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103-0 9892

**EIGHT POINT DRILLING PLAN**

Attached to Form 3160-3: Application for Permit to Drill:  
Bonneville Fuels Corporation  
Federal #16-24-1N-103W  
600' FSL & 1956' FWL Sec 16-T1N-R103W 6th PM  
Rio Blanco County, Colorado

1. ESTIMATED TOPS: IMPORTANT GEOLOGIC MARKERS:

Wasatch:	Surface
Mesa Verde:	475'
Upper Segó:	2,983'
Anchor Tongue:	3,111'
Lower Segó:	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 475'.
	Mesa Verde Fm.:	Occ. Sands:	475' 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 Segó Fm.:	Main Sand:	2,983' to 3,111'.
	Lower Segó 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 Segó Fm.:	Main Sand:	2,983' to 3,111'.
	Lower Segó Fm.:	Main Sand:	3,181' to 3,283'.
	Castlegate Fm.:	Main Sand:	3,525' to 3,725'.



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:

- An 11" Nom. (8" opening) x 8-5/8" weld-on 3,000 psi (min) casing head will be installed as the starting head.

- An 11" Nom. (8" opening: min) x 3,000 psi (min) drilling spool will be installed on the starting head.

- An 11" Nom. (8" opening: min) double gate hydraulic type ram preventer (3,000 psi Working Pressure min) with Blind rams over Pipe rams will be installed above the drilling spool.

- An 11" Nom. (8" opening: min) annular bag type preventer (3,000 psi Working Pressure: min) will be installed above the double gate ram type preventer.

- An 11" Nom. (8" opening: min) rotating head will be installed above the annular preventer for air drilling operations.

- ii. The Choke and Kill Manifolds:

- A 2"(min) x 3,000 psi Working Pressure (WP - min) choke manifold and kill line will be tied into opposite sides of the 11" x 2,000 psi WP (min) drilling spool.

- A 2"(min) x 3,000 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.**

- A 2"(min) x 3,000 psi WP FO(min) check valve will be out-board on the kill side. The exterior kill line will be 2"(min) x 3,000 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 3,000 psi WP line pipe (Schedule 80 on the pressure side of the manifold assembly) with a single 2"(min) x 3,000 psi WP FO(min) gate valve (minimum of 1 valve) between the flow cross and the 2: 2"(min) x 3,000 psi WP FO(min) adjustable chokes. These 2 valves will be closed during normal air and mud drilling operations. A single 2"(min) x 3,000 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 3,000 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.

3. MINIMUM SPECS FOR PRESSURE CONTROL (CONTINUED):

b. BOP Equipment Specifications: Continued:

iii. Surface Drill String Valves:

A 3,000 psi WP(min) FO safety valve and a 3,000 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 3,000 psi(min) WP Upper kelly valve, and a 3,000 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 3,000 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 1,500 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.

The annular preventer will be hydraulically tested for fifteen(15) minutes(min) to 1500 psi and five(5) minutes to 300 psi. All other 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. 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, these components will be re-tested.

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. After the float collar is drilled out of the surface casing (but prior to drilling out the shoe) the surface casing will be pressure tested to 1,000 psi for thirty(30) minutes(min).

d. Air Drilling Equipment For Air Operations:

A 7" 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.

3. MINIMUM SPECS FOR PRESSURE CONTROL (CONTINUED):

e. Tripping procedures for well control:

The well will be drilled with air to 3,000 feet (maximum depth). The well will be mudded-up at this point or as soon as water flows, 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 T.D.

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.**

4. CASING AND CEMENTING PROGRAM:

a. General Casing and Cementing Design Specifications:

Hole Size	Depth	Casing OD	Wgt/Gd/Jt Condition	Cement
12-1/4"	500'+	8-5/8" Surface Casing	24#, J-55, STC New/Used (inspected)	365 sx Class H w/ 2% CaCl <sub>2</sub> . Yield = 1.18 cu.ft./sx. Calc. 100% excess. Circ. to Surf.
7-7/8"	3840'	4-1/2" Prod. Casing	10.5#, J-55, STC or LTC New/Used (inspected)	100 sx Class G Tail w/ Add. (Yield = 1.18 cu.ft./sx. @ 10% excess: Est. T.O. Tail @ 3,280') + 250 sx Class H Lead w/ Add. (Yield = 1.53 cu.ft./sx. @ 72.5% excess). Est. TOC @ 2000': Est. 300'+ above Top Coal in Mesa Verde Fm.

