



00053574

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

**SUBMIT IN TRIPLICATE\***  
(Other instructions on  
reverse side)

Form approved.  
Budget Bureau No. 1004-0136  
Expires: December 31, 1991

**APPLICATION FOR PERMIT TO DRILL OR DEEPEN**

**1a. TYPE OF WORK**DRILL ☒DEEPEN ☐**b. TYPE OF WELL**OIL  
WELL ☐GAS  
WELL ☒

OTHER

SINGLE  
ZONE ☒MULTIPLE  
ZONE ☐**2. NAME OF OPERATOR**

BONNEVILLE FUELS CORPORATION

**3. ADDRESS AND TELEPHONE NO.**

1660 Lincoln St, Denver CO 80264

**4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)\***

At surface

1936' FWL 600' FSL

At proposed prod. zone

Same

**14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\***

9.2 miles W. SW of Rangely Colorado

**15. DISTANCE FROM PROPOSED\***LOCATION TO NEAREST  
PROPERTY OR LEASE LINE, FT.  
(Also to nearest drig. unit line, if any)

600'

**18. DISTANCE FROM PROPOSED LOCATION\***TO NEAREST WELL, DRILLING, COMPLETED,  
OR APPLIED FOR, ON THIS LEASE, FT.

1022'

**21. ELEVATIONS (Show whether DF, RT, GR, etc.)**

5227' GR

**23. PROPOSED CASING AND CEMENTING PROGRAM**

SIZE OF HOLE	GRADE SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/4	9 5/8	36#	± 625	± 305 sx Circ to Surface
7 7/8	5 1/2	15.5#	± TD 3840'	± 195 sx TOC ± 2000'

**ATTACHED:**

Eight Point compliance plan

13 Point Surface Use and Operation Plan

**EXHIBITS:**

#1 BOPE

#2A Survey Plat

#2B Topo with Location

#2C Topo with Location-Small Scale

#3 One mile radius

#4 Area with access

#5 Topo with Lease Boundary

#6 Production Facility

#7 Cross section with cut &amp; fill

#8 Rig Layout

#9 Archeological Report

#10 Paleontological Report

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. Thomas E. Bowman

SIGNED

*T E Bowman*

TITLE

Operations Manager

DATE 6/23/98

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY

TITLE

DATE

**\*See Instructions On Reverse Side**

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the



**SURFACE USE AND OPERATING – 13 POINT PLAN**

**Attached To Form 3160-3**

**Bonneville Fuels Corporation**

**Federal #16 – 24A – 1N – 103W**

**600' FSL & 1936' FWL, Sec 16 – T1N – R103W 6<sup>th</sup> PM**

**Rio Blanco County, Colorado**

**1. EXISTING ROADS:**

- A. The proposed well site elevation (Exhibit #2a) and topographic elevation (Exhibit #2b and Exhibit #2c) plats are attached.
- B. To reach the wellsite, proceed from Rangely, Colorado WSW on Rio Blanco County Road #2 approximately 9.1 miles (0.9 miles past the end of pavement). An existing lease road for the abandoned Federal #16-24-1N-103W well, located on the south side of the County Road will be utilized at this point.
- C. Existing roads, within a one-mile radius of the well are shown on Exhibit #3.
- D. Existing highways and roads in the area are either private home access drives, or roads under the jurisdiction of the BLM or the County of Rio Blanco.  
NOTE: Access roads are identified on Exhibit #4.

**2. PLANNED ACCESS ROADS:**

- A. The Federal #16-24A – 1N – 103W well will utilize the existing access road for the recently plugged Federal #16-24-1N-103W. (See Exhibits 2c, 3, and 4).
- B. One (1) low water crossing is anticipated.
- C. The existing access road is crown and ditch construction. The general access road is approximately a 15' traveling surface. The access road width on curves with impaired visibility, due to topography, is approximately a 20' traveling surface. The access road grade will average 0 to 4%. Away from the access approach a maximum disturbance width of 50' is currently anticipated, with most disturbance being confined to an area 30' wide on the bulk of the access road course.
- D. No new turnouts are planned on the existing road.
- E. Water bars will be placed if appropriate. None are anticipated.
- F. Surfacing materials consist of native surface soil, native alluvium where present, and 3/4" road-base crush from a commercial gravel pit if gravel is required by drilling, completion, or production operations.
- G. Gates, cattle guards or fence cuts will be installed if appropriate. Currently, none are anticipated.

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**3. LOCATION OF EXISTING WELLS:**

For the location of existing wells within a one-mile radius of this well, see Exhibit #3. The wells indicated on Exhibit #3 are all that BFC is aware of at this time.

- A. There are an estimated 7 domestic supply water wells (3 confirmed permits and 4 additional probable domestic supply wells) within a one-mile radius. All confirmed permits are shallower than 100', with a maximum water well depth of approximately 5,000' above sea level.
- B. There are NO abandoned producing wells within a one-mile radius.
- C. There is 1 dry hole well and 1 junked and abandoned hole (The Federal #16-24-1N-103W) within a one-mile radius.
- D. There is 1 well currently proposed to be drilled by BFC within a one-mile radius.
- E. There are 3 producing wells within a one-mile radius.
- F. There are NO known injection wells within a one-mile radius.
- G. There are NO known monitoring or observation wells within a one-mile radius.
- H. There are NO known disposal wells within a one-mile radius.

**4. LOCATION OF EXISTING OR PROPOSED FACILITIES IF WELL IS PRODUCTIVE:**

- A. If the well is productive, contemplated facilities will be as follows:
  - i. Production facilities will be located on solid ground of the cut area of the drill pad. All BFC facilities will be contained on the planned well pad.
  - ii. Refer to Exhibit #6 for the proposed production facility schematic.
  - iii. Dependent upon flow test results, a gas separator, multiple 210 bbl tanks, and a meter house will be required. All flow lines and piping will be installed according to API specifications. Construction materials will consist of excavated alluvium, shale, and soils (except top-soils). Use of additional materials from outside sources is not anticipated at this time (with the exception of 3/4" crushed road-base gravel from a commercial pit).
  - iv. The gas sales line will extend Easterly to Federal #16-34-1N-103W well location.



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- B. In the event that production is established, plans for gas gathering lines will be submitted to the appropriate governmental agencies for approval. A proposed pipeline route has been center-line staked. Archaeological and paleontological surveys have been completed for this route. Construction will, of course, be contingent on well test results and permit approval/clearance by the BLM, State of Colorado, and Rio Blanco County authorities.

### **5. LOCATION AND TYPE OF WATER SUPPLY:**

- A. Water will be purchased from a tank truck company in the Rangely, Colorado, area at a permitted fresh water source. These arrangements have NOT been secured yet.
- B. Water will be hauled by tank truck to the drilling site as needed. The access will conform to roads identified on Exhibit #4.
- C. No water well will be drilled on or near this well location.

### **6. SOURCE OF CONSTRUCTION MATERIALS:**

- A. No construction materials will be needed for drilling the well or upgrading the existing access road onto the location. Compacted cut material will be utilized for the drilling site and access road (drill-site top-soil will be stockpiled for re-vegetation at the site).
- B. ONLY native construction materials in the permitted area of disturbance, outlined for use in construction herein, may be used from BLM administered lands.
- C. Native surface soil materials for possible upgrading of existing access roads are anticipated to be sufficient. If necessary, road surface materials (3/4" road-base) will be purchased from the dirt contractor. An appropriate crush will be specified.
- D. Exhibit #4 identifies the access roads. Rio Blanco County and Bureau of Land Management roads are involved. Care will be taken in maintaining the BLM road, and the County road entrance, to BLM and Rio Blanco County Standards.
- E. Exhibit #8 shows existing cut & fill cross-sections for the location.

### **7. METHODS OF HANDLING WASTE DISPOSAL:**

- A. Cuttings not retained for evaluation purposes will be discharged into the reserve pit (see Exhibits #8 for reserve pit location).



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- B. The reserve pit may have a synthetic liner meeting BLM stipulations installed.
- C. Drilling fluids will be contained in steel mud tanks. The reserve pit will contain any excess flow from the well during drilling & cementing operations. The reserve pit will be an earthen pit, approximately 100' x 60' x 8' deep. The pit may be lined with a liner that meets BLM specifications.
- D. The flare pit will receive cuttings, gas, and mud/water during planned air-drilling operations. The flare pit will be approximately 20' x 20' x 6' deep. The flare pit will be located approximately 100' (nearest corner or edge) from the wellbore, at the SW corner of the reserve pit. A minimum 10' earthen backstop of earth fill will form the blowby line target at the far end of the flare pit. Earthen embankments were constructed so as to prevent fluid loss to surrounding lands. Flare pit fluids will drain via a trench, by gravity, into the reserve pit (see Exhibit #8).
- E. Produced water, if any, will be disposed of into tanks or a lined evaporation pit. Produced oil will be collected in tanks for sale. If the volume of oil is sufficient during drilling, it will be trucked from the location. Produced water will be disposed of by pit evaporation or hauled to an appropriate disposal facility.
- F. A portable chemical toilet will be provided on the location for human waste. Trailer septic tank facilities will be provided for trailer wastes. This sewage waste will be removed to an approved sewage disposal facility.
- G. Garbage and trash produced during drilling, completion and testing operations will be handled in a trash cage. This garbage will be hauled to an approved disposal site after drilling /completion operations are finished. Water and tailings will be disposed into the reserve pit. No toxic waste/chemicals will be produced by these proposed operations.
- H. After the rig moves out, all materials will be cleaned up and no adverse materials will be left on location. Any open pits will be fenced after drilling operations conclude, and these pits will remain fenced until they have dried. All pits will be back-filled, re-contoured and re-seeded. This will occur when pits are dry enough to backfill, as weather permits. Only that part of the pad required for producing operations/facilities and well maintenance operations will be kept in use. All other drill pad areas will be re-contoured and re-seeded. In the event of a dry hole, only an appropriately specified dry hole marker will remain.

**8. ANCILLARY FACILITIES:**

No air strip, campsite or other facilities will be built during drilling and completion operations at this wellsite.



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**9. WELL SITE LAYOUT:**

- A. Refer to Exhibit #8 for the Drill Pad layout as staked. Cuts and fills have been indicated per Exhibit #7 to show the existing cut and fill across the location. Topsoil has been stockpiled at the southeast edge of the location for reclamation & re-contouring.
- B. Refer to Exhibit #8 for a planned location diagram of the proposed rig and drilling equipment, reserve pit, and pipe racks. No permanent living facilities are planned. There will be trailers for supervision on the site. Sewage will be collected in septic facilities for disposal.
- C. The rig orientation, turn-around area, parking area, and access road entrance onto location are shown on Exhibit #8.
- D. The reserve pit may require a liner. The reserve pit may be lined with a minimum synthetic liner thickness stipulated by the BLM.
- E. The reserve pit has been fenced on the three (3) exterior sides prior to the commencement of drilling operations. The flare pit has been fenced on all sides prior to the commencement of drilling operations.

**10. PLANS FOR RESTORATION OF SURFACE:**

- A. Upon completion of the proposed operations, and if the well is to be abandoned, the reserve and flare pits will be back-filled, and the location will be re-contoured to as near the original topography as is possible - as soon as the pits have dried enough to support earth moving equipment. All produced fluids, refuse and sewage will be hauled to an approved disposal site after the drilling and completion operations have concluded. The pit liner (if required) will be appropriately removed and disposed of, or buried in place. The location and access road will be re-contoured to the original topography as nearly as possible, and re-vegetated/re-seeded along contours. Seed specifications will be determined by the BLM.
- B. If the well is productive:

The plan for rehabilitation of the disturbed area no longer needed for production operations after drilling and completion activities are finished is as follows:

- i. The reserve pit will be back-filled after the contents of the pit are dry. Pit liner (if required) will be appropriately removed and disposed of, or buried in place.



