

001

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

5. LEASE DESIGNATION AND SERIAL NO. **UTU-77087**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME **N/A**

7. UNIT AGREEMENT NAME **N/A**

8. FARM OR LEASE NAME, WELL NO. **E. Clear Creek Federal 22-42**

9. API WELL NO. **43-007-30878**

10. FIELD AND POOL, OR WILDCAT **N/A**

11. SEC., T., R., M., OR BLK. **NW/4 SE/4, Section 22, T14S, R7E, SLB&M**

12. COUNTY OR PARISH **Carbon** 13. STATE **Utah**

1a. TYPE OF WORK **DRILL** **DEEPEN**

b. TYPE OF WELL
OIL WELL GAS WELL OTHER
SINGLE ZONE MULTIPLE ZONE

2. NAME OF OPERATOR **Prima Oil and Gas Company**

3. ADDRESS AND TELEPHONE NO. **1099—18th St. Suite 400; Denver, Colorado 80202 303-297-2300**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements*)
At surface **1824' FSL, 2543' FEL 4382203 Y 39.59137**
At proposed prod. zone **489217X -111.12558**

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* **3.94 miles southeast of Clear Creek, Utah**

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any) **2,543'**

16. NO. OF ACRES IN LEASE **1.840'**

17. NO. OF ACRES ASSIGNED TO THIS WELL **160 acres**

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. **None**

19. PROPOSED DEPTH **7,000'**

20. ROTARY OR CABLE TOOLS **Rotary**

21. ELEVATIONS (Show whether DF, RT, GR, etc.) **9631' GR**

22. APPROX. DATE WORK WILL START* **September 2003**

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" J-55 ST&C	36	2,750'	890 sacks Type II cement + 2% CaCl ₂
8-3/4"	7" J-55 ST&C	23	7,000'	520 sacks Prem. Lite II
				305 sacks Prem. Lite (High Strength)

Bond coverage is provided under BLM statewide bond UT-1215 by Surety 04127700 in the amount of \$25,000.00

Surface Owner: United States of America

Surface Representative: USDA Manti La-Sal National Forest 599 Price River Drive, Price, Utah 84501
Karl Boyer —435-636-3551

CONFIDENTIAL

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data 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. SIGNED Don Hamilton Don Hamilton TITLE Agent for Prima DATE 8-1-03

(This space for Federal or State office use)

PERMIT NO. _____

Federal Approval of this Action is Necessary

Application approval does not warrant or certify that the applicant has 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 [Signature] TITLE **BRADLEY G. HILL ENVIRONMENTAL SCIENTIST III** DATE 08-13-03

RECEIVED

AUG 04 2003

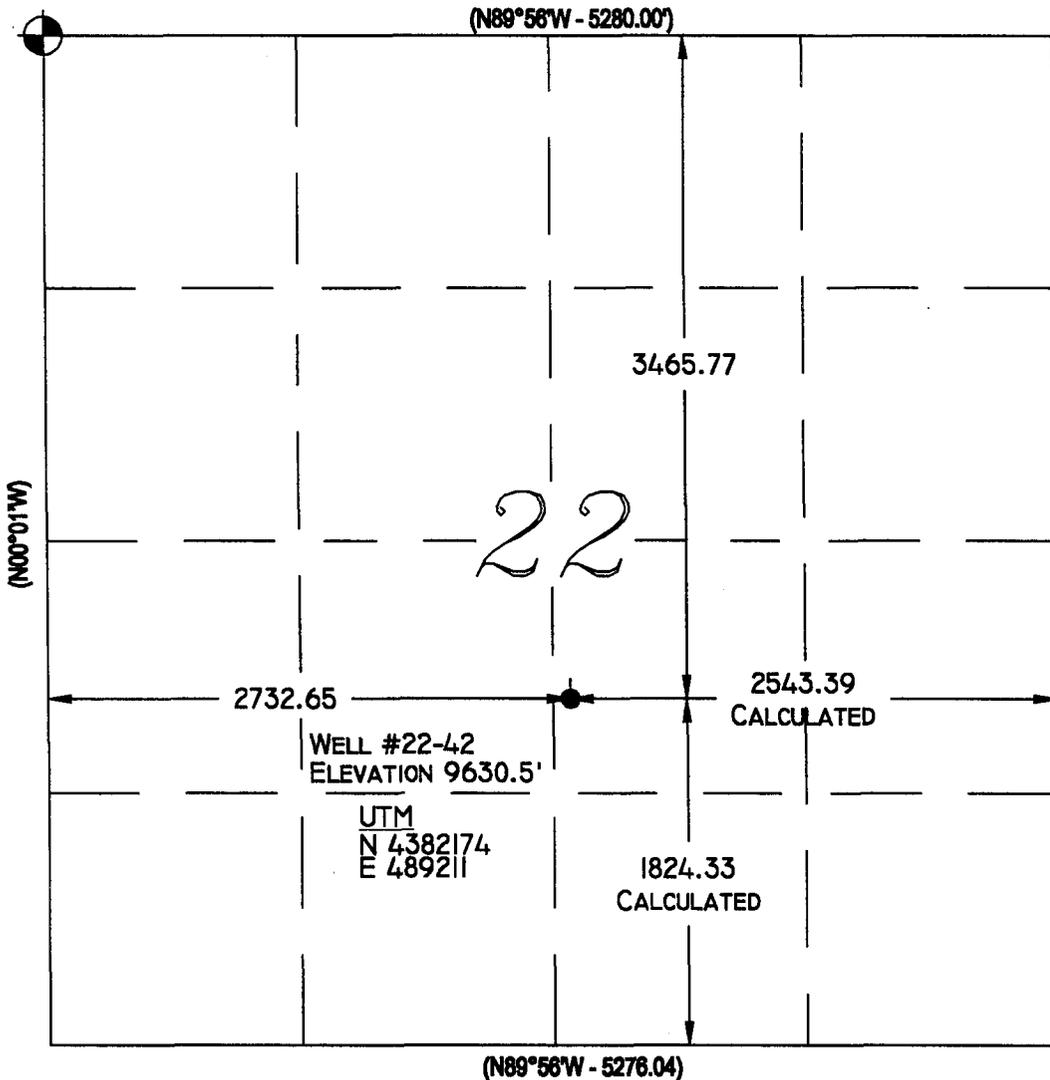
DIV. OF OIL, GAS & MINING

*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 or the

Range 7 East

Township 14 South



Location:
THE WELL LOCATION WAS DETERMINED USING A TRIMBLE 4700 GPS SURVEY GRADE UNIT.

Basis of Bearing:
THE BASIS OF BEARING IS GPS MEASURED.

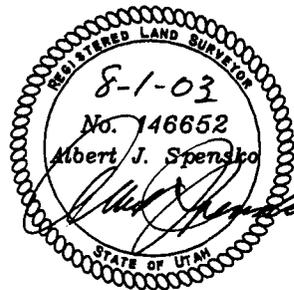
GLO Bearing:
THE BEARINGS INDICATED ARE PER THE RECORDED PLAT OBTAINED FROM THE U.S. LAND OFFICE.

Basis of Elevation:
BASIS OF ELEVATION OF 9907' BEING ON THE SOUTHWEST CORNER OF SECTION 21, TOWNSHIP 14 SOUTH, RANGE 7 EAST, SALT LAKE BASE AND MERIDIAN, AS SHOWN ON THE CANDLELAND QUADRANGLE 7.5 MINUTE SERIES MAP.

Description of Location:
PROPOSED DRILL HOLE LOCATED IN THE NW1/4, SE1/4 OF SECTION 22, T14S, R7E, S.L.B.&M., BEING 3465.77' SOUTH AND 2732.65' EAST FROM THE NORTHWEST CORNER OF SECTION 22, T14S, R7E, SALT LAKE BASE & MERIDIAN.

Surveyor's Certificate:

I, Albert J. Spensko, a Registered Professional Land Surveyor, holding Certificate 146652 State of Utah, do hereby certify that the information on this drawing is a true and accurate survey based on data of record and was conducted under my personal direction and supervision as shown hereon.



Legend

- Drill Hole Location
- ⊕ Brass Cap (Found)
- Brass Cap (Searched for, but not found)
- △ Calculated Corner
- () GLO
- GPS Measured

NOTES:
1. UTM AND LATITUDE / LONGITUDE COORDINATES ARE DERIVED USING A GPS PATHFINDER AND ARE SHOWN IN NAD 27 DATUM.

LAT / LONG
39°35'28"N
111°07'32"W



TALON RESOURCES, INC.
SERVICE, QUALITY & ACCURACY
Price - Huntington, Utah
Phone (435)687-5310 Fax (435)687-5310
E-Mail talon@ETV.net

Prima Oil & Gas Company
E. Clear Creek Federal 22-42
Section 22, T14S, R7E, S.L.B.&M.
Carbon County, Utah

Drawn By: BEN SCOTT	Checked By: L.W.J./A.J.S.
Drawing No. A-1	Date: 07/16/03
	Scale: 1" = 1000'
Sheet 1 of 4	Job No. 708

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals

002

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Gas

2. Name of Operator

Prima Oil and Gas Company

3. Address and Telephone No.

1099—18th Street, Suite 400, Denver, Colorado 80202 303-297-2300

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

1,849' FSL, 2,351' FEL
NW/4 SE/4, Section 22, T14S, R7E, SLB&M

5. Lease Designation and Serial No.

UTU-77087

6. If Indian, Allottee or Tribe Name

N/A

7. If Unit or CA, Agreement Designation

N/A

8. Well Name and No.

E. Clear Creek Federal 22-4

9. API Well No.

43-007-30878

10. Field and Pool, or Exploratory Area

Undesignated

11. County or Parish, State

Carbon County, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION	
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Change of Name	<input type="checkbox"/> Pipeline, Powerline, Maintenance Corridor Construction
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion	<input type="checkbox"/> Change of Plans
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Altering Casing	<input type="checkbox"/> Water Shut-Off
	<input checked="" type="checkbox"/> Relocation of well site	<input type="checkbox"/> Conversion to Injection
		<input type="checkbox"/> Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

The E. Clear Creek Federal 22-42 well site have been relocated 194' southwest following the onsite inspection and prior to federal permit approval and remains on Federal surface under the management of the USDA Manti La-Sal National Forest. The relocation was necessary to move the well off of the ridge top and further minimize visual impacts associated with the proposed well.

The revised location for the E. Clear Creek Federal 22-42 is as follows:
1,824' FSL, 2,543' FEL, NW/4 SE/4, Section 22, T14S, R7E, SLB&M.

Attached please find an updated civil plat, location layouts, and cross-section representative of the new location.

An exception to spacing (R649-3-3) is hereby requested based on Geology since the well is located within 460' of the drilling unit boundary. Prima Oil and Gas Company is the only offset drilling unit owner/operator within 460' of the proposed relocated well location.

FILE COPY

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Prima Oil and Gas Company Date August 1, 2003

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____

Conditions of approval, if any:

RECEIVED

AUG 04 2003

DIV. OF OIL, GAS & MINING

Attached to BLM Form 3
 Prima Oil and Gas Company
E. Clear Creek Federal 22-42
 NW/4 SE/4, Sec. 22, T14S, R7E, SLB & M
 1824' FSL, 2543' FEL
 Carbon County, Utah

EXHIBIT "D"
DRILLING PROGRAM

1. The Geologic Surface Formation

Blackhawk Formation of the Mesaverde Group

2. Estimated Tops of Important Geologic Markers

Star Point	900'
Upper Blue Gate	1,450'
Emery	2,050'
Lower Blue Gate	3,450'
Ferron	5,450'
Tununk	5,950'
Dakota	6,350'

3. Projected Gas & Water Zones

Ferron	5,450' – 5,950'
Dakota	6,350' – 6,650'

Groundwater may be encountered within the Blackhawk, Star Point and Emery Sandstones. Water encountered will be reported on a Form 7 "Report of Water Encountered During Drilling".

Casing & cementing will be done to protect potentially productive hydrocarbons, lost circulation zones, abnormal pressure zones, and prospectively valuable mineral deposits. All indications of usable water will be reported.

Surface casing will be tested to 2000 psi.

4. The Proposed Casing and Cementing Programs

Casing Program –

<u>HOLE SIZE</u>	<u>SETTING DEPTH (INTERVAL)</u>	<u>SIZE (OD)</u>	<u>WEIGHT, GRADE & JOINT</u>	<u>CONDITION</u>
12-1/4"	2,750'	9-5/8"	36# J-55 ST&C	New
8-3/4"	7,000'	7"	23# J-55 ST&C	New

Cement Program –

Surface Casing: 890 sacks Type II w/ 2% CaCl;
Weight: 14.5 # / gal
Yield: 1.41 cu.ft / sk

Production Casing:

Lead -- 520 sacks Prem. Lite II
Weight: 11.0 # / gal
Yield: 3.46 cu.ft / sk

Tail -- 305 sacks Prem. Lite (High Strength)
Weight: 13.0 #/gal
Yield: 1.97 cu.ft/sk

The following shall be entered in the driller's log:

- 1) Blowout preventer pressure tests, including test pressures and results;
- 2) Blowout preventer tests for proper functioning;
- 3) Blowout prevention drills conducted;
- 4) Casing run, including size, grade, weight, and depth set;
- 5) How the pipe was cemented, including amount of cement, type, whether cement circulated, location of the cementing tools, etc.;
- 6) Waiting on cement time for each casing string;
- 7) Casing pressure tests after cementing, including test pressures and results.

5. The Operator's Minimum Specifications for Pressure Control

Exhibit "G" is a schematic diagram of the blowout preventer equipment. A 10" or 11" 3,000 psi Double gate Hydraulic BOP with one (1) blind ram and one (1) pipe ram and Annular Preventer; equipped with a 3,000 psi automatic choke manifold. This equipment will be tested to 2000 psi. All tests will be recorded in a Driller's Log Book. Physical operation of the BOP will be checked on each trip.

6. The Type and Characteristics of the Proposed Circulating Mud's

<u>INTERVAL</u>	<u>TYPE</u>	<u>WEIGHT</u>	<u>VISCOSITY</u>
0 - 6,000'	Freshwater	8.3 - 8.8	35 - 50
2,950' - 7,800'	Freshwater polymer	8.6 - 9.0	45 - 60

7. The Testing, Logging and Coring Programs are as followed

Testing -

DST's are planned in the Ferron and Dakota formations
Test intervals will be determined from logs.

Logging -

Surface - TD Gamma Ray, Density, Neutron, Porosity, Induction, Caliper

Coring --

2 cored intervals within the Ferron:
Core intervals will be determined from logs.

Any Anticipated Abnormal Pressures or Temperatures

No abnormal pressures or temperatures have been noted or reported in wells drilled in the area nor at the depths anticipated in this well. Bottom hole pressure expected is 1700 psi max. No hydrogen sulfide or other hazardous gases or fluids have been found, reported or are known to exist at these depths in the area.

8. Anticipated Starting Date and Duration of the Operations.

The well will be drilled approx.: September 2003.

Verbal and/or written notifications listed below shall be submitted in accordance with instructions from the Division of Oil, Gas & Mining:

- (a) prior to beginning construction;
- (b) prior to spudding;
- (c) prior to running any casing or BOP tests;
- (d) prior to plugging the well, for verbal plugging instructions.

Spills, blowouts, fires, leaks, accidents or other unusual occurrences shall be reported to the Division of Oil, Gas & Mining immediately.

Attached to BLM Form 3
Prima Oil and Gas Company
E. Clear Creek Federal 22-42
NW/4 SE/4, Sec. 22, T14S, R7E, SLB & M
1824' FSL, 2543' FEL
Carbon County, Utah

THIRTEEN POINT SURFACE USE PLAN

The dirt contractor will be provided with an approved copy of the surface use plan of operations before initiating construction.

The onsite inspection for the referenced well was conducted on Wednesday, May 22, 2002 at approximately 10:30am. Weather conditions were cool and breezy progressing to cold with horizontal snow. In attendance at the onsite inspection were the following individuals:

Karl Boyer	Geologist	Forest Service
Brian McClelland	Geologist	Forest Service
Don Wilcox	Engineer	Forest Service
Cara Staab	Biologist	Forest Service
Pam Abrams	Biologist's Assistant	Forest Service
Bruce Ellis	Archaeologist	Forest Service
Brent Hanchett	Landscape / Visuals	Forest Service
Lee Fyock	Environmental and Compliance	Prima
Cindi Danner-Weide	Lands	Prima
Don Hamilton	Permitting Agent	Talon Resources, Inc.

1. Existing Roads:

- a. Location of proposed well in relation to town or other reference point: The proposed well site is located approximately 3.94 miles southeast of Clear Creek, UT.
- b. Proposed route to location: As you are entering Clear Creek, Utah and pass the first cabins turn left towards the prominent canyon to your east. Proceed easterly across fee surface crossing the tracks and up the canyon approximately 1.83 miles to the top of Castle Valley Ridge. Proceed south along Castle Valley Ridge along fee surface to the Forest Service boundary at approximately 0.57 miles. Continue south inside the forest Service boundary and begin dropping into Nuck Woodward Canyon. At an approximate point 1.95 miles from the Forest Service boundary turn left at a prominent trailhead parking area. From this point proceed on foot southeast along the trail for approximately 1 mile to the well site area. The well site is situated on top of the ridge as you break out of the Aspen tree cover. (see Exhibit "B"). The road is surfaced with gravel to the trailhead but will require additional material and drainage structures to be installed along its entirety and will require the forest Service portion of the road to be upgraded to Forest Service specifications. Proposed access will utilize Manti-La Sal National Forest Roads for approximately 2.98 in which approval to utilize is pending.
- c. The use of roads under Carbon County Road Department maintenance is necessary through the private lands referenced above and will require an encroachment permit prior to any upgrades of the road from Carbon County Road Department.

- d. The road from Clear Creek to the Forest Service boundary will require drainage and aggregate upgrades along the private lands. The upgrades will be completed consistent with landowner and Carbon County Road Department stipulations. The road from the Forest Service boundary to the trailhead will also require drainage and aggregate upgrades in which a road design plan is presently being developed for the Forest Service road upgrades to supplement this application and a pending road use permit application.
- e. All existing roads will be maintained and kept in good repair during all phases of operation.
- f. Vehicle operators will obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.
- g. Since only drainage and aggregate improvements are anticipated to the access roads no topsoil striping will occur.
- h. Move-in and Move-out of the drill rig will not be allowed during holiday weekends and will be restricted during the big game hunting seasons as specified by the Forest Service as conditions for approval of the Surface Use Plan of Operations.

2. Planned Access Roads:

- a. From the trailhead to the well site will be new construction along the existing trailhead that once served as a coal exploration access road. The road was recontoured and reclaimed following the coal exploration project and now serves as a pedestrian trail. The road from the trail-head to the well site will require extensive construction in which a road design plan is presently being developed for the Forest Service road upgrade to supplement this application and a pending road use permit application.
- b. Approximately 1.15 miles of recontoured and reclaimed, and new access road will be upgraded to Forest Service specifications.
- c. The proposed access follows the recontoured and reclaimed access road in its entirety except for approximately 0.2 miles that will be entirely new construction to maintain an acceptable grade accessing the proposed well site.
- d. The proposed access will utilize the reclaimed and recontoured access road for approximately 0.95 miles until the access road splits off onto new construction.
- e. A maximum grades 13% will be maintained throughout the project.
- f. Adequate drainage structures will be incorporated into the pending road design plan and meet Forest Service specifications and approval prior to any construction.
- g. One gate is required along the south side of the proposed trailhead parking area. The gate will meet or exceed Forest Service specifications and be a part of the approved road design to be submitted and approved prior to APD approval. An 18" X 24" heavy-gauge white aluminum sign will be mounted on the gate that incorporates the following verbage in white vinyl lettering. "Authorized Personnel Only -- Please Do Not Block Gate". The sign will be subject to Forest Service review and approval prior to installation. No cattle-guards are anticipated at this time.
- h. A pre-construction meeting including the responsible company representative(s), contractors,

and the Forest Service must be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road must be construction-staked prior to this meeting. Site specific requirements will be discussed at that time.

- i. Following the road construction stakes any timber that must be removed will be sawed and bunked into 4' lengths. The bunked lengths, slash and several full length logs will left at the edge of the disturbed area for future reclamation in a non-continuous upslope windrow. No merchantable or non-merchantable timber products will be removed from forest lands. The entire staked area will then be stripped of the entire A horizon topsoil with the topsoil being stockpiled inside of the timber windrow on the upslope side of the road. All topsoil must be stripped from areas to be disturbed and stockpiled for reclamation in such a way as to prevent soil loss and contamination.
- j. Surface disturbance and vehicular travel will be limited to the approved location access road. Any additional area needed must be approved by the Forest Service in advance.
- k. If new and/or existing roads lie outside the lease boundary a right-of-way will be obtained.
- l. Unauthorized off-road vehicular travel is prohibited.
- m. Adequate signs will be posted along Forest Service Development Roads and as appropriate along the county road to warn the public of project related traffic.

3. Location of Existing Wells:

- a. No existing water, injection, disposal or producing wells exist within a one mile radius of the proposed well (See Exhibit "B").
- b. Numerous abandon coal exploration holes exist in the area and have not been shown on the maps since they are not wells.

4. Location of Production Facilities:

- a. The production facilities layout will be submitted to the Forest Service prior to installation if the well is proven productive. Production facilities may be subject to further environmental analyses and approval by the Forest Service.
- b. All permanent structures (in place for six months or longer) constructed or installed (including pump jacks and separators) will be painted a flat, non-reflective olive black (or as determined by the Forest Service) to match the standard environmental colors, as determined by the approving agency. All facilities will be painted within six months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) may be excluded.
- c. All site security guidelines identified in 43 CFR 3163.7-5 and Onshore Oil and Gas Order No. 3 will be adhered to.
- d. If a gas meter run is constructed, it will be located on lease within 500 feet of the wellhead. The gas flow-line will be buried from the wellhead to the meter and will be buried downstream of the meter until it leaves the pad. Meter runs will be housed and/or fenced. The gas meter shall be calibrated prior to first sales and shall be calibrated quarterly thereafter. All gas production and measurement shall comply with the provisions of 43 CFR 3162. 7-3, Onshore Oil and Gas

Order No. 5, and American Gas Association (AGA) Report No. 3.

- e. If a tank battery is constructed on this lease, it will be surrounded by a dike of sufficient capacity to contain 1 ½ times the storage capacity of the largest tank. All loading lines and valves will be placed inside the berm surrounding the tank battery. All liquid hydrocarbons production and measurement shall conform to the provisions of 43 CFR 3162.7-3 and Onshore Oil and Gas Order No. 4 and Onshore Oil and Gas Order No. 5 for natural gas production and measurement.
- f. Installation of any oil or gas flow lines, if required, will be done along the proposed access routes.
- g. Any necessary pits will be properly fenced to prevent any wildlife and livestock entry..
- h. All access roads will be maintained as necessary to prevent erosion and accommodate year-round traffic. The road will be maintained in a safe useable condition.
- i. The site will require periodic maintenance to ensure that drainages are kept open and free of debris, ice, and snow, and that surfaces are properly treated to reduce erosion, fugitive dust, and impacts to adjacent areas.

- j. All gasoline and diesel-powered equipment will be equipped with effective spark arresters or mufflers. Spark arresters will meet Forest Service specifications discussed in the USDA Forest Service Spark Arrester Guide. In addition, all electrical equipment must be properly insulated to prevent sparks.
- k. A gas pipeline is not associated with this application and will be applied for, if needed, at a later date.

5. Location and Type of Water Supply:

- a. All water needed for drilling and construction purposes will be obtained from Skyline Mine through a purchase agreement.
- b. Additional waters, if available, will be properly and legally obtained according to State water laws. The location of diversion, if on Nation Forest System lands, is subject to Forest Service approval.
- c. Because of the drought situation this year no other sources of water is being pursued at this time.

6. Source of Construction Material:

- a. Pad construction material will be obtained from a Private Owner near Scofield, Utah.
- b. The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3.
- c. No construction materials will be removed from Forest Service lands
- d. Any gravel used will be obtained from a state approved gravel pit.

7. Methods of Handling Waste Disposal:

- a. All wastes associated with this application will be contained and disposed of utilizing approved facilities designed for the safe storage and disposal of the waste material.
- b. Drill cutting will be contained and buried on site if they are free of liquid and proved through laboratory analysis to be free of any toxins including barium-containing compounds. Should the cutting fail to meet this requirement as determined by the Forest Service they will be hauled off of Forest Service lands for placement in an approved solid waste disposal site.
- c. The reserve pit will be located inbound of the location and along the east side of the pad.
- d. The reserve pit will be constructed so as not to leak, break, or allow any discharge.
- e. The reserve pit will be lined with 12 mil minimum thickness synthetic liner material unless designated otherwise by the Forest Service officers prior to construction. Pit walls will be sloped no greater than 2:1. A minimum 2-foot freeboard will be maintained in the pit at all times during the drilling and completion operation.

- f. The reserve pit shall be located in cut material, with at least 50% of the pit volume being below original ground level. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as drilling is completed, and shall remain until the pit is dry. As soon as the reserve pit has dried, all areas not needed for production will be rehabilitated.
- g. Trash must be contained in a trash cage and hauled away to an approved disposal site as necessary but no later than at the completion of drilling operations. The contents of the trash container will be hauled off periodically to the approved Carbon County Landfill near Price, Utah. Burning of trash and debris is prohibited.
- h. After first production, produced wastewater will be confined to a lined pit or storage tank for a period not to exceed ninety (90) days. During the 90-day period, in accordance with Onshore Order No. 7, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted for the Authorized Officers approval. Failure to file an application within the time allowed will be considered an incident of noncompliance.
- i. Any salts and/or chemicals, which are an integral part of the drilling system, will be disposed of in the same manner as the drilling fluid.
- j. Sanitary facilities are required on site at all times during operations. Sewage will be placed in a portable chemical toilet or holding tank and disposed of in accordance with state and county regulations. The installation of facilities, other than self-contained chemical toilets, is subject to State and Forest Service approval.
- k. The produced fluids (other than water) will be produced into a test tank until such time as construction of production facilities is completed. Any spills of oil, gas, salt water or other produced fluids will be cleaned up and removed.

8. Ancillary Facilities:

- a. Garbage Containers and Portable Toilets are the only ancillary facilities proposed in this application

9. Well Site Layout :

- a. The well, whether drilling, producing, suspended, or abandoned, will be properly identified in accordance with 43 CFR 3162.6.
- b. Access to the well pad will be from the northwest.
- c. The pad and road designs will be consistent with Forest Service specification as outlined in the Region 4 Oil and Gas Roving Guidelines and the Manti-La Sal National Forest Oil and Gas Well Site Guidelines and are subject to Forest Service approval. No construction operations may begin prior to approval. Any modifications to approved plans are also subject to review and approval.
- d. The operator shall submit for approval, (within 90 days following completion of the well), a maintenance plan for the site, the project road and that portion of any Forest Development Road to be used for project access. A road use permit must be obtained from the Forest Service authorizing

commercial use of Forest Service Development Roads. Requirements listed in the road-use permit must be followed.

- e. A pre-construction meeting including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road must be construction-staked prior to this meeting. Site specific requirements will be discussed at that time.
- f. The pad has been staked at its maximum size of 200' X 400', however it will be constructed smaller if possible, depending upon rig availability. Should the layout change this application will be amended and approved utilizing a sundry notice.
- g. Sediment control will be maintained throughout the life of the project. Silt fences reinforced with steel mesh will be installed and maintained along all fill slopes and as necessary and practical during the construction and drilling of the associated well. Straw bales may also be used as necessary and practical and must be certified weed-free by the State of Utah. Should disturbance induced erosion begin in any area of the project it should be minimized as soon as practical utilizing approved sediment control structures. The Forest Service should be consulted immediately if questions or concerns arise as a result of erosion control.
- h. Ditching around the location is not proposed at this time since the location of the well is such that it should not impound or re-divert surface waters. Ditching around the location will increase the potential for off-site erosion. Off-site surface waters should be allowed to run off of the slope as they presently do but under close monitoring to insure that erosion does not occur. Pad slopes and berms should be armored if erosion is anticipated or occurs as a result of disturbance.
- i. The operator will acquire appropriate permission to utilize non-Forest Service Roads.
- j. The project engineer and surveyors must be certified by the State in which they reside or maintain their business.
- k. Off-location campsites on National Forest lands are not proposed with this application. A multi-unit, self-contained crew camp will be utilized for the drilling and completion operations. The crew camp will be utilized consistent with this surface use plan and all wastes generated will be removed from Forest Service lands.
- l. All surface disturbing activities, including reclamation, will be supervised by a qualified, responsible official or company representative who is aware of the terms and conditions of the APD and specifications in the approved plans.
- m. Prior to any drilling operations, the working surface of the drill site will be surfaced with aggregate material (gravel) to a depth of 8" to support anticipated loads throughout the life of the well.
- n. All cut and fill slopes will be such that stability can be maintained for the life of the activity.
- o. All fills will be free from vegetative materials and will be compacted in lifts no greater than 12 inches in thickness to a minimum of 90 percent Proctor dry density sufficient to prevent excessive settling.
- p. Diversion ditches will only be constructed if necessary and practical around the well site to prevent surface waters from entering the well site area. Energy dissipating structures will be utilized to prevent excessive erosion at the outflow and trap any sediment produced from the raw slopes and prevent excessive erosion.

- q. An 18" berm will be constructed around the perimeter of the site to contain all precipitation, spills, and other fluids from leaving the site. The berm will be 18 inches high, 12 inches wide at the top, and having a 1-1/2:1 side slopes. The site surface will be graded to drain to the pit. The drainage pattern to be constructed can be modified for the site depending on site-specific conditions.
- r. The stockpiled topsoil (first 6 inches or maximum available) will be stored in a windrow on the uphill side of the location to prevent any possible contamination. All topsoil must be stripped from areas to be disturbed and stockpiled for reclamation in such a way as to prevent soil loss and contamination.
- s. Pits will remained fenced until site cleanup.
- t. The blooie line will be located: At least 100 feet from the well head.
- u. To minimize the amount of fugitive dust and spray escaping from the blooie pit water injection will be implemented

10. Plans for Restoration of the Surface:

DRY HOLE

- a. Rehabilitation of the entire site will be required and will commence immediately after the drilling is complete. The site will be restored as nearly practical to its original condition. Cut and fill slopes will be reduced and graded to conform to the adjacent terrain.
- b. Fluids in the reserve pit will be pumped off and hauled to an approved disposal source, or re-used at another drill site. The operator will attempt to reclaim the reserve pit prior to winter, or the following summer.
- c. Drainages will be reestablished and temporary measures will be required to prevent erosion to the site until vegetation is established.
- d. The abandonment marker will be one of the following, as specified by BLM and Forest Service:
 - 1) at least four feet above ground level,
 - 2) at restored ground level, or
 - 3) below ground level.

In any case the marker shall be inscribed with the following: operator name, lease number, Well name and surveyed description (township, range, section and either quarter-quarter or footage)..

- e. After final grading and before the replacement of topsoil, the entire surface of the site shall be searffied to eliminate slippage surfaces and to promote root penetration. Topsoil will then be spread over the site to achieve an approximate uniform, stable thickness consistent with the established contours.
- f. A temporary fence (let down fence) will be constructed around the drill site to prevent continued - use until the required reclamation standards are successfully achieved. The fence will then be removed.
- g. In general, the disturbed areas will be considered adequately revegetated when at least 90 percent of the original ground over is re-established over 90 percent of the seeded area, within three years of planting, consisting of seeded and desirable species. Maximum allowable non-noxious weeds is 10 percent of the total ground cover at any time. No noxious weeds will be allowed on the site; they

must be treated as they occur. The operator is responsible for maintenance of reclamation facilities such as fences, barricades and temporary drainage structures until the desired reclaimed conditions are achieved. If the desired ground cover is not established at the end of each 3 year period, an analysis of why the areas has not recovered will be performed by the operator and additional treatment and seeding will be required based on the results of the analysis.

- h. Straw, hay, feed, or pellets used on the National Forests of Utah must be certified weed-free by the State of Utah.
- i. At such time as the well is plugged and abandoned, the operator shall submit a subsequent report of abandonment.
- j. The well pad and access road will be reclaimed as per Forest Service. The operator will be informed of Forest Service requirements within 2 weeks following completion of the well to determine if the Forest Service can utilize the access road and/or well pad for recreational purposes. If the Forest Service agrees to take over the access and/or well pad, they also agree to take full responsibility for continued use and maintenance of the area and all liability associated with the same.

PRODUCING WELL

- a. Site reclamation for producing wells will be accomplished for portions of the site not required for the continued operation of the well. All disturbed surface will be treated to prevent erosion and to complement the esthetics of the area. A new site plan will be required encompassing the facilities required for operation and interim reclamation measures.
- b. Before any dirt work to restore the location takes place, the reserve pit must be completely dry. Once the reserve pit is dry, the reserve pit and that portion of the location not needed for production facilities/operations will be recontoured to the approximate natural contours. Methods for drying the pit, other than natural evaporation, are subject to prior Forest Service approval.
- c. Immediately upon completion of drilling, all equipment that is not necessary for production shall be removed.
- d. Immediately upon well completion, any hydrocarbons in the pit shall be removed in accordance with 43 CFR 3162.7-1.
- e. The plastic nylon reinforced liner shall be torn and perforated before backfilling of the reserve pit.
- f. At the end of drilling operations, drilling fluids will be hauled to an approved disposal site. All polluting substances or contaminated materials, such as oil, oil-saturated soils, and gravel, will be removed from the Forest.
- g. The cut and fill slopes and all other disturbed areas not needed for the production operation will be top soiled and revegetated. The berm will be removed and the drill site graded to drain.
- h. The stockpiled topsoil will be evenly distributed over the disturbed area.
- i. Prior to reseeding, all disturbed areas, including the access roads, will be scarified and left with a rough surface.
- j. The site will be seeded and/or planted as prescribed by the Forest Service. Nutrients and soil amendments will be applied to the redistributed surface soil later as necessary to meet the

revegetation requirements. The Forest Service will assign the seed mix. Seed will be broadcast or drilled between Sept. and Nov., or at a time specified by the Forest Service. If broadcast, a harrow or some other implement will be dragged over the seeded area to assure seed coverage.

11. Surface and Mineral Ownership:

- a. Surface Ownership is USDA Forest Service under the management of the Manti-La Sal National Forest 599 Price River Drive, Price, Utah 84501 435-637-2817.
- b. Mineral Ownership is Bureau of Land Management – 82 East Dogwood Avenue, Moab, Utah 84532 435-259-2106.

12. Other Information:

- a. A Class III archeological survey was conducted by Montgomery Archaeological Consultants, No significant cultural resources were found and clearance has been recommended. A copy of this report has been submitted to the appropriate agencies by Montgomery Archaeological Consultants.
- b. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within five (5) working days, the AO will inform the operator as to:
 1. Whether the materials appear eligible for the National Register of Historic Places;
 2. the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and
 3. a time frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

- c. A Threatened and Endangered flora and fauna survey was conducted by EIS, No significant species were found and clearance has been recommended. A copy of this report has been submitted to the appropriate agencies by EIS.
- d. An aerial raptor survey was conducted by Talon Resources, Inc, No significant nesting raptors species were found and clearance has been recommended. A copy of the produced maps has been submitted to the appropriate agencies by Talon Resources, Inc.
- e. Wildlife Seasonal Restrictions will be stipulated by the Forest Service biologist and the existing Forest EIS document.
- f. No off location Geophysical Testing will be completed as part of this project.
- g. No drainage crossings that require additional State or Federal approval are being crossed
- h. Fire suppression equipment must be available to all personnel on the project site. Equipment will include a minimum of one hand tool per crew member consisting of shovels, pulaskis, and chainsaws and one properly rated fire extinguisher per vehicle an/ or internal combustion engine.
- i. The operator will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.

- j. All accidents or mishaps resulting in resource damage and/or serious personal injury must be reported to the Forest Service as soon as possible.
- k. Harassment of wildlife and livestock is prohibited.
- l. All merchantable timber removed or destroyed by construction or other project related activities will be purchased by the operator at fair market value. The Forest Service will conduct a timber cruise and appraisal after the final clearing limits have been staked. Slash burning will be conducted only at locations approved by the Forest Service under authorization or a burning permit

13. Lessee's or Operator's Representative and Certification

Prima Oil and Gas Company
 1099 – 18th Street, Suite 400
 Denver, Colorado 80202

<u>Issue</u>	<u>Name</u>	<u>Office Phone</u>	<u>Mobile Phone</u>
Environmental and Compliance	Lee Fyock	1-307-686-1240	1-307-680-4232
Lands	Cindi Danner-Weide	1-303-297-2300	1-303-910-0075
Drilling	Lisa Smith	1-303-297-2300	
Drilling Consultant	Gary Johnson	1-303-825-7900	1-303-956-3123
Permitting Consultant	Don Hamilton	1-435-637-8781	1-435-650-1886

Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exists; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Prima Oil and Gas Company and its contractors and subcontractors in conformity with this APD package and the terms and conditions under which it is approved. I also certify responsibility for the operations conducted on that portion of the leased lands associated with this application, with bond coverage being provided under Prima Oil and Gas Company's BLM bond. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Signature: Don Hamilton Date: 8-8-03

C. REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Required verbal notifications are summarized in Table 1, attached.

Building Location - Contact the Resource Area, Natural Resource Protection Specialist at least 24 hours prior to commencing construction of location.

Spud - The spud date will be reported to the Resource Area Office 24 hours prior to spudding. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted the District Office within 24 hours after spudding, regardless of whether spud was made with a dry hold digger or big rig.

