

October 6, 2016

Mr. Daron R. Haddock
Division of Oil, Gas, and Mining
1594 West North Temple
Salt Lake City, Utah 84114-5801

Re: Intent to Conduct Minor Coal Exploration, Canyon Fuel Fee Coal Lease Andrew Dairy Canyon, C/005/0007

Dear Daron:

Attached is information submitted to Conduct Minor Coal Exploration for one exploration borehole (designated 16-24-1) located in Andrew Dairy Canyon, a tributary to Fish Creek west of Scofield Reservoir. Also included are the DOGM application forms C-1 and C-2. The type of exploration proposed is heli-portable wireline core drilling which results in very minor surface disturbance with no need for drill site or access road construction.

If possible we would like to initiate drilling as early as October 15, 2016. Sections of the application dealing with wildlife, raptors and cultural history sites are enclosed in separate folders for inclusion in Skyline's confidential files as needed. Also included in the document is the Temporary Water Change approval for use of Skyline Mine water for drilling, the surface landowner agreement, and the fee coal lease documents. I appreciate your consideration of this application.

Attached to this cover letter are completed C1 and C2 forms, Notice of Intent, and relevant studies. Two (2) hard copies of the information will be submitted at final approval.

If you have any questions regarding this information, please give me a call at (435) 448 – 2645.

Sincerely,



Jeremiah Armstrong
Canyon Fuel Company, LLC.
Environmental Engineer – Skyline Mines

Enclosure

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: Canyon Fuel Company, LLC

Mine: Skyline

Permit Number: C/007/005

Title: Notice of Intent to Conduct Minor Coal Exploration -- Andrew Dairy Canyon, 2016

Description, Include reason for application and timing required to implement:

One (1) Helicopter-supported Coal Exploration Bore hole, drilled in late fall 2016

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

- Yes No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ increase decrease.
- Yes No 2. Is the application submitted as a result of a Division Order? DO# _____
- Yes No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- Yes No 4. Does the application include operations in hydrologic basins other than as currently approved?
- Yes No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- Yes No 6. Does the application require or include public notice publication?
- Yes No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
- Yes No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- Yes No 9. Is the application submitted as a result of a Violation? NOV # _____
- Yes No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
- Yes No 11. Does the application affect the surface landowner or change the post mining land use?
- Yes No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- Yes No 13. Does the application require or include collection and reporting of any baseline information?
- Yes No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- Yes No 15. Does the application require or include soil removal, storage or placement?
- Yes No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- Yes No 17. Does the application require or include construction, modification, or removal of surface facilities?
- Yes No 18. Does the application require or include water monitoring, sediment or drainage control measures?
- Yes No 19. Does the application require or include certified designs, maps or calculation?
- Yes No 20. Does the application require or include subsidence control or monitoring?
- Yes No 21. Have reclamation costs for bonding been provided?
- Yes No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- Yes No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Corey Heaps
Print Name

Corey Heaps, GM, 10/6/16
Sign Name, Position, Date

Subscribed and sworn to before me this 6th day of Oct, 2016

Kathleen Atwood
Notary Public

My commission Expires: 12-02, 2019
Attest: State of Utah } ss:
County of CARBON



For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining

**NOTICE OF INTENT TO CONDUCT
MINOR COAL EXPLORATION**

**CANYON FUEL FEE COAL LEASE
ANDREW DAIRY CANYON
2016**

Canyon Fuel Company, LLC
A Subsidiary of Bowie Resource Partners, LLC.

October 2016

INTRODUCTION

Skyline Mine, Canyon Fuel Company, LLC is submitting this Notice of Intent to Conduct Minor Coal Exploration to the Utah Division of Oil, Gas, and Mining (UDOGM) in order to obtain approval to 'gather environmental data' using minor coal exploration and reclamation activities in the late Fall of 2016. The type of exploration proposed is a mud circulation drilling. One hole will be drilled on fee land belonging to the Allred Family Trust. The hole is located within a county fee coal lease belonging to Carbon County, Utah. This application is formatted to address the specific requirements of R645-201-200. Other related information is given in Appendix A through I. Two (2) copies of this notice are submitted electronically.

R645-201 Coal Exploration: Requirements for Exploration Approval

The proposed exploration plan qualifies as minor exploration as described in the State of Utah Coal Mining Rules R645 sections R645-100, -200, and R645-201-200.

R645-100-200. Definitions

"Coal Exploration"..."(b) the gathering of environmental data to establish conditions of an area.."

R645-201-221

The name, address and telephone number of the applicant are:

Canyon Fuel Company, LLC
C/o Skyline Mine
HC 35 Box 380
Helper, Utah 84526 435-448-2645

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

Jeremiah Armstrong
Canyon Fuel Company, LLC
C/o Skyline Mine
HC 35 Box 380
Helper, Utah 84526 435-448-2645

R645-201-222

The name, address and telephone number of the representative of the applicant who will be present during and be responsible for conducting the exploration is:

Paul Jensen
Canyon Fuel Company, LLC
C/o Skyline Mine
HC 35 Box 380
Helper, Utah 84526 435-448-2693

At times a consulting geologist may act as representative of the applicant. The UDOGM and USFS will be notified of the consulting geologist's name and address if one is used.

R645-201-223

The exploration area is generally located in central Utah 1.5 miles west of Scofield Reservoir (Map 1). The legal descriptions of the Canyon Fuel Company fee coal lease and land ownership are as follows:

Carbon County Fee

T. 12 S., R 6 E., Salt Lake Base and Meridian
Sec. 24, E1/2, SE1/4
Sec. 25, E1/2, E1/2
Sec. 36, N1/2, N1/2; S1/2, S1/2

T.12 S., R. 7 E., Salt Lake Base and Meridian
Sec. 30, SW1/4
Sec. 31, NW1/4, NW1/4; SE1/4,SW1/4

T.13S., R. 6 E., Salt Lake Base and Meridian
Sec. 1, W1/2
Sec. 12, NW1/4, NW1/4; SW1/4, SW1/4

And

Allred / Bennion land ownership

T. 12 S., R 6 E., Salt Lake Base and Meridian
Sec. 24, E1/2, SE1/4

The county lease and private ownership are entirely located in Carbon County, Utah. The lease documents are included in Appendix A. Map 2 shows the location of the proposed borehole. The proposed drill site is located on private surface land belonging to Phillip Allred and The Douglas C. and Naomi C. Bennion Revocable Living Trust. The surface access and use agreement is included in Appendix B.

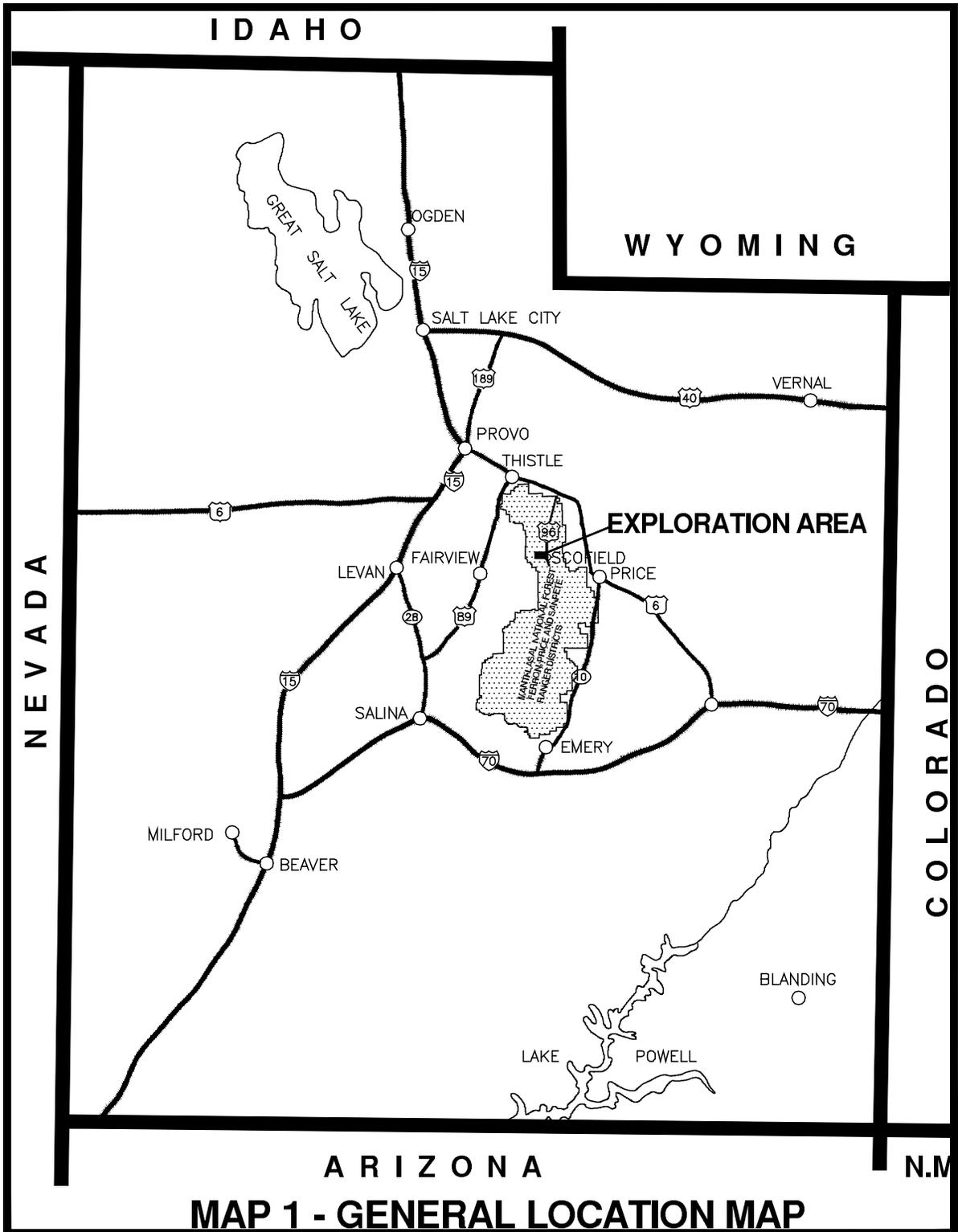
The proposed exploration area is located in Andrew Dairy Canyon (Map 2). The area lies within the Wasatch Plateau physiographic province. Andrew Dairy Canyon drains north into Fish Creek which drains into the west side of Scofield Reservoir. Topography in the area is mountainous with generally north-south trending ridges and deep canyons. Elevation ranges from approximately 8000 ft. to 9200 ft.

The exploration area is underlain by sedimentary rocks of late Cretaceous age. In the vicinity of the exploration hole, the Blackhawk Formation is the only geologic strata. The two coal seams occur in the area include the Lower O'Connor A seam and the Flat Canyon (also called Woods Canyon) seam which are both below mineable thicknesses where the drill hole is proposed.

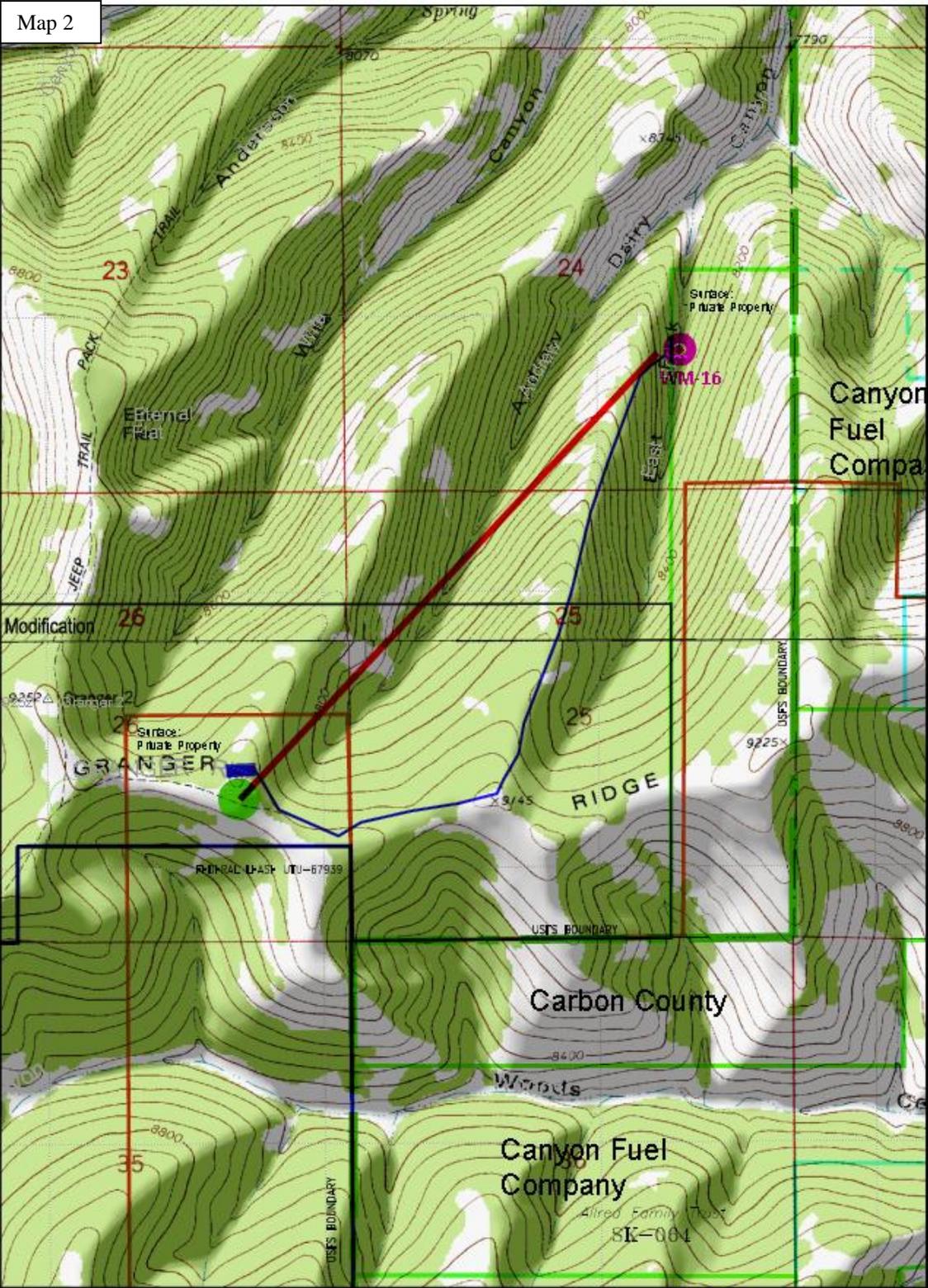
Strata in the area dip uniformly from 2 to 8 degrees north-northwest. Several faults have been identified in the area. A number of igneous dike zones also exist in the exploration area.

Rock types are predominantly sandstones, siltstones, shale and coal.

Vegetation in the exploration area occurs in the Mountain Brush and White Fir/Spruce plant communities. Andrew Dairy Canyon Creek does not support game fish. The exploration area is important habitat for raptors, elk, mule deer, cougar, bobcat, black bear, and small mammals.



Map 2



	2016 Water Monitor Well Location		18,000 Gallon Water Tank and Pump
	Helicopter LZ		Temporary Water Line
	Helicopter Flight Path		

1' = 500'

Canyon Fuel Company LLC
Skyline Mines

SKYLINE MINE
Water Monitor Well Location
w/ Mineral Ownership
2016

V:\Geology\Exploration Drilling\Surface Drilling\g2016 Drilling\g2016 Exploration Drilling Locations.dwg

645-201-224

A timetable for exploration related activities is given below. It is anticipated that exploration activities will start on approx. October 15, 2016. This timetable may vary somewhat depending on factors such as weather.

EVENT	WEEK1	WEEK 2	WEEK 3 - 12
Set pump, frac tank and run water line to site			
Move drill equipment to site and drilling			
Reclaim any disturbance, remove frac tank, water line			
Potentially leave open for water level monitoring			

R645-201-225

Threatened, endangered, or special interest species in the exploration area include the northern goshawk and American three-toed woodpecker. Wildlife surveys included investigations for the Northern Goshawk, American three-toed woodpecker, general raptor and general wildlife. No threatened, endangered, or special interest species were noted. Exploration and reclamation activities will not occur within one half mile of known breeding and nesting areas during breeding or nesting periods. Appendix C (confidential file) contains the Alpine Ecological, 2016 Wildlife Survey Report for the area.

Environmental Planning Group, LLC (EPG) has completed a cultural resource evaluation on and near the proposed drill site which is attached in Appendix D (Confidential File). The EPG Class III Cultural Resources Inventory concluded no cultural resources sites were identified in the area and no further action was required.

Both soils and vegetation surveys were also conducted by Alpine Ecological. No items of concern were identified in either survey. Reports are located in Appendix E and F, respectively.

R645-201-225

The general method to be followed during drill hole exploration, reclamation, and abandonment is: 1) fly drilling equipment to drill sites, 2) prepare drill sites as shown on

Fig. 1, 3) set temporary water tanks, pumps, and water lines, 4) drill and log holes, and 5) reclaim drill sites and remove waterlines, tanks, and pumps. Assuming the hole encounters groundwater, the drill hole will be developed for monitoring and be incorporated into the Mining and Reclamation Plan (M&RP) as a water monitoring well. The water monitoring well will then be bonded and abandoned at a later date. No road building will occur and no blasting will be done for road building or repair. Access to the drill site will be accomplished along the existing Granger Ridge road and on foot, horseback, or via helicopter.

Drilling will be accomplished utilizing mud circulation drilling techniques. Drilling will involve one heli-portable rig capable of drilling 2000 ft. with necessary support equipment such as rod trays, supply trailers, portable water tanks, fuel tanks, etc. The drilling procedure will be to plug drill to total depth utilizing water, foam, polymer, and/or mud as drilling medium.

