective use of the road by authorized users thereof.

d. The permittee shall not use chemical poison, as defined in section 2 of the Federal Insecticide, Fungicide, and Rodenticide Act of June 25, 1945, as amended (61 Stat. 163; 73 Stat. 286; 75 Stat. 18; 75 Stat. 190), or any chemical or other road surface treatment without the approval of the Forest Supervisor. The application for approval shall be in writing and shall specify the area to be treated, the material used in the treatment, and the time, rate, and method of application.

2. Use Nonexclusive. The privileges granted in this road use permit, including use when the road is closed to public use, is not exclusive. The Forest Service may use the road and authorize others to use the road at any and all times. The permittee shall use the road in such a manner as will not unreasonably or unnecessarily interfere with the use thereof, by other authorized persons including the Forest Service.

3. Use Plans. Prior to use each year this permit is in effect, the permittee shall notify the District Ranger, John Niebergall, P.O. Box 310, at 98 South Main Street, Ferron, Utah 84523, telephone No. 384-2372, in writing of the date and approximate time when such use will commence, the anticipated duration of such use, the names and addresses of permittee's contractors or agents who will use the road on behalf of the permittee, the estimated extent of use, purpose of use, and such other information relative to permittee's anticipated use as the Forest Service may from time to time reasonably request. When there is a significant change in use by the permittee, it is the permittee's responsibility to promptly notify the District Ranger in writing. Plans and changes will be approved by the Forest Supervisor before use may commence.

4. Maintenance. The permittee shall bear the expense of maintenance proportionate to his use. This expense will be borne by the permittee, its agents, operators, and/or contractors.

Where road maintenance standards required by the permittee are above those required by the Forest Service, the permittee shall bear the total incremental cost of maintaining the road to the higher standard. The Forest Service financial responsibility is limited to a commensurate share of those maintenance activities required to be performed for the maintenance level assigned to the road prior to the commercial use.

Maintenance shall be performed in accordance with Forest Service Specifications or requirements for maintenance as hereinafter listed, or as may be mutually agreed upon from time to time and shall consist of (1) current maintenance as necessary to preserve, repair, and protect the roadbed, surface and all structures and appurtenances, and (2) resurfacing equivalent in extent to the wear and loss of surfacing caused by operations authorized in this permit.

a. Maintenance and Resurfacing Requirements and Specifications. Exhibit I, attached, specifies these requirements and shall be adhered to.

(1) Deferred surface maintenance collection
(a) Gravel $0.022/Equivalent Surface Unit(ESU)-mi x 8295 ESU-mile = $182
(b) Native $0.005/ESU/mi x 14,969 ESU-mile = $75
Deferred Maintenance collection $257

Payment required $257.00

(2) Current maintenance responsibility FDR #50034 from M.P. 0.0 to M.P. 12.0.

5. Performance Bond. In the event the permittee is to perform road maintenance, road resurfacing, or betterment, as determined by the Forest Supervisor, the Forest Service may require as a further guarantee of the faithful performance of such work that the permittee furnish and maintain a surety bond satisfactory to the Forest Service in the sum of ninety-nine hundred dollars($9,900), or in lieu of a surety bond, deposit into a Federal depository, as directed by the Forest Service, and maintain therein cash in the sum of ninety-nine hundred dollars ($9,900), or negotiable securities of the United States having market value at the time of deposit of not less than ninety-nine hundred dollars ($9,900). As soon as security for the performance of road maintenance or the settlement of claims incident thereto is completed, unencumbered cash guarantees or negotiable securities deposited in lieu of surety bond will be returned to the permittee.

6. Fire Prevention and Suppression. The permittee shall take all reasonable precautions to prevent and suppress forest fires. No material shall be disposed of in open fires during the closed fire season established by law or regulation, without a written permit from the Forest Service.

7. Damages. The permittee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this permit, and shall promptly repair or upon demand, pay the United States for any damage resulting from negligence, or from violation of the terms of this permit or of any law or regulation applicable to the National Forests, by the permittee, or by his agents, contractors, or employees of the permittee acting within the scope of their agency, contract, or employment. Five days notice shall be given to the District Ranger if other than legal loads (H-20) are to be hauled on Forest Development Roads. An inspection and evaluation of roadway structures will be made prior to and after the haul to determine feasibility of the haul and to check for any damage to roadway structures.

8. Officials Not to Benefit. No member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this agreement or any benefit that may arise herefrom unless it is made with a corporation for its general benefit.

9. Outstanding Rights. This permit is subject to all outstanding rights.

10. Suspension. Upon the failure of the permittee, its agents, employees or contractors to comply with any of the requirements of this permit, the officer issuing the permit may suspend operations in pursuance of this permit.

11. Permission must be obtained from Utah Division of Lands to cross state land in section 35.

12. Termination. This permit shall terminate on September 31, 1990. It may be terminated upon breach of any of the conditions herein.

13. Traffic Rules.

1. Roads must not be used when they are wet and susceptible to damage.

2. Roads must be watered if dust becomes a problem or if excessive loss of road material occurs.

3. All traffic must maintain safe speeds commensurate with existing conditions.

4. The permittee is responsible for repair of any damage to roads which are caused by his operators.

5. Heavy equipment may not be moved on Forest Development Roads on the following dates: July 4, July 21-24, September 1-3, October 3-8, and October 19-22, 1990.

This permit is accepted subject to all of its terms and conditions.

D. W. Jense
Managing Director/Administration 6/12/90

ACCEPTED Permittee (Name and Signature) Date

Aaron L. Howe Forester 6/14/90

APPROVED Issuing Officer (Name and Signature) Title Date

MAINTENANCE REQUIREMENTS

EXHIBIT I

Road Maintenance. Road maintenance is defined as the performance of work on the entire road facility commensurate with permittee's use. This work consists of restoration and preservation of surface, shoulders, roadsides, structures, drainage, sight distance, and such traffic control devices as are necessary for prevention of excessive erosion damage to the facility and adjacent lands.

I. Description. Maintenance work to be done currently during the periods of use by the permittee shall include:

A. Removal of slides and boulders, which obstruct safe sight distance.

B. Adequate blading and shaping of roadway surfaces, ditches, and grade dips to maintain the original cross-sections.

C. Removal of earth and debris from ditches and culverts so that the drainage systems will function efficiently at all times.

D. Prevention of excessive dusting of road surface materials.

E. Repair of damages to fences, cattleguards, culverts, and other roadway structures including traffic regulatory and directional signs.

F. Restoration of eroded fills and repair and protection of shoulder berms, berm outlets, stabilized waterways, vegetated slopes, and other erosion control features.

G. Removal of snow from roadway surface.

H. Replacement of roadway and/or surfacing material worn out and lost through use of the roadway.

II. Performance. All items of maintenance work shall be done currently as necessary to insure safe, efficient transportation and to protect roads, streams, and adjacent lands from excessive damage. Work shall be done in accordance with the following minimum standards of performance.

A. Removal of Material. Earth, rocks, trees, brush, and debris removed from roadways and ditches shall not be deposited in stream channels or upon slope stabilization and erosion control features.

B. During roadway blading and shaping operations, banks shall not be undercut nor shall gravel or other selected surfacing material be bladed off the roadway surface. The original crown or slope of the road shall be preserved. Mud, debris, and oversize material shall be deposited outside the roadway by hand or by careful blading, and these materials shall not be mixed with the road surfacing material.

C. Ditches, culverts, drop inlets, trash racks, downspouts, and splatter structures shall be kept clear of earth, slash, and other debris to that drainage systems will function efficiently during, and immediately following, periods of road use by permittees. This includes correcting and eliminating causes of erosion or plugging of the structure, and actual repair of the structure and riprap if damages.

D. Fugitive dust shall be controlled to prevent hazardous driving conditions or loss of road surface or binder material. The permittee shall control such dusting by sprinkling, or other approved surface treatment.

E. Permittee shall promptly repair all damages, caused by the permittee's operations, to the road surface or to any structures in or adjacent to the roadways. To transport any overweight loads (those that exceed HS-20 loading) will require five (5) days notice prior to transporting on Forest Development Roads. An inspection of drainage and other structures (bridges, etc.) will be made to determine if the structure can safely accommodate the load.

F. Any washing or settling of roadway fills shall be corrected promptly to prevent additional soil erosion or roadway damage. Shoulder berms, berm outlets, and stabilized waterways shall be protected during road maintenance operations and, if damaged, such structures shall be promptly restored to their original condition, including repair and reseeding of vegetation established to control slope erosion. No earth, rocks, or other debris shall be deposited upon any roadside slope stabilization structure or feature.

G. Snow Removal

1. Requirements

a. Sanding of hazardous areas shall be with sand. Coal dust, chemicals, or salt are not to be used.

b. Equipment - The equipment should be in sound operating condition, be equipped with angle blade or adequate grousers or traction tires, and be operated by a fully qualified operator.

c. Removal

Width - Snow will be removed to the full width of the road plus any turnouts and ditch lines. Through-cuts will be allowed only after snow depths exceed the height of the cab or across flat ground. Disposal shall always be to the outside or downhill side of the road.

Outlets - Outlets for surface runoff shall be placed in all snow through-cuts at points where water can flow off the road surface at the following intervals:

8% or less grades - 500 feet center to center minimum.
8% and up grades - 300 feet center to center minimum.

Snow Floor - A four to six-inch snow floor shall be allowed to accumulate on the road bed to prevent removal of road bed surfacing.

Cattleguards - Crawler tractors will not be operated across cattleguards.

Culvert Cleaning - Culvert heads and outlets shall be cleaned of snowpack by hand.

Tree Damage - Snow should not be pushed, blown, or stacked on trees along the roadside. Care will be taken to avoid scarring trees with equipment.

2. Travel

a. The road may be used while the snow floor remains intact or under frozen conditions.

b. All travel must cease when temperatures allow the road to thaw and rutting of the road surface is occurring.

c. This closure will be in effect until the surface dries or refreezes.

3. Inspections

a. Intermittent inspections may be made during snow removal operations.

b. Final inspection will be made to check for full compliance and damages.

ARCHEOLOGICAL - ENVIRONMENTAL RESEARCH CORPORATION

P.O. Box 853 - Bountiful, Utah 84010

Tel.: 801 292-7061

July 13, 1984

Subject: Addendum to Cultural Resource Evaluations of 19 Proposed Exploratory Drilling Locations on East Mountain in Emery County, Utah of November 8, 1983, Containing Revised Drill Hole Numbers

Project: Utah Power & Light Company, 1984 Exploratory Drilling Program

Project No.: UPL-83-5

Permit: Forest Service Special Use Permit

To: Mr. Chris Shingleton, Utah Power and Light Company, Mining Exploration Section, P.O. Box 899, Salt Lake City, Utah 84110

Mr. John Niebergall, District Ranger, U.S. Forest Service, Ferron Ranger District, Ferron, Utah 84523

ATTACHMENT 4

GENERAL INFORMATION:

On November 2 and 3, 1983, F. R. Hauck conducted cultural resource evaluations of 19 proposed coal exploration well locations for Utah Power & Light Company in the East Mountain locality of Emery County, Utah.