Daily Drilling Reports - Daily drilling reports shall detail the progress and status of the well and shall be submitted to the District Office on a weekly basis.

Monthly Reports of Operations - In accordance with Onshore Oil and Gas Order No. 1, this well shall be reported on Minerals Management Service (MMS) Form 3160, "Monthly Report of Operations," starting the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with MMS.

Sundry Notices - There will be no deviation from the proposed drilling and/or workover program without prior approval from the Assistant District Manager. "Sundry Notices and Reports on Wells: (Form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3162.3-2. Safe drilling and operating practices must be observed.

Drilling suspensions - Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Authorized Officer. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events - Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the Resource Area in accordance with requirements of NTLA.

Cultural Resources - If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the Area Manager is to be notified.

First production - Should the well be successfully completed for production, the Assistant District Manager, Minerals Division will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five (5) business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Resource Area Office. The Resource Area Office shall be notified prior to the first sale.

Well Completion Report - Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the District Office not later than thirty (30) days after completion of the well or after completion operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs, core descriptions, core analysis, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. Samples (cuttings and/or samples) will be submitted when requested by the Assistant District Manager.

Venting/Flaring of Gas - NTL-4A allows venting/flaring of gas during the initial well evaluation period not to exceed 30 days or 50 Mmcf. Venting/flaring beyond the initial test period threshold must be approved by the District Office.

Produced Water - Produced waste water may be confined to an unlined pit for a period not to exceed 90 days after initial production. During the 90 day period, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted to the Assistant District Manager for approval.

Off-Lease Measurement, Storage, Commingling - Prior approval must be obtained from the Assistant District Manager for off-lease measurement, off-lease storage and/or commingling (either down-hole or at the surface).

Plugging and Abandonment - If the well is completed as a dry hole, plugging instructions must be obtained from the BLM, Moab District Office prior to initiating plugging operations. Table 1 of this document provides the after-hours phone numbers of personnel who are authorized to give plugging instructions.

A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the Assistant District Manager, Minerals Divisions within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Area Manager or his representative, or the appropriate surface managing agency.

TABLE 1
NOTIFICATIONS

Notify Karl Boyer of the Manti-La Sal National Forest, at (435) 636-3551 and Mike Kaminski of the BLM – Price Office, at 435-636-3640 for the following:

2 days prior to commencement of dirt work construction or reclamation;

1 day prior to spudding

50 feet prior to reaching surface and intermediate casing depths;

3 hours prior to testing BOPE;

12 hours prior to reaching kickoff point depth (if applicable).

If the person at the above number cannot be reached, notify the Moab District Office at (435) 259-6111. If unsuccessful, notify one of the people listed below.

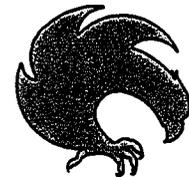
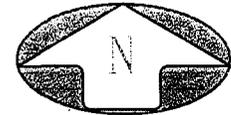
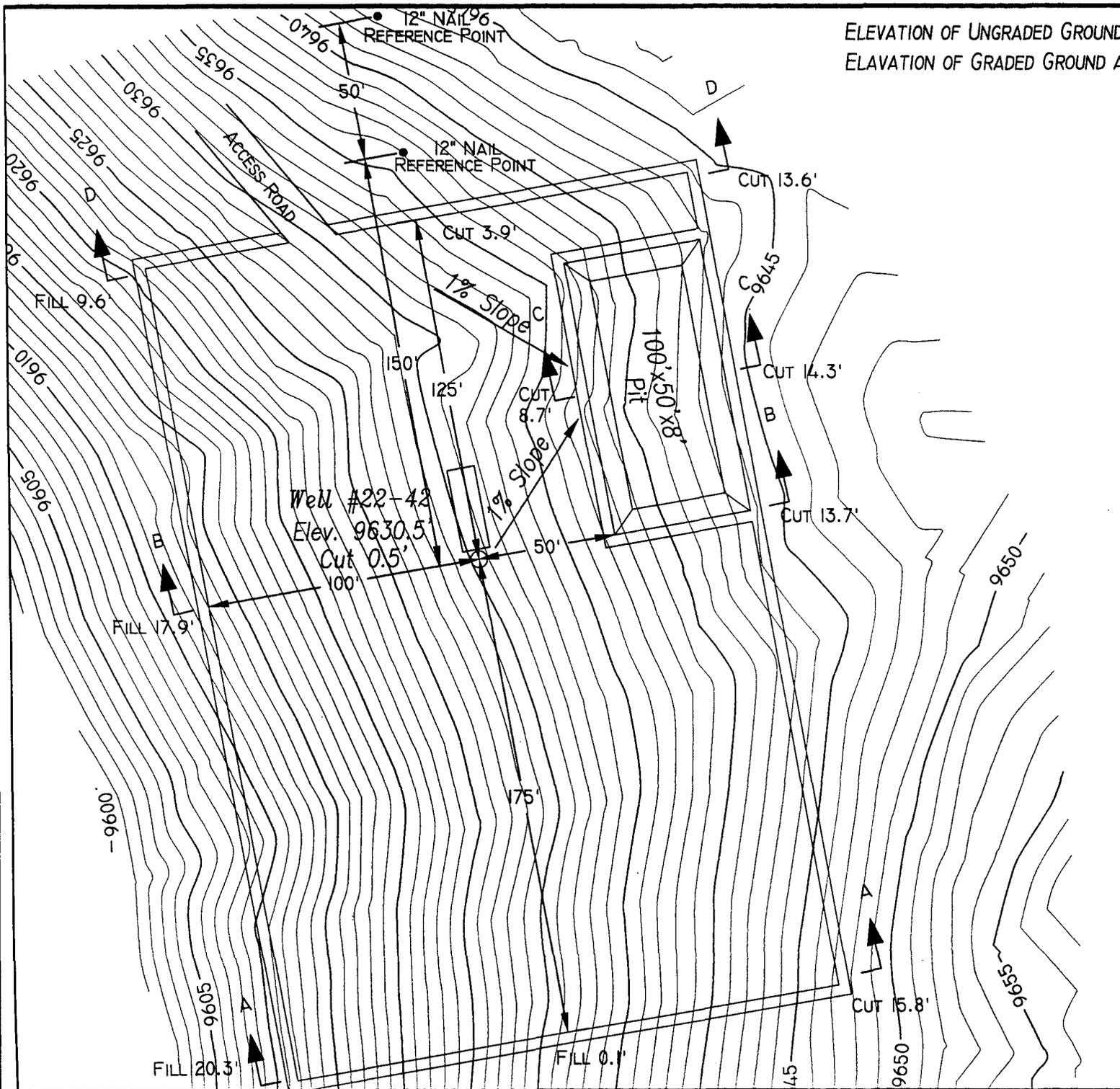
Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab District Office, Branch of Fluid Minerals at (435) 259-6111. If approval is needed after work hours, you may contact the following:

Eric Jones, Petroleum Engineer

Office: (435) 259-6111

Home: (435) 259-2214

ELEVATION OF UNGRADED GROUND AT LOCATION STAKE = 9630.5'
 ELAVATION OF GRADED GROUND AT LOCATION STAKE = 9630.0'

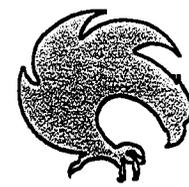
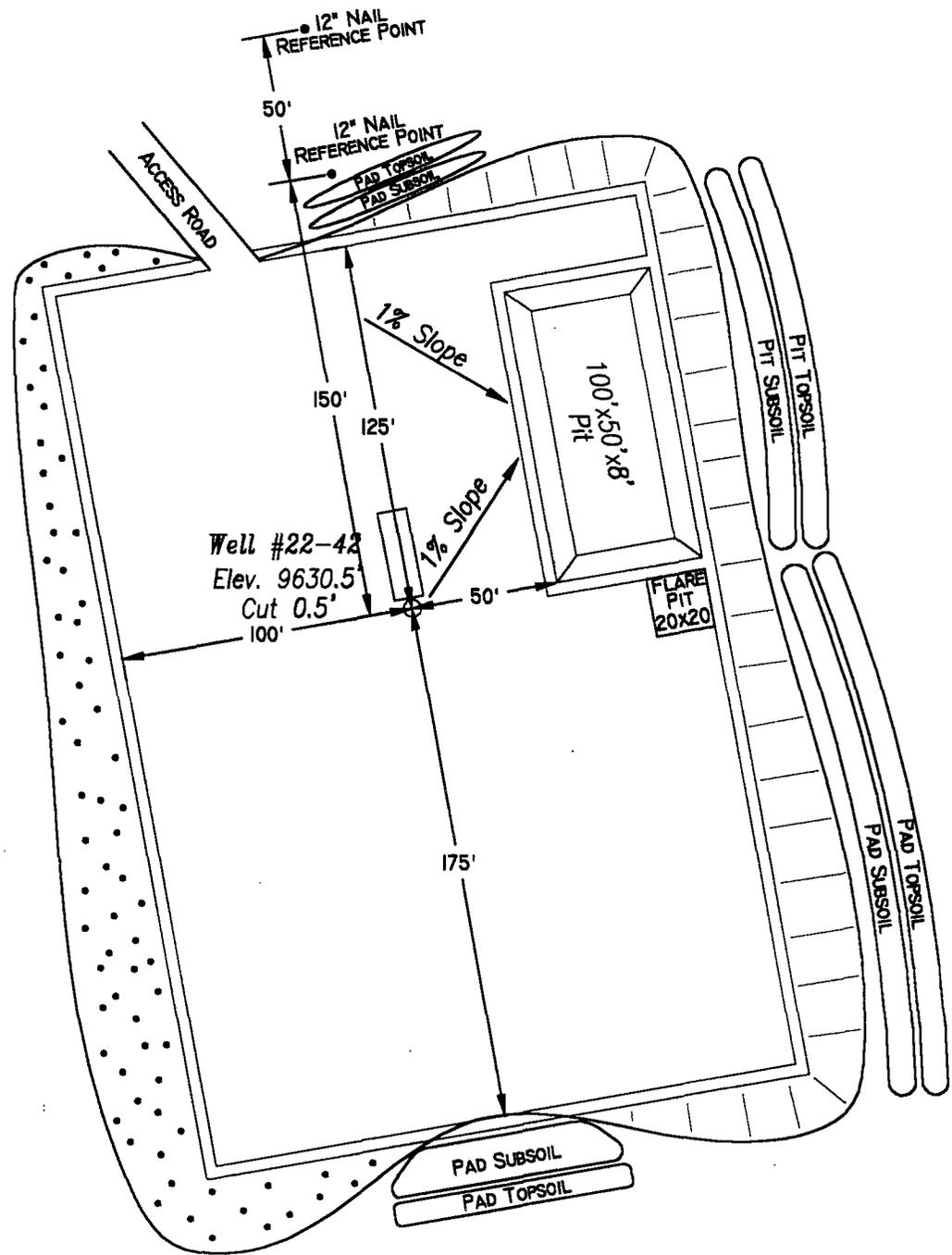


TALON RESOURCES, INC.

195 North 100 West P.O. Box 1230
 Huntington, Utah 84528
 Phone (435)687-5310 Fax (435)687-5311
 E-Mail talon@etv.net

PRIMA OIL & GAS
LOCATION LAYOUT
 Section 22, T14S, R7E, S.L.B.&M.
WELL #22-42

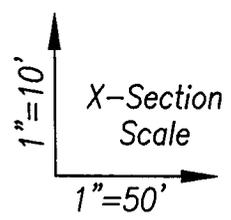
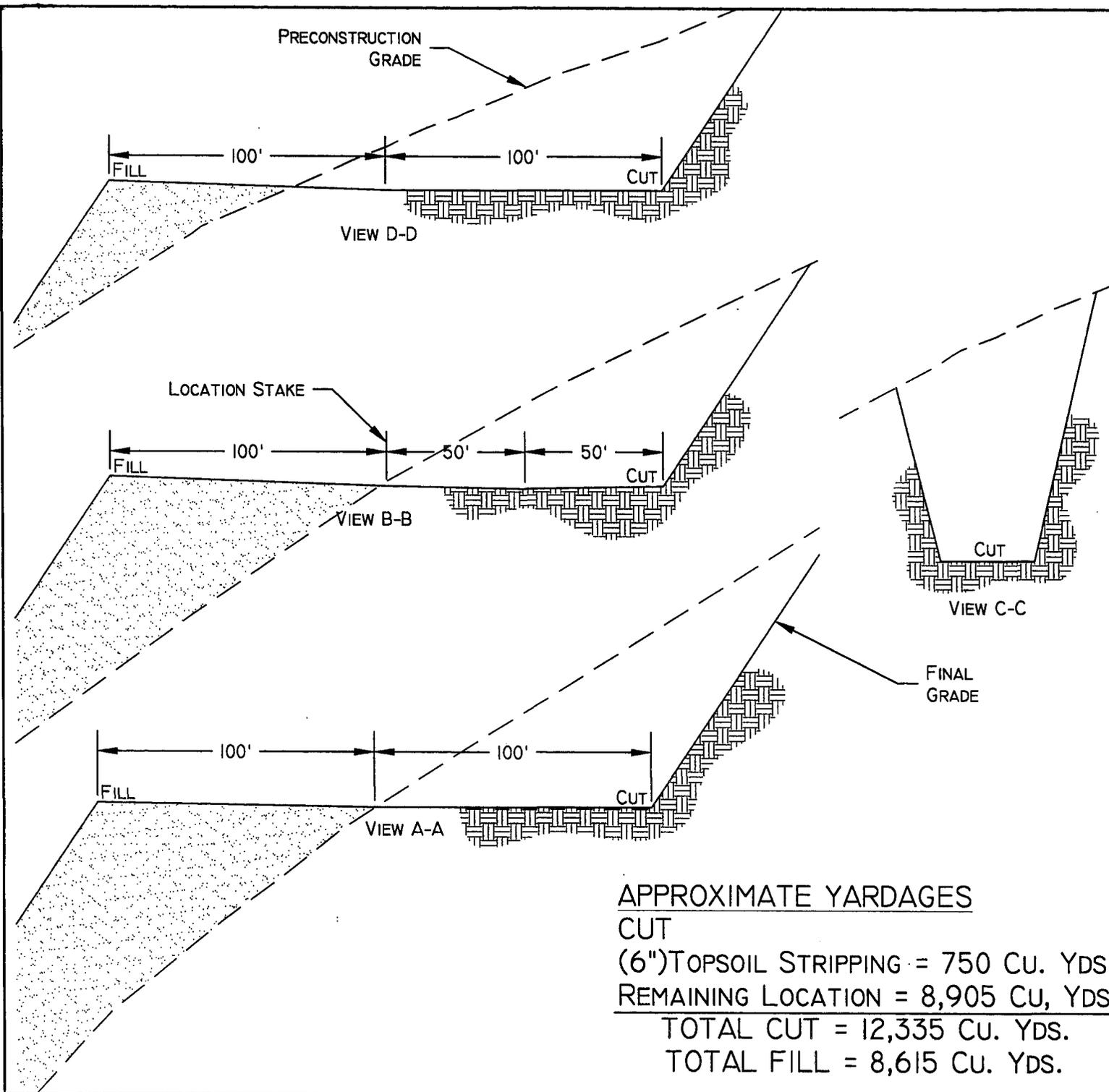
Drawn By: J. STANSFIELD	Checked By: L.W.J.
Drawing No. A-2	Date: 07/22/03
	Scale: 1" = 50'
Sheet 2 of 4	Job No. 1158



TALON RESOURCES, INC.
 195 North 100 West P.O. Box 1280
 Huntington, Utah 84528
 Phone (435)687-5310 Fax (435)687-5311
 E-Mail talonres@tv.net

PRIMA OIL & GAS
LOCATION LAYOUT
 Section 22, T14S, R7E, S.L.B.&M.
WELL #22-42

Drawn By: J. STANSFIELD	Checked By: L.W.J.
Drawing No. A-2b	Date: 07/22/03
	Scale: 1" = 60'
Sheet 2 of 4	Job No. 1158



SLOPE = 1 1/2 : 1
 (EXCEPT PIT)
 PIT SLOPE = 1 ; 1



TALON RESOURCES, INC
 195 North 100 West P.O. Box 1230
 Huntington, Utah 84528
 Phone (435)687-5310 Fax (435)687-5311
 E-Mail talon@etv.net

PRIMA OIL & GAS
TYPICAL CROSS SECTION
 Section 22, T14S, R7E, S.L.B.&M.
 WELL #22-42

APPROXIMATE YARDAGES
 CUT
 (6") TOPSOIL STRIPPING = 750 CU. YDS.
 REMAINING LOCATION = 8,905 CU, YDS.
 TOTAL CUT = 12,335 CU. YDS.
 TOTAL FILL = 8,615 CU. YDS.

Drawn By: J. STANSFIELD	Checked By: L.W.J.
Drawing No. C-1	Date: 07/22/03
	Scale: 1" = 50'
Sheet 3 of 4	Job No. 1158

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 08/04/2003

API NO. ASSIGNED: 43-007-30878

WELL NAME: E CLEAR CREEK FED 22-42
OPERATOR: PRIMA OIL & GAS COMPANY (N1695)
CONTACT: DON HAMILTON/AGENT

PHONE NUMBER: 435-687-5310

PROPOSED LOCATION:

NWSE 22 140S 070E
SURFACE: 1824 FSL 2543 FEL
BOTTOM: 1824 FSL 2543 FEL
CARBON
UNDESIGNATED (2)

INSPECT LOCATN BY: / /		
Tech Review	Initials	Date
Engineering		
Geology		
Surface		

LEASE TYPE: 1 - Federal
LEASE NUMBER: UTU-77087
SURFACE OWNER: 1 - Federal
PROPOSED FORMATION: DKTA

LATITUDE: 39.59137
LONGITUDE: 111.12558

RECEIVED AND/OR REVIEWED:

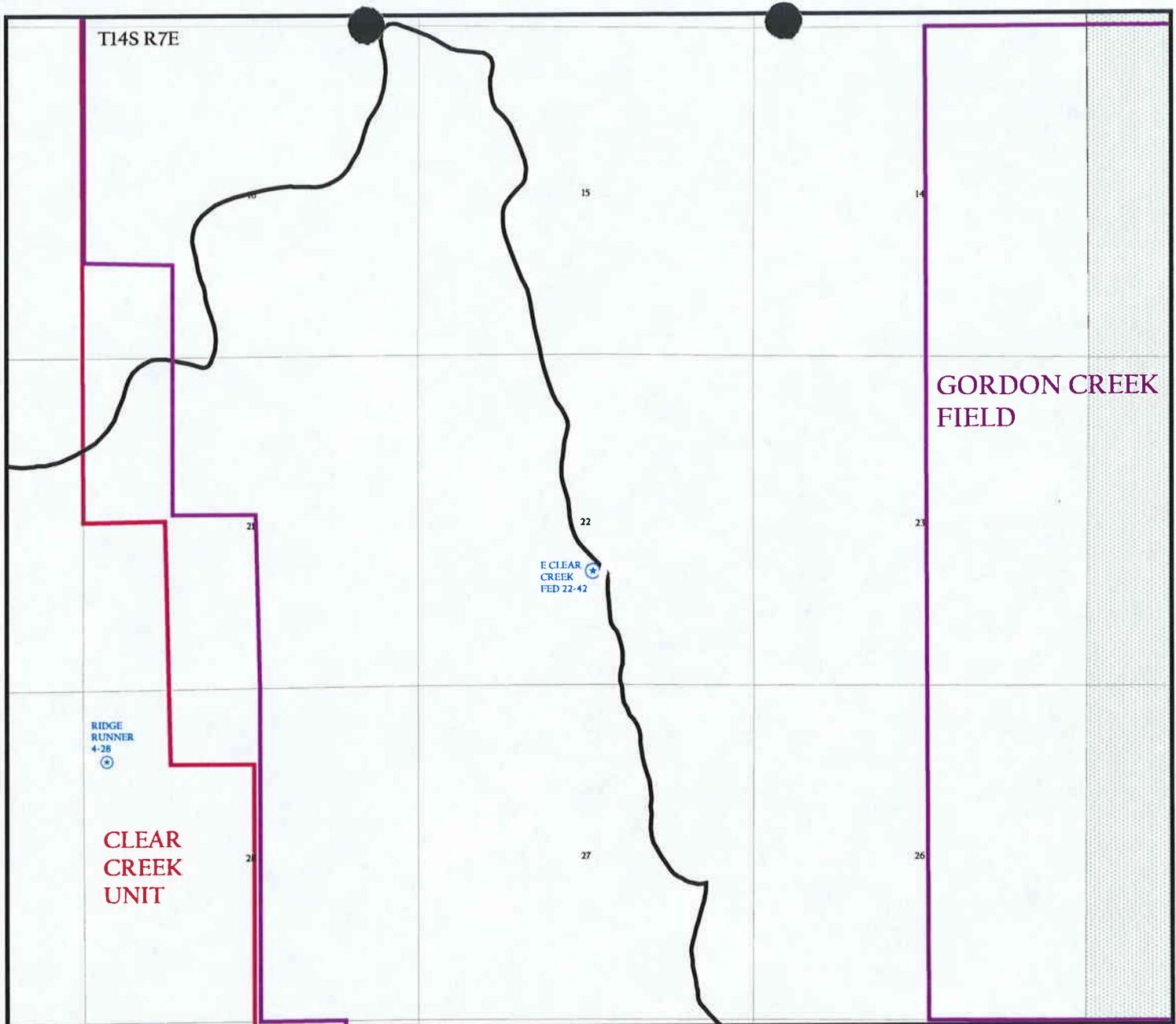
- Plat
- Bond: Fed[1] Ind[] Sta[] Fee[]
(No. UT-1215)
- Potash (Y/N)
- Oil Shale 190-5 (B) or 190-3 or 190-13
- Water Permit
(No. SKYLINE MI)
- RDCC Review (Y/N)
(Date: _____)
- Fee Surf Agreement (Y/N)

LOCATION AND SITING:

- ___ R649-2-3.
Unit _____
- ___ R649-3-2. General
Siting: 460 From Qtr/Qtr & 920' Between Wells
- R649-3-3. 
Drilling Unit
Board Cause No: _____
Eff Date: _____
Siting: _____
- ___ R649-3-11. Directional Drill

COMMENTS: _____

STIPULATIONS: 1-federal approval
2- Spacing WSP



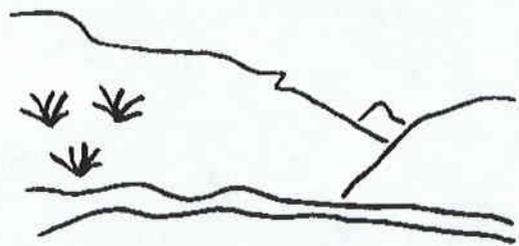
OPERATOR: PRIMA O&G COMPANY (N1695)

SEC. 22 T.14S, R.7E

FIELD: WILDCAT (001)

COUNTY: CARBON

SPACING: R649-3-3 / EXCEPTION LOCATION



Utah Oil Gas and Mining

Wells

- ✓ GAS INJECTION
- ✓ GAS STORAGE
- LOCATION ABANDONED
- NEW LOCATION
- PLUGGED & ABANDONED
- PRODUCING GAS
- PRODUCING OIL
- SHUT-IN GAS
- SHUT-IN OIL
- × TEMP. ABANDONED
- TEST WELL
- △ WATER INJECTION
- WATER SUPPLY
- ✓ WATER DISPOSAL

Unit Status

- EXPLORATORY
- GAS STORAGE
- NF PP OIL
- NF SECONDARY
- PENDING
- PI OIL
- PP GAS
- PP GEOTHERML
- PP OIL
- SECONDARY
- TERMINATED

Field Status

- ABANDONED
- ACTIVE
- COMBINED
- INACTIVE
- PROPOSED
- STORAGE
- TERMINATED



PREPARED BY: DIANA MASON
DATE: 4-AUGUST-2003



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
(801) 538-5340 telephone
(801) 359-3940 fax
(801) 538-7223 TTY
www.nr.utah.gov

Michael O. Leavitt
Governor

Robert L. Morgan
Executive Director

Lowell P. Braxton
Division Director

August 13, 2003

Prima Oil & Gas Company
1099 18th Street, Suite 400
Denver, CO 80202

Re: East Clear Creek Federal 22-42 Well, 1824' FSL, 2543' FEL, NW SE, Sec. 22,
T. 14 South, R. 7 East, Carbon County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. § 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the attached Conditions of Approval, approval to drill the referenced well is granted.

Appropriate information has been submitted to DOGM and administrative approval of the requested exception location is hereby granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-007-30878.

Sincerely,

A handwritten signature in black ink that reads "John R. Baza".

John R. Baza
Associate Director

pab
Enclosures

cc: Carbon County Assessor
Bureau of Land Management, Moab District Office

Operator: Prima Oil & Gas Company
Well Name & Number East Clear Creek Federal 22-42
API Number: 43-007-30878
Lease: UTU-77087

Location: NW SE **Sec.** 22 **T.** 14 South **R.** 7 East

Conditions of Approval

1. General

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. Notification Requirements

Notify the Division within 24 hours of spudding the well.

- Contact Carol Daniels at (801) 538-5284.

Notify the Division prior to commencing operations to plug and abandon the well.

- Contact Dan Jarvis at (801) 538-5338

3. Reporting Requirements

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.

5. This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

006

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
FIELD OFFICE

5. LEASE DESIGNATION AND SERIAL NO.

UTU-77087

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

N/A

7. UNIT AGREEMENT NAME

N/A

8. FARM OR LEASE NAME, WELL NO.

E. Clear Creek Federal 22-42

9. API WELL NO.

43-007-30878

10. FIELD AND POOL, OR WILDCAT

N/A

11. SEC., T., R., M., OR BLK.

NW/4 SE/4, Section 22,
T14S, R7E, SLB&M

12. COUNTY OR PARISH

Carbon

13. STATE

Utah

1a. TYPE OF WORK

DRILL

DEEPEN

2003 AUG -4 A 11: 26

b. TYPE OF WELL

OIL WELL

GAS WELL

OTHER

SINGLE ZONE

MULTIPLE ZONE

2. NAME OF OPERATOR

Prima Oil and Gas Company

3. ADDRESS AND TELEPHONE NO.

1099—18th St. Suite 400; Denver, Colorado 80202

303-297-2300

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

At surface

1824' FSL, 2543' FEL

At proposed prod. zone

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

3.94 miles southeast of Clear Creek, Utah

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

2,543'

16. NO. OF ACRES IN LEASE

1,840'

17. NO. OF ACRES ASSIGNED TO THIS WELL

160 acres

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

None

19. PROPOSED DEPTH

7,000'

20. ROTARY OR CABLE TOOLS

Rotary

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

9631' GR

22. APPROX. DATE WORK WILL START*

September 2003

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" J-55 ST&C	36	2,750'	890 sacks Type II cement + 2% CaCl ₂
8-3/4"	7" J-55 ST&C	23	7,000'	520 sacks Prem. Lite II
				305 sacks Prem. Lite (High Strength)

Bond coverage is provided under BLM statewide bond UT-1215 by Surety 04127700 in the amount of \$25,000.00

Surface Owner: United States of America

Surface Representative: USDA Manti La-Sal National Forest 599 Price River Drive, Price, Utah 84501
Karl Boyer —435-636-3551

CONFIDENTIAL

RECEIVED

JUL 26 2004

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data 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.

SIGNED Don Hamilton Don Hamilton

TITLE Agent for Prima

DATE 8-1-03

(This space for Federal or State office use)

DIV. OF OIL, GAS & MINING

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 Eric C. Jones

TITLE Acting Assistant Field Manager, Division of Resources

DATE JUL 21 2004

*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 or the

CONDITIONS OF APPROVAL ATTACHED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT--" for such proposals.

007

RECEIVED
FIELD OFFICE

SUBMIT IN TRIPLICATE 2003 AUG -4 A 11: 26

1. Type of Well
 Oil Gas Other

2. Name of Operator
 Prima Oil and Gas Company

3. Address and Telephone No.
 1099—18th Street, Suite 400, Denver, Colorado 80202 303-297-2300

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
 1,849' FSL, 2,351' FEL
 NW/4 SE/4, Section 22, T14S, R7E, SLB&M

5. Lease Designation and Serial No.
 UTU-77087

6. If Indian, Allottee or Tribe Name
 N/A

7. If Unit or CA, Agreement Designation
 N/A

8. Well Name and No.
 E. Clear Creek Federal 22-4.

9. API Well No.
 43-007-30878

10. Field and Pool, or Exploratory Area
 Undesignated

11. County or Parish, State
 Carbon County, Utah

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Change of Name	<input type="checkbox"/> Pipeline, Powerline, Maintenance Corridor Construction
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion	<input type="checkbox"/> Change of Plans
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Altering Casing	<input type="checkbox"/> Water Shut-Off
	<input checked="" type="checkbox"/> Relocation of well site	<input type="checkbox"/> Conversion to Injection
		<input type="checkbox"/> Dispose Water

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

The E. Clear Creek Federal 22-42 well site have been relocated 194' southwest following the onsite inspection and prior to federal permit approval and remains on Federal surface under the management of the USDA Manti La-Sal National Forest. The relocation was necessary to move the well off of the ridge top and further minimize visual impacts associated with the proposed well.

The revised location for the E. Clear Creek Federal 22-42 is as follows:
1,824' FSL, 2,543' FEL, NW/4 SE/4, Section 22, T14S, R7E, SLB&M.

Attached please find an updated civil plat, location layouts, and cross-section representative of the new location.

An exception to spacing (R649-3-3) is hereby requested based on Geology since the well is located within 460' of the drilling unit boundary. Prima Oil and Gas Company is the only offset drilling unit owner/operator within 460' of the proposed relocated well location.

FILE COPY

14. I hereby certify that the foregoing is true and correct

Signed Don Hamilton Don Hamilton Title Agent for Prima Oil and Gas Company Date August 1, 2003

(This space for Federal or State office use) Assistant Field Manager,

Approved by Eric C. Jones Title Division of Resources Date JUL 21 2004

Conditions of approval, if any:

RECEIVED

JUL 26 2004

Range 7 East

Location:

THE WELL LOCATION WAS DETERMINED USING A TRIMBLE 4700 GPS SURVEY GRADE UNIT.

Basis of Bearing:

THE BASIS OF BEARING IS GPS MEASURED.

GLO Bearing:

THE BEARINGS INDICATED ARE PER THE RECORDED PLAT OBTAINED FROM THE U.S. LAND OFFICE.

Basis of Elevation:

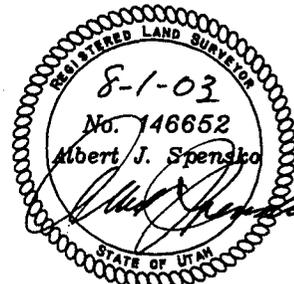
BASIS OF ELEVATION OF 9907' BEING ON THE SOUTHWEST CORNER OF SECTION 21, TOWNSHIP 14 SOUTH, RANGE 7 EAST, SALT LAKE BASE AND MERIDIAN, AS SHOWN ON THE CANDLELAND QUADRANGLE 7.5 MINUTE SERIES MAP.

Description of Location:

PROPOSED DRILL HOLE LOCATED IN THE NW1/4, SE1/4 OF SECTION 22, T14S, R7E, S.L.B.&M., BEING 3465.77' SOUTH AND 2732.65' EAST FROM THE NORTHWEST CORNER OF SECTION 22, T14S, R7E, SALT LAKE BASE & MERIDIAN.

Surveyor's Certificate:

I, Albert J. Spensko, a Registered Professional Land Surveyor, holding Certificate 146652 State of Utah, do hereby certify that the information on this drawing is a true and accurate survey based on data of record and was conducted under my personal direction and supervision as shown hereon.

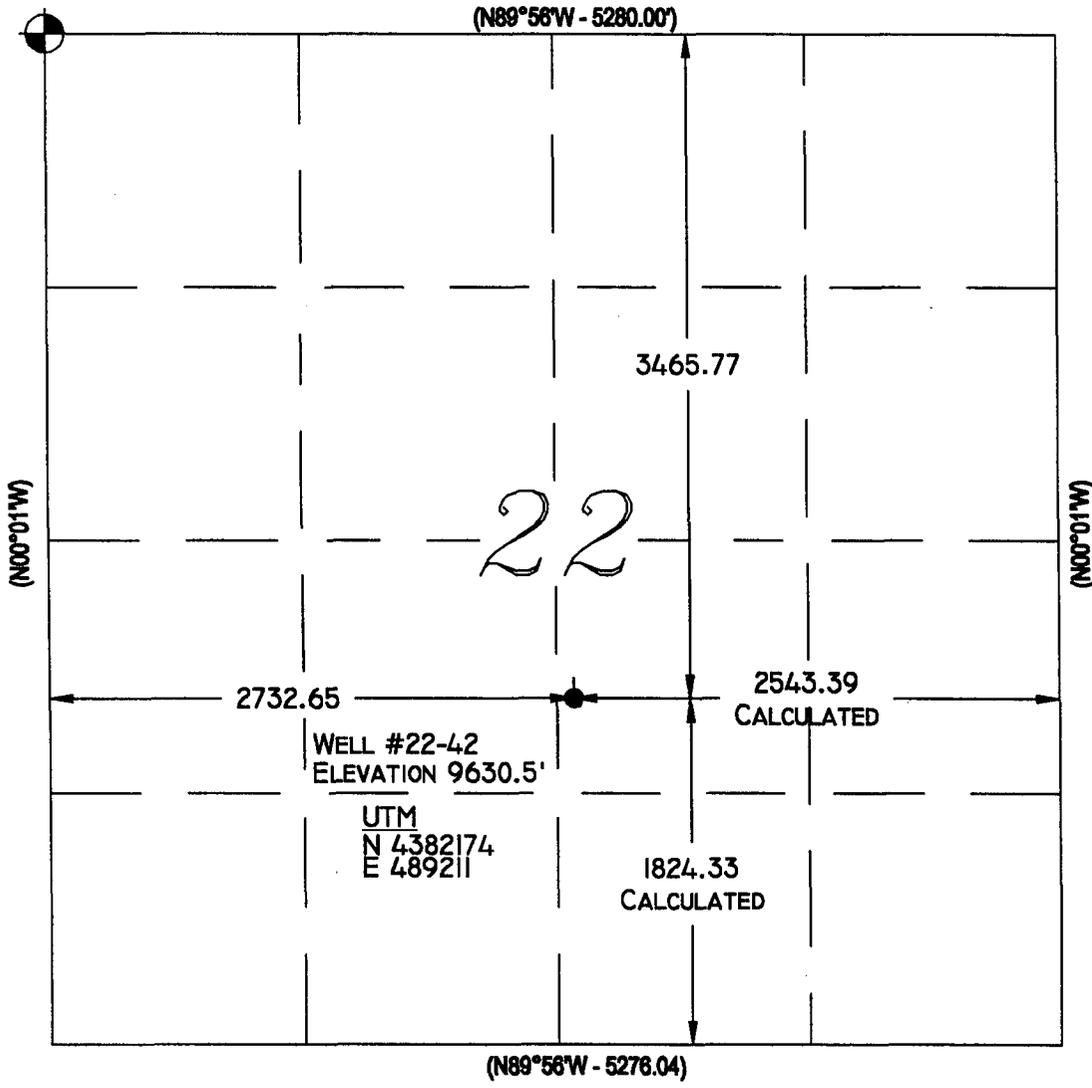


TALON RESOURCES, INC.
SERVICE, QUALITY & ACCURACY
 Price - Huntington, Utah
 Phone (435)687-5310 Fax (435)687-5310
 E-Mail talon@ETV.net

Prima Oil & Gas Company
 E. Clear Creek Federal 22-42
 Section 22, T14S, R7E, S.L.B.&M.
 Carbon County, Utah

Drawn By: BEN SCOTT	Checked By: L.W.J./A.J.S.
Drawing No. A-1	Date: 07/16/03
	Scale: 1" = 1000'
Sheet 1 of 4	Job No. 708

Township 14 South

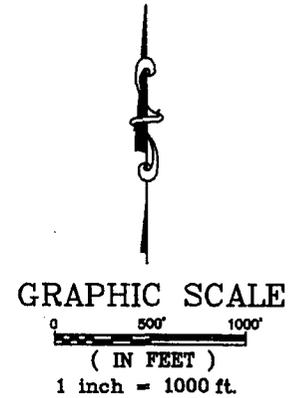


Legend

- Drill Hole Location
- ⊙ Brass Cap (Found)
- Brass Cap (Searched for, but not found)
- △ Calculated Corner
- () GLO

NOTES:
 1. UTM AND LATITUDE / LONGITUDE COORDINATES ARE DERIVED USING A GPS PATHFINDER AND ARE SHOWN IN NAD 27 DATUM.

LAT / LONG
39°35'28"N
111°07'32"W



GPS Measured

Prima Oil and Gas Company
East Clear Creek Federal 22-42
Lease U-77087
NW/SE Section 22, T14S, R7E
Carbon County, Utah

A COMPLETE COPY OF THIS PERMIT SHALL BE KEPT ON LOCATION from the beginning of site construction through well completion, and shall be available to contractors to ensure compliance.

CONDITIONS OF APPROVAL

Approval of this application 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.

Be advised that Prima Oil and Gas Company is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by **UT 1215** (Principal – Prima Oil and Gas Company) via surety consent as provided for in 43 CFR 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR 3106.7-2 continuing responsibility are met.

This permit will be valid for a period of one year from the date of approval. After permit termination, a new application must be filed for approval.

All lease operations will be conducted in full compliance with applicable regulations (43 CFR 3100), Onshore Oil and Gas Orders, lease terms, notices to lessees, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors.