4. CASING AND CEMENTING PROGRAM (CONTINUED):

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 off-set 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 the 8-5/8" Surface Casing shoe to confirm the mud-log results, prior to cementing.

Should the BLM stipulate that the well be cemented from T.D. to the 8-5/8" 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.

b. Casing Centralization Equipment:

i. Surface Casing:

A total of 4 centralizers will be run on the 8-5/8" O.D. Surface Casing. With 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:

<u>DEPTH</u>	<u>TYPE</u>	<u>MUD WEIGHT</u> <u>lb/gal</u>	<u>VISCOSITY</u>	<u>WATER</u> <u>LOSS</u>
0-500'	Spud Mud	8.5-9.5 PPG	28-40 sec./qt	No Control
500-3000'	Air w/ Mud Mist & KCl.	N/A 8.5-9.3 PPG	0 28-40 sec./qt.	None 8-20 cc
3000'-TD	Low Solid	8.7-9.2 PPG	30-45 sec./qt.	8-15 cc

6. LOGGING, TESTING, AND CORING PROGRAM:

- a. The logging program will consist of:
  - i. DILL/SFL - GR/SP (Induction Logs):  
T.D. to Surface Casing.
  - ii. LDT/CNL/ML - GR/CAL (Density/Neutron Porosity Logs):  
T.D. to Surface Casing.
- b. No cores are planned.
- c. Possible drill stem tests if required for Segoe Sand shows or if structural control dictates a test in the Castlegate Fm.
- d. Site geologist with 30' samples while air drilling and 10' samples while drilling with mud.