These locations consisted of EM64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 77, 78, 79, 99, 100, 101, and 102.

The locations are in the following Townships:

Township 16 South, Range 7 East, Section 33 - EM102
Township 17 South, Range 6 East, Section 1 - EM76, EM75
Township 17 South, Range 6 East, Section 12 - EM100
Township 17 South, Range 7 East, Section 4 EM101
" " " " " 5 - EM70, EM71, EM72
" " " " " 6 - EM74
" " " " " 7 - EM79, EM78, EM77
" " " " " 8 - EM69, EM68
" " " " " 17 - EM64, EM65
" " " " " 18 - EM67
" " " " " 19 - EM66
" " " " " 29 - EM99

These locations are in the Ferron and Price Districts of the Manti-LaSal National Forest. A Special Use Permit for the entire project was obtained at the Ferron District Office.

Access route evaluations were conducted for the following locations: EM64, 65, 68, 69, 71, 74, 99, 100, and 102. The remainder of the locations were situated adjacent to an existing road.

METHODOLOGY:

The proposed well locations were examined by walking a series of 15 meter wide concentric transects around the

center stake so that a radius of about 45 meters was covered. Twenty meter wide transects were walked on the flagged access routes.

The National Register of Historic Places has been consulted and no registered properties will be affected by the proposed operations.

RESULTS:

No cultural resource sites or cultural materials were observed or recorded during the evaluations.

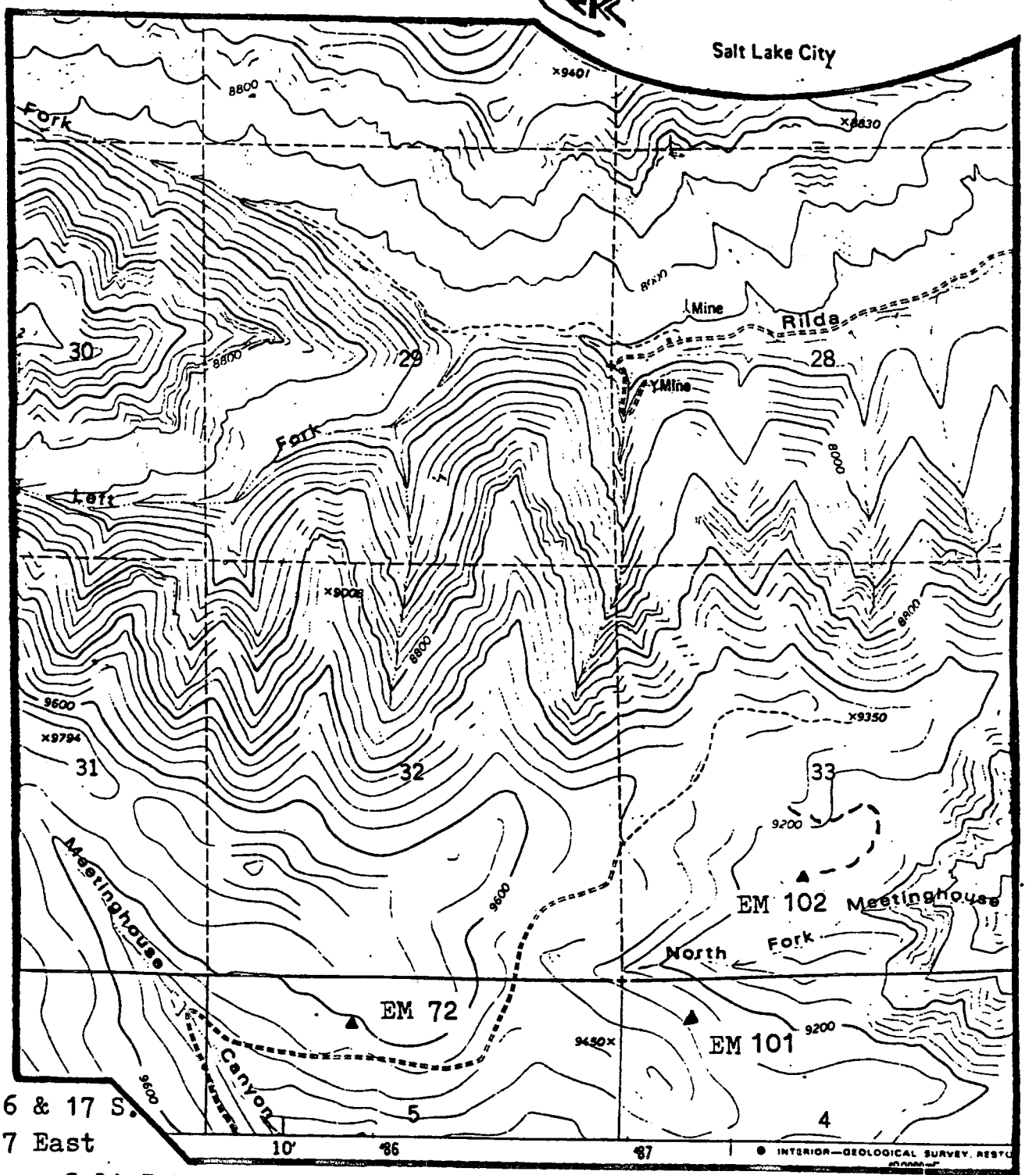
CONCLUSION AND RECOMMENDATIONS:

AERC recommends that a cultural resource clearance be granted to Utah Power & Light Company based upon adherence to the following stipulations:

1. All traffic, personnel movement, and development be confined to the locations examined.
2. All personnel refrain from collecting artifacts and from disturbing any cultural resource sites in the area.
3. A qualified archeologist should be consulted should cultural materials from subsurface contexts be exposed during development of the access routes and well locations, or if the need arises to relocate or extend operations outside the evaluated zones.

F. Richard Hauck, Ph.D.
President

ARCHEOLOGICAL-ENVIRONMENTAL
RESEARCH CORPORATION



T. 16 & 17 S.
R. 7 East
Meridian: Salt Lake B. & M.

Project: UPL-83-5
Series: Central Utah
Date: 11-9-83

MAP 1
Cultural Resource Survey in the East Mountain Locality of Emery County, Utah

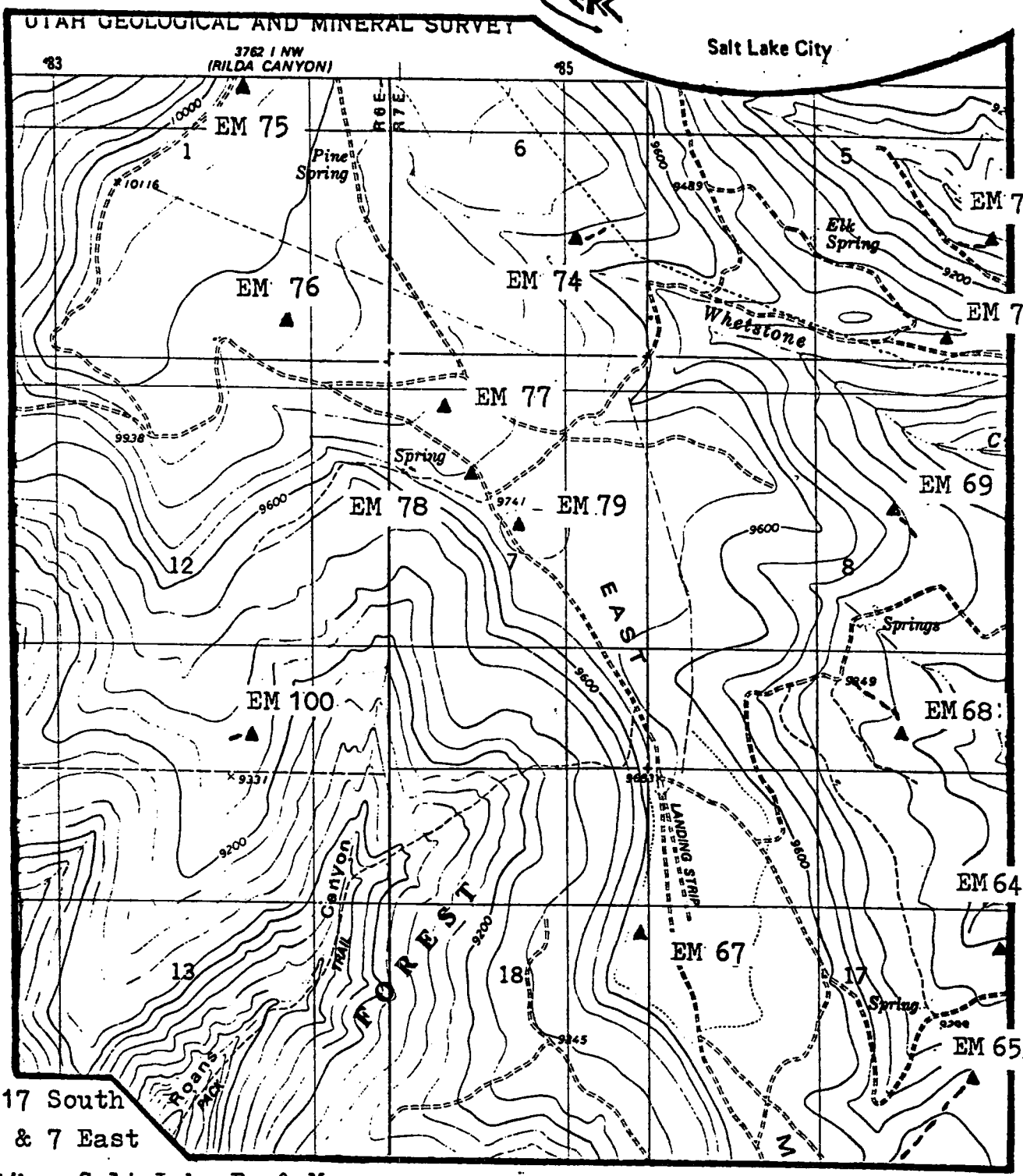
Quad:
Rilda Canyon, Utah
7.5 minute-USGS

Legend:
Drill Location ▲
Access Route

2.64" = 1 m.

