



Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542

May 26, 2004

Ms. Pamela Grubaugh-Littig
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple
Suite 1210
Salt Lake City, UT 84114-5801

Incoming
C/007/0039
Task # 1834

RE: Revisions to Notice of Intent to Conduct Minor Coal Exploration - SITLA Lease
Task ID # 1834, Canyon Fuel Company, LLC, Dugout Mine, C/007/039

Dear Ms. Grubaugh-Littig:

Enclosed please find five copies of the submittal to address the drilling of two coal exploration holes at the Dugout Canyon Mine. This soils and archeological information is to address deficiencies under Task ID# 1834.

An additional copy of the submittal has been delivered to the Price Field Office.

Please contact Mike Stevenson or Vicky Miller at (435) 636-2869, if there are any questions concerning this submittal.

Sincerely yours,

A handwritten signature in cursive script that reads "Vicky S. Miller".

Vicky S. Miller

Cc: Dave Spillman (enclosures)
Pete Hess (enclosures)

RECEIVED

MAY 26 2004

DIV. OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: Canyon Fuel Company, LLC

Mine: Dugout Canyon Mine

Permit Number: C/007/039

Title: Revisions to Notice of Intent to Conduct Minor Coal Exploration - SITLA Lease, Task ID #1834

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

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

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

Mike Stevenson
Print Name

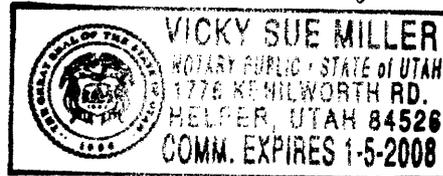
Mike Stevenson, Sr. Geologist 5-25-04
Sign Name, Position, Date

Subscribed and sworn to before me this 25 day of MAY, 2004

Vicky Sue Miller
Notary Public

My commission Expires: 1-5, 2008

Attest: State of UTAH County of CARBON



For Office Use Only: 	Assigned Tracking Number: 	Received by Oil, Gas & Mining <div style="text-align: center; font-size: 1.2em; font-weight: bold;">RECEIVED</div> <div style="text-align: center; font-size: 1.2em; font-weight: bold;">MAY 26 2004</div> <div style="text-align: center; font-weight: bold;">DIV. OF OIL, GAS & MINING</div>
---	--	--

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

**SCHOOL AND INSTITUTIONAL TRUST LANDS
ADMINISTRATION DUGOUT TRACT**

ARK LAND COMPANY
A Subsidiary of Arch Coal Inc.

May 26, 2004

be cuttings and any drilling foam and/or mud which will be placed in the mud pits. Following the drying of the mud pit materials, the dirt excavated to create the mud pit will be mixed with the drill cutting and returned to the pit to prevent a boundary of hard material from forming in the mud pit area and then compacted to minimize settling.

Reclamation is an integral part of the exploration activities and will progress as contemporaneously as practical with the other exploration activities. The exploration drill holes will be plugged with a cement, cement/bentonite slurry, or bentonite chips to their full depth. The completion method includes pulling surface casing when possible; but when not possible, cutting it flush with the ground, then pumping the cement/bentonite slurry through the drill pipe starting at the bottom of the hole. Plugging will then be done in stages by tripping-out of the hole 3-4 joints (60-80 ft) and pumping again. This process will be repeated to the surface. If bentonite chips are used, the chips will be dumped down the annulus of the hole in such a manner to prevent bridging in the hole and drilling water added to the hole as specified by the manufacturer. Spillage of bentonite and/or cement during the drill hole sealing process will be collected and buried in the mud pit or hauled from the sites for disposal at an approved location.

There will be no diversion of overland flows.

Cultural Resources - The permittee agrees to notify the Division and State Historical Preservation Office (SHPO) of previously unidentified cultural resources discovered in the course of operations. The permittee also agrees to have any such cultural resources evaluated in terms of NRHP eligibility criteria. Protection of eligible cultural resources will be in accordance with Division and SHPO requirements. The permittee will also instruct its employees that it is a violation of federal and state law to collect individual artifacts or to otherwise disturb cultural resources.

There are no known districts, sites, buildings, structures, or objects listed on, or eligible for listing on, the National Register of Historic Places in the proposed exploration area. There are no known archeological resources located in the proposed exploration area. An letter from archeologist John Senulis is provided in Appendix B. A site-specific cultural resource evaluation will be conducted in 2004 prior to drilling and submitted to the Division (Appendix B) and SHPO.

Access to the drill holes will not impact or disturb what remains of the archeological site (42CB292). The road in the bottom of Pace Canyon passes the archeological site, but the closed portal is not visible from the road, therefore there is nothing to draw attention to the site. The loadout referenced in the survey no longer exist at the site. Access to the drill holes is as follows: Turn left (north) off US Highway 6 (eastbound) 7 miles beyond the city of Wellington onto a dirt road, proceed on dirt road 8 miles to an intersection turn left (west) and proceed 1.5 miles to locked gate, proceed onto road in the bottom of Pace Canyon travel an additional 1 mile to intersection turn left (northwest), travel 0.5 miles to DUG0204. To proceed to DUG0104 do not make the left hand turn described above but proceed up Pace Canyon for approximately 0.75 miles, turn left on to a logging road and travel 0.1 of a mile. Both drill sites are located in a wide spot in the road. All mileage is approximate.

Wildlife Protection Measure - The permittee will apply all methods necessary to minimize disturbances or any adverse effects to threatened or endangered species and the species will be protected to the best of the permittee's ability.