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- ii. The area of the drill site not needed for producing operations/facilities and well maintenance operations will be re-contoured to the original contours as nearly as possible and re-vegetated/re-seeded along contours.
- C. Re-vegetation and rehabilitation will be achieved by reseeding after re-contouring the site. A seed mixture of native grasses specified by the BLM will be used.
- D. Prior to rig release, the reserve pit will be fenced to prevent livestock or wildlife from being entrapped. The fencing will be maintained until pit reclamation commences.
- E. If any oil or other adverse substance is on the pits and cannot be immediately removed after operations cease, the pit containing the oil or other adverse substances will be overhead flagged and fenced. The entire location will be inspected for trash and other refuse, and such trash/refuse if found, will be cleaned up.
- F. Time to complete rehabilitation depends upon the time necessary for pits to dry. Pit closure, re-contouring, planting, and re-vegetation should occur by the Fall 1998, if normal weather patterns ensue.

**11. SURFACE OWNERSHIP:**

The surface ownership of the access road and location is BLM.

**12. OTHER INFORMATION:**

A Cultural Resources Survey, by Montgomery Archaeological Consultants has been completed for the proposed site, access road, and pipeline route. Uinta Paleontological Associates has also completed a paleontological survey for the site, access road, and pipeline route. No significant cultural or paleontological resources were identified at this proposed site, access road, and pipeline route. The archaeological and paleontological reports are attached to this permit.

An on-site inspection with Mr. Keith Whitaker, Natural Resource Specialist with the Bureau of Land Management White River Resource Area Office (under the NOS procedure) was conducted on November 14, 1997.



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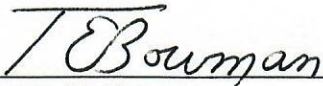
**13. LESSEE'S AND OPERATOR'S REPRESENTATIVE:**

Bonneville Fuels Corporation  
1660 Lincoln, Suite #2200  
Denver, Colorado 80264

Contact: Thomas E. (Tom) Bowman -- Operations Manager  
Phone: (303) 863-1555 Ext: 233 (Office) or (303) 973-3177 (Home)

**CERTIFICATION:**

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access routes; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by Bonneville Fuels Corporation and its contractors and subcontractors in conformity with this plan and the terms & conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C.1001 for the filing of a false statement.



Thomas E. Bowman  
Operations Manager

Date: 23 JUN 98



**EIGHT POINT DRILLING PLAN**  
**Attached to Form 3160-3: Application for Permit to Drill:**  
**Bonneville Fuels Corporation**  
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**600' FSL & 1936' FWL Sec 16-T1N-R103W 6th PM**  
**Rio Blanco County, Colorado**

**1. ESTIMATED TOPS: IMPORTANT GEOLOGIC MARKERS:**

Wasatch:	Surface
Mesa Verde:	585'
Upper Sego:	2,983'
Anchor Tongue:	3,111'
Lower Sego:	3,181'
Buck Tongue:	3,283'
Castlegate:	3,525'
Mancos:	3,725'

**2. ESTIMATED DEPTHS OF ANTICIPATED WATER, OIL, GAS OR MINERALS:**

Water:	Wasatch Fm.:	Occ. Sands:..Surface to 585'.
	Mesa Verde Fm.:	Occ. Sands: 585' to 2,300'(est.)
	Mesa Verde Fm.:	Occ. Coals: 2,300' to 2983'*

\* - These waters may or may not be fresh waters (less than 1,000 PPM TDS. Poss. trace metals).

Oil:	Upper Sego Fm.:	Main Sand: 2,983' to 3,111'.
	Lower Sego Fm.:	Main Sand: 3,181' to 3,283'.
	Castlegate Fm.:	Main Sand: 3,525' to 3,725'.
Gas:	Mesa Verde Fm.:	Occ. Coals: 2,300' to 2,983'.
	Upper Sego Fm.:	Main Sand: 2,983' to 3,111'.
	Lower Sego Fm.:	Main Sand: 3,181' to 3,283'.
	Castlegate Fm.:	Main Sand: 3,525' to 3,725'.



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**3. MINIMUM SPECS FOR PRESSURE CONTROL:**

- a. A diagram of the Blowout Preventer Stack and Choke Manifold is presented in Exhibit #1.
- b. The BOP Equipment will be a class III (3,000 psi min. Working Pressure) system consisting of:
  - i. The Blow-Out Preventer Stack Description and Specifications:
    - A 9-5/8" X 2,000 psi WP (min) casing head will be installed as the starting head.
    - A 9" X 2,000 psi WP (min) drilling spool will be installed on the starting head.
    - A 9" X 3,000 psi WP (min) double gate hydraulic type ram preventer with Pipe rams over Blind rams will be installed above the drilling spool.
    - An 9" rotating head will be installed above the annular preventer for air drilling operations.
  - ii. The Choke and Kill Manifolds:
    - A 2"(min) x 2,000 psi (min) choke manifold and kill line will be tied into opposite sides of the 9" x 2,000 psi WP (min) drilling spool.
    - A 2"(min) x 2,000 psi WP (min) Full Opening gate (FO) valve will be in-board on both the choke and kill sides. These will be the master valves for well control. **The choke and kill side master valves will be closed during routine drilling operations.**
    - The exterior kill line will be 2" (min) x 2,000 psi WP (min) line pipe out-board of the kill side check valve.
    - An additional 2"(min) x 3,000 psi WP FO (min) gate valve will be up-stream of the choke manifold assembly. This valve will be in the open position during normal drilling operations.
    - The choke manifold will consist of 2" (min) x 2,000 psi WP pipe with a single 2"(min) x 2,000 psi WP FO(min) gate valve (minimum of 1 valve) between the flow cross and the 2: 2"(min) x 2,000 psi WP FO(min) manual chokes. These 2 valves will be closed during normal air and mud drilling operations. A single 2"(min) x 2,000 psi WP FO (min) gate valve (minimum of 1 valve) will be between the flow cross and the outlet side of the 2"(min) blooey line. This valve will be open during normal air and mud drilling operations. In-board of the gate valves in the manifold assembly there will be a 2"(min) x 2,000 psi WP flow tee with bull plug and needle valve and gauge for well control operations. The blooey line will be appropriately staked and chained down to the flare pit.



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iii. Surface Drill String Valves:

- A 2,000 psi WP (min) FO safety valve and a 2,000 psi WP (min) dart valve, with drill pipe threads and subs to meet other drill string threads, will be kept on the drill floor after surface casing is set.
- A 2,000 psi (min) WP Upper kelly valve, and a 2,000 psi (min) WP Lower kelly valve, will be kept on the kelly throughout drilling operations. All valves, and the wrenches to operate these valves, will be maintained on the floor in good order throughout drilling operations.

iv. The Accumulator System:

- An accumulator with sufficient capacity to operate the BOPE against a 2,000 psi well pressure (min) will be used to operate the BOP system. It shall contain double the fluid capacity calculated to open and close the pipe rams, blind rams, and annular preventer 1 time each, and then close the pipe rams 1 additional time (minimum) and retain accumulator pressure at 200 psig over the pre-charge pressure. The accumulator working pressure shall be 1,000 psi (minimum) with a pre-charge pressure between 700-800 psi. A Nitrogen bottle system shall provide independent (reserve) power to operate the system in the event rig motors must be shut down.

c. Testing Procedures and Test Frequency:

- All of the pressure side BOP Equipment specified in Part b. above will be nipped-up on the surface casing. A test plug will then be set in the starting head profile.
- All pressure side components will be hydraulically tested for fifteen (15) minutes (min) to 2000 psi and five (5) minutes (min) to 300 psi prior to drilling out cement. Surface casing will be pressure tested to 1000 psi before drilling out the surface casing shoe. These components will be re-tested each 30 days after drill-out, and at an appropriate time after any use under pressure, with a test plug set in the starting head profile.
- Pipe rams will be operationally checked each 24-hour period, and the blind rams operationally checked each time pipe is pulled from the hole.
- All pressure tests and function tests will be noted and described on the daily drilling report.



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**d. Air Drilling Equipment For Air Operations:**

- **A blooey-line will be rigged up to carry air returns from the rotating head flow line to the flare pit. Two down-hole fire stops and a string float will be installed in the drill string to prevent a down-hole fire during air drilling operations.**

**e. Tripping procedures for well control:**

- The well will be drilled with air to 3,500 feet (maximum depth). The well will be mudded-up at this point or as soon as water flows and/or hole conditions above this point dictate a cessation of air drilling operations. **At mud-up the fire stops and string float will be removed from the drill string.** After mud-up the following fill procedures on trips will be implemented.
- The anticipated maximum bottom-hole formation pressure is 900 psig. The anticipated mud weight at T.D. is 8.7 to 9.2 PPG. This will provide an anticipated hydrostatic pressure of 1,605 to 1,700 psig. This provides a minimum over-balance pressure of 705 to 800 psig at TD.
- The well will be drilled by a triple, double, or lay-down singles derrick rig with 4-1/2" drill pipe and 6" (minimum) drill collars.
- The well will be monitored each 9-10 joints on trips out of the hole to insure that the BHA is not swabbing the well in. The well will be filled after each 30 joints of drill pipe and as each drill collar is pulled from the hole. Pits will be monitored in order to insure that the well is taking fluid on the trip.
- The fill-up line will be used to fill the well on trips. The kill line WILL NOT be used to fill the well on trips.
- **In the event that the bit is plugged on a trip the well will be filled after each 15 joints of drill pipe are pulled from the well and as each drill collar is pulled from the well. Swabbing will be checked each 6 joints.**

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**4. CASING AND CEMENTING PROGRAM:**

a. General Casing and Cementing Design Specifications:

Hole Size, In.	Depth, Ft	Casing OD, In	Wt/Gd/Jt/Cond	Cement
12-1/4"	625' (Min)	9-5/8"	36 LB/Ft; J-55; STC; New/Used (Inspected)	LEAD: 125 Sx 35/65 Poz/Cl "G" G + 3% CaCl <sub>2</sub> + 6% Bentonite + 0.25 pps Celloflake (Yield: 1.62; 13.2 ppg; 8.07 Gal/Sx) TAIL: 180 Sx Cl "G" + 2% CaCl <sub>2</sub> + 0.25 pps Celloflake (Yield: 1.16; 15.8 ppg; 4.95 Gal/Sx). Calc 100% Excess. Circ to Surface.
7-7/8"	3840'	5-1/2"	14 or 15.5 LB/Ft; J or K- 55; STC or LTC; New/Used (Inspected)	LEAD: 85 Sx Cl "G" + 3% Salt + 12% Bentonite + 1% Extender + 0.25% FLA + 0.2% Anti-foamer (Yield: 3.77; 11.0 ppg). TAIL: 110 Sx 10:1 RFC (Cl "G") (Yield: 1.52; 14.5 ppg; 7.33 Gal/Sx) TOC @ 1320' – Est. 1000' above Top Coal in Mesa Verde Fm.) Note: Actual Cement Volume to be based upon caliper log.