ATTACHMENT 4 (cont)

ARCHEOLOGICAL-ENVIRONMENTAL RESEARCH CORPORATION



T. 17 South
R. 6 & 7 East
Meridian: Salt Lake B. & M.

Quad: Mahogany Point, Utah 7.5 minute-USGS

Project: UPL-83-5
Series: Central Utah
Date: 11-9-83

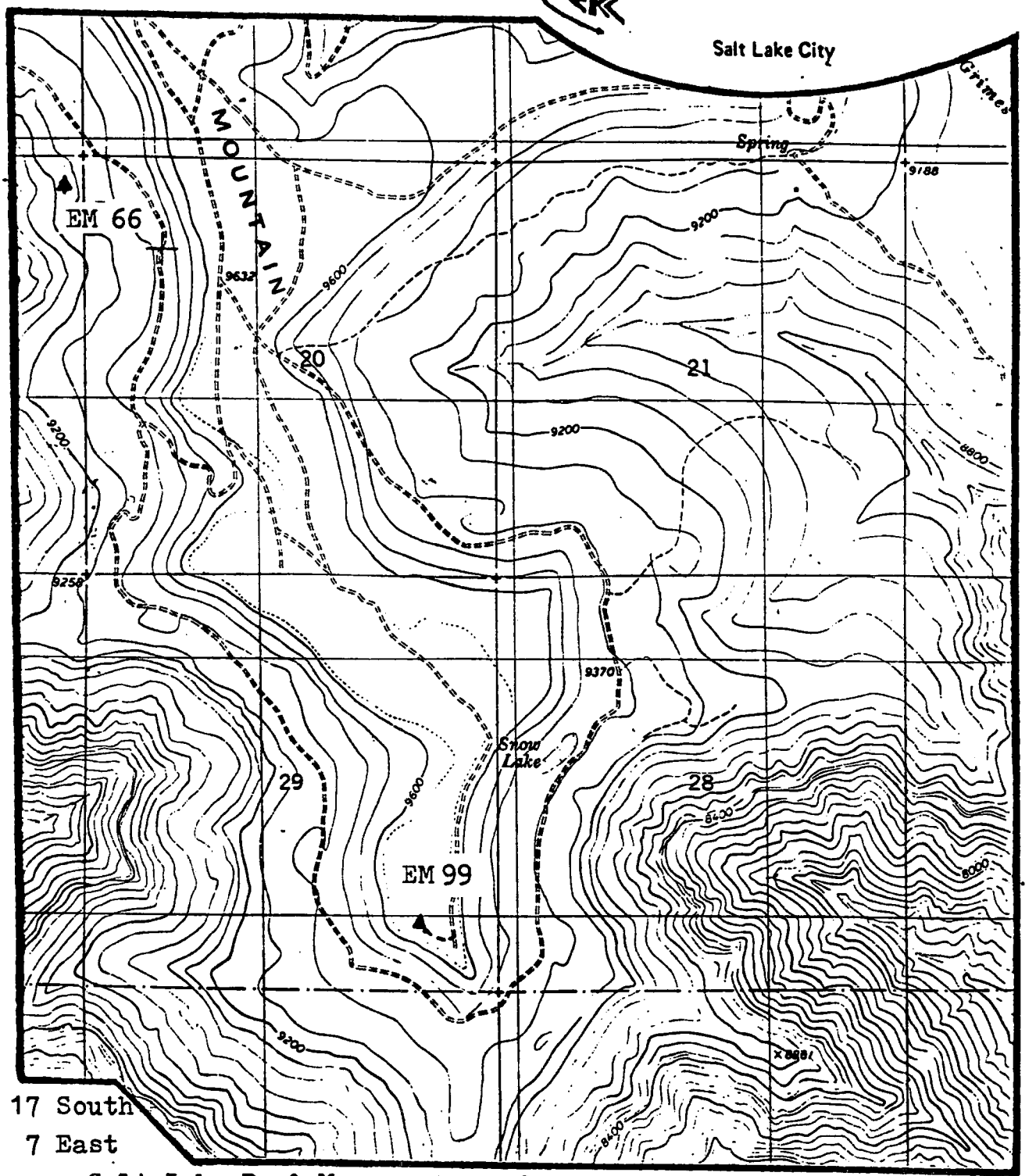
MAP 2
Cultural Resource Survey in the East Mountain Locality of Emery County, Utah

Legend:
Drill Location ▲
Access Route

2.64" = 1 m.

ATTACHMENT 4 (cont)

ARCHEOLOGICAL-ENVIRONMENTAL RESEARCH CORPORATION



T. 17 South

R. 7 East

Meridian: Salt Lake B. & M.

Quad: Mahogany Point, Utah 7.5 minute-USGS

Project: UPL-83-5

Series: Central Utah

Date: 11-9-83

MAP 3
Cultural Resource Survey in the East Mountain Locality of Emery County, Utah

Legend:

Drill Location ▲

Access Route

2.64" = 1 m.

Scale

ATTACHMENT 4 (cont)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Moab District
San Rafael Resource Area
P. O. Drawer AB
Price, Utah 84501

MAY 0 2 1984

Mr. Dee W. Jense, Manager
Mining and Exploration
Utah Power & Light Company
P. O. Box 899
Salt Lake City, UT 84110

Dear Mr. Jense:

Utah Power & Light Company's 1984 Coal Exploration Plan is approved according to the listed explanations:

1. All drill holes are approved except EM-102, EM-103, EM-104, EM-105, EM-106 and EM-107. These holes will need a field review and clearance from the Forest Service.

2. Drill holes EM-74, EM-75, EM-76, EM-77, EM-78, EM-79, EM-99, EM-100 and the access road to EM-64 are subject to the Forest Service stipulations and mitigation measures which are attached.

3. Drill holes EM-64, EM-65, EM-66, EM-68, EM-69, EM-70, EM-71, EM-72, EM-73 and EM-101, located on private surface, must be reclaimed to surface owner's satisfaction.

4. All drill holes approved are subject to the attached stipulations governing drilling and plugging operations.

Please note that prior to commencement of operations a prework meeting involving agencies, contractors and your representatives is required by the Forest Service so that these requirements can be discussed.

From our review of this plan, our office has determined that the drilling program will not significantly affect the quality of the environment if the regulations governing coal exploration are met.

ATTACHMENT 5

Stephen Falk of my staff will be your BLM contact for this program. If you have any questions, please contact him or myself.

Sincerely yours,

Samuel R. Ramey

Area Manager

Enclosures (3)
1-Exploration Plan
2-Forest Service Stipulations
3-Drilling Stipulations

cc:
USO (U-921) (w/o enclosures)
Forest Service, Price (w/o enclosures)
DOGM, Salt Lake City (w/o enclosures)
MDO (UT-065) (w/Exploration Plan)

ATTACHMENT 5 (cont)

DECISION NOTICE
AND
FINDING OF NO SIGNIFICANT IMPACT

1984 Utah Power and Light Company
Coal Exploration Program
East Mountain

Manti-LaSal National Forest
Ferron District
Emery County

An environmental assessment (EA) has been prepared that discusses the impacts of Utah Power and Light Company's Proposed coal exploration program on East Mountain, within the Manti-LaSal National Forest boundaries. A copy of the EA is available for public review at the Forest Supervisor's Office in Price, Utah, and at the Ferron Ranger District Office in Ferron, Utah.

A decision has been made, based on the assessment and evaluation described in the EA, that the portion of the proposed project that was evaluated should be allowed as described subject to the management requirements and constraints as listed in the EA.

It has been determined through the EA that this is not a major Federal action that would significantly affect the quality of the human environment; therefore, an Environmental Impact Statement is not needed. This determination was made considering the following factors:

1. All identified issues, concerns, and impacts on National Forest System lands can be effectively mitigated.

2. Wetlands, floodplains, alluvial valley floors, prime and unique rangeland, timberland, farmland, archaeological and paleontological resources, wilderness, further study areas or RARE II area are not impacted.

3. No known threatened or endangered plant or animal species will be disturbed by this project.

4. There are no apparent adverse cumulative or secondary effects.

5. Approval of the project is consistent with the Ferron-Price Land Management Plan.

This decision is subject to administrative review (appeal) persuant to 36 CFR 211.18.

Responsible Official:

Reed C Christensen Date 4/7/84
Forest Supervisor

ATTACHMENT 6

ENVIRONMENTAL ASSESSMENT

1984 Utah Power and Light Company
Coal Exploration Program
East Mountain

Responsible Agency: USDA - Forest Service
599 West Price River Drive
Manti-LaSal National Forest
Price, Utah 84501

Responsible Official: Reed C. Christensen
Forest Supervisor

For Further Information Contact: John Niebergall
Ferron District Ranger
98 South State Street
Ferron, Utah 84523

Prepared by: Steven F. Robison

Recommended Approval by: John Niebergall Date 2-15-84
Ferron District Ranger

Approved by: Reed C Christensen Date 4/2/84
Forest Supervisor

ATTACHMENT 6 (cont)

INTRODUCTION

On October 17, 1983, the Manti-LaSal National Forest received a proposed operating plan from Utah Power and Light Company (UP&L) to conduct coal exploration drilling on leased/fee lands (leases SL-070645 (U-02292), U-47978, U-06039, U-024319, U-040151, U-083066, U-084923, and U-084924) on East Mountain. The purpose of this project is to obtain geologic and coal data to help determine mining plans.

DESCRIPTION OF THE PROPOSAL

The proposed exploration program consists of drilling 25 holes, with anticipated drilling depths ranging from 190 to 2,555 feet. Thirteen of the proposed drill locations are on Federal surface with the remaining twelve on private/fee surface (see proposed operating plan in the Appendix). The private land owners have been contacted, but do not want Forest Service input concerning holes to be drilled on their land.

This environmental assessment (EA) covers only drill locations on Federal surface. However, of these 13 locations, only 8 (all on the Ferron Ranger District) are assessed in this report (see Figure 1). The other five locations and/or their proposed access routes were not marked on the surface and were not inspected or evaluated by the Forest Service Interdisciplinary (ID) Team. Therefore, only drill locations EM-74, EM-75, EM-76, EM-77, EM-78, EM-79, EM-99, and EM-100 and a 300-400 foot long access spur to EM-64 (the location is on private land, but part of the access is on National Forest System lands) are assessed in this report. The remaining holes will be assessed at a later date, with approval or disapproval after that assessment. UP&L (personal communication with Chris Shingleton) wants the assessment to these eight holes done at this time so that drilling operations can begin in the early summer of 1984.

Seven of the drill locations are next to existing roads and are located in sagebrush-grass flats on the top of East Mountain. The other location, EM-100, is on a sagebrush-grass slope (about 15%) and will require the reopening of an existing road (removal of three tank traps) and the construction of about 100 feet of new temporary road on slopes of 5-15%.

A small portion of the access road to drill site EM-64 that is on National Forest System lands is on slopes of about 10-15%. The road would have a grade of 8% or less, and would be across a sagebrush-sparce aspen area. A few aspen and possibly one or two fir trees, may need to be removed. Approximately three acres of surface disturbance will occur in connection with this project.