General control and mitigation measures addressing potential operational related biological impacts will include the following:

May 2004

**Federally Listed, Threatened, Endangered and Candidate Species
Plants and Wildlife - Carbon County, Utah**

Source: Utah Division of Wildlife Resources data base - created 09/25/03

Common Name	Scientific Name	Status	Habitat Present*
Plants			
Uinta Basin Hookless Cactus	<i>Sclerocactus glaucus</i>	T	No habitat available
Graham Beardtongue	<i>Penstemon grahamii</i>	C	No habitat available
Fish			
Humpback Chub	<i>Gila cypha</i>	E	No habitat available
Bonytail	<i>Gila elegans</i>	E	No habitat available
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E	No habitat available
Razorback Sucker	<i>Xyrauchen texanus</i>	E	No habitat available
Birds			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	No habitat available, See Attachment 3-3**
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C	No habitat available
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	T	See Appendix B and Attachment 3-3**
Mammals			
Black-footed Ferret	<i>Mustela nigripes</i>	EX	No habitat available

* Habitat availability in Carbon County/Dugout Mine/Degas Well Sites/Core Hole Sites.

** Methane Degassification Amendment, Dugout Canyon Mine, August 2003

E = A taxon that is listed by the U.S. Fish and Wildlife Service as "endangered" with the possibility of worldwide extinction.

T = A taxon that is listed by the U.S. Fish and Wildlife Service as "threatened" with becoming endangered.

C = A taxon for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threats to justify it being a "candidate" for listing as an endangered or threatened.

The method of revegetation is intended to encourage prompt revegetation and recovery of a diverse, effective, and permanent vegetative cover. The following seed mixture will be used on outside slopes of road berms which are adjacent to the drill holes and which existed prior to the drilling. **The quantity of seed per acre for broadcast seeding will be doubled should the topsoil need to be replaced at drill site DUG0104, see R645-202-233 Soils for additional detail.**

May 2004

R645-203-200

Ark Land 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 Ark Land's competitive rights.

R645-202.230

No adverse impacts to the stream channel will occur during pumping activities. No water will be pumped from the North Fork of Dugout or Pace Canyon Creeks without an approved "Temporary Change of Water" from the Division of Water Rights. A copy of the approved Temporary Change will be included in Appendix B and will be in possession of the on-site geologist. The "Temporary Change of Water" expires in August 2004, upon renewal a copy of the approval will be sent to the Division for incorporation into Appendix B.

R645-202-231

Approximately 500,000 gallons of water will be used during the drilling project. Refer to R645-201-225 for information pertaining to raptors and cultural resource data.

R645-202-232

No road construction is planned for this project. The existing roads were constructed and are maintained by the land owner. The existing roads are approximately 14 feet wide, with turnout/passing areas of approximately 60 feet in width.

R645-202-233 Soils

~~Since both drill sites are on wide areas of existing road, topsoil will not be removed or stockpiled. The sites will not be reseeded, pocked or gouged. Drill site DUG0204 is a wide area in an existing road, topsoil is not available at the site therefore it will not be removed. Drill site DUG0104 may require topsoil to be excavated from a pocket on the adjacent hillside per a study performed by Dan Larson of EIS (Appendix B). The permittee will attempt not to disturb the hillside pocket of topsoil. No other topsoil was observed at the drill site. Should the pocket of topsoil (approximately 10 cubic yards) be removed it will be used to berm the site as shown on Figure 1. Following drilling the topsoil will be returned as close as possible to its original location, pocked and gouged and broadcast seeded.~~

If a subsurface mud pit is made at either site, the material will be excavated, stored immediately adjacent to the mud pit and returned to the pit and compacted, so the area can be used as road surface. A portable container for drilling fluids will be used if necessary, should there not be sufficient subsoil depth to excavate a mud pit.

Where not pre-existing, berms will be created in conjunction with the leveling of the drill pad area. Berms, straw bales and/or silt fences will be used for sediment control at the drill sites.

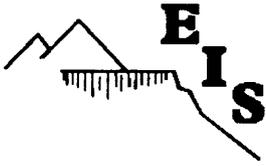
R645-202-235

Drawings of drill pads have been provided as Figures 1 and 2.

May 2004

Appendix B

Add to the back of existing information



ENVIRONMENTAL INDUSTRIAL SERVICES

435-472-3814 • 800-641-2927 • FAX 435-472-8780 • eisec@sisna.com • 31 NORTH MAIN STREET HELPER, UTAH 84526

May 18, 2004

Vicky Miller
Environmental Engineer
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542

Re: Dugout Canyon Mine -
Drill Sites DUG0104 & DUG0204

Dear Vicky,

On May 17, 2004 I conducted a field evaluation of the soil resources at the proposed drill sites DUG0104 and DUG0204 for Dugout Canyon Mine. The sites are in Sections 19 and 20 near Pace Canyon about 2 ½ and 3 ½ miles east of the Dugout Canyon Mine portal site. Both of the drill sites are located near the transition of soil map units 62 (Midfork family – Comodore complex) and 97 (Rottulee family – Trag complex) as identified in the Soil Survey of the Carbon Area, Utah by the Soil Conservation Service issued in 1988.

Drill Site DUG0104

This drill site is located along an old logging road in a side drainage to Pace Creek. The drill pad would be on the existing road plus an additional area needed by excavating a steep, rocky side slope. The existing fill material at the site extends to the stream.

The soils are very rocky (stones, boulders, and bedrock) with only patches of suitable topsoil available for salvage on slopes of about 50 to 70 percent. The lower portion of the slope consists of yellowish brown cobbly clay loam subsoil material. Above the existing cut slope, there is up to 18 inches of dark grayish brown loam topsoil available on the southeast portion of the site (See Site Sketch). Topsoil recovery would be mostly from an area of about 20 by 30 feet with the remainder being rock covered. Pockets of topsoil may be found in the rocky spots and salvaged as it is encountered. It is estimated that topsoil recovery would be about 10 cubic yards. The existing fill or sidecast material along the road was not considered as a source of topsoil due to the mixed nature including rock fragments, woody material, subsoils and minimal topsoil.

Drill Site DUG0204

This drill site is entirely within a disturbed area on and along a road. The original soils are of, or similar to, the Midfork Family soils. They typically have a dark grayish brown loam surface layer, 10 to 14 inches thick, overlying dark yellowish brown cobbly loam to clay loam subsoils.

Page 2

They have formed in deep colluvial deposits derived from sandstone and shale. The soils are well drained and support mostly Douglas fir and maple at the site.