A. DRILLING PROGRAM

1. The proposed BOP system is adequate for anticipated conditions. The system is comprised of 3000 psi components in a 2M configuration. The testing of BOP equipment to 2M standards is sufficient. Installation, testing and operation of the system shall be in conformance with Onshore Oil and Gas Order No. 2.
2. Concurrent approval from the State of Utah, Division of Oil, Gas & Mining (DOGGM) is required before conducting any surface disturbing activities.
3. When cementing the production casing, if cement does not circulate to surface, a cement bond log (CBL), or other appropriate tool for determining top-of-cement, shall be run, and the results shall be submitted to the Moab Field Office BLM.

B. SURFACE (Forest Service mitigations and conditions of approval)

1. Prima will develop a trailhead parking area and install a gate at the intersection of the Nuck-Woodard Road and the drill pad access road to Forest Service specifications. These facilities would replace the existing trailhead that would be disturbed by construction of the pad access road and prevent unauthorized motorized vehicles from accessing the trail system or entering the IRA. The gate would be kept closed at all times to preclude unauthorized motorized travel along the Castle Valley Ridge (CVR) Trail.
2. An access well be constructed that prevents passage of motorized traffic, including all terrain vehicles, and restricts passage to hikers, horseback riders, and livestock. The pedestrian and livestock access would be located to one side of the gate to the drill pad access road. It will be designed to meet Forest Service standards. If the well goes into production the parking area, controlled access gate and associated signing at the trail head would be required for the life of the well field, anticipated to be approximately 20-25 years. The design for the trailhead area, gate and pedestrian/livestock access must be submitted to the Forest Service and approved prior to installation.
3. All drilling and production operations must conform to BLM's regulations and orders.
4. The lights at the site must be oriented in a downward direction to decrease visibility from off-site areas.
5. The following seed mix must be used for all reclamation:

<u>A. Grasses</u>		<u>Lbs/acre</u>
Slender wheatgrass	Agropyron trachycaulum	2
Intermediate wheatgrass	Agropyron intermedium	2
Western wheatgrass	Agropyron smithii	2
Perennial rye grass	Lolium perenne	1
Mountain brome	Bromus carinatus	2
Sandberg blue grass	Poa secunda	<u>1</u>
		10
<u>B. Forbs</u>		
Small burnet	Sanguisorba minor	1
Wasatch penstemon	Penstemon cyananthus	0.5
Mountain aster	Aster adscendens	0.25
Northern sweet vetch	Hedysarum boreale	1
Silvery lupine	Lupinus argentens	<u>1</u>
		3.75
	Total	13.75

6. Construct and maintain a livestock control fence to keep livestock away from the well.
7. Wash equipment prior to entering the Forest, even if from the local area.
8. Prima must provide to the Forest Service certification that all gravel sources are free of noxious weed seeds and meet Forest Service specifications. Forest Service approval is required for each individual gravel source prior to hauling of gravel onto the Forest.
9. Initiate immediate control of any noxious weeds found in the project area.
10. Initiate reclamation of disturbed sites as soon as possible following operations to establish native vegetation and enhance vegetation competition before noxious weeds can become established.
11. Construction and drilling operations would not occur between May 1 to July 5 (after big-game parturition in mid-July).
12. Harassment of wildlife is prohibited. Dogs would be kept on leash at all times.
13. Before a Surface Use Plan of Operations (SUPO) is approved by the Forest Service, it must include a commitment by the operator (meeting Forest Service standards) to completely reclaim all access roads and well pads at the end of production. Reclamation would include removal of gravel from the well pads and access roads, recontouring the surface, replacing topsoil, reseeding with the prescribed mix and monitoring to assure that reclamation meets required standards prior to bond release.
14. The drill rig operators will check around the well site each morning for bird carcasses and save them for identification by Forest Service biologists.
15. Prima would be required to obtain an encroachment permit from Carbon County for use of Nuck-Woodard Road (FR 50110) outside the Forest Boundary and would be required to maintain that portion of Nuck-Woodard Road to County standards, able to handle the local and project traffic.

Mitigations to be conducted by the Forest Service

1. Observe a ¼ mile buffer zone (as measured from the center line of the road) around disturbed areas to reduce the likelihood that sheep could graze establishing reclamation vegetation. This could be up to 5 years until vegetation has reestablished itself.
2. If the well goes into production, reduce the permitted number of livestock by 5 head.
3. If necessary, require the livestock operator to provide two herders to control the sheep while grazing near disturbed areas.
4. Conduct inspections of the project in early August then again in mid-September each year for five years following disturbance. If the well goes into production yearly monitoring would be required during the life of the project.
5. The public would not be allowed to use the newly constructed access road with motorized vehicles.

C. REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Required verbal notifications are summarized in Table 1, attached.

Building Location- Contact the Surface Management Agency (local BLM or Forest Service office) at least 48-hours prior to commencing construction of location.

Spud- The spud date will be reported to BLM 24-hours prior to spudding. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the Moab Field Office within 24-hours after spudding, regardless of whether spud was made with a dry hole digger or big rig.

Daily Drilling Reports- Daily drilling reports shall detail the progress and status of the well and shall be submitted to the Moab Field Office on a weekly basis.

Monthly Reports of Operations- In accordance with Onshore Oil and Gas Order No. 1, this well shall be reported on Minerals Management Service (MMS) Form 3160, "Monthly Report of Operations," starting the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with MMS.

Sundry Notices- There will be no deviation from the proposed drilling and/or workover program without prior approval. "Sundry Notices and Reports on Wells" (Form 3160-5) will be filed with the Moab Field Office for approval of all changes of plans and subsequent operations in accordance with 43 CFR 3162.3-2. Safe drilling and operating practices must be observed.

Drilling Suspensions- Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Moab Field Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the Price Field Office is to be notified.

First Production- Should the well be successfully completed for production, the Moab Field Office will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Moab Field Office. The Moab Field Office shall be notified prior to the first sale.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the Moab Field Office not later than thirty-days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. When requested, samples (cuttings and/or samples) will be submitted to the Moab Field Office.

Venting/Flaring of Gas- Gas produced from this well may not be vented/flared beyond an initial, authorized test period of 30 days or 50 MMcf, whichever first occurs, without the prior, written approval of the Moab Field Office. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered shut-in until the gas can be captured or approval to continue the venting/flaring as uneconomic is granted. In such case, compensation to the lessor (BLM) shall be required for that portion of the gas that is vented/flared without approval and which is determined to have been avoidably lost.

Produced Water- An application for approval of a permanent disposal method and location will be submitted to the Moab Field Office for approval pursuant to Onshore Oil and Gas Order No.7.

Off-Lease Measurement, Storage, Commingling- Prior approval must be obtained from the Moab Field Office for off-lease measurement, off-lease storage and/or commingling (either down-hole or at the surface).

Plugging and Abandonment- If the well is completed as a dry hole, plugging instructions must be obtained from the Moab Field Office prior to initiating plugging operations.

A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the Moab Field Office within thirty-days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Price Field Office or the appropriate surface managing agency.

TABLE 1

NOTIFICATIONS

Notify Don Stephens (435-636-3608) of the BLM Price Field Office for the following:

50 feet prior to reaching the surface casing setting depth;

3 hours prior to testing BOPs

Notify the Tom Lloyd (435-636-3596) of the Manti-LaSal National Forest for the following:

2 days prior to commencement of dirt work, construction and reclamation;

1 day prior to spudding

If the people at the above numbers cannot be reached, notify the Moab Field Office at 435-259-2100. If unsuccessful, contact the person listed below.

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab Field Office at (435) 259-2100. If approval is needed after work hours, you may contact the following:

Eric Jones, Petroleum Engineer

Office: (435) 259-2117

Home: (435) 259-2214

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

008

5. LEASE DESIGNATION AND SERIAL NUMBER:
UTU-77087

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
n/a

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

7. UNIT or CA AGREEMENT NAME:
n/a

1. TYPE OF WELL OIL WELL GAS WELL OTHER _____

8. WELL NAME and NUMBER:
E. Clear Creek Federal 22-42

2. NAME OF OPERATOR:
Prima Oil & Gas Company

9. API NUMBER:
43-007-30878

3. ADDRESS OF OPERATOR:
1099 18th St., Ste. 400 CITY Denver STATE CO ZIP 80202 PHONE NUMBER:
(303) 297-2300

10. FIELD AND POOL, OR WILDCAT:
Wildcat

4. LOCATION OF WELL
FOOTAGES AT SURFACE: 1824' FSL, 2543' FEL COUNTY: Carbon
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 22 14S 7E STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input checked="" type="checkbox"/> OTHER: <u>Extension Request</u>
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.
Prima Oil & Gas Company respectfully requests a 1-year extension of the APD for the subject well.
Attached is a completed Request for Extension Validation form.

Approved by the
Utah Division of
Oil, Gas and Mining
Date: 08-23-04
By: [Signature]

COPY SENT TO OPERATOR
Date: 8-26-04
Initials: CHD

NAME (PLEASE PRINT) Susan Miller TITLE Operations Tech.
SIGNATURE [Signature] DATE 7/27/2004

(This space for State use only)

RECEIVED
JUL 29 2004

DIV. OF OIL, GAS & MINING

**Application for Permit to Drill
Request for Permit Extension
Validation**

(this form should accompany the Sundry Notice requesting permit extension)

API: 43-007-30878
Well Name: East Clear Creek Federal 22-42
Location: 1824' FSL, 2543' FEL, NWSE Section 22, T14S, R7E
Company Permit Issued to: Prima Oil & Gas Company
Date Original Permit Issued: 8/13/2003

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.

If located on private land, has the ownership changed, if so, has the surface agreement been updated? Yes No

Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location? Yes No

Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? Yes No

Have there been any changes to the access route including ownership, or right-of-way, which could affect the proposed location? Yes No

Has the approved source of water for drilling changed? Yes No

Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation? Yes No

Is bonding still in place, which covers this proposed well? Yes No



Signature

7/27/2004

Date

Title: Operations Tech.

Representing: Prima Oil & Gas Company



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
<http://www.blm.gov>

IN REPLY REFER TO:
3106
(UT-922)

RECEIVED

DEC 17 2004

October 15, 2004 ^{DIV. OF OIL, GAS & MINING}

Memorandum

To: Price, Richfield, Salt Lake, and Vernal Field Offices

From: Acting Chief, Branch of Fluid Minerals

Subject: Name Change Approval

Attached is an approved copy of the name change recognized by the Utah State Office. We have updated our records to reflect the name change from Prima Oil & Gas Company into Petro-Canada Resources (USA) Inc. The name change was approved effective November 30, 2004.

N1695=Prima

Teresa L. Catlin
Acting Chief, Branch of
Fluid Minerals

Enclosure

State of Colorado Certificates (3 pp)

cc: MMS, Reference Data Branch, James Sykes, PO Box 25165, Denver CO 80225
State of Utah, DOGM, Attn: Earlene Russell, PO Box 145801, SLC UT 84114
Teresa Thompson
Joe Incardine
Connie Seare
Dave Mascarenas
Susan Bauman



STATE OF COLORADO

DEPARTMENT OF
STATE

CERTIFICATE

I, DONETTA DAVIDSON, SECRETARY OF STATE OF THE STATE OF
COLORADO HEREBY CERTIFY THAT ACCORDING TO THE RECORDS OF
THIS OFFICE, ARTICLES OF AMENDMENT WERE FILED ON NOVEMBER
30, 2004 CHANGING THE CORPORATE NAME OF

PRIMA OIL & GAS COMPANY
(COLORADO CORPORATION)

TO

PETRO-CANADA RESOURCES (USA) INC.

Dated: November 30, 2004

Donetta Davidson

SECRETARY OF STATE

Document Processing Fee
If document is on paper: \$25.00
If document is filed electronically: Currently Not Available
Fees are subject to change.
For electronic filing and to obtain
copies of filed documents visit
www.sos.state.co.us
Deliver paper documents to:
Colorado Secretary of State
Business Division
1560 Broadway, Suite 200
Denver, CO 80202-5169
Paper documents must be typed or machine printed.

20041410616 0
\$ 75.00
SECRETARY OF STATE
11-30-2004 13:48:17

ABOVE SPACE FOR OFFICE USE ONLY

Articles of Amendment

filed pursuant to §7-90-301, et seq. and §7-110-106 of the Colorado Revised Statutes (C.R.S.)

ID number: 19871393712

1. Entity name:

Prima Oil & Gas Company

*(If changing the name of the corporation, indicate name
BEFORE the name change)*

2. New Entity name:
(if applicable)

Petro-Canada Resources (USA) Inc.

3. Use of Restricted Words *(If any of these
terms are contained in an entity name, true
name of an entity, trade name or trademark
stated in this document, make the applicable
selection):*

- "bank" or "trust" or any derivative thereof
 "credit union" "savings and loan"
 "insurance", "casualty", "mutual", or "surety"

4. Other amendments, if any, are attached.

5. If the amendment provides for an exchange, reclassification or cancellation of issued shares, the attachment
states the provisions for implementing the amendment.

6. If the corporation's period of duration
as amended is less than perpetual, state
the date on which the period of duration
expires: _____
(mm/dd/yyyy)

OR

If the corporation's period of duration as amended is perpetual, mark this box:

7. (Optional) Delayed effective date: _____
(mm/dd/yyyy)

Notice:

Causing this document to be delivered to the secretary of state for filing shall constitute the affirmation or
acknowledgment of each individual causing such delivery, under penalties of perjury, that the document is the
individual's act and deed, or that the individual in good faith believes the document is the act and deed of the
person on whose behalf the individual is causing the document to be delivered for filing, taken in conformity
with the requirements of part 3 of article 90 of title 7, C.R.S., the constituent documents, and the organic

statutes, and that the individual in good faith believes the facts stated in the document are true and the document complies with the requirements of that Part, the constituent documents, and the organic statutes.

This perjury notice applies to each individual who causes this document to be delivered to the secretary of state, whether or not such individual is named in the document as one who has caused it to be delivered.

8. Name(s) and address(es) of the individual(s) causing the document to be delivered for filing:

Shepston	Michelle	H.	
(Last)	(First)	(Middle)	(Suffix)
1550 17th Street, Suite 500			
(Street name and number or Post Office information)			

Denver	CO	80202	
(City)	(State)	(Postal/Zip Code)	
_____		_____	
(Province - if applicable)		(Country - if not US)	

(The document need not state the true name and address of more than one individual. However, if you wish to state the name and address of any additional individuals causing the document to be delivered for filing, mark this box and include an attachment stating the name and address of such individuals.)

Disclaimer:

This form, and any related instructions, are not intended to provide legal, business or tax advice, and are offered as a public service without representation or warranty. While this form is believed to satisfy minimum legal requirements as of its revision date, compliance with applicable law, as the same may be amended from time to time, remains the responsibility of the user of this form. Questions should be addressed to the user's attorney.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Request to Transfer Application or Permit to Drill

(This form should accompany a Sundry Notice, Form 9, requesting APD transfer)

Well name:	EAST CLEAR CREEK 22-42
API number:	43007308780000
Location:	Qtr-Qtr: NWSE Section: 22 Township: 14S Range: 7E
Company that filed original application:	Prima Oil & Gas Company
Date original permit was issued:	08/13/2003
Company that permit was issued to:	Prima Oil & Gas Company

Check one	Desired Action:
<input type="checkbox"/>	Transfer pending (unapproved) Application for Permit to Drill to new operator
<input type="checkbox"/>	The undersigned as owner with legal rights to drill on the property, hereby verifies that the information as submitted in the pending Application for Permit to Drill, remains valid and does not require revision. The new owner of the application accepts and agrees to the information and procedures as stated in the application.
<input checked="" type="checkbox"/>	Transfer approved Application for Permit to Drill to new operator
<input type="checkbox"/>	The undersigned as owner with legal rights to drill on the property as permitted, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.	Yes	No
If located on private land, has the ownership changed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If so, has the surface agreement been updated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have there been any changes to the access route including ownership or right-of-way, which could affect the proposed location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has the approved source of water for drilling changed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is bonding still in place, which covers this proposed well? Bond No. <u>4127699</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Any desired or necessary changes to either a pending or approved Application for Permit to Drill that is being transferred, should be filed on a Sundry Notice, Form 9, or amended Application for Permit to Drill, Form 3, as appropriate, with necessary supporting information as required.

Name (please print) Jon T. Jornero Title Attorney
 Signature [Signature] Date 01/13/2005
 Representing (company name) Prima Oil & Gas Company, now known as Petro-Canada Resources (USA) Inc.

The person signing this form must have legal authority to represent the company or individual(s) to be filed as the new operator on the Application for Permit to Drill.

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JAN 14 2005

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>See Attached</u>		5. LEASE DESIGNATION AND SERIAL NUMBER: See Attached
2. NAME OF OPERATOR: Prima Oil & Gas Company <i>N1695</i>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
3. ADDRESS OF OPERATOR: 1099 18th Street #400 CITY Denver STATE CO ZIP 80202		7. UNIT or CA AGREEMENT NAME:
PHONE NUMBER: (303) 297-2300		8. WELL NAME and NUMBER:
4. LOCATION OF WELL		9. API NUMBER:
FOOTAGES AT SURFACE:		10. FIELD AND POOL, OR WILDCAT:

FOOTAGES AT SURFACE:

COUNTY:

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:

STATE:

UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input checked="" type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Notice is given that Prima Oil & Gas Company has changed its name to Petro-Canada Resources (USA) Inc. Please reflect the name change on the drilling permits pending under the name of Prima Oil & Gas Company. A list of affected permits is attached.

state/Fee Bond # 4127699

Blm Bond # UT-1215

effective 12/01/2004

APPROVED 1/20/05

Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

RECEIVED

JAN 14 2005

DIV. OF OIL, GAS & MINING

NAME (PLEASE PRINT) <u>Jon Tjornehoj</u>	ATTORNEY FOR PRIMA OIL & GAS COMPANY, TITLE <u>NOW KNOWN AS PETRO-CANADA RESOURCES (USA) INC</u>
SIGNATURE	DATE <u>1/12/2005</u>

(This space for State use only)

Utah State Permit Status

11/01/04

Well Name	Permit/Well Status	County	TwN-Rng	Sec	Qtr/Qtr	API Well Number
EAST CLEAR CREEK 22-42	State APD approved, not drilled	EMERY	14S-7E	22	NWSE	43-007-30878-00-00
SCOFIELD-THORPE 25-32	State APD submitted	CARBON	12S-7E	25	NWSW	43-007-30988-00-00
SCOFIELD-THORPE 25-43	State APD submitted	CARBON	12S-7E	25	SWSE	43-007-31002-00-00
SCOFIELD-THORPE 26-24	State APD submitted	CARBON	12S-7E	26	SEnw	43-007-30986-00-00
SCOFIELD-THORPE 26-31	State APD submitted	CARBON	12S-7E	26	NESW	43-007-30987-00-00
SCOFIELD-THORPE 26-43	State APD submitted	CARBON	12S-7E	26	SWSE	43-007-30990-00-00
SCOFIELD-THORPE 35-21	State APD submitted	CARBON	12S-7E	35	NENW	43-007-30989-00-00
SCOFIELD-THORPE 35-13	State APD submitted	CARBON	12S-7E	35	SWNE	43-007-30991-00-00
SCOFIELD-THORPE 35-41	State APD submitted	CARBON	12S-7E	35	NESE	43-007-31003-00-00
SCOFIELD-THORPE 36-22	State APD submitted	CARBON	12S-7E	36	NWNW	43-007-30992-00-00
SCOFIELD-THORPE 23-31	State APD submitted	CARBON	12S-7E	23	NESW	43-007-31001-00-00
SCOFIELD CHRISTIANSEN 8-23	State APD resubmitted	CARBON	12S-7E	8	SWNW	43-007-30999-00-00
DRY VALLEY ST 14-23	State APD resubmitted	UTAH	11S-7E	14	SWNW	43-049-31000-00-00

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JAN 14 2005
 DIV. OF OIL, GAS & MINING

OPERATOR CHANGE WORKSHEET

ROUTING

1. GLH
2. CDW
3. FILE

009

Change of Operator (Well Sold)

Designation of Agent/Operator

X Operator Name Change

Merger

The operator of the well(s) listed below has changed, effective: **12/1/2005**

FROM: (Old Operator): N1695-Prima Oil & Gas Company 1099 18th St, Suite 400 Denver, CO 80202 Phone: 1-(303) 297-2300	TO: (New Operator): N2705-Petro-Canada Resources (USA) Inc 1099 18th St, Suite 400 Denver, CO 80202 Phone: 1-(303) 297-2300
---	---

CA No. Unit:

WELL(S)								
NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
DRY VALLEY ST 14-23	14	110S	070E	4304931000		State	GW	NEW
SCOFIELD CHRISTIANSEN 8-23	08	120S	070E	4300730999		Fee	GW	NEW C
SCOFIELD-THORPE 23-31	23	120S	070E	4300731001		Fee	GW	NEW C
SCOFIELD-THORPE 25-32	25	120S	070E	4300730988		Fee	GW	NEW C
SCOFIELD-THORPE 25-43	25	120S	070E	4300731002		Fee	GW	NEW C
SCOFIELD-THORPE 26-24	26	120S	070E	4300730986		Fee	GW	NEW C
SCOFIELD-THORPE 26-31	26	120S	070E	4300730987		Fee	GW	NEW C
SCOFIELD-THORPE 26-43	26	120S	070E	4300730990		Fee	GW	NEW C
SCOFIELD-THORPE 35-21	35	120S	070E	4300730989		Fee	GW	NEW C
SCOFIELD-THORPE 35-13	35	120S	070E	4300730991		Fee	GW	NEW C
SCOFIELD-THORPE 35-41	35	120S	070E	4300731003		Fee	GW	NEW C
SCOFIELD-THORPE 36-22	36	120S	070E	4300730992		Fee	GW	NEW C
E CLEAR CREEK FED 22-42	22	140S	070E	4300730878		Federal	GW	APD C

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

- (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 1/14/2005
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 1/14/2005
- The new company was checked on the **Department of Commerce, Division of Corporations Database** on: 1/19/2005
- Is the new operator registered in the State of Utah: YES Business Number: 4907871-0143
- If **NO**, the operator was contacted on:
- a. (R649-9-2)Waste Management Plan has been received on: IN PLACE
- b. Inspections of LA PA state/fee well sites complete on: 6/27/2003 Rig Skid & sold to Berry Petroleum
LA wells were resubmitted

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: 12/17/2004

8. **Federal and Indian Units:**

The BLM or BIA has approved the successor of unit operator for wells listed on: 11/30/2004

9. **Federal and Indian Communization Agreements ("CA"):**

The BLM or BIA has approved the operator for all wells listed within a CA on: n/a

10. **Underground Injection Control ("UIC** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: N/A

DATA ENTRY:

- 1. Changes entered in the **Oil and Gas Database** on: 1/20/2005
- 2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 1/20/2005
- 3. Bond information entered in RBDMS on: 1/20/2005
- 4. Fee/State wells attached to bond in RBDMS on: 1/20/2005
- 5. Injection Projects to new operator in RBDMS on: n/a
- 6. Receipt of Acceptance of Drilling Procedures for APD/New on: 1/20/2005

FEDERAL WELL(S) BOND VERIFICATION:

- 1. Federal well(s) covered by Bond Number: UT-1215

INDIAN WELL(S) BOND VERIFICATION:

- 1. Indian well(s) covered by Bond Number: n/a

FEE & STATE WELL(S) BOND VERIFICATION:

- 1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number 4127699
- 2. The **FORMER** operator has requested a release of liability from their bond on: N/A
The Division sent response by letter on: N/A Bond Rider to Petro-Canada

LEASE INTEREST OWNER NOTIFICATION:

- 3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: 1/24/2005

COMMENTS:

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER _____		5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77087
2. NAME OF OPERATOR: Petro Canada Resources (USA) Inc.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
3. ADDRESS OF OPERATOR: 1099 18th St ste 400 CITY Denver STATE CO ZIP 80202		7. UNIT or CA AGREEMENT NAME: N/A
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1824' FSL, 2543' FEL		8. WELL NAME and NUMBER: East Clear Creek Fed 22-42
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 22 14S 7E S		9. API NUMBER: 4300730878
COUNTY: Emery		10. FIELD AND POOL, OR WILDCAT: Undesignated
STATE: UTAH		

CONFIDENTIAL

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input checked="" type="checkbox"/> OTHER: <u>Extend State Permit</u>
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

PetroCanada hereby requests a one year extension of the state permit for the East Clear Creek Federal 22-42 (formerly held by Prima Oil and Gas). This extension will give enough time to complete construction of access and pad, which began in 2004, and drilling of this well

**Approved by the
Utah Division of
Oil, Gas and Mining**

Date: 06-16-05
By: [Signature]

COPY SENT TO OPERATOR
Date: 6-13-05
Initials: LD

NAME (PLEASE PRINT) <u>Larry W. Johnson</u>	TITLE <u>Representitive for PetroCanada</u>
SIGNATURE <u>[Signature]</u>	DATE <u>6/13/05</u>

(This space for State use only)

**RECEIVED
JUN 16 2005**

**Application for Permit to Drill
Request for Permit Extension
Validation**

(this form should accompany the Sundry Notice requesting permit extension)

API: 43-007-30878
Well Name: East Clear Creek Federal 22-42
Location: NW/4 SE/4, Section 22, T14S, R7E, SLB&M
Company Permit Issued to: Petro-Canada Resources (USA) Inc.
Date Original Permit Issued: 8/13/2003

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.

If located on private land, has the ownership changed, if so, has the surface agreement been updated? Yes No

Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location? Yes No

Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? Yes No

Have there been any changes to the access route including ownership, or right-of-way, which could affect the proposed location? Yes No

Has the approved source of water for drilling changed? Yes No

Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation? Yes No

Is bonding still in place, which covers this proposed well? Yes No


Signature

6/13/2005

Date

Title: Agent for Petro-Canada

Representing: Petro-Canada

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JUN 16 2005

DIV. OF OIL, GAS & MINING

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

		5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77087
		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a
		7. UNIT or CA AGREEMENT NAME: n/a
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER _____		8. WELL NAME and NUMBER: E. Clear Creek Federal 22-42
2. NAME OF OPERATOR: Petro-Canada Resources (USA) Inc		9. API NUMBER: 43-007-30878
3. ADDRESS OF OPERATOR: 1099 18th St., Ste. 400 CITY Denver STATE CO ZIP 80202	PHONE NUMBER: (303) 297-2300	10. FIELD AND POOL, OR WILDCAT: Wildcat
4. LOCATION OF WELL		
FOOTAGES AT SURFACE: 1824' FSL, 2543' FEL		COUNTY: Emery
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 22 14S 7E		STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input checked="" type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Petro-Canada requests the following change to the original drilling plan for the subject well.

Surface Casing:

9-5/8", J-55, 36 ppf

Original Setting Depth
2750'

Revised Setting Depth
1000'

Comments:

Shallower setting depth is required to ensure coverage of known up-hole drilling problems.

Production Casing:

Original Specifications
7", J-55, 23 ppf

Revised Specifications
7", J-55, 20 ppf

Reduced pipe weight is due to rig limitations. Setting depth remains unchanged at 7000'.

**Accepted by the
Utah Division of
Oil, Gas and Mining
FOR RECORD ONLY**

NAME (PLEASE PRINT) <u>Susan Miller</u>	TITLE <u>Operations Tech.</u>
SIGNATURE <u><i>Susan Miller</i></u>	DATE <u>8/1/2005</u>

(This space for State use only)

RECEIVED
AUG 02 2005

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DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: PETRO-CANADA RESOURCES

Well Name: E CLEAR CREEK FED 22-42

Api No: 43-007-30878 Lease Type: FEDERAL

Section 22 Township 14S Range 07E County CARBON

Drilling Contractor BILL MARTIN RIG # RATHOLE

SPUDDED:

Date 08/22/05

Time _____

How DRY

Drilling will Commence: _____

Reported by LARRY SESSIONS

Telephone # 1-435-630-6344

Date 08/23/2005 Signed CHD

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 6

ENTITY ACTION FORM

Operator: Petro-Canada Resources (USA) Inc Operator Account Number: N 2705
Address: 1099 18th Street, Suite 400
city Denver
state Co zip 80202 Phone Number: (303) 297-2300

Well 1

API Number	Well Name	CO	Sec	Twp	Rng	County
007-30878	East Clear Creek Federal 22-42	NWSE	22	14S	7E	Emery
Action Code	Current Entity Number	New Entity Number	Sours Date		Entity Assignment Effective Date	
A	99999	14907	8/22/2005		8/31/05	
Comments: <u>DKTA</u>						CONFIDENTIAL

Well 2

API Number	Well Name	CO	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Sours Date		Entity Assignment Effective Date	
Comments:						

Well 3

API Number	Well Name	CO	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Sours Date		Entity Assignment Effective Date	
Comments:						RECEIVED AUG 31 2005

DIV. OF OIL, GAS & MINING

ACTION CODES:

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

Susan Miller

Name (Please Print)

Susan Miller

Signature

Operations Tech

Title

8/31/2005

Date

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS		5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77087
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER _____		7. UNIT or CA AGREEMENT NAME: n/a
2. NAME OF OPERATOR: Petro-Canada Resources (USA) Inc		8. WELL NAME and NUMBER: E. Clear Creek Federal 22-42
3. ADDRESS OF OPERATOR: 1099 18th St., Ste. 400 CITY Denver STATE CO ZIP 80202		9. API NUMBER: 43-007-30878
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1824' FSL, 2543' FEL		10. FIELD AND POOL, OR WILDCAT: Wildcat
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 22 14S 7E		COUNTY: Emery
		STATE: UTAH

CONFIDENTIAL

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA			
TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: 9/6/2005 <input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input checked="" type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Petro-Canada requests the following changes to the original drilling plan for the subject well.

Surface Casing: Original Setting Depth: 2750' Revised Setting Depth: 1000'	Comments: Shallower setting depth is required to ensure coverage of known up-hole drilling problems.
Production Casing: Original Specifications: 7", J-55, 23 ppf Revised Specifications: 7", J-55, 20 ppf	Reduced pipe weight is due to rig limitations.
Original Setting Depth: 7000' Revised Setting Depth: 5450'	

Optional 4-1/2" 11.35 ppf J-55 liner or long string will be run if necessary. All cementing programs will be adjusted appropriately to any changes in casing setting depth or specifications.

NAME (PLEASE PRINT) <u>Susan Miller</u>	TITLE <u>Operations Tech.</u>
SIGNATURE	DATE <u>9/2/2005</u>

(This space for State use only)

Accepted by the
Utah Division of
Oil, Gas and Mining

Federal Approval Of This
Action Is Necessary

RECEIVED
SEP 02 2005

(5/2000)

Date: 9/7/05
By: [Signature] (See Instructions on Reverse Side)

DIV. OF OIL, GAS & MINING

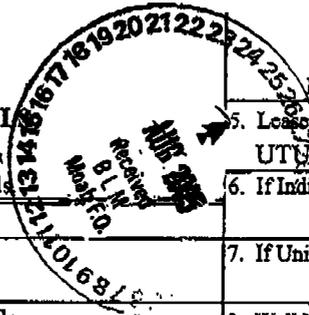
Form 3160-5
(August, 1999)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires November 30, 2000

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill, or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.



5. Lease Serial No.
UTU 77087

6. If Indian, Allote or Tribe Name

7. If Unit or CA/Agreement Designation

8. Well Name and No.
E. Clear Creek Federal 22-42

9. API Well No.
43-007-30878

10. Field and Pool, or Exploratory Area
Undesignated

11. County or Parish, State
Emery

SUBMIT IN TRIPLICATE

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator:
Petro-Canada Resources (USA) Inc Contact: Susan Miller
Phone: 303/350-1212

3. Address and Telephone No.
1099 18th Street, Suite 400, Denver, Colorado 80202

4. Location of Well (Footage, T, R, M, or Survey Description)
1824' FSL, 2543' FEL, NWSE Section 22, T14S, R7E, SLB&M

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Addize <input type="checkbox"/> Deepen <input type="checkbox"/> Production (start/resume) <input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing <input type="checkbox"/> Reclamation <input type="checkbox"/> Reclamation <input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair <input type="checkbox"/> New Construction <input type="checkbox"/> Recomplete <input type="checkbox"/> Other
	<input checked="" type="checkbox"/> Change Plans <input type="checkbox"/> Plug and Abandon <input type="checkbox"/> Temporarily Abandon
	<input type="checkbox"/> Convert to Injection <input type="checkbox"/> Plug Back <input type="checkbox"/> Water Disposal

13. Describe Proposed or completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, A form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Petro-Canada has made the following changes to the original drilling plan for the subject well.

Surface Casing:

Original Setting Depth	Revised Setting Depth	Original Cementing Program	Revised Cementing Program
2750'	1000'	890 sks Type II w/2% CaCl 14.5 ppg, yield 1.41 cu.ft/sk.	Similar cement design, recognizing revised setting depth

Intermediate Casing:

Original Setting Depth	Revised Setting Depth	Original Specifications	Revised Specifications
7000'	5000' (above Ferron) 5150'	7", J-55, 23 ppf	7", J-55, 20 ppf

Original Cementing Program

Original Specifications	Revised Cementing Program
Lead: 520 sks Prem Lite II, 11.0 ppg, yield 3.46 cu.ft/sk Tail: 305 sks Prem Lite (HI Strength), 13.0 ppg, yield 1.97 cu.ft/sk	Similar cement design, recognizing revised setting depth

Optional 4-1/2" 11.35 ppf, J-55 liner or long string will be run if necessary

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed) Susan Miller	Title Operations Tech
Signature <i>Susan Miller</i>	Date 8/1/2005

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THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by: *[Signature]* Assistant Field Manager, Division of Resources Date: 8/26/05

Conditions of approval, if any, are attached. Approval of this notice 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.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

AUG 31 2005

CONDITIONS OF APPROVAL ATTACHED



Petro-Canada Resources (USA) Inc

Attachment to Sundry Notice dated 8/17/05
EAST CLEAR CREEK FEDERAL 22-42
Emery County, Utah
API No. 43-007-30878

The following are explanations for Petro-Canada's sundry notice for Change of Plans for the subject well:

- **Surface Casing:**
The uphole problems are a result of lost circulation. The lost circulation zones in the currently drilling Scofield-Thorpe 35-13 (Berry Petroleum) occurred at 141', 187', 369' and 594'. Berry Petroleum dry-drilled the well from 594' to 1040'.

In order to drill the E Clear Creek Fed 22-42 well, Petro-Canada will need to mud-up to drill the upper Blue Gate shale, but this will not be possible due to the aforementioned uphole lost circulation problem. Therefore Petro-Canada plans to set the 9-5/8" surface casing at 1000'.
- **Intermediate Casing:**
Groundwater is possible in the Emery formation based on data from Anschutz Exploration's Oman 2-20 well. Hydrocarbons are not expected in the Upper or Lower Blue Gate shales. Petro-Canada now plans to set the 7" 20 ppf J-55 casing above the Ferron sand at approximately 5450'.
- **Liner or Long String:**
An optional 4-1/2" 11.35 ppf, J-55 liner or long string will be run if necessary.
- **Cementing Program:**
The cementing program for each casing string will be adjusted appropriately for the changes in setting depths and specifications.

Casing and Cement Modification
Petro-Canada Resources (USA) Inc.
E. Clear Creek Fed 22-42
UTU-77087
Section 22, T14S, R7E
Emery County, Utah

CONDITION OF APPROVAL

Top-of-cement behind the 7-inch casing must be at least 50 feet above the surface casing (9-5/8") shoe, proposed at a depth of 1000 feet.



Petro-Canada Resources (USA) Inc.

Date: 9/2/05

To: Ms Earlene Russell, Sate of Utah

Fax: 801/359-3940

From: Susan Miller

Pages: 6 including cover page

RE: East Clear Creek Fed 22-42
Revised Sundry Notice
Corrected Entity Action Form 6

Hi Earlene,

Please find attached a revised sundry notice for change of plans for our East Clear Creek Fed 22-42 well. I had submitted the original sundry on 8/1/05, but we made additional changes since. Also attached is a copy of the approved Federal sundry notice which reflects the revisions. I hope this will help in getting it approved by the state.

Also attached is a corrected Entity Action form for the East Clear Creek Fed 22-42 that I had faxed to you on 8/31/05. I had noted an incorrect spud date on the previous form. It should be 8/25/05, not 8/22/05.

Please accept my apologies for any inconvenience. If you have any questions, please contact Jan Kajiwara at 303/350-1191, as I will be out of the office until the 13th.