A more detailed description of the proposed project can be found in the Appendix.

MAJOR ISSUES, CONCERNS, AND OPPORTUNITIES

The Forest Service ID Team met and conducted a field review of the eight locations on October 26, 1983. The ID Team discussed the potential impacts of the drilling program to surface resources and roads of Federal land. The issues and concerns (i.e. effective reclamation of disturbed sites, and damages to existing roads) are the same as those identified for UP&L's 1983 drilling program and are adequately addressed in the EA written for that project (approved September 16, 1983). The ID Team also identified the opportunity to completely close the existing access road that goes near site EM-100.

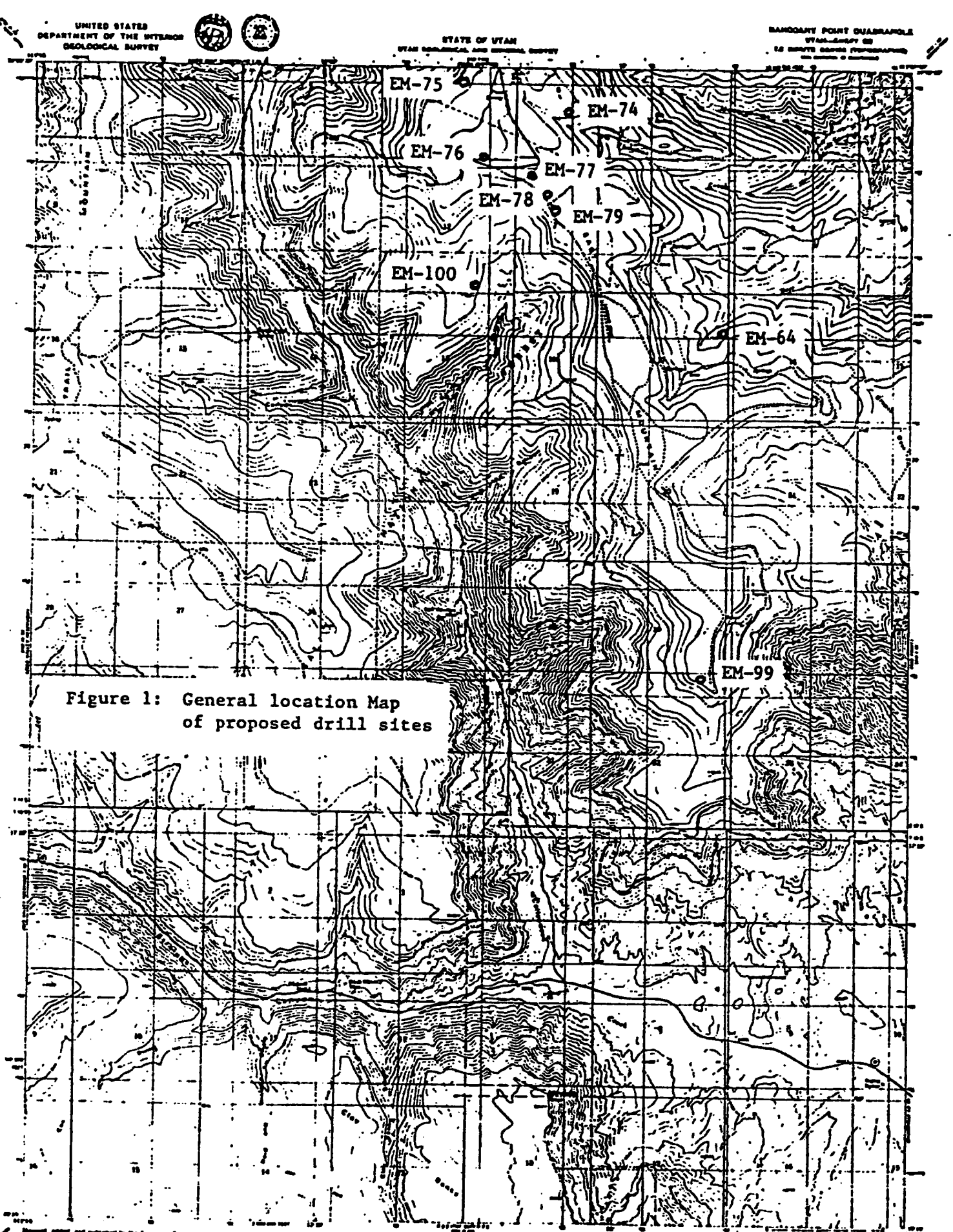


Figure 1: General location Map of proposed drill sites

ATTACHMENT 6 (cont)

AFFECTED ENVIRONMENT

UP&L, the U.S. Geological Survey, and others have conducted several coal exploration drilling projects on East Mountain in the past and have used all of the access roads to be used for this program for coal drilling activities (except the two new short access roads). The issues and concerns, environmental descriptions, affected environment, effects of implementation and management requirements associated with this project have been adequately discussed and described in the previous UP&L coal drilling EAs. (EA s approved on 9-16-83, 8-16-82, 10-15-81,9-9-81). Other EA's for coal drilling, coal leases and leases readjustments and EISs for the Uinta-Southwestern Utah Coal leasing (Round I and II) and the Ferron Price Land Management Plan also cover this same area, and can be tiered to.

EFFECTS OF IMPLEMENTATION

The effects of implementation have been adequately described in the previous EAs. However, if drilling permission is granted in the spring, then drilling and reclamation activities can be accomplished during the summer and early fall, thus eliminating the typical late drilling that often extends into the winter time, causing unnecessary road damage and often prohibiting reclamation until the following year.

MANAGMENT REQUIREMENTS

Management requirements to mitigate potential impacts are as follows:

Stipulations to be included in the Coal Drilling Permit

1. A Road-Use Permit must be obtained from the Forest Service before equipment is transported onto National Forest System lands.

2. A pre-work meeting, including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project location prior to commencement of operations. The following site-specific Forest Service requirements will be discussed at this time.

3. All surface disturbing activities including reclamation must be supervised by a responsible representative of the permittee who is aware of the terms and conditions of the project permits and licenses. A copy of the appropriate permits and licenses must be available for review at the project site.

4. The District Ranger or his representative must be notified 48 hours prior to the start of operations for this project and immediately upon its conclusion or upon sustained cessation of operations.

5. Establishment of campsites and staging areas on National Forest System lands in support of this project is subject to prior Forest Service approval.

6. The Forest Service must be notified of any proposed alterations to the plan of operations. Any changes to the existing plan are subject to Forest Service review and concurrence. Drill sites EM-102, EM-103, EM-104, EM-105, EM-106 and any other disturbances not specifically addressed in this EA will require later assessments.

7. Fire suppression equipment must be available to all personnel working at the project site. Equipment must include at least one hand tool per crew member consisting of shovels and pulaskis and one properly rated fire extinguisher per vehicle and/or internal combustion engine.

8. All equipment with internal combustion engines must be equipped with effective spark arresters and mufflers. Spark arresters must meet Forest Service specification discussed in the U.S.D.A. Forest Service Spark Arrester Guide, June 1981. In addition all electrical equipment must be properly insulated to prevent sparks.

9. The permittee will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.

10. The Forest Service reserves the right to suspend operations during periods of high fire potential.

11. Water needed in support of operations must be properly and legally obtained according to State Water Laws. The location of diversion, if on National Forest System lands, is subject to Forest Service review and approval.

12. Section corners or other survey markers, including claim corners, in the project area must be located and flagged for preservation prior to commencement of surface disturbing activities. The removal, displacement or disturbance of markers must be approved by the proper authority.

13. If cultural or paleontological resources are discovered during operations, all operations which may result in disturbance to the resource must cease and the Forest Service must be notified of the discovery.

14. Fence gates must be kept closed unless otherwise notified. It may be necessary for UP&L to install cattleguards if gates are frequently left open.

15. The permittee will be held responsible for all damages to fences, cattleguards, resource improvements, roads and other structures on National Forest System lands which result from operations. The Forest Service must be notified of damages as soon as possible.

16. All drilling fluids, muds and cuttings must be contained on the project site in mud pits or portable containers. The pits must not be used for disposal of garbage, trash or other refuse.

17. All trees must be cut, not pushed over, as the first step for new access and site construction. Timber must be bucked and transported to a point accessible to the public (along a road). Skidding of trees longer than 33 feet will not be permitted.

18. Topsoil must be stripped and stockpiled at all drill sites on the upslope or other protected location where loss and contamination is minimized.

19. Disturbed areas must be reclaimed by the end of the field season. Exceptions require Forest Service approval.

20. Mud pits must be dry prior to backfilling with excavation material. The pits must be enclosed by a 4-strand barbed wire fence while they are left to dry. Contaminated soils will be placed in the pits prior to backfilling and topsoil replacement.

21. Temporary roads and drill sites must be reclaimed by ripping the surface, reshaping the disturbed area to the approximate original contour, replacing stockpiled topsoil and seeding with the specified seed mix. Seeding must take place immediately after the seed bed has been prepared. Water diversion structures if needed must be constructed as specified by the Forest Service. The following mixture at 17 lbs. per acre will be used for seeding disturbed areas:

Intermediate wheatgrass	2 lbs./acre
Slender wheatgrass	3
Crested wheatgrass	2
Bluebunch wheatgrass	3
Smooth brome	2
Orchard grass	2
Meadow fox tail	2
Yellow sweet clover	1
Total	17 lbs./acre

Seed mix should be certified to have a minimum of 80% PLS and a maximum of 1% weeds (none noxious).

22. All significant water encountered during drilling must be reported to the Forest Service including the depth and formation at which it was encountered and an estimate of flow.

23. The operator must clean up and remove all drilling equipment, trash, garbage, flagging, vehicles and other such materials from National Forest System lands. All trash, garbage and other refuse must be properly contained on the project site prior to disposal.

24. Operations must be coordinated with grazing permittees to prevent conflicts.

25. Harrassment of wildlife and livestock is prohibited.

26. Drill sites and temporary access roads shall be constructed as clearly marked in the field and on flagline approved by the Forest Service.

27. Temporary access roads shall be cleared and/or constructed to a width not greater than necessary to serve traffic needs.

28. Outside berms will not be constructed on any roads.

29. No unauthorized off road vehicular activity is allowed.

30. The access roads to EM-100 and EM-64 will be closed and waterbarred after the drilling of these sites. The existing closure structures (tank traps) in the road to EM-100 will be rebuilt after drilling to a greater width than at present to prevent vehicles from driving around them.

31. All drill holes must be plugged in accordance with Federal and State regulations.

Stipulations to be Included in Road Use Permit

1. Roads must not be used under adverse road conditions when they are susceptible to damage.

2. The permittee is responsible for repair of damages to roads which are caused by his operations.

3. All traffic must maintain safe speeds commensurate with existing conditions.

4. Roads must be watered if dust becomes a problem or if excessive loss of road material occurs.

5. Vehicles large enough to block the road will not be permitted to use Forest Development Roads on holidays (July 4, July 24, and September 1-3) or openings of big game hunting seasons (September 29-October 7, and October 19-22).