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

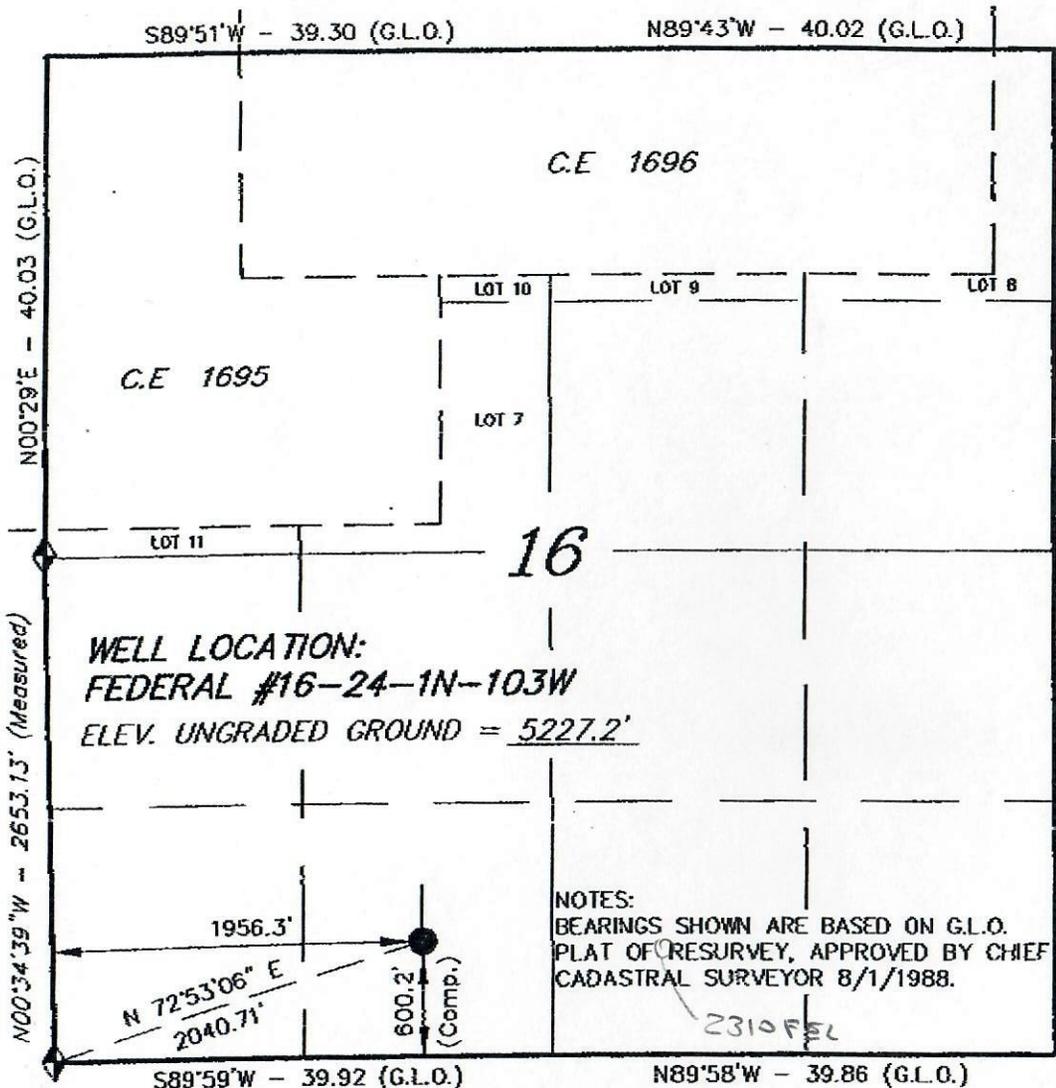
Normal pressures and temperatures are expected in the objective formation. A maximum Castlegate Fm. surface shut-in pressure of 700 psig is anticipated. A maximum bottom hole temperature of 130 degrees Fahrenheit is anticipated. Sour gas (H<sub>2</sub>S) is not anticipated.

8. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

Road and location construction will begin as soon as APD approval has been granted by the BLM. The anticipated spud date for this well is currently January 1, 1998, subject to rig availability, permit approval, and construction progress. 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.

T1N, R103W, 6th P.M.

BONNEVILLE FUELS CORPORATION



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

Exhibit #2A



WELL LOCATION:  
FEDERAL #16-24-1N-103W  
ELEV. UNGRADED GROUND = 5227.2'

NOTES:  
BEARINGS SHOWN ARE BASED ON G.L.O. PLAT OF RESURVEY, APPROVED BY CHIEF CADASTRAL SURVEYOR 8/1/1988.

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.