Thank you Earlene for your help and patience -

Susan Miller
Petro-Canada Resources (USA) Inc.
Main No. 303/297-2300
Direct Line: 303/350-1212

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STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 6

ENTITY ACTION FORM

Operator: Petro-Canada Resources (USA) Inc Operator Account Number: N 2705
Address: 1099 18th Street, Suite 400
city Denver
state Co zip 80202 Phone Number: (303) 297-2300

Well 1

API Number	Well Name	CO	Sec	Twp	Range	County
007-30878	East Clear Creek Federal 22-42	NWSE	22	14S	7E	Emery
Action Code	Current Entity Name	New Entity Name	Start Date	Entity Assignment Effective Date		
A		14907	8/25/2005	8/31/05		
Comments: <i>Dakota used request of 8/31/05</i>						

Well 2

API Number	Well Name	CO	Sec	Twp	Range	County
Action Code	Current Entity Name	New Entity Name	Start Date	Entity Assignment Effective Date		
Comments:						

Well 3

API Number	Well Name	CO	Sec	Twp	Range	County
Action Code	Current Entity Name	New Entity Name	Start Date	Entity Assignment Effective Date		
Comments:						

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ACTION CODES:

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

Susan Miller

Name (Please Print)

Susan Miller

Signature

Operations Tech

Title

DIV. OF OIL, GAS & MINING

9/2/2005

Date

East Clear Creek Federal #22-42
Operator: Petro-Canada Resources (USA) Inc.
Section 22-T14S-R7E
Emery County, Utah
API No. 43-007-30878
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- 09/01/05 70' (70'). Move in Patterson/UTI Rig #778. Drilled to 70' and set 70' of 16" conductor pipe. Cemented to surface. WO D.O.T. rig move permit.
- 09/02/05 70' (0'). Move rig D-9 cat assisted rig up mountain.
- 09/03/05 70' (0'). RU. 100% of rig on 22-42 location. 45% rigged up.
- 09/04/05 70' (0'). RU-heavy rains during day. 90% rigged up.
- 09/05/05 119' (49'). Finish rigging up. Make spud mud. Finish rigging up air pkg. PU 12 1/4" BIT. MU BHA & RIH. TAG UP @ 70'. Drill 70'-85'. Drill 85'-119'. Lost circulation & mixing mud & building volumn.
- 09/06/05 380' (261'). PO: Drilling 12 1/4" hole.-lost 200 bbls mud. Mixing mud building volumn. Drill to 185' Rig service install rotating head rubber. Drill 185'-246' Survey @246' = 1/2 degree. Drill 246'-380'.
- 09/07/05 795' (415'). PO: Building volume. Drill from 380'-609'. Survey @ 609=3/4 degree. Rig Service. Drill 609-700', losing small amt of mud at 700'. Drill 700'-795'. Lost complete returns. Pulled up into conductor casing. Wait on water trucks to fill tanks and pit.
- 09/08/05 985' (190'). Trip for plugged bit-lost 500 bbls mud. Trucking in water. Building volume. RIH. Break circulation. Drill with partial returns from 795'-890'. Bit plugged. POOH. Breakout bit. Wash and clean out same. RIH. Wash 30' to bottom. Drilled with partial returns 890'-985'. Bit plugged. POOH.
- 09/09/05 1080' (95'). PO: WOC. RIH, WASH 60' TO BOTTOM. DRILLED W/PARTIAL & NO RETURNS FROM 985' TO 1080'. CIRC. FOR SURVEY. SURVEY @ 1080' = 1 1/2. POOH, L.D. BHA, RIG UP WEATHERFORD TO RUN 9 5/8" CSC. RAN 24 JTS 9 5/8" 32.30# H-40 ST&C CSG. SHOE @ 1080'. INSTALL HALLIBURTON SWEDGE & ATTEMPT TO CIRC.-NO RETURNS. R.U. HALLIBURTON. TEST ALL LINES TO 3000 PSI - OK. HELD SAFETY MEETING. START CEMENT JOB. RAN 2 BBLs GEL & FLOCELE SWEEP. ALL CEMENT MIXED W/FRESH CITY WATER. START LEAD JOB PUMPING 110 SKS OF TYPE 3 CEMENT W/10 LBS/SACK GILSONITE, 25 LBS/SACK FLOCELE, CEMENT WT 11.0PPG, YIELD 3.47. PUMPED CEMENT @ 5 BBLs/MIN W/MAX. PSI OF 140. PUMPED TAIL CMT JOB W/280 SKS OF TYPE V CEMENT WITH 2%

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CACL, 25 LB PER SACK FLOCELE. WT 15.0 PPG. YIELD 1.20. PUMPED 5 BBLs. W/ MAX. PSI OF 110. (NO RETURNS). DROP PLUG AND DISPLACE W/70 BBLs OF FRESH WATER. BUMP PLUG W/ 700 PSI. HELD OK. RIG UP TO DO TOP JOB, RAN 80' OF 1" PIPE. CEMENT with 100 SKS OF CLASS G W/ 2% CACL.

- 09/10/05 1085'. PO: Drilling Cement. WOC, N.D. BOP'S. Cut off csg. Install well head (cmt @ surf). N.U. BOP's. Rig service. Test BOP's, upper and lower Kellys, PIW, floor valves, manifold and lines to 2500PSI. All held ok. Test Hydril and surface csg to 1500 PSI - OK. RIH w/bit and BHA. Level rig. Laydown 4 1/2" drill pipe. Tag cement @ 1021'.
- 09/11/05 1360' (275'). PO: Drilling. PU Kelly break circulation. Drill hard cmt and shoe. Tag cmt @ 1021'. Break in bit. Drill formation. Rig service. Drill w/aerated mud.
- 09/12/05 1761' (401'). PO: Drilling ahead. 1360 FT. TO 1509 FT. WITH AIREATED MUD. SURVEY AT 1509 = 3 1/4 DEGREES. DRILL FROM 1509 TO 1761 WITH AIREATED MUD. NOTE: DRILLING SHALE, SILTSTONE.
- 09/13/05 1965' (204'). PO: Drilling ahead. DRILL FROM 1761' TO 1824' w/ aerated mud. SURVEY @ 1724=4 1/4°. Drill from 1824' to 1875'. POH to pick up new BHA. Rig Service. MU BIT, P.U. SHOCK SUB AND IBS & RIH. PU Kelly and break circ., pump air locked, unloaded hole, circ and reamed 30' to bottom. Drilled from 1875' to 1965'. Drilling siltstone, shale and sand.
- 09/14/05 2459' (494'). PO: Circulate samples, looking for core point. Drill from 1965' to 2029' with aerated mud. Survey @ 2029= 3-1/2°. Lost approx. 500 bbls of mud after survey. Drill from 2029' to 2225'. Drilling with aerated mud, mixed LCM pill and pumped same. Full returns and service rig. Drill 2225' to 2282' with aerated mud, full returns. Survey @ 2282 = 3-1/4°. Drill 2282' to 2459'. Circ out samples as per Geologist.
- 09/15/05 2558' (99'). PO: Unload core equipment. Drill from 2459' to 2505' with aerated mud. Survey @ 2505' = 4°. Drill from 2505' to 2558'. Had small drilling break. Circulate samples as per wellsite Geologist. Condition hole to core. Short trip, and C&C hole to core. Service Rig. Circ, wait on core equipment. Pull out of hole laying down all 4" drill pipe and 6 1/4" drill collars.

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- 09/16/05 2558' (0'). PO: Wash to bottom with core barrel. Offloading 5" Drill Pipe and Drill Collars for coring. Wait on 5" Rams for BOP's, Weatherford sent out type 79, this set of BOP's made in 1959 uses type 39. Install Rams and test same to 3000PSI - OK. Make up Corion tools and test same. Tools plugging with LCM. Mixed fresh mud for coring. Pick up Corion BHA, 5" DP and RIH. Pick up Kelly and break circulation @ 2498 with good returns to surface. Wash and ream to bottom.
- 09/17/05 2569' (11'). PO: TIH with Corion bit. Finish reaming to bottom. Test coring equipment. Coring from 2558' to 2569', increasing weight on bit from 4,000# to 10,000#. Attempt to retrieve core with wire line. Unable to latch onto fishing neck. Rig Tongs broke, wait on replacement set. Pull out of the hole with core. Stood back 5" DP & DC's in the derrick. Lay down core. Make up Corion bit and RIH to drill. Well Site Geologist estimates 15' to 25' of drilling.
- 09/18/05 2632' (63'). PO: Coring (coring at 1' per hour). Drill from 2569' to 2592' with Corion bit and BHA. Drilling with max. weight on bit, 11 to 12,000#. Rig Service. Drill from 2592' to 2618'. Drill from 2618' to 2622'. Drilling break @ 2619' to 2622', lost complete returns. Pulled Corion drill stem with wireline, as per wellsite Geologist picked up core barrel and ran on wireline. Mixed and pumped LCM pill and regained circ. Coring from 2622' to 2632'.
- 09/19/05 2632' (0'). PO: Circulating. Core from 2632' to 2635'. Retrieve core with wire line. Recovered 13', full recovery. Circulate with full returns. Lay down 5" DP & DC's. Lay down Corion BHA. Pick up 6 1/4" drill collars and 4" drill pipe. Make up re-run Security bit, shock sub, and IBS. Run in hole and tag @ 2558'. Circulate hole clean with full returns. Ream from 2558' to 2635' and circulate.
- 09/20/05 2805' (173'). PO: Drilling ahead. Circulate out samples. Drill from 2632' to 2699' while waiting on logging truck. Circulate with full returns. Stand Kelly back, rig up Weatherford Wire Line and run Scientific Drilling Gyro. The horizontal displacement {in feet} at measured depth of 2660' is 86.91 in a direction of 127.43° {going southeast}. Rig down Weatherford and POH standing back DP & DC's in derrick. Rig up Weatherford and run CBL/GR. Ran GR to TD and logged up to surface. Ran CBL from bottom of surface csg to surface. Rig down loggers. Trip in hole with bit, PU Kelly and break circ. Ream 30' to bottom. Drill from 2696' to 2722' and circ samples. Drill from 2722' to 2766' and circ samples. Drill from 2766' to 2776' and circ samples. Drill from 2776' to 2781' and circ samples. Drill ahead to 2805'.

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- 09/21/05 3005' (200'). PO: Work pipe, attempt to establish circulation. Drill from 2805' to 2886'. Change out rotating head rubber and drill from 2886' to 2892'. Circulate samples and drill from 2892' to 2916'. Circulate samples, and drill from 2916' to 2918'. Survey @ 2918' = 5-1/2°. Drill from 2918' to 3005' with 10 to 15,000 # weight on bit. Repair rotating head rubber. Survey @ 3005' = 5°. Bit plugged, POH. Wash out shock sub & bit and LD same. Slip & cut drill line, and adjust brakes. Change out 5" pipe rams and install 4" rams. Test to 3000 psi - OK. Pick up mud motor and run in hole. Pick up Kelly and attempt to circulate. No returns, stuck pipe. Worked stuck pipe free. Work pipe while trying to establish circulation.
- 09/22/05 3108' (103'). PO: Drilling ahead with air, with full returns. Circulate and work pipe while waiting on replacement rotating head (bearings had seized up). Air Comp LLC compressor went down and unable to supply air and POOH. Mud motor and bit plugged with cuttings & LCM, unable to wash out motor. Change out rotating heads. RIH with bit, shock sub, and IBS. Run in with collars and pipe to bottom of casing. WO compressor parts. Compressor parts arrived, installed new starter. Trip in hole and pick up Kelly 1 joint off bottom and break circulation. Ream from 2975' to 3005'. Drill from 3005' to 3108'.
- 09/23/05 3582' (474'). PO: Drilling ahead. Drill from 3108' to 3235' with air and mud. Survey @ 3195 - 4°. Drill from 3235' to 3297'. Service rig. Drill from 3297' to 3519'. Survey @ 3519 - 3-3/4°. Drill from 3519' to 3582'. Gas: 17-50 units, and Avg: 30 units. Lithology: sandstone, siltstone, and minor coal.
- 09/24/05 3922' (340'). PO: Drilling ahead. Drill from 3582' to 3598'. Bit showing excessive torque. Circulate and drop survey. Trip out of hole to change bits, no drag, keeping hole full with no problems. Service Rig. Survey @ 3598' - 3-3/4°. Drill from 3598' to 3922'. Lithology: sandstone and siltstone.
- 09/25/05 4340' (418'). PO: Circulate and condition mud. Drill from 3929' to 4024'. Rig Service, Ran Wire Line Survey @ 3984' = 2 1/2°. Drill from 4024' to 4340'. Lithology: siltstone and shale.
- 09/26/05 4795' (455'). PO: Drilling ahead. Heavy winds and rain since 2:00 a.m. Drill from 4330' to 4382'. Survey @ 4370' = 2-3/4°. Trip out of hole for bit. RIH with BHA. Test motor - OK. Run in hole, (running in slow with motor). Drill from 4382' to 4450'. Drill from 4450' to 4795'. Lithology: shale and minor siltstone.

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- 09/27/05 5585' (790'). PO: Drilling ahead with motor. Drill from 4780' to 4997'. Run wire line survey @ 4724' - 1 3/4°. Drill from 4997' to 5081'. Service Rig. Drill from 5081' to 5239'. Run wireline survey @ 5166' - 3/4°. Drill from 5239' to 5585'. Lithology: shale and minor siltstone.
- 09/28/05 5872' (287'). PO: Circulate to run logs. Drill to 5712' with good returns. Circ out samples per Geologist. Drill from 5712' to 5728'. Circ out samples per Geologist. Drill from 5728' to 5744'. Circ out samples per Geologist. Service Rig. Drill from 5744' to 5754'. Circ out samples per Geologist. Drill to 5872' and circulate per Geologist, looking for casing point. Lithology: shale, minor siltstone and sandstone.
- 09/29/05 5873' (1'). PO: Logging. Drill from 5871' to TD @ 5873' in Ferron formation. Stopped drilling per wellsite Geologist. Circulate samples. Run wireline survey @ 5862' - miss-run. Make 10 stand short trip, no drag, no fill. Circulate. Run wire line survey @ 5862' - 3/4°. Pull out of hole to Log. Wait on Halliburton Loggers. Rig up Loggers and run logs. Loggers TD is 5873'. Lithology: shale, with trace of sandstone.
- 09/30/05 5873' (0'). PO: Wash 7" casing to bottom. Finished Logging. Rig down loggers. Run in hole to circulate prior to running 7" csg. Hit tight spot @ 5199'. Pick up Kelly and circulate down 1 JT. Finish in hole to 5873', no fill, and circulate. Rig Service. Pull out of hole with drill pipe, to run csg. Rig up Weatherford and lay down 20, 6-1/4" DC's. Pull wear ring. Last survey in 8 3/4" hole @ 5862' - 3/4°. Notified Mark Jones with WOGCC, Don Stevens with BLM and Mike Smith with USFS of running csg. Wait on csg crew. Rig up Weatherford and run 145 jts of 7" 23#, J55, LT&C casing. Make up Halliburton swedge and circulate. Washed 6' to 5868', unable to land hanger.
- 10/01/05 5873' (0'). PO: Test BOPE. Continued to attempt to land hanger by pumping and working csg. Worked casing down 1-1/2' from being able to land. Began getting extreme drag while working casing. Set csg on bottom and prepared to cement. Csg. shoe @ 5871', and DV tool @ 1558'. RD casing crew. RU Halliburton and prepare to pump stage 1. Held safety meeting and tested all lines to 3000 PSI. Mixed cement with fresh city water. Mix & pump 190 sacks of Type V cement, with yield of 3.84 cubic ft/sk, 11.0 ppg, pumped @ 5.5 bpm with maximum psi of 820. Followed by 215 sacks of Type G cement with yield of 1.62 cubic ft/sk, 14.20 ppg with no returns during first stage. Circulate and WOC, unloading 4-3/4" DC's for 6 1/4" hole. Prepare to pump 2nd stage through DV tool. Mix & pump

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cmt with fresh city water. Pumped 55 sacks of CBM Lite Type 3 cement, 1.62 yield, @ 10.50 ppg, followed by 50 sacks of Type G cement, 1.15 yeild, @ 15.80 ppg. Had partial returns on 2nd stage. RD Halliburton. Nipple down BOP'S, set slips, and cut off csg. Nipple up BOP'S and LD 5 1/2" Kelly and PU rental 4 1/4" Kelly. Test BOPE.

- 10/02/05 5873' (0'). PO: Drilling csg shoe @ 5873'. Test BOPE to 2000 psi - OK. Pick up one 4-3/4" drill collar and 6-1/4" bit. RIH with no problems and ran wear ring. Pick up BHA and run in hole to DV tool. Tag DV tool @ 1558', with about 4' of cement on top of tool. Trip in hole to cement and shoe. Tagged cement @ 5868' and shoe @ 5872'. Drilling shoe.
- 10/03/05 6030' (157'). PO: Drilling ahead. Drill from 5873' to 5935' with air & mud. Shut down the air in order to get samples. Rig Service. Drill from 5935' to 6021' and lost circulation. Top of Ferron @ 5993'. Pull out of hole with 5 stands while mixing LCM pill. Start up air equipment and prepare to drill with air & mud. RIH with 5 stands. Drill with air & mud and regained circulation. BGG: 33-102 units, Average: 60 units. Lithology: shale, Blue Gate sand, and Ferron.
- 10/04/05 6227' (196'). PO: TOOH for bit. Drill from 6030' to 6125' with air and mud with full returns. Service Rig. Drill from 6125' to 6219' with air and mud with full returns. Thaw out frozen lines to drawworks, put methanol in all lines. Drill from 6219' to 6227'. Bit acting up, excessive torque, prepare to make trip for new bit. Drop survey, start out of hole for new bit. New Prognosis: Tununk @ 6487', Dakota @ 6833', TD @ 6930'?. BGG: 8 - 171 units, Average: 23 units. Lithology: sandstone and Ferron formation. *Note: heavy snowfall and high winds last 24 hours.*
- 10/05/05 6338' (111'). Drilling in Ferron formation. Finished pulling out of hole (very slow due to extreme cold weather). Break out bit and retrieve survey. Survey @ 6227' - 1°. Make up new bit, thaw out lines, and run in hole to 3500'. Cut drill line and service rig. Finished in hole with new bit. Pick up Kelly and break circulation. Ream 30' to bottom with very little fill. Drill from 6227' to 6338' with air & mud. Had full returns. Trip Gas: 56 units, BGG: 13 - 39 units and average gas: 20 units. Lithology: 100% sandstone.
- 10/06/05 6490' (152'). PO: Drilling in Ferron formation. Drill from 6338' to 6408' with air and mud, and full returns. Service Rig. Drill from 6408' to 6490' with 500 cfm air and mud. BGG: 15-58 units, average: 28 units. Lithology: 100% sand.

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- 10/07/05 6819' (329'). PO: Drilling in the Tununk formation. Drill from 6490' to 6503' with air and mud. Bit began to torque. Start out of hole to pick up motor and PDC. Hydraulic hose to drawworks burst. Repaired same with a temporary clamp, rig did not have any replacement hoses. Finished pulling out of hole, broke out bit and laid down, pick up 4 3/4" motor and 6 1/4" PDC bit. Installed new hydraulic hoses that Toolpusher picked up in town. Run in hole with motor and PDC. Tag up @ 6130', pick up Kelly and attempt to circulate. Reamed from 6190' to 6220', and ran 4 stands in hole. PU Kelly and ream from 6478' to 6503'. Drill with 600 cfm and 8.8 ppg mud. Drill from 6503' to 6819', with 600 cfm air and mud. Trip Gas: 86 units, Background Gas: 16-51 units, Average Gas: 25 units. Lithology: 100% shale. Top of Tununk formation @ 6493'.
- 10/08/05 6955' (136'). PO: Drilling ahead. Drill from 6819' to 6877' with motor, PDC, 600 cfm and mud. Service rig. Drill from 6877' to 6909' with 98% returns. Run wire line survey @ 6909' - 1°. Drill from 6909' to 6940'. Bit slowed to 2' per hour, and torque increased. Pull out of hole for new bit, LD motor and PDC. PDC looked OK. Make up new bit and RIH. Run in hole slow due to freezing weather. Ream from 6882' to 6940', losing mud while reaming. Lost approximately 350 bbls. Drill from 6940' to 6955' with air and mud, and 98% returns. Trip gas: 83 units, Background gas: 25 to 108 units, average gas: 75 units, connection gas: 235 units @ 6877'. Top of Dakota formation @ 6860'. *Note: high winds and snow during night.*
- 10/09/05 **7000' TD (45')**. PO: Wiper trip for logging. Drill from 6955' to **Total Depth @ 7000'** with mud and 600 cfm air. Circulate & condition hole to log to run logs. Drop Survey, POOH, break out bit and remove survey. Survey @ 7000' - 1-3/4°. Cut drill line. Rig up Halliburton loggers. Could not get below 6250'. 1st run: Quad Combo, 2nd run: Rest. & GR. Lost spring off Sonic tool (1-1/2" x 2' piece of metal). Rig down loggers. Run in hole for wiper trip. Gas: 22-47 units, average gas: 35 units. Lithology: sand and shale.
- 10/10/05 7000' TD. PO: Attempt to free stuck logging tools. Finish running in hole and attempt to circulate. Unable to start Air Comp units, continue pumping trying to regain circulation. Pumped approximately 350 bbls of mud away. Pull 20 stands up into casing. WO parts to repair Air Comp compressors. WO parts to arrive from Grand Junction, Colorado. Parts arrived and installed @ 16:30 hrs. Run in hole with 20 stands, did not indicate ledges @ 6250'. Pick up Kelly and attempt to circulate. Pumped 150 bbls mud before getting returns. Circulate & condition mud to log and build up volume for

East Clear Creek Federal #22-42
Operator: Petro-Canada Resources (USA) Inc.
Section 22-T14S-R7E
Emery County, Utah
API No. 43-007-30878
Daily Reports

CONFIDENTIAL

lost mud. Pull out of hole to log. Rig up loggers and RIH with Quad combo to 6960'. Logged up to 6210'. Tools sticking, and unable to go up or down.

- 10/11/05 7000' TD. PO: POOH with overshot. Halliburton advised that maximum pull on wireline is 11,000# (company safety policy). After discussions with Denver office it was decided to cut and thread to retrieve logging tools. Order and WO fishing tools. Service rig. Move DC's around in derrick to cut and thread in hole. Held safety meeting with rig hands, wireline hands and fishing tool personnel. Discussed procedures to retrieve logging tools. PU fishing tools and prepare to go in hole. Start in hole with overshot. Hit tight spot at 6100'. Work pipe trying to get to top of fish. Loggers line cut. POOH with line. Left approximately 100' of line in hole. Rig Down loggers. POOH to pick up wireline spear. Top of Fish @ 6120'.
- 10/12/05 7000' TD (0'). PO: RIH to TD to clean out and prepare to P&A. Finish pulling out of hole with overshot. LD overshot, inspect same, no indication that overshot had been on fish. PU wireline spear and run in hole. Work spear down on wire, work & rotate in order to engage wire. POOH with spear slowly, spear dragging indicating we had wire. Recover approximately 60' of wire with no tools attached to wire. Inspected end of the wire which indicated wire was pulled from rope socket and that all wire has been recovered. PU overshot and run in hole. Tag fish and pick up Kelly. Circulate through overshot before engaging fish. Stand back Kelly and engage fish. Overshot slipped over fish on first try. PU Kelly and pressure up on fish, fish is in overshot. Pull out of hole slowly with occasional drag. Recovered entire fish. LD and break out logging tools. Load out logging tools. Break out overshot and load out logging tools. Clean up floor, start in hole with 6-1/4" bit + drill collars. Will clean out hole and plug & abandon.
- 10/13/05 7000' TD (0'). PO: RIH open-ended to P&A. Trip in hole to bottom of casing. Finished in hole and tag fill @ 6882'. PU Kelly and prepare to clean out to T.D. Gained circulation after pumping 100 bbls. Continued to circulate and condition hole. Set back Kelly, POOH and stand back drill pipe in derrick. Lay down 18 rental 4-3/4" DC's. Trip in hole open-ended to bottom of casing. PU 18 joints of drill pipe and clean-up floor. Notified Mark Jones, state of Utah inspector of our intent to P&A well. Plugging procedure from Eric Jones of BLM Moab office approved by Chuck Pollard, PCR VP Engineering & Operations.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS			5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-77087
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.			6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
			7. UNIT or CA AGREEMENT NAME: N/A
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>P&A</u>			8. WELL NAME and NUMBER: E Clear Creek Fed 22-42
2. NAME OF OPERATOR: Petro-Canada Resources (USA) Inc		9. API NUMBER: 43-007-30878	
3. ADDRESS OF OPERATOR: 1099 18th St., Ste. 400 CITY Denver STATE CO ZIP 80202		PHONE NUMBER: (303) 297-2300	10. FIELD AND POOL, OR WILDCAT: Wildcat
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1824' FSL, 2543' FEL			COUNTY: Emery
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 22 14S 7E			STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: <u>10/14/2005</u>	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input checked="" type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Petro-Canada intends to plug and abandon the subject well on October 14 2005 as follows:

Set cement plug from: 7000'-6760' with 53 sxs of Class G Neat cement at 15.8 ppg
 Set cement plug from: 6543'-5773' with 166 sxs
 Set cement retainer @ 5819' and cement below tool with 20 sxs Class G Neat
 Set cement plug from: 1663'-1513' with 30 sacks Class G Neat cement, 15.8 ppg
 Set cement plug from: 1130'-1030' with 30 sacks of Class G Neat cement, 15.8 ppg
 Plug well from 50' to surface with 10 sacks of Class G Neat cement
 Install dryhole marker in accordance with state regulations

Approved by the
Commissioner of
Oil, Gas and Mining
FOR RECORD ONLY

NAME (PLEASE PRINT) <u>Susan Miller</u>	TITLE <u>Operations Tech.</u>
SIGNATURE	DATE <u>11/9/2005</u>

(This space for State use only)

RECORDED
NOV 14 2005

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

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			7. UNIT or CA AGREEMENT NAME: N/A
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>P&A</u>			8. WELL NAME and NUMBER: E Clear Creek Fed 22-42
2. NAME OF OPERATOR: Petro-Canada Resources (USA) Inc			9. API NUMBER: 43-007-30878
3. ADDRESS OF OPERATOR: 1099 18th St., Ste. 400 CITY Denver STATE CO ZIP 80202	PHONE NUMBER: (303) 297-2300	10. FIELD AND POOL, OR WILDCAT: Wildcat	
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1824' FSL, 2543' FEL			COUNTY: Emery
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 22 14S 7E			STATE: UTAH

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	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input checked="" type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: 10/14/2005	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

On October 14 2005 Petro-Canada plugged and abandoned the subject well as follows:

Set cement plug from 7000'-6760' with 53 sxs of Class G Neat cement at 15.8 ppg
 Set cement plug from 6543'-5773' with 166 sxs Class G Neat cement at 15.8 ppg
 Set cement retainer @ 5819' and cemented below tool with 20 sxs Class G Neat cement
 Set cement plug from 1663'-1513' with 30 sacks Class G Neat cement at 15.8 ppg
 Set cement plug from 1130'-1030' with 30 sacks of Class G Neat cement, 15.8 ppg
 Plugged from 50' to surface with 10 sacks of Class G Neat cement

Installed dryhole marker in accordance with state regulations

Mike Smith with Forrest Service on location and witnessed installation of the dryhole marker. Welder cut off wellhead 2' below ground level. Welded 2" plate over cut off wellhead and installed 4" pipe 4' above ground level. Information noted on dryhole marker: Operator - Petro-Canada, Well Name - Federal 22-42, NWSE, Section 22, T14S, R7E

NAME (PLEASE PRINT) <u>Susan Miller</u>	TITLE <u>Operations Tech.</u>
SIGNATURE	DATE <u>11/9/2005</u>

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STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

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2. NAME OF OPERATOR: Petro-Canada Resources (USA) Inc		8. WELL NAME and NUMBER: E Clear Creek Fed 22-42
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4. LOCATION OF WELL FOOTAGES AT SURFACE: 1824' FSL, 2543' FEL		10. FIELD AND POOL, OR WILDCAT: Wildcat
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 22 14S 7E		COUNTY: Emery STATE: UTAH

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12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

On October 14 2005 Petro-Canada set the following additional plug for the subject well:

Set cement plug across the Emery formation from 2227' to 2427' with 30 sxs of Class G Neat cement at 15.8 ppg

NAME (PLEASE PRINT) <u>Susan Miller</u>	TITLE <u>Operations Tech.</u>
SIGNATURE	DATE <u>11/15/2005</u>

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STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT FORM 8
(highlight changes)

5. LEASE DESIGNATION AND SERIAL NUMBER:
UTU-77087

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. TYPE OF WELL: OIL WELL GAS WELL DRY OTHER _____

7. UNIT or CA AGREEMENT NAME

b. TYPE OF WORK: NEW WELL HORIZ. LATS. DEEP-EN RE-ENTRY DIFF. RESVR. OTHER _____

8. WELL NAME and NUMBER:
E. Clear Creek Federal 22-42

2. NAME OF OPERATOR:
Petro-Canada Resources (USA) Inc

9. API NUMBER:
43-007-30878

3. ADDRESS OF OPERATOR:
1099 18th St., Ste. 400 CITY Denver STATE CO ZIP 80202

PHONE NUMBER:
(303) 297-2300

10 FIELD AND POOL, OR WILDCAT
Wildcat

4. LOCATION OF WELL (FOOTAGES)
AT SURFACE: **1824' FSL, 2543' FEL**

AT TOP PRODUCING INTERVAL REPORTED BELOW:

AT TOTAL DEPTH: **1824' FSL, 2543' FEL**

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
NWSE 22 14S 7E

12. COUNTY
Emery

13. STATE
UTAH

14. DATE SPUDED: **9/1/2005**

15. DATE T.D. REACHED: **10/9/2005**

16. DATE COMPLETED: **10/16/2005**

ABANDONED READY TO PRODUCE

17. ELEVATIONS (DF, RKB, RT, GL):
9630.5'

18. TOTAL DEPTH: MD **7,000**
TVD _____

19. PLUG BACK T.D.: MD _____
TVD _____

20. IF MULTIPLE COMPLETIONS, HOW MANY? *

21. DEPTH BRIDGE MD _____
PLUG SET: TVD _____

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)
HRI, DSN-SD, and BCS Delta T, and CBL; MVO LOG

23.
WAS WELL CORED? NO YES (Submit analysis)
WAS DST RUN? NO YES (Submit report)
DIRECTIONAL SURVEY? NO YES (Submit copy)

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
12-1/4"	9-5/8" J-55	36#	Sfc	1,080		Type 3 110		Sfc	
						Type 5 280			
						Class G 100			
8-3/4"	7" J-55	23#	Sfc	5,873		Type 5 190		5669' (CAL)	
						Type G 215			
						Type 3, G 105			

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)
(A)				
(B)				
(C)				
(D)				

27. PERFORATION RECORD

INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
			Open <input type="checkbox"/> Squeezed <input type="checkbox"/>
			Open <input type="checkbox"/> Squeezed <input type="checkbox"/>
			Open <input type="checkbox"/> Squeezed <input type="checkbox"/>
			Open <input type="checkbox"/> Squeezed <input type="checkbox"/>

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL

29. ENCLOSED ATTACHMENTS:

- ELECTRICAL/MECHANICAL LOGS GEOLOGIC REPORT DST REPORT DIRECTIONAL SURVEY
 SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION CORE ANALYSIS OTHER: **P&A Cement Job**

30. WELL STATUS:
P&A

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DEC 14 2005

31. INITIAL PRODUCTION

INTERVAL A (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL B (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL C (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL D (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

33. SUMMARY OF POROUS ZONES (Include Aquifers):

Show all important zones of porosity and contents thereof. Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries

34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)
Emery	2,558	2,569	Cored - recovered 11'	Star Point	708
Emery	2,622	2,635	Cored - recovered 12'	Upper Bluegate	935
				Emery	2,452
				Lower Bluegate	4,308
				Ferron	5,979
				Tununk	6,548
				Dakota	6,853

35. ADDITIONAL REMARKS (Include plugging procedure)

Set cement plug from 7000'-6760' with 53 sxs of Class G Neat cement at 15.8 ppg; 6543'-5773' with 166 sxs Class G Neat cement at 15.8 ppg; set cement retainer @ 5819'. Cement below tool with 20 sxs Class G Neat. Set cement plug across the Emery formation from 2227' to 2427' with 30 sxs of Class G Neat cement at 15.8 ppg; 1663'-1513' with 30 sxs Class G Neat cement at 15.8 ppg; 1130'-1030' with 30 sxs of Class G Neat cement at 15.8 ppg; 50' to surface with 10 sxs of Class G Neat cement. Install dryhole marker in accordance with state regulations.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

NAME (PLEASE PRINT) Susan Miller TITLE Operations Tech
 SIGNATURE  DATE 12/13/2005

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation
- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

** ITEM 24: Cement Top – Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining Phone: 801-538-5340
 1594 West North Temple, Suite 1210
 Box 145801 Fax: 801-359-3940
 Salt Lake City, Utah 84114-5801

PETRO-CANADA

**EAST CLEAR CREEK FEDERAL
22-42**

API Well No.:

**OCT 14, 2005
EMEREY**

PTA

Customer Representative:

LARRY SESSIONS

Halliburton Operator:

TERRY BERECE

Ticket No.:

3989798

HALLIBURTON



Field Ticket

Sales Order Number: 0003989798 **Sales Order Date:** Friday, October 14, 2005

<p><u>Sold To</u> PETRO-CANADA U.S.A E-BIZ</p> <p>1099 18TH STREET SUITE 400 DENVER CO 80202</p>	<p>Order Type: ZOH</p> <p>Well Name: ECC FED 22-42</p> <p>Company Code: 1100</p> <p>Customer PO No.: n/a</p> <p>Shipping Point: Vernal, UT, USA</p> <p>Sales Office: Rocky Mountains BD</p> <p>Well Type: Oil</p> <p>Well Category: Development</p> <p>Payment Terms: Net 20 days from Invoice date</p>
<p><u>Ship To</u> PETROCANAD ECC FED 22-42,EMERY ECC FED 22-42 EMERY PETROCANAD</p> <p>SCOFIELD UT 84526</p>	

Material	Description	QTY	UOM	Base Amt	Unit Amt	Gross Amount	Discount	Net Amount
7528	CMT PLUG TO ABANDON BOM	1	JOB					
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT <i>Number of Units</i>	360 1	MI unit		7.28	2,620.80	-1,205.57	1,415.23
2	MILEAGE FOR CEMENTING CREW,ZI <i>Number of Units</i>	360 1	MI unit		4.28	1,540.80	-708.77	832.03
16094	PLUG BACK/SPOT CEMENT OR MUD,ZI DEPTH <i>FEET/METERS (FT/M)</i>	1 7000	EA FT		7,574.00	7,574.00	-3,484.04	4,089.96
141	RCM II WIADC,/JOB,ZI <i>NUMBER OF UNITS</i>	1 1	JOB each		1,545.00	1,545.00	-710.70	834.30
7	ENVIRONMENTAL SURCHARGE,/JOB,ZI	1	JOB		104.00	104.00	-47.84	56.16
8	IRON SAFETY INSPECTION SURCHARGE /JOB ZI	1	JOB		64.00	64.00	-29.44	34.56
3965	HANDLE&DUMP SVC CHRG, CMT&ADDITIVES,ZI <i>NUMBER OF EACH</i>	400 1	CF each		4.08	1,632.00	-750.72	881.28
76400	ZI MILEAGE,CMT MTLs DEL/RET MIN <i>NUMBER OF TONS</i>	180 18.8	MI ton		2.49	8,426.16	-3,876.03	4,550.13
100003685	CEM,CLASS G / PREMIUM, BULK	340	SK		30.79	10,468.60	-4,815.56	5,653.04
100005053	Chemical - Calcium Chloride HI Test Pkt	4	SK		194.90	779.60	-358.62	420.98
86955	ZI FUEL SURCHG-HEAVY TRKS >1 1/2 TON <i>Number of Units</i>	360 1	MI unit		0.33	118.80		118.80

Material	Description	QTY	UOM	Base Amt	Unit Amt	Gross Amount	Discount	Net Amount
86954	ZI FUEL SURCHG-CARS/PICKUPS<1 1/2TON Number of Units	360 1	MI unit		0.11	39.60		39.60
87605	ZI FUEL SURCHG-CMT & CMT ADDITIVES NUMBER OF TONS	180 18.8	MI ton		0.11	372.24		372.24
372867	Cmt PSL - DOT Vehicle Charge, CMT	2	EA		179.30	358.60		358.60
16092	ADDITIONAL HOURS	1 28	EA		831.00	23,268.00	-10,703.28	12,564.72
<i>Totals</i>						58,912.20	-26,690.56	32,221.64

Operator Name: TERRY BERECE

Customer Agent: LARRY SESSIONS

Halliburton Approval: _____

FIELD TICKET TOTAL \$32,221.64

X

Customer Signature

HALLIBURTON JOB SUMMARY		SALES ORDER NUMBER 3989798	TICKET DATE OCT 14, 2005
REGION NORTH AMERICA	NNA / COUNTRY ROCKY MOUNTAIN	BDA / STATE UT	COUNTY EMERAY
MBU ID / EMPL # 222819	H E S EMPLOYEE NAME TERRY BERECE	PSL DEPARTMENT ZONAL ISOLATION	
LOCATION CLEAR CREEK	COMPANY PETRO-CANADA	CUSTOMER REP / PHONE LARRY SESSIONS	
TICKET AMOUNT	WELL TYPE 02 GAS	API/UWI #	
WELL LOCATION CLEAR CREEK	DEPARTMENT ZONAL ISOLATION 10003	SAP BOMB NUMBER	JOB TYPE PTA
LEASE NAME ST CLEAR CREEK FEDEF	Well No 22-42	SEC /	TWP /

H.E.S. EMP NAME / EMP # / (EXPOSURE HOURS)	HRS	HRS	HRS	HRS
BERECE, TERRY 222819				
SHANE MUSIC				
JACOB AGUMENTO				
PAULK, TERRI				

H.E.S. UNIT #S / (R / T MILES)	R / T MILES			
10741129-10025182				
10286382				
10688360-10713208				

Form. Name _____ Type: _____
 Form. Thickness _____ From _____ To _____
 Packer Type _____ Set At _____
 Bottom Hole Temp. _____ Pressure _____
 Retainer Depth _____ Total Depth _____

Date	Called Out 10/14/05	On Location 10/14/05	Job Started 10/14/05	Job Completed 10/16/05
Time	0400	0800	1030	0030

Tools and Accessories

Type and Size	Qty	Make
Float Collar		
Float Shoe		
Centralizers		
Top Plug		
Limit Clamp		
BASKET		
Insert Float		
Guide Shoe		
Weld-A		

Well Data

Casing	New/Used	Weight	Size	Grade	From	To	Max. Allow
Surface							
Intermediate							
Production							
Tubing							
Drill Pipe	USED	14.0	4		7000		
Open Hole							Shots/Ft.
Perforations							
Perforations							
DV Tool							

Materials

Mud Type	Density	8.6	Lb/Gal
Disp. Fluid	Density		Lb/Gal
Prop. Type	Size		Lb
Prop. Type	Size		Lb
Acid Type	Gal.		%
Acid Type	Gal.		%
Surfactant	Gal.		In
NE Agent	Gal.		In
Fluid Loss	Gal/Lb		In
Gelling Agent	Gal/Lb		In
Fric. Red.	Gal/Lb		In
Breaker	Gal/Lb		In
Blocking Agent	Gal/Lb		
Perfpac Balls	Qty.		
Other			
KCL substitute			
Other			
Other			
Other			

Hours On Location		Operating Hours		Description of Job
Date	Hours	Date	Hours	
10/14/05	42.00	10/14/05	5.00	SEE JOB LOG
Total	42.00	Total	5.00	

Ordered	Hydraulic Horsepower Avail.	Used
Treating	Average Rates in BPM	Overall
Feet	Disp.	Cement Left in Pipe
	Reason	

Cement Data

Stage	Sacks	Cement	Bulk/Sks	Additives	W/Rq.	Yield	Lbs/Gal
1	173	TYPE G	BULK	NEAT	5.00	1.15	15.8
2	166	TYPE G	BULK	3% CALCIUM CHLORIDE	5.00	1.15	15.8

Summary

Circulating Breakdown	Displacement Maximum	Preflush: Gal - BBI	SEE JOB LOG	Type: SEE JOB LOG
Lost Returns	Actual TOC	Load & Bkdn: Gal - BBI		Pad: Bbl - Gal
Cmt Rtrn#Bbl	Frac. Gradient	Excess /Return Gal BBI		Calc. Disp Bbl
Average Shut In: Instant	5 Min. 15 Min.	Calc. TOC:		Actual Disp.
		Treatment: Gal - BBI		Disp: Bbl-Gal
		Cement Slurry Gal - BBI		
		Total Volume Gal - BBI		

Frac Ring #1 | **Frac Ring #2** | **Frac Ring #3** | **Frac Ring #4**

THE INFORMATION STATED HEREIN IS CORRECT

CUSTOMER REPRESENTATIVE _____

SIGNATURE

PETRO CANADA RESOURCES (USA) INC.