6. The permittee must make arrangements for use of the privately-owned roads on East Mountain.

7. UP&L must participate with other commercial users in the maintenance of the Cottonwood Road (#50040) commensurate with their share of the use. The degree of participation will be determined at a later date.

Interdisciplinary Team

Members

Steven F. Robison	Team Leader
Alan J. Gallegos	Geologist, D-3
Brent Barney	Engineer, S.O.
John Healy	Range Conservationist, D-2
Jim Iaquinta	Soil Scientist, D-3
Carol Howe	Wildlife Biologist, D-3

Consultants

John Niebergall	District Ranger, Ferron
Ira W. Hatch	District Ranger, Price

COAL/TAR SAND EXPLORATION DRILLING STIPULATIONS

1. The BLM Area Manager shall be notified 48 hours prior to start and completion of the program.

2. The lessee/licensee is responsible to see that all personnel contracted or otherwise doing work on the exploration program are aware of these approval requirements and abide by all regulations and stipulations governing this program. Any changes to the approved exploration plan must receive approval from the Area Manager prior to implementation.

3. When artesian flows or water horizons with possible development potential are encountered, the BLM Area Manager shall be notified immediately so that a determination may be made concerning their development potential. When possible, water samples shall be collected by the operator for analysis by the BLM. A written report is required upon completion of exploration as noted by Stipulation 9 H.

4. Upon completion of down-hole procedures, all drill holes shall be properly sealed from the bottom to the collar. Any variance from the procedures itemized below must be approved by the Area Manager.

A. Drill holes in coal deposits amenable to underground mining must be cemented from the bottom of the hole to at least 50 feet above the highest minable coal bed (4 feet thick or more) or aquifer.

B. The remainder of the hole to within 5 feet of the surface may be filled with a gel rather than cement which meets or exceeds the following standards:

1) Ten-minute gel strength of 20 pounds/100 square feet.

2) Filtrate volume should measure 13.5 cc on an API standard filter test.

3) The marsh funnel viscosity should be a minimum of 50 seconds.

C. The 5-foot void at the surface will be plugged with cement except as required in stipulation #7.

5. Drill holes in tar sand deposits may be plugged with cement or plugging gels. Gels must meet the specifications identified in 4 B above. The 5-foot surface plug would still apply. Cementing aquifers would also be applicable as above.

6. If adverse downhole conditions prevent a completed drill hole from being properly plugged after attempting all standard industry plugging procedures, the Area Manager will be contacted immediately to make a determination as to a final plugging method.

7. The hole location is to be marked by placing an approved marker made of galvanized steel, brass, aluminum or similar non-corrossive metal in the concrete plug. Such markers are to show hole number, year drilled, lessee/licensee name, and as feasible, the section, township, and range in which the hole is located. Top of concrete plug, if located in cultivated field, must be set below normal plow depth (10 to 12 inches). In noncultivated areas, all marker caps should not protrude above the ground level.

8. The Area Manager shall be notified as to the time when the first hole is to be plugged so that a representative of the BLM may arrange to observe the plugging procedure. Subsequent observations of other holes being plugged will be arranged as appropriate.

9. Upon completion of exploration activities, a report as required by 43 CFR 3485.1 (formerly 30 CFR 211.62) shall be submitted to the Moab District Office. The report at a minimum must contain the following:

A. Location(s) and serial number(s) of lands under Federal lease or license on which exploration was conducted.

B. A description of the completed exploration operations that includes the number of holes drilled, total depth of each hole, and completion date of each hole.

C. A map showing the locations of all holes drilled, other excavations, and the coal or tar sand outcrop lines as appropriate. The scale of the map shall not be less than 1 inch equals 1 mile.

D. Analysis of coal or tar sand samples and other pertinent tests obtained from exploration operations.

E. Copies of all in-hole mechanical or geophysical stratigraphic surveys or logs, such as electric logs, gamma ray-neutron logs, sonic logs, or any other logs. The records shall include a lithologic log of all strata penetrated and conditions encountered such as water, gas or any unusual conditions.

F. Status of reclamation of the disturbed areas.

G. Any other information requested by the District Manager.

H. Hydrologic reports using the attached form.

10. An individual lease or license bond in an amount to be determined by the Area Manager shall have been filed with the proper office before commencement of exploration activities. The bond shall be used as required to cover costs incurred by the BLM to correct any violation of this program.

UTAH POWER & LIGHT COMPANY
1407 WEST NORTH TEMPLE STREET
P. O. BOX 899
SALT LAKE CITY, UTAH 84110

October 14, 1983

Bureau of Land Management
Utah State Office
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Gentlemen:

In accordance with federal regulations 30 CFR 740, attached is Utah Power & Light Company's 1984 Coal Exploration Plan for leased lands on East Mountain in Emery County, Utah.

Surfaces above coal mines of the Wasatch Plateau generally are open to exploration only a few months during the summer due to the high elevations. Even under ideal conditions drilling is difficult. It has been our sad experience that regardless of when the permit applications are filed, most of the summer is taken by the surface agencies' field reviews and environmental assessments. Issuance of permits in late September leaves few working days to complete necessary work before early winter storms. Therefore, we are submitting our 1984 exploration application now to insure a timely June 15, 1984 approval.

Should you require additional information please contact me at (801) 535-4225.

Yours truly,

C. E. Shingleton
Director of Permitting,
Compliance & Services
Mining and Exploration

CES:bb:4107
Enclosure

cc: Mr. Edwin Browning
Acting Director, Minerals, USFS
Division of Oil, Gas & Mining

ATTACHMENT 7

UTAH POWER & LIGHT COMPANY

1984 EAST MOUNTAIN EXPLORATION PLAN

It is planned to conduct a surface exploration program above the permitted area of the Deer Creek and Wilberg coal mines located near Huntington, Utah.

Proposed are twenty-five (25) exploration drill holes as shown on the enclosed surface ownership map.

In accordance with Federal Regulations 30 CFR 211 and the Utah Permanent Coal Mining Regulations, the following is submitted:

Name and address of responsible person:

Mr. Dee W. Jense
Manager, Mining and Exploration
Utah Power & Light Company
P. O. Box 899
Salt Lake City, Utah 84110
Telephone: 535-4234

Surface Ownership other than United States:

Betty Jane Poulsen & Guy Karl Seely, Trustees
Kent Barton
Utah Power & Light Company

Sub-surface Ownership other than United States:

Utah Power & Light Company

METHOD OF EXPLORATION

It is proposed to drill (25) drill holes with depths that vary from 190 to 2555 feet. Exploration will be accomplished by means of surface drilling utilizing a rotary drill rig.

Exploration Equipment:

Drill Rig:

1 - 2000 rotary drill rig

The drilling rig will require supporting vehicles as follows:

1 - Water truck, 80 to 100 barrel capacity
1 - Flat-bed truck for carrying drill pipe and casing
1 - D8H Crawler Tractor
1 - Landscape Tractor/Trailer
1 - Semi-Truck/Flat Bed Trailer
1 - Logging Truck (Geophysical Probe Truck)
Pickup Trucks (Crew Transportation)
1 - 700 CFM Compressor and Booster

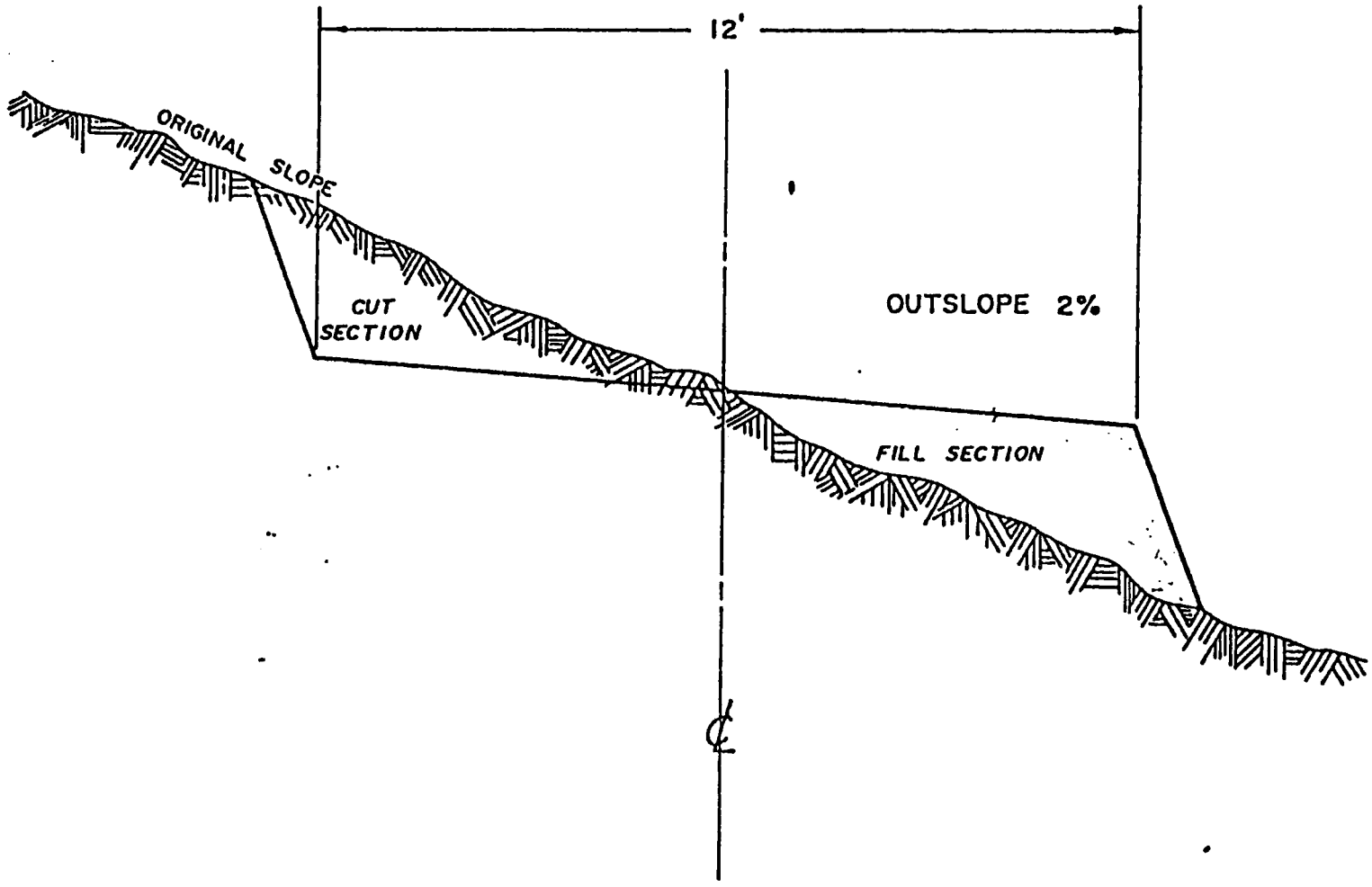
Access roads, pads and mud pits are constructed using a crawler tractor and backhoe. On near flat areas blade work will be minimal, only the low growing brush will be removed by back-blading the surface.