- NOTE: It is the intention of the Operator to cement all Coals in the Wasatch Fm. behind the surface casing. The top anticipated coal in the Mesa Verde Fm. is at approximately 2,300' (on the basis of offset well research). A 10' to 30' mud log from surface casing to T.D. is planned. Cement will be raised at least 250' above the top coal in the 7-7/8" production hole. A Compensated Density/Compensated Neutron porosity log will be run from T.D. to 1000' to confirm the mud-log results, prior to cementing.
- Should the BLM stipulate that the well be cemented from T.D. to the 9-5/8" Surface Casing Shoe, or should the amount of cement lift be substantially greater than estimated above (i.e. coals substantially above 2000') then a Stage Cementing Plan or Nitrified Cement Design will be presented for verbal approval by your office, and a Sundry Notice will be filed describing the modified plan and the reasons for plan modification, as soon as possible.



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**Federal #16-24A-1N-103W**  
**600' FSL & 1936' FWL Sec 16-T1N-R103W 6th PM**  
**Rio Blanco County, Colorado**

b. Casing Centralization Equipment:

i. Surface Casing:

- A total of 4 centralizers will be run on the 9-5/8" OD Surface Casing: 1 at 10 ft. above the shoe, 1 at the 1st collar, 1 at the 2nd collar, and 1 at the 4th collar above the shoe.

ii. Production Casing:

- Centralizers will be placed 10' above the shoe and no further apart than every other collar through the Castlegate Fm. interval. Centralizers will be run as required in the vicinity of coal seams in the Mesa Verde Fm. One (1) centralizer will be run inside the surface casing, immediately above the surface casing shoe.

**5. PROPOSED DRILLING FLUIDS:**

DEPTH	TYPE	MUD WT., LB/GAL	VISCOSITY	WATER LOSS
0' – 625' (Min)	Spud Mud w/ KCl	8.4 – 9.5	28 – 40 Sec/Qt	No Control
625' – 3500'	Air Mist & KCl	N/A	N/A	None
3500' – TD	Low Solid w/ KCl	8.7 – 9.2	30 – 45 Sec/Qt	8 – 12 cc

**6. LOGGING, TESTING, AND CORING PROGRAM:**

a. The logging program will consist of:

- i. DIL/SFL w/ GR & SP:  
T.D. to Surface Casing.
- ii. LDT – CNL w/ GR & Caliper:  
T.D. to 1000' & GR to Surface Casing.

b. No cores are planned.

c. No DST's are planned, but possible drill stem tests if required for Sego Sand shows or if structural control dictates a test in the Castlegate Fm.

**EIGHT POINT DRILLING PLAN**  
**Attached to Form 3160-3: Application for Permit to Drill:**  
**Bonneville Fuels Corporation**  
**Federal #16-24A-1N-103W**  
**600' FSL & 1936' FWL Sec 16-T1N-R103W 6th PM**  
**Rio Blanco County, Colorado**

- d. Unmanned mud logging unit w/ a hotwire and chromatograph manned by a wellsite geologist from surface casing to TD if drilling rig personnel catch samples or manned by 2 mudloggers if rig doesn't catch samples. Will obtain 10-ft wet samples (if drilled w/ mud, otherwise dry cut) from 1000' to TD or at geologist discretion. Will obtain 30-ft samples from surface casing to 1000'.

**7. ABNORMAL CONDITIONS - PRESSURE - TEMPERATURE - POTENTIAL HAZARDS:**

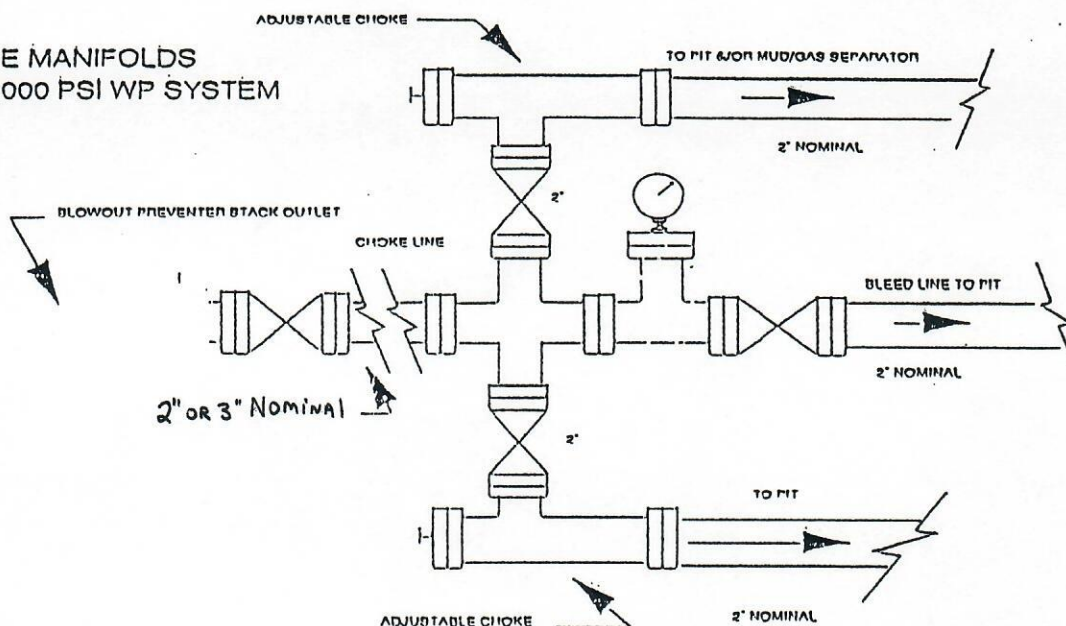
Normal pressures and temperatures are expected in the objective formation. A maximum Castlegate Fm. surface shut-in pressure of 700 psig is anticipated. A maximum bottom hole temperature of 130 degrees Fahrenheit is anticipated. Sour gas (H<sub>2</sub>S) is not anticipated.

**8. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:**

The subject well will utilize an existing location and road already constructed for the Federal #16-24-103W that was recently plugged because of severe hole problems encountered while drilling. The anticipated spud date for this well is currently July 7, 1998, subject to rig availability and permit approval. Once commenced, drilling operations should be finished within 8 to 10 days. Side-tracking operations, if required, will considerably extend the period of operations. Appropriate verbal notification of side-tracking operations shall immediately be made if such operations are required, plug-back procedures confirmed, and appropriate Sundry Notices filed as-soon-as-possible. If the well is productive, an additional 8 days will be required for completion.



CHOKE MANIFOLDS  
FOR 2000 PSI WP SYSTEM



MINIMUM BLOW-OUT PREVENTER REQUIREMENTS  
9" x 3000 PSI WP

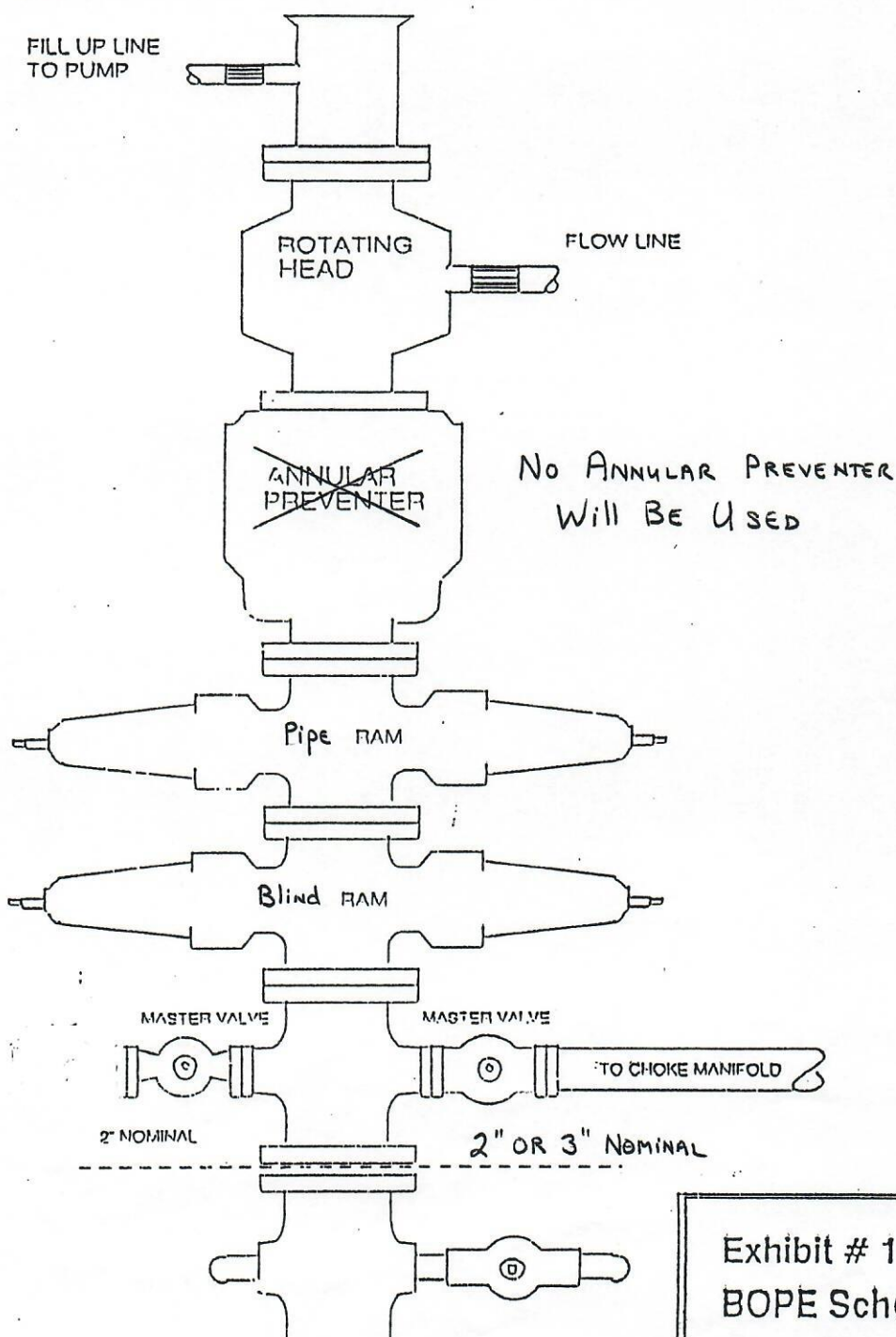
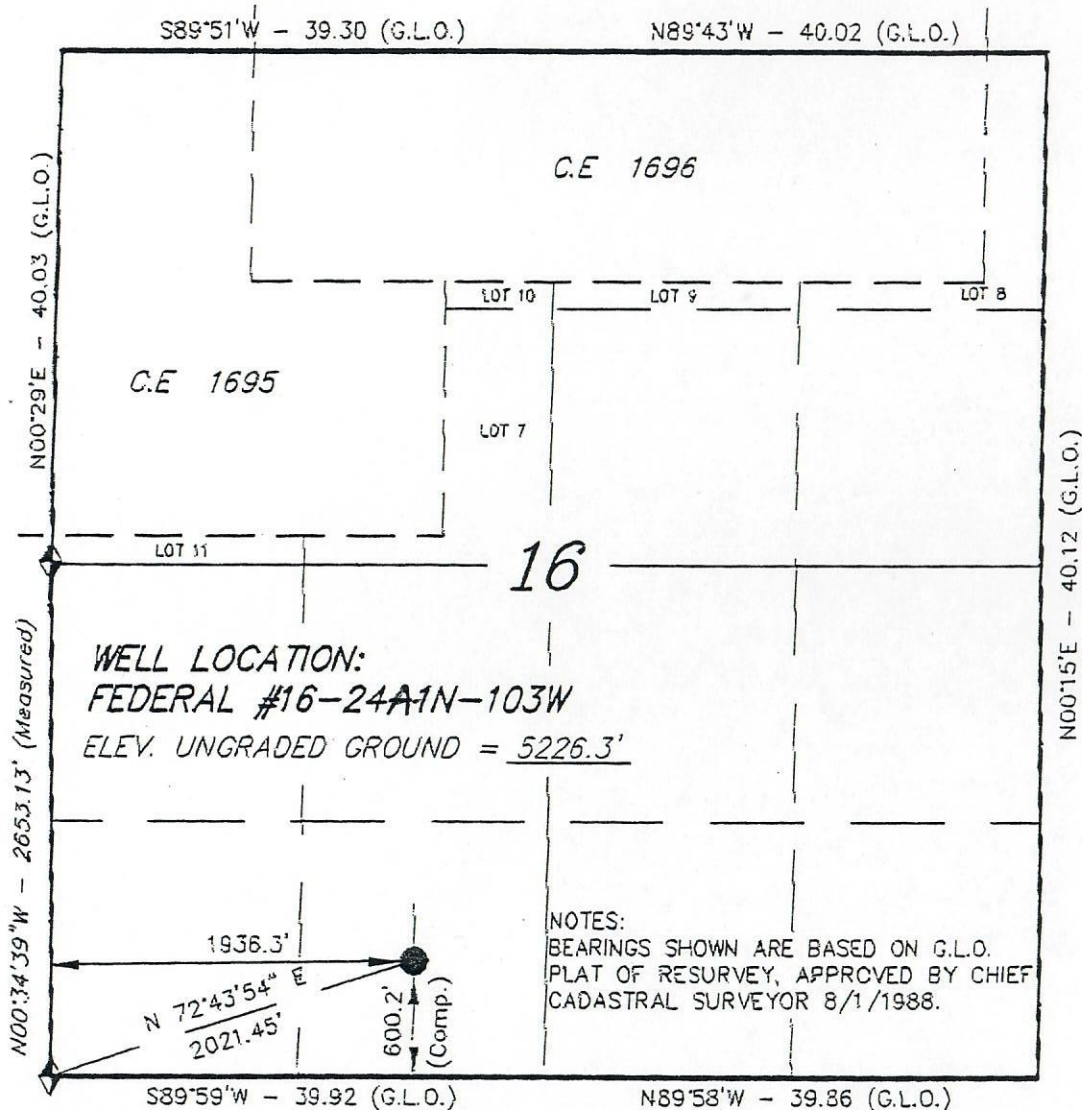