EAST CLEAR CREEK FEDERAL 22-42

UTAH, USA

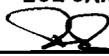
PERMIT TO PRACTICE	
ECL CANADA	
Signature	
Date	<u>Nov. 21, 2005</u>
PERMIT NUMBER: P 4348	
The Association of Professional Engineers, Geologists and Geophysicists of Alberta	

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EAST CLEAR CREEK FEDERAL 22-42

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SECTION NO. 6 - COMPOSITE GEOLOGIC LOG COMPOSITE CORE LOG

(attachment)

WELL DATA SUMMARY

OPERATOR: PETRO CANADA RESOURCES (USA) INC.

ADDRESS: 1099 18th ST., SUITE 400
Denver, Colorado, 80202-1904

WELL NAME: East Clear Creek Federal 22-42

API NUMBER: 43-007-30878

SURFACE LOCATION: 1824' FSL, 2543' FEL, Section 22, T 14 S, R 7 E

COUNTY: Emery

STATE: Utah

GEOLOGIC REGION: Wasatch Plateau

WELL TYPE: Vertical wildcat

BASIS OF PROSPECT: Well control, and surface geology

ELEVATION: G.L. – 9631', K.B. – 9645'

SPUD DATE: August 25, 2005 at 1:00 P.M., by Pete Martin Drilling.
Move on Patterson 778, and begin drilling on Sept. 6

TOTAL DEPTH&DATE: 7000' – driller at 11:41 A.M. on October 9, 2005

STATUS OF WELL: Plugged and abandoned

CONTRACTOR: Patterson, Rig # 778

TOOLPUSHERS: Jerry Mechem, Pedro Lasa

DRILLING FOREMAN: Larry Sessions

MUD ENGINEER: Tracy Morris - Halliburton

WELLSITE GEOLOGIST: Bill Hedglin and Pat McConigley

GAS DETECTION: Total gas detection only, supplied by Datalog - Denver

HOLE SIZE: 12.25" to 1080'. 8.75" to 5873', 6.25" to total depth

CASING: 24 jts of 9 5/8" 32.30# set at 1080' K.B.
7" casing set at 5873'

DRILL STEM TEST(S): None

CORE PROGRAM: Continuous coring by Corion
Core No. 1: 2558'-2569' (11'), Emery, recovered 11'
Core No. 2: 2622.2'-2635.1' (12.9'), Emery, recovered 12.7'

SIDEWALL CORES: None

ELECTRIC LOGGING: Halliburton – Vernal, Utah
Run No. 1: Induction/DSN/SDL/BCS, 1080'-5873'
Run No. 2: Induction/DSN/SDL/BCS, to 6225' could not get to bottom
Run No. 3: Induction to 6225', could not get to bottom
Run No. 4: Induction/DSN/SDL/BCS from 5873'-7000'

ROCK SAMPLES: 10' samples from casing shoe to total depth, except in Bluegate and Tununk (20' samples)

SAMPLE DISTRIBUTION: One set of dried samples for Petro-Canada, and one set for the State of Utah. Remainder of wet samples in bags was retained for Petro-Canada clay studies

CORRRELATION WELLS: Edward Mike Davis/PDC Ridge Runner 11-20
NE, SW, section 20, T 14 S, R 7 E, Emery Co. Utah

DISTRIBUTION LIST: All final copies of this report were sent to the operator.

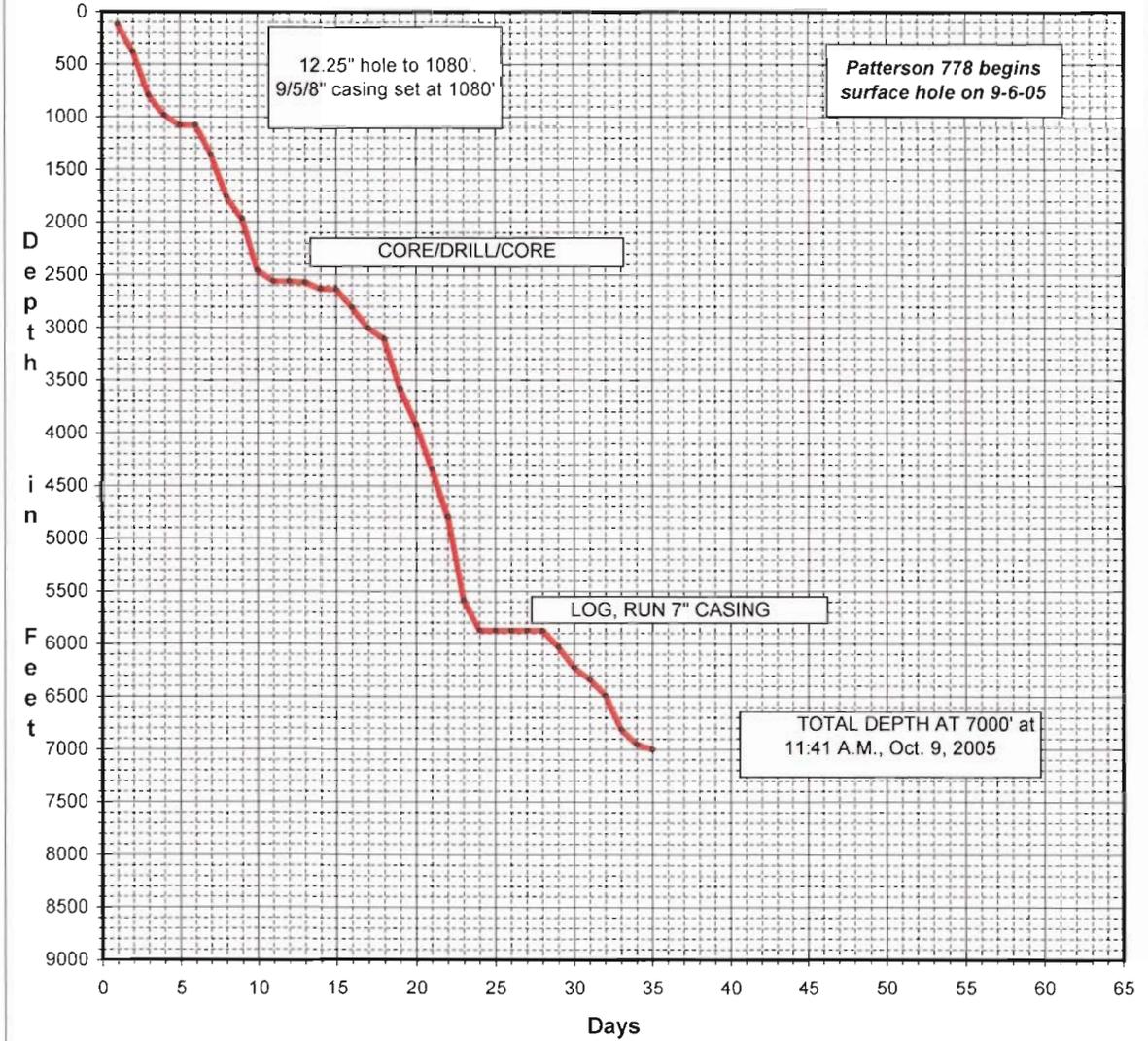
TIME VS DEPTH

Foruna | Mountain #21-16

Day	Depth	Day	Depth
1	119	06-Sep	
2	380	07-Sep	
3	795	08-Sep	
4	985	09-Sep	
5	1080	10-Sep	
6	1080	11-Sep	
7	1360	12-Sep	
8	1761	13-Sep	
9	1965	14-Sep	
10	2459	15-Sep	
11	2558	16-Sep	
12	2558	17-Sep	
13	2569	18-Sep	
14	2632	19-Sep	
15	2635	20-Sep	
16	2805	21-Sep	
17	3005	22-Sep	
18	3108	23-Sep	
19	3582	24-Sep	
20	3922	25-Sep	
21	4340	26-Sep	
22	4795	27-Sep	
23	5585	28-Sep	
24	5873	29-Sep	
25	5873	30-Sep	
26	5873	01-Oct	
27	5873	02-Oct	
28	5873	03-Oct	
29	6030	04-Oct	
30	6227	05-Oct	
31	6338	06-Oct	
32	6490	07-Oct	
33	6813	08-Oct	
34	6955	09-Oct	
35	7000	10-Oct	
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			

TIME VS DEPTH

East Clear Creek Fed. 22-42



Time Vs Depth

FORMATION TOPS

Well Name: Location: Elevation:	EAST CLEAR CREEK 22-42					
<i>FORMATION / ZONE</i>	<i>PROGNOSIS (ft)</i>	<i>SAMPLE TOP MD</i>	<i>E-LOG (ft) MD</i>	<i>SUBSEA (E-Log)</i>	<i>THICKNESS</i>	<i>+/- TO PROGNOSIS</i>
<i>UPPER CREATACEOUS</i>						
Blackhawk	Surface	Surface				
Star Point	850'		708'	8937'	227'	142.0
Upper Bluegate (Mancos)	1080'		935'	8710'	1517'	145.0
Emery	2600'	2459'	2452'	7193'	1856'	148.0
Lower Bluegate (Mancos)	4155'	4040'	4308'	5337'	1671'	-153.0
Ferron	5855'	5993'	5979'	3666'	500'	-124.0
Tununk	6305'	6493'	6546'	3099'	307'	-241.0
Dakota	6665'	6860.0	6853'	2792'		-188.0
Morrison	6815'	DNP				
TOTAL DEPTH	7000'	7000'	6960'	2685'		
<i>N.P.= Not Present DNP = Not Reached</i>						

DAILY DRILLING SUMMARY

Date	Depth	Progress	Density	Mud Properties		pH	
				Vis	WL		
9-6-05	119.0	119.00	8.4	50	15.0	8	Finish rig up, spud and drill to 119'. Lose circulation, mix mud.
9-7-05	380.0	261.00	8.4	50	12	8	Mix mud, drill ahead, survey
9-8-05	795.0	415.00	8.4	50	15	8	Drill, survey, begin losing mud at 700', with complete loss at 795'. Pull up into conductor and wait on water trucks
9-9-05	985.0	190.00	8.4	50	15	8	Truck in water, trip in hole, drill with partial returns. Trip out for plugged bit, trip in and wash to 30' to bottom. Drill with partial returns to 985'. Trip out for plugged bit.
9-10-05	1080.0	95.00	8.4	50	15	8	Trip in, wash 60' to bottom. Drill with partial returns to 1080'. Run 24 jts of 9 5/8" casing and cement. Rig up to do top job. Cement to surface.
9-11-05	1080.0	0.00	8.6	57	12	8	WOC, test BOP's, Hydrill and casing. Trip in and tag cement at 1021'.
9-12-05	1360.0	280.00	8.7	50	12	8	Drill cement and shoe. Drill ahead in Upper Bluegate.
9-13-05	1761.0	401.00	8.9	47	13	8	Drill in Upper Bluegate
9-14-05	1965.0	204.00	8.9	47	13	8.0	Drill ahead in Upper Bluegate, survey, trip for BHA and bit at 1875, drill ahead
9-15-05	2459.0	494.00	8.7	37	13	8.0	Drill into Emery at 2459, circulate samples, drill ahead
9-16-05	2558.0	99.00	8.7	47	18	8.0	Drill ahead to 2558', circulate samples and prepare for coring. Short trip into casing. Wait on coring tools.
9-17-05	2558.0	0.00	8.7	43	12	7.5	Lay down and pick up Corion pipe. Test preventers, trip in with coring tools
9-18-05	2569.0	11.00	8.7	44	13	7.5	Core Emery from 2558'-2569'. Core barrel cannot be retrieved with wireline, begin tripping out of hole when tongs break. Wait on replacement tongs, then finish trip out. Core is retrieved and trip back in to drill to next core point with core bit.
9-19-05	2632.0	63.00	8.8	49	14	7.5	Drill to 2622', lose circulation in drilling break. Go in with core barrel and commence cutting core # 2
9-20-05	2635.0	3.00					Finsh core # 2 at 2635.1', retrieve core. Lay down Corion drill pipe, and pick up Patterson pipe. Ream bottom of hole and circulate
9-21-05	2805.0	170.00	8.6	48	13	8	Drill to 2697', run directional survey. Run CBL/Gamma Ray. Trip in and drill. Circulate samples 3 times looking for coal.
9-22-05	3005.0	200.00					Circulate samples at 2892' and 2916', Survey at 2918'. Drill ahead. Trip for plugged bit at 3005'. Pipe is briefly stuck near bottom. Cut drilling line, trip back in and circulate to bottom

DAILY DRILLING SUMMARY

Date	Depth	Progress	Density	Mud Properties		pH	
				Vis	WT		
9-23-05	3108.0	103.00	8.7	48	11	8.0	Circulate, work on rotating head. Wait on replacement head from Vernal. Trip out, replace head, wait on air compressor, trip in and drill
9-24-05	3582.0	474.00	8.7	45	12	8.0	Drill and survey.
9-25-05	3922.0	340.00	8.8	48	12	8.0	Drill to 3598', trip for bit. No returns when back on bottom. 550 bbls of mud were lost. Regain returns and drill ahead
9-26-05	4340.0	418.00	8.8	48	12	8.0	Drill, lose circulation at 3922, drill with no returns until 3963'. Drill ahead occasionally with no returns. Total mud loss for the day was 1200 bbls.
9-27-05	4795.0	455.00	8.8	50	12	8.0	Trip for bit at 4382. Lose circulation when back on bottom and drill with no returns until 4450'. Drill ahead with partial returns
9-28-05	5585.0	790.00	8.8	53	13	8	Drill and survey.
9-29-05	5873.0	288.00	8.9	45	12	8	Circulate numerous times looking for casing point. Circulate at 5872' - casing point
9-30-05	5873.0	0.00	9	45	12	8.0	Condition for logs, wait on loggers, run logs
10-1-05	5873.0	0.00					Rig down loggers, trip in and condition for casing.
10-2-05	5873.0	0.00					Run casing and cement, pressure test
10-3-05	5873.0	0.00					Casing rubber stuck in casing after pressure test. Wait on fishing tools after repeated efforts to pull casing rubber loose hav failed, Pull rubber loose with fishing tool, trip in to drill, drill shoe
10-4-05	6030.0	157.00	8.4	36	10	8.0	Drill ahead in 6.25" hole, lose circulation in Ferron at 6021'.
10-5-05	6227.0	197.00	8.6	39	12	8.0	Drill ahead to 6227', trip for bit
10-6-05	6338.0	111.00	8.6	40	12	8.0	Finish trip, suevey, drill ahead
10-7-05	6490.0	152.00	8.7	42	14	8.0	Drill ahead
10-8-05	6813.0	323.00	8.8	44	13	8.0	Drill to 6503', trip for bit, drill ahead.
10-9-05	6955.0	142.00	8.8	44	14	8	Drill to 6940', trip for bit, lose circulation when back on bottom. Drill ahead with sporadic returns
10-10-05	7000.0	45.00	8.8	40	14	8	Drill to total depth of 7000', circulate, trip out for logs and rig up loggers. First run does not get below 6200'+, stopped by bridge. Sonic quits working, pull out, trip in with resis. Tool to 6225', trip out tool and trip in with bit
10-11-05	7000.0	0.00					Air compressor breaks down when on bottom on claean out trip. Pull into casing and wait on compressor parts. Condition, pull out for logs. Get logs to 6960' and begin logging. Logging tools become stuck at 6210', unable to go up or down. Wait on fishing tools.
10-12-05	7000.0	0.00					Wait on fishing tools. Trip in and attempt to get on fish, but wireline is bunched up on top of tool. Trip out fishing tools and wait on arrival of spearing tool. Geologist is released.

BIT RECORD

Bit No.	Size	Make	Type	Serial #	Jets	Depth In (ft)	Depth Out (ft)	FTG (ft)	Hours	ROP (ft/hr)	Accum Hours	Weight 1000 lbs	RPM	AIR VOL. (cfm)
1	12"	Smith	F 27	MM1464	open	70.0	1080.0	1010.0	49.50	20.40	20.40	25	80	350
2	8.75"	Smith	ER7022VR	MW 5165	3 X 24	1080.0	1875.0	795'	44.00	18.06	38.46	25	80	400
3	8.75"	Sec	EBX 5205	10736723	3 X 24	1875.0	3005.0	1130.0	44.50	25.39	63.85	25	90	400
4	8.75"	Smith	FH28	pb8693	3 X 24	3005.0	3598.0	593.0	26.00	22.80	86.65	20-25	90	400
5	8.75"	Smith	F30TPS	mr9571	3 X 24	3598.0	4382.0	784.0	36.00	21.78	122.65	30	90	400
6	8.75"	Smith	J16290	mgr70px	3 X 16	4382.0	5873.0	1492.0	45.50	32.77	168.15	15-18	30	400
7	6.25"	Smith	XR30AT	mt6123	3 X 24	5873.0	6227.0	354.0	42.00	8.42	210.15	20-25	60	400-500
8	6.25"	Smith	XR30HT	mt6125	3 X 24	6227.0	6503.0	276.0	37.50	7.36	247.65	25	60	400/700
9	6.25"	Geo-Dia.	PDC	SCO801	6 X 18	6503.0	6940.0	437.0	16.50	26.48	264.15	15	45	400/700
10	6.25"	Smith	XR50Y	MT0730	3 X 24	6940.0	7000.0	60.0	10.00	6.00	270.15	25	45	400/700

DAILY MUD RECORD

DAY	DATE	DEPTH	WT	VISC	WL	pH	FC(32")	PV	YP	GEL	Clmg/l	%SOL.
1	9-6-05	124	8.4	45	15	8	1	10	8	2/9	200	
2	9-7-05	246	8.4	46	12	8	1	10	8	3/10	700	
3	9-8-05	700	8.4	50	15	8	1	9	7	3/11	600	
4	9-9-05	1000	8.4	55	14	8	1	10	10	3/12	700	
5	9-10-05	1080	8.5	36	13	8	1	9	6	8/12	1000	1.1
6	9-11-05	1080	8.6	57	12	8	1	8	9	8/13	1000	1.6
7	9-12-05	1338	8.7	49	12	8	1	11	19	20/32	800	2.3
8	9-13-05	1725	9.1	47	13	8	1	10	19	20/30	1100	4.2
9	9-14-05	1934	8.7	37	13	8	1	8	7	8/11	1000	2.3
10	9-15-05	2558	8.7	45	17	8	1	9	17	15/24	1000	2.3
11.	9-16-05	2558	8.7	45	17	8	1	9	17	15/24	1000	2.3
12.	9-17-05	2558	8.7	43	12	7.5	1	19	17	17/23	1000	2.4
13.	9-18-05	2569	8.7	44	13	8	1	10	18	15/22	1000	2.3
14	9-19-05	2632	8.8	49	14	7.5	1	10	21	15/22	900	2.7
15	9-20-05	2635	8.8	48	14	7.5	1	10	20	14/21	900	2.7
16	9-21-05	2776	8.6	48	13	8	1	10	12	9/17	900	1.7
17	9-22-05	3005	8.7	48	11	8	1	5	8	2/4	900	1.7
18	9-23-05	3070	8.7	45	12	8	1	8	8	3/9	900	1.7
19	9-24-05	3553	8.8	48	12	8	1	10	6	4/14	900	2.7
20	9-25-05	3900	8.8	48	12	8	1	10	8	4/12	900	2.7
21	9-26-05	4307	8.8	50	12	8	1	11	10	6/15	900	2.7
22	9-27-05	4730	8.8	53	13	8	1	12	10	5/15	900	2.7
23	9-28-05	5535	8.9	45	12	8	1	9	6	3/10	900	2.7
24	9-29-05	5860	9.0	45	12	8	1	8	8	4/12	900	2.7
25	9-30-05	5872	8.9	50	12	8	1	8	14	6/18	900	2.7
26	10-1-05	5872										
27	10-2-05	5872										
28	10-3-05	5873	8.4	36	10	8	1	7	6	3/9	900	1.7
29	10-4-05	6020	8.6	39	12	8	1	8	5	3/9	900	1.7
30	10-5-05	6227	8.6	40	12	8	1	9	7	4/12	900	1.7
31	10-6-05	6320	8.7	42	12	8	1	8	8	4/13	900	1.7
32	10-7-05	6480	8.5	44	14	8	1	11	6	4/14	900	2.7
33	10-8-05	6754	8.8	44	13	8	1	10	8	4/14	900	2.7
34	10-9-05	6943	8.8	44	14	8	1	10	8	4/13	900	2.7
35	10-10-05	7000	8.8	40	14	8	1	8	8	3/9	900	1.7

DEVIATION SURVEYS

<i>Survey Depth</i> <i>(Feet)</i>	<i>Inclination</i> <i>(degrees)</i>	<i>Azimuth</i>	<i>Horiz. Dist.</i> <i>(ft.)</i>
246	0.5		
609	.75		
1080	1.5		
1509	3.25		
1787	4.25		
2029	3.5		
2282	3.25		
2505	4.0		
Directional survey ran at 2797'	4.24 @ 2666'	127.43	86.91'
2918	5.5		
3005	5.0		
3235	4.0		
3579	3.75		
3984	2.5		
4352	2.75		
4798	1.75		
5166	0.75		
5862	0.75		
6227	1.0		
6902	1.0		

DIRECTIONAL SURVEYS

Outrun Survey
for

Page 1

PETRO-CANADA RESOURCES

Well No. : EAST CLEAR CREEK FED 22-42

Date : 20-SEP-2005

Job No. : 41K0509505

TRUE

Proposal : 0.00

Depth (Feet)	T.V.D. (Feet)	V.S. (Feet)	Inc Deg.	Azimuth Deg.	Latitude (Feet)	Departure (Feet)	D-leg /100
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	100.00	0.33	0.46	326.07	0.33	-0.22	0.46
200.00	199.99	1.10	0.55	334.17	1.10	-0.66	0.11
300.00	299.99	1.94	0.49	345.05	1.94	-0.98	0.12
400.00	399.99	2.58	0.30	326.53	2.58	-1.23	0.23
500.00	499.99	3.04	0.30	339.99	3.04	-1.47	0.07
600.00	599.98	3.50	0.42	55.11	3.50	-1.25	0.45
700.00	699.98	3.72	0.31	87.34	3.72	-0.68	0.23
800.00	799.98	3.71	0.28	93.32	3.71	-0.17	0.04
900.00	899.98	3.49	0.81	107.51	3.49	0.75	0.54
1000.00	999.97	2.94	0.86	116.90	2.94	2.09	0.15
1100.00	1099.94	2.00	1.68	114.02	2.00	4.10	0.82
1200.00	1199.85	0.08	3.06	119.82	0.08	7.75	1.40
1300.00	1299.71	-2.48	3.13	116.78	-2.48	12.51	0.18
1400.00	1399.55	-5.11	3.19	120.07	-5.11	17.35	0.19
1500.00	1499.40	-7.72	3.25	115.46	-7.72	22.32	0.27
1600.00	1599.23	-10.40	3.28	120.75	-10.40	27.34	0.30
1700.00	1699.07	-13.59	3.28	127.20	-13.59	32.08	0.37
1800.00	1798.91	-17.07	3.21	128.52	-17.07	36.55	0.10
1900.00	1898.76	-20.55	3.11	130.05	-20.55	40.81	0.13
2000.00	1998.62	-23.99	2.84	133.10	-23.99	44.70	0.31
2100.00	2098.49	-27.57	3.01	136.01	-27.57	48.33	0.23
2200.00	2198.36	-31.24	2.93	134.05	-31.24	51.99	0.13
2300.00	2298.24	-34.70	2.73	134.96	-34.70	55.51	0.20
2400.00	2398.09	-38.80	3.42	144.32	-38.80	58.94	0.85
2500.00	2497.90	-43.83	3.74	142.85	-43.83	62.65	0.33
2600.00	2597.69	-49.09	3.68	145.95	-49.09	66.41	0.21
2666.00	2663.53	-52.83	4.24	144.58	-52.83	69.01	0.86

The Horizontal Displacement (in Feet) at
Measured Depth 2666.00 is 86.91 in a Direction of 127.43 Degrees

WELL SUMMARY AND FORMATION EVALUATIONS

GENERAL:

Petro Canada Resources (USA), Inc drilled the **East Clear Creek Federal 22-42** based on surface geology, along with limited well control. This well is located on the geologic feature known as the Wasatch Plateau, an uplifted region in east central Utah. Tectonic activity related to this prospect occurred during and after the Laramide orogeny, with most faulting being Eocene or later.

DRILLING SUMMARY:

The Clear Creek 22-42 was spudded in the Upper Cretaceous Blackhawk Formation on August 25, 2005 with conductor hole being drilled by Pete Martin Drilling. Patterson Drilling, rig 778 was then moved on and began drilling surface hole with air/mist on September 6. Surface hole was 12.25 inches to 1080 ft. Lost circulation occurred nearly continuously from 700 ft. Surface casing (9 $\frac{5}{8}$ inches) was then run and cemented.

Aerated mud was employed in the 8.75 inches hole below the shoe. Lost circulation began at approximately 2030 ft, with 650 bbls being lost in the next 24 hours. LCM was pumped and viscosity raised slightly. Drilling proceeded to core point at 2558 ft with continuous slow mud loss.

The coring procedure commenced with the laying down of Patterson drill pipe, after which Corion pipe was picked up. Coring was initiated, with ROP ranging from 16-60 minutes/foot. WOB was gradually increased to 10,000 lbs, with only slight improvement in rate of penetration. Corion had brought only four collars to location, thus could not run much over 10,000 lbs on the bit. Coring was halted at 2569 ft. The wireline retrieval of the core barrel was unsuccessful, necessitating tripping out of the hole. The tongs broke early in the trip and replacement tongs had to be brought in from Vernal, Utah, resulting in nearly a 5 hour wait. The trip out and the recovery of the core was then accomplished, with 100% recovery. The core bit was then utilized to drill ahead to the next core point at 2622 ft. Again, coring ROP was very slow, ranging from 25 to 63 minutes/foot. Core No. 2 was taken from 2622.2 ft to 2635.1 ft. The core barrel was retrieved and recovery was 12.7 ft.

Corion drill pipe was then laid down and the Patterson string picked up. Drilling proceeded until Weatherford arrived to run a directional survey, after which a CBL/Gamma Ray log was run by Computalog. The directional survey indicated that the current bottom hole at 2697 ft was 86.91 ft at an azimuth of 127.43 degrees.

Drilling proceeded to 2918 ft, where a survey was taken indicating 5.5 degree deviation. Weight on bit was decreased resulting in the next survey at 3005 ft being 5.0 degrees. The bit became plugged at 3005 ft necessitating a trip out. Drill pipe was stuck briefly near bottom on the trip out, and considerable reaming was necessary on the trip in. Once near bottom the rotating head malfunctioned and could not be adequately repaired on location. A replacement head was brought in from Vernal, resulting in downtime for most of a day.

Massive lost circulation occurred in the lower Emery after a trip for bit at 3598 ft. Approximately 550 barrels were lost in the initial 3 hours of no returns. Once returns were regained, drilling proceeded to 3922 ft where returns were again lost until 3963 ft.

Periodic significant mud loss, as well as continued slow loss occurred through the Lower Bluegate to casing point in the top of the Ferron. Mud loss in the 6.25 inches hole through the Ferron was minimal. Drilling continued through the Tununk to total depth in the basal portion of the Dakota. Mud loss was again minimal during the drilling phase. Substantial mud loss did occur after attempting to get logs to bottom. A clean out trip after the initial two logging attempts resulted in considerable lost circulation once on bottom. These first two logging attempts could not get past 6200 ft to 6225 ft. A third attempt did get near bottom at 6960 ft, but the logging tools became stuck at approximately 6200 ft. At the writing of this report the initial attempt to free the tools had been unsuccessful.

GEOLOGICAL SUMMARY:

Well site geological analysis commenced at 1080 ft, beneath surface casing. The Upper Bluegate shales, siltstones, and sandstones were drilled to the top of the Emery at 2459 ft (samples). The clean fine to occasional medium grained quartzose Emery was drilled to 2558 ft; where drilling was stopped in order to begin continuous coring of anticipated coal zones below. Total gas values remained at about 25 units (100 units = 1%) in the top of the Emery, with a slight increase to 28 units from a drilling break at 2467 ft. A thin coal stringer was interpreted to be present, though not observed in samples, due to very limited returns. Slow lost circulation impacted sample quality and quantity to core point. At 2502 ft, the total gas increased gradually to 54 units by 2558 ft. A drilling break to less than 1.0 min/ft. began at 2552 ft. Coal in trace amounts, along with carbonaceous shale was observed. The decision was made to begin continuous coring at this point.

Pat McConigley was present during coring to assist in core handling. Core number 1 was cut from 2558 to 2569 ft, with ROP being exceedingly slow (16-60 minutes per foot). Total gas ranged between 27 and 51 units during coring. Recovery was 100% at 11 ft. The top 5.5 ft consisted of highly carbonaceous sandstone with thin coaly streaks. Spotted fluorescence with fast heavy cuts was observed. Porosity was rated as poor-fair. The bottom 5.5 feet was very fine-grained quartzitic sandstone with minor carbonaceous debris and poor-fair intergranular porosity. Refer to the Core log included in this report for details. Electric logs shows coal from 2550 ft to 2557 ft.

The core PDC bit was then used to drill to the next core point at 2622.2 ft. Core No. 2 was taken from 2622.2 ft to 2635.1 ft. Recovery was 12.7 ft, with the top 6.6 ft being light colored massive very fine grained sandstone, with estimated fair porosity and low permeability. No fluorescence or cuts were observed. The remaining 6.3 ft of the core consisted of interbedded shale, siltstone, and sandstone. Heavy bioturbation was present, with abundant sand filled worm burrows, and one pelecypod fragment. No shows were present. For complete core lithology details, see the core strip log and sample descriptions elsewhere in this report. Logs show no coal stringers in this interval.

A directional survey was run at 2697 ft, with the bottom hole being located at 86.91 ft at an azimuth of 127.43 degrees. A CBL/Gamma Ray was then run which showed the top of the Emery at 2452 ft (+7193 ft).

Drilling then continued with samples being circulated several times when drilling breaks suggested the possible presence of coal. No well developed coal zones were observed until 2887 ft when 5 feet of 1.0 minute per foot drilling occurred. Samples were circulated at 2892 ft and minor hard sub vitreous coal with carbonaceous shale was present. No gas bubbles were observed breaking out of the coal and the gas detector did not register an increase, although some lost circulation in the break could explain the lack of gas. After conferring with the client the decision was made to drill ahead, since this coal did not appear to be gas charged. The drilling break continued until 2896 ft, with no gas increase or shows in the coal. Logs show only a thin coal from 2878 ft to 2880 ft.

Drilling proceeded in the Emery with no additional coals present by 3000 ft. At this point coring plans were abandoned. Logs show a thin coal seam from 3090 ft to 3092 ft. A thick coal seam was drilled from 3175 ft to 3188 ft, with drill rate averaging less than a minute per foot. As much as 30% of the sample was coal, with additional carbonaceous shale and sandstone. This coal did not give off any gas in chips or when crushed. The gas detector did not record any significant increase. Logs show this coal at 3170 ft to 3186 ft.

No additional thick coals were detected in the Emery from samples and drilling proceeded into the Lower Bluegate. Logs show a coal horizon at 3260 ft to 3270 ft. Sample quality was generally poor in this portion of the hole due to lost circulation problems. Several very thin coal stringers are present in the lower Emery, with the thickest being from 3480 ft to 3485 ft. Logs do not indicate gas in any of the Emery porous sandstone, with no density-neutron cross over or "gas effect". Drilling proceeded to the basal portion of the Lower Bluegate. Circulation of samples was requested numerous times between 5712 ft and 5872 ft, while looking for the top of the Ferron and casing point. At 5870 ft, drill rate abruptly slowed from 1 minute/foot to about 20 minutes/foot. Drilling was stopped at 5872 ft, out of concern that the PDC bit might not be in good shape if considerable tight sandstone was drilled. Samples had a trace of very fine grained to silty, well cemented sandstone, with no shows. The gas detector did register a 6 unit increase in the 2 feet of hard drilling. Casing point was called at 5873 ft and logs were run prior to setting 7 inch casing.

Drilling continued to total depth of 7000 ft into the lower portion of the Dakota, with several bit trips being required. The initial logging run encountered a bridge at 6225 ft, during which the sonic tool malfunctioned after pulling 9000 lbs to get loose. An additional attempt was made to log with only the resistivity tool, but that tool could not get past 6225 ft. A clean out trip was begun and after getting to bottom with the bit, the air compressor broke down. Mud loss was becoming substantial (250 bbls), so the bit was brought up into casing at 5800 ft and we waited on compressor parts.

FERRON:

The top of the Ferron was called at 5993 ft (samples) with a drilling break and the appearance of fine to medium grained sandstone. Gas values increased slightly from 65-70 units to 80 units in the sand. At 6021 ft circulation was lost. Once returns were gained, air at 500 cfm was put on the hole and returns run through the gas buster before going to the shaker. This resulted in greatly diminished gas readings of 9-40 units. Occasional slight increases from 20 to 55 units may or may not have reflected formation gas increases. The electric log top occurs at 5982 ft on the field prints. The final reworked logs may reflect a slightly different top, due to part of the Ferron being logged while going down, prior to the tools becoming stuck while logging up from bottom.

Weak sample shows in the lower Ferron were observed in the interval 6370 ft to 6400 ft. Bright yellow spotty fluorescence was present in fine-medium grained sandstone. Quartz overgrowths diminished visible intergranular porosity to an estimated 6% maximum. The fluorescent pieces yielded slow diffuse cuts and rare fair streaming cuts when immersed in solvent. Total gas readings were erratic through this interval, ranging from 18 units to a short duration peak of 59 units at 6394 ft.

Electric logs show this interval to have a maximum of 8% density porosity, with no discernible gas effect on the neutron-density curve. The remainder of the Ferron sandstone horizons do not show any productive intervals, with porosity not exceeding 10%. Calculations suggest the Ferron to be water wet.

DAKOTA:

The Dakota was encountered at 6860 ft in samples. Lithology from 6870 ft to 6890 ft was fine-medium grained very clean quartzitic sandstone, with estimated visible porosity maximum placed at 14%. Total gas values increased in the top of the sandstone from a prior background of 30 units to 70-80 units until 6910 ft. A 108 unit peak of short duration occurred at 6919 ft to 6920 ft. This may have originated from fractures, as some calcite fracture fill material was observed. Some spotty bright yellow fluorescence was present from 6900 ft to 6920 ft, which gave very faint diffuse cuts. One piece of calcite fractures fill was coated with dead oil stain on the planar fracture surface. This also gave a weak diffuse cut when immersed in solvent.

Drilling continued into the basal portion of the Dakota with decreasing gas values and no additional sample shows. Lithology was predominantly siltstone and tight well cemented very fine grained sandstone.