Preservation of topsoil is managed by stripping the drill pads and stockpiling the topsoil adjacent to the drilling site.

Drilling sequence is as follows:

Once the drilling site and access road have been approved, a crawler tractor constructs a minimum width road from the existing road system to the proposed site. This rough construction road is built balancing the cuts and fills as shown on the attached drawing. The drill pad, usually 50 x 75 feet is laid out to fit the slope of ground allowing for the least amount of cut.

If the drill site is level the area is back-bladed to remove the vegetation leaving the topsoil in place, otherwise, the site is cleared of brush and the topsoil stripped and stockpiled awaiting reclamation work. Mud pits are then excavated. Upon completion of site preparation



TYPICAL ROAD CROSS-SECTION

UTAH POWER & LIGHT COMPANY
DEPARTMENT OF MINING & EXPLORATION

NO SCALE APRIL 25,1979

ATTACHMENT 7 (cont)

the drill rig is driven to the site and set up to begin drilling. Ancillary equipment such as compressors, booster, water truck and flat-bed (drill pipe) trucks are positioned on the pad.

Once drilling has begun it continues until the exploration hole is completed or in the case of a planned core hole, casing is set at the prescribed depth. During the drilling period, drilling materials and cement are delivered to the site awaiting plugging of the hole.

After reaching the planned depth the drill string is removed from the hole and the geophysical logging truck is positioned to probe the hole. Upon recording the necessary data (geophysical logs) the hole is plugged using a two to one cement/water slurry plugging the entire length of the hole drilled. The drilling rig and support equipment are then moved to the next prepared site. The drilling site is cleaned of waste and trash and reclamation of the site will begin as soon as the mud pits have lost their fluids.

POLLUTION CONTROL MEASURES

Fire Prevention:

In the past fire hazard has not been a major problem. The clearing of drill sites reduces the chance of machine related ignitions and the storing of combustible fuels in a safe area further lessens any fire hazards associated to drilling. Each drilling rig is attended both day and night and if needed, a 3,000 gallon water truck is available for fire suppression.

Soil Erosion:

Short-term soil erosion protection is accomplished by road design, that is, during road construction the roads are designed to the

minimum grade possible and out-sloped for drainage (see road cross-section sketch). Reclamation work requires all roads not obliterated to have water bars installed and all disturbed areas will be seeded.

Water Pollution Control Measures:

What little surface water exists on East Mountain is found in the form of springs, seeps and small ponds. These waters are used primarily for stock and wildlife and some are developed with tanks and troughs. All access roads and pads located across or adjacent to live or intermittent streams will require culverts or other protective measures to safeguard water quality. Ground water encountered during drilling will be evaluated for monitoring purposes.

Preser- O.S.M. regulations are specific in monitoring ground water (hydrologic balance) for determining future impacts associated with mining. Measures to protect the migration of ground water will be to cement the hole completely.

Air Pollution:

We anticipate no significant impact to the air quality due to the drilling and other than watering roads for dust suppression no specific measures are planned.

Damage to Fish and Wildlife:

The area of drilling is abundant with wildlife and is known primarily for its deer and elk harvest each Fall. Past experience has proven that wildlife disturbance is minimal. The drilling period occurs after the calving season and the area of drilling activities is small and isolated.

Fisheries:

There are no major fisheries within the drilling influence zone.

OTHER NATURAL RESOURCES

Of the planned (25) drill pads and associated access roads, it is estimated that approximately (10) acres will be disturbed. For the most part, this disturbance will occur on open grass-covered range land. Some aspen and small conifer trees may be removed to provide access but, no merchantable timber will be affected. Specific action to reduce this impact will be revegetive seeding and selective routing of the access roads and drill pads.

PUBLIC HEALTH AND SAFETY

Due to the remoteness of the drilling area, public safety involvement is small.

As an operator, Utah Power & Light Company requires by contract that the drilling contractor is knowledgeable and complies with all state and local laws related to his drilling operations and that all equipment used in conjunction with this project meet the safety standards of the federal, state, and local governing agencies.

Method of Plugging Drill Holes:

Again, upon completion of the drill hole, a proper cement slurry shall be placed in the hole through the open-ended drill pipe using 200 foot segmented lifts for inducing a pressure grout for plugging the drill hole. A hole location marker shall be placed on the surface of the hole to witness its location. This hole plugging procedure is a stipulation by the Minerals Management Service prior to approval of coal exploration drilling plans.

SURFACE RECLAMATION

Reclamation Schedule:

It is planned to reclamate each site as soon after completion as possible. We have found from prior drilling in this area that the mud pits require at least two weeks or more to dissipate their fluids. After the reclamation sequence has started it will continue until complete.

The average time to drill a 2,000 foot hole in this area is about four days, reclamation work per site will average two days. We are planning to complete the reclamation work this year.

Grading and Backfilling:

Using a crawler tractor, mud pits will be filled in, the drill pad bladed, contoured to its original shape and the previously stockpiled topsoil spread evenly over the disturbed area.

Access roads having gentle grades will have culverts removed, berms pulled in and road graded to remove ruts. Roads with grades in excess of 12% or side slopes too steep to safely work a crawler tractor will require a backhoe to pull back the fill areas. Otherwise, steep roads will be smoothed, outsloped for drainage and waterbarred to U. S. Forest Service specifications.

Method of Soil Preparation and Fertilizer Application:

There is no special soil preparation planned excepting harrowing the disturbed areas after seeding. No fertilizer is planned unless stipulated by the surface owner.

Type and Mixture of Grass Seed:

Intermediate Wheat	16 lbs.
Smooth Broome	7 lbs.
Yellow Sweet Clover or Rambler Alfalfa -	2 lbs.

Method of Planting and Quantity:

All grass seeds are broadcast by a hand-held rotary broadcaster. Areas seeded are cultivated and raked with a tractor-drawn tooth harrow. The rate of application is approximately 25 pounds per acre.

Estimated Timetable and Completion Date for Reclamation Work:

Again, once reclamation of a drill site begins all phases are continuous, that is, cat work, spreading topsoil, ditching, seeding, and harrowing. All drill sites and access roads will be reclamated as soon after the hole has been completed as possible.

Completion is scheduled by November 15, 1984, contingent on drilling success and the starting date. It is anticipated to utilize the entire summer months for drilling.

Included in this submittal are topographical and land status maps showing existing roads, major drainages, cultural features and the proposed drilling sites with proposed access roads.

1984 PROPOSED DRILLING

EAST MOUNTAIN

Hole #	Location	S	T S	R E	T.D.	Federal Lease Numbers
EM-64	SE¼NE¼	17	17	7	1815	SL-070645 U-02292
EM-65	SE¼SE¼	17	17	7	2250	U-040151
EM-66	NE¼NE¼	19	17	7	1955	U-083066
EM-67	SE¼NE¼	18	17	7	2365	U-084923
EM-68	S½SE¼	8	17	7	1935	SL-070645 U-02292
EM-69	SW¼NE¼	8	17	7	2055	SL-070645 U-02292
EM-70	SW¼SE¼	5	17	7	2040	SL-070645 U-02292
EM-71	NE¼SE¼	5	17	7	1535	U-084923
EM-72	NE¼NW¼	5	17	7	2175	U-084923
EM-73	SW¼NW¼	5	17	7	2040	U-048923
EM-74	NW¼SE¼	6	17	7	2475	U-084923
EM-75	SW¼NE¼	1	17	6	2555	U-084924
EM-76	SW¼SE¼	1	17	6	2475	U-084924
EM-77	Lot 1	7	17	7	2460	U-084923
EM-78	SW¼NE¼	7	17	7	2500	U-084923

Hole #	Location	S	T S	R E	T.D.	Federal Lease Number
EM-79	SW¼NE¼	7	17	7	2475	U-084923
EM-99	SE¼SE¼	29	17	7	2195	U-47978
EM-100	SW¼SE¼	12	17	6	2145	U-084924
EM-101	NW¼NW¼	4	17	7	2060	U-084923
EM-102	NE¼SW¼	33	16	7	1700	U-024319
EM-103	SE¼NE¼	30	16	7	1340	U-06039
EM-104	NE¼NW¼	29	16	7	190	U-06039
EM-105	SE¼SW¼	20	16	7	1715	U-06039
EM-106	NE¼SE¼	20	16	7	1330	U-06039
EM-107	SE¼SE¼	21	16	7	800	UP&L Fee

ENVIRONMENT

The area of exploration is located on East Mountain in the high plateau and canyonland area of eastern Utah near Huntington.

Soils

In the general vicinity of Huntington, soils range from deep, alkaline types in the valleys to very shallow soils and bare rock on the steep slopes of East Mountain (Wilson, et al 1975). The dry, desert soils of the valley east and south of the mines are used mainly for range and pasture. Irrigated cropland occurs in small areas where water is available. These valley soils receive 8 to 14 inches of precipitation annually and have a low to moderate erosion potential (Wilson, et al, 1975).

The soil types of the mountainous areas surrounding the exploration area are characteristic of canyon slopes, geologic folds and faults. Bare rock and shallow soils over sandstone bedrock occur over most of the area. These soils support valuable watersheds, recreational areas and wildlife habitat. Runoff in these areas is high and contributes to heavy sedimentation and erosion problems. These erosion characteristics indicate that the revegetation potential is poor (Wilson, et al, 1975).

Vegetation

The dominant vegetation types are characteristic of central Utah (Foster, 1968). Pinion-juniper woodland is on the dry, south slopes and intergrades with sagebrush and grassland types at higher elevations on East Mountain. Spruce-fir-Douglas fir forest occupies the ravines,

ridge top, and the more mesic north slopes at elevations above 8,000 feet (Holmgren, 1972). Riparian woodland occurs along Deer Creek in the northern portion and trees are scattered along Grimes Wash. In mesic areas surrounding springs and seeps on the mountain tops, small meadows are present.

Pinion pine (Pinus edulis), juniper (Juniperus osteosperma), mountain mahogany (Cercocarpus spp.), and serviceberry (Amelanchier utahensis) are the common woody plant species. These forms provide an open canopy. Pinion pine and juniper density in the vicinity of the mine ranges from 240 to 420 trees/acre (University of Utah Research Institute, 1975b). The understory of pinion-juniper habitat is sparse and consists of scattered clumps of Indian ricegrass (Oryzoposis hymenoides) and forbs. Total vegetative cover in this area is generally less than 10 percent (University of Utah Research Institute, 1975b) because of steep slopes and southern exposure. Much of the remaining surface is bare rock. Plant species characteristic of pinion-juniper are listed in Appendix 1.