To eliminate the need for road and drill-pad construction, the planned drilling method is helicopter-supported mud circulation drilling. Exploration equipment for the drilling phase will include one heli-portable skid-mounted drilling rig together with all necessary heli-portable equipment such as drill rod trays, mud tanks, water tanks, water pumps, etc.

Drilling will involve one skid-mounted 1800 ft rated drill, one or two 1000 gal. poly water tanks, two water trough-type mud tanks, and 4 to 6 drill rod trays. Other support equipment will include two to three supply trailers parked at the Granger Ridge staging area, up to 6 pick-up trucks. The drilling procedure for the exploration hole will be to plug drill to total depth. One hundred to 200 ft. of surface casing will be set in the hole, depending on the hole conditions. Water will be pumped from an 18,000 gal. water tank located along the Granger Ridge road, inside USFS boundaries, to the water tanks at the drill rig. Fifth-wheel supply trailers or transport trailers will carry the heli-portable equipment, including drills, drill steels, coring equipment, drilling additives, cutting and welding equipment, and other supplies to the staging area (Map 2). One pick-up truck will be used to carry personnel, fuel, and supplies. The company representative and geological consultant will also use pick-up trucks for transportation.

Water for drilling will be transported from the Skyline Mine site hydrant via 1,500 gal. water trucks and emptied into a 18,000 gal. water tank located inside USFS boundaries, along the Granger Ridge road (Map 2). A Triplex pump or equivalent will be used for pumping water to the drill sites if necessary. The portable pumps will be underlain by pitliner or brattice. Water will be pumped via 1.5 and 2 inch HDPE waterlines. An approved Temporary Water Change from the Division of Water Rights is in place and included in Appendix G. Where not located adjacent to an existing road, waterline will be placed and removed via horseback, helicopter, or on foot.

Only a nominal amount of coal will be removed during exploration activities as drill cuttings. The borehole will nominally be 2.98-inches (NQ) in diameter. Given an approximate projected thickness of 5 ft. for both the Lower O'Connor A and Flat Canyon seams, approximately 60 lbs. of coal will be removed.

No temporary road construction is planned for this project

Regulations cited in R645-202-232 relative to roads will be followed as they apply. No road construction is planned. Disturbance to wildlife will be minimized by utilizing the existing roads and trails and eliminating the need to build roads with heavy equipment. No wetlands or riparian are known along the proposed routes. No utility or support facilities are present in the area.

Reclamation will occur as soon as possible upon completion of drilling operations. Reclamation will include filling in any hand excavations and reseeding the disturbed surface with the approved seed mix. No damage to public or private property will occur. As stated in R645-201-225, the drill hole is planned to be developed for monitoring and be incorporated into the Mining and Reclamation Plan (M&RP) as a water monitoring well. The water monitoring well will then be bonded and abandoned at a later date.

The drill location will be setup approximately as shown on Figure 1. Earth excavation for the drill site will be minimal using hand tools only. Some minor leveling for placement of wood crib blocking for leveling of drill may be required. Minor amounts of topsoil that may be removed will be stored and replaced upon completion of drilling. No mud pits will be excavated. Portable mud tanks will be utilized. Cuttings will be stored and hauled away to the Skyline Mine waste rock site by helicopter or truck upon completion of drilling.

Reclamation is an integral part of the exploration activities and will progress as contemporaneously as practical with the other exploration activities. Upon completion of the hole, all hand excavations will be filled in to original contour, topsoil replaced, all equipment will be removed, and all trash will be hauled away. An approved seed mix will then be applied to the drill area.

There will be no diversion of overland flows.

It is not anticipated that acid- or toxic- forming materials will be encountered during exploration because none have been encountered previously.

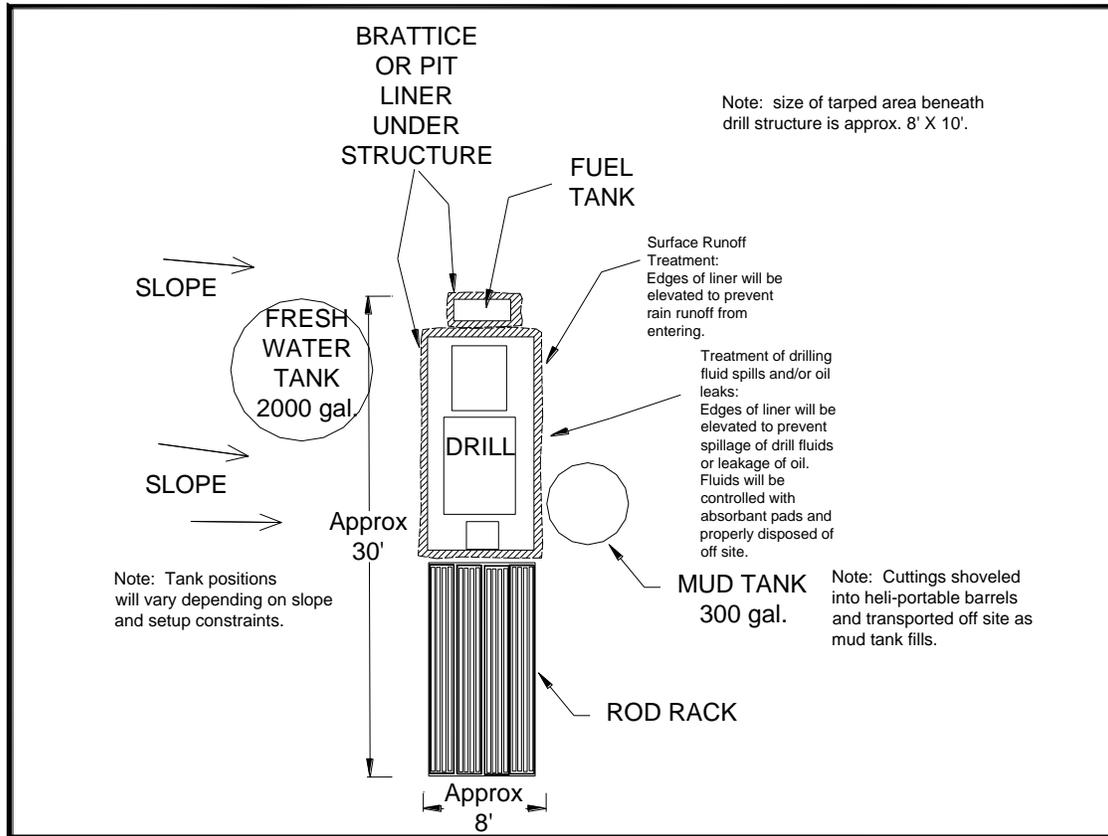


Figure 1. Typical heli-portable drillsite setup.

The method of revegetation is intended to encourage prompt revegetation and recovery of a diverse, effective, and permanent vegetative cover. The following seed mix was prescribed by the U.S. Forest Service for the reclamation of 2012 Woods Canyon area drill holes and will be also used in 2016 (the seed mix as approved by UDOGM will be utilized):

Seed Mix

		Pounds PLS/acre
Western Wheatgrass	<i>Elymus smithii</i>	2
Basin Wild Ryegrass	<i>Elymus cinereus</i>	1
Intermediate Wheatgrass	<i>Elymus hispidus</i>	2
Yellow Sweet Clover	<i>Melilotus officinalis</i>	1
Blue Leaf Aster	<i>Aster glaucodes</i>	0.25
Silvery Lupine	<i>Lupinus argenteus</i>	1
True Mahogany	<i>Cercocarpus montanus</i>	1
Lewis Flax	<i>Linum lewisii</i>	0.5
Small Burnet	<i>Sanguisorbia minor</i>	1
	TOTAL	9.75

The pure live seed (PLS) rating will be 99% containing a maximum of 1% weeds, none of which are toxic and only seed meeting the State Seed Act will be used. Certification

tags will be retained by the permittee. The vegetative cover resulting from this seed mix is considered capable of stabilizing the soil surface from erosion.

Map 2 shows the location of the proposed drill sites, equipment/helicopter staging area, and water tank/pump. The drill site, staging area, and west ¾-mile of temporary water line are all on private property. The water temporary water line in Section 25 is located on USFS lands. The temporary water line has been approved by the USFS. Upon completion of drilling and or water monitoring, the hole will be plugged and abandoned with a cement, bentonite, or cement/bentonite slurry to full depth. A brass tag will be placed at the top of the drill hole stating the operator’s name, drill hole number, and legal description. The tag will be placed in cement at ground level.

The drill hole diameter will be nominally 2.98-inch diameter. Approximately 100 to 200 ft. of surface casing (3 inch) will be set. Estimated depth and other drill hole information is given in the following table. Disturbed area will include minor hand excavation on the drill site. Total disturbed area acreage is estimated at 0.003 acres (10’ X 12’, hand excavation only)

Drill Site	Location	Total Depth (ft)	Disturbed Area (acres)
Site WM-16	SE, SE, 36, T12S, R6E	500	0.003
		TOTAL	0.015 acres

There are no occupied dwellings or pipelines located in the exploration area. No trenches will be dug and no structures will be constructed nor debris disposed of in the exploration area. The permittee or his representative will have a copy of this Notice of Intention to Conduct Minor Coal Exploration while in the exploration area available for review by an authorized representative of the Division by request.

R645-202.230

No adverse impacts to stream channels will occur during water pumping or drilling activities. An approved “Temporary Change of Water” is in place with the Division of Water Rights (Appendix G). It is projected that approx. 0.3 acre/ft. of water will be utilized during the project.

R645-202-231

A cultural resource survey has been conducted for the area on and near the drill hole site. A copy of the cultural resource survey is included in Appendix B (confidential). The EPG Class III Cultural Resources Inventory concluded no cultural resources sites were identified in the area and no further action was required.

Threatened, endangered, or special interest species in the exploration area include the northern goshawk and American three-toed woodpecker. Wildlife surveys included investigations for the Northern Goshawk, American three-toed woodpecker, general raptor and general wildlife. No threatened, endangered, or special interest species were noted. Exploration and reclamation activities will not occur within one half mile of known breeding and nesting areas during breeding or nesting periods. Appendix C (confidential file) contains the Alpine Ecological, 2016 Wildlife Survey Report for the

area. Wildlife protection measures include the use of Heli-portable water pumping equipment which will minimize surface disturbance as well as use of drilling equipment that will not require road construction. Pumping of most or all project water through waterlines will minimize water truck traffic on permanent roads.

R645-202-232

No new road construction is planned for this project.

R645-202-235 (R645-301-624.210, R645-301-731.121, R645-301-731.215))

Geologic logs of drilling will be kept. Any appreciable water encountered during drilling will be logged, noting depth, geology, and estimated flow. Any such zones will be evaluated for potential water monitoring.

Figure 1 shows a drawing of the approximate drill site setup.

If the drill hole begins to make excess water, such water will be pumped to a tank at the staging area. From there it will be hauled to an approved waste water disposal site. At no time will excess drill water generated in the drill hole be allowed to run on topsoil on the surface.

Fresh water pumped to the drill site to be utilized for the drilling process will be allowed to run off the site over topsoil as long as it contains no drilling additives. This is necessary to allow cooling of the engine during rod tripping or when water tanks overflow at the drill site. Measures will be taken to disperse the water flow over the topsoil such that no erosion occurs.

R645-203-200

Canyon Fuel Company requests that the Division not make any drilling information available for public inspection relative to coal seam thickness or quality. This information is considered crucial to Canyon Fuel's competitive rights.

R645-301-525-200

No major utilities pass over, under, or through the exploration area. Use of roads and development of the exploration site will not disrupt or damage any utility service.

R645-301-527.230

Roads utilized as part of this minor coal exploration plan will be maintained in a safe condition, including proper control of fugitive dust to minimize effects to fish, wildlife, and related environmental values.

R645-301-731.100

An approved Temporary Change of Water for water to be used in the drilling process is in place (Appendix G).

R645-301-742.410 thru 742.420

Minimal surface disturbance will be required for the drilling project. Disturbance will be limited to the drill site. No changes will occur to drainage patterns. As shown on Figure 1, the drill will be setup such the underlying pit liner or brattice material will not allow

water runoff to the surrounding soils. Water that collects in the brattice or pit liner will be pumped or drained to the mudtank. No perennial or intermittent stream drainages will be crossed. Excess water will be removed and placed in the drill water tank for use in the drilling process or hauled to an approved waste water disposal site. Contributions of suspended solids will not occur.

The potential for water pollution will be minimized by keeping pollutants away from the drill hole and in their containers. Materials used during drilling operations will be selected to be as non-polluting as possible. All spills of polluting materials will be removed from the area and properly disposed of.

No mixing of surface and ground waters is possible because all drill sites will be above perennial and ephemeral stream drainages.

Drill fluids and/or cuttings will be contained within mud tanks. If necessary, excess fluids will be pumped out and excess drill cuttings will be hauled off and disposed of properly.

Skyline Mine – Canyon Fuel Company, LLC will retain all drill and geophysical logs.

Appendix A
Coal Lease

E 096531 R 523 P 433
Date 29-JAN-2003 1:39pm
Fee: No Fee Check
SHARON MURDOCK, Recorder
Filed By KR
For CARBON COUNTY
CARBON COUNTY CORPORATION

AMENDMENT TO LEASE AGREEMENT

THIS AMENDMENT to that certain Lease and Agreement executed as of March 5, 1997, by and between Carbon County, a body corporate and politic of the State of Utah, hereinafter referred to as "Lessor", and Western Reserve Coal, Inc., a Nevada corporation and successor to Western Reserve Coal, Inc., a Utah corporation, now having its principal office at 1540 Juan Tabo NE, Albuquerque, New Mexico, 87112, hereinafter referred to as "Lessee", is made and entered into as of this ~~31st~~ day of December, 2002.

WHEREAS, a Lease and Agreement (Lease) was made and entered into on the 5th day of March, 1997 between the parties referenced above, which Lease was recorded at the office of the Carbon County Recorder on March 6, 1997; and

WHEREAS, the term of the Lease is set at ten years and would expire on or about March 4, 2007; and

WHEREAS, Lessee has requested an extension of the primary term of the Lease for an additional ten years; and

WHEREAS, the Lease also provides that Lessee shall have no right to assign or transfer the Lease or sublease said property or any portion thereof without the written consent of the Lessor first obtained; and

WHEREAS, Lessee has requested an amendment to the assignment prohibition that would effectively provide that the Lessor will not unreasonably withhold such written consent; and

WHEREAS, Lessor is willing to grant the requests of Lessee but in turn has requested that Lessee release any interest it may have pursuant to the Lease to approximately 1,200 acres of land for mining purposes, which acreage is also the subject of another Lease between Lessor and an operating coal mining company; and

WHEREAS, the parties are desirous of entering into this Amendment to the Lease to address the extension of term, Lease assignability by Lessee, and relinquishment of interest by Lessee in approximately 1,200 acres of land covered in the Lease;

NOW, THEREFORE, the parties hereto specifically agree as follows:

1. Paragraph 3 of the Lease which currently reads as follows:

"3. This Lease and Agreement shall commence forthwith and shall extend thereafter for a period of ten (10) years",

shall be amended to read as follows:

“3. This Lease and Agreement shall commence forthwith and shall extend thereafter for a period of twenty (20) years.”

2. Paragraph 9 of the Lease which currently reads as follows:

“9. Lessee shall have no right to assign or transfer this Lease or sublease said property or any portion thereof without the written consent of the Lessor first obtained”,

shall be amended to read as follows:

“9. Lessee shall have no right to assign or transfer this Lease or sublease said property or any portion thereof without the written consent of the Lessor first obtained, which written consent shall not be unreasonably withheld by Lessor.”

3. Paragraph 1 of the Lease specifically provides that Lessee shall have the right to explore, develop, and mine and produce any coal located beneath the surface of the following land in Carbon County, Utah:

Township 12 South, Range 6 East, SLB&M

Section 24: E1/2SE1/4

Section 25: E1/2E1/2

Section 36: N1/2N1/2; S1/2S1/2

Township 12 South, Range 7 East, SLB&M

Section 30: SW1/4

Section 31: NW1/4NW1/4; SE1/4SW1/4

Township 13 South, Range 6 East, SLB&M

Section 1: W1/2

Section 12: NW1/4NW1/4; SW1/4SW1/4

In consideration of Lessor's agreement to extend the term of the Lease by ten years and to provide additional flexibility with respect to assignability of the Lease by Lessee, Lessee hereby agrees to hereby terminate any and all interest it may have in and to the land more particularly described above and hereby agrees and consents to those said parcels of land being made part of that certain Lease between Carbon County and Canyon Fuel Company, L.L.C.. Lessee hereby further acknowledges and agrees that pursuant to this Amendment to Lease, Lessee shall have absolutely no further right to explore, develop, mine, or produce any coal located beneath the surface of the parcels of land described above.

4. All other terms and conditions of the said Lease and Agreement dated as of March 5, 1997 shall remain the same.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment to Lease and Agreement in original duplicate form the day and year first above written, one original counterpart to be retained by each party.

CARBON COUNTY, a Body Corporate and Politic of the State of Utah,

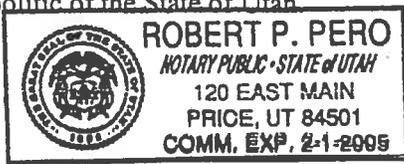
By: William D. Krompel
Chairman, Carbon County Commission

WESTERN RESERVE COAL, INC.,

By: W. N. Reeves
Its: President

STATE OF UTAH)
) :ss.
COUNTY OF CARBON)

Personally appeared before me this 30th day of December, 2002,
William D. Krompel, who duly acknowledged to me that he signed the foregoing document as Commissioner Chairman for and on behalf of Carbon County, a body corporate and politic of the State of Utah.