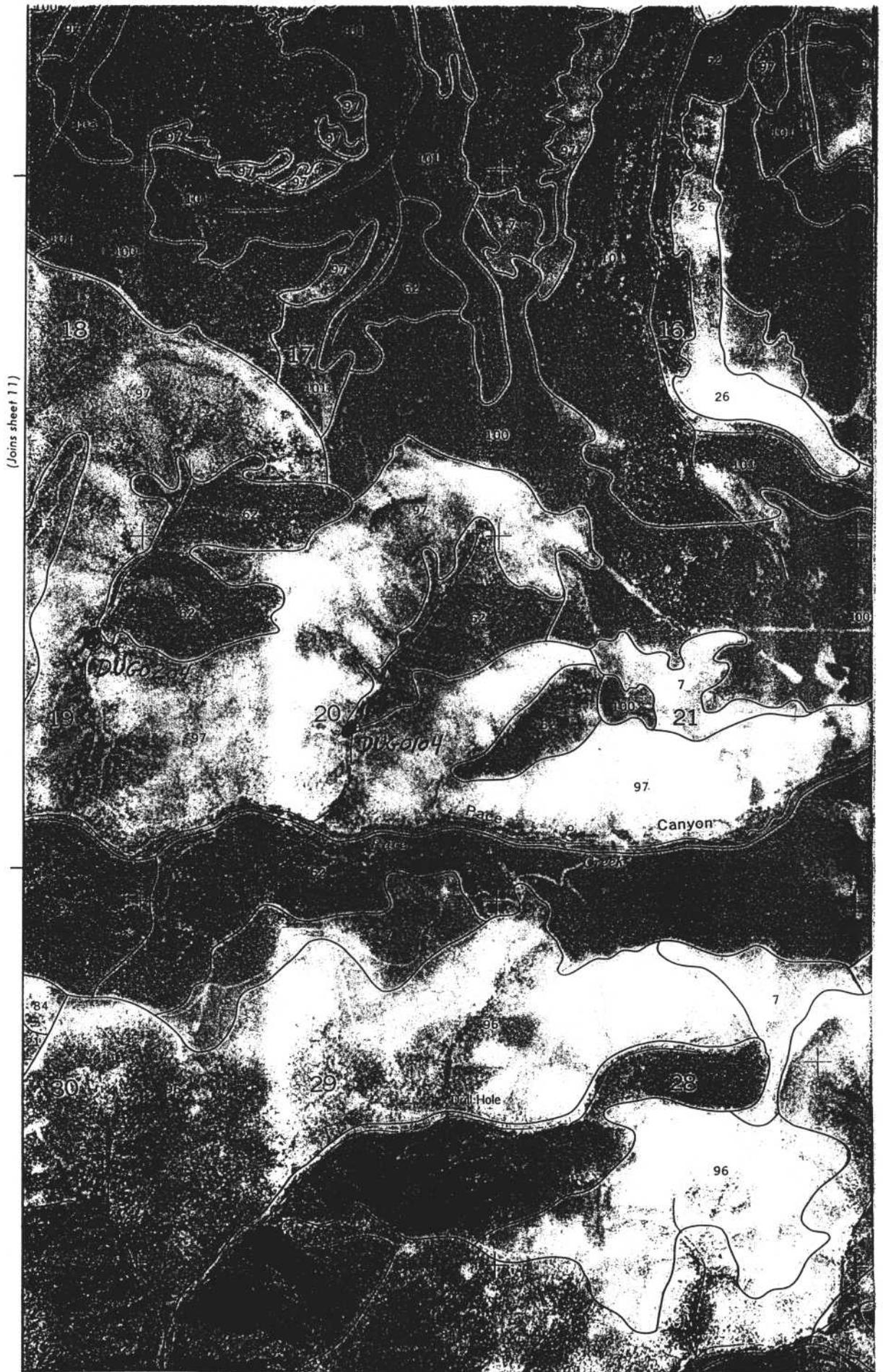
Since the drill site would not involve natural soils with a topsoil layer, soil salvage would not be anticipated at this site.

Site sketches, field notes and photographs are enclosed for reference. If you have questions, comments or need more information, please contact me.

Sincerely,

A handwritten signature in cursive script that reads "Dan Larsen".

Dan Larsen
Soil Scientist
EIS



(Joins sheet 11)

SHEET NO. 12

SOIL SURVEY OF CARBON AREA, UTAH, PARTS OF CARBON AND EMERY COUNTIES

near Spring Glen, Price, Wellington, and Miller Creek. It formed in residuum derived dominantly from shale.

Slopes are 100 to 300 feet long and are plane to convex. The vegetation in areas not cultivated is mainly shadscale, Indian ricegrass, and galleta. Elevation is 5,400 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is slightly saline, grayish brown clay loam about 9 inches thick. The underlying material to a depth of 29 inches is slightly saline and moderately saline, light brownish gray clay loam and silty clay loam. Weathered shale is at a depth of 20 to 40 inches.

Included in this unit are about 5 percent Persayo loam, 5 percent Chipeta silty clay loam on side slopes, and 5 percent Billings silty clay loam in adjacent narrow alluvial valleys.

Permeability of this Killpack soil is slow. Available water capacity is about 4.0 to 5.5 inches. The water supplying capacity is 3 to 4 inches in nonirrigated areas. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent in nonirrigated areas and 1 to 2 percent in irrigated areas. Runoff is rapid, and the hazard of water erosion is high. Runoff from adjacent areas has formed gullies in some areas of this soil. The gullies are V-shaped, are 3 to 6 feet deep, and in some areas are 100 to 300 feet apart. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland. It is also used for irrigated alfalfa, small grain, and pasture.

The potential plant community on the Killpack soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native vegetation.

This map unit is in capability unit IVe-23, irrigated, and in capability subclass VIle, nonirrigated. It is in the Desert Loam range site.