Exhibit # 1  
BOPE Schematic

T1N, R103W, 6th P.M.

**BONNEVILLE FUELS CORPORATION**

WELL LOCATION, FEDERAL  
#16-24A1N-103W, LOCATED AS SHOWN IN  
THE SE 1/4 SW 1/4 OF SECTION 16,  
T1N, R103W, 6th P.M. RIO BLANCO  
COUNTY, COLORADO.



THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS  
PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS  
MADE BY ME OR UNDER MY SUPERVISION AND THAT  
THE SAME ARE TRUE AND CORRECT TO THE BEST OF  
MY KNOWLEDGE AND BELIEF.

**GENE STEWART**  
REGISTERED LAND SURVEYOR  
REGISTRATION NO. 9186  
STATE OF COLORADO  
STATE OF UTAH

**TRI STATE LAND SURVEYING & CONSULTING**

38 WEST 100 NORTH - VERNAL, UTAH 84078  
(801) 781-2501

SCALE: 1" = 1000'

SURVEYED BY: DS BG

DATE: REV: 6-19-98

WEATHER:

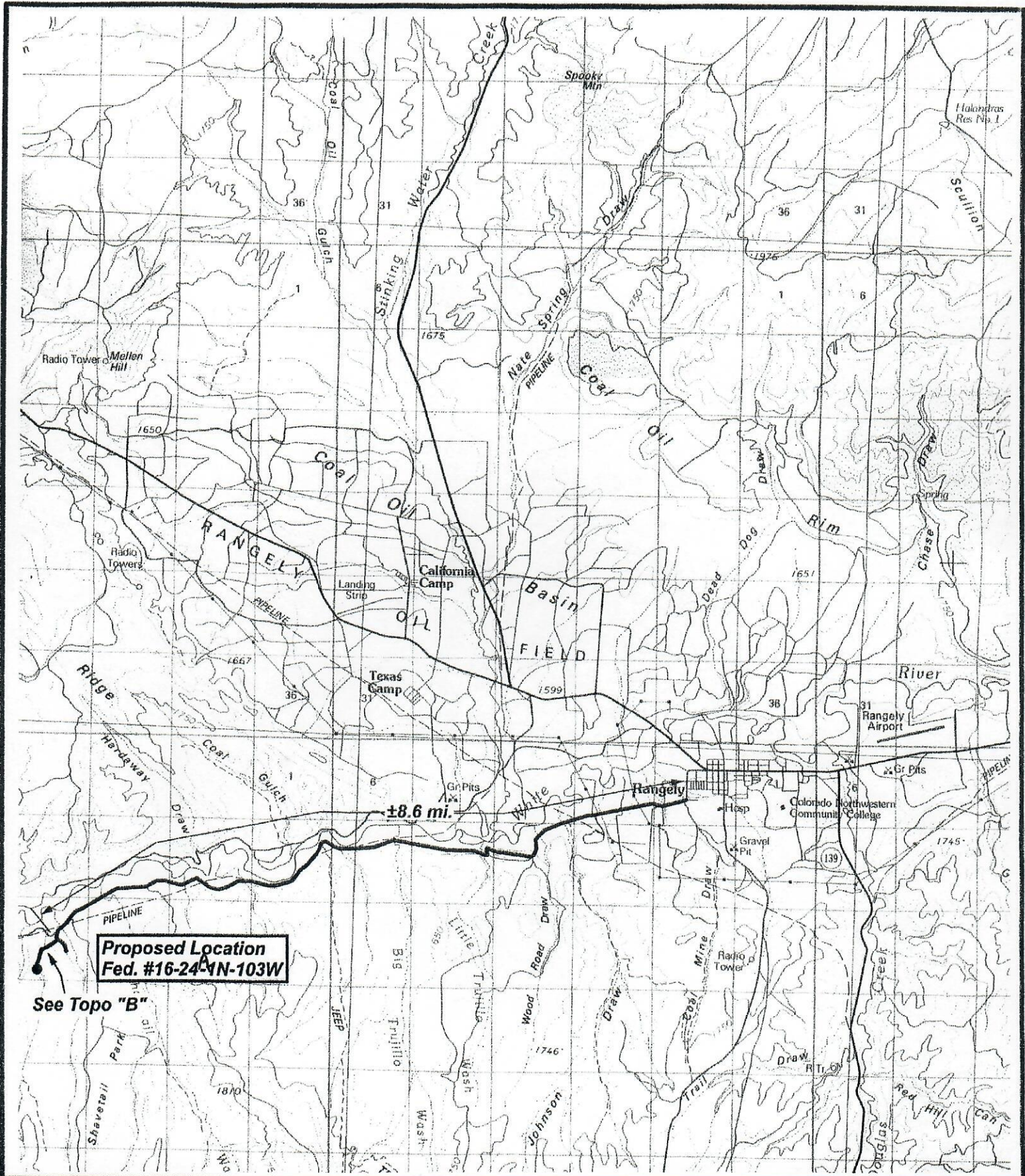
NOTES:

FILE # BON1624

◆ = SECTION CORNERS LOCATED

BASIS OF ELEV; U.S.G.S. 7-1/2 min QUAD (BANTY POINT COLO.)





**BONNEVILLE FUELS CORP.**

**FEDERAL #16-24-1N-103W  
SEC. 16, T1N, R103W, 6th P.M.**

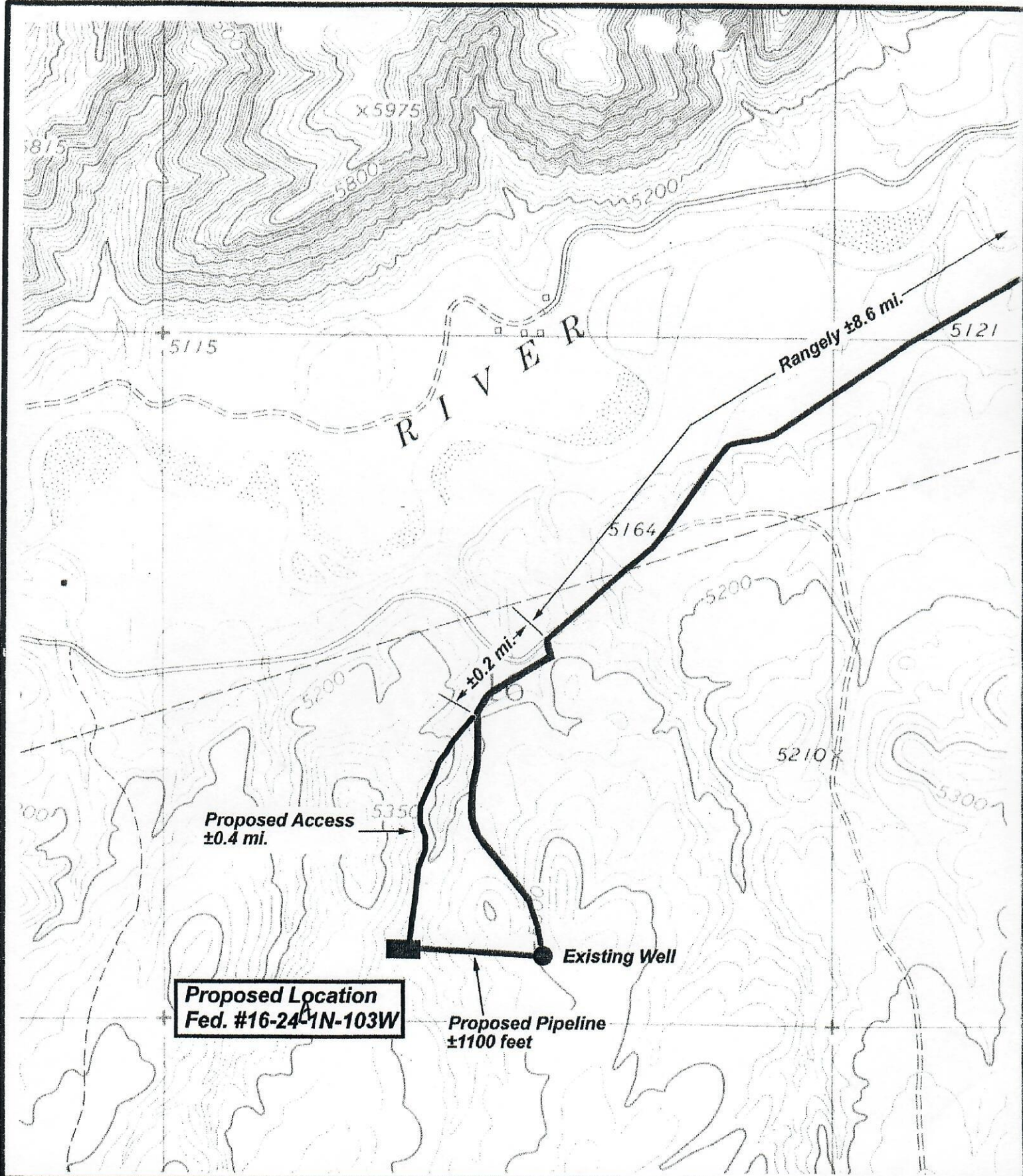
**TOPO "A"**

1 2 3 4 5 6 7 8 9 10 11 12



*Tri-State  
Land Surveying Inc.*  
(801) 781-2501  
38 WEST 100 NORTH VERNAL, UTAH 84078