Robert P. Pero
Notary Public
Residing At: 120 E Main Price UT

STATE OF NEW MEXICO
) :ss.
COUNTY OF BERNALILLO)

Personally appeared before me this 22 day of JANUARY, 2003
William N. Reeves, who duly acknowledged to me that he signed the foregoing

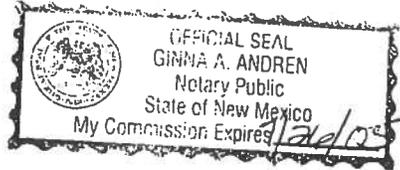
document for and on behalf of Western Reserve Coal, Inc., a Nevada corporation, pursuant to a resolution of its Board of Directors.

Ginna A. Andren

Notary Public

Residing At: 18 MARKS RD SANDIA PARK
NM

Final Draft 12/26/2002



Appendix B
Surface Lease

Exhibit B
to
Surface Access and Use License Agreement

MEMORANDUM OF SURFACE ACCESS AND USE LICENSE AGREEMENT

NOTICE IS HEREBY GIVEN BY THIS MEMORANDUM (this "Memorandum"), that under and pursuant to a separate agreement entitled Surface Access and Use License Agreement ("Agreement") dated effective as of September 22, 2016 ("Effective Date"), by and between Phillip Allred with an address of P.O. Box 96, Fountain Green, UT 84632 and The Douglas C Bennion and Naomi C Bennion Revocable Living Trust dated January 4, 2013 with an address of 4494 S 4515 W, West Valley City, UT 84120, together as tenants in common ("Owner") and Canyon Fuel Company, LLC, a Delaware limited liability company with an address of 225 North 5th Street, Suite 900, Grand Junction, CO 81501 ("CFC"), Owner has granted surface access and use to, and does hereby confirm a grant of surface access and use to, CFC of the following described lands located in Carbon County, Utah ("Lands"):

Township 12 South, Range 6 East, S.L.B.M.
Section 24: E1/2SE1/4

containing approximately 80.00 acres, more or less.

Carbon County Parcel # 2A-0001-0000

The Agreement contains the following principal terms among others:

1. Grant of Surface Access and Use. Owner has granted, and hereby confirms a grant to CFC, of a license to enter, upon, access, cross, use and occupy so much of the Lands as are needed for water well drilling and monitoring activities ("Water Monitoring Activities").
2. Term. This Agreement shall be effective as of the Effective Date and shall remain in force to and until CFC has completed its Water Monitoring Activities on the Lands, such term not to exceed fifteen (15) years from the Effective Date. If at the end of the Initial Term, Canyon Fuel has not completed its Water Monitoring Activities on the Lands, Canyon Fuel shall have the right, but not the obligation, to renew for an additional ten (10) year term upon the same terms and conditions of this Agreement (the "Extended Term").

3. Notice. All notices and other communications to either party shall be delivered as follows:

If to CFC:

Canyon Fuel Company, LLC
Attn: Land Manager
225 North 5th Street, Suite 900
Grand Junction, CO 81501
Phone: (970) 263-5144
Fax: (970) 263-5161

If to Owner:

Phillip Allred
P.O Box 96
Fountain Green, UT 84632
Phone: (435) ___ - ____

Naomi and Douglas Bennion
4494 South 4515 West
West Valley City, UT 84120
Phone: (801) ___ - ____

4. Assignment. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective permitted successors and assigns. Neither party shall assign this Agreement, or any rights or obligations herein, without the prior written consent of the other party, which consent shall not be unreasonably withheld; provided, however, that CFC may assign this Agreement without consent to an affiliate or in connection with sale of all or substantially all of its assets constituting the Skyline Mine.

5. No Waiver or Modification. This Memorandum is executed for the purpose of placing of record notice of the Agreement and the terms and provisions thereof. Nothing herein shall, nor shall it be interpreted to, amend, modify or waive any of the terms and conditions of the Agreement. All capitalized terms used in this Memorandum, not otherwise defined, shall have the meanings assigned to them in the Agreement.

IN WITNESS WHEREOF, the parties have caused this Memorandum to be signed and executed as of the Effective Date.

OWNER

CANYON FUEL COMPANY, L.L.C.

By: Philip Alfred
Philip Alfred

By: Gene DiClaudio
Gene DiClaudio

By: Naomi C Bennion
Naomi C Bennion - Co-Trustee

Its: Chief Operating Officer

By: Douglas C Bennion
Douglas C Bennion - Co-Trustee

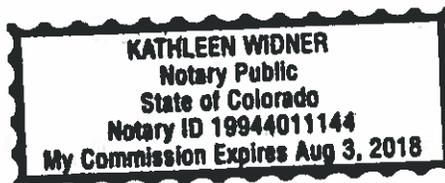
STATE OF COLORADO)
) ss.
COUNTY OF MESA)

On this 30th day of SEPTEMBER, 2016, personally appeared before me Gene DiClaudio, Chief Operating Officer of Canyon Fuel Company, L.L.C., a Delaware limited liability company, and signer of the above Surface Access and Use License Agreement, who duly acknowledged to me that he executed the same on behalf of the company.

WITNESS my hand and official seal.

Kathleen Widner
Notary Public

My Commission expires: 8-3-18



STATE OF Utah)
COUNTY OF Sandwich) ss.

The foregoing instrument was acknowledged before me by Phillip Allred on this 20 day of Sept, 2016.

WITNESS my hand and official seal.

Michelle M Walker
Notary Public

My Commission expires: November 27, 2019



STATE OF Utah)
COUNTY OF Salt Lake) ss.

On this 28 day of September, 2016, personally appeared before me Naomi C Bennion, as Co-Trustee of The Douglas C Bennion and Naomi C Bennion Revocable Living Trust dated January 4, 2013 and signer of the above Surface Access and Use License Agreement, who duly acknowledged to me that she executed the same on behalf of the Trust.

WITNESS my hand and official seal.

Jessica Marie White
Notary Public

My Commission expires: June 15, 2019



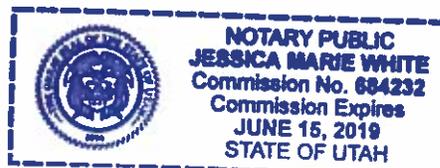
STATE OF Utah)
COUNTY OF Salt Lake) ss.

On this 28 day of September, 2016, personally appeared before me Douglas C Bennion, as Co-Trustee of The Douglas C Bennion and Naomi C Bennion Revocable Living Trust dated January 4, 2013 and signer of the above Surface Access and Use License Agreement, who duly acknowledged to me that he executed the same on behalf of the Trust.

WITNESS my hand and official seal.

Jessica Marie White
Notary Public

My Commission expires: June 15, 2019



Appendix C
Wildlife
CONFIDENTIAL FILE

2016 Wildlife Survey Report

2016 Water Well

Northern Goshawk, other Raptors, and
General Wildlife Surveys

Prepared for:

Skyline Mine
Jeremiah Armstrong
Environmental Engineer
Canyon Fuel Company, LLC

Prepared By:

Alpine Ecological
HC 80 Box 570
Greenwich, UT 84732

07.26.2016

1.0 Introduction

The following narrative is submitted pursuant to requirements regulating potential impacts to threatened, endangered, candidate and sensitive species and their associated habitats. The following report details the results of the northern goshawk (*Accipiter gentilis*), American three-toed woodpecker (*Picoides dorsalis*), general raptor, and general wildlife surveys conducted for the 2016 Drill Sites Project. No other special status species were identified to have suitable habitat within these project areas. The areas surveyed are displayed on Figure 1.

Pre-field research was completed by Alpine wildlife biologists who utilized GIS data from the Utah Division of Wildlife Resources' (UDWR) Utah Threatened, Endangered, and Sensitive Species Occurrences shapefiles and mapping services. The US Fish and Wildlife Services' species by County list was reviewed and a search was conducted in their Information, Planning and Consultation System (IPaC). Research included species occurrences, historic records, species ecology, life histories, known distributions, and habitat requirements. Coordination with the UDOGM and the Forest Service Wildlife Biologists was conducted in the spring prior to survey initiation. Survey requirements were discussed and are in accordance with the Northern Goshawk technical guide. American three-toed woodpecker surveys were conducted using the same methodology as the Forest Service; conducted along northern goshawk transects in suitable habitat. Northern goshawk protocol surveys, nesting raptor surveys, American three-toed woodpecker, and general wildlife surveys have been conducted in or near the project area by private and federal biologists over the past several years.

There are no threatened, endangered, or candidate species known to occur within the project area. State or Federally listed sensitive species which were identified as species of concern included raptors, with emphasis on northern goshawk and golden eagle, and American three-toed woodpecker. The remaining listed species were dismissed from further consideration, as a result of the multiple agency review, because there is no suitable habitat or the project is outside of the species known distribution.

2.0 Project Description

The 2016 wildlife survey area included the well location and a 0.5 mile buffer. Northern goshawk protocol surveys, general raptor surveys, American three-toed woodpecker, and general wildlife surveys were conducted in and around the areas displayed on Figure 1.

3.0 General Habitat Overview

The vegetation across the survey area is very diverse and is somewhat consistent throughout the survey area. Vegetation is dependent on elevation, slope, and available water resources. Riparian areas are dominated by typical high elevation riparian species. The bottoms of the valleys that are drier are dominated by mountain big sagebrush and silver sagebrush communities. South and East facing slopes, at higher elevations are dominated by quaking aspen communities. However, there are some areas that are open on South and East facing slopes. These open areas are typically grass and tall forb communities. However, a significant number of the open areas are dominated by false hellebore. The North and West facing slopes are dominated by conifer communities.

The tree species within the conifer community are mostly dead or dying, and most areas have an abundance of deadfall due to beetle infestations. Because of the deadfall and dead trees the forbs and grasses within the conifer communities are very diverse and most areas have a solid understory. The tops of the ridges in the survey area vary with some being dominated by shrub communities such as mountain big sagebrush, elderberry or chokecherry while others are dominated by grass and tall forb communities. Some of the ridge tops are dominated by cluster tarweed.

4.0 Methodology

Northern Goshawk broadcast acoustical surveys were conducted following U.S. Department of Agriculture (USDA) Forest Service, 2006, Northern Goshawk Inventory and Monitoring Technical Guide pp.3.13-15. Using GIS, survey transects were established 250 meters apart throughout the survey area which extended 0.5 miles beyond the project footprint. Broadcast calling stations were then established every 200 meters along each transect. Calling stations were then overlaid on NAIP aerial imagery in a GIS and call stations not located in suitable habitat were removed from the survey. Upon arrival at each broadcast calling station, the surveyor looked and listened before broadcasting the pre-recorded alarm calls. Utilizing FoxPro game calls, pre-recorded northern goshawk alarm calls were broadcast for approximately 10 seconds followed by 30 seconds of looking and listening. After turning 120 degrees the sequence was then repeated. Once the sequence of 10 seconds of calling and 30 seconds of looking and listening was completed 3 times and no response was elicited the surveyor then repeated the sequence before moving to the next calling station. Surveys were timed in accordance to the survey requirements outlined in the 2006 Technical Guide and were based on local knowledge of nesting chronologies in the area and coordination with the US Forest Service. Additionally, surveyors searched for foraging raptors between calling stations when vantage points were available. Consultation with the USFS and UDOGM was conducted concerning survey timing and was within the seasonal guidelines as defined in the 2006 Technical Guide.

American three-toed woodpecker surveys are conducted simultaneously with the northern goshawk survey. Biologists listened for drumming activity while at the call stations and inventoried for three-toed woodpeckers in suitable habitat while walking linear transects between call stations. This methodology is also used by the USFS and was discussed and approved on a pre-survey conference call by USFS and UDOGM biologists.

General wildlife surveys include the identification of general terrestrial wildlife species and were conducted along transects between call stations. The results of the general survey are listed at the beginning of Section 5.

5.0 Survey Results

Species observed during the course of the inventories included, but are not limited to, red-tailed hawk (*Buteo jamaicensis*) (REHA), common raven (*Corvus corax*) (CORA), dark-eyed junco (*Junco hyemalis*), black-capped chickadee (*Poecile atricapillus*), lazuli bunting (*Passerina amoena*), Stellar's jay (*Cyanocitta stelleri*), Clark's nutcracker (*Nucifraga columbiana*), American robin (*Turdus migratorius*), dusky blue grouse (*Dendragapus obscurus*), mountain chickadee (*Poecile gambeli*), ruby-crowned kinglet (*Regulus calendula*), Rocky Mountain elk (*Cervus elaphus*), and mule deer (*Odocoileus hemionus*). Information such as species, call station observed, and type of observation (e.g., aural (A) or visual (V)) were documented for species of concern; other species listed were observed and listed herein for reference only.

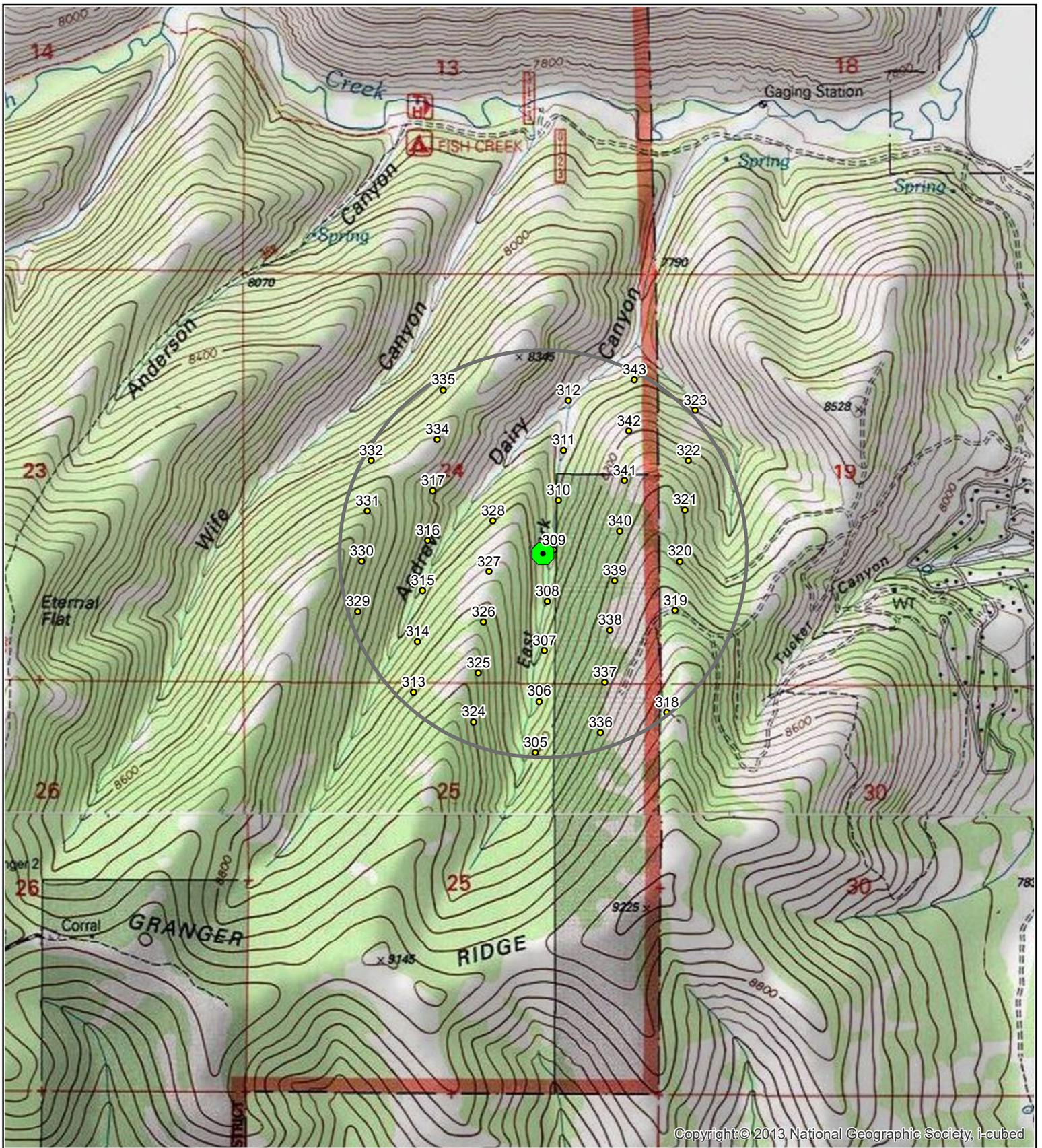
Table 1 summarizes the results of the survey by call station, raptor species, and type of observation. Only key observations are summarized.

Station#	Survey	Aural	Visual	Species	Notes
N/A	1	X	V	REHA	While hiking to call station 324, REHA adult calling and exhibiting territory display behavior.
324	1	X	X	REHA	REHA soaring to the south of call station.
325	1	X	X	REHA	REHA soaring south of call stations then flew west.
313	1	X	X	REHA	REHA soaring south of call stations, flew over after call was played, flew back to the south, did not vocally respond to call.
314	1	X		REHA	I can hear a REHA calling to the south.
305	1	X	X	REHA	REHA south of call stations
306	1	X	X	REHA	REHA south of call stations
324	2	X	X	REHA	REHA observed while walking to call station, called once.
313	2	X	X	REHA	
325	2	X	X	REHA	REHA soaring to the west looks to be south of 329. Adult perched in tree on eastern aspect of Andrew Dairy Canyon.
312	2			AMKE	Kestrel perched on tree northwest of call station. Flew when call was played.

During the first surveys biologists observed an adult red-tailed hawk exhibiting territory defense behaviors as they were hiking to the southern call stations from the top of Granger Ridge. The individual was vocal when calls were played at several of the southern call stations. A short nest search was conducted to determine if the adult was nesting in the survey area. A nest was not located inside the survey area.