61—Libbings silty clay loam. This moderately deep, poorly drained, strongly saline soil is on foot slopes of shale hills. It is adjacent to the Price, Carbon, and Wellington Canals. It formed in residuum derived dominantly from shale. Slope is 0 to 3 percent. Slopes are 200 to 400 feet long and are convex. The present

vegetation in most areas is mainly greasewood and saltgrass. Elevation is 5,400 to 5,500 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is grayish brown silty clay loam 9 inches thick. Below this to a depth of 34 inches is light brownish gray and gray silty clay loam and silty clay over soft shale. The content of salt above a depth of 20 inches is 2 to 5 percent.

Included in this unit are about 10 percent Saltair silty clay loam in narrow alluvial valleys and 5 percent Hunting loam.

Permeability of this Libbings soil is slow. Available water capacity is about 1 to 2 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate. A water table is at a depth of 10 to 30 inches in January through December, but it is highest early in summer.

This unit is used for grazing.

The potential plant community on the Libbings soil is 85 percent grasses, 10 percent forbs, and 5 percent shrubs. Among the important plants are inland saltgrass, alkali sacaton, sedge, and Baltic rush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. The suitability of this unit for grazing is good.

The suitability of this unit for rangeland seeding is poor. The main limitations are the high water table and salinity. Plants suitable for seeding include alkali sacaton and tall wheatgrass.

This map unit is in capability subclass VIIw, nonirrigated, and in Salt Meadow range site.

62—Midfork family-Comodore complex. This map unit is on mountain slopes. It is along the Book Cliffs and Whitmore and Price Canyons. Slopes are 200 to 300 feet long and are convex. The present vegetation is mainly Douglas-fir, snowberry, and quaking aspen. Elevation is 7,900 to 9,500 feet.

This unit is 50 percent Midfork family bouldery loam, 50 to 70 percent slopes; 20 percent Comodore bouldery loam, 50 to 70 percent slopes; and 30 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 15 percent soils that are similar to the Midfork family soil but have a dark-colored surface layer less than 6 inches thick; 10 percent soils that are similar to the Midfork family soil but have a thick surface layer and a layer of calcium carbonate accumulation; and 5 percent Comodore very stony fine sandy loam, moist.

The Midfork family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface is covered with a mat of partially decomposed twigs, leaves, and needles about 2 inches thick. The surface layer is brown bouldery loam about 7 inches thick. The next layer is yellowish brown very channery loam 10 inches thick. Below this to a depth of 60 inches or more is yellowish brown very gravelly loam.

Permeability of the Midfork family soil is moderate. Available water capacity is about 5.5 to 7.0 inches. Water supplying capacity is 10 to 17 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

The Comodore soil is shallow and well drained. It formed in colluvium derived dominantly from sandstone, siltstone, and shale. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 80 days.

Typically, the surface is covered with a mat of needles and twigs about 1 inch thick. The surface layer is brown bouldery loam about 6 inches thick. The underlying material to a depth of 19 inches is brown very stony loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Comodore soil is moderate. Available water capacity is about 1.5 to 2.5 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat and woodland.

The potential vegetation on this unit includes an overstory of Douglas-fir with a canopy of 90 percent. The understory vegetation is 10 percent grasses, 5 percent forbs, and 85 percent shrubs. Among the important plants are sedge, mountainlover, and snowberry.

The site index for Douglas-fir is 50. Average yield is about 27,200 board feet per acre for 100-year-old trees 12 inches in diameter or more.

This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

This map unit is in capability subclass VIIe, nonirrigated, and in the High Mountain Very Steep Loam (Douglas-fir) woodland site.

63—Midfork family-Podo association. This map unit is on mountain ridges and side slopes in the Price Canyon area, west of Helper. Slopes are 30 to 70 percent. Elevation is 7,500 to 8,500 feet.

This unit is 40 percent Midfork family bouldery loam, 50 to 70 percent slopes; 40 percent Podo cobbly loam, 30 to 50 percent slopes; and 20 percent other soils. The Midfork soil is in narrow drainageways and on side slopes adjacent to drainageways. The Podo soil is on ridgetops, the upper part of mountain slopes, and narrow spur ridges.

Included in this unit are about 10 percent Curecanti family soils in small depressional areas and drainageways, 5 percent Perma family soils along drainageways and in depressional areas, and 5 percent Senchert loam in drainageways.

The Midfork family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 200 to 300 feet long and are concave. The present vegetation is mainly Douglas-fir and snowberry. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface is covered with a mat of partially decomposed leaves, twigs, and needles about 2 inches thick. The surface layer is brown bouldery loam about 7 inches thick. The next layer is yellowish brown very channery loam 10 inches thick. Below this to a depth of 60 inches or more is yellowish brown very gravelly loam.

Permeability of the Midfork family soil is moderate. Available water capacity is about 5.5 to 7.0 inches. Water supplying capacity is 10 to 17 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

The Podo soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and are convex. The present vegetation is mainly Salina wildrye, rabbitbrush, and lambsquarters. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 120 days.

Typically, the surface layer is light brownish gray cobbly loam about 5 inches thick. The underlying material to a depth of 11 inches is light brownish gray gravelly loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Podo soil is moderately rapid. Available water capacity is 1 to 2 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat, woodland, and rangeland.

The potential vegetation on the Midfork family soil includes an overstory of Douglas-fir with a canopy of 90 percent. The understory vegetation is 10 percent grasses, 5 percent forbs, and 85 percent shrubs. Among

Extremely variable, ranging from boulders to silt and clay. Most areas are channeled. They support little if any vegetation.

This unit is used for wildlife habitat.

This map unit is in capability subclass VIIIw, nonirrigated. It is not placed in a range site.

95—Rock outcrop. Rock outcrop is throughout the survey area. It consists of exposures of bedrock in the form of steep and very steep escarpments and ridges. The rock is sandstone, siltstone, and shale. The areas of Rock outcrop are mostly barren; however, enough soil material has collected in small depressional areas, crevices, and cracks to support some grasses and stunted trees and shrubs.

This unit is used for wildlife habitat.

This map unit is in capability subclass VIIIs, nonirrigated. It is not placed in a range site.