White fir (Abies concolor), Douglas fir (Pseudotguga menziesii), and Engelmann spruce (Picea Engelmanii), are the characteristic overstory species in the spruce-fir Douglas fir vegetation type. Stands of aspen (Populus tremuloides) are scattered throughout the conifer vegetation. The understory associated with the conifers includes snowberry (Symphoricarpos oreophilus), buffaloberry (Shepherdia canadensis), twinflower (Linnaea borealis), blueberry (Vaccinium caespitosum), and miterwort (Mitella stenopetala). Annuals make up a very minor part of the cover. Conifer density on Horn Mountain,

southeast of the mine property, ranged from 150 to 230 trees/acre (University of Utah Research Institute 1975b). Vegetative cover in this area is approximate 25% (University of Utah Research Institute 1975b). Plant species characteristic of the spruce-fir Douglas fir type as listed in Appendix 2.

The riparian woodland is limited to Deer Creek and scattered trees along Grimes Wash. Cottonwood (Populus angustifolia) and willows (Salix supp.) dominate the streamsides. A frequent shrub is narrowleaf rabbitbrush (Chrysothamnus linifolius) and grasses occur in abundance.

Seven plants on the proposed federal list of endangered species (USDI, 1976) occur in Emery County (Table 1), but no rare or endangered species are known from the immediate area (Welsh, et al, 1975). Most of the endangered plant species in Emery County occur in the San Rafael Swell (Welsh, et al, 1975) in the eastern part of the country.

Fish and Wildlife

The southern area is in pinion-juniper habitat. A number of important vertebrate species are typical of this habitat within the region. The sparse vegetation and steep, dry conditions present at the Wilberg portal are less suitable for wildlife than are densely vegetated portions of pinion-juniper habitat on gently sloping terrain south and east of the mine property.

The mule deer is the most conspicuous large mammal in pinion-juniper habitat in the mine vicinity. Other mammal species found in this habitat include black-tailed jackrabbit, mountain cottontail, coyote, badger, striped skunk, deer mouse, pinion mouse, least chipmunk, hoary bat, and western big-eared bat (Brown, et al, 1958).

TABLE 1

PROPOSED ENDANGERED PLANT SPECIES OCCURRING IN EMERY COUNTY *, **

Plant Species	Distribution
Cycladenia jonesii	San Rafael Swell, Emery County; Castle Valley, Grand County
Eriqeron maguieri	Calif Spring Wash on San Rafael Swell, Emery County
Eriogonum Smithii	San Rafael Desert, Emery County
Festuca dasyclada	Joes Valley, Emery County; Sanpete County, Colorado
Gaillardia flava	Price River, Emery County
Parthenium ligulatum	Duchesne County; Emery County
Sclerocactus wrightiae	San Rafael Ridge, Emery County; Wayne County

* USDI, 1976
** Welsh, et al, 1975

Typical birds in pinion-juniper habitat include the mourning dove, pinion jay, western bluebird, western kingbird, American kestrel, and chipping sparrow (Brown, et al, 1958). Chukar partridge inhabit the rock escarpment areas near the Wilberg portal.

Dry surface conditions and the absence of standing water virtually preclude the presence of amphibians from pinion-juniper habitat in the immediate vicinity, but several reptile species are common. The side-blotched lizard, eastern fence lizard, sagebrush lizard, racer, gopher snake, and western rattlesnake are representative species in this habitat type through the region (Stebbins, 1966).

Open stands of spruce-fir Douglas fir forest with Douglas fir as a dominant species occur on sheltered north-facing slopes at higher elevations within the exploration area. Spruce-fir Douglas fir and pinion-juniper habitats intermingle in canyon bottoms and at intermediate elevations to form a transition zone between the two vegetation types. Aspen groves in the spruce-fir Douglas fir communities offer excellent calving areas for elk (U. S. Forest Service, 1976). Mule deer, snowshoe hare, and blue grouse are important game species in forested areas. Non-game mammals which inhabit forest areas include bobcat, beaver, porcupine, red fox, coyote, mountain vole, deer mouse, hoary bat, and silver-haired bat.

Many bird species frequent the forested portions of East Mountain. Conspicuous breeding birds include band-tailed pigeon, plain titmouse, Clark's nutcracker, raven, turkey vulture, great horned owl, red-tailed hawk, and golden eagle.

Amphibian species such as the chorus frog and western toad inhabit mesic areas of the site. Reptiles are probably not abundant, but the short-horned lizard, sagebrush lizard, gopher snake, and western terrestrial garter snake inhabit sagebrush and forest-sagebrush ecotones in the site region.

Sagebrush and grassland habitat, and some mesic vegetation types occur on the relatively flat upper benches of East Mountain. Meadow habitat is limited to small drainage areas and a few springs. These habitats, combined with the forest edge ecotonal areas, are suitable for elk, mule deer, sage grouse, ruffed grouse, blue grouse, and snowshoe hare.

The additional moisture, increased vegetation, and structural diversity of the vegetation in the forest-sagebrush and forest-grassland ecotones provide habitat for more vertebrate species than is provided by pinion-juniper woodland.

Although there are no fisheries in the immediate vicinity, the tributaries which drain the area flow into Huntington Creek which does support a fishery (U. S. Forest Service, 1976). According to the U. S. Forest Service (1976) the upper portions (32 miles) of Huntington Creek are rated as Class III (of significant importance to the State fishery program) whereas the lower 24 miles are rated Classes V and VI (of little or no value to the State fishery program). The tributaries (Deer Creek and Meetinghouse Creek) enter Huntington Creek in the lowest reaches of the Class III segment. Fish species which may be found in the Class reaches of Huntington Creek include brown trout, cutthroat

trout, rainbow trout, brook trout, speckled dace, mountain sucker, and mottled sculpino.

Important Species

Important wildlife species are defined as those which are of recreational or economic value, are essential to the structure and function of the ecosystems in which they occur, or which have special status (e.g. endangered, declining, protected, etc.) within the region.

Several important species occur on and near East Mountain. The status, known distribution in the region and general habitat preference of each are discussed below.

o Mule Deer (Odocileus hemionus) - Mule deer range throughout all habitats on East Mountain. Pinion-juniper on the lower slopes of East Mountain are used as winter range. During other seasons deer concentrations are greater at high elevations. Although deer populations have declined over the past several years, the deer herd and habitat in the mine vicinity are in good condition (Dolton, 1977).

o Elk (Cervus canadensis) - Elk inhabit the sagebrush, and forest areas at the upper elevations on East Mountain, but do not ordinarily range into pinion-juniper habitat. The seven year average of elk censused on East Mountain (1970-1976) was 76 antlerless and two antlered individuals seen per year (Dolton, 1977). This census included larger groups only and does not reflect a total population estimate (Dolton, 1977).

o Mountain Lion (Felis concolor) - This species inhabits rugged mountains and forest areas in the region and may occasionally occur on East Mountain (Dolton, 1977).

o Snowshoe Hare (Lepus americanus) - This species occurs in forested portions of mountainous areas in the region. It inhabits higher elevations on East Mountain (Dolton, 1977).

o Mountain Cottontail (Sylvilagus nuttalli) - Mountain cottontails inhabit brushy areas and forests, particularly on rocky slopes throughout the region (USDI Bureau of Land Management, 1976).

o Blue Grouse (Dendragapus obscurus) - Open conifer stands with brushy understory at higher elevations provide suitable habitat for this species. Blue grouse occur on East Mountain. The greatest density of the species in Utah is in the northern Wasatch Range (Rawley and Bailey, 1972).

o Ruffed Grouse (Bonasa umbellus) - Brushy woodlands (aspens, willows, and conifers) near streams and springs are suitable habitat. This species occurs at higher elevations on East Mountain.

o Chukar Partridge (Alectoris graeca) - This species prefers steep, rock semiarid slopes with low shrubs and rock outcrops. This species was introduced in Utah from 1951 to 1968. During this period 185,911 individuals were released at 191 different locations (Rawley and Bailey, 1972). The species is now widely distributed throughout Utah and other western states.

o Mourning Dove (Zenaidura macroura) - This is an important game bird in many parts of North America. Mourning doves prefer open field and forest edge habitat, but occur over a broad range of vegetation types throughout the 48 conterminous United States. The species occurs in pinion-juniper and forest edge habitat on East Mountain.

b. Special Status Species:

No federally listed endangered or threatened species are known to occur on the site property (USDI, Fish and Wildlife Service, 1976). The black-footed ferret (Mustela nigripes), a federally endangered species, has recently been reported near Ferron, several miles south of the site (Dolton, 1977). This species is not likely to occur on site because preferred habitat (a prairie dog town) (USDI Bureau of Land Management, 1972a) is not present. American peregrine falcon (Falco peregrinus anatum) has been observed within 25 miles of the site in the winter of each of the past three years (Dolton, 1977). It is probably a winter visitor in the area (USDI Bureau of Land Management, 1972b), although, historically peregrine falcon aeries existed in the San Rafael swell area 30 miles southeast of the site.

Land Use:

Land in the exploration area of East Mountain is used for range forage, wildlife habitat, timber, recreation, and mineral extraction. The timber value of spruce and fir in the area is minimal. Most of the timber is classified as non-commercial (USDI Forest Service and BLM, 1976) since inaccessibility, size class distribution and market conditions limit the economic feasibility of commercial operations.