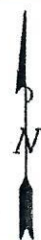


**BONNEVILLE FUELS CORP.**

**FEDERAL #16-241N-103W  
SEC. 16, T1N, R103W, 6th P.M.**

**TOPO "B"**

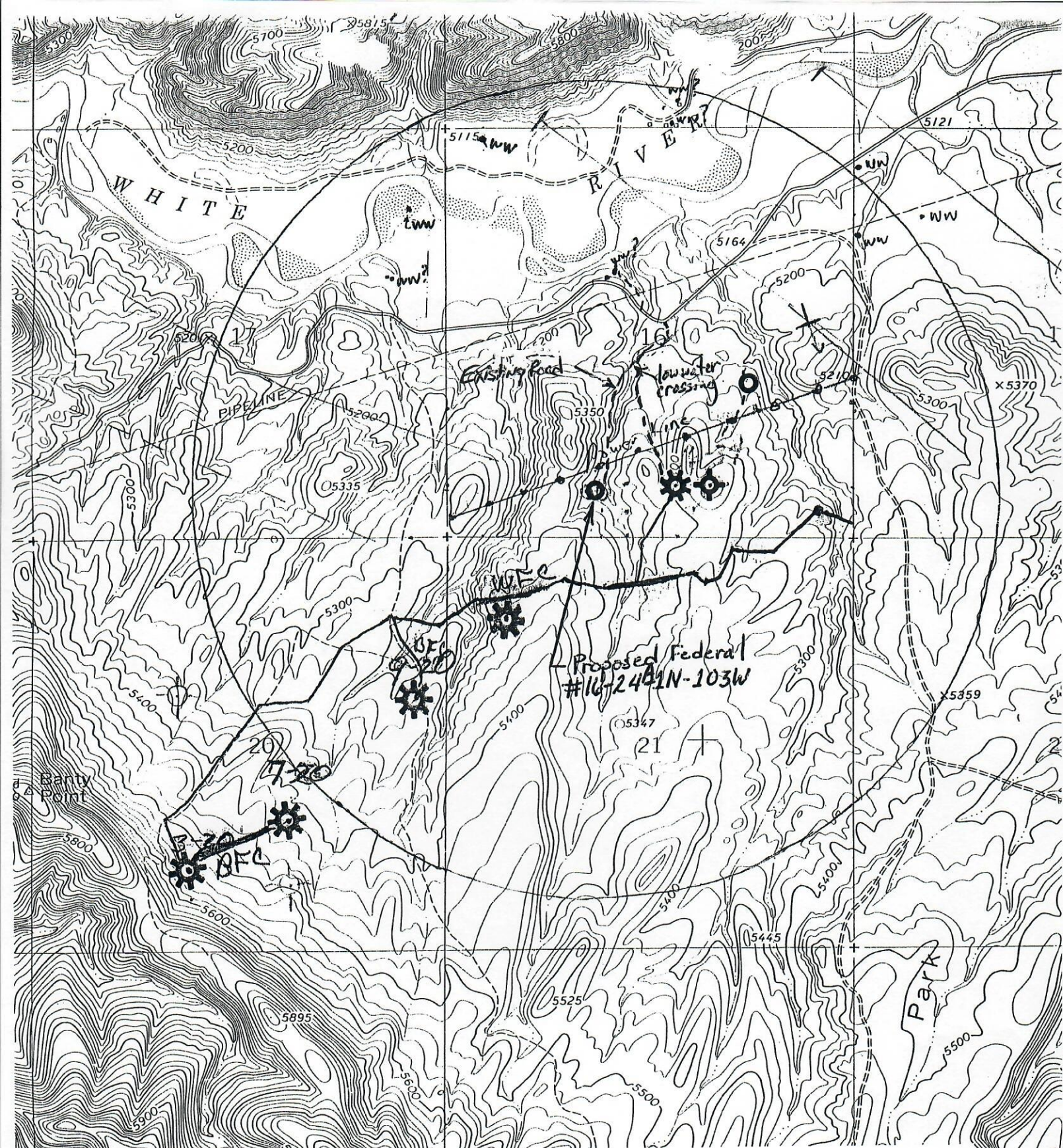
**Exhibit #2C**



**SCALE 1" = 1000'**

**Tri-State  
Land Surveying Inc.**  
(801) 781-2501  
38 WEST 100 NORTH VERNAL, UTAH 84078



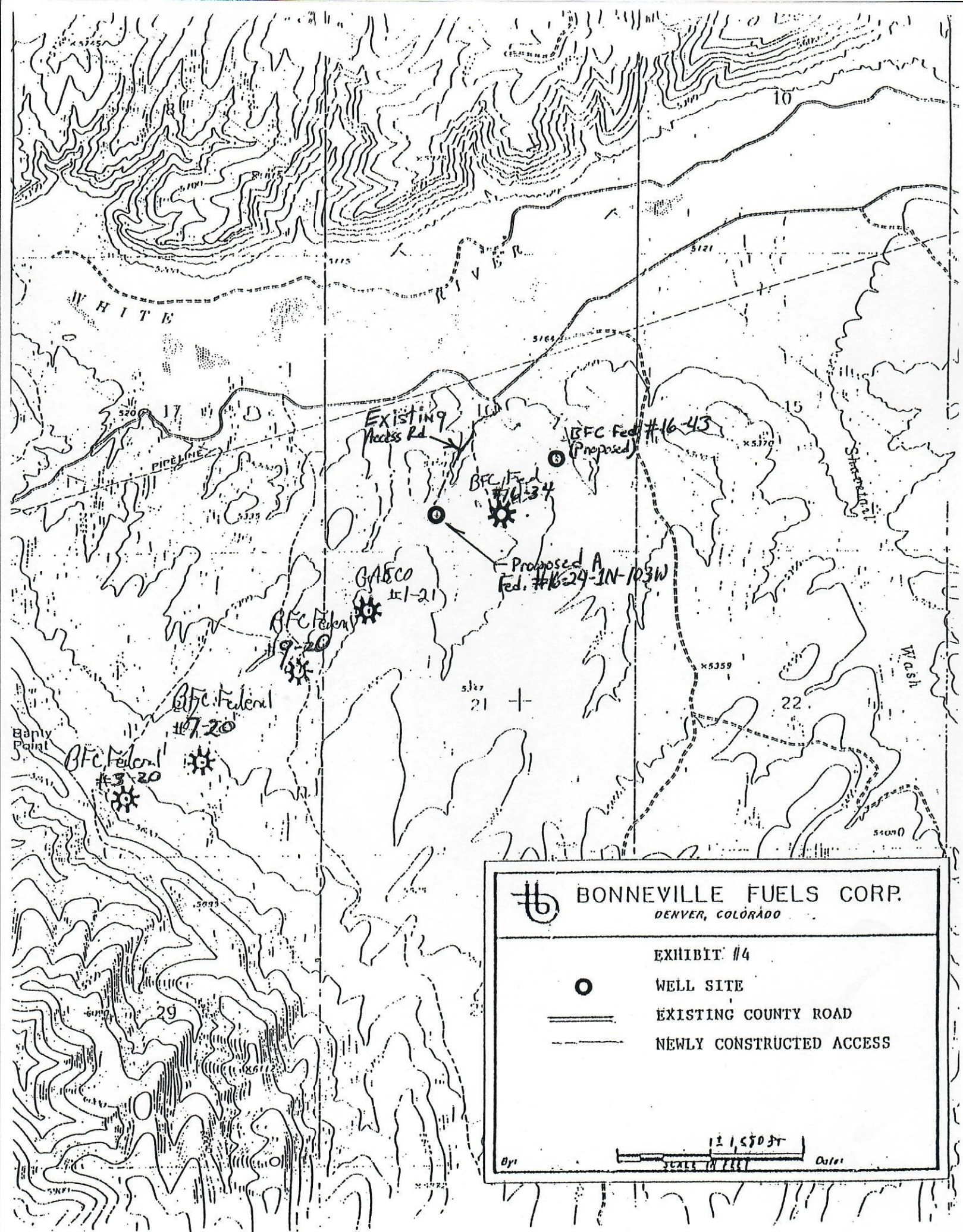


### Exhibit #3: One-Mile Radius

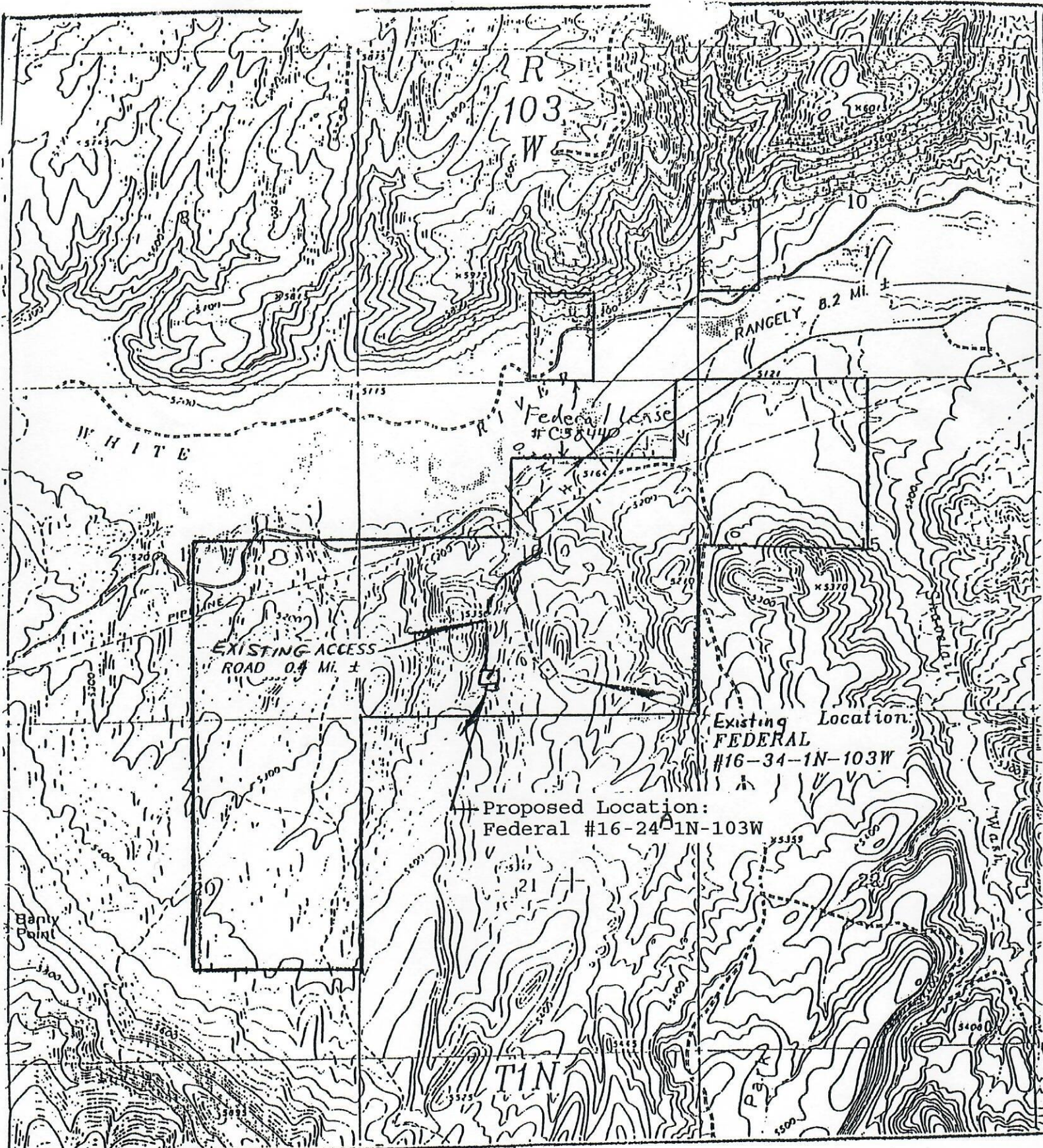
'NW: permitted water wells  
 'NW?: probable water well for  
 which permits could not be located  
 @ State Engineers Office

○ proposed location  
 ⚙ producing oil & gas well  
 ⊕ dry hole









□ : Approximate Lease Boundary for  
Federal Lease # C38440  
Exist. Lease Plat. Attached  
TOPOGRAPHIC

M A P " B "

SCALE: 1" = 2000'

DATE: 8-17-94 C.B.T.