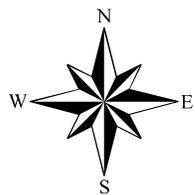
During the second survey an adult REHA was observed again while hiking to the survey area. The individual flew west and perched onto the eastern aspect of Andrew Dairy Canyon. The individual stayed perched for approximately 25 minutes. Biologists also documented an American kestrel perched west of call station 312. The adult male flew to the south west when the call was played.

The vegetative communities within the Project Area are classified by the Utah Division of Wildlife Resources as crucial summer mule deer fawning habitat and crucial summer elk calving habitat. This was confirmed by biologists throughout the project area as individual mule deer fawns and elk calves were observed on numerous occasions throughout the project areas during both surveys.



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-  Water Well Site
-  Water Well 0.5 mi Buffer
-  2016 Call Stations



2016 Water Well Survey Area

FIGURE 1

06/05/2016

1:20,000

Appendix D
Cultural
CONFIDENTIAL FILE

**A CULTURAL RESOURCES INVENTORY FOR THE
SKYLINE MINE – 2016 WATER MONITORING WELL (16-22-1)
DRILLING PROJECT, CARBON COUNTY, UTAH**

Prepared for:

Canyon Fuel Company, LLC
A Subsidiary of Bowie Resource Partners, LLC

For Submittal to:
U.S. Department of Agriculture
U.S. Forest Service
Manti-La Sal National Forest

Prepared by:

Andrew T. Yentsch, M.S., RPA

Environmental Planning Group, LLC
208 East 800 South
Salt Lake City, Utah 84102

Utah Public Lands Policy Office Permit No. 89

Utah Antiquities Project No. U-16-EO-0461f

EPG Cultural Resources Report No. SLC-2016-06

July 28, 2016

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ABSTRACT

In April of 2016, Canyon Fuel Company, LLC, a subsidiary of Bowie Resource Partners, LLC, requested Environmental Planning Group, LLC, of Salt Lake City, Utah, to complete Class III cultural resources inventories of two block parcels and an associated water pipeline corridor in Carbon County, Utah, for the Skyline Mine – 2016 Water Monitoring Well (16-22-1) Drilling Project (Project). The survey areas are located on U.S. Forest Service, Manti-La Sal National Forest, administered land and private property. The inventories were conducted in anticipation of proposed development of a water monitoring well, an 18,000-gallon water tank and pump facility, and a temporary surface water line connecting the two facilities. The inventories were conducted to meet the requirements of Section 106 of the National Historic Preservation Act for the proposed activity. The purpose of this inventory was to identify, record, and determine the extent and significance of cultural resources within the Project area.

A Class I cultural resources file search was completed for the two parcels and pipeline corridor, as well as for a 1-mile area surrounding the proposed Area of Potential Effects. Class III cultural resources inventories were completed for 27.4 acres (11.09 hectares) located approximately 3.5 miles (5.63 kilometers) west-northwest of Scofield, Utah. The Project area encompasses portions of Sections 24, 25, and 26, Township 12 South, Range 6 East. The cultural resources surveys were conducted by EPG archaeologists on July 21, 2016. All cultural resources work was carried out under authority of Utah State Antiquities Project Number U-16-EO-0461f and Public Lands Policy Coordination Office Permit Number 89 (Andrew T. Yentsch).

Two Isolated Occurrences (IO1 and IO2) were identified and documented. No cultural resources sites were identified in the Project area for the present investigation. Therefore, there will be no historic properties affected by the Project and no further action will be required.

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LIST OF ACRONYMS

APE	Area of Potential Effects
B.P.	Before the present
BLM	Bureau of Land Management
CMT	Culturally modified tree
EPG	Environmental Planning Group, LLC
GLO	General Land Office
GPS	Global positioning system
IO	Isolated occurrence
NAD83	North American Datum, 1983
NRCS	Natural Resources Conservation Service
SHPO	State Historic Preservation Office
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator

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INTRODUCTION

In April of 2016, Canyon Fuel Company, LLC, a subsidiary of Bowie Resource Partners, LLC, requested Environmental Planning Group, LLC (EPG), of Salt Lake City, Utah, to complete Class III cultural resources inventories of two block parcels and associated water pipeline corridor in Carbon County, Utah, for the Skyline Mine – 2016 Water Monitoring Well (16-22-1) Drilling Project (Project). The inventories were conducted in anticipation of proposed development of a water monitoring well, an 18,000-gallon water tank and pump facility, and a temporary surface water line connecting the two facilities. The survey areas are located on U.S. Forest Service (USFS), Manti-La Sal National Forest, administered land and private property. As a portion of the surface water pipeline and the water monitoring drill location occur on private property, permitting for the proposed action also involves the Utah Division of Oil, Gas and Mining (UDOGM). The purpose of the inventories was to (1) identify, record, and determine the extent and significance of all identified cultural resources sites in the Project area to assist in the identification of locations for avoidance, protection, additional treatment, or mitigation during proposed exploratory drilling activities; and (2) to assist Bowie Resource Partners, LLC meet requirements of Section 106 of the National Historic Preservation Act for the proposed activity.

Prior to conducting fieldwork, a Class I cultural resources file search was completed for the two parcels and water pipeline corridor, as well as for a 1-mile area surrounding the proposed Area of Potential Effects (APE). This file search was conducted primarily to determine whether or not known cultural resources had been previously documented within the boundaries of the Project area and secondarily to assess the type or types of cultural resources that may be encountered during the investigation.

Class III cultural resources inventories were completed for 27.4 acres (11.09 hectares) of USFS (Manti-La Sal National Forest) administered land and private property located approximately 3.5 miles (5.63 kilometers) west-northwest of Scofield, Utah. The Project area encompasses portions of Sections 24, 25, and 26, Township 12 South, Range 6 East.

The cultural resources surveys were conducted by EPG archaeologists on July 21, 2016. EPG archaeologist Andrew T. Yentsch served as principal investigator and conducted the fieldwork for the Project. All cultural resources work was carried out under authority of Utah State Antiquities Project Number U-16-EO-0461fp and Public Lands Policy Coordination Office Permit Number 89 (Andrew T. Yentsch). All field notes and photographic materials from the Project are on file at EPG's office in Salt Lake City, Utah.

Two Isolated Occurrences (IO1 and IO2) were identified and documented. No cultural resources sites were identified in the Project area for the present investigation. Therefore, there will be no historic properties affected by the Project and no further action will be required.

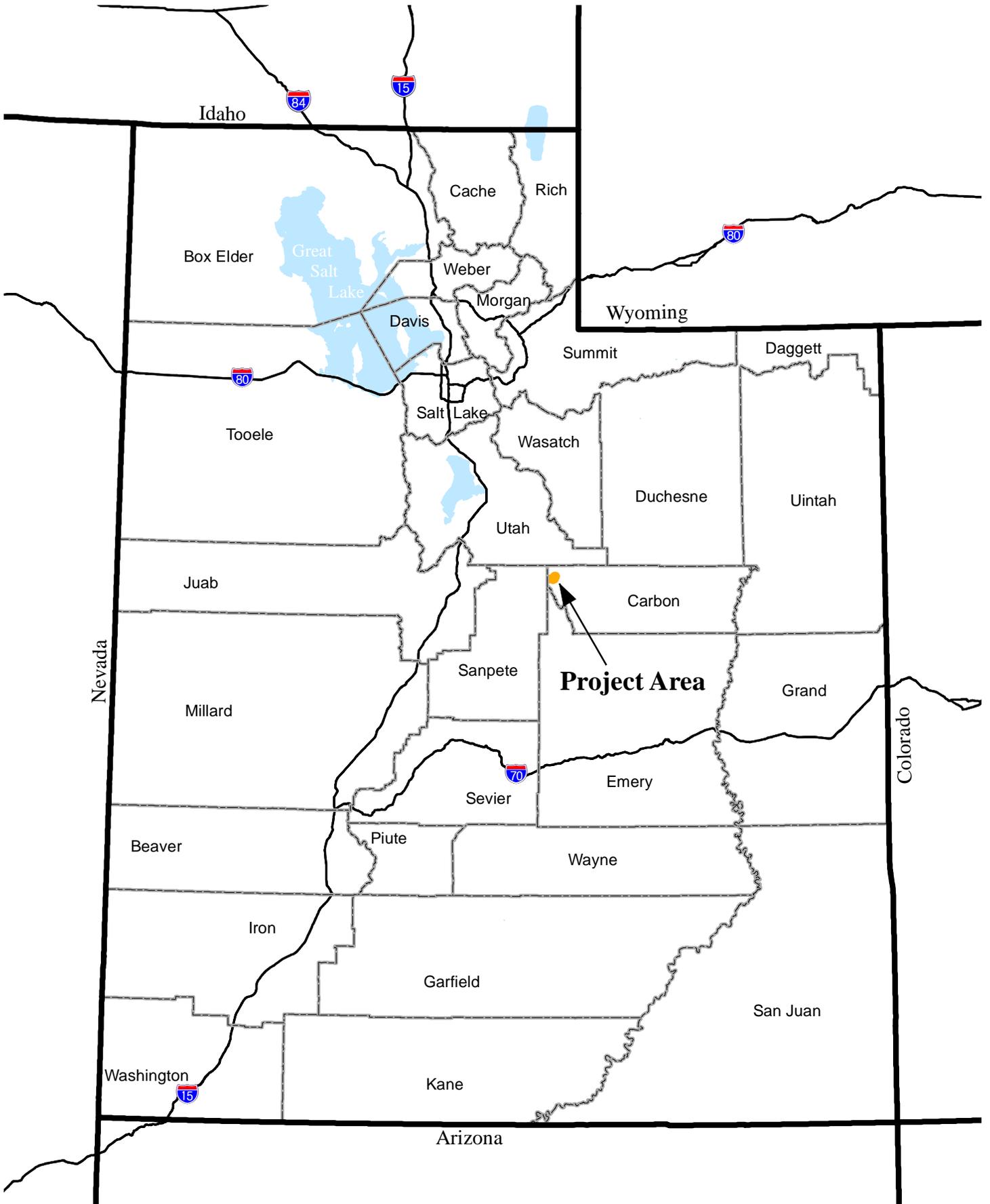
Project Description

The Project area is located in south-central Utah, approximately 3.5 miles (5.63 kilometers) west-northwest of the community of Scofield, Utah (Figure 1). The Project area consists of two block parcels and an associated temporary surface water pipeline corridor centered roughly on the Skyline Mine in Eccles Canyon. The survey locations are presented in Figure 2. Topographic map coverage of the Project area is provided by the Scofield Reservoir, Utah (1991) 7.5-minute U.S. Geological Survey (USGS) quadrangle.

Per discussions with USFS personnel, survey areas for the APE were established as 200-foot (61 meter) by 200-foot (61 meter) areas for the drill location and water storage facilities, and a 100-foot- (30.5 meter) wide corridor for the temporary surface water line. The first parcel (western most) consists of a 0.92-acre (0.37 hectare) area for a new 18,000-gallon water tank and pump facility located in the southwest quarter of Section 26, Township 12 South, Range 6 East. The second parcel consists of a square area covering 0.92 acres (0.37 hectares) for a new water monitoring well location. This facility covers a portion of the southeast quarter of Section 24, Township 12 South, Range 6 East. The third parcel consists of a 2.1-mile- (3.4 kilometer) long corridor for a temporary surface water line running from the water monitoring well to the water tank and pump to the southwest. This temporary water line crosses through the southern half of Section 26, the western half of Section 25, and the southeast quarter of Section 24, Township 12 South, Range 6 East. In all, Project survey areas total 27.4 acres (11.09 hectares).

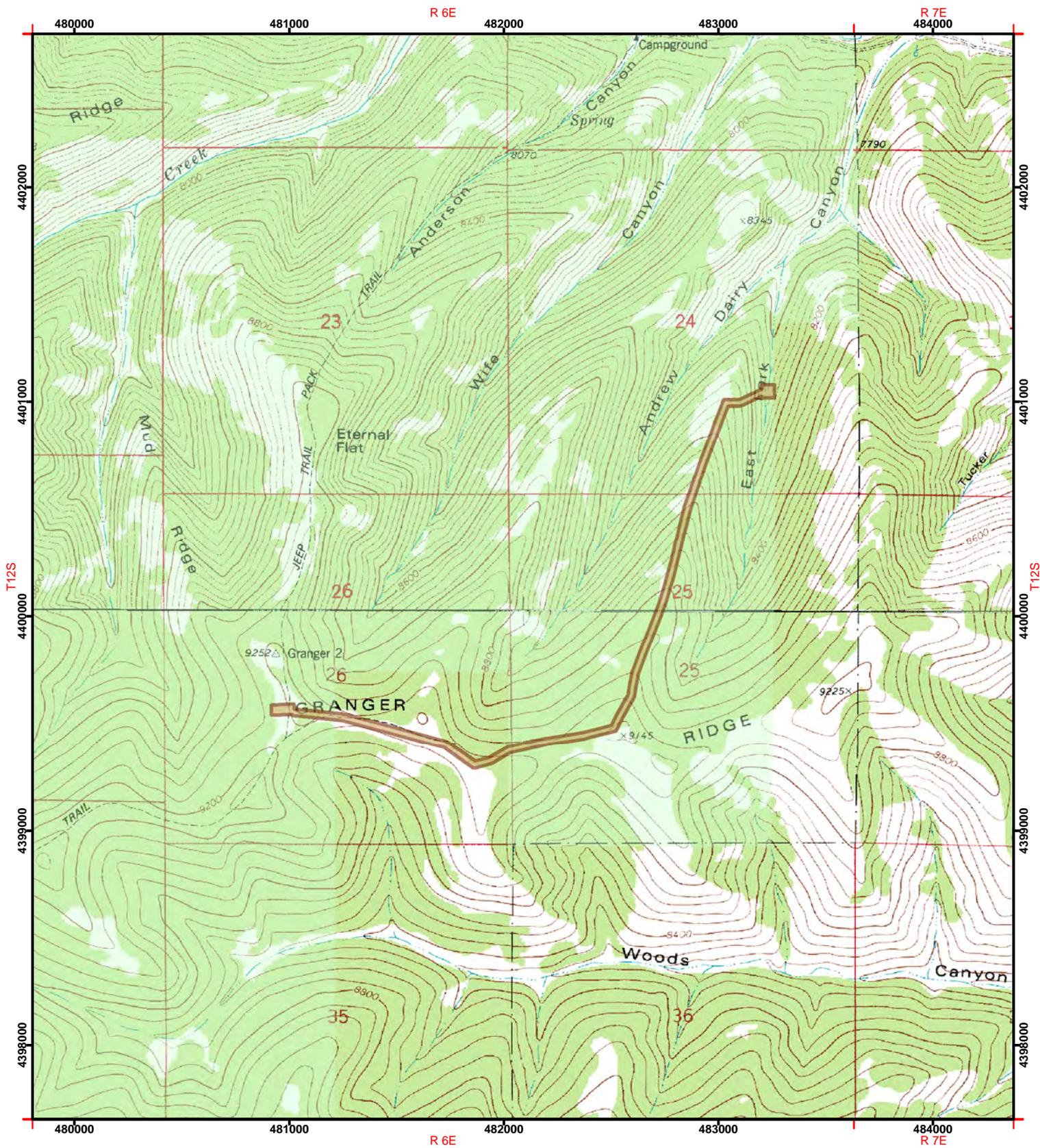
ENVIRONMENTAL OVERVIEW

The Project area lies in the Wasatch Plateau Section of the Basin and Range – Colorado Plateau Transition Physiographic province (Stokes 1986:247). This Transition Zone exhibits characteristics of both the Basin and Range and Colorado Plateau Physiographic provinces. The Basin and Range Province is characterized by broad flat desert valleys and basins divided by parallel, north-south trending mountain ranges; while the Colorado Plateau Province includes higher elevations and a generally more mountainous environment (Fenneman 1931). The Wasatch Plateau is the largest of eight elevated tablelands that trend north-to-south through central and southern Utah, known collectively as the High Plateaus of Utah (Geary 1996:2). The Wasatch Plateau is the only one capped entirely by sedimentary rocks (Stokes 1986:247). The Price/Spanish Fork Rivers form the northern boundary of the Plateau, and Salina Canyon marks the southern border. The Wasatch Plateau is an erosional remnant undergoing geological removal along a ragged eastern margin and a summit protected by thin resistant Paleocene-age Flagstaff Limestone (Stokes 1986:247). The eastern edge is a continuation of the Book Cliffs. The western edge of the Wasatch Plateau is marked by an abrupt descent of beds along the Wasatch Monocline (Stokes 1986:247). Huntington Creek, south and west of the Project area, is one of several permanent streams traversing the Plateau. Elevations in the Project area range from about 8,700 feet (2,652 meters) to more than 9,655 feet (2,943 meters) above mean sea level.



General Project Location
Figure 1

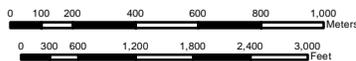
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Legend

Project Reference

- Location of Areas Surveyed
- U.S. Forest Service
- Private



USGS Quadrangle: Scofield, Scofield Reservoir

1:24,000
 UTM 12 North
 North American 1983



FIGURE 2
 Location of Areas Surveyed

SKYLINE MINE - 2016 WATER MONITORING WELL
 (16-22-1) DRILLING PROJECT; U-16-EO-0461f

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Soils

Sediments consist predominantly of well-drained sandy and stony loams of the Curecanti family-Pathhead complex, as well as stony and clay loams of the Trag-Croydon complex (Natural Resources Conservation Service [NRCS] 2014).

These sediments occur on mountain slopes and flanks and are composed mostly of colluvium and/or slope alluvium over residuum derived from weathered sandstone and shale (NRCS 2014).