96—Rock outcrop-Rubbleland-Travessilla complex. This map unit is on mesa escarpments and canyonsides. It is on the Book Cliffs and in the Hiawatha area. Slopes are 30 to 70 percent and 100 to 200 feet long. The present vegetation is mainly Utah juniper, pinyon, Salina wildrye, and galleta. Elevation is 6,500 to 8,700 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees and the average freeze-free period is 80 to 120 days.

This unit is 35 percent Rock outcrop; 30 percent Rubbleland; 25 percent Travessilla very gravelly fine sandy loam, 30 to 70 percent slopes; and 10 percent other soils. About 25 percent of the acreage of the Travessilla soil has slopes of 30 to 50 percent slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Strych very stony loam, 50 to 70 percent slopes, and Gerst extremely stony loam, 50 to 70 percent slopes.

Rock outcrop is exposed sandstone and limestone.

Rubbleland is areas of stones and boulders that are virtually free of vegetation.

The Travessilla soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone. Typically, the surface layer is brown very gravelly fine sandy loam about 3 inches thick. The upper 6 inches of the underlying material is brown loam, and the lower part to a depth of 17 inches is light brown loam over sandstone. Depth to sandstone ranges from 7 to 20 inches.

Permeability of the Travessilla soil is moderately rapid. Available water capacity is 2 to 3 inches. Water supplying capacity is 3 to 4 inches. Effective rooting depth is 7 to 20 inches. Organic matter content in the surface layer is 1 to 2 percent. Runoff is very rapid, and the hazard of water erosion is severe.

This unit is used for wildlife habitat, rangeland, and woodland.

The potential vegetation on the Travessilla soil includes an overstory of pinyon, Utah juniper, and Douglas-fir with a canopy of 30 percent. The understory vegetation is 10 percent grasses, 15 percent forbs, and 75 percent shrubs. Among the important plants are birchleaf mountainmahogany, Utah serviceberry, bluegrass, and Salina wildrye.

The site index for pinyon and Utah juniper is 37.

Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is poor. Limitations for the harvesting of wood products are severe because of the steepness of slopes, the hazard of erosion, and rock fragments on the surface.

The Travessilla soil is not grazeable by livestock because of the steepness of slope and the stoniness of the surface layer.

This map unit is in capability subclass VIIIs, nonirrigated. The Travessilla soil is in the Upland Very Steep Shallow Loam (Pinyon-Utah Juniper) woodland site. The Rock outcrop and Rubbleland are not placed in a woodland site.

97—Rottulee family-Trag complex. This map unit is on mountain slopes and canyonsides. It is in the vicinity of Whitmore and Emma Parks. Slopes are 30 to 60 percent. Elevation is 7,100 to 8,700 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 60 percent Rottulee family loam, 30 to 60 percent slopes; 20 percent Trag stony loam, 30 to 60 percent slopes, eroded; and 20 percent other soils. About 30 percent of the acreage of this unit has slopes of 30 to 50 percent. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Trag clay loam, 5 percent Curecanti family soils, and small areas of Rock outcrop, Badland, and Senchert loam, 30 to 50 percent slopes.

The Rottulee family soil is moderately deep and well drained. It formed in colluvium and residuum derived dominantly from sandstone and shale. Slopes are 50 to 100 feet long and are convex. The present vegetation is serviceberry, Salina wildrye, and mountain big sagebrush. Typically, the surface layer is reddish brown loam about 2 inches thick. The upper 13 inches of the subsoil is reddish brown loam and clay loam, and the lower 8 inches is reddish brown gravelly silty clay loam. The substratum to a depth of 34 inches is reddish brown gravelly silt loam over shale. Depth to shale ranges from 20 to 40 inches.

Permeability of the Rottulee family soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 7 to 10 inches. Effective rooting

depth is 20 to 40 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Trag soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 75 to 100 feet long and are concave. The present vegetation is mainly mountain big sagebrush, Salina wildrye, snowberry, serviceberry, and scattered Douglas-fir. Typically, the surface layer is dark grayish brown stony loam about 10 inches thick. The subsoil is dark grayish brown clay loam about 26 inches thick. The substratum to a depth of 60 inches or more is dark grayish brown and very pale brown clay loam.

Permeability of the Trag soil is moderate. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat and rangeland.

The potential plant community on the Rottulee family soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This soil is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Trag soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, bluegrass, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of the Trag soil for rangeland seeding is good. Plants suitable for seeding include those native to this soil and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability for grazing is good.

This unit is in capability subclass VIIe, nonirrigated. The Rottulee family soil is in the Mountain Very Steep Stony Loam (Browse) range site. The Trag soil is in the Mountain Loam (Saline Wildrye) range site.

98—Sagers silty clay loam. This very deep, well drained soil is on alluvial fans and narrow valley floors. It is in the area extending from the junction of Utah Highways 10 and 122 to about 5 miles southeast and in small areas along the Price River. It formed in alluvium

derived dominantly from mixed sedimentary rock. Slopes are 1 to 3 percent, 200 to 300 feet long, and concave to convex. The vegetation in areas not cultivated is mainly shadscale, greasewood, and galleta. Elevation is 5,600 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray silty clay loam about 7 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray silty clay loam.

Included in this unit are about 5 percent Penoyer Variant loam, 5 percent Billings silty clay loam, and 5 percent soils that are similar to this Sagers soil but are strongly saline.

Permeability of this Sagers soil is moderately slow. Available water capacity is about 9 to 11 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is about 3 percent in irrigated areas and is less than 1 percent in nonirrigated areas. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for irrigated crops, rangeland, and wildlife habitat.

The potential plant community on the Sagers soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of alfalfa hay, small grain, and corn. To maintain production, crop residue should be incorporated into the soil and fertilizer should be applied.

Irrigation water can be applied by the sprinkler or flood method. Fields can be leveled.

This map unit is in capability subclasses IIe, irrigated, and VIIc, nonirrigated. It is in the Desert Loam range site.