BONNEVILLE FUELS CORP.

FEDERAL #16-24<sup>A</sup>1N-103W  
SECTION 16, T1N, R103W, 6th P.M.  
600' FSL 1956' FWL

Exhibit #5



13-782 500 SHEETS, FILLER 5 SQUARE  
 42-381 50 SHEETS, FILLER 5 SQUARE  
 42-382 100 SHEETS, FILLER 5 SQUARE  
 42-383 200 SHEETS, FILLER 5 SQUARE  
 42-384 100 SHEETS, FILLER 5 SQUARE  
 42-385 100 SHEETS, FILLER 5 SQUARE  
 42-386 200 SHEETS, FILLER 5 SQUARE  
 42-387 200 SHEETS, FILLER 5 SQUARE  
 42-388 200 SHEETS, FILLER 5 SQUARE  
 42-389 200 SHEETS, FILLER 5 SQUARE  
 42-390 200 SHEETS, FILLER 5 SQUARE  
 42-391 200 SHEETS, FILLER 5 SQUARE  
 42-392 200 SHEETS, FILLER 5 SQUARE  
 42-393 200 SHEETS, FILLER 5 SQUARE  
 42-394 200 SHEETS, FILLER 5 SQUARE  
 42-395 200 SHEETS, FILLER 5 SQUARE  
 42-396 200 SHEETS, FILLER 5 SQUARE  
 42-397 200 SHEETS, FILLER 5 SQUARE  
 42-398 200 SHEETS, FILLER 5 SQUARE  
 42-399 200 SHEETS, FILLER 5 SQUARE  
 42-400 200 SHEETS, FILLER 5 SQUARE  
 Made in U.S.A.



Access Road

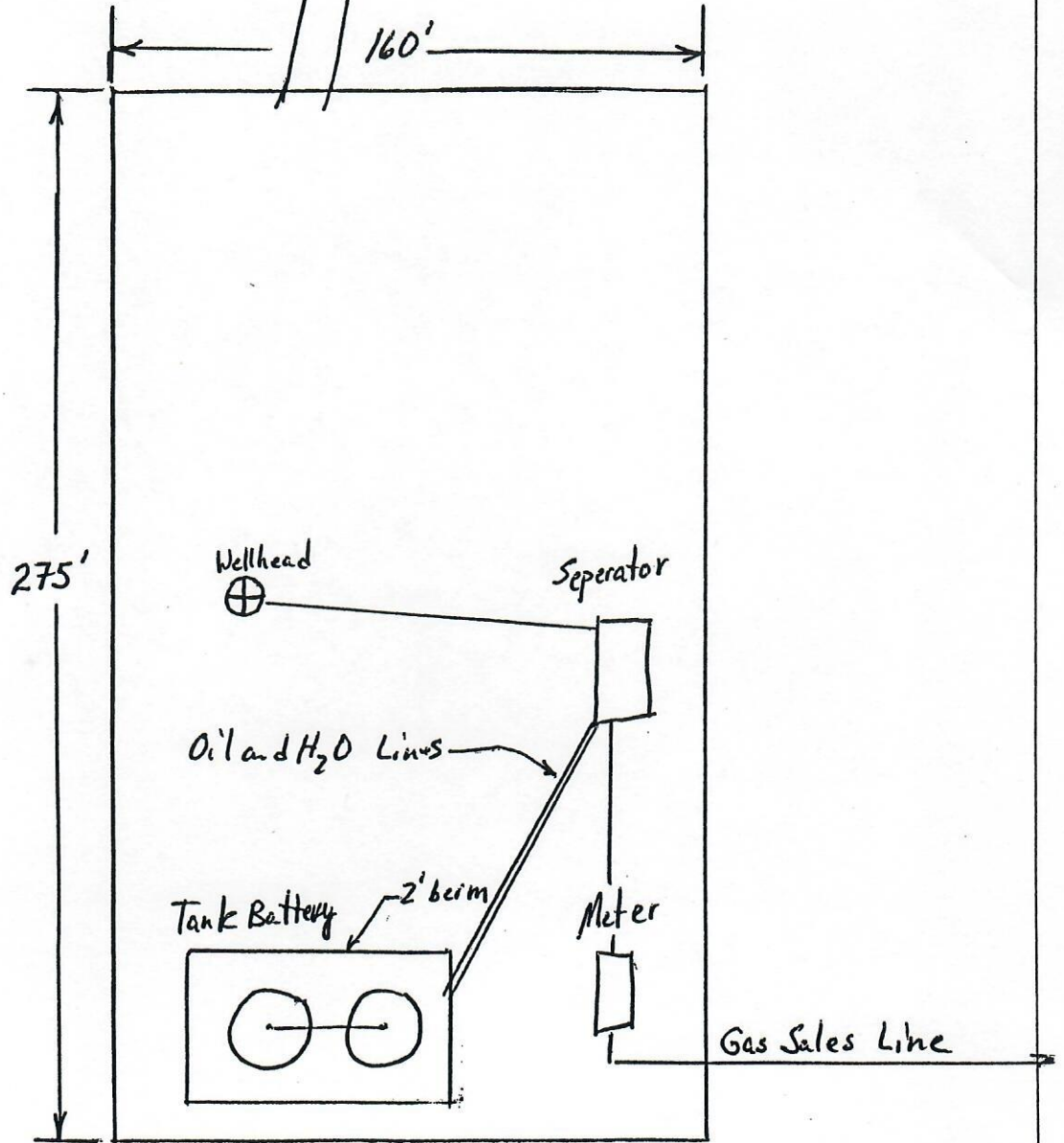


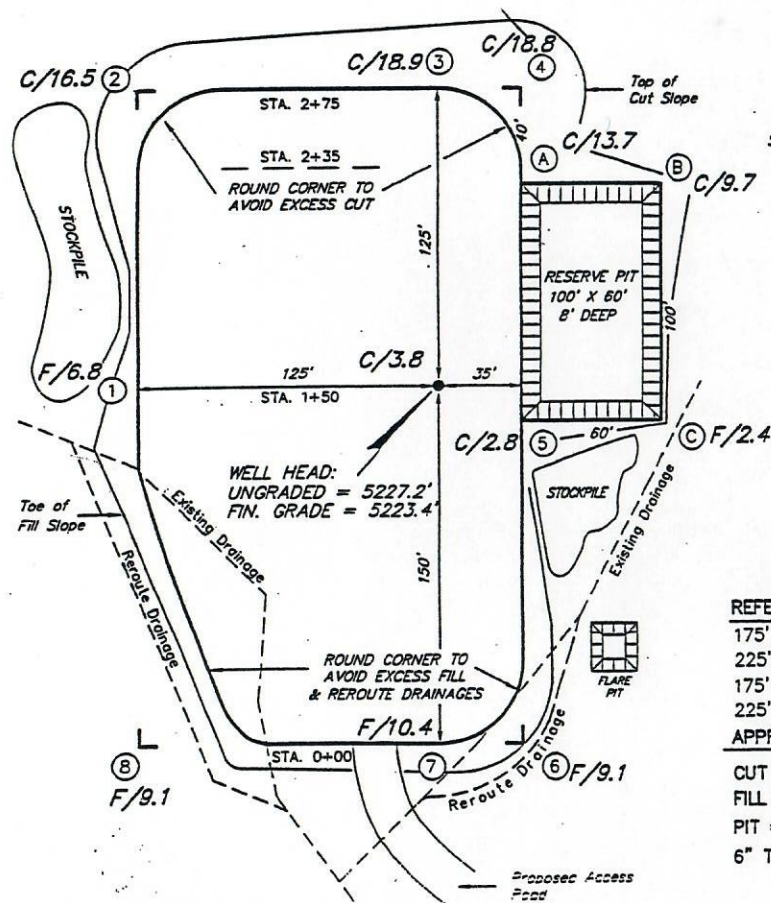
Exhibit #6  
 Proposed Production  
 Facilities  
 Fed. #16-24A 1N-103W

NOT TO SCALE



# BONNEVILLE FUELS CORPORATION

FEDERAL #16-24<sup>A</sup>1N-103W  
SEC. 16, T1N, R103W, 6th P.M.

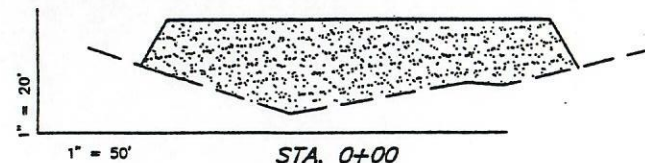
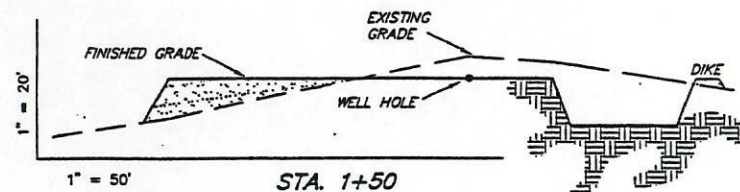
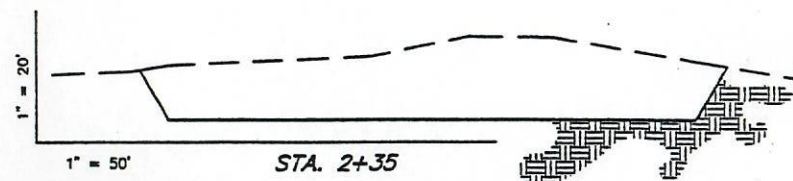
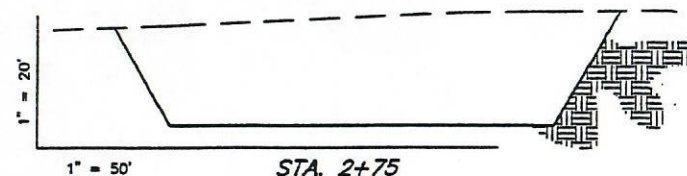


## REFERENCE POINTS

175' NORTH = 5211.6'  
225' NORTH = 5213.7'  
175' EAST = 5213.5'  
225' EAST = 5217.9'

## APPROXIMATE YARDAGES

CUT = 8,590 Cu. Yds.  
FILL = 8,580 Cu. Yds.  
PIT = 1,100 Cu. Yds.  
6" TOPSOIL = 930 Cu. Yds.