Vegetation

Plant communities occurring in and immediately surrounding the Project area contain taxa characteristic of the Canadian Life Zone (Cronquist et al. 1972). Vegetation is dominated by species associated with the Greasewood/Shadscale vegetation community. Observed plants include quaking aspen (*Populus tremuloides*), Engelmann spruce (*Picea engelmannii*), sagebrush (*Artemisia* spp.), yarrow (*Achillea millefolium*), grasses, and herbaceous plants. Non-native Russian thistle (*Salsola* spp.) was also observed throughout the Project area.

The vegetation communities here have been subjected to more than 100 years of grazing activities that have altered the natural distribution of plants in the area. Visible disturbances consist of road construction and maintenance and grazing trails associated with ranching and grazing activities.

CULTURAL OVERVIEW

The prehistory of the eastern Great Basin and northern Colorado Plateau is commonly divided into several periods, each thought to represent a distinct subsistence strategy and way of life. While terminology sometimes differs between researchers, the basic periods are (1) Paleoindian (12,000 to 9,000 B.P. [Before the present]); (2) Archaic (8,500 to 1,500 B.P.); (3) Formative (1,500 to 600 B.P.); and (4) Late Prehistoric (600 to 150 B.P.). Many descriptions of the prehistoric archaeological complexes of the region have appeared elsewhere, and should be consulted for a fine-grained and comprehensive description of each (Aikens and Madsen 1986; Madsen and Simms 1998; Marwitt 1986; Kelly 1997; Janetski 1991; Callaway et al. 1986; Jennings 1978; Simms 2008).

The European-American history of the region has also been documented by other researchers (Watt 1997; Antrei and Roberts 1999; Geary 1996), whose works should be reviewed for a detailed description of the events and individuals relevant to this period. Briefly, the first Euroamerican settlers in the region consisted of stockmen from Utah Valley—S. J. Harkness, T. H. Thomas, William Burrows, O. G. Kimball, D. D. Green, A. H. Earl, and R. McKecheney who were attracted by the immense ranges for their cattle—who brought their herds to Pleasant Valley (where Scofield Reservoir is today) in 1875 (Dilley 1900).

Coal was discovered in Pleasant Valley in 1875, and 2 years later a small mine was opened on the western slopes of the canyon. The winter of 1877 came early and was very severe, stranding the miners and keeping them snowbound until the following February. The ordeal led the miners to name their forced camp “Winter Quarters,” which became one of the first commercial coal mines in the state (Carr 1972:73). Most of the first miners at Winter Quarters were Mormon converts from the coal districts of Wales, England and Scotland. The Denver and Rio Grande Western Railroad Company acquired the Pleasant Valley Coal Company in 1882 and undertook the development of a new mine on Mud Creek, one mile from Winter Quarters. As the local Mormon Bishop, David Williams, controlled the local miners, the Pleasant Valley Coal Company brought in Chinese laborers to work the Mud Creek mine. Soon a large contingent of Finns was recruited, along with Italian, Greek, and other Scandinavian workers (Geary 2002). Scofield had a population of roughly 700 people in 1890 (Carr 1972:74).

Mining thrived in Pleasant Valley until 1900, when an errant spark touched off the fine haze of coal dust deep underground, and the Winter Quarters #4 mine exploded (Carr 1972:73; Powell 1994:491). One hundred men were killed instantly, and another ninety-nine died from the poisonous afterdamp, making this one of the worst coal mine disasters in history (Carr 1972:73; Powell 1994:491).

Mining continued, and Scofield, sustained by several mines in Pleasant Valley, was still the largest town in Carbon County. In 1915, Scofield’s citizens made an attempt to have the county seat moved to their community from Price, Utah. By the 1920s, however, the coal industry in Pleasant Valley was in decline, and most mines ceased operation, causing the town to lose nearly all 2,000 of its residents. The Winter Quarters mines continued to operate until 1928 (Carr 1972:73).

The Skyline mine, located in Eccles Canyon south of Scofield, began production in the early 1980s, when Coastal Corporation bought the leases from Energy Fuels Company and developed three sets of mine entries, the #1 mine, #2 mine and #3 mine. The #2 mine closed in the mid to late 1980s and the #1 in the 1990s. The #3 mine has been operating almost the entire time (excerpted from <http://geology.utah.gov/utahgeo/energy/coal/coaltour/mines/skyline.htm>).

Sheep herding was contemporary with settlement of the region, and would come to dominate the local livestock industry (Antrei and Roberts 1999:110). Small communal herds came to the region with the earliest pioneers, as a source of wool and meat, but it wasn’t until roughly 1875 that commercial sheep enterprises became common in the Wasatch Plateau (Antrei and Roberts 1999:111). Some regional shepherders managed herds in excess of 5,000 animals, but sold only a small number of their stock locally; most were for the national and international markets (Watt 1997:56). Owners of the sheep could make enough money to live quite well, but the life of a shepherd was lonely and hard. Initially, the shepherders were local Euroamericans, but Frenchmen and French Basques began herding sheep in the region in the late 1890s, with shepherders of Greek descent becoming common about a decade later (Watt 1997:56).

Sheep need a summer and winter range, with plentiful grass and water. Summer ranges of sheep herders in eastern Utah were (and continue to be) in the mountains, with winter ranges occupying the lower elevation valleys as far south as the Rafael Desert in Emery County (Watt 1997:56;

Antrei and Roberts 1999:111). In the early spring, sheepherders drove their herds to the shearing corrals at the railheads where they were sheared and dipped to remove ticks.

The Taylor grazing Act of 1934 limited the number of animals allowed to graze public lands and forced sheepmen to lease or purchase land for their flocks; thereafter, the number of grazing animals in the region decreased drastically (Watt 1997:57). Sheep continue to graze summer ranges in and surrounding the APE.

PREVIOUS PROJECTS AND RECORDED CULTURAL RESOURCES

A file search for previously recorded cultural resource sites and previously conducted surveys within 1-mile of the current Project area was conducted on June 27, 2016, by EPG archaeologist Lindsay Fenner at the Utah Division of State History, Utah State Historic Preservation Office (SHPO), in Salt Lake City. In addition, the National Register of Historic Places, the Utah State Register of Historic Places, the Utah Linear Sites Database, and the historic sites database at the SHPO were examined to determine if additional historic resources, historic structures, or historic sites not in the SHPO archaeological records have been documented in the vicinity of the Project area. The searches identified 11 cultural resources projects and one cultural resources site within 1 mile of the current Project area (Table 1). Three of these projects (U95AF0252, U05FS1530, and U14EO0753) occur within the current Project area. No previously recorded sites are located in the current Project area.

State Project No.	Report Title	Organization
U82BC0838	Husky Oil Brooks Fed. 6-35 Road and Drill Site	BYU - Office Of Public Archaeology
U90AF0480	3 Wells & Access-Winter Quarters Canyon/Granger Ridge	Archaeological Environmental Research Corporation
U93FS0404	1993 Price District Spring Developments	USFS
U95AF0252	Drill/Seismic Investigations-Upper Huntington & Winter Quarters CB/EM/SP	Archaeological Environmental Research Corporation
U05EP0710	Winter Quarters Drilling	Earth Touch
U05FS1530	West Scofield	USFS
U06EP0818	Winter Quarters 2006 Drilling	Earth Touch
U06EP1077	A CRI of one drill Location in the Granger Ridge Area West of Scofield Reservoir, Carbon County, Utah	Earth Touch
U06EP1857	Woods Canyon 2007 Drilling	Earth Touch
U09EP0054	Woods Canyon Drilling - Skyline	Earth Touch
U14EO0753	A CRI For the Skyline Mine Expansion and Transmission Line Construction Project in Carbon and Emery Counties, Utah	EPG

One previously recorded site is present within 1 mile of the present APE. Site 42CB3253 consists of an historic sheep camp and several culturally modified trees (CMT)/aspen tree carvings on a relatively flat, but northeast-trending ridgeline on the south side of Granger Ridge, approximately 1 kilometer (0.6 miles) southwest of the current Project. The site was recorded by

EPG during surveys completed for the Skyline Mine Expansion Project in 2014 (Yentsch 2014a). The site has been determined not eligible for the National Register of Historic Places under any criterion, as the site is not likely to provide additional significant data important to furthering the understanding of historic activities in the region (Yentsch 2014b).

GENERAL LAND OFFICE MAPS REVIEW AND FIELD INVESTIGATION

As part of the records search, a search of the General Land Office (GLO) survey plats available at the Bureau of Land Management (BLM) Internet public access site (www.ut.blm.gov/LandRecords/search_plats.cfm) was conducted on May 16, 2016. All available GLO maps for the Project area were reviewed for the presence of historic features and transportation routes (GLO 1883, 1896, and 1939). The purpose of these record searches was to identify potential historic resources (e.g., features, transportation routes, and telecommunications lines) that could be encountered during the field inventory. The review identified no historic resources located in the Project area.

METHODOLOGY

Intensive-level (Class III) cultural resources inventories were completed for 27.4 acres (11.09 hectares) of USFS (Manti-La Sal National Forest) administered land and private property in Carbon County, Utah, centered roughly on the Skyline Mine, west-northwest of the community of Scofield, Utah. The Project area was identified using a differentially correctable Trimble GeoXT GeoExplorer 2008 Series handheld global positioning system (GPS) unit in conjunction with aerial photographs, topographic landforms, access roads, and Project maps as points of reference.

The Class III pedestrian survey was completed by one archaeologist walking parallel transects spaced no more than 10 meters (33 feet) apart. Ground surface visibility was at or near 100 percent over the entire Project area.

For the purposes of this inventory, the criteria set forth in the BLM Guidelines (BLM 2002:6) were used to define sites and isolated occurrences (IOs). A site was defined as 10 or more artifacts representing a single artifact class in a 30-foot (10-meter) area, or at least 15 artifacts representing two artifact classes in a 30-foot (10-meter) area, that date prior to 1966. IOs were defined as a group of nine or fewer artifacts located in a 30-foot (10-meter) area and dating prior to 1966.

Recordation of IOs included the collection of Universal Transverse Mercator (UTM) coordinates, a brief description of any defining attributes or characteristics, and a description or drawing of any distinguishing marks. Where appropriate, IOs were also photographed and/or drawn to aid in further analysis.

IO locations were documented in the field with a differentially correctable Trimble GeoXT, GeoExplorer 2008 Series GPS unit using North American Datum, 1983 (NAD83) coordinates. GPS data were post-processed using GPS Pathfinder Office version 5.30 software. Maps were

created by projecting IO locations onto geo-referenced 7.5 minute USGS quadrangle maps using ESRI ArcGIS 10 software.

INVENTORY RESULTS AND RECOMMENDATIONS

Class III cultural resources inventories were completed for the Project by EPG archaeologist Andy Yentsch on July 21, 2016. The purpose of the cultural resources inventory was to locate, record, and assess the significance of all cultural resources located in the Project area. Two IOs were encountered and documented during the pedestrian surveys completed for the Project. Their locations are presented in Figure 3.

Isolated Occurrences

Two IOs (IO1 and IO2) were identified, documented, and mapped during the pedestrian surveys (Table 2; Figure 3). These items do not meet the standards for a site as defined in the *Guidelines for Identifying Cultural Resources* (BLM 2002:6). Recordation consisted of a description of the items, including type and measurements, and photographs were taken. Object locations were mapped based on UTM data gathered using a differentially correctable Trimble GeoXT, GeoExplorer GPS unit.

Isolate Number	Description	UTM Easting	UTM Northing
IO1	Two trees containing dendroglyph/aspen carvings dating 1916, 1935, and 1936.	482369	4399424
IO2	Single tree containing dendroglyph/aspen carvings dating 1921, 1935, and 1962.	482381	4399432

IO1

IO1 (Photograph 1) consists of two CMTs containing historic inscriptions. Tree 1 displays the initials “H.V.Y” and the date “7 - 20 - 36”, and the initials “ELJ” and “JUNE 2 1916.” The tree measures 53 inches (135 centimeters) in circumference. The inscriptions measure 9¾ inches high and 25½ inches wide; and 19 inches high and 9¾ inches wide, respectively. The “H.V.Y” inscriptions are 18 inches above those of “ELJ”. Inscriptions are found on the south-facing portion of the tree, and begin 41 inches above the present ground surface.

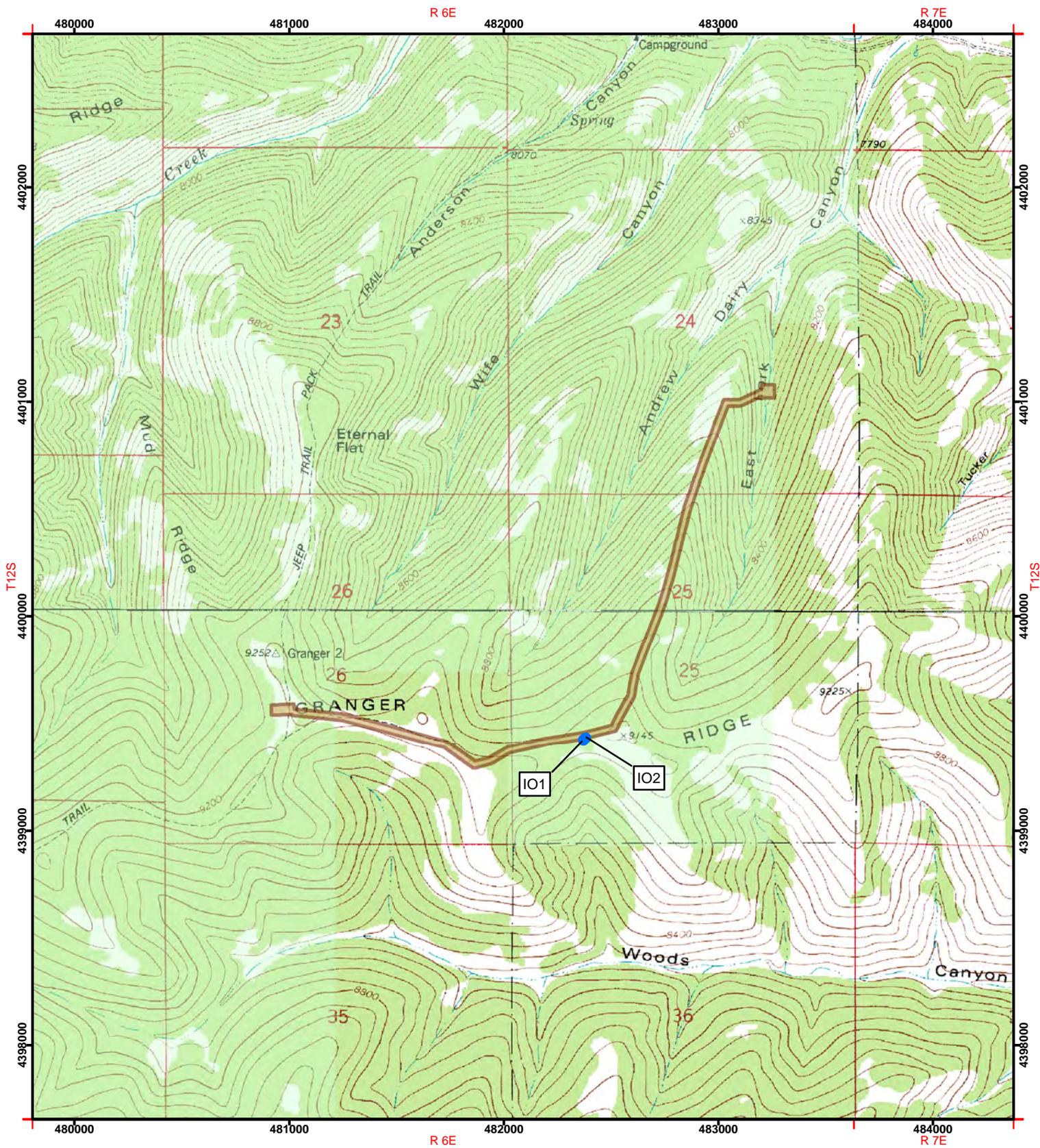
Tree 2 is 19 feet (5.8 meters) northeast of Tree 1 and displays the inscription “H.V. YORGASON” and the date “8 – 22 - 35”. The tree measures 46½ inches (118 centimeters) in circumference. The inscriptions measure 20 inches high and 38 inches wide. Inscriptions are found on the southeast-facing portion of the tree, and begin 59½ inches above the present ground surface. Other, out-of-period inscriptions occur on trees in the immediate area.



Photograph 1 Close up of IO1, Tree 1 showing historic inscriptions. View is to the north-northeast.

IO2

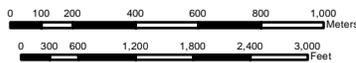
IO2 (Photograph 2) consists of a single CMT containing historic inscriptions. This tree displays the initials “ELJ”; “Jack” with indiscernible carvings and a “35” date; and illegible initials with what looks like a date “09/21/1962.” The tree measures 53 inches (135 centimeters) in circumference. The inscriptions cover the south-facing portion of the tree, beginning 51 inches above the present ground surface. Other, out-of-period inscriptions occur on trees in the immediate area.



Legend

Project Reference

- Location of Areas Surveyed
- Isolate
- U.S. Forest Service
- Private



USGS Quadrangle: Scofield, Scofield Reservoir

1:24,000
UTM 12 North
North American 1983



FIGURE 3
Location of Recorded Isolates

**SKYLINE MINE - 2016 WATER MONITORING WELL
(16-22-1) DRILLING PROJECT; U-16-EO-0461f**

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Photograph 2 Close up of IO2, showing the historic inscription “Jack”, and indiscernible date of “35.” Other names, initials, and dates not really legible. View is to the north.