Logs show clean Dakota sand from 6853 ft to 6879 ft. Density porosity values are 6-7% maximum with some density-neutron cross over or "gas effect". Log calculations indicate this horizon to be water wet.

Subsequent to log analysis, the decision was made to plug and abandon this well. The abandonment was to occur after the logging tools had been freed from the hole at approximately 6200 ft. At the writing of this report the initial fishing attempt had not been successful.

WIRELINE LOGGING REPORT

Logging Suite #1 (1080 ft to 5872 ft)

Date:	Sept. 29, 2005	Company:	Halliburton
Drillers T.D.	5872'	District:	Grand Junction, Colorado
Loggers T.D.	5873'	Engineers:	J. Noll, S. Zinda
G.L.elevation:	9631'	Unit Number:	49593
K.B. elevation:	9645'	Witnesses:	Bill Hedglin, Pat McConigley

Bit size:	8.75"	Mud Density:	9.0
Last casing:	1080'	Mud Viscosity:	45
Type fluid in hole:	Aerated mud	Mud pH:	8.0
Time Circ' ended:	12:30 AM Sept. 29, 2005	Filtrate loss:	12

Logging Sequence

Run #	Tool	Date	Start in hole	On bottom	Repeat Section	At surface	Logging hours
1	PSL-LG-OH-FORM EVAL-QUAD COMBO-BOM	Sept. 29-30	9:43 PM	10:33	10:46	1:15 AM	2.75
2	SONIC/GRAINED (2 attempts)	Sept. 30	1:45 AM	2:20		6:05	3.5
3							
4							
5							
6							
7							

Time Lost

1 hour	Gamma Ray/Sonic had to be rerun
3 hours	Waiting on loggers to arrive from Grand Junction.

Remarks

Original truck to be used from Vernal had mechanical problems, and a truck had to be retrieved from Grand Junction, Colorado. Pipe was tripped out by shortly after 3 PM, and loggers did not arrive until 6:15 PM.

WIRELINE LOGGING REPORT

Logging Suite #2 (5872' to 7000')

Date:	Oct. 9-11, 2005	Company:	Halliburton
Drillers T.D.	7000'	District:	Vernal
Loggers T.D.	6960'	Engineers:	J. Noll
G.L.elevation:	9631'	Unit Number:	52546
K.B. elevation:	9645'	Witnesses:	Bill Hedglin, Pat McConigley

Bit size:	6.25"	Mud Density:	8.8
Last casing:	5773'	Mud Viscosity:	44
Type fluid in hole:	Aerated mud	Mud pH:	8.0
Time Circ' ended:	1430 on Oct. 9, 2005	Filtrate loss:	14

Logging Sequence

Run #	Tool	Date	Start in hole	On bottom	Repeat Section	At surface	Logging hours
1	PSL-LG-OH-FORM EVAL-QUAD COMBO-BOM	Oct. 9	1930	Bridge at 6200'+, sonic quits	at 7000'		
2	RESISTIVITY TOOL ONLY	Oct. 10	0100	Bridge at 6225'			
3	PSL-LG-OH-FORM EVAL-QUAD COMBO-BOM	Oct. 11	0200	0310	0325	-	Became stuck at 6210'
4							
5							
6							
7							

Time Lost

Run # 1	Could not get past 6200 ft and sonic tool quit working
Run # 2	Could not get past 6225 ft, run cleanout trip
Run # 3	Became stuck in hole at approximately 6200 ft, while logging from bottom.

Remarks

Quad Combo tools become stuck while logging up at 6210 ft. Pull to 11,500 lbs. Cannot go up or down. Fishing for tools was successful.
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LITHOLOGY DESCRIPTIONS

East Clear Creek Federal 22-42

Sample descriptions commence at 1083' in the Upper Bluegate Formation. Drilling fluid was air/mist. Sample quality was poor to fair.

- 1083 to 1100 **SILTSTONE:** light grey, firm to friable, moderately well cemented, calcareous, clean to shaly, grading to trace very fine grained sandstone, trace pyrite chunks. **SHALE:** medium grey, soft to firm, blocky, micromicaceous, calcareous, very silty
- 1100 to 1120 **SHALE:** medium to dark grey to brown, soft to firm, blocky, very silty, micromicaceous, slightly to very calcareous. **SILTSTONE:** as minor beds, light grey, soft to firm, moderately well cemented, moderately well sorted, shaly in part, calcareous, quartzitic
- 1120 to 1150 **SILTSTONE:** increasing %, light to medium grey, firm, moderately well cemented, calcareous, moderately well sorted, mostly clay filled, grading to trace very fine grained sandstone. **SHALE:** medium to dark grey, soft to firm, blocky, slightly calcareous, very silty, micromicaceous
- 1150 to 1160 **SHALE:** medium to dark grey, soft to firm, blocky, silty, micromicaceous, slightly calcareous, rare carbonaceous specks. **SILTSTONE:** light to medium grey, grey to brown, firm to friable, calcareous, high clay content, poor to moderately well sorted, occasional carbonaceous inclusions
- 1160 to 1170 NO SAMPLE
- 1170 to 1200 **SHALE:** medium to dark grey, soft to firm, blocky, silty, micromicaceous, slightly calcareous, occasional carbonaceous specks. **SILTSTONE:** light to medium grey, grey to brown, firm to friable, calcareous, high clay content, poor to moderately well sorted, occasional carbonaceous debris
- 1200 to 1210 **SANDSTONE:** light grey, salt & pepper, very fine grained to silty, firm to moderately hard, well cemented, calcareous, moderately well sorted, quartzitic with black grains and carbonaceous debris, rare orange grains, very poor porosity, grading to siltstone. **SHALE:** dark grey, soft to firm, blocky, micromicaceous, calcareous, very silty, occasional carbonaceous inclusions
- 1210 to 1220 NO SAMPLE
- 1220 to 1250 **SHALE:** increasing %, medium to dark grey, soft to firm, blocky, silty, micromicaceous, slightly calcareous, occasional carbonaceous specks. **SILTSTONE:** light to medium grey, firm and well cemented to soft and clayey, calcareous, occasional carbonaceous matter
- 1250 to 1270 **SHALE:** medium grey, occasional dark grey, firm, blocky, micromicaceous, calcareous, very silty, scattered carbonaceous inclusions, grading to siltstone as above

- 1270 to 1300 **SHALE:** medium grey, occasional dark grey, firm, blocky, micromicaceous, calcareous, very silty, scattered carbonaceous inclusions, grading to increasing % of siltstone as above
- 1300 to 1330 **SANDSTONE:** light grey, salt and pepper, very fine grained to silty, firm, mostly well cemented, calcareous, well sorted, clay plugged in part, scattered black carbonaceous inclusions, very poor porosity, grading to light to medium grey shaly siltstone. **SHALE:** minor beds as above
- 1330 -1350 **SILTSTONE:** becoming medium grey, firm, well cemented, calcareous, very shaly, micromicaceous, scattered carbonaceous debris, grading to silty shale
- 1350 -1370 **SILTSTONE:** medium grey, firm, well cemented, calcareous, very shaly, micromicaceous, scattered carbonaceous debris, grading to silty shale
- 1370-1420 SAMPLES MISSING
- 1420-1450 **SHALE:** medium to dark grey, soft to firm, blocky, micromicaceous, calcareous, scattered carbonaceous matter, very silty, grading to medium grey shaly siltstone
- 1450-1470 **SILTSTONE:** medium to dark grey, rare light grey, firm, well cemented, calcareous, some carbonaceous inclusions, poor to moderately well sorted, mostly very shaly grading to shale
- 1470-1500 **SILTSTONE:** medium to dark grey, rare light grey, firm, well cemented, calcareous, some carbonaceous inclusions, poor to moderately well sorted, mostly very shaly grading to minor beds of shale
- 1500-1510 SAMPLE MISSING
- 1510-1520 **SILTSTONE:** medium to dark grey, rare light grey, firm, well cemented, calcareous, some carbonaceous inclusions, poor to moderately well sorted, mostly very shaly grading to shale
- 1520-1550 **SHALE:** medium to dark grey, soft to firm, blocky, micromicaceous, calcareous, scattered carbonaceous matter, very silty in part. **SILTSTONE:** minor %, light grey, firm, well cemented, calcareous, clean to shaly, quartzitic, occasional carbonaceous inclusions
- 1550-1580 **SHALE:** as above, becoming very silty grading to light to medium grey shaly to moderately clean siltstone
- 1580-1600 **SILTSTONE:** light grey, firm, well cemented, calcareous, poor to moderately well sorted, clay plugged in part, quartzitic, occasional carbonaceous inclusions, interbedded with dark grey shale as above
- 1600-1620 **SILTSTONE:** light grey, firm, well cemented, calcareous, poor to moderately well sorted, clay plugged in part, quartzitic, occasional carbonaceous inclusions, interbedded with dark grey shale as above
- 1620-1650 **SHALE:** medium to dark grey, firm, blocky, micromicaceous, moderately calcareous, occasional carbonaceous specks, very silty, grading to light to medium grey mostly shaly siltstone

- 1650-1680 **SHALE:** medium to dark grey, firm, blocky, micromicaceous, moderately calcareous, occasional carbonaceous specks, very silty, grading to light to medium grey mostly shaly siltstone
- 1680-1700 **SHALE:** medium to dark grey, firm, blocky, micromicaceous, moderately calcareous, occasional carbonaceous specks, very silty. **SILTSTONE:** light grey, firm, well cemented, calcareous, quartzitic, well sorted in part, clean to shaly, grading to trace very fine grained sandstone
- 1700-1730 **SHALE:** mostly dark grey, occasional medium grey, firm, blocky, calcareous, very silty, micromicaceous, occasional carbonaceous matter. **SILTSTONE:** as above, decreasing very fine grained sandstone
- 1730-1750 **SHALE:** dark grey, occasional medium grey, firm, blocky, calcareous, very silty, micromicaceous, occasional carbonaceous matter. **SILTSTONE:** light to dark grey, firm, well cemented, calcareous, very shaly in part to moderately clean, quartzitic, occasional carbonaceous debris
- 1750 to 1770 **SILTSTONE:** light to dark grey, firm, well cemented, very calcareous, moderately well to poorly sorted, shaly in part, arenaceous in part, grading to and interbedded with very fine grained, moderately well sorted, tight sandstone
- 1770 to 1790 **SILTSTONE:** light to dark grey, firm, well cemented, very calcareous, moderately well to poorly sorted, shaly in part, arenaceous in part, grading to and interbedded with very fine grained moderately well sorted tight sandstone
- 1790 to 1800 **SILTSTONE:** light to dark grey, firm to hard, well cemented, calcareous, quartzitic with scattered black grains, pyritic in part, grading to minor dark grey shale. **SANDSTONE:** light grey, salt and pepper, very fine grained, firm, well cemented, calcareous, moderately well to well sorted, mostly clay plugged pores, quartzitic with dark chert, subangular to subround, very poor porosity, no shows
- 1800 to 1830 **SHALE:** dark grey, rare light grey, soft to firm, blocky, slightly to very silty, calcareous, micromicaceous, occasional carbonaceous inclusions. **SILTSTONE:** medium to dark grey, firm, well cemented, calcareous, shaly, grading to shale, trace pyritic
- 1830 to 1860 **SHALE:** dark grey, rare light grey, soft to firm, blocky, slightly to very silty, calcareous, micromicaceous, occasional carbonaceous inclusions. **SILTSTONE:** medium to dark grey, firm, well cemented, calcareous, shaly, grading to shale
- 1860 to 1880 **SILTSTONE:** medium grey, firm, well cemented, slightly calcareous, quartzitic, micromicaceous, occasional carbonaceous matter, shaly. **SANDSTONE:** trace, cream to very light brown, lower fine grained, friable, subround, moderately well cemented, calcareous, well sorted, clean to occasional clay plugged pores, quartzitic with rare dark lithic grains, poor visible porosity, 6 to 8%, no shows
- 1880 to 1900 **SILTSTONE:** light to medium grey, firm to moderately hard, well cemented, becoming moderately to very calcareous, quartzitic with scattered black grains and carbonaceous inclusions, shaly in part, grading to very fine grained tight sandstone

- 1900 to 1930 **SILTSTONE:** medium to dark grey, firm, well cemented, calcareous, scattered carbonaceous inclusions, very shaly, grading to soft to firm silty shale
- 1930 to 1940 **SILTSTONE:** medium to dark grey, firm, well cemented, calcareous, scattered carbonaceous inclusions, very shaly. **CARBONACEOUS SHALE:** trace, very dark brown to black, moderately hard, brittle, non calcareous, blocky, silty
- 1940 to 1960 **SILTSTONE:** medium to dark grey, firm, well cemented, slightly to very calcareous, micromicaceous, occasional carbonaceous inclusions, very shaly, grading to minor % shale
- 1960 to 1980 **SANDSTONE:** light grey, very fine grained, firm, well cemented, moderately to very calcareous, well sorted, variable clay content, quartzitic with black and grey chert, subangular to subround, very poor visible porosity, 3 to 5%, no shows, trace calcite sealed fracture in sandstone. **SILTSTONE:** medium to dark grey, firm, well cemented, slightly to very calcareous, micromicaceous, occasional carbonaceous inclusions, very shaly, grading to minor % shale
- 1980 to 2000 **SILTSTONE:** medium to dark grey, firm, well cemented, slightly to very calcareous, micromicaceous, occasional carbonaceous inclusions, very shaly, grading to minor % shale. **SANDSTONE:** light grey, very fine grained, firm, well cemented, moderately to very calcareous, well sorted, clay plugged in part, quartzitic with black and grey chert, subangular to subround, very poor visible porosity, 3 to 5%, no shows
- 2000 to 2020 **SANDSTONE:** increasing %, light grey, very fine grained, firm, well cemented, moderately to very calcareous, well sorted, variable clay content, quartzitic with black and grey chert, subangular to subround, very poor visible porosity, 3 to 5%, no shows. **SILTSTONE:** as above
- 2020 to 2040 **SANDSTONE:** decreasing % as above, grading to well cemented, dense siltstone., occasional medium to dark grey shaly siltstone
- 2040 to 2060 **SANDSTONE:** light grey, salt and pepper in part, very fine grained, well cemented, calcareous, moderately hard, well sorted, subangular to subround, quartzitic with scattered dark chert, rare orange grains, very poor porosity due to cement, no shows. **SILTSTONE:** light to medium grey, firm, well cemented, calcareous, clean to shaly, dense
- 2060 to 2080 **SILTSTONE:** medium grey, firm, well cemented, calcareous, very shaly, grading to minor soft, blocky, silty shale. **SANDSTONE:** decreasing % as above, trace calcite fracture fill
- 2080 to 2100 **SHALE:** medium to dark grey, soft to firm, blocky, calcareous, micromicaceous, very silty, grading to shaly siltstone. **SANDSTONE:** dark grey, very fine grained to silty, moderately well cemented, calcareous, moderately well sorted, very shaly in part, to moderately clean, quartzitic, subangular to subround, very poor porosity, 3 to 4%, trace calcite crystals, possible fracture lining
- 2100 to 2110 **SHALE:** increasing %, dark grey, soft to firm, blocky, slightly to very silty, calcareous, grading to shaly siltstone
- 2110 to 2140 **SHALE:** dark grey, firm, blocky, slightly calcareous, micromicaceous, occasional carbonaceous specks, very silty in part, grading to shaly siltstone. **SILTSTONE:** light grey,

dark grey, firm, well cemented, calcareous, quartzitic, occasional carbonaceous inclusions, shaly in part

- 2140 to 2170 **SILTSTONE:** light to dark grey, firm to hard, well cemented, calcareous, very shaly when dark, occasional carbonaceous inclusions, grading to silty shale
- 2170 to 2200 **SILTSTONE:** light to dark grey, firm to hard, well cemented, calcareous, very shaly when dark, occasional carbonaceous inclusions. **SANDSTONE:** minor %, light grey, very fine grained, firm, well cemented, calcareous, well sorted, clean to clay plugged, quartzitic with scattered black grains, very poor porosity
- 2200 to 2250 **SANDSTONE:** medium grey with trace light and dark grey, firm to hard, massive, very fine grained subangular to subround, well sorted, white calcareous clay fill, quartzose, trace argillaceous and black mafic grains, very tight, poor porosity with trace poor to fair porosity, no fluorescence or cut.
- 2250 to 2280 **SILTSTONE:** medium grey, occasional light and dark grey, firm to hard, massive, calcareous clay fill, interbedded very fine grained sandstone and silty sandstone, very tight, no fluorescence or cut.
- 2280 to 2290 **SANDSTONE:** medium grey with trace light grey, firm to hard, massive, very fine grained, occasional silty, subangular to subround, moderately well sorted, white calcareous clay fill, very tight, poor porosity, trace poor to fair porosity, no fluorescence or cut, grading to sandy siltstone, interbedded dark grey siltstone, no fluorescence or cut.
- 2290 to 2300 **SANDSTONE:** medium to light grey, firm to friable, massive, very fine grained, occasional slightly silty, subangular to subround, fairly well sorted, white calcareous clay fill, poor porosity with trace poor to fair porosity, very tight, trace white crystalline calcite, grading to sandy siltstone, interbedded siltstone, no fluorescence or cut.
- 2300 to 2320 **SILTSTONE:** medium to dark grey, brownish to grey, firm to hard, massive, calcareous clay fill, very tight, no fluorescence or cut, grading to silty sandstone, interbedded very fine grained sandstone and silty sandstone.
- 2320 to 2350 **SANDSTONE:** medium grey, light grey, trace dark grey, very fine grained, silty, grading to silty sandstone and sandy siltstone, subangular to subround, moderately well sorted, white calcareous clay fill, very tight, poor porosity, no fluorescence or cut, interbedded siltstone, no fluorescence or cut.
- 2350 to 2370 **SILTSTONE:** medium to dark grey, fm to friable, massive, white calcareous clay fill, very tight, interbedded very fine grained sandstone and silty sandstone, trace dark brown shale, grading to silty sandstone, no fluorescence or cut.
- 2370 to 2400 **SANDSTONE:** medium grey, occasional light grey, very fine grained, subangular to subround, fairly well sorted, white calcareous clay fill, very tight, poor porosity, no fluorescence or cut, occasional silty, grading to sandy siltstone, interbedded siltstone, no fluorescence or cut
- 2400 to 2420 **SANDSTONE:** medium grey, some light grey, firm to slightly friable, occasional hard, very fine grained, occasional silty, grading to siltstone, moderately well sorted, subangular to

subround, white calcareous clay fill, very tight, poor porosity, no fluorescence of cut, interbedded with siltstone

2420-2450 **SILTSTONE:** medium to dark grey, dark brownish to grey, firm to friable, occasional hard, massive, calcareous clay fill, very tight, no fluorescence or cut, interbedded very fine grained sandstone and silty sandstone, trace silty shale.

SAMPLE TOP EMERY 2459' (+7186') CIRCULATE SAMPLES AT 2459'

2450 to 2460 **SANDSTONE:** light grey, trace medium grey, very fine grained (upper range), subangular to subround, fairly well sorted, white calcareous clay fill, poor to fair porosity, quartzose with trace feldspar and black mafic minerals, no fluorescence or cut.

2460 to 2470 **SANDSTONE:** light grey, cream, very fine to upper fine grained, firm to friable, unconsolidated in part, calcareous, well sorted, clean, minor clay content, quartzitic with dark lithic grains, and white tripolitic chert, subround to subangular, poor to fair visible intergranular porosity, 12 to 15%, no fluorescence, stain, or cuts

2470 to 2480 **SANDSTONE:** as above, mostly lower fine grained, porosity decreases to estimated 6 to 10%, no shows. **COAL:** interpreted from drill rate.

2480 to 2490 **SANDSTONE:** light grey to cream, lower fine to upper fine grained, friable, moderately well cemented, well sorted, quartzitic with occasional brown chert and dark lithic grains, rare orange chert, poor to fair porosity, 10 to 12%, no fluorescence, stain, or cuts

2490 to 2500 **SANDSTONE:** light grey to cream, lower fine to upper fine grained, friable, moderately well cemented, well sorted, quartzitic with occasional brown chert and dark lithic grains, rare orange chert, poor to fair porosity, 10 to 12%, no shows

2500 to 2510 **SANDSTONE:** influx of light brown lower fine to upper medium grained, friable, to firm, considerable unconsolidated quartz, moderately well cemented, calcareous, well sorted, clean, poor to fair visible porosity, 12 to 16%, no fluorescence, stain, or cuts

2510 to 2520 **SANDSTONE:** light grey, becoming very fine to fine grained, well sorted, calcareous, subangular to subround, very poor porosity, 4 to 6%, no shows. **SHALE:** minor beds, dark grey, firm, blocky to sub-blocky, silty, calcareous

2520 to 2530 **SANDSTONE:** light grey, lower fine grained, becoming well cemented, calcareous, well sorted, quartzitic with scattered dark chert and lithic grains, occasional orange chert, very poor to poor porosity, 4 to 8%, no shows

2530 to 2550 **SANDSTONE:** light grey, lower fine to upper fine grained, friable to firm, moderately well cemented, calcareous, subangular to subround, well sorted, clean, poor porosity, 8 to 10%, no shows. **SHALE:** minor %, dark brown, dark grey, firm, blocky to subfissile, mostly non calcareous, silty

2550 to 2558 **CARBONACEOUS SHALE:** very dark brown to near black, firm, non calcareous, silty, coaly in part. **COAL:** trace black, dull, brittle, firm, very poor returns

CIRCULATE SAMPLES AT 2558', PREPARE FOR CORING

CORE #1 2558' to 2569' CUT 11 FEET, RECOVERED 11 FEET

2558 to 2563.5 **SANDSTONE:** dark blackish to grey, mottled, very dark grey and dark grey, heavily bioturbated, very carbonaceous, abundant irregular wavy carbonaceous bands and inclusions and very thin coal stringers, hard, well cemented, very fine to fine grained, trace silty, poor to moderately well sorted, subangular to subround, tight, poor porosity, slightly calcareous, spotty bright yellow fluorescence, selected samples with stringers, fast, bright yellow cut. **COAL:** as thin, irregular, wavy inclusions <1mm to 10 mm thick, jet black, bituminous, hard, very brittle, vitrain, fissile to subfissile to vitreous luster, fissile to subfissile to conchoidal fracture, occasional heavily pyritized,

2663.5 to 2569 **SANDSTONE:** light grey, light brownish to grey, irregular coaly bands and inclusions, widely spaced, <1mm to 3 mm thick, some wispy vertical carbonaceous inclusions near top of interval upper to 10 cm long, poorly developed, weak vertical fracture, hard, brittle, well cemented, occasional slightly friable, very fine to fine grained, fair well sorted, subangular to subround, very slightly calcareous, very quartzose, fair porosity, estimated poor to fair permeability, no fluorescence or cut.

DRILL AHEAD WITH CORE BIT TO NEXTCORE POINT

2569 to 2580 **SANDSTONE:** light grey, very fine to fine grained, firm to moderately hard, well cemented, slightly calcareous, well sorted, clean, trace carbonaceous debris and thin laminated, quartzitic, poor visible porosity, 8 to 10%, no shows. **SHALE:** dark brown, firm, crumbly in part, blocky, non calcareous, silty, carbonaceous, trace pyrite chunks

2580 to 2590 **SANDSTONE:** as above, decreasing %. **SILTSTONE:** medium grey, hard, well cemented, dense, calcareous, scattered carbonaceous debris, shaly

2590 to 2600 NEGLIGIBLE RETURNS: **SILTSTONE:** as above. **SANDSTONE:** light grey, very fine grained, firm, well cemented, calcareous, well sorted, clean, scattered black grains and carbonaceous inclusions, quartzitic, poor to fair porosity, 10 to 12%, no shows

2600 to 2610 **SANDSTONE:** light to medium grey, greyish brown, very fine grained to silty, moderately hard, well cemented, slightly calcareous, moderately well sorted, shaly in part, quartzitic with abundant carbonaceous matter when grey brown, very poor porosity, 4 to 6%. **SILTSTONE:** medium grey – brown, medium grey, hard, well cemented, slightly calcareous, dense, shaly in part, occasional carbonaceous inclusions

2610 to 2618 **SANDSTONE:** light grey, whitish – grey, very fine grained, trace interbedded siltstone and silty sandstone, moderately well sorted, subangular to subround, white slightly calcareous clay fill, fair porosity, no fluorescence or cut, trace carbonaceous inclusions.

2618 to 2622 NO RETURNS – LOST CIRCULATION (200bbls.)

CORE #2 2622.2' to 2635.1'

2622.2 to 2628.8 **SANDSTONE:** light grey, very slightly brownish to grey, slightly salt and pepper textured, massive, hard to slightly brittle, occasional very faint color band, trace low angle

cross beds, rare shaley inclusions upper few mm thick by 1 cm, single vertical worm burrow at 2624 8 mm wide by 15 cm deep, very fine grained, fairly well sorted, subangular to subround, trace whitish calcareous clay cement, fair porosity, estimated low to moderate permeability, no fluorescence or cut.

2628.8-2635.1 **SHALE/SILTSTONE/SANDSTONE** light to dark grey, occasional bioturbated, occasional sand filled worm burrows, one fossil fragments. SEE EXPANDED SCALE CORE LOG FOR DETAILS

2635 to 2650 VERY POOR SAMPLES AFTER TRIP. **SHALE** and **SILTSTONE** as above

2650 to 2660 **SANDSTONE:** light grey, very fine to rare lower fine grained, firm to friable, moderately well cemented, slightly calcareous, well sorted, minor intergranular clay, subangular to subround, quartzitic with rare carbonaceous inclusions and dark lithic grains, poor to fair porosity, 10 to 14%, no shows

2660 to 2670 **SANDSTONE:** light grey, very fine to lower fine grained, firm to friable, moderately well cemented, slightly calcareous, well sorted, increasing clay plugged pores, subangular to subround, quartzitic with rare carbonaceous inclusions and dark lithic grains, poor to fair porosity, 10 to 14%, no shows, scattered off white calcareous **CLAYSTONE** partings. CARBONACEOUS **SHALE:** dark brown, firm, blocky, calcareous, very carbonaceous

2670 to 2680 **SANDSTONE:** light grey, salt and pepper, very fine to upper fine grained, firm to friable, well cemented, calcareous, moderately well sorted, clay plugged in part, subangular to subround, quartzitic with brown chert and dark lithic inclusions, poor to fair porosity, 10 to 16%, no shows. **SHALE:** dark grey brown, firm, blocky to subfissile, silty, calcareous, abundant carbonaceous matter

2680 to 2690 **SANDSTONE:** light grey salt and pepper, very fine to lower fine grained, firm to friable, calcareous, well cemented, considerable light grey clay in pores, subangular to subround, scattered carbonaceous debris and dark lithic grains, very poor to poor porosity, 6 to 10%, no fluorescence or cuts

RUN DIRECTIONAL SURVEY AND CBL/GAMMA RAY AT 2797'

2690 to 2700 **SANDSTONE:** light grey, slightly salt and pepper, very fine to fine grained, fm to hard, slightly friable, well considerable, white slightly calcareous cem, fair well sorted, subangular to subround, quartzose well/some feldspar and black maf mineral, poor to fair porosity, no fluorescence or cut

2700 to 2720 **SANDSTONE:** light grey, slightly salt and pepper, fine grained, well consolidated, firm to hard, slightly friable, trace white slightly calcareous cement, fair well sorted, subangular to subround, quartzose with some cream feldspar and black mafic minerals, fair porosity trace fair to good porosity, fair apparent permeability, no fluorescence or cut, trace dark grey siltstone stringers.

2720 to 2730 **SANDSTONE:** light grey, slightly salt and pepper, fine grained, well cemented, hard to slightly friable, trace whitish slightly calcareous cement, fairly well sorted, subangular to subround, very quartzose with feldspar and trace black mafic mineral, fair to good porosity,

fair apparent permeability, no fluorescence or cut, trace dark grey siltstone stringers.

- 2730 to 2740 **SILTSTONE:** medium to dark grey, interbedded with silty sandstone and silty shale, firm to hard, very tight, clay fill, no fluorescence or cut
- 2740 to 2760 **SANDSTONE:** light grey, whitish to grey, slightly salt and pepper, predominantly fine grained with trace medium grained, occasional partly disaggregated, fairly well sorted, subangular to round, trace whitish slightly calcareous clay fill, fair to good porosity, fair apparent permeability, no fluorescence or cut.
- 2760 to 2770 **SANDSTONE:** light grey, slightly salt and pepper, fine to lower medium grained occasional disaggregated, fairly well sorted, trace silty sandstone, subangular to subround trace round, firm to friable, slightly trace whitish calcareous clay fill, quartzose with trace feldspar and black mafic mineral, trace black carbonaceous material, fair to good porosity, apparent permeability fair to good, no fluorescence or cut
- 2770 to 2780 **SANDSTONE:** light grey, slightly salt and pepper, fine to lower medium grained, part disaggregated, fairly well sorted, subangular to subround, trace round, quartzose with trace feldspar and black mineral, trace white calcareous clay cement, friable to hard, fair to good porosity, fair to good apparent permeability, slightly trace blackish carbonaceous material, no fluorescence or cut
- 2780 to 2790 **SANDSTONE:** light grey, slightly salt and pepper, fine to lower medium grained, part disaggregated, well sorted, subangular to subround, trace round, quartzose with trace feldspar and black mineral, trace white calcareous clay cement, friable to hard, fair to good porosity, fair to good apparent permeability, slightly trace blackish carbonaceous material, no fluorescence or cut
- 2790 to 2800 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, friable to unconsolidated, moderately well cemented, calcareous, well sorted, quartzitic with scattered dark lithic grains, subangular to subround, poor to fair porosity, 8 to 12%, no shows. **SHALE:** minor beds, dark brown, firm, blocky to subfissile, non calcareous, abundant carbonaceous inclusions, very silty grading to siltstone
- 2800 to 2820 **SANDSTONE:** light grey, salt and pepper, mostly lower fine grained, friable to unconsolidated, moderately well cemented, calcareous, well sorted, quartzitic with scattered dark lithic grains, subangular to subround, fair porosity, 10 to 15%, no shows. Occasional off white soft calcareous **CLAYSTONE** partings
- 2820 to 2830 **SANDSTONE:** light grey, salt and pepper, mostly lower fine grained, friable to unconsolidated, moderately well cemented, calcareous, well sorted, quartzitic with scattered dark lithic grains, subangular to subround, fair porosity, 10 to 15%, no shows. **SHALE:** dark brown to near black, blocky, firm, non calcareous, silty occasionally pyritic, abundant carbonaceous matter
- 2830 to 2850 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, friable to unconsolidated, moderately well cemented, calcareous, well sorted, quartzitic with scattered dark lithic grains, subangular to subround, fair porosity, 10 to 15%. **SHALE:** dark brown to near black, blocky, firm, non calcareous, silty occasional pyritic, abundant carbonaceous

inclusions. **COAL:** trace, black, moderately hard, subvitreous

- 2850 to 2860 **SANDSTONE:** light grey, salt and pepper, rare light brown, very fine to lower fine grained, firm to friable, well cemented, calcareous, moderately well sorted, shaly in part, occasional dark lithic grains, subangular to subround, poor to fair porosity, no shows. **SHALE:** dark brown, firm, blocky, non calcareous, considerable carbonaceous inclusions
- 2860 to 2880 **SANDSTONE:** light grey, salt and pepper, becoming lower fine to lower medium grained, friable to unconsolidated, non calcareous, well sorted, clean with minor clay content in part, quartzitic with black and grey lithic inclusions, fair to possible good porosity, 14 to 20%, no fluorescence, stain, or cut
- 2880 to 2892 **SANDSTONE:** as above. **COAL:** trace, poor returns, black, hard, subvitreous, sharp, conchoidal fracture, no visible gas bleeding out

CIRCULATE SAMPLES AT 2892'

- 2892 to 2900 **SANDSTONE:** as above, becoming very fine to fine grained, increasing clay plugged pores, poor to occasional fair porosity, 8 to 12%, trace fluorescence with very weak streaming cuts. **COAL:** trace black, hard, subvitreous, no visible gas breaking out. **CARBONACEOUS SHALE:** dark brown to black, crumbly to firm, non calcareous, silty, very carbonaceous
- 2900 to 2910 **SANDSTONE:** light grey salt and pepper, becoming lower fine to upper medium grained, firm to friable, moderately well cemented, calcareous, moderately well to well sorted, subangular to subround, quartzitic with dark lithic inclusions and considerable carbonaceous debris, clay plugged in part, some fair visible porosity, 15 to 18%, no shows. **COAL:** trace, likely very thin stringers, no visible gas bubbles
- 2910 to 2920 **SANDSTONE:** light grey salt and pepper, lower fine to upper medium grained, firm to friable, moderately well cemented, calcareous, moderately well to well sorted, subangular to subround, quartzitic with dark lithic inclusions and considerable carbonaceous debris, occasional white feldspar clasts, clay plugged in part, some fair visible porosity, 15 to 18%, no shows, no coal observed
- 2920 to 2930 **SANDSTONE:** light grey, salt and pepper, lower fine to upper medium grained, friable to firm, slightly calcareous, moderately well cemented, moderately well to well sorted, variable clay content, scattered dark grains, and carbonaceous inclusions, rare white feldspar, subangular to subround, fair visible porosity, 14 to 18%, no shows. **SHALE:** minor beds, dark brown, blocky, firm, non calcareous, abundant carbonaceous matter
- 2930 to 2940 **SANDSTONE:** as above, becoming very fine to lower fine grained and very calcareous, porosity decreasing to 10 to 14%, abundant even dull yellow fluorescence, no visible stain, no cuts, likely mineral fluorescence. **SHALE:** minor beds, dark brown firm, blocky, very carbonaceous, coaly in part
- 2940 to 2950 **SANDSTONE:** light grey, salt and pepper, mostly very fine grained, friable to firm, slightly calcareous, moderately well cemented, moderately well to well sorted, increasing clay content, scattered dark grains, and carbonaceous inclusions, rare white feldspar, subangular to subround, poor porosity, 6 to 10%, no shows, dull yellow mineral fluorescence. **SHALE:** medium to dark brown, grey brown, firm, slightly calcareous, silty, occasional carbonaceous

inclusions

- 2950 to 2960 **SANDSTONE:** as above, becoming lower fine to lower medium grained, friable in part, fair porosity, 12 to 16%, scattered dull yellow mineral fluorescence, no cuts. **SHALE:** as above. **COAL:** trace, black, dull to subvitreous, crumbly to firm, no bleeding gas
- 2960 to 2970 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, firm to friable, well cemented, calcareous, moderately well to well sorted, moderately clean, quartzitic with black lithic inclusions and carbonaceous matter, poor to fair porosity, 8 to 12%, no fluorescence or cuts. **SHALE:** minor beds as above
- 2970 to 2980 **SANDSTONE:** as above, becoming very fine grained to silty, grading to siltstone, tight. **SHALE:** increasing %, dark grey, dark grey brown, firm, blocky to sub-blocky, non calcareous, silty, occasional very carbonaceous and coaly. **COAL:** trace, black, hard, subvitreous, no visible gas bubbles
- Samples from 2990' to 3005' were lost in hole as plugged bit did not allow for circulating bottoms up. Pipe was also briefly stuck near bottom on tripping out.
- 3005 to 3020 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, firm to friable, moderately well cemented, calcareous, moderately well sorted, minor clay content, scattered dark lithic grains and carbonaceous inclusions, poor to fair porosity, no shows
- 3020 to 3030 **SANDSTONE:** as above becoming very fine grained to silty, increasing clay content, very poor to poor porosity, no shows. **SHALE:** dark brown, firm, blocky to subfissile, non calcareous, silty, abundant carbonaceous matter, trace pyrite
- 3030 to 3040 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, firm to friable, moderately well cemented, calcareous, moderately well sorted, minor clay content, scattered dark lithic grains and carbonaceous inclusions, poor to fair porosity, no shows. **SHALE:** dark brown, firm, blocky to subfissile, non calcareous, silty, abundant carbonaceous inclusions. **COAL:** trace, black, hard, subvitreous, no gas bubbles observed
- 3040 to 3060 **SANDSTONE:** light grey, very fine to lower fine grained, firm to friable, moderately well cemented, calcareous, moderately well sorted, clay plugged, scattered dark grains and carbonaceous debris, trace orange feldspar, poor visible porosity, 8 to 10%, no shows. **SHALE:** decreasing % as above
- 3060 to 3080 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, firm, well cemented, calcareous, moderately well sorted, mostly clay plugged, very poor to poor porosity, no shows, scattered off white calcareous **CLAYSTONE** partings. **SILTSTONE:** medium grey, hard, well cemented, calcareous, shaly, carbonaceous
- 3080 to 3100 **SILTSTONE:** as above, increasing % **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, firm, well cemented, calcareous, moderately well sorted, mostly clay plugged, very poor to poor porosity, no shows
- 3100 to 3120 **SILTSTONE:** dark grey, dark brown, firm to hard, well cemented, calcareous, very shaly, abundant carbonaceous matter. SANDSTONE% minor% as above

- 3120 to 3130 ABNT LCM, VERY POOR SAMPLE. **SANDSTONE** and **SILTSTONE**: as above. **COAL**: trace, black, hard, subvitreous, no visible gas bubbles
- 3130 to 3140 **SANDSTONE**: light grey, lower fine to upper fine grained, friable to unconsolidated, moderately well sorted, moderately well cemented, calcareous, scattered carbonaceous inclusions, subangular to subround, probable fair porosity, 14 to 18%, no fluorescence or cuts. **SILTSTONE**: as above, grading to hard, blocky silty shale
- 3140 to 3150 **SANDSTONE**: light grey, lower fine to upper fine grained, occasional lower medium grained, friable to unconsolidated, moderately well sorted, moderately well cemented, calcareous, scattered carbonaceous inclusions, subangular to subround, possible good porosity, 18%+, no fluorescence or cuts. **SILTSTONE**: as above, decreasing %
- 3150 to 3160 **SANDSTONE**: light grey salt and pepper, lower fine to lower medium grained, friable to unconsolidated, moderately well cemented, calcareous, well sorted, clean with minor clay content, subangular to subround, quartzitic with brown chert, dark lithic grains and white feldspar, fair to good visible porosity, 15 to 20%, no fluorescence or cuts. **SHALE**: minor beds, dark grey brown, firm, blocky, calcareous, scattered carbonaceous inclusions, silty, grading to siltstone
- 3160 to 3170 **SANDSTONE**: as above, mostly lower fine to upper fine grained, considerable clay in pores, poor porosity, 8 to 10%, no shows. **SHALE**: minor beds as above
- 3170 to 3180 **SANDSTONE**: decreasing % fine to lower medium grained, unconsolidated in part, no shows. **SHALE**: dark grey to brown, occasional medium grey brown, firm, blocky, calcareous, very carbonaceous in part, silty. **COAL**: trace, black, firm to hard, crumbly in part, subvitreous to dull, no visible gas breaking out.
- 3180 to 3190 **COAL**: 30% of sample. Black, firm to moderately hard, crumbly to brittle, subvitreous, no gas bubbling observed in whole or crushed cuttings. **SHALE**: as above, highly carbonaceous in part
- 3190 to 3200 **SHALE**: dark grey brown, influx of light grey, soft to firm, blocky to subfissile, silty calcareous to very calcareous when light grey, scattered carbonaceous matter
- 3200 to 3210 **SILTSTONE**: mostly very dark grey brown, occasional medium grey, hard, well cemented, calcareous, very shaly and carbonaceous when dark, occasional pyrite veins, likely filling fractures
- 3210 to 3230 **SILTSTONE**: very dark grey brown, occasional medium grey, hard, well cemented, calcareous, very shaly and carbonaceous when dark, decreasing pyrite, occasional carbonaceous, micromicaceous
- 3230 to 3250 **SILTSTONE**: mostly dark grey, occasional medium grey brown, firm to hard, well cemented, calcareous, micromicaceous, very shaly, grading to minor silty shale, considerable white to brown calcite fracture fill, and lining on siltstone
- 3250 to 3270 **SILTSTONE**: as above, abundant calcite fracture material. **SANDSTONE**: medium grey, rare light grey, very fine to lower fine grained, very hard and well cemented, highly

calcareous, limey in part, dense, very poor porosity, 2 to 3%, no shows

- 3270 to 3290 **SILTSTONE:** dark grey, medium grey, grey brown, firm to hard, very well cemented, calcareous, very shaly when dark, grading to moderately hard silty shale. **SANDSTONE:** decreasing %, as above
- 3290 to 3300 **SANDSTONE:** light to medium grey, friable to hard, lower fine grained with trace lower medium grained moderately well sorted, subangular to subround, white calcareous clay fill, quartzose, trace feldspar and black mafic mineral, poor to fair porosity, apparent permeability fair, no fluorescence or cut.
- 3300 to 3310 **SILTSTONE:** medium to dark grey, dark brown to grey, firm to hard, calcareous clay fill, tight, no fluorescence or cut, interbedded with sandstone and silty sandstone, trace silty shale.
- 3310 to 3330" **SANDSTONE:** light to medium grey, occasional light brown to grey, slightly salt and pepper, predominantly lower fine grained with trace lower medium grained, fairly well sorted, subangular to subround, white calcareous clay fill, predominantly fair to good porosity, quartzose with trace feldspar and black mafic mineral grains, apparent permeability fair to good, interbedded sandy siltstone stringers, no fluorescence or cut.
- 3330 to 3350 **SILTSTONE:** medium to dark grey, dark brown to grey, firm to hard, calcareous clay fill, very tight, interbedded with sandstone and silty sandstone, trace silty shale, no fluorescence or cut
- 3350 to 3370 **SANDSTONE:** light grey, occasional medium grey, trace brown to grey, salt and pepper, predominantly upper fine grained to lower medium grained, fairly well sorted, subangular to subround, trace round, quartzose, trace feldspar and black mafic minerals, off white calcareous clay fill, fair to good porosity, apparent permeability fair, no fluorescence or cut, light brown sandstone approximate 5% has subround to round grains.
- 3370 to 3390 **SANDSTONE:** light grey, occasional medium grey, salt and pepper, predominantly lower fine grained to lower medium grained, fairly well sorted, subangular to subround, trace round, quartzose, trace feldspar and black mafic mineral, off white calcareous clay fill, fair to good porosity, apparent permeability fair, no fluorescence or cut.
- 3390 to 3400 **SILTSTONE:** medium to dark grey, occasional dark brown to grey, firm to hard, very clay fill, tight, slightly calcareous, interbedded with lower fine grained sandstone and silty sandstone, trace silty shale, rare carbonaceous material.
- 3400 to 3420 **SANDSTONE:** light grey, occasional medium grey, salt and pepper, firm to hard, predominantly lower to upper fine grained, trace lower medium grained, fairly well sorted, subangular to subround, off white calcareous clay fill, poor to fair porosity, trace fair to good porosity, apparent permeability poor, quartzose, trace feldspar and black mafic mineral, interbedded sandy siltstone, no fluorescence or cut
- 3420 to 3440 **SANDSTONE:** light to medium grey, salt and pepper, firm to hard, lower fine grained, trace interbedded sandy siltstone, fairly well sorted, subangular to subround, off white calcareous clay fill, quartzose, trace off white feldspar and black mafic mineral, fair porosity, apparent permeability poor to fair, no fluorescence or cut.