SURVEYED BY: DS DG  
DRAWN BY: BRW  
DATE: 11/25/97  
SCALE: 1" = 50'  
FILE: BON1524

**Tri State**  
Land Surveying, Inc.  
(505) 721-2501  
38° WEST 100° NORTH WERN... 174-84078

Exhibit #7

# Typical Rig Layout Federal # 16-24A-1N-103W



13-782 500 SHEETS, FULLER, 5 SQUARE  
42-381 50 SHEETS, EYE-EASE, 5 SQUARE  
42-382 100 SHEETS, EYE-EASE, 5 SQUARE  
42-383 100 SHEETS, EYE-EASE, 5 SQUARE  
42-384 100 SHEETS, EYE-EASE, 5 SQUARE  
42-385 100 SHEETS, EYE-EASE, 5 SQUARE  
42-386 200 RECYCLED WHITE, 5 SQUARE  
42-387 200 RECYCLED WHITE, 5 SQUARE  
Made in U.S.A.

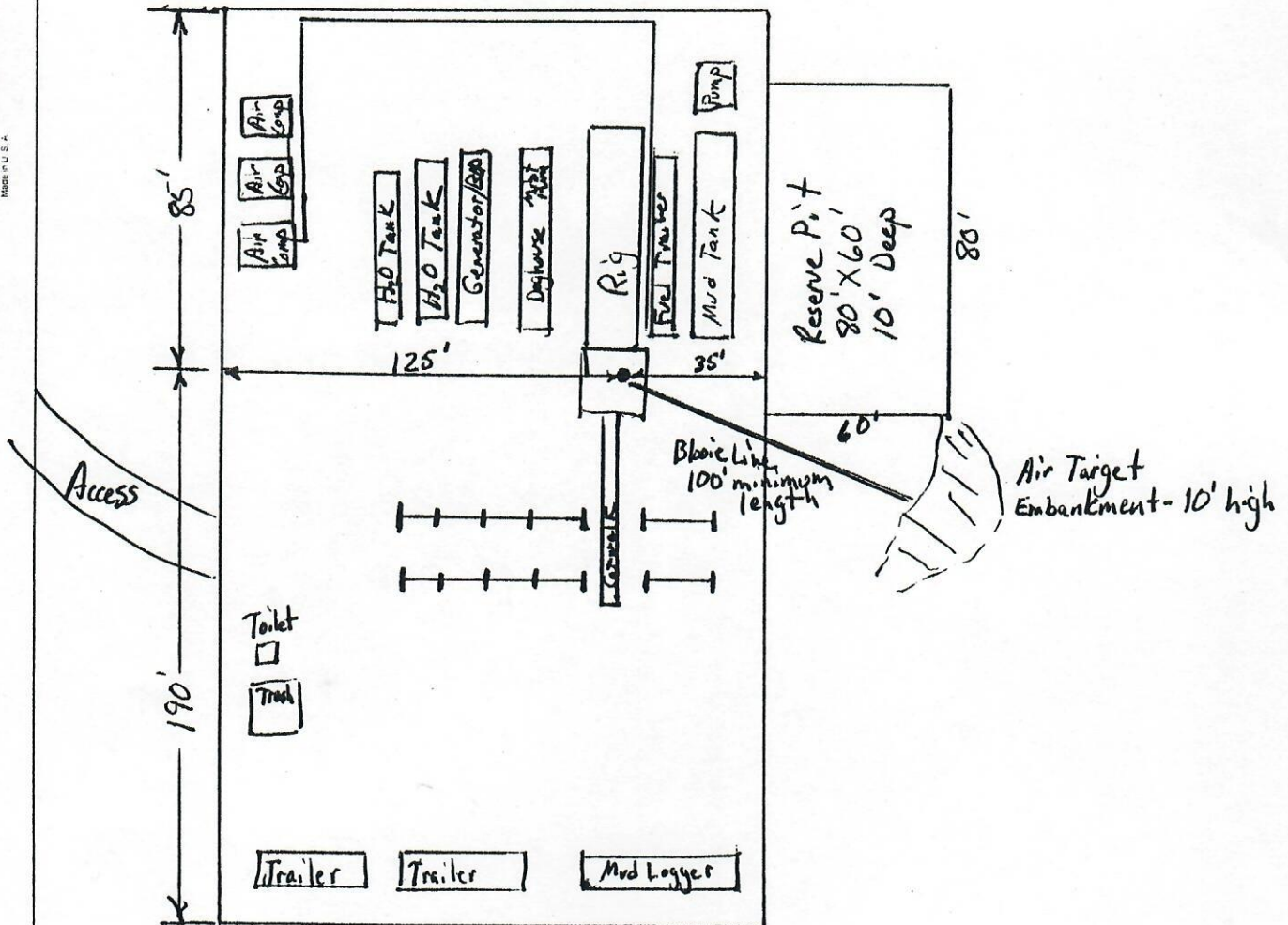


Exhibit 8  
Not to Scale



**AN INTENSIVE CULTURAL RESOURCE INVENTORY OF  
THE BONNEVILLE FUELS CORPORATION FEDERAL  
NO. 16-24-1N-103W WELL LOCATION AND  
PIPELINE, RIO BLANCO COUNTY, COLORADO**

by  
**Keith R. Montgomery**

*Exhibit 9*



**AN INTENSIVE CULTURAL RESOURCE INVENTORY OF THE  
BONNEVILLE FUELS CORPORATION FEDERAL NO. 16-24-1N-103W  
WELL LOCATION AND PIPELINE, RIO BLANCO COUNTY, COLORADO**

**by**

**Keith R. Montgomery**

**Prepared For:**

**Bureau of Land Management  
White River Resource Area  
P.O. Box 928  
Meeker, Colorado**

**Prepared Under Contract With:**

**Bonneville Fuels Corporation  
1660 Lincoln, Suite 1800  
Denver, Colorado 80264**

**Submitted By:**

**Montgomery Archaeological Consultants  
P.O. Box 147  
Moab, Utah 84532**

**Principal Investigator**

**Keith R. Montgomery**

**November 10, 1997**

**United States Department of Interior  
Colorado Permit No. C-59466**



## ABSTRACT

An intensive (Class III) cultural resource inventory was conducted by Montgomery Archaeological Consultants for Bonneville Fuels Corporation's Federal No. 16-24-1N-103W (Alt. 1) and Federal No. 16-24-1N-103W (Alt. 2) well locations and associated pipeline. The inventory area is located in Rio Blanco County, northwestern Colorado. The project area occurs on public lands administered by the Bureau of Land Management (BLM) White River Resource Area, Meeker, Colorado.

A total of 17 acres was inventoried for the proposed well locations, pipeline, and access road. The cultural resource inventory resulted in the location of two previously-recorded prehistoric sites (5RB2194 and 5RB3681). Although neither site is evaluated as being eligible for nomination to the NRHP, both are outside of the proposed construction areas. Based on the findings, a cultural resource clearance is recommended for this undertaking.



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**Colorado Office of Archaeology and Historic Preservation  
CULTURAL RESOURCE SURVEY MANAGEMENT INFORMATION FORM**

Please complete this form and attach a copy behind the Table of Contents of each standard survey report.

Federal acres of Potential Effect/Project:	<u>17</u>	Acres surveyed:	<u>17</u>
State acres of Potential Effect/Project:	<u>0</u>	Acres surveyed:	<u>0</u>
Private acres of Potential Effect/Project:	<u>0</u>	Acres surveyed:	<u>0</u>
TOTAL:	<u>17</u>	TOTAL:	<u>17</u>

**Legal Location of Project (add additional pages if necessary)**

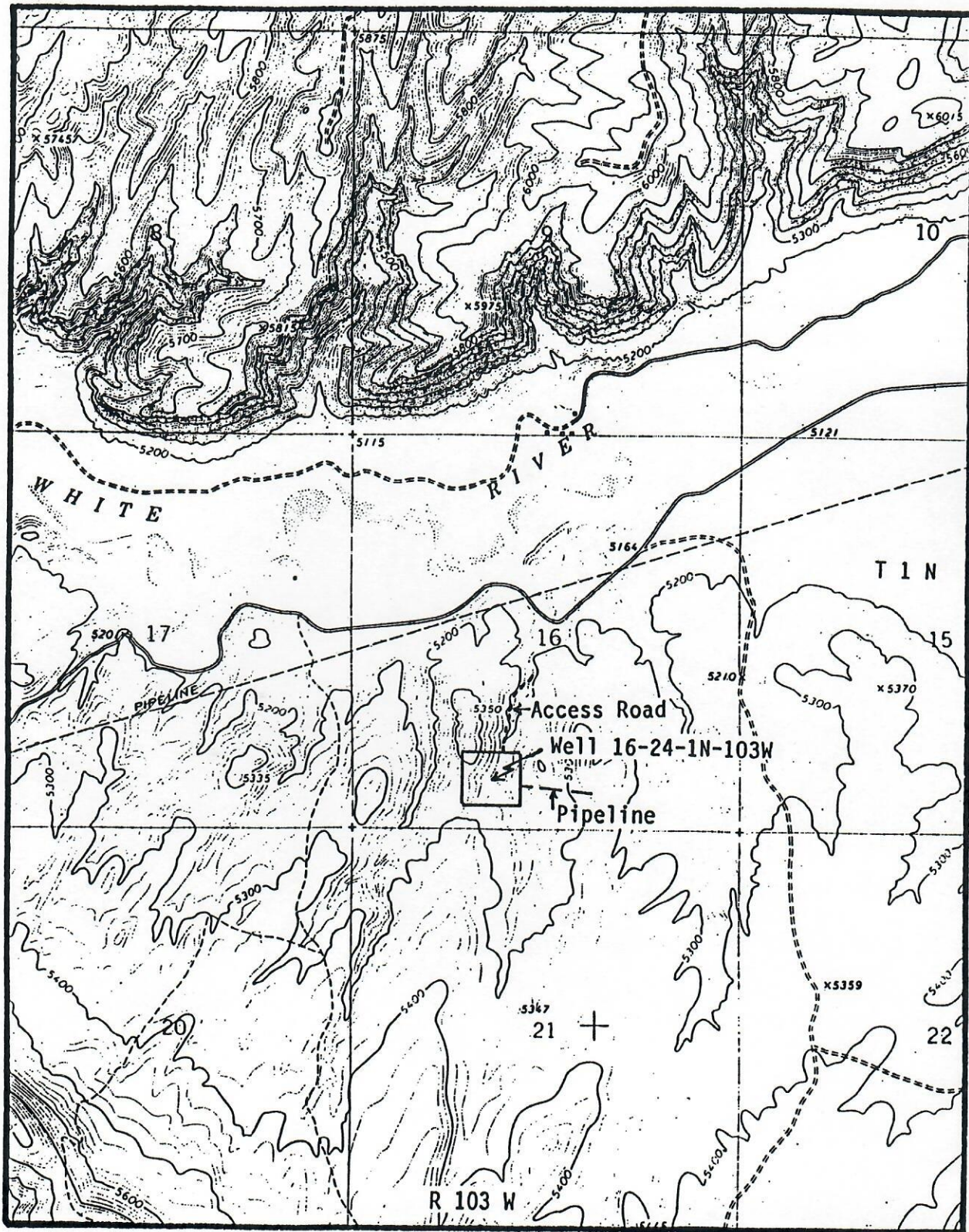
Principal Meridian: 6th Quad. map name(s) and date(s) Banty Point  
 County: Rio Blanco  
 Township: 1 North Range: 103 West Sec.: 16 1/4s \_\_\_\_\_  
 Township: \_\_\_\_\_ Range: \_\_\_\_\_ Sec.: \_\_\_\_\_ 1/4s \_\_\_\_\_  
 Township: \_\_\_\_\_ Range: \_\_\_\_\_ Sec.: \_\_\_\_\_ 1/4s \_\_\_\_\_  
 Township: \_\_\_\_\_ Range: \_\_\_\_\_ Sec.: \_\_\_\_\_ 1/4s \_\_\_\_\_  
 Township: \_\_\_\_\_ Range: \_\_\_\_\_ Sec.: \_\_\_\_\_ 1/4s \_\_\_\_\_

	Smithsonian Number	Resource Type				Eligibility				Management Recommendations						
		Prehistoric	Historical	Paleontological	Unknown	Eligible	Not Eligible	Need Data	Contributes to National Register District	No Further Work	Preserve/Avoid	Monitor	Test	Excavate	Archival Research	Other (specify on additional pages)
Sites	5RB2194	X					X									
	5RB3681	X					X									
Isolated Finds	TOTAL	2					2									
	TOTAL	0	0													

Principal Investigator Name: Keith R. Montgomery Date 11/12/97

Principal Investigator's Signature (please print or type) Keith Montgomery





Inventory Area of the Bonneville Fuel's Federal No. 16-24-IN-103W Well Location, Pipeline, and Access Road. USGS Bantý Point, CO 7.5', 1962 (Scale 1:24000), 6th Principal Meridian. T 1N, R 103W, S. 16.