PROJECT SUMMARY

This report has been completed to provide cultural resources clearance for the potential Skyline Mine – 2016 Water Monitoring Well (16-22-1) Drilling Project in Carbon County, Utah. A total of 27.4 acres (11.09 hectares) were surveyed for this Project, resulting in the identification and documentation of two isolates (IO1 and IO2). No cultural resources sites were identified in the Project area for the present investigation. Therefore, there will be no historic properties affected by the Project and no further action will be required. Ultimately, clearance to proceed with the proposed mine expansion and transmission line construction discussed here is subject to agency review of this cultural resources evaluation by the USFS.

These investigations were conducted using techniques considered to be adequate for evaluating cultural resources available for visual inspection, and which could be adversely affected by the Project. However, should additional cultural resources be discovered during the course of construction activities, a report should be made immediately to the lead archaeologist at the appropriate land-management agency.

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Appendix E
Soils

July 29, 2016

Jeremiah Armstrong
Skyline Mine
HC 35 Box 380
Helper, Utah 84526

Dear Jeremiah

Alpine Ecological has conducted a soil survey on the proposed drill site WM-16 on behalf of Skyline Mine. The survey was conducted in order to comply with requirements of Utah Division of Oil, Gas and Mining (DOG M).

NRCS Soil Data

There has been no soil survey conducted in the area of the proposed drill site WM-16. The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) have conducted soil surveys approximately 0.2 miles East of the proposed drill site. The USDA-NRCS Web Soil Survey (WSS) utility and associated soil reports were used in determining the soil types in the proposed disturbance area (Appendices A & B).

According to the information provided by the NRCS, soils in the vicinity of the proposed drill site is comprised of the Curecanti family-Pathead complex as well as 9 others. The Curecanti family-Pathead complex was identified on in the lower elevation valleys of the soil survey areas.

The proposed drill site WM-16 is located on an east facing toeslope, base slope. This soil most closely resembles the Curecanti family-Pathead complex.

Site Reconnaissance

Site reconnaissance was conducted by Dr. Stevens. The proposed drill site location was identified and similar areas near each proposed drill location were identified to conduct soil surveys (Appendix C). The reason why sites were chosen so close to the actual proposed drill site locations were to ensure that the same or very similar soils were being tested in relationship to those that would be disturbed with the proposed drill project.

Since there were no soil surveys previously conducted in the proposed drill site area by the NRCS Dr. Stevens investigated road cuts and other exposed soils within the NRCS soil survey area east of the affected areas to familiarize himself with the previously classified soils.

Soil Profiles

Soil investigations were conducted near the proposed WM-16 drill location on July 1, 2016. A soil profile (SpWM-16) was excavated near the proposed drill location to gather representative soils data for the proposed drill site. The soil pit was excavated by hand to a depth of approximately 1 meter. The pit was logged and photographed (Appendices D and E). The soils in the pits correlated with Curecanti family-Pathead complex soils identified by the NRCS in nearby areas. The site was excavated on an east facing toeslope, base slope.

Please feel free to contact me if you have any questions.

Sincerely,
Alpine Ecological

A handwritten signature in black ink, appearing to read 'Allan Stevens', with a long horizontal flourish extending to the right.

Allan Stevens PhD

Appendix A

Map and Legends of NRCS Soil Survey
(obtained from WSS)

Soil Map—Carbon Area, Utah, Parts of Carbon and Emery Counties; and Manti-Lasal National Forest, Manti Division - Parts of Sanpete and Emery Counties



Map Scale: 1:58,300 if printed on A landscape (11" x 8.5") sheet.

0 500 1000 2000 3000 Meters

0 2500 5000 10000 15000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Carbon Area, Utah, Parts of Carbon and Emery Counties

Survey Area Data: Version 7, Jul 31, 2014

Soil Survey Area: Manti-Lasal National Forest, Manti Division - Parts of Sanpete and Emery Counties

Survey Area Data: Version 1, Dec 27, 2013

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 12, 2011—Aug 13, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Carbon Area, Utah, Parts of Carbon and Emery Counties (UT616)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
22	Croydon loam, 30 to 50 percent slopes	177.1	1.0%
23	Curecanti family-Pathead complex	1,254.4	7.2%
30	Falcon-Rock outcrop complex	696.1	4.0%
32	Frandsen-Gullied land complex	228.0	1.3%
72	Pathead-Curecanti family association	11.4	0.1%
108	Silas loam	346.5	2.0%
109	Silas-Brycan loams	419.5	2.4%
115	Trag stony loam, 30 to 60 percent slopes	2,222.3	12.8%
116	Trag-Beje-Rottulee family complex	72.8	0.4%
117	Trag-Beje-Senchert complex	357.0	2.1%
118	Trag-Croydon complex	1,389.7	8.0%
128	Water	2,340.2	13.4%
Subtotals for Soil Survey Area		9,515.1	54.7%
Totals for Area of Interest		17,403.0	100.0%

Manti-Lasal National Forest, Manti Division - Parts of Sanpete and Emery Counties (UT645)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	7,888.0	45.3%
Subtotals for Soil Survey Area		7,888.0	45.3%
Totals for Area of Interest		17,403.0	100.0%

Appendix B

Soil Series Descriptions for Curecanti family-Pathead Complex as
Developed by the NRCS
(obtained from WWS)

Carbon Area, Utah, Parts of Carbon and Emery Counties

23—Curecanti family-Pathead complex

Map Unit Setting

National map unit symbol: jx4t
Elevation: 6,980 to 8,970 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 38 to 45 degrees F
Frost-free period: 60 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Curecanti family and similar soils: 30 percent
Pathead and similar soils: 25 percent
Pathead and similar soils: 25 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Curecanti Family

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone and shale

Typical profile

A11 - 0 to 7 inches: loam
A12 - 7 to 15 inches: very stony loam
A2 - 15 to 20 inches: very stony loam
B21t, B22t - 20 to 60 inches: very stony loam

Properties and qualities

Slope: 50 to 70 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Mountain very steep loam (oak) (R048AY465UT)

Description of Pathead

Setting

Landform: Mountainsides, canyons
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Colluvium over residuum weathered from sandstone and shale

Typical profile

A1 - 0 to 4 inches: extremely bouldery fine sandy loam
C1, C2 - 4 to 38 inches: very stony fine sandy loam
R - 38 to 42 inches: unweathered bedrock

Properties and qualities

Slope: 40 to 70 percent
Percent of area covered with surface fragments: 33.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: Mountain windswept ridge (R048AY478UT)

Description of Pathead

Setting

Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium over residuum weathered from sandstone and shale

Typical profile

A1 - 0 to 3 inches: extremely stony loam
C1, C2 - 3 to 26 inches: very cobbly loam
R - 26 to 30 inches: unweathered bedrock

Properties and qualities

Slope: 50 to 70 percent
Percent of area covered with surface fragments: 33.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: Mountain very steep loam (Salina wildrye)
(R048AY466UT)

Minor Components

Perma family

Percent of map unit: 10 percent

Midfork family

Percent of map unit: 7 percent

Senchert family

Percent of map unit: 3 percent

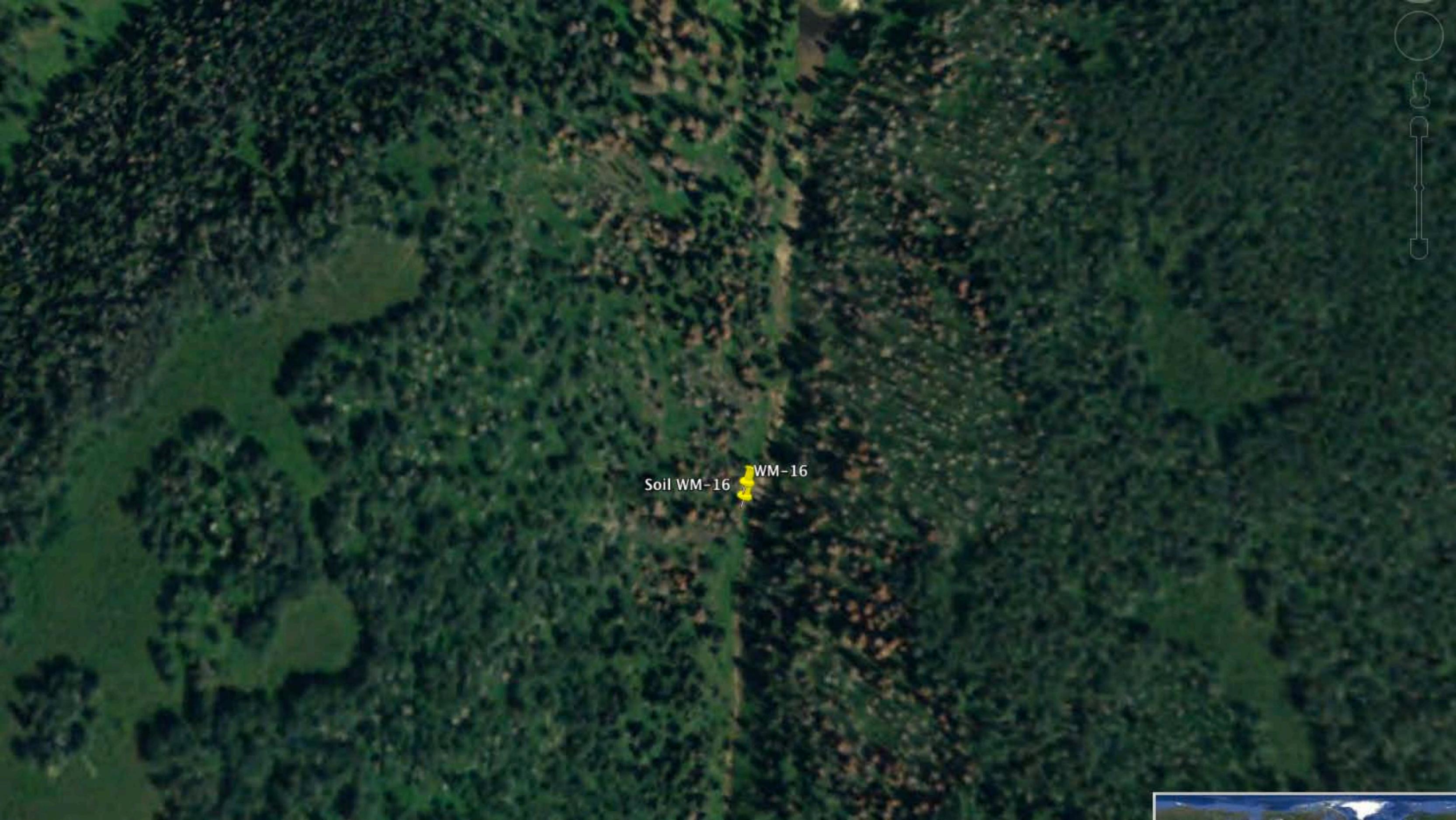
Data Source Information

Soil Survey Area: Carbon Area, Utah, Parts of Carbon and Emery Counties
Survey Area Data: Version 7, Jul 31, 2014

Soil Survey Area: Manti-Lasal National Forest, Manti Division - Parts of Sanpete and Emery Counties
Survey Area Data: Version 1, Dec 27, 2013

Appendix C

Google Earth Images of Soil Pit Location in Relationship to Proposed Drill Site



Soil WM-16 WM-16

Appendix D

Soil Profile Log

Soil Profile Log

Sp WM-16

Name	Allan Stevens			Drainage Pattern	Dendritic						
Date	July 1, 2016			Drainage	WD Well Drained						
Weather	Overcast (70 ⁰ F)			Flooding	None						
Location	39°45'33.29"N 111°11'44.88"W			Ponding	None						
Slope Aspect	East			Depth to Water	Unkn.						
Slope Gradient	Level 10%			Plant Cover	RG Rangeland/Grassland BRMA, POPR, ACMI, URDI						
Slope Complexity	Complex			Parent Material	COL Coluvium						
Slope Shape	VL Convex Linear			Erosion	W,1 0-25% erosion from water						
Hillslope Profile	TS Toeslope			Surface Fragment	S1 Slightly Stony						
Geomorphic	BS Base Slope										
Diagnostic Horizons	Observation Method	Depth (cm)	Boundary		Color		Texture	Structure	Reaction (HCl)	% Rock Fragment and Size	% Roots Size and Location
			Distinctness	Topography							
A	SP	0-58	Gradual	Irregular	Black	7.5YR 2.5/1	SIL	F, gr	ST	FGR 5%	VF 20%
B	SP	58-139			Dark Brown	7.5YR3/2	CL	F, sbk	ST	FGR 5%	VF <1 %
Depth	Description										
0-58	Silty loam with very fine root material, fine granular, fine gravel, moist										
58-122	Clayey loam with very fine root material, fine subangular blocky, fine gravel, moist										

Appendix E

Soil Profile Photo



Appendix F Vegetation

**Skyline Mine
Vegetative Analysis of
Proposed Drill Site WM-16
and Reference Site WM-16**

Report Prepared By

Alpine Ecological
HC 80 Box 570
Greenwich, UT 84732

By Allan R. Stevens Ph.D

For
Canyon Fuel Company, LLC.
Skyline Mine
HC 35 Box 380
Helper, Utah 84526

July 2016

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Introduction

The purpose of the proposed drill site WM-16 is part of a water monitoring program and will be drilled by using a helicopter and portable drill.

Total estimated disturbance area for drill site WM-16 in 2016 is less than 0.10 acres. Reclamation of the area should not be needed because the vegetation will be laid over the drill spot after drilling. If revegetation is necessary it will occur in the fall of 2016 after completion of the drilling.

Skyline Mine is a coal mine with its surface facilities located about 4 miles southwest of the town of Scofield in Carbon County, Utah. The drill site WM-16 is located north to northeast of the surface facilities of the mine. The drill site is located on the east facing slope toward the bottom of a canyon in Carbon County close to the Carbon/Sanpete/Emery County line. The site has been burned by a wildfire in the near past. The vegetation on the drill site is grasses, forbs, shrubs and a few trees. The elevations of the drill sites is 8,099 feet above sea level.

Methods

Sampling Standards

Methodologies used for this analysis were performed in accordance with vegetation guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGGM). In July of 2016, quantitative and qualitative data were collected in the plant communities proposed for drilling activities as well as reference areas that were chosen for future revegetation success standards.

Sampling Methodology for Cover, Frequency and Composition

The areas that is proposed to be disturbed is centered on the proposed drill site. Therefore, the vegetation around the drill site needed to be analyzed. It was determined that the best method to determine vegetative cover frequency and composition on this area would be nested frequency belt lines as described in the U.S. Forest Service Rangeland Ecosystem Analysis and Monitoring Handbook (FSH 2209.21). Five 100 ft. beltlines were established in five different compass directions radiating from the proposed drill site and reference site point. With this methodology the vegetation composition around the proposed drill site and reference site would be determined. The five compass directions used were the following from magnetic North: Belt 1 at 23

degrees, Belt 2 at 121 degrees, Belt 3 at 173 degrees, Belt 4 at 269 degrees and Belt 5 at 296 degrees. Every 5 ft. along each transect line a $\frac{1}{2}$ m² nested frequency frame was placed on alternating sides of the transect line. Species composition and frequency were recorded using the frame. Ground cover was also determined using the frame. The percent cover of each species was then estimated within each frame. A total of 100 nested frequency data points were therefore taken at each proposed drill site and each reference site. Plant nomenclature follows the USDA-ARS Plant Database (plants.usda.gov).

Placement of Reference Sites

The reference site was chosen to represent future revegetation success standards. The reference site was chosen by walking far enough away from the proposed drill site so it would not be disturbed during the drilling activity. Locations for the reference site was chosen by visually looking at the site and trying to choose a site that looked similar in vegetative composition to the proposed drill site.

Sampling Methodology for Forage Production

Clip and weigh methods described in Utilization Studies and Residual Measurements interagency technical reference were used to estimate forage production. Twenty random samples were taken around each proposed drill site location and reference area site. A 0.96 ft² plot was placed at each random site and vegetation was clipped and weighed. Percent dry mater was determined by using standard drying table estimates and dry forage production was estimated and converted to pounds per acre by taking the average grams collected x 100.

Sampling Methodology for Density

Density estimates for the woody plant species on the proposed drill site and reference areas were made using a distance method called the point-quarter technique. In this method, random points were placed on the sample sites and measured into four quarters. The distance to the nearest woody plant species were then recorded in each quarter. The average point to individual distance was equal to the square root of the mean area per individual.

Photographs and Map

A map was created with the proposed drill site and reference site (Appendix 5). In addition photographs were taken of each belt line from the center point (Appendix 3-4).

Threatened, Endangered, Candidate and Sensitive Species

The inventory of federally listed threatened, endangered and candidate plant species for Carbon, Emery and Sanpete Counties was consulted prior to field work. Carbon, Emery and Sanpete County lists were consulted because the proposed drill site is close to the Carbon/Sanpete/Emery County lines. In addition the State of Utah, Department of Natural Resource's biodiversity database and the USDA Forest Service Intermountain Region's list of proposed, endangered, threatened and sensitive species for the Manti portion of the Manti-La Sal National Forest was consulted for possible impacts by the proposed project. If applicable, this information would be used to drive species of concern field surveys if any of the species or habitats were found on or near the proposed project.

Results

Drill Site WM-16

The proposed drill site WM-16 is located at the bottom of an east facing slope (Appendix 5). The site has been burned by a wildfire in the near past. Therefore there are numerous dead standing and fallen trees in the area. The site is primarily a grass/forb community with a few shrubs and live trees.

There overstory species were subalpine fir (*Abies lasiocarpa*) and quaking aspen (*Populus tremuloides*). The most common understory species were mountain brome (*Bromus marginatus*), Kentucky bluegrass (*Poa pratensis*), and common yarrow (*Achillea millefolium*). A list of all species encountered in the sample quadrats is listed in Appendix 1.