- 3440 to 3450 **SANDSTONE:** light to medium grey, salt and pepper, firm to hard, lower fine grained, trace interbedded siltstone and silty sandstone, fairly well sorted, subangular to subround, off white calcareous clay fill, poor to fair porosity, trace fair to good porosity, quartzose, trace feldspar and black mafic mineral, trace jet black, hard, brittle coal and black carbonaceous inclusions, trace pyrite.
- 3450 to 3470 **SANDSTONE:** light grey, salt and pepper, firm to hard, lower fine grained, occasional lower medium grained, fairly well sorted, subangular to subround, white calcareous clay cement, quartzose, trace lithographic fragments and black mafic mineral, poor to fair porosity, apparent permeability poor, black carbonaceous inclusions, trace jet black hard brittle coal, trace pyrite.
- 3470 to 3480 **SANDSTONE:** light grey, salt and pepper, firm to hard, lower fine grained to lower medium grained, fairly well sorted, subangular to subround, white calcareous clay cement, quartzose, trace lithographic fragments and black mafic minerals, poor to fair porosity, apparent permeability poor, black carbonaceous inclusions, trace black to brown carbonaceous shale, trace pyrite.
- 3480 to 3490 **CARB SHALE:** very dark black to brown, firm to friable, slightly fissile, trace pyrite, slightly trace hard, brittle jet black coal
- 3490 to 3500 **SANDSTONE:** light grey, salt and pepper, firm to hard, lower fine grained, occasional lower medium grained, fairly well sorted, subangular to subround, white calcareous clay cement, quartzose, trace lithographic fragments and black mafic mineral, poor to fair porosity, apparent permeability poor, black carbonaceous inclusions, trace jet black hard brittle coal, trace pyrite, no fluorescence or cut.
- 3500 to 3510 **SANDSTONE:** light grey, salt and pepper, firm to hard, lower fine grained to lower medium grained, fairly well sorted, subangular to subround, off white calcareous clay cement, quartzose, trace lithographic fragments and black mafic mineral, fair porosity, apparent permeability poor to fair, trace black carbonaceous inclusions, slightly trace black to brown carbonaceous shale.
- 3510 to 3520 **SANDSTONE:** light to medium grey, salt and pepper, lower to upper fine grained to upper medium grained, fairly well sorted, subangular to subround, white calcareous clay cement, quartzose, trace lithographic fragments and black mafic minerals, fair porosity, apparent permeability poor to fair, trace black to brown carbonaceous shale, trace coal, trace white crystalline calcite, no fluorescence or cut. **SANDSTONE:** 5% light to medium brown, firm to hard, lower fine grained to upper medium grained, fairly well sorted, subangular to subround, white clay fill, tight, poor to fair porosity, apparent permeability poor, non calcareous, no fluorescence or cut.
- 3520 to 3540 **SANDSTONE:** light grey, salt and pepper, firm to hard, lower fine grained to lower medium grained, fairly well sorted, subangular to subround, off white calcareous clay cement, quartzose, trace lithographic fragments and black mafic mineral, fair porosity, apparent permeability poor to fair, trace black carbonaceous inclusions, slightly trace black to brown carbonaceous shale, trace interbedded siltstone and silty sandstone, no fluorescence or cut.
- 3540 to 3560 **SANDSTONE:** light to medium grey, salt and pepper, firm to hard, lower fine grained, trace lower medium grained, trace interbedded sandy siltstone, fairly well sorted, subangular to

subround, white calcareous clay fill, quartzose, trace off white feldspar and black mafic minerals, fair porosity, apparent permeability poor to fair, trace black carbonaceous inclusions, interbedded siltstone and silty sandstone, no fluorescence or cut.

3560 to 3580 **SANDSTONE:** light grey, salt and pepper, very fine grained to lower fine grained, firm, moderately well cemented, slightly to moderately calcareous, moderately well sorted, abundant clay in pores, scattered dark mafic grains and occasional carbonaceous matter, poor visible porosity, 6 to 10%, no shows, trace interbedded brown shaly siltstone

3580 to 3598 **SANDSTONE:** light grey, salt and pepper, very fine grained to lower fine grained, firm, moderately well cemented, slightly to moderately calcareous, moderately well sorted, abundant clay in pores, scattered dark mafic grains and occasional carbonaceous matter, poor visible porosity, 6 to 10%, no shows. Rare thin stringers of brown shaly siltstone

No Returns 3598' to 3625'

3625 to 3640 **SILTSTONE:** medium to dark grey, firm to hard, well cement, calcareous clay fill, very tight, no fluorescence or cut, interbedded very fine grained sandstone and silty sandstone, trace silty shale

3640 to 3650 **SANDSTONE:** light to medium grey, brown to grey, slightly salt and pepper, firm to hard, very fine to lower fine grained, occasional silty, interbedded siltstone and sandy siltstone, moderately well sorted, subangular to subround, calcareous clay fill, poor porosity and permeability, quartzose, trace lithographic fragments and dark mafic mineral, no fluorescence or cut

3650 to 3670 **SANDSTONE:** light to medium grey, slightly salt and pepper, firm to hard, very fine to lower fine grained, occasional silty, interbedded siltstone and sandy siltstone, moderately well sorted, subangular to subround, calcareous clay fill, poor porosity and permeability, quartzose, trace lithographic fragments and dark mafic mineral, trace black carbonaceous material, no fluorescence or cut

3670 to 3690 **SILTSTONE:** medium to dark grey, firm to hard, well cement, calcareous clay fill, very tight, no fluorescence or cut, interbedded very fine grained sandstone and silty sandstone, trace silty shale

3690 to 3710 **SANDSTONE:** light to medium grey, slightly salt and pepper, firm to hard, predominantly lower fine grained, with trace very fine grained, occasional silty, interbedded siltstone and sandy siltstone, moderately well sorted, subangular to subround, calcareous clay fill, poor porosity and permeability, quartzose, trace lithographic fragments and dark mafic mineral, trace black carbonaceous material, no fluorescence or cut

3710 to 3730 **SILTSTONE:** dark grey, dark grey brown, firm to hard, well cement, calcareous clay fill, very tight, interbedded dark brown shale and very fine grained silty sandstone, good trace black carbonaceous material, no fluorescence or cut.

3730 to 3750 **SANDSTONE:** light to medium grey, occasional dark grey, slightly salt and pepper, very fine grained to lower fine grained, grading to sandy siltstone and interbedded with siltstone, poor to moderately well sorted, subangular to subround, off white calcareous clay fill, tight, poor porosity and permeability, quartzose, trace lithographic fragments and black ferromagnesian

mineral grains, interbedded siltstone and silty sandstone, trace dark brown shale and silty shale, no fluorescence or cut.

3750 to 3770 **SILTSTONE:** dark grey, dark grey brown, firm to hard, well cemented, calcareous clay fill, very tight, interbedded dark brown shale and very fine grained silty sandstone, good trace black carbonaceous material, no fluorescence or cut.

3770 to 3790 **SANDSTONE:** light to medium grey, occasional dark grey, slightly salt and pepper, very fine grained to lower fine grained, grading to sandy siltstone and interbedded with siltstone, poor to moderately well sorted, subangular to subround, off white calcareous clay fill, tight, poor porosity and permeability, quartzose, trace lithographic fragments and black mafic mineral grains, interbedded siltstone and silty sandstone, trace dark brown shale and silty shale, no fluorescence or cut.

3790 to 3810 **SANDSTONE:** light to medium grey, trace dark grey and brown, slightly salt and pepper, very fine grained to lower fine grained, grading to sandy siltstone and interbedded with siltstone, poor to moderately well sorted, subangular to subround, off white calcareous clay fill, tight, poor porosity and permeability, quartzose, trace lithographic fragments and black mafic mineral grains, interbedded siltstone and silty sandstone, trace dark brown shale and silty shale, no fluorescence or cut.

3810 to 3820 **SILTSTONE:** dark grey, dark grey to brown, firm to hard, well cemented, calcareous clay fill, very tight, interbedded dark brown shale and very fine grained silty sandstone, good trace black carbonaceous material, no fluorescence or cut.

3820 to 3840 **SANDSTONE:** light to medium grey, occasional dark grey and brown, slightly salt and pepper, firm, well cemented, very fine grained to lower fine grained, subangular to subround, fairly well sorted, off white calcareous clay fill, tight, poor porosity and permeability, interbedded dark grey siltstone, grading to sandy siltstone, trace dark brown shale, no fluorescence or cut, trace black carbonaceous inclusions.

3840 to 3860 **SANDSTONE:** light to medium grey, trace dark grey and brown, slightly salt and pepper, very lower fine grained to lower medium grained, grading to sandy siltstone and interbedded with siltstone, poor to moderately well sorted, subangular to subround, off white calcareous clay fill, tight, poor porosity and permeability, quartzose, trace lithographic fragments and black mafic mineral grained, interbedded siltstone and silty sandstone, trace dark brown shale and silty shale, no fluorescence or cut.

3860 to 3880 **SANDSTONE:** light grey, salt and pepper, mostly very fine grained, decreasing lower fine grained, firm, well cemented, slightly calcareous, moderately well sorted, high clay content, scattered dark lithic inclusions, very poor porosity, grading to siltstone in part

3880 to 3890 **SANDSTONE:** light grey, salt and pepper, mostly very fine grained, firm, well cemented, slightly calcareous, moderately well sorted, high clay content, scattered dark lithic inclusions, very poor porosity, grading to siltstone in part

3890 TO 3963 NO RETURNS

GRAB SAMPLE CAUGHT WHEN RETURNS REGAINED LAGS TO APPROX. 3960' to 3963' Sample is of questionable quality

- 3960 to 3963 **SANDSTONE:** light grey, salt and pepper, very fine grained to silty, hard, well cemented, slightly to very calcareous, well sorted, subangular to subround, clean to clay filled, quartzitic with occasional grey and black lithic inclusions, very poor porosity. **SILTSTONE:** light grey, light grey brown, hard, well cemented, calcareous, clean
- 3963 to 3980 **SANDSTONE:** light grey, salt and pepper, very fine grained to silty, hard, well cemented, slightly to very calcareous, well sorted, subangular to subround, clean to clay filled, quartzitic with occasional grey and black lithic inclusions, occasional carbonaceous debris, very poor porosity. **SILTSTONE:** light-medium grey brown, hard and well cemented to firm and shaly, calcareous, scattered carbonaceous inclusions
- 3980 to 3990 **SILTSTONE:** light to medium grey brown, firm, calcareous, mostly shaly, occasional carbonaceous matter. **SANDSTONE:** decreasing % as above
- 3990 to 4000 **SILTSTONE:** as above, increasing %. **SANDSTONE:** as above, occurs as thin stringers. **SHALE:** dark grey, firm to soft, blocky, non calcareous to slightly calcareous, moderately to very silty, occasional carbonaceous inclusions
- 4000 to 4020 **SILTSTONE:** medium grey brown, firm, well cemented, calcareous, shaly, occasional carbonaceous matter
- 4020 to 4040 **SHALE** and **SILTSTONE:** as above with shale becoming very calcareous, limey in part. **LIMESTONE:** as thin stringers, medium grey brown, sublithographic, hard, very argillaceous, dense

SAMPLE TOP LOWER BLUEGATE 4040' (+5605')

- 4040 to 4060 **SILTSTONE:** dark grey, dark grey to brown, well cemented, firm to hard, calcareous clay fill, interbedded sandy shale stringers, trace very fine grained silty sandstone, no fluorescence or cut.
- 4060 to 4080 **SILTSTONE:** dark grey, dark grey to brown, well cemented, firm to hard, calcareous clay fill, interbedded silty shale stringers, trace very fine grained silty sandstone, no fluorescence or cut, trace interbedded dark brown shale.
- 4080 to 4090 **SILTSTONE:** dark grey, dark grey to brown, well cemented, firm to hard, calcareous clay fill, interbedded silty shale stringers, trace very fine grained silty sandstone, no fluorescence or cut, trace dark brown shale.
- 4090 to 4100 **SHALE:** dark brown, dark grey brown, firm to hard, non fissile, silty, grading to clay siltstone, calcareous, firm to brittle, interbedded with siltstone.
- 4100 to 4120 **SILTSTONE:** dark grey, dark grey brown, well cemented, firm to hard, calcareous clay fill, interbedded sandy shale stringers, trace very fine grained silty sandstone, no fluorescence or cut, occasional dark brown shale stringers.

- 4120 to 4160 **SANDSTONE:** stringers in siltstone, medium grey, very fine grained, slightly salt and pepper, subangular to subround, poor to moderately well sorted, off white clay fill, very tight, poor permeability, no fluorescence or cut, interbedded siltstone and grading to sandy siltstone.
- 4120 to 4150 **SILTSTONE:** dark grey, dark grey to brown, well cemented, firm to hard, calcareous clay fill, interbedded silty shale stringers, trace very fine grained silty sandstone, no fluorescence or cut. Trace dark brown shale.
- 4150 to 4170 **SILTSTONE:** becoming increasingly clay filled, grading to silty shale, dark grey, dark grey brown, well cemented, firm to hard, calcareous clay fill, trace very fine grained silty sandstone, interbedded shale, trace carbonaceous material, no fluorescence or cut.
- 4170 to 4190 **SHALE:** (Stringers in **SILTSTONE**), dark grey brown, silty, grading to clay siltstone, firm to hard, poor fissile, very calcareous, interbedded dark grey siltstone
- 4170 to 4200 **SILTSTONE:** becoming increasingly clay filled, grading to silty shale, dark grey, dark grey brown, well cemented, firm to hard, calcareous clay fill, trace very fine grained silty sandstone, interbedded shale, trace carbonaceous material, no fluorescence or cut.
- 4200 to 4220 **SILTSTONE:** clay filled, grading to silty shale, dark grey, dark grey brown, well cemented, firm to hard, calcareous clay fill, trace very fine grained silty sandstone, interbedded shale, trace carbonaceous material, no fluorescence or cut.
- 4220 to 4240 **SHALE:** dark grey brown, dark grey, hard to brittle, poorly fissile, sub-blocky, silty, grading to clay siltstone, interbedded siltstone, very calcareous,
- 4240 to 4260 **SHALE:** dark grey brown, dark grey, hard to brittle, poorly fissile, sub-blocky, silty, grading to clay siltstone, interbedded siltstone, very calcareous,
- 4260 to 4280 **SILTSTONE:** (interbedded with **SHALE**) becoming increasingly clay filled, grading to silty shale, dark grey, dark grey brown, well cemented, firm to hard, calcareous clay fill, trace very fine grained silty sandstone, interbedded shale, no fluorescence or cut.
- 4260-4280 **SHALE:** dark grey to brown, dark grey, hard to brittle, poor fissile, sub-blocky, silty, grading to clay siltstone, interbedded siltstone, very calcareous
- 4280 to 4300 **SHALE:** dark grey, firm, blocky to subfissile, calcareous, micromicaceous, silty, occasional carbonaceous specks. **SILTSTONE:** dark grey brown, firm to hard, well cemented, calcareous, micromicaceous, very shaly, rare carbonaceous inclusions
- 4300 to 4320 **SHALE:** medium grey brown, dark grey, soft to firm, blocky to subfissile, very calcareous, silty, scattered carbonaceous inclusions, micromicaceous. **SILTSTONE:** decreasing % as above
- 4320 to 4340 **SHALE:** medium grey brown, dark grey, soft to firm, blocky to subfissile, very calcareous, silty, scattered carbonaceous inclusions, micromicaceous. **SILTSTONE:** dark grey brown, firm to hard, well cemented, calcareous, micromicaceous, very shaly, rare carbonaceous inclusions

- 4340 to 4360 **SHALE:** medium grey brown, dark grey, soft to firm, blocky to sub-blocky, micromicaceous, very calcareous, occasional carbonaceous matter, very silty grading to minor well cemented shaly siltstone
- 4360 to 4382 **SHALE:** medium grey brown, dark grey, soft to firm, blocky to subfissile, micromicaceous, very calcareous, occasional carbonaceous matter, very silty. **SILTSTONE:** as thin stringers, medium to dark grey brown, firm to hard, well cemented, calcareous, shaly, occasional carbonaceous inclusions

TRIP FOR BIT AT 4382'

DRILLING WITH NO RETURNS FROM 4382' TO 4452'

- 4460 to 4480 **SHALE:** (very poor samples) dark brown, firm to brittle, poor fissile, sub-blocky, slightly silty, grading to clay siltstone, interbedded dark grey siltstone, very calcareous, slightly trace black carbonaceous material.
- 4480 to 4500 **SILTSTONE:** dark grey, firm to hard, well cemented, calcareous clay fill, no fluorescence or cut, trace black carbonaceous material, thin interbedded with shale and silty shale.
- 4500 to 4520 **SHALE:** dark brown, firm to brittle, poor fissile, sub-blocky, slightly silty, grading to clay siltstone, interbedded dark grey siltstone, very calcareous, slightly trace black carbonaceous material.
- 4500 to 4540 **SHALE:** dark grey, dark grey to brown, firm to hard, sub-blocky, occasional slightly brittle, calcareous, slightly to very silty, grading to clay siltstone, interbedded siltstone stringers, poorly fissile.
- 4540 to 4560 **SHALE:** dark grey, dark grey to brown, firm to hard, sub-blocky, silty
- 4560 to 4600 **SILTSTONE:** as above, dark grey, firm to hard, well cement, calcareous clay fill, no fluorescence or cut, trace black carbonaceous material, thin interbedded well/shale and silty shale. **SHALE:** dark grey, dark grey to brown, firm to hard, sub-blocky, occasional slightly brittle, calcareous, slightly to very silty, grading to clay siltstone, interbedded siltstone stringers, poorly fissile.
- 4600 to 4620 **SHALE:** as above, dark grey, dark grey to brown, firm to hard, sub-blocky, occasional slightly brittle, calcareous, slightly to very silty, grading to clay siltstone, interbedded siltstone stringers, poorly fissile.
- 4620 to 4640 **SILTSTONE:** dark grey, dark grey to brown, firm to hard, well cemented, very calcareous, thin interbedded with shale and grading to silty shale, no fluorescence or cut
- 4640 to 4660 **SHALE:** as above, increasing silty, dark grey, dark grey to brown, firm to hard, sub-blocky, occasional slightly brittle, calcareous, slightly to very silty, grading to clay siltstone, interbedded siltstone stringers, poorly fissile.
- 4660 to 4680 **SHALE:** as above, increasing silty, dark grey, dark grey to brown, firm to hard, sub-blocky, occasional slightly brittle, calcareous, slightly to very silty, grading to clay siltstone, interbedded siltstone, poor fissile.

- 4680 to 4700 **SHALE:** as above, increasing silty, dark grey, dark grey to brown, firm to hard, sub-blocky, occasional slightly brittle, calcareous, slightly to very silty, grading to clay siltstone, interbedded siltstone, poor fissile.
- 4700 to 4720 **SILTSTONE:** dark grey, dark grey to brown, firm to hard, well cemented, very calcareous, thin interbedded with shale and grading to silty shale, no fluorescence or cut
- 4720 to 4740 **SHALE:** dark grey, dark grey to brown, firm to hard, sub-blocky, occasional slightly brittle, calcareous, slightly to very silty, grading to clay siltstone, interbedded siltstone, poorly fissile.
- 4740 to 4760 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, micromicaceous, scattered carbonaceous matter, silty grading to, and interbedded with minor siltstone stringers. Trace calcite fracture fill
- 4760 to 4780 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, micromicaceous, scattered carbonaceous matter, silty. **SILTSTONE:** medium to dark grey, firm, well cemented, calcareous, very shaly, trace buff calcite fossil fragments (pelecypods)
- 4780 to 4800 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, micromicaceous, scattered carbonaceous matter, silty. minor interbedded siltstone stringers as above
- 4800 to 4820 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, micromicaceous, scattered carbonaceous matter, silty. **SILTSTONE:** thin stringers, light to dark grey, firm to hard, well cemented, highly calcareous, moderately clean to shaly
- 4820 to 4840 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, micromicaceous, scattered carbonaceous matter, silty. **SILTSTONE:** thin stringers, light to dark grey, firm to hard, well cemented, highly calcareous, moderately to very shaly

POOR RETURNS AT TIMES

- 4840 to 4860 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, micromicaceous, scattered carbonaceous matter, silty. **SILTSTONE:** thin stringers, light to dark grey, firm to hard, well cemented, highly calcareous, moderately to very shaly
- 4860 to 4900 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, micromicaceous, scattered carbonaceous matter, silty. **SILTSTONE:** thin stringers, light to dark grey, firm to hard, well cemented, highly calcareous, moderately to very shaly
- 4900 to 4920 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, moderately to very silty, occasional carbonaceous inclusions, micromicaceous, grading to trace shaly siltstone
- 4920 to 4940 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, moderately to very silty, occasional carbonaceous inclusions, micromicaceous, grading to trace shaly siltstone

CONTINUED MUD LOSS AND SPORADIC RETURNS

- 4940 to 4980 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, moderately to very silty, occasional carbonaceous inclusions, micromicaceous, grading to trace shaly siltstone

- 4980 to 5000 **SHALE:** dark grey, firm, blocky to sub-blocky, calcareous, moderately to very silty, occasional carbonaceous inclusions, micromicaceous, grading to trace shaly siltstone, Trace light grey moderately clean siltstone
- 5000 to 5020 **SHALE:** dark grey, firm, blocky, micromicaceous, calcareous, scattered carbonaceous specks, silty, interbedded with thin stringers of shaly siltstone
- 5020 to 5040 NO RETURNS
- 5040 to 5080 TRACE RETURNS, **SHALE:** dark grey, firm, blocky, micromicaceous, calcareous, scattered carbonaceous specks, silty, interbedded with thin stringers of shaly siltstone
- 5080 to 5100 **SILTSTONE:** dark grey, trace very fine grained silty sandstone, firm to hard, well cemented, very calcareous, scattered black carbonaceous flakes, interbedded shale and silty shale.
- 5100 to 5120 **SHALE:** dark brown, dark grey to brown, firm to hard, sblky, very calcareous, poor fissile, rare white calcareous fossil fragments (inoceramus?), slightly silty, grading to clay siltstone, scattered black carbonaceous flakes.
- 5120 to 5140 **SHALE:** dark brown, dark grey to brown, firm to hard, sblky, very calcareous, poor fissile, slightly silty, grading to clay siltstone, scattered black carbonaceous flakes.
- 5140 to 5160 **SHALE:** dark brown, dark grey to brown, firm to hard, sblky, very calcareous, poor fissile, slightly silty, interbedded siltstone stringers, grading to clay siltstone, scattered black carbonaceous flakes.
- 5160 to 5180 **SILTSTONE:** dark grey, trace very fine grained silty sandstone, firm to hard, well cemented, very calcareous, scattered black carbonaceous flakes, interbedded shale and silty shale.
- 5180 to 5200 **SHALE:** as above, dark brown, dark grey to brown, firm to hard, sub-blocky, very calcareous, poor fissile, slightly silty, interbedded siltstone stringers, grading to clay siltstone, scattered black carbonaceous flakes, rare fossil fragments with calcareous prisms (inoceramus ?).
- 5200 to 5220 **SHALE:** as above, dark brown, dark grey to brown, firm to hard, sub-blocky, very calcareous, poor fissile, slightly silty, interbedded siltstone stringers, grading to clay siltstone, scattered black carbonaceous flakes.
- 5220 to 5240 **SHALE:** as above, dark brown, dark grey to brown, firm to hard, sub-blocky, very calcareous, poor fissile, slightly silty, interbedded siltstone stringers, grading to clay siltstone, scattered black carbonaceous flakes, rare fossil fragments with calcareous prisms (inoceramus ?).
- 5240 to 5250 **SILTSTONE:** dark grey, trace very fine grained silty sandstone, firm to hard, well cemented, very calcareous, scattered black carbonaceous flakes, interbedded shale and silty shale, with **SHALE:** as above.
- 5250 to 5260 **SHALE:** as above, dark brown, dark grey brown, firm to hard, sub-blocky, very calcareous, poor fissile, slightly silty, interbedded siltstone stringers, grading to clay siltstone, scattered

black carbonaceous flakes.

- 5260 to 5280 **SHALE:** as above, dark brown, dark grey brown, firm to hard, sub-blocky, very calcareous, poor fissile, slightly silty, interbedded siltstone stringers, grading to clay siltstone, scattered black carbonaceous flakes.
- 5280 to 5300 **SHALE:** as above, dark brown, dark grey brown, firm to hard, sub-blocky, very calcareous, poor fissile, slightly silty, interbedded siltstone stringers, grading to clay siltstone, scattered black carbonaceous flakes.
- 5300 to 5320 **SILTSTONE:** dark grey, dark grey brown, firm to hard, well cemented, very calcareous, scattered black carbonaceous flakes, interbedded shale and silty shale, with **SHALE:** as above.
- 5320 to 5340 **SHALE:** dark brown, firm to slightly brittle, sub-blocky, poorly fissile, highly calcareous, grading to marly **CLAYSTONE**, trace very calcareous silty shale, trace pyrite.
- 5340 to 5360 **SHALE:** dark brown, very dark grey brown, very calcareous, firm to hard, slightly brittle, sub-blocky, poorly fissile, slightly silty, interbedded stringers very calcareous clay siltstone.
- 5360 to 5380 **SHALE:** as above, dark brown, very dark grey brown, firm to hard, very calcareous, slightly brittle, sub-blocky, poorly fissile, slightly silty, interbedded stringers very calcareous clay siltstone.
- 5380 to 5400 **SHALE:** as above, dark brown, very dark grey brown, firm to hard, very calcareous, slightly brittle, sub-blocky, poorly fissile, slightly silty, interbedded stringers very calcareous clay siltstone.
- 5400 to 5420 **SHALE:** as above, dark brown, very dark grey brown, firm to hard, becoming highly calcareous, slightly brittle, sub-blocky, poorly fissile, slightly silty, interbedded stringers very calcareous clay siltstone.
- 5420 to 5440 **SHALE:** as above, dark brown, very dark grey brown, firm to hard, highly calcareous, slightly brittle, sub-blocky, poorly fissile, slightly silty, interbedded stringers very calcareous clay siltstone, grading to marly **CLAYSTONE**.
- 5440 to 5460 **SHALE:** as above, dark brown, very dark grey brown, firm to hard, highly calcareous, slightly brittle, sub-blocky, poorly fissile, slightly silty, interbedded stringers very calcareous clay siltstone, grading to marly **CLAYSTONE**.
- 5460 to 5480 **SHALE:** as above, dark brown, very dark grey brown, firm to hard, highly calcareous, slightly brittle, sub-blocky, poorly fissile, slightly silty, interbedded stringers very calcareous clay siltstone, grading to marly **CLAYSTONE**.
- 5480 to 5500 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks, grading to shaly siltstone
- 5500 to 5520 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks, trace pyrite. **SILTSTONE:** dark grey, dark grey brown, soft

to firm, calcareous, moderately well to well cemented, very shaly

- 5520 to 5540 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks. **SILTSTONE:** dark grey, dark grey brown, soft to firm, calcareous, moderately well to well cemented, very shaly
- 5540 to 5560 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks. **SILTSTONE:** as above. **SILTSTONE:** trace, light grey, firm to hard, well cemented, quartzitic, moderately clean, dense, micromicaceous
- 5560 to 5580 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks, grading to minor dark grey shaly siltstone. **SILTSTONE:** trace light grey, as above, occasional soft, clayey and pyritic
- 5580 to 5600 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks, interbedded with minor dark grey brown shaly calcareous siltstone
- 5600 to 5620 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks, interbedded with minor dark grey brown shaly calcareous siltstone
- 5620 to 5640 **SHALE:** very dark brown, firm, blocky to sub-blocky, calcareous, micromicaceous, very silty, rare carbonaceous specks, interbedded with minor dark grey brown shaly calcareous siltstone
- 5640 to 5650 **SHALE:** very dark brown, dark grey brown, soft to firm, blocky, calcareous, micromicaceous, moderately to very silty, occasional carbonaceous matter. **SILTSTONE:** trace, medium grey, hard, well cemented, calcareous, moderately clean to shaly, dense, quartzitic
- 5650 to 5660 **SHALE:** as above, **SILTSTONE:** light to medium grey, firm to hard, well cemented, calcareous, clay plugged to moderately clean
- 5660 to 5670 **SHALE:** very dark brown, dark grey brown, soft to firm, blocky, calcareous, micromicaceous, moderately to very silty, occasional carbonaceous matter. **SILTSTONE:** light to medium grey, firm to hard, well cemented, calcareous, clay plugged to moderately clean. Trace calcite fossil fragments (pelecypod)
- 5670 to 5690 **SHALE:** very dark brown, dark grey brown, soft to firm, blocky, calcareous, micromicaceous, moderately to very silty, occasional carbonaceous matter. **SILTSTONE:** increasing %, light grey, grey brown, firm to moderately hard, well cemented, calcareous, quartzitic shaly to clayey. Trace calcite fossil fragments (pelecypod)
- 5690 to 5700 **SHALE:** very dark brown, dark grey brown, soft to firm, blocky, calcareous, micromicaceous, moderately to very silty, occasional carbonaceous matter. **SILTSTONE:** decreasing % as above
- 5700 to 5712 **SHALE:** very dark brown, dark grey brown, soft to firm, blocky, calcareous, micromicaceous, moderately to very silty, occasional carbonaceous matter. **LIMESTONE:**

trace dark grey brown, sublithographic to microcrystalline, hard, very argillaceous, dense, occurs as thin stringers

VERY POOR RETURNS FROM 5712' to 5731'

5712 to 5720 **SHALE:** dark brown, firm, blocky, calcareous, moderately to very silty, micromicaceous, occasional carbonaceous specks, interbedded with light to dark grey shaly siltstone

5720 to 5731 **SHALE:** dark brown, firm, blocky, calcareous, moderately to very silty, micromicaceous, occasional carbonaceous specks, trace pyrite chunks, trace calcite fossil fragments (pelecypods)

5731 to 5744 VERY POOR CUTTINGS RETURN: **SHALE:** dark brown, firm, blocky, calcareous, moderately to very silty, micromicaceous, occasional carbonaceous specks, trace pyrite chunks **SANDSTONE:** 6 pieces in entire circulation sample: light grey, salt and pepper, very fine grained, hard, well cemented, slightly calcareous, subangular to subround, moderately well sorted, quartzitic with black and grey chert, very poor visible porosity, 4 to 6%, no fluorescence, stain, or cuts. **CARBONACEOUS SHALE:** 1 piece, near black, brittle, blocky, coaly

5744 to 5754 Predominantly **SHALE:** as above. **SANDSTONE:** trace light grey, salt and pepper, very fine grained, hard well cemented, slightly calcareous to siliceous, moderately well sorted, clay filled, quartzitic with dark grains, very poor porosity, 4 to 6%, no fluorescence or cuts, trace calcite fracture fill

5754 to 5759 **SHALE:** dark brown, firm to hard, sub-blocky to blocky, poor fissile, calcareous, slightly silty, trace clay siltstone, trace pyrite, scattered carbonaceous flakes, trace white and cream crystalline calcareous, with bright yellow mineral fluorescence.

5759 to 5769 **SHALE:** dark brown, firm to hard, blocky to sub-blocky, poorly fissile, very calcareous, occasional slightly silty, interbedded dark brown clay siltstone, trace pyrite, trace black carbonaceous specks.

5769 to 5779 **SHALE:** dark grey, dark grey brown, firm to hard, blocky to sub-blocky, poorly fissile, very calcareous, slightly silty, grading to clay siltstone, trace black carbonaceous flakes, trace pyrite, few interbedded siltstone stringers

5779 to 5794 **SHALE:** dark grey, dark grey brown, firm to hard, blocky to sub-blocky, poorly fissile, very calcareous, slightly silty, grading to clay siltstone, trace black carbonaceous flakes, trace pyrite, few interbedded siltstone stringers

5794 to 5807 **SHALE:** dark grey, dark grey brown, firm to hard, blocky to sub-blocky, poorly fissile, very calcareous, slightly silty, grading to clay siltstone, trace black carbonaceous flakes, trace pyrite, few interbedded siltstone stringers, trace fossil fragments (pelecypods).