## INTRODUCTION

An intensive (Class III) cultural resource inventory was conducted by Montgomery Archaeological Consultants for Bonneville Fuels Corporations Federal No. 16-24-1N-103W well locations (Alt. 1 and Alt. 2), a pipeline and access road. The project area is situated in Rio Blanco County, northwestern Colorado. The survey area occurs on public lands administered by the Bureau of Land Management (BLM) White River Resource Area, Meeker, Colorado.

The objective of the archaeological survey was to locate, document, and evaluate any cultural resources within the project area. The inventories were implemented to meet compliance with a number of federal mandates, including the American Antiquities Act of 1906, Historic Sites Act of 1935, National Historic Preservation Act of 1966 (as amended), National Environmental Policy Act of 1969, Federal Land Policy and Management Act of 1976, Archaeological Resources Protection Act of 1979, American Indian Religious Freedom Act of 1978, and Executive Order 11593.

The fieldwork was conducted on October 30, 1997 by Keith R. Montgomery, Principal Investigator for Montgomery Archaeological Consultants under Department of Interior Permit No. C-59466. To accomplish this inventory, the archaeologist walked a series of 10 to 15 meter wide parallel transects across the proposed 12 acre well location. The 100 feet wide pipeline corridor and access route were examined by the archaeologist walking a series of 10 to 15 meter wide transects along the staked pipeline centerline. A total of 17 acres was surveyed for this project. The undertaking will involve the surface blading and construction of a well pad and a 1200 foot long access road. The proposed 1000 foot long and 30 foot wide pipeline corridor will be buried to an estimated depth of 4 feet.

## DESCRIPTION OF THE PROJECT AREA

The project area is located west of Rangely, Colorado in Rio Blanco County (Figure 1). The proposed well locations are situated on the upper ridges of the White River drainage system in the SE/SW of Sec. 16, T 1N, R 103W (Figure 2). Well Location Federal No. 16-24-1N-103W (Alt. 1) is located 600 ft FSL and 1770 ft FWL and Well Location Federal No. 16-24-1N-103W (Alt. 2) is situated 600 ft FSL and 1806 ft FWL. The combined area of the proposed well locations is 660 ft north-south by 800 ft east-west. The pipeline route extends approximately 1000 feet to the east of the well location, connecting with an existing Bonneville Fuel Corporation buried pipeline. The proposed access road extends 1200 feet north of the well pad, connecting with an existing road.

The study area is situated in the lower White River Valley in the Colorado Plateau physiographic province. In general the area exhibits cliffs, ridges, and hogbacks. The geology in the project area consists mainly of Tertiary age Green River Formation sandstones, shales, marlstones, and limestones. The topography of the project area includes narrow flat ridge tops with sandstone ledges and outcrops dissected by intermittent drainages which flow into the White River. The high Pleistocene terraces and interfluvial outcrops contain dark brown to black opaque chert nodules which have been exploited by the prehistoric groups. Soils vary from thin silty loams on the terraces to clayey loams of varying depth atop the Tertiary age rocks.

The elevation of the survey area ranges from 5180 feet to 5340 feet. The vegetation zone in the project area is dominated by a shadscale-sagebrush shrubland which includes greasewood, prickly pear cactus, Russian thistle and cheatgrass. Historic land use patterns in the area include livestock grazing and energy exploration/development. Surrounding the inventory area are active and capped wells, buried pipelines, and an overhead transmission line. Visibility in the survey area was good to excellent, with 75% or more of the ground surface exposed.



Figure 1. Map of portion of northwestern Colorado showing project location.  
Scale 1:600,000



Figure 2. Inventory Area of the Bonneville Fuel's Federal No. 16-24-IN-103W Well Location, Pipeline, and Access Road. USGS Bantty Point, CO 7.5', 1962 (Scale 1:24000), 6th Principal Meridian. T 1N, R 103W, S. 16.



## CULTURAL HISTORY AND LITERATURE REVIEW

In general, regional overviews and studies indicate that the northern Colorado Plateau has been occupied by PaleoIndian Stage, Archaic Stage, Formative Stage, and Protohistoric/Historic Utes cultural groups. Historic records indicate occupation or use by EuroAmerican trappers, settlers, and ranchers. James Grady's Colorado Historical Society's publications entitled Northwest Colorado Prehistoric Context (1984) contains a relevant summary of the regional archaeology. Additional studies which have contributed important information to the data base are from the Canyon Pintado District (Creasman 1981), Little Snake River Resource Area (La Point 1987) and Douglas Creek-Texas Mountain locality (Hauck 1993). Briefly the prehistoric cultures as identified by their material remains, demonstrate a cultural developmental process that begins with the earliest identified PaleoIndian peoples (10,000 to 7,000 B.C.) and extends through the Archaic (7,000 B.C. to A.D. 300), and Formative (A.D. 300 to 1100) Stages, and the Late Prehistoric-Protohistoric periods (A.D. 1200 to 1850). The prehistoric themes pertinent to this investigation included settlement and subsistence strategies, chronology, lithic raw material use, and related topics of a general nature.

The historic background of the study area is reviewed in Colorado Plateau Country Historic Context (Husband 1984). Pertinent historic topics which are potentially related include; early Native American-Angloamerican contact, early settlement and ranching, and non-metallic exploration and mining (Husband 1984). The earliest Angloamerican settlement in the region dates to the 1860 and 1870 and tended to be closely tied to local Ute Indian populations. Cattle ranchers setting up operations in northwestern Colorado in the late 1860s and were well established in the river valleys by the 1880s. In the lower White River Valley the exploration and production of non-metallic minerals began in the 1890s, replacing precious metals in importance. Oil production and ranching presently form the economic base for most of the people in the region (Husband 1984).

### Anticipated Results

Expectations for this investigation are based on the results of previous investigations in the general area (La Point 1987; Hauck 1993; file search data), and the OAHN prehistoric contexts for northwestern Colorado (Grady 1984) and Colorado Plateau country (Husband 1984). Prehistoric site density is expected to be relatively high because of proximity to the White River. Known site types include open camp sites, open lithic scatters with or without hearths, lithic raw material quarries (particularly associated with Pleistocene cobble deposits), isolated prehistoric artifacts, sheltered sites, and rock art sites. The history of the region suggests that historic sites will most likely be associated with agriculture and non-metallic mining.

### File Search Results

A file search for known cultural resources and previous inventories in and near the project area was conducted through the Colorado State Historical Society in Denver just prior to the fieldwork on October 27, 1997. Also the files at the BLM White River Resource Area, Meeker, Colorado were consulted by Mike Selle, for this project area. These searches indicate a number of previous inventories in Sec. 16, T 1N, R 103W, although only a few occur adjacent to the current survey area. These projects include: a survey of several Coseka well locations and access roads by Gordon and Kranzsh Archaeological Consultants (Gordon 1982); a transmission line conducted by Nickens and Associates (Tucker 1983); a pipeline inventoried by Complete Archaeological Service Associates (Hammack 1994); and a well location surveyed by Centennial Archaeology (Zier 1994).

Two previously-recorded prehistoric sites (5RB2194 and 5RB3681) have been documented in or near the survey area. Site 5RB2194 was documented during the Coseka Resources 3-16-1N-103 well location survey (Gordon 1982). It is a moderate to dense scatter of primarily natural shatter of dark brown chert



nodules eroding from an interfluvial ridge. Measuring 240 m by 60 m, only a light scattering of flakes were observed on the site. No features or diagnostic artifacts were recorded. The site was evaluated as not eligible to the NRHP. Site 5RB3681 was recorded by Centennial Archaeology, Inc. for the Bonneville Fuel's No. 16-34 Federal well location (Zier 1994). It consists of a light scatter of seven interior and cortical brown opaque chert flakes. No features or diagnostic artifacts were found. The site is evaluated as not eligible to the NRHP. The locational data for the sites is given in Appendix A. The National Register of Historic Places (NRHP) has been consulted and no registered historic or prehistoric properties will be affected by this proposed undertaking

#### FIELD METHODS

The Bonneville Fuel Corporation's project area included the inventory of a Federal No. 16-24-1N-103W (Alt. 1) and Federal No. 16-24-1N-103W (Alt. 2) well locations, associated pipeline route, and access road. The well locations and corridors were staked at the time of the inventory. To accomplish this inventory, the archaeologist walked a series of 15 meter wide parallel transects across the proposed 12 acre well location. The 100-foot wide pipeline corridor and access route were examined by the archaeologist walking a series of 15 meter wide transects along the staked centerline. Special attention were allotted cutbank exposures, anthills, and rodent holes. Visibility in the survey area was good to excellent, with 75% or more of the ground surface exposed. A total of 17 acres was surveyed for this project.

#### INVENTORY RESULTS AND RECOMMENDATIONS

The cultural resource inventories resulted in the location of two previously-recorded prehistoric sites (5RB2194 and 5RB3681). No isolated finds of artifacts were found during the survey. Site 5RB2194 was found within the survey boundaries proper, but outside of the proposed construction zone. Inspection of this site resulted in no additional significant cultural resource data and a Colorado OAHF Reevaluation Form was completed for 5RB2194 (Appendix B). Site 5RB3681 occurs approximately 150 feet south of the proposed pipeline. No additional significant cultural resource data was collected from this site. Both of these limited activity sites have been evaluated as not eligible for inclusion of the NRHP.

Based on the findings, Montgomery Archaeological Consultants recommends that a cultural resource clearance be granted to Bonneville Fuels Corporation, Denver, Colorado relative to this proposed development project.



## REFERENCES CITED

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1981 Archaeological Investigations in the Canyon Pintado Historic District, Rio Blanco County, Colorado. Unpublished Master's thesis, Department of Anthropology, Colorado State University, Fort Collins.
- Grady, James  
1984 Northwest Colorado Prehistoric Context. Colorado Historical Society. Denver.
- Hammack, Nancy S.  
1994 Cultural Resource Inventory of Federal No. 16-34-1N-103W Pipeline Bonneville Fuels Corporation, Rio Blanco County, Colorado. Complete Archaeological Service Associates, Cortez, CO.
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1993 Archaeological Excavations (1988-1992) in the Douglas Creek-Texas Mountain Locality of Rio Blanco County, Colorado. Paper No. 50, Archeological-Environmental Research Corporation, Bountiful, Utah.
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**APPENDIX A**

**LOCATIONAL DATA FOR CULTURAL RESOURCES  
For Official Use Only. Disclosure of Site Locations is  
Prohibited (36-CFR-296.18)**



**APPENDIX B**  
**COLORADO OAHP INVENTORY RECORD FORM**