Total living cover for this area was estimated at 56.55%, of which 48.75% was from understory cover and 7.8% was from overstory cover (Appendix 1). The composition of the understory cover was 35.55% grasses, 61.98% forbs and 2.47% shrubs.

The estimates made for total available dry forage for this site 1,120 lbs/acre.

Reference Site WM-16

The proposed reference site WM-16 is located at the bottom of an east facing slope (Appendix 5). The site has been burned by a wildfire in the near past. Therefore there are numerous dead standing and fallen trees in the area. The site is primarily a grass/forb community with a few shrubs and live trees.

There overstory species were subalpine fir (*Abies lasiocarpa*) and quaking aspen (*Populus tremuloides*). The most common understory species were mountain brome (*Bromus marginatus*), Kentucky bluegrass (*Poa pratensis*), organe sneezeweed (*Hymenoxys hoopesii*), common yarrow (*Achillea millefolium*) and fewflower pea (*Lathyrus pauciflorus*). A list of all species encountered in the sample quadrats is listed in Appendix 1.

Total living cover for this area was estimated at 59.35%, of which 49.75% was from understory cover and 9.6% was from overstory cover (Appendix 1). The composition of the understory cover was 37.56% grasses, 58.93% forbs and 3.51% shrubs.

The estimates made for total available dry forage for this site 1,180 lbs/acre.

Analysis of Similarities Between Drill Site and Reference Site

Specific parameters for those plant communities that would be disturbed by the proposed drilling activities were compared statistically using an unpaired t test with the correlating reference area that could be used for revegetation success standard following final reclamation of the site. When total living cover values of the proposed drill site were compared to the corresponding reference site there were no significant differences found between the sites.

Threatened, Endangered, Candidate and Sensitive Species

The following is a table of potential endangered, threatened, candidate and sensitive plant species know to occur in Carbon, Sanpete and Emery Counties. Next to each species name information is provided about the likelihood of occurrence for each species in the proposed drill site areas.

Federally listed endangered, threatened, candidate and sensitive species for Emery and Sanpete County.	
Endangered	
<i>Pediocactus despainii</i> (San Rafael cactus)	<p>This species is found in open pinyon-juniper communities at 6,000-6,200 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Schoenocrambe barnebyi</i> (Barnaby reed-mustard)	<p>This species is found in mixed shadscale, eriogonum and ephedra communities at 5,600-5,700 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Sclerocactus wrightiae</i> (Wright fishhook cactus)	<p>This species is found on the Mancos Shale Formation in salt desert shrub to juniper communities at 4,790-6,120 ft. elevation.</p> <p>The study area is above the elevation range for this species. The vegetative types are very different and there is no Mancos Shale in the study area.</p> <p>The proposed project will not impact this plant species.</p>
Threatened	

<p><i>Astragalus montii</i> (Heliotrope milk-vetch)</p>	<p>This species is found in alpine on windblown ridges and snowdrift sites at 10,500-11,000 ft. elevation.</p> <p>The study areas are below the elevation range for this species. The habitat is different. The know locations of this species are well South of the study area.</p> <p>The proposed project will not impact this plant species</p>
<p><i>Cycladenia humilis var jonesii</i> (Jones Cyladenia)</p>	<p>This species is found in cool desert shrub and juniper communities at 4,400-6,000 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<p><i>Pediocactus despainii</i> (Despain Footcactus)</p>	<p>This species is found in open piyon-juniper communities at 6,000-6,200 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<p><i>Townsendia aprica</i> (Last Chance townsendia)</p>	<p>This species is found in salt desert shrub and pinyon-juniper communities in the Arapien and Mancos Shale formations at 6,100-8,000 ft. elevation.</p> <p>The study areas are not found in the Arapien or Mancos Shale formation. The vegetative types are very different.</p>

	The proposed project will not impact this plant species.
Candidate/Sensitive	
<i>Aster kingie</i> var <i>barnebyana</i> (Barneby woody aster)	<p>This species is found in mountain mahogany-oak communities in rock outcrops composed of Precambrian quartzite at 7,345-7,610 ft. elevation.</p> <p>There are not outcrops of Precambrian quartzite in the study areas. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Astragalus consobrinus</i> (Bicknell milkvetch)	<p>This species is found in sagebrush-grassland and pinyon-juniper communities on the Mancos Shale formation at 5,200-9,000 ft. elevation.</p> <p>The study areas are not found in the Mancos Shale formation. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Astragalus subcinereus</i> var. <i>basalticus</i> (Basalt milkvetch or Silver milkvetch)	<p>This species is found in pinyon-juniper and ponderosa communities at 4,520-7,970 ft. elevation.</p> <p>The vegetative types of the study areas are very different and the know population of this plant are found in southern Emery County.</p> <p>The proposed project will not impact this plant species.</p>
<i>Cryptantha caespitosa</i> (Tufted cryptanth of	This species if found in clay soils.

Caespitose catseye)	<p>The know populations are located far east of the proposed sites.</p> <p>The proposed project will not impact this plant species.</p>
<i>Cryptantha compacta</i> (Mound cryptanth)	<p>This species is found in salt desert shrub and mixed desert shrub communities at 4,950-9,250 ft. elevation.</p> <p>The vegetative types of the study areas are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Cryptantha creutzfeldtii</i> (Creutzfeldt-flower)	<p>This species is found in mat atriplex communities on the Mancos Shale formation at 5,250-6,495 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Cymopterus coulteri</i> (Coulter biscuitroot)	<p>This species is found in black sagebrush, shadscale, desert shrub and juniper communitis at 4,955-6,000 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Erigeron carringtonae</i> (Carrington daisy)	<p>This species is found in meadows and escarpment margins at 10,000-11,000 ft. elevation.</p>

	<p>The study areas are below the elevation range.</p> <p>The proposed project will not impact this plant species.</p>
<i>Erigonoum corymbosum</i> var. <i>smithii</i> (Big Flattop buckwheat or Smith wild buckwheat)	<p>This species is found in purple-sage matchweed, ephedra-Indian ricegrass and rabbitbrush communities at 5,200-5,610 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Festuca dasyclada</i> (Sedge fescue)	<p>This species is found on open slopes and ridges in sagebrush, mountain brush, and juniper communities on the Green River Shale Formation and limestone gravels at 6,990-10,000 ft. elevation.</p> <p>The study areas are in a different formation.</p> <p>The proposed project will not impact this plant species.</p>
<i>Gilia tenuis</i> (Mussentuchit Gilia)	<p>This species is found in pinyon-juniper woodlands.</p> <p>The study sites have a very different vegetative type.</p> <p>The proposed project will not impact this plant species.</p>
<i>Hedysarum occidentale</i> var. <i>canone</i> (Canyon sweetvetch or Coal sweetvetch)	<p>This species is found in pinyon-juniper, sagebrush and wash communities at 5,000-8,000 ft. elevation.</p>

	<p>The study sites have a very different vegetative type.</p> <p>The proposed project will not impact this plant species.</p>
<i>Hymenoxys depressa</i> (Low hymenoxys or Depressed bitterweed)	<p>This species is found in ephedra, sagebrush, shadscale and pinyon-juniper communities at 4,400-7,100 ft. elevation.</p> <p>The study sites have a very different vegetative type.</p> <p>The proposed project will not impact this plant species.</p>
<i>Hymenoxys helenioides</i> (Helenium hymenoxys or Intermountain bitterweed)	<p>This species is found in mountain brush, sagebrush, aspen and meadow communities at 8,800-10,700 ft. elevation.</p> <p>Known populations of this species are found at quite a distance south and north of the study site.</p> <p>The proposed project will not impact this plant species.</p>
<i>Lygodesmia entrada</i> (Entrada rushpink)	<p>This species is found in mixed desert shrub and juniper communities at 4,400-4,800 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Mentzelia argillosa</i> (Arapien stickleaf)	<p>This species is found in salt desert shrub and pinyon-juniper communities on the Arapien Shale formation at 5,000-6,200 ft.</p>

	<p>elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different. The Arapien Shale formation is not found in the study areas.</p> <p>The proposed project will not impact this plant species.</p>
<i>Mentzelia multicaulis var. librina</i> (Book Cliffs blazing star)	<p>This species is found in sagebrush, rabbitbrush, and pinyon-juniper communities at 6,200 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Penstemon tidestromii</i> (Tidestrom beardtongue)	<p>This species is found in desert shrub, sagebrush, and pinyon-juniper communities at 5,300-8,200 ft elevation.</p> <p>The study sites have a very different vegetative type.</p> <p>The proposed project will not impact this plant species.</p>
<i>Penstemon wardii</i> (Ward beardtongue)	<p>This species is found in desert shub, pinyon-juniper, sagebrush, shadescale and greasewood communities on the Arapien Shale formation at 5,495-6,810 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p>

	<p>The proposed project will not impact this plant species.</p>
<p><i>Phacelia utahensis</i> (Utah phacelia)</p>	<p>This species is found in salt desert shrub communities on the Arapien Shale Formation at 5,500-5,700 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<p><i>Psoralea polydenia</i> var. <i>jonesii</i> (Jones indigo-bush or glandular indigo-bush)</p>	<p>This species is found in salt desert shrub communities on Mancos Shale formations at 4,820 ft. elevation.</p> <p>The study areas are above the elevation range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<p><i>Silene petersonii</i> (Maguire campion, Wasatch limestone catchfly or Peterson catchfly)</p>	<p>This species is found in ponderosa pine, rocky mountain juniper, bristlecone pine, spruce-fir, and aspen-sagebrush communities on open calcareous and igneous gravels at 6,955-11,200 ft. elevation.</p> <p>The study sites have no open calcareous and igneous gravels.</p> <p>The proposed project will not impact this plant species.</p>
<p><i>Sphaeralcea psoraloides</i> (Psoralea globemallow)</p>	<p>This species is found in zuckia ephedra communities at 4,000-6,000 ft. elevation.</p> <p>The study areas are above the elevation</p>

	<p>range for this species. The vegetative types are very different.</p> <p>The proposed project will not impact this plant species.</p>
<i>Talinum thompsonii</i> (Thompson talinum)	<p>This species is found on silicious conglomeratic gravels in pinyon-juniper and ponderosa pine communities at 7,500 ft. elevation.</p> <p>The study sites do not contain any silicious conglomeratic gravels.</p> <p>The proposed project will not impact this plant species.</p>

Summary

Total estimated disturbance area for drill site WM-16 in 2016 is less than 0.10 acres. Reclamation of the area should not be needed because the vegetation will be laid over the drill spot after drilling. If revegetation is necessary it will occur in the fall of 2016 after completion of the drilling.

The plant community at the proposed drill site WM-16 and reference site WM-16 are in a native condition. However, this site has been burned by wildfire in the recent psst. The plant community where drilling is proposed was quantitatively sampled, along with a reference area chosen to be used for final revegetation success standards. Additionally, endangered, threatened, candidate and sensitive plant species know to occur in Carbon, Sanpete and Emery counties will not be impacted by the proposed drilling action.

Appendix 1- Data Summary Tables for WM-16 Drill Site

WM-16 Drill Site		2016
Percent Cover and Percent Frequency by Species		
Species Name (Common Name)	Mean Percent Cover	Percent Frequency
OVERSTORY		
<i>Abies lasiocarpa</i> (Subalpine Fir)	3.6	
<i>Populus tremuloides</i> (Quaking Aspen)	4.2	
UNDERSTORY		
GRASSES		
<i>Achnatherum thurberianum</i> (Thurber's Needlegrass)	0.5	3
<i>Bromus anomalus</i> (Nodding Brome)	0.21	1.25
<i>Bromus marginatus</i> (Mountain Brome)	9.7	57.75
<i>Carex spp.</i> (Carex)	1.22	7.25
<i>Elymus canadensis</i> (Canada Wildrye)	0.17	1
<i>Poa pratensis</i> (Kentucky Bluegrass)	6.93	41.25
FORBS		
<i>Achillea millefolium</i> (Common Yarrow)	5.12	30.5
<i>Cardus nutans</i> (Musk Thistle)	1.13	6.75
<i>Fragaria virginiana</i> (Virginia Strawberry)	1.01	6
<i>Galium aparine</i> (Common Bedstraw)	1.22	7.25
<i>Geranium richardsonii</i> (Richardson's geranium)	1.01	6
<i>Hymenoxys hoopesii</i> (Orange Sneezeweed)	1.97	11.75
<i>Lappula occidentalis</i> (Flatspine Stickseed)	1.22	7.25
<i>Lathyrus pauciflorus</i> (Fewflower pea)	2.65	15.75
<i>Penstemon rydbergii</i> (Rydberg's Penstemon)	0.21	1.25
<i>Rudbeckia occidentalis</i> (Western Coneflower)	1.47	8.75
<i>Thalictrum fendleri</i> (Fendler's Meadow-rue)	1.39	8.25
<i>Taraxacum officinale</i> (Common Dandelion)	0.67	4
<i>Urtica dioica holosericea</i> (Stinging Nettle)	4.7	28
<i>Vicia Americana</i> (American Vetch)	2.65	15.75
SHRUBS		
<i>Symphoricarpos oreophilus</i> (Mountain Snowberry)	1.3	7.75

WM-16 Drill Site		2016
Total Cover and Composition		
		Mean Percent cover
TOTAL COVER		
Overstory Cover		7.8
Understory Cover		48.75
Litter		35
Bareground		16
Rock		0.25
Total Living Cover		56.55
% Composition		
Grasses		35.55
Forbs		61.98
Shrubs		2.47

WM-16 Drill Site		2016
Woody Species Density		
		Number/Acre
SPECIES (COMMON NAME)		
<i>Abies lasiocarpa</i> (Subalpine Fir)		14.5
<i>Populus tremuloides</i> (Quaking Aspen)		17
<i>Symphoricarpos oreophilus</i> (Mountain Snowberry)		160
TOTAL		191.5

Appendix 2- Data Summary Tables for WM-16 Reference Site

WM-16 Reference Site		2016
Percent Cover and Percent Frequency by Species		
Species Name (Common Name)	Mean Percent Cover	Percent Frequency
OVERSTORY		
<i>Abies lasiocarpa</i> (Subalpine Fir)	2.4	
<i>Populus tremuloides</i> (Quaking Aspen)	7.2	
UNDERSTORY		
GRASSES		
<i>Achnatherum thurberianum</i> (Thurber's Needlegrass)	0.45	3
<i>Bromus anomalus</i> (Nodding Brome)	0.83	5.5
<i>Bromus marginatus</i> (Mountain Brome)	8.66	57.5
<i>Carex spp.</i> (Carex)	1.05	7
<i>Elymus canadensis</i> (Canada Wildrye)	0.26	1.75
<i>Poa pratensis</i> (Kentucky Bluegrass)	7.45	49.5
FORBS		
<i>Achillea millefolium</i> (Common Yarrow)	4.7	31.25
<i>Cardus nutans</i> (Musk Thistle)	2.9	19.25
<i>Fragaria virginiana</i> (Virginia Strawberry)	1.24	8.25
<i>Galium aparine</i> (Common Bedstraw)	0.98	6.5
<i>Geranium richardsonii</i> (Richardson's geranium)	1.5	10
<i>Hymenoxys hoopesii</i> (Orange Sneezeweed)	5	33.25
<i>Lappula occidentalis</i> (Flatspine Stickseed)	1.84	12.25
<i>Lathyrus pauciflorus</i> (Fewflower pea)	4.48	29.75
<i>Penstemon rydbergii</i> (Rydberg's Penstemon)	1.2	8
<i>Rudbeckia occidentalis</i> (Western Coneflower)	0.56	3.75
<i>Thalictrum fendleri</i> (Fendler's Meadow-rue)	0.72	4.75
<i>Taraxacum officinale</i> (Common Dandelion)	2.56	17
<i>Urtica dioica holosericea</i> (Stinging Nettle)	1.66	11
SHRUBS		
<i>Symphoricarpos oreophilus</i> (Mountain Snowberry)	1.69	11.25

WM-16 Reference Site		2016
Total Cover and Composition		
		Mean Percent cover
TOTAL COVER		
Overstory Cover		9.6
Understory Cover		49.75
Litter		29.5
Bareground		20.75
Total Living Cover		59.35
% Composition		
Grasses		37.56
Forbs		58.93
Shrubs		3.51

WM-16 Reference Site		2016
Woody Species Density		
		Number/Acre
SPECIES (COMMON NAME)		
<i>Abies lasiocarpa</i> (Subalpine Fir)		12
<i>Populus tremuloides</i> (Quaking Aspen)		22
<i>Symphoricarpos oreophilus</i> (Mountain Snowberry)		222
TOTAL		256

Appendix 3- Photos of Drill Site WM-16



Drill Site WM-16 Belt 1



Drill Site WM-16 Belt 2



Drill Site WM-16 Belt 3



Drill Site WM-16 Belt 4



Drill Site WM-16 Belt 5

Appendix 4- Photos of Reference Site WM-16



Reference WM-16 Belt 1



Reference WM-16 Belt 2



Reference WM-16 Belt 3



Reference WM-16 Belt 4



Reference WM-16 Belt 5

Appendix 5- Study Area Map



Drill Site WM-16 and Reference Site WM-16

Appendix 6 - UTM Coordinates of Reference Area WM-16

WM-16 Reference 12 S 483234 E 4401102 N

Appendix G
Water Rights



GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

Division of Water Rights

MICHAEL R. STYLER
Executive Director

KENT L. JONES
State Engineer/Division Director

ORDER OF THE STATE ENGINEER

For Temporary Change Application Number 91-5010 (t41756)