99—Saltair silty clay loam. This very deep, poorly drained, strongly saline soil is on valley floors. It is adjacent to the Price River, Miller Creek, and Marsing Wash and is north of Wellington. It formed in alluvium derived dominantly from shale and sandstone. Slopes



Photo No. 1 A view of drill site DUG0104 looking from across the stream. |

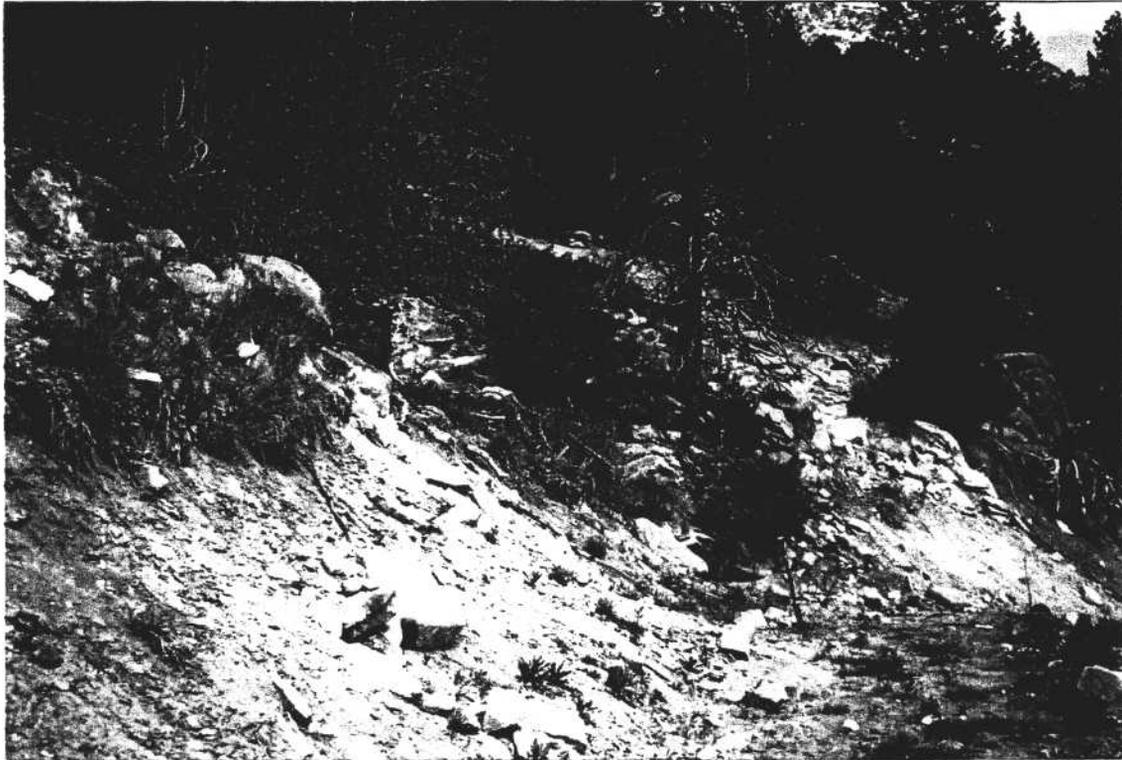


Photo No. 2 A view along the cut slope at drill site DUG0104. The most suitable topsoil is above the cut bank on the left side.



Photo No. 3 Suitable topsoil up to 18 inches thick was noted over a lighted colored more clayey subsoil.



Photo No. 4 Bouldery spot in a slight drainage along the upper slope at drill site DUG0104. Looking up slope from the edge of the road.



Photo No. 5 A view of the fill slope at the edge of drill site DUG0104 near the stream.

Field Notes DUG-0104
Sketch

5-17-04
DZ



Approx. site 65x50 feet

Lower portion of MRCS unit 97 near unit 62

Rottulee Family - Trag complex; Midfork Family - Comodora complex

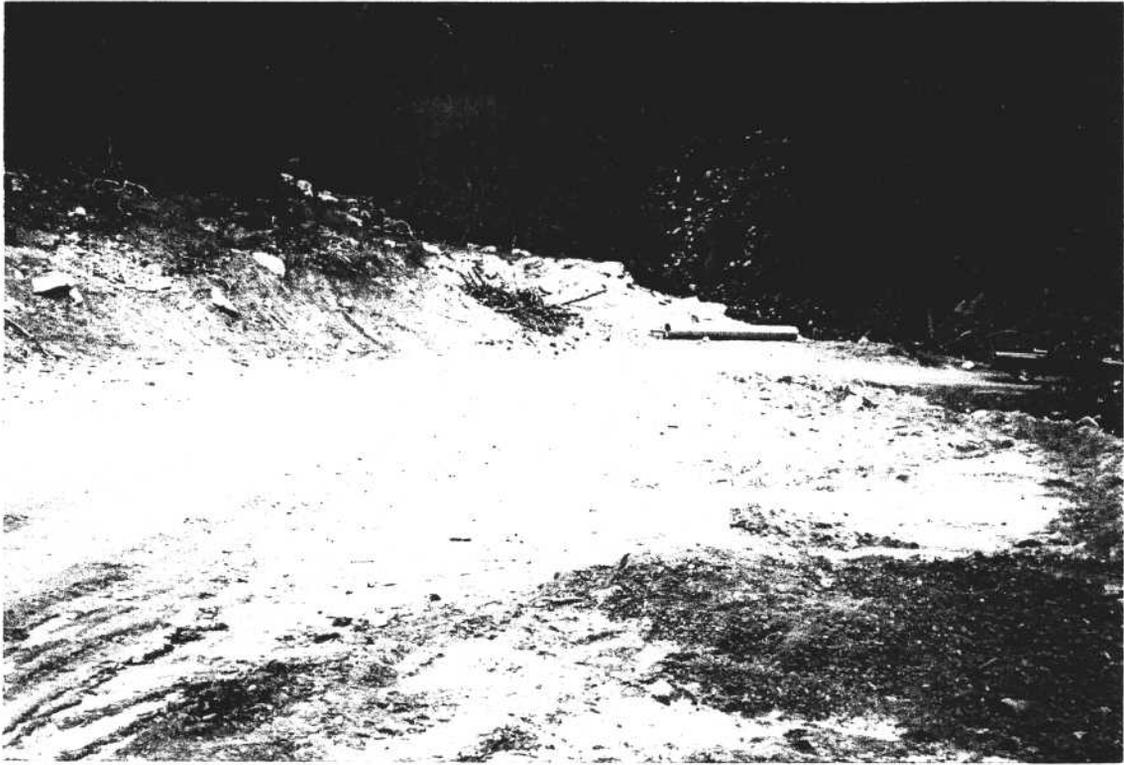


Photo No. 6 View of drill site DUG0204 looking down the road.