NO. 9185  
*Steve Stewart*  
 REGISTERED LAND SURVEYOR  
 REGISTRATION No. 9185  
 STATE OF COLORADO

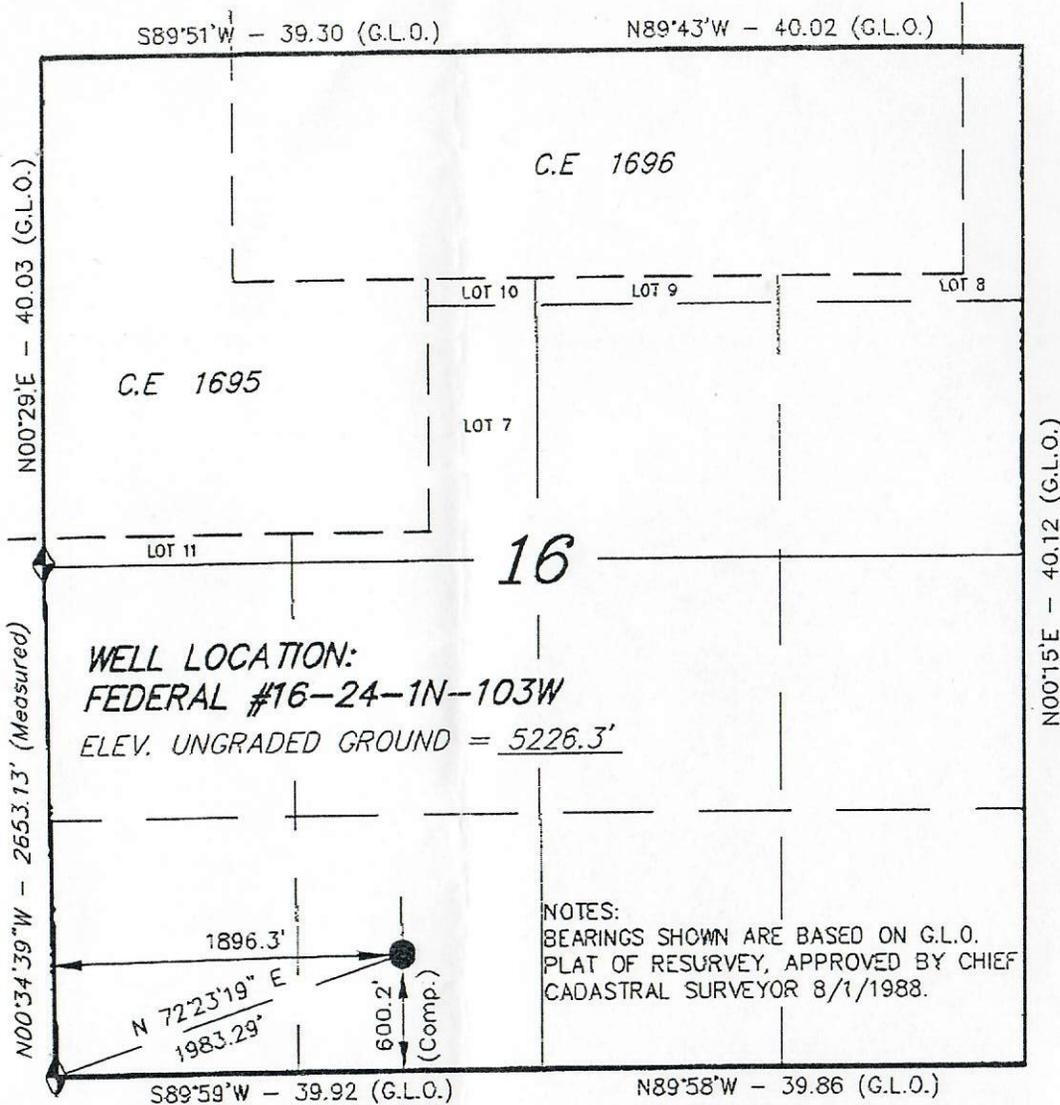
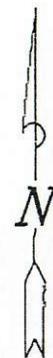
◆ = SECTION CORNERS LOCATED  
 BASIS OF ELEV; U.S.G.S. 7-1/2 min QUAD (BANTY POINT COLO.)

<b>TRI STATE LAND SURVEYING &amp; CONSULTING</b>	
38 WEST 100 NORTH - VERNAL, UTAH 84078 (801) 781-2501	
SCALE: 1" = 1000'	SURVEYED BY: DS BG
DATE: 11/25/97	WEATHER:
NOTES:	FILE # BON1624

T1N, R103W, 6th P.M.

**BONNEVILLE FUELS CORPORATION**

WELL LOCATION, FEDERAL  
#16-24-1N-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.

*Jim Stewart*  
REGISTERED LAND SURVEYOR  
REGISTRATION NO. 9186  
STATE OF COLORADO

<b>TRI STATE LAND SURVEYING &amp; CONSULTING</b>	
38 WEST 100 NORTH - VERNAL, UTAH 84078 (801) 781-2501	
SCALE: 1" = 1000'	SURVEYED BY: DS BG
DATE: 11/25/97	WEATHER:
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◆ = SECTION CORNERS LOCATED  
BASIS OF ELEV; U.S.G.S. 7-1/2 min QUAD (BANTY POINT COLO.)