Temporary Change Application Number 91-5010 (t41756) in the names of Canyon Fuel Company LLC, and Price River Water User's Association was filed on June 7, 2016, to change the point of diversion, place of use, and uses of 4.5 acre-feet (af) of water as evidenced by Water Right Number 91-5010. Heretofore, the water has been diverted from a surface source located North 810 feet and West 990 feet from the SE Corner of Section 10, T12S, R7E, SLB&M, and was rediverted: (1) Surface - North 1338 feet and East 655 feet from the SW Corner of Section 17, T12S, R7E, SLB&M (Ex.178, Catherine Rudman-spring); (2) Surface - North 860 feet and East 430 feet from the S $\frac{1}{4}$ Corner of Section 19, T12S, R7E, SLB&M (Ex.375, G. Pete Frandsen-spring); (3) Surface - South 560 feet and West 840 feet from the N $\frac{1}{4}$ Corner of Section 13, T13S, R9E, SLB&M (Spring Glen Canal); (4) Surface - North 1310 feet and East 1000 feet from the S $\frac{1}{4}$ Corner of Section 24, T13S, R9E, SLB&M (Gay Ditch); (5) Surface - West 730 feet from the NE Corner of Section 24, T13S, R9E, SLB&M (O'Berto Ditch); (6) Surface - South 1190 feet and West 1490 feet from the E $\frac{1}{4}$ Corner of Section 24, T13S, R9E, SLB&M (Stowell Ditch); (7) Surface - North 580 feet and West 240 feet from the S $\frac{1}{4}$ Corner of Section 36, T13S, R9E, SLB&M (Country Club-Cook Ditch); (8) Surface - North 560 feet and West 240 feet from the S $\frac{1}{4}$ Corner of Section 36, T13S, R9E, SLB&M (Price-Wellington Canal); (9) Surface - South 560 feet and East 680 feet from the N $\frac{1}{4}$ Corner of Section 1, T14S, R9E, SLB&M (Carbon Canal); (10) Surface - North 1410 feet and West 535 feet from the S $\frac{1}{4}$ Corner of Section 8, T15S, R11E, SLB&M (Coal Washing Plant); (11) Surface - North 2261 feet and West 218 feet from the SE Corner of Section 16, T15S, R11E, SLB&M (Coal Washing Plant); (12) Surface - South 1925 feet and West 811 feet from the NE Corner of Section 16, T15S, R11E, SLB&M (Coal Washing Plant); (13) Surface - South 470 feet and West 310 feet from the E $\frac{1}{4}$ Corner of Section 16, T15S, R11E, SLB&M (Farnham Ditch); (14) Surface - North 900 feet and East 100 feet from the SW Corner of Section 3, T12S, R7E, SLB&M (Ex.430, Theresa A. Phelps-well); (15) Surface - North 1285 feet and West 345 feet from the SE Corner of Section 4, T12S, R7E, SLB&M (Ex.336, Frank Marrelli-well); (16) Surface - South 1400 feet and West 20 feet from the E $\frac{1}{4}$ Corner of Section 4, T12S, R7E, SLB&M (Ex.397, Robt. or Francis Mallard-Well); (17) Surface - North 1420 feet and West 480 feet from the SE Corner of Section 4, T12S, R7E, SLB&M (Ex.175, Rudy Scartezina-well); (18) Surface - North 900 feet and East 980 feet from the SW Corner of Section 12, T13S, R9E, SLB&M (Bryner-Hansen Ditch); (19) Surface - South 480 feet and East 1440 feet from the W $\frac{1}{4}$ Corner of Section 12, T13S, R9E, SLB&M (Bryner-Ploutz Ditch); (20) Surface - South 90 feet and East 730 feet from the N $\frac{1}{4}$ Corner of Section 35, T12S, R9E, SLB&M (Power Plant & Coal Company); (21) Surface - North 30 feet and East 465 feet from the S $\frac{1}{4}$ Corner of Section 32, T12S, R7E, SLB&M (Ex.164, Louis Gorishek-well); (22) Surface - North 430 feet and West 410 feet from the S $\frac{1}{4}$ Corner of Section 26, T12S, R9E, SLB&M (Price City Filtering Plant); (23) Surface - South 970 feet and East 60 feet from the W $\frac{1}{4}$ Corner of Section 5, T13S, R7E, SLB&M (Ex.452, Robert Radokovich-well). The water has been used for year-round industrial purposes (Coal washing plant).

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Hereafter, it is proposed to divert 4.5 acre-feet of water from points of diversion changed to: (1) Well - North 615 feet and West 200 feet from the S¼ Corner of Section 13, T13S, R6E, SLB&M; (2) Well - North 330 feet and West 1020 feet from the SE Corner of Section 13, T13S, R6E, SLB&M. The water is to be used for exploratory drilling incidental to coal mining from June 15 to November 30. The place of use of the water is being changed to all or portion(s) of Sections 4, 20, 27, & 33, T13S, R6E, SLB&M; and Sections 4 & 5, T14S, R6E, SLB&M.

Notice of this temporary change application was not published in a newspaper. It is the opinion of the State Engineer that it meets the criteria of Section 73-3-3 and 73-3-8 of the Utah Code for the approval of temporary change applications.

It is the opinion of the State Engineer that this temporary change application can be approved without adversely affecting existing rights.

It is, therefore, **ORDERED** and Temporary Change Application Number 91-5010 (t41756) is hereby **APPROVED** subject to prior rights and the following condition(s):

- 1) **This application shall automatically expire one year from the date of this approval.**
- 2) No more water may be diverted during the use period than is represented by the stock in the Price River Water User's Association or the equivalent that is approved by the Association in times of shortage.
- 3) Installation of totalizing water meter(s) at the expense of the applicants is required. Installed water meter(s) shall be available to the Price River commissioner for examination at all reasonable times.
- 4) The water being changed shall be regulated by the Price River Commissioner at the expense of the applicants.
- 5) Continued ownership of the stock certificates, which is the basis for the change, shall be required in order to maintain this application.
- 6) The annual diversion and depletion limits may not exceed 4.5 acre-feet of water respectively.

It is the applicants' responsibility to maintain a current address with this office and to update ownership of their water right. Please notify this office immediately of any change of address or for assistance in updating ownership. Additionally, if ownership of this water right or the property with which it is associated changes, the records of the Division of

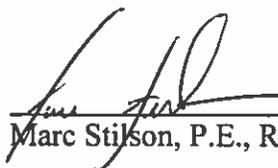
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Water Rights should be updated. For assistance in updating title to the water right please contact the Division at the phone number below.

Your contact with this office, should you need it, is with the Southeastern Regional Office. The telephone number is 435-613-3750.

This Order is subject to the provisions of Administrative Rule R655-6-17 of the Division of Water Rights and to Sections 63G-4-302, 63G-4-402, and 73-3-14 of the Utah Code which provide for filing either a Request for Reconsideration with the State Engineer or an appeal with the appropriate District Court. A Request for Reconsideration must be filed with the State Engineer within 20 days of the date of this Order. However, a Request for Reconsideration is not a prerequisite to filing a court appeal. A court appeal must be filed within 30 days after the date of this Order, or if a Request for Reconsideration has been filed, within 30 days after the date the Request for Reconsideration is denied. A Request for Reconsideration is considered denied when no action is taken 20 days after the Request is filed.

Dated this 16 day of June, 2016.



Marc Stilson, P.E., Regional Engineer

Mailed a copy of the foregoing Order this 16 day of June, 2016 to:

Canyon Fuel Company LLC
Attn: Land Department
225 North 5th Street Sute 900
Grand Junction CO 81504

Price River Water User`s Association
375 South Carbon Avenue A-10
Price, Utah 84501

Robert Davis, River Commissioner
P.O. Box 108
Price, UT 84501

Division of Water Rights
Distribution Section
c/o Susan Odekirk
PRICE RIVER

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BY: m Gabb
Michele Gabb, Regional Secretary

Appendix H
USFS Stipulations

The surface management agency is the U. S. Forest Service, Manti-La Sal National Forest. This Appendix includes drilling requirements from the Forest Service as stipulations with Canyon Fuel Company's response or action and other Forest Service requirements. The drilling stipulations come from the Manti-La Sal National Forest Land and Resource Management Plan (1986). Other Forest Service requirements are addressed at the end.

Well Drilling Permit Stipulations

1. Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the Lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts, for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the Lessee, prior to disturbance shall immediately bring them to the attention of the appropriate authority. Paleontological remains of significant scientific interest do not include leaves, ferns, or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessor.

Response/Action – Canyon Fuel Company will have a cultural resource inventory and paleontological appraisal done by a third party contractor in the early summer of 2016. The work will be done by a qualified contractor approved by the USFS. A plan will be submitted with recommendations for the protection of, or measures to be taken to mitigate impacts, should any cultural or paleontological resources be identified.

2. If there is reason to believe that Threatened or Endangered (T&E) species of plants or animals, or migratory bird species of high Federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

Response/Action – If required, Canyon Fuel Company will have field inventories done of threatened or endangered fauna and flora by a third party contractor in the early summer of 2015. The work will be done by qualified contractors approved by the USFS. A plan will be submitted with recommendations for the protection of, or measures to be taken to mitigate impacts, should any threatened or endangered fauna or flora be found.

3. The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessor.

Response/Action - Canyon Fuel Company will bear the cost of conducting the inventories, preparing reports, and carrying out any mitigating measures.

4. If removal of timber is required for clearing of construction sites, etc., such timber shall be removed in accordance with the regulations of the surface management agency.

Response/Action - Canyon Fuel Company does not plan to remove timber.

5. Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.

Response/Action - Canyon Fuel Company will improve the surface of Forest Development Roads as needed following the recommendations of the USFS. A final grading of any ruts or other damage will be made after all activities are completed. Cattle guard by-passes will be used by equipment when available and where not, heavy

planks will be laid on the cattle guard before crossing with equipment. Stock watering ponds will not be used and otherwise will not be affected by the drilling and reclamation activities.

6. In order to protect big-game wintering areas, elk calving and deer-fawning areas, sage grouse strutting areas, and other key wildlife habitat and/or activities, specific surface uses outside the mine development area may be curtailed during specified periods of the year.

Response/Action - Canyon Fuel Company will not conduct drilling and reclamation activities during periods specified by the USFS to protect wildlife habitat and/or activities.

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

Response/Action - Canyon Fuel Company will hold a pre-work meeting with the responsible company representative(s), contractors, and the Forest Service at the project location prior to commencement of operations. Site-specific Forest Service requirements will be discussed at this time.

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

Response/Action - Canyon Fuel Company will obtain a Road Use Permit from the Forest Service before equipment is transported onto National Forest System lands.

9. The Forest Service will specify times and locations, if any, that drilling activities may not occur.

Response/Action - Canyon Fuel Company will obey any times and locations specified by the Forest Service in which drilling activities may not occur.

10. All surface disturbing activities including reclamation will be supervised by a responsible representative of the permittee/licensee 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.

Response/Action - Canyon Fuel Company will have an employee or representative who is aware of the terms and conditions of the project permits and licenses present during surface disturbing activities including reclamation.

11. The Forest Service must be notified 48 hours in advance that heavy equipment will be moved onto National Forest System lands and that surface disturbing activities will commence.

Response/Action - Canyon Fuel Company will notify the Forest Service at least 48 hours in advance of the movement of heavy equipment onto National Forest System lands and of when surface disturbing activities will commence.

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

Response/Action - Canyon Fuel Company will request Forest service approval before establishing campsites or staging areas for this drilling project.

13. The Forest Service will 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.

Response/Action - Canyon Fuel Company will notify the Forest Service of any proposed alterations to the plan of operations and will not make alterations to the plan until the Forest Service has reviewed and concurred with the change.

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

Response/Action - Canyon Fuel Company or its contractors will provide fire suppression to all personnel working at the project site, including at least one hand tool per crew member consisting of shovels and pulaskies and one properly rated fire extinguisher per vehicle and/or internal combustion engine.

15. All gasoline, diesel and steam-powered equipment will be equipped with effective spark arresters and mufflers. Spark arresters will meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide, June, 1981. In addition, all electrical equipment will be properly insulated to prevent sparks.

Response/Action - Canyon Fuel Company will ensure that all gasoline, diesel and steam-powered equipment are equipped with effective spark arresters and mufflers meeting USDA Forest Service Spark Arrester Guide, June, 1981. Also, all electrical equipment will be properly insulated to prevent sparks.

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

Response/Action - Canyon Fuel Company understands that it will be held responsible for damage and suppression costs for fires started as a result of operations. Fires will be reported to the Forest Service as soon as possible.

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

Response/Action - Canyon Fuel Company will, at Forest Service request, suspend operations during periods of high fire potential.

18. Water needed in support of operations will be properly and legally obtained according to State Water Laws. The locations of diversion, if on National Forest System lands, are subject to Forest Service review and approval.

Response/Action - Canyon Fuel Company will properly and legally obtain the water needed in support of operations according to State Water Laws prior to startup of drilling. Any diversions, if on National Forest System lands, will be reviewed and approved by the Forest Service. Water for drilling activities will be hauled from the Skyline minesite and/or pumped from Winter Quarters Creek. It is estimated that 0.5 acre-feet will be used for drilling and dust suppression.

19. There will be no unauthorized off-road vehicular travel.

Response/Action - Canyon Fuel Company will ensure that no unauthorized off-road vehicular travel occurs.

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

Response/Action - Canyon Fuel Company will locate and flag any section corners, survey markers, and claim corners that are in areas of planned surface disturbance for preservation prior to commencement of surface disturbing activities. Any removal, displacement, or disturbance of markers will be approved by the proper authority.

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

Response/Action - Canyon Fuel Company will cease all operations should cultural or paleontological resources be discovered and the Forest Service will be notified of the discovery.

Pre-Work Stipulations

1. Gates will be kept closed unless otherwise notified.

Response/Action - Canyon Fuel Company will keep all gates closed unless otherwise notified.

2. The permittee will be responsible for all damages to fences, cattle guards, resource improvements, roads, and other structures on National Forest system lands which result from operations. The Forest Service will be notified of damages as soon as possible.

Response/Action - Canyon Fuel Company acknowledges responsibility for all damages to fences, cattle-guards, resource improvements, roads, and other structures on National Forest system lands which result from operations. The Forest Service will be notified of damages as soon as possible.

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

Response/Action - Canyon Fuel Company will contain all drilling fluids, muds, and cuttings in portable containers. Where these are not practical, drilling fluids, muds, and cuttings will be hauled off U.S. Forest Service land and disposed of properly. An MSDS will be provided the Forest Service for all drilling fluids and muds used. Garbage, trash or other refuse will be properly disposed of off U.S. Forest Service land.

Other Requirements

1. Vegetation, in the form of trees, grasses, forbs and sparse, low shrubs, will generally not be removed. However, it may be necessary to remove dead-fall and some "taller" shrubs and small aspen trees for safety reasons. This will be minimized as much as possible and will be accomplished with hand tools. Any dead-fall material that is removed will be replaced upon completion of drilling. Minor amounts of topsoil may be removed for leveling of drill equipment and stockpiled at a location where loss and contamination will be minimized, preferably on the uphill side of the drill site. No mud pits will be excavated within the drill site area. Any small topsoil piles will have properly constructed silt fences placed on their down-hill sides.
2. The drill sites will be reclaimed at the completion of drilling. The drill sites will be reclaimed after the equipment is moved by replacing any minor amounts of topsoil that was removed for leveling and restoring to approximate original contour and hand raking. Seeding will be done with the specified seed mix. Any grubbed material will be distributed over the area. The estimated acreage disturbed by drilling is given in the reply to 43 CFR 3482.1(a)(3)(iv)(D).
3. Contaminated soil and gravel will be stripped and moved to an approved disposal site prior to reclamation.
4. Any disturbed drainages will be replaced to their approximate original configuration when the project area is reclaimed. At this time Canyon Fuel Company does not plan to disturb any drainages.
5. The permittee will clean-up all trash, garbage, and flagging and remove all drilling equipment and vehicles, and other such materials from National Forest System lands upon completion of drilling and reclamation operations.
6. All trash, garbage, and other refuse will be properly contained on the project site prior to disposal.
7. Drilling and reclamation operations will be coordinated with grazing permittees to prevent conflicts.
8. There will be no harassment of livestock and wildlife.

9. Drill pads will be constructed to contain all spills by laying a pit liner tarp on the topsoil and elevating the downhill edges of the tarp. Fluids will be properly disposed of off Forest Service lands.
10. The permittee will be responsible for control of noxious weed infestations found to be a result of this drilling. All equipment coming into the drilling area from outside Utah will be steam cleaned to remove foreign seeds.
11. No timber will be removed during drilling and reclamation. Small trees will be removed at several locations on Forest Development Roads to make equipment access better.

Road Use Stipulations

1. Roads will not be used when they are wet and susceptible to major damage.
2. The permittee will be responsible for repair of damages to roads caused by its operations.
3. When possible, equipment will be transported to the drilling area on low-boy flat beds to avoid damage to road surfaces, cattle guards and culverts. Planks will be laid on cattle-guards to distribute the weight of heavy equipment.
4. All traffic related to drilling and reclamation operations will maintain speeds commensurate with existing conditions.
5. Roads will be watered if dust becomes a problem or if excessive loss of material occurs.
6. Heavy equipment will not be transported in the drilling area during holiday weekends and the opening weekend of the regular big game hunting season. The Forest Service will specify the dates.

Stipulation for Lands of the National Forest System
Under Jurisdiction of the Department of Agriculture

1. The permittee will comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of the Interior in the permit. The Secretary of Agriculture's rules and regulations will be complied with for (1) all use and occupancy of the NFS prior to approval of a permit by the Secretary of the Interior, (2) uses of all existing improvements, such as Forest Service Development roads, within and outside the area permitted by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by a permit approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed to:

Forest Supervisor
at: Manti-La Sal National Forest
599 West Price River Drive
Price, Utah 84501

Telephone number: (801) 637-2817

who is the authorized representative of the Secretary of Agriculture.