Photo No. 7 View of drill site DUG0204 looking up the road.



SENCO-PHENIX

**AN INTENSIVE CULTURAL RESOURCE SURVEY AND INVENTORY
OF THE 2004 DUGOUT CANYON MINE EXPLORATION DRILL HOLES
AND ACCESS ROADS**

Private Lands

Carbon County, Utah

PERFORMED FOR
Dugout Canyon Mine of
Canyon Fuel Company, LLC

In Accordance with
Utah State Guidelines
Antiquities Permit #U04SC440p

SPUT-474
May 24, 2004

John A. Senulis

Direct Charge of Fieldwork

UTAH SHPO

COVER SHEET

Project Name: AN INTENSIVE CULTURAL RESOURCE SURVEY AND INVENTORY
OF THE 2004 DUGOUT CANYON MINE EXPLORATION DRILL HOLES AND ACCESS ROADS

Dugout Canyon Mine of Canyon Fuels LLC.

State #U04SC0440p

Report Date: May 24, 2004

County (ies): Carbon

Principal Investigator/ Field Supervisor: John A. Senulis/John Senulis

Records Search/Location/Dates: May 2, 2004, Price River Field Office of the BLM

Acreage Surveyed: 7 acres

Intensive Acres: 7

Recon/Intuitive Acres: 0

U.S.G.S. 7.5 Quad: Pine Canyon, Utah (1972), Mount Bartles, Utah (1972)

Sites Reported	Number	Smithsonian Site #(s):
Archeological Sites:	0	
Revisit (No IMACS update)	0	
Revisit (IMACS update attch.)	0	
New Sites (IMACS attached)	0	
Archeological Site Total:	0	
Historic Structures:		
(USHS Site Form Attached)		
Total NRHP Eligible Sites,	0	

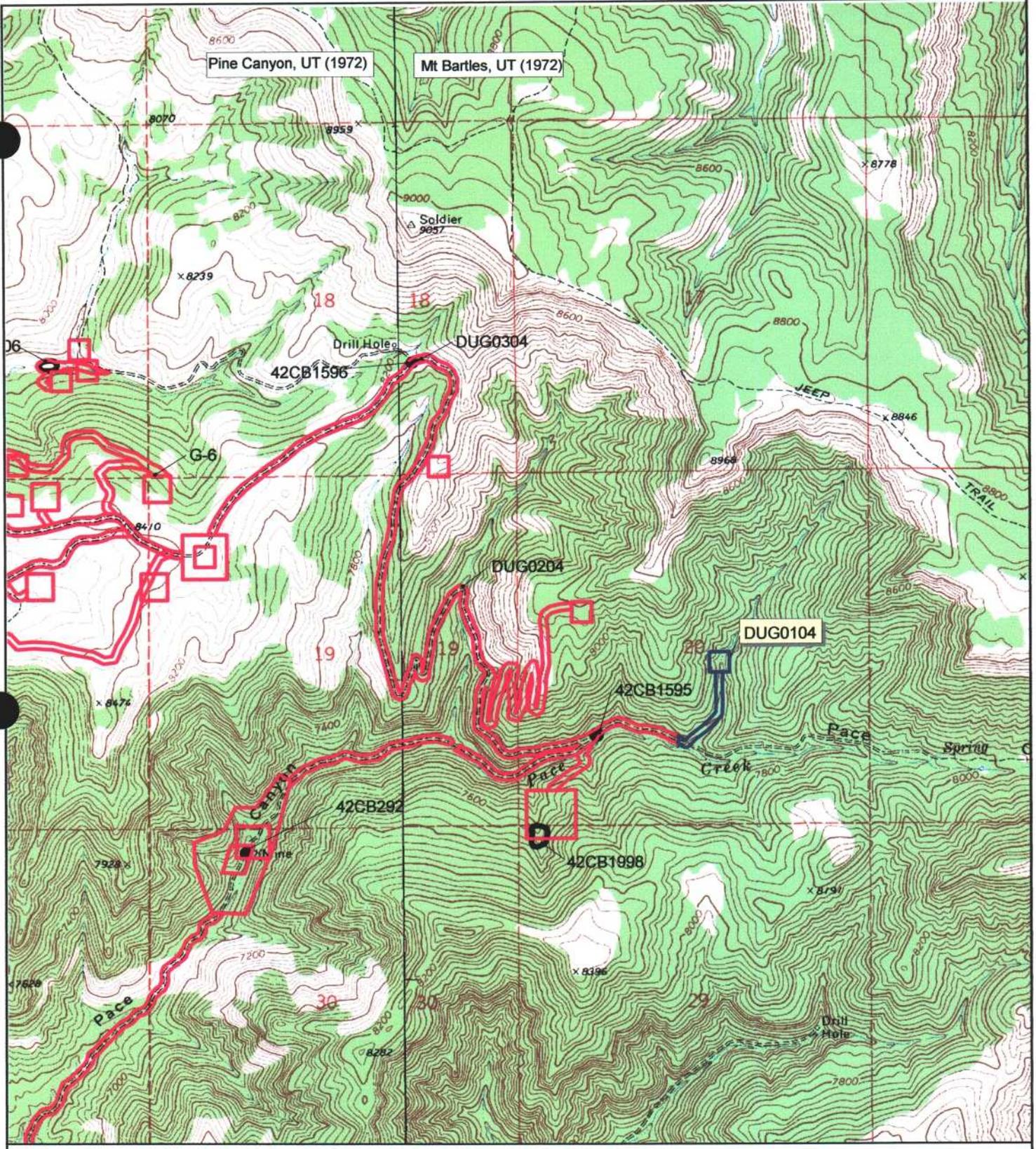
Checklist of Required Items:

1. X 1 Copy of Final Report
2. X Copy of U.S.G.S. 7.5' map showing surveyed/excavated area
3. Completed IMACS Site Inventory Forms Including
 - _____ Parts A and B or C
 - _____ IMACS Encoding Form
 - _____ Site Sketch Map
 - _____ Photographs
 - _____ Copy of USGS 7.5' Quad with Smithsonian site Number
4. X Completed Cover Sheet

Abstract

The Dugout Canyon Mine of Canyon Fuel LLC plans four drill holes for 2004. The proposed drill holes and access roads are located on private land. The Dug0204, 0304 and G-6 are within previous cultural resource survey areas and no further work is required. SENCO-PHENIX performed an intensive cultural resource survey on the remaining proposed Dug0104 drill hole and connecting access road. The purpose of the survey was to identify and evaluate cultural resources that may exist within the project area.

No cultural resources were located and the potential for undetected remains is remote. A finding of no effect is appropriate and archeological clearance without stipulations is recommended.



SENCO-PHENIX



Scale 1:24,000
1" = 2,000'

- Current Survey
- Previous Survey
- Eligible Sites
- Ineligible Sites

2004 Drill Holes
Dugout Mine of Canyon Fuel, LLC
Section 20, T13S, R13E
Carbon County, Utah
May 2004
SPUT-474

Project Location

The proposed Dug0104 drill hole location is located in the NW/SE ¼ of Section 20, T13S, R13E, Carbon County, Utah. The 1,400-foot access to the 400 x 400 foot pad will follow an existing two-track dirt road that was built to facilitate logging in the general area. The drill site was flagged. The proposed project is noted on the enclosed copy of U.S.G.S. Composite 7.5' Quad: Pine Canyon, Utah (1972) and Mount Bartles, Utah (1972).

Environment

The project area in the Dugout Creek drainage is where several permanent branches of Dugout Creek convene. Soils are light tan sandy clay loam with gravels. Vegetation includes a riparian community consisting of cottonwood, aspen, willow, mountain mahogany, serviceberry, rabbitbrush, low sagebrush, grasses and forbs surrounded by mixed conifer forest. The upper project area is a mesa above Dugout Canyon. The mesa is basically Pinyon-Juniper with stands of aspen and pine and intermixed with sagebrush. The understory consists of mountain mahogany, rabbitbrush, ephedra, galleta grass, yucca, and serviceberry.

Previous Research

A file search by John Senulis of SENCO-PHENIX at the Price River Field Office of the BLM on May 2, 2004 revealed that the following projects are reported for the current project area:

- 1980, AERC surveyed several sample blocks in Sections 13 and 24, T13S, R12E and Sections 18, 19 and 30 T13S, R13E. They also surveyed the access road into the Snow Mine site. One archeological site was located:
 - 42CB292 The site was described as "Coal mine located in Pace Canyon consists of one known mine portal which has been closed. Site of historic Snow Mine in Pace Canyon which was active in 1906 but had its primary production period from 1932-1940." The site was relatively pristine at the time and still contained a standing coal loadout and foundation with depth potential. Avoidance was recommended pending further historic research. As noted the site has since been extensively modified.
- 2001, SENCO-PHENIX surveyed several drill holes and an extensive series of roads. Two new sites were recorded and one previously recorded site was re-recorded:
 - 42CB292 The site was the historic Snow Mine in Pace Canyon, which was active in 1906 but had its primary production period from 1932-1940. The area has been heavily logged since the initial recordation and the area around the mine extensively disturbed by heavy equipment, probably dozed. The foundation has been destroyed and the coal loadout has been collapsed and pushed into the bed of Pace Creek. The rock-covered adit and adjacent stonewall are still there on the other side of Pace Creek. There are two 6 x 10 dugouts used as coal loadouts on the west side of the road. Other than recent trash no artifacts were observed. The integrity of the site has been basically destroyed. The site was not recommended for the NRHP.
 - 42CB1595 was a small wood framed one-room cabin that was probably related to the logging industry. It was not recommended for nomination to the NRHP.
 - 42CB1596 was a corral and Aspen art site. It was not recommended for nomination to the NRHP.
- 2003a, SENCO-PHENIX surveyed several drill holes and an extensive series of roads. One cultural resource in the general project area was located.(03-477)
 - 42CB1906 The site is a historic sawmill and log corral site. There wasn't a constructed sawmill building, a portable sawmill was set up on the site and then moved when the logging operations were finished. The site is

located on the first southern terrace above a tributary of Dugout Creek. The major portion of the site has been removed; there is little potential for further information. The site is not recommended for nomination to the National Register of Historic Places.

- 2003b, SENCO-PHENIX surveyed a block area for drill holes and an access road. One cultural resource was located. (03-841)
 - 42CB1998: The site is a mid to late twentieth century temporary sawmill site. A portable sawmill was set up on the site and then moved when the logging operations were finished. The major portion of the site has been removed; there is little potential for further information. The site is not considered eligible for the NRHP. (03-841)

Methodology

John & Jeanne Senulis of SENCO-PHENIX performed a Class III intensive walkover survey on May 18, 2004. Meandering transects no further spaced than 15 meters were employed for the 400 x 400 foot drill hole. The access road was surveyed to a right of way of 30 meters. Special attention was given to those areas of subsurface soil exposure from animal burrowing and erosion.

All field notes and digital photographs are on file at the offices of SENCO-PHENIX in Price, Utah.

Findings and Recommendations

No cultural resources were located and the potential for undetected remains is remote. A finding of no effect is appropriate and archeological clearance without stipulations is recommended.

These recommendations are subject to modification and review by the Utah SHPO.