This area includes range allotments, the Gentry Mountain Cattle and Horses Allotment and the East Mountain Cattle and Horses Allotment on the Ferron Ranger District. Areas occurring in the Gentry Mountain Cattle and Horses Allotment are classified as non-range because of the steep terrain, inaccessibility, and scarcity of vegetation. A portion

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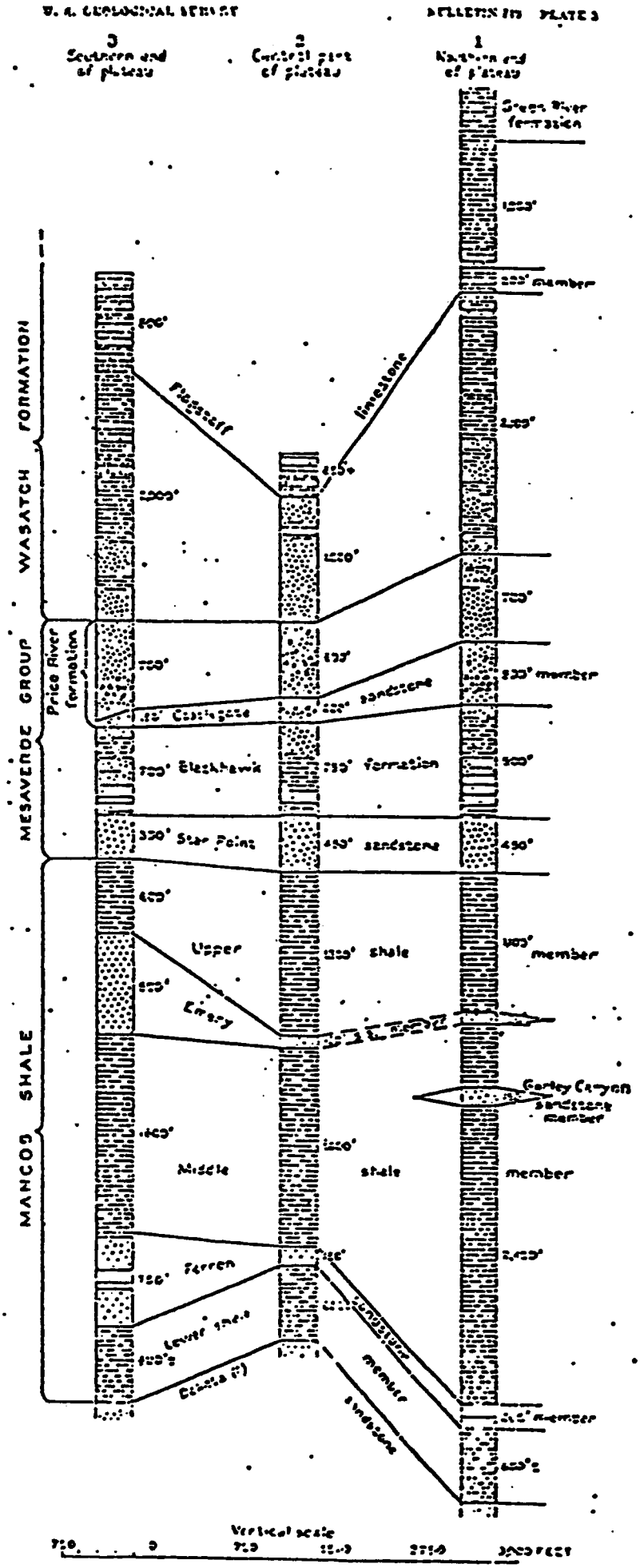
of the East Mountain Cattle and Horses Allotment is primary range (includes preferred forage-producing areas that are accessible and have available water). The range condition in this unit is fair and improving (USDI Forest Service and BLM, 1976). Some of the principal species are western yarrow, orange sneezeweed, Kentucky bluegrass, crested wheatgrass, big sagebrush, and twistleaf rabbit brush. The range allotments are managed on a rest-rotation grazing cycle (USDI Forest Service and BLM, 1976).

GEOLOGY

The area of interest for exploration is centered on East Mountain, a part of the Wasatch Plateau located near Huntington in Emery County.

East Mountain is a prominent topographical mesa rising over 5,000 feet from the flatlands of Castle Valley. The eastern limits are marked by precipice sandstone cliffs intersected by narrow and steep drainages. Particularly the exploration area lies within the drainages of Straight Canyon and Cottonwood Canyon on the south and west respectively, and Huntington Canyon on the north.

Significant geologic conditions in the project area pertain to the stratigraphy and structure of the area. The sedimentary strata in which the coal seams are enclosed generally consist of massive and bedded sandstones which are interbedded with siltstones and mudstones. The detailed interrelations of these various lithologies have been graphically illustrated in the stratigraphic section on the following page (Figure 3).



COLUMNAR SECTIONS OF ROCKS IN THE WASATCH PLATEAU COAL FIELD

ATTACHMENT 7 (cont)

FIGURE NO. 3

The lithologic logs of surface drill holes from locations drilled on the property also show the stratigraphic formations of the area. These logs indicate the two coal seams are of minable thickness in the area. The upper, or Blind Canyon Seam, and the lower, or Hiawatha Seam, are both interstratified with the lenticular sandstones, siltstones, and mudstones of the lower portion of the Blackhawk Formation. The Hiawatha Seam forms the basal unit of the Blackhawk Formation and is underlain by the massive Starpoint Sandstone.

The Blackhawk Formation which ranges from 700 feet to 800 feet thick in the area, consists of ever-increasing amounts of sandstone in its upper portions, and is conformably overlain by the Castlegate Sandstone. The Castlegate averages about 200 feet thick in the area and consists nearly entirely of massive, medium to coarse-grained sandstone. The Castlegate forms a massive cliff and is conformably overlain by the lenticular sandstones of the Price River Formation. The Price River is about 600 feet thick and grades upward from predominantly sandy beds to interbedded sandstone, siltstone, and mudstone. The formation is overlain conformably by the slope-forming mudstones, siltstones, sandstones, and occasional limestone lenses of the North Horn Formation. The North Horn Formation ranges from 900 feet to 1100 feet thick in the area and is unconformably overlain by the lowermost remnants of the Flagstaff Limestone.

The weathering of strata in the area has resulted in the exposure of the coal seams along lower canyon walls and mesa cliffs. The sediments which enclose the coal seams form steep slopes which are

capped by the cliff-forming Castlegate Sandstone. The earth materials just above the Castlegate form steep slopes that gradually lessen in intensity higher in the stratigraphic section, particularly in the North Horn Formation. The Flagstaff Formation caps the highest points of the East Mountain Mesa.

Structurally, the area is fairly simple. The gentle down-folded strata crossing the area from southwest to northeast form the Straight Canyon Syncline. Dips into the syncline range from 2° to 4°. The Flat Canyon Anticline is located just to the north of the subject area.

The coal-bearing strata is locally offset and displaced as much as 150 feet by a series of north-south trending normal faults near the escarpments that face Castle Valley. These faults are usually "clean" and do not have significant amounts of fault gouge or other fractures associated with them.

Only a few widely spaced drill holes have been completed in the northern portion of the property, the reliability of interpretations concerning coal seam distributions and thicknesses is lower than that for the mine areas that have been intensely drilled and mapped.

The drilling and geologic mapping program that is proposed should add considerably to our knowledge of the thickness variations and distribution of the Blind Canyon and Hiawatha coal seams.

WATER

Surface waters within the exploration area are mostly mountain springs and seeps which have improvements of small ponds and troughs for stock watering.

A large portion of East Mountain is relatively flat, intersected by numerous steep canyons that contain intermittent streams that feed two major drainages.

The higher and steeper northern section of East Mountain is drained by Huntington Creek whereas the lower southern portion flows into Cottonwood Creek. Access across these drainages is provided by existing culverts excepting the mouth of Rilda Canyon where a fording is used to cross Huntington Creek with heavy equipment.

ARCHEOLOGY

East Mountain is a narrow plateau with steep slopes and extends for about twelve miles in a northwest to southeasterly direction. The northern and eastern slopes drain into Huntington Creek while the western and southern slopes drain into Spoon Creek in Upper Joes Valley and into Cottonwood Creek. Both Huntington Creek and Cottonwood Creek drain to the southeast into the Castle Valley system.

The peaks on East Mountain range in elevation between 10,706 feet in the northwest to 9,600 feet in the southeast. The plateau varies in topography from flat to steeply sloping, and ranges from a quarter of a mile to a mile in width. The southwestern slope of the mountain drops 2,750 feet in 1.5 miles while the northeastern slopes are more gentle and decrease from the 10,200 foot to the 7,000 foot elevations in a horizontal distance of about 3.5 miles.

The primary year-round water resources on the mountain result from scattered seeps along the upper slopes draining the mountain's sandstone acquifers which are supplied by seasonal patterns of precipitation.

Because of the mountain's steep slopes, access to its upper meadows and terraces is most easily accomplished on foot by climbing its long, narrow eastern ridges above Huntington Creek, or by climbing the western slopes in the vicinity of Upper Joes Valley and Flat Canyon. Prehistoric access to the plateau was probably predominantly accomplished on those slopes since the steepness and the frequent sandstone cliffs along the southwestern, southern, and southeastern slopes probably discouraged easy movement between the higher meadows and Castle Valley.

As an aid to determining the extent and location of presently known prehistoric sites distributed in the area, a records search was carried out involving files of the Antiquities Section of the Division of State Hist[illegible] and files of the Environmental Research Section of the Utah Power & Light Company. As a result of these file checks, known prehistoric sites within the East Mountain area can be categorized into three sets, i.e., lower elevation sites located between 5,800 and 7,200 feet, middle elevation sites located between 7,200 and 9,000 feet, and higher elevation sites located above 9,000 feet.

Existing records and current research have demonstrated that prehistoric human activity in the area has diminished as elevation is increased. Newly discovered sites along Grimes Creek, the sites found adjacent to the new Huntington Power Plant and site 42Em176 near the mouth of Huntington Canyon can all be considered as falling in the lower elevation category and are predominantly within the pinion-juniper ecosystem. In 1971, Raymond Matheny's field crews identified a number

of archeological sites in Huntington Canyon which have since been covered by the Huntington Reservoir. Those sites and site 42Em722 in Crandall Canyon can all qualify as falling within the second and middle elevation category which consists primarily of the montane ecosystem.

The higher elevation category which involves the upper montane and sub-alpine ecosystems includes only one known site, 42Em721, which is located on Trail Mountain to the west of East Mountain. This site and the majority of sites situated in the middle elevations consist of lithic fragment scatters having low to marginal significance in National Register terms. In contrast, the sites found in the lower elevation zone are not only more abundant, but often are of greater significance, having been the foci of year-round habitation related activities.

During the past six years archeological sweeps (surveys) were limited to planned exploration disturbances.

In 1977, public law 95-87 was enacted. Regulations promulgated under this act expanded environmental requirements for permitting coal mines.

One such requirement was to broaden cultural resource information above underground mining activities.

A 15% random survey was conducted during the summer of 1980 and the report of the survey is included in the Mining and Reclamation Applications now pending with the State of Utah.

Prior to exploration work, an archeological survey will be conducted, covering all proposed new roads and drill sites. Results of these archeological surveys will be forwarded to you.

1991 EAST MOUNTAIN DRILLING

DRILL HOLE EM-66

RECLAMATION COSTS

EQUIPMENT	HOURLY RATE
Backhoe	$22.30
D8 Dozer	63.00

MANPOWER	
Supervisor	$36.70
Operator	34.20

COST SUMMARY

AREA	HRS	EQUIPMENT	LABOR	MATERIALS	COSTS	DAYS
Drill Pad	24	Dozer $1500 Backhoe 535	1 Supervisor $880 1 Operator 820	$35 —	———	3 —
TOTAL		$2035	$1700	$35	$3770	3

ATTACHMENT 8