5807 to 5820 **SHALE:** dark grey, dark grey to brown, firm to hard, blocky to sub-blocky, poorly fissile, very calcareous, slightly silty, grading to clay siltstone, trace black carbonaceous flakes, trace pyrite, few interbedded siltstone stringers, trace fossil fragments (pelecypods)

5820 to 5838 **SHALE:** dark grey, dark grey brown, firm to hard, blocky to sub-blocky, poorly fissile, very calcareous, slightly silty, grading to clay siltstone, trace black carbonaceous flakes, trace pyrite, few interbedded siltstone stringers

5838 to 5853 **SHALE:** dark grey, dark grey brown, firm to hard, blocky to sub-blocky, poorly fissile, very calcareous, slightly silty, grading to clay siltstone, trace black carbonaceous flakes, trace pyrite, few interbedded siltstone stringers

5853 to 5860 **SILTSTONE:** dark brown, dark grey brown, firm to hard, very clay filled, tight, no fluorescence or cut, trace black carbonaceous flakes, grading to very fine grained silty sandstone and silty shale.

5860 to 5872 **SHALE:** as above, very silty in part. **SANDSTONE:** trace, light to medium grey brown, rare light grey, very fine grained to silty, firm to hard, well cemented, slightly to moderately calcareous, moderately well sorted, very shaly in part to moderately clean, quartzitic with scattered dark grains, very poor porosity, 3 to 5%, no fluorescence or cuts, trace calcite fracture fill

LOG WITH HALLIBURTON AND RUN INTERMEDIATE 7" CASING AT 5873

5873 to 5880 **SILTSTONE:** medium to dark grey, firm, moderately well to well cemented, calcareous, very shaly, occasional carbonaceous inclusions. **SANDSTONE:** light to medium grey, very fine grained, firm to friable, moderately well cemented, slightly calcareous, moderately well sorted, subangular to subround, quartzitic with scattered black grains, poor visible porosity, 5 to 7%, no shows

5880 to 5900 **SHALE:** dark grey, firm, blocky, calcareous, moderately to very silty, scattered carbonaceous specks. **SANDSTONE:** 30% light grey, very fine grained, firm to friable, moderately well cemented, slightly calcareous, moderately well sorted, subangular to subround, quartzitic with scattered black grains, poor visible porosity, 5 to 7%, no shows

5900 to 5930 NO CUTTINGS COMING OVER THE SHAKER

5930 to 5940 **SHALE:** dark grey, firm to soft, blocky to subfissile, calcareous in part moderately to very silty grading to shaly siltstone. **BENTONITE:** cream, off white, soft, blocky, soapy to grainy, silty to arenaceous in part

5940 to 5950 **SHALE:** dark grey to brown, firm to slightly brittle, sblky, poor fissile, calcareous, occasional slightly silty, trace interbedded clay siltstone, trace white and amber crystalline calcite, interbedded light grey very fine grained sandstone, salt and pepper, fairly well sorted, subangular to subround, white calcareous clay fill, poor porosity, no fluorescence or cut

5950 to 5960 **SHALE:** dark grey - brown, firm to slightly brittle, sub-blocky, poorly fissile, calcareous, occasional slightly silty, trace interbedded clay siltstone, trace white and amber crystalline calcite, trace interbedded light grey very fine grained sandstone,

5960 to 5970 **SHALE:** dark grey brown, occasional medium brown bentonitic, soft to firm, non fissile, sub-blocky to blocky, calcareous, silty, grading to clay siltstone, interbedded soft, brown and grey to brown gummy bentonite **CLAYSTONE.**

5970 to 5990 **SHALE:** dark grey brown, occasional medium brown bentonitic, soft to firm, non fissile, sub-blocky to blocky, calcareous, silty, grading to clay siltstone, interbedded soft, brown and grey to brown gummy bentonite **CLAYSTONE.**

SAMPLE TOP FERRON SANDSTONE 5993' (+3652')

5990 to 6000 **SANDSTONE:** light grey, whitish grey, very light brown grey, slightly salt and pepper, predominantly fine grained, good trace medium grained, fairly well sorted, subangular to round, quartzitic, white kaolinite clay fill, very calcareous, generally poor porosity with trace poor to fair porosity, tight, scattered bright yellow mineral fluorescence, no cut.

6000 to 6010 **SANDSTONE:** light grey, whitish grey, slightly salt and pepper, upper fine grained, trace lower medium grained, fairly well sorted, subangular to subround, well cemented, abundant white calcareous clay fill, quartzitic, trace authigenic quartz overgrowth, poor porosity, tight, bright yellow mineral fluorescence, no cut.

6010 to 6020 No returns, lost circulation

6020 to 6040 Poor returns in part. **SANDSTONE:** light grey, very fine grained to silty, firm to moderately hard, siliceous, well sorted, high intergranular clay content, rare quartz overgrowths, subangular to subround, quartzitic, very poor to poor visible porosity, 3 to 7%, decreasing mineral fluorescence, no cuts. **SILTSTONE:** light grey, light to medium grey brown, hard, well cemented, siliceous, clay plugged, dense, quartzitic

6040 to 6050 Abnt LCM in sample. **SANDSTONE:** light grey, minor salt and pepper, very fine grained, firm to hard, well cemented, well sorted, moderately clean with decreasing clay content, quartzitic with rare black lithic grains, very poor to poor porosity, 4 to 6%, no shows

6050 to 6060 **SANDSTONE:** light grey, off white, salt and pepper, becoming lower fine to upper fine grained, firm to friable, rare round lower coarse grained free quartz, moderately well cemented, slightly to very calcareous, considerable white kaolinite clay fill in part, to moderately clean, subround to round, quartzitic with rare grey chert, poor to possible fair porosity, 6 to 10%, dull to moderately bright yellow mineral fluorescence, no cuts. **SHALE:** dark grey, soft to firm, blocky to subfissile, slightly calcareous, silty

6060 to 6070 **SANDSTONE:** as above, becoming very fine grained, very poor porosity, trace black bitumen, no fluorescence or cuts. **SILTSTONE:** medium to dark grey, hard, well cemented, siliceous, shaly, dense

6070 to 6080 **SANDSTONE:** light grey, light grey brown, very fine to lower fine grained, firm to moderately hard, well cemented, calcareous, well sorted, mostly clean, occasional clay plugged pores, quartzitic with dark lithic grains and feldspar clasts, rare light green clasts, trace carbonaceous laminated on sandstone, very poor to poor porosity, 4 to 7%, no fluorescence or cuts. **SILTSTONE:** decreasing % as above

6080 to 6090 **SANDSTONE:** light grey light grey brown, mostly very fine grained to silty, decreasing lower fine grained, firm to hard, well cemented, calcareous, well sorted, mostly low clay content, quartzitic with rare dark lithic grains, very poor porosity, 3 to 4%, no shows. **SHALE:** medium to dark grey, grey brown, firm, blocky to sub-blocky, calcareous, very silty

in part, grading to hard well cemented siltstone

- 6090 to 6100 **SANDSTONE:** light grey light grey brown, mostly very fine grained to silty, decreasing lower fine grained, firm to hard, well cemented, calcareous, well sorted, mostly low clay content, quartzitic with rare dark lithic grains, very poor porosity, 3 to 4%, no shows. **SHALE:** as above
- 6100 to 6110 **SANDSTONE:** light grey, lower fine grained, firm, well cemented, calcareous, quartzitic with well sorted, clean with minor clay fill, quartzitic with black lithic grains, subround to subangular, very poor to poor porosity, 4 to 8%. **SILTSTONE:** light to medium grey, hard well cemented, siliceous to slightly calcareous, dense, clay plugged. **SHALE:** as above
- 6110 to 6120 **SILTSTONE:** light grey, grey brown, hard well cemented, siliceous to slightly calcareous, dense, clay plugged. **SHALE:** as above
- 6120 to 6130 **SILTSTONE:** light grey, grey brown, hard well cemented, siliceous to slightly calcareous, dense, clay plugged. **CLAYSTONE:** light grey brown, light to medium grey, firm to hard, subwaxy to silty, blocky, very calcareous
- 6130 to 6150 **SANDSTONE:** light grey, whitish grey, medium brown grey, slightly salt and pepper, very fine to fine grained, fairly well sorted, subangular to subround, hard, well cemented white clay fill, slightly to moderately calcareous, siliceous cement, authigenic quartz overgrowths, very poor porosity, very tight, no fluorescence or cut. **CLAYSTONE:** green to grey, firm to brittle, subwaxy, blocky to sub-blocky, firm to brittle, non calcareous, trace black carbonaceous inclusions. **SILTSTONE:** (thin beds) medium to dark grey, dark brown to grey, firm to hard, siliceous cement, slightly calcareous, grading to very fine grained silty sandstone, no fluorescence or cut.
- 6150 to 6160 **CLAYSTONE:** medium grey, grey to brown, firm to brittle, subwaxy, blocky to sub-blocky, non calcareous, interbedded with grey siltstone and sandy siltstone
- 6160 to 6170 **SANDSTONE:** light to medium grey, whitish grey, light brown, slightly salt and pepper, very fine grained, trace fine grained, fairly well sorted, subangular to subround, hard, well cemented, siliceous cement, trace authigenic quartz overgrowth, non to slightly calcareous, trace white clay fill, very tight, very poor porosity, no fluorescence or cut, interbedded with grey sandy siltstone.
- 6170 to 6180 **SANDSTONE:** light grey, whitish grey, medium brown grey, slightly salt and pepper, very fine to fine grained fairly well sorted, subangular to subround, hard, well cemented white clay fill, slightly to non calcareous, siliceous cement, authigenic quartz overgrowth, very poor porosity, very tight, no fluorescence or cut, grading to sandy siltstone.
- 6180 to 6200 **SANDSTONE:** white, light to medium grey, medium brown grey, slightly salt and pepper, very fine to fine grained, fairly well sorted, subangular to subround, hard, dense, well cemented, siliceous cement, authigenic, quartz overgrowth, trace white clay fill, slightly to non calcareous, very tight, very poor porosity, grading to dark grey sandy siltstone, no fluorescence or cut.

- 6200 to 6210 **SANDSTONE:** similar to above, slightly trace jet black friable coal, rare slickensides grained coated with thin striated calcareous layer
- 6210 to 6227 **SANDSTONE:** white, light to medium grey, medium brown grey, slightly salt and pepper, very fine to fine grained, fairly well sorted, subangular to subround, hard, dense, well cemented, siliceous cement, authigenic, quartz overgrowth, trace white clay fill, slightly to non calcareous, very tight, very poor porosity, grading to dark grey sandy siltstone, no fluorescence or cut.
- 6218 to 6227 **SHALE:** (thin beds) dark brown, dark brown to grey, firm to slightly brittle, blocky to blocky, poor fissile, slightly calcareous, silty, grading to clay siltstone. **CLAYSTONE:** grey, green to grey, firm to brittle, subwaxy, non calcareous.
- 6227 to 6240 **SILTSTONE:** medium to dark grey, grey to brown, firm to hard, well cement, slightly calcareous, trace carbonaceous material, grading to silty shale. **SHALE:** dark brown, dark brownish grey, firm to slightly brittle, sub-blocky to blocky, poorly fissile, slightly to moderately calcareous, slightly silty, grading to clay siltstone, trace black carbonaceous shale, slight trace friable coal.
- 6240 to 6250 **SANDSTONE:** light grey, whitish grey, slightly salt and pepper, fine grained, fairly well sorted, subangular to subround, well cemented, hard, siliceous cement, trace white calcareous clay fill, quartzitic, trace authigenic quartz overgrowth, tight, poor porosity, trace poor to fair porosity, no fluorescence or cut.
- 6250 to 6260 **CLAYSTONE:** (interbedded with **SANDSTONE**) grey, light greenish grey, firm to brittle, subwaxy, bentonitic, massive, non calcareous to calcareous.
- 6250 to 6260 **SANDSTONE:** light grey, whitish grey, slightly salt and pepper, fine grained, fairly well sorted, subangular to subround, well cemented, hard siliceous cement, trace white calcareous clay fill, quartzitic, trace authigenic quartz overgrowth, tight, poor porosity, no fluorescence or cut.
- 6260 to 6270 **SANDSTONE:** (minor beds) grey, whitish grey, light brownish grey, slightly salt and pepper, very fine grained, grading to silty sandstone, fairly well sorted, subangular to subround, well cemented, hard siliceous cement, authigenic quartz overgrowth, trace white slightly calcareous clay fill, quartzitic, tight, poor porosity, no fluorescence or cut.
- 6260 to 6270 **SHALE:** dark brown, dark brownish grey, firm to hard, blocky to sub-blocky, poorly fissile, silty, grading to silty shale, slightly to moderately calcareous, trace greenish grey, subwaxy **CLAYSTONE.**
- 6270 to 6290 **SILTSTONE:** dark brown, dark grey, firm to very hard, clay filled, grading to silty sandstone and silty shale, interbedded greenish grey, subwaxy **CLAYSTONE**, non calcareous, bentonitic, interbedded very fine grained, hard, dense quartzitic siliceous sandstone.
- 6290 to 6300 **SANDSTONE:** light grey, light brownish grey, slightly salt and pepper, very fine to fine grained, fairly well sorted, subangular to subround, hard, well cemented, siliceous cement, white very calcareous clay fill, tight, poor porosity, trace poor to fair porosity, very faint dull gold mineral fluorescence, no cut. **SILTSTONE:** grey to dark grey very hard, dense, siliceous cement, very tight.

- 6300 to 6310 **SANDSTONE:** light to medium grey, brownish grey, slightly salt and pepper, very fine grained, fairly well sorted, subangular to subround, hard, well cemented, siliceous cement white calcareous clay fill, poor porosity, no fluorescence or cut, abundant black carbonaceous inclusions, interbedded brown and dark grey brown siltstone and dark grey brown shale.
- 6310 to 6320 **SANDSTONE:** whitish grey, light grey, slightly salt and pepper, very fine to fine grained, fairly well sorted, subangular to subround, well cemented, hard, siliceous cement, trace white calcareous clay fill, tight, poor porosity, very faint dull gold mineral fluorescence, no cut, interbedded silty sandstone, dark grey siltstone and silty shale, trace grey subwaxy **CLAYSTONE.**
- 6320 to 6330 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, rare upper fine grained, firm to friable, well cemented with calcite, well sorted, subangular to subround, clean with mostly minor clay fill, quartzitic with rare brown chert, white feldspar, and dark lithic grains, trace carbonaceous laminations, very poor to rare poor porosity, 4 to 8%, no fluorescence or cuts, trace bitumen. **CLAYSTONE:** medium grey, grey brown, firm, blocky to sub-blocky, non calcareous, smooth and subwaxy to silty, rare carbonaceous matter. **SILTSTONE:** trace, brown, very hard, well cemented, calcareous
- 6330 to 6340 **SANDSTONE:** light grey, salt and pepper, very fine to lower fine grained, as above, becoming very hard and well cemented with calcite, very poor porosity, 2 to 4%, dull gold mineral fluorescence, no cuts. **CLAYSTONE:** as above. **SILTSTONE:** increasing %, medium to dark grey brown, hard, well cemented, slightly to very calcareous, sandy in part, quartzitic, shaly
- 6340 to 6350 **SANDSTONE:** light grey, light grey brown, salt and pepper, lower fine to upper fine grained, friable and firm to hard and well cemented, cemented with calcite, well sorted, subround, quartzitic with grey chert and dark lithic grains, clean, minor clay, some quartz overgrowths, very poor to poor porosity, 4 to 8%, no fluorescence or cuts. **SILTSTONE:** light grey brown, light grey, hard, well cemented, siliceous, clean to shaly, dense
- 6350 to 6360 **SANDSTONE:** light grey salt and pepper, very fine to occasional lower fine grained, firm to hard, well cemented well sorted as above, very poor to rare poor porosity, 4 to 7%, some dull gold mineral fluorescence, no cuts. **SILTSTONE:** as above, siliceous to slightly calcareous. **CARBONACEOUS SHALE:** very dark brown to black, moderately hard to crumbly, non calcareous, coaly in part with trace black hard subvitreous coal as thin stringers
- 6360 to 6370 **SANDSTONE:** as above, becoming hard and well cemented, very poor porosity, 3 to 4%, no shows. **SILTSTONE:** light grey brown, light grey, light brown, hard, well cemented siliceous to slightly calcareous, clean to shaly, quartzitic
- 6370 to 6390 VERY POOR CUTTINGS RETURNS, **SANDSTONE:** light grey, salt and pepper, lower fine to lower medium grained, occasional upper medium to lower coarse grained, hard, well cemented, calcareous, moderately well sorted, subangular to subround, glassy with considerable quartz overgrowths, scattered dark chert and lithic grains, rare light green clasts, trace milky white calcite fracture fill, very poor porosity, 3 to 5%, spotty bright yellow fluorescence gives fair diffuse cuts. **CLAYSTONE:** light grey brown, light grey, firm, blocky, non calcareous, smooth to very silty

- 6390 to 6400 **SANDSTONE:** light grey, lower fine to upper fine grained, firm to hard, well cemented, calcite cement, moderately well sorted, low clay content, scattered dark chert and lithic inclusions, very poor to poor porosity, 4 to 6%, decreasing spotty bright yellow fluorescence gives slow streaming cuts. **CLAYSTONE:** light to medium grey as above. Very meager cuttings return
- 6400 to 6410 **SANDSTONE:** light grey, slightly salt and pepper, lower fine to upper fine grained, fairly well sorted, subangular to subround, well cemented, hard, siliceous and calcareous clay cement, trace authigenic quartz overgrowth, tight, poor porosity, scattered dull gold mineral fluorescence, rare bright yellow mineral fluorescence, no cut rare black carbonaceous inclusions.
- 6410 to 6420 **SILTSTONE:** dark brown-grey, massive, firm to hard, well cemented, calcareous clay fill, blocky, grading to silty shale and silty sandstone no fluorescence or cut. **SHALE:** dark brown, dark brown to grey, sub-blocky to blocky, poorly fissile, slightly to moderately calcareous, occasional subwaxy and non to calcareous, trace black carbonaceous material, grading to clay siltstone.
- 6420 to 6430 **SANDSTONE:** light grey, whitish grey, light brownish grey, slightly salt and pepper, lower to upper fine grained, trace lower medium grained fairly well sorted, subangular to subround, quartzitic, well cemented, hard, siliceous cement and white calcareous clay cement, trace black carbonaceous material, trace authigenic quartz overgrowth, tight, poor porosity, trace dull gold mineral fluorescence, no cut.
- 6430 to 6440 **SILTSTONE:** dark brownish grey, dark grey, massive, firm to hard, well cemented, calcareous, blocky, grading to silty shale and silty sandstone no fluorescence or cut. **SHALE:** dark brown, dark brownish grey, sub-blocky to blocky, poorly fissile, slightly to moderately calcareous, occasional subwaxy and non to calcareous, trace black carbonaceous material, grading to clay siltstone.
- 6440 to 6450 **SANDSTONE:** light grey, whitish grey, light brownish grey, slightly salt and pepper, lower to upper fine grained, trace lower medium grained, fairly well sorted, subangular to subround, quartzitic, well cemented, hard, siliceous cement and white calcareous clay cement, trace black carbonaceous material, trace authigenic quartz overgrowth, tight, poor porosity, trace dull gold mineral fluorescence, no cut.
- 6450 to 6460 **SHALE:** dark brown, dark brownish grey, firm to hard, sub-blocky to blocky, poorly fissile, trace carbonaceous material, trace pyrite, slightly to very silty, grading to clay siltstone, interbedded very fine grained silty sandstone, trace grey subwaxy bentonitic **CLAYSTONE.**
- 6460 to 6470 **SHALE:** dark brown, dark grey brown, firm to hard, brittle, blocky to sub-blocky, poorly to non fissile, trace black carbonaceous specks, moderately calcareous, interbedded dark brown to grey siltstone and clay siltstone, trace very fine grained silty sandstone, trace fossil fragments (pelecypods)
- 6470 to 6480 **SHALE:** dark brown, dark grey brown, firm, blocky, calcareous in part, slightly to very silty, rare carbonaceous inclusions. **SILTSTONE:** medium to dark grey, firm to hard, calcareous in part well cemented, very shaly

6480 to 6500 **SHALE:** medium to dark grey, soft to firm, blocky, non calcareous, very silty, some carbonaceous matter. **SILTSTONE:** medium grey, firm to hard, well cemented, siliceous, very shaly

SAMPLE TOP TUNUNK 6493' (+3152')

6500 to 6520 SHALE and SHALY **SILTSTONE:** dark grey, dark brown to grey, firm to friable, slightly brittle, non fissile, shale very silty, grading to shaly siltstone, some predominantly siltstone, blocky to sub-blocky, moderately to very calcareous.

6520 to 6540 **SILTSTONE:** dark grey, dark brownish grey, firm, slightly brittle, very calcareous, blocky to sub-blocky, grading to silty shale, trace very fine grained silty sandstone, interbedded dark grey to brown shale, no fluorescence or cut.

6540 to 6550 **SILTSTONE:** dark grey, dark brown to grey, firm, slightly brittle, very calcareous, blocky to sub-blocky, grading to silty shale, trace very fine grained silty sandstone, interbedded dark grey - brown shale, no fluorescence or cut.

6550 to 6560 SHALY **SILTSTONE:** dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, shale very silty, grading to shaly siltstone, some predominantly siltstone, blocky to sub-blocky, moderately to very calcareous.

6560 to 6580 SHALEY **SILTSTONE:** dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, shale very silty, grade to shaly siltstone, some predominantly siltstone, blocky to sub-blocky, moderately to very calcareous.

6580 to 6600 **SHALE:** dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately calcareous, slightly to very silty, grading to shaly siltstone,

6580 to 6600 SHALY **SILTSTONE:** dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, shale very silty, grade to shaly siltstone, some predominantly siltstone, blocky to sub-blocky, moderately to very calcareous.

6600 to 6620 **SHALE:** Similar to above, becoming decreasingly silty, dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately calcareous, slightly to very silty, grading to shaly siltstone,

6620 to 6640 **SHALE:** (Interbedded with **SILTSTONE**) dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately calcareous, slightly to very silty, grading to shaly siltstone,

6620 to 6640 SHALY **SILTSTONE:** dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, shale very silty, grade to shaly siltstone, some predominantly siltstone, blocky to sub-blocky, moderately to very calcareous.

6640 to 6660 **SHALE:** dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately calcareous, slightly to very silty, grading to shaly siltstone,

- 6660 to 6680 **SHALY SILTSTONE**: increasing siltstone, dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, shale very silty, grade to shaly siltstone, some predominantly siltstone, blocky to sub-blocky, moderately to very calcareous, trace cream crystalline calcite
- 6680 to 6700 **SHALES**: dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately calcareous, slightly to very silty, grading to shaly siltstone
- 6680 to 6700 **SHALY SILTSTONE**: decreasing amount, dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, shale very silty, grade to shaly siltstone, some predominantly siltstone, blocky to sub-blocky, moderately to very calcareous, trace pyrite.
- 6700 to 6720 **SHALES**: dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately calcareous, slightly to very silty, grading to shaly siltstone
- 6700 to 6720 **SHALY SILTSTONE**: decreasing siltstone, dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, grade to silty shale, blocky to sub-blocky, moderately to very calcareous.
- 6720 to 6740 **SHALES**: very dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately to very calcareous, slightly to very silty, grading to shaly siltstone.
- 6720 to 6740 **SHALY SILTSTONE**: decreasing siltstone, dark grey, dark brownish grey, firm to friable, slightly brittle, non fissile, grade to silty shale, blocky to sub-blocky, moderately to very calcareous.
- 6740 to 6760 **SHALES**: dark brown, dark brownish grey, firm to friable, slightly brittle, blocky to sub-blocky, poorly fissile, moderately calcareous, slightly to very silty, grading to shaly siltstone
- 6760 to 6780 **SHALES**: very dark grey, firm, blocky to sub-blocky, rare fissile, moderately calcareous, moderately to very silty. **SILTSTONE**: as thin stringers, medium to dark grey, hard, well cemented, non calcareous, moderately to very shaly, trace pyrite chunks
- 6780 to 6800 **SHALES**: very dark grey, firm, blocky to sub-blocky, rare fissile, moderately calcareous, moderately to very silty. **SILTSTONE**: as thin stringers, medium to dark grey, hard, well cemented, non calcareous, moderately to very shaly
- 6800 to 6820 **SHALES**: very dark grey, firm, blocky to sub-blocky, rare fissile, occasional hard and splintery, moderately calcareous, moderately to very silty. **SILTSTONE**: light to dark grey, soft and clayey when light grey, to moderately hard and well cemented when dark, calcareous in part, shaly
- 6820 to 6840 **SHALES**: very dark grey, firm, blocky to sub-blocky, rare fissile, occasional hard and splintery, moderately calcareous, moderately to very silty. **SILTSTONE**: light to dark grey, soft and clayey when light grey to moderately hard and well cemented when dark, calcareous in part, shaly
- 6840 to 6850 **SHALES**: very dark grey, firm, blocky to sub-blocky, rare fissile, occasional hard and splintery, moderately calcareous, moderately to very silty. **SILTSTONE**: light to dark grey, soft and clayey when light grey to moderately hard and well cemented when dark, calcareous

in part, shaly

6850 to 6860 **SHALE:** as above. **SANDSTONE:** trace light grey, very fine to lower fine grained, moderately hard, well cemented, slightly to moderately calcareous, well sorted, subangular to subround, moderately clean to clay plugged, quartzitic with scattered brown and grey lithic grains, very poor visible intergranular porosity, 3 to 5%, no fluorescence or cuts

SAMPLE TOP DAKOTA 6860' (+2785')

6860 to 6870 **SHALE:** as above. **SANDSTONE:** trace light to medium grey, lower fine to lower medium grained, hard, well cemented, calcareous in part, moderately well sorted, shaly, scattered dark lithic grains, dense, very poor porosity, 3 to 4%, no shows

6870 to 6880 **SANDSTONE:** light grey to near clear, lower fine to lower medium grained, firm to friable, moderately well cemented with calcite, well sorted, very clean in part to occasional clay plugged pores, subangular to subround, quartzitic with scattered grey chert and dark lithic grains, some quartz overgrowths, poor to fair visible porosity, 8 to 14%, no fluorescence, stain, or cuts

6880 to 6890 **SANDSTONE:** light grey to near clear, rare medium brown with considerable chert fragments, lower fine to lower medium grained, firm to friable, moderately well cemented with calcite, well sorted, very clean in part to increasing cream intergranular clay, subangular to subround, quartzitic with scattered grey chert and dark lithic grains, some quartz overgrowths, poor visible porosity, 6 to 10 %, no fluorescence, stain, or cuts. **SILTSTONE:** trace, medium brown, translucent, hard, well cemented, very calcareous, limey in part, dense

6890 to 6900 **SANDSTONE:** light grey, cream, lower fine to upper fine grained, friable to hard and well cemented with calcite, clean to occasional clay plugged, very poor porosity, no shows. **SHALE:** dark brown, firm, blocky to sub-blocky, calcareous, silty

6900 to 6910 **SANDSTONE:** as above, becoming very fine to lower fine grained, very poor porosity, 4 to 6%, trace spotty bright yellow fluorescence gives weak diffuse cuts, trace calcite fracture fill with dead oil stain on fracture surface, weak cut. **SILTSTONE:** light grey brown, light grey, hard, well cemented, clean to shaly, calcareous, dense, quartzitic. **SHALE:** minor %, light grey, soft, blocky, non calcareous, slightly to very silty

6910 to 6930 **SILTSTONE:** light grey brown, hard, translucent, well cemented, siliceous to slightly calcareous, quartzitic, dense, clean to moderately shaly. **SHALE:** increasing % as above. **SANDSTONE:** trace, cream, rare salt and pepper, very fine to lower fine grained, firm to hard, well cemented, calcareous, clean with minor clay content, very poor porosity, trace calcite fracture fill, trace spotty bright yellow fluorescence gives weak diffuse cuts

6930 to 6940 **SANDSTONE:** medium to dark grey brown, rare light grey, very fine grained to silty, hard, well cemented, siliceous to slightly calcareous, moderately well sorted, mostly shaly, quartzitic, grading to hard well cemented shaly siltstone, very poor porosity, 2 to 4%, no shows. **SHALE:** light grey, medium to dark grey brown, firm to moderately hard, brittle in part, blocky to sub-blocky, non calcareous, slightly to very silty, carbonaceous when dark

TRIP FOR BIT AT 6940'

6940 to 6950 NO RETURNS - LOST CIRCULATION

6950 to 6960 **SHALE:** light to medium grey brown, light grey, firm, blocky to sub-blocky, calcareous in part, smooth and subwaxy to silty, rare carbonaceous matter. **SILTSTONE:** light grey brown, hard, well cemented, calcareous, moderately clean to shaly, scattered black grains.

SANDSTONE: as thin stringers, light grey, salt and pepper, very fine grained, firm, well cemented, calcareous, moderately well sorted, clay filled pores, occasional dark chert, very poor porosity, no shows

6960 to 6970 **SHALE:** light to medium grey brown, light grey, firm, blocky to sub-blocky, calcareous in part, smooth and subwaxy to silty, rare carbonaceous matter, trace drusy pyrite.

SILTSTONE: as above, micro pyritic in part

6970 to 6980 **SHALE** and **SILTSTONE:** as above. **SANDSTONE:** light grey, light grey brown, very fine grained to silty, hard, well cemented with calcite, moderately well sorted, considerable intergranular clay, quartzitic, abundant quartz overgrowths, dense, very poor porosity, 3 to 4%, no fluorescence or cuts. **COAL:** trace, black, hard, brittle, subvitreous with trace very dark brown carbonaceous shale

6980 to 6990 Very poor cuttings return, **SHALE** and **SILTSTONE:** as above. **SANDSTONE:** light grey, light grey brown, very fine grained to silty, hard, well cemented with calcite, moderately well sorted, high clay content in pores, quartzitic, abundant quartz overgrowths, dense, very poor porosity, 3 to 4%, no fluorescence or cuts.

6990 to 7000 Very poor cuttings return, **SHALE:** light grey, firm, blocky, non calcareous, smooth.

SANDSTONE: light grey, light grey brown, very fine grained to silty, hard, well cemented with calcite, moderately well sorted, high clay content in pores, quartzitic, abundant quartz overgrowths, dense, very poor porosity, 3 to 4%, no shows

TOTAL DEPTH 7000' - Driller, at 11:41 A.M., October 9, 2005

ECL CANADA

TERMS

All interpretations and conclusions presented herein are opinions based on inferences from geological, geophysical, engineering and other available data. The report represents ECL Canada's best professional judgement and best efforts, and should not be considered a guarantee of results.

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- 09/01/05 70' (70'). Move in Patterson/UTI Rig #778. Drilled to 70' and set 70' of 16" conductor pipe. Cemented to surface. WO D.O.T. rig move permit.
- 09/02/05 70' (0'). Move rig D-9 cat assisted rig up mountain.
- 09/03/05 70' (0'). RU. 100% of rig on 22-42 location. 45% rigged up.
- 09/04/05 70' (0'). RU-heavy rains during day. 90% rigged up.
- 09/05/05 119' (49'). Finish rigging up. Make spud mud. Finish rigging up air pkg. PU 12 1/4" BIT. MU BHA & RIH. TAG UP @ 70'. Drill 70'-85'. Drill 85'-119'. Lost circulation & mixing mud & building volumn.
- 09/06/05 380' (261'). PO: Drilling 12 1/4" hole.-lost 200 bbls mud. Mixing mud building volumn. Drill to 185' Rig service install rotating head rubber. Drill 185'-246' Survey @246' = 1/2 degree. Drill 246'-380'.
- 09/07/05 795' (415'). PO: Building volume. Drill from 380'-609'. Survey @ 609=3/4 degree. Rig Service. Drill 609-700', losing small amt of mud at 700'. Drill 700'-795'. Lost complete returns. Pulled up into conductor casing. Wait on water trucks to fill tanks and pit.
- 09/08/05 985' (190'). Trip for plugged bit-lost 500 bbls mud. Trucking in water. Building volume. RIH. Break circulation. Drill with partial returns from 795'-890'. Bit plugged. POOH. Breakout bit. Wash and clean out same. RIH. Wash 30' to bottom. Drilled with partial returns 890'-985'. Bit plugged. POOH.
- 09/09/05 1080' (95'). PO: WOC. RIH, WASH 60' TO BOTTOM. DRILLED W/PARTIAL & NO RETURNS FROM 985' TO 1080'. CIRC. FOR SURVEY. SURVEY @ 1080' = 1 1/2. POOH, L.D. BHA, RIG UP WEATHERFORD TO RUN 9 5/8" CSC. RAN 24 JTS 9 5/8" 32.30# H-40 ST&C CSG. SHOE @ 1080'. INSTALL HALLIBURTON SWEDGE & ATTEMPT TO CIRC.-NO RETURNS. R.U. HALLIBURTON. TEST ALL LINES TO 3000 PSI - OK. HELD SAFETY MEETING. START CEMENT JOB. RAN 2 BBLs GEL & FLOCELE SWEEP. ALL CEMENT MIXED W/FRESH CITY WATER. START LEAD JOB PUMPING 110 SKS OF TYPE 3 CEMENT W/10 LBS/SACK GILSONITE, 25 LBS/SACK FLOCELE, CEMENT WT 11.0PPG, YIELD 3.47. PUMPED CEMENT @ 5 BBLs/MIN W/MAX. PSI OF 140. PUMPED TAIL CMT JOB W/280 SKS OF TYPE V CEMENT WITH 2%

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CACL, 25 LB PER SACK FLOCELE. WT 15.0 PPG. YIELD 1.20. PUMPED 5 BBLs. W/ MAX. PSI OF 110. (NO RETURNS). DROP PLUG AND DISPLACE W/70 BBLs OF FRESH WATER. BUMP PLUG W/ 700 PSI. HELD OK. RIG UP TO DO TOP JOB, RAN 80' OF 1" PIPE. CEMENT with 100 SKS OF CLASS G W/ 2% CACL.

- 09/10/05 1085'. PO: Drilling Cement. WOC, N.D. BOP'S. Cut off csg. Install well head (cmt @ surf). N.U. BOP's. Rig service. Test BOP's, upper and lower Kellys, PIW, floor valves, manifold and lines to 2500PSI. All held ok. Test Hydril and surface csg to 1500 PSI - OK. RIH w/bit and BHA. Level rig. Laydown 4 1/2" drill pipe. Tag cement @ 1021'.
- 09/11/05 1360' (275'). PO: Drilling. PU Kelly break circulation. Drill hard cmt and shoe. Tag cmt @ 1021'. Break in bit. Drill formation. Rig service. Drill w/aerated mud.
- 09/12/05 1761' (401'). PO: Drilling ahead. 1360 FT. TO 1509 FT. WITH AIREATED MUD. SURVEY AT 1509 = 3 1/4 DEGREES. DRILL FROM 1509 TO 1761 WITH AIREATED MUD. NOTE: DRILLING SHALE, SILTSTONE.
- 09/13/05 1965' (204'). PO: Drilling ahead. DRILL FROM 1761' TO 1824' w/ aerated mud. SURVEY @ 1724=4 1/4°. Drill from 1824' to 1875'. POH to pick up new BHA. Rig Service. MU BIT, P.U. SHOCK SUB AND IBS & RIH. PU Kelly and break circ., pump air locked, unloaded hole, circ and reamed 30' to bottom. Drilled from 1875' to 1965'. Drilling siltstone, shale and sand.
- 09/14/05 2459' (494'). PO: Circulate samples, looking for core point. Drill from 1965' to 2029' with aerated mud. Survey @ 2029= 3-1/2°. Lost approx. 500 bbls of mud after survey. Drill from 2029' to 2225'. Drilling with aerated mud ,mixed LCM pill and pumped same. Full returns and service rig. Drill 2225' to 2282' with aerated mud, full returns. Survey @ 2282 = 3-1/4°. Drill 2282' to 2459'. Circ out samples as per Geologist.
- 09/15/05 2558' (99'). PO: Unload core equipment. Drill from 2459' to 2505' with aerated mud. Survey @ 2505' = 4°. Drill from 2505' to 2558'. Had small drilling break. Circulate samples as per wellsite Geologist. Condition hole to core. Short trip, and C&C hole to core. Service Rig. Circ, wait on core equipment. Pull out of hole laying down all 4" drill pipe and 6 1/4" drill collars.

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- 09/16/05 2558' (0'). PO: Wash to bottom with core barrel. Offloading 5" Drill Pipe and Drill Collars for coring. Wait on 5" Rams for BOP's, Weatherford sent out type 79, this set of BOP's made in 1959 uses type 39. Install Rams and test same to 3000PSI - OK. Make up Corion tools and test same. Tools plugging with LCM. Mixed fresh mud for coring. Pick up Corion BHA, 5" DP and RIH. Pick up Kelly and break circulation @ 2498 with good returns to surface. Wash and ream to bottom.
- 09/17/05 2569' (11'). PO: TIH with Corion bit. Finish reaming to bottom. Test coring equipment. Coring from 2558' to 2569', increasing weight on bit from 4,000# to 10,000#. Attempt to retrieve core with wire line. Unable to latch onto fishing neck. Rig Tongs broke, wait on replacement set. Pull out of the hole with core. Stood back 5" DP & DC's in the derrick. Lay down core. Make up Corion bit and RIH to drill. Well Site Geologist estimates 15' to 25' of drilling.
- 09/18/05 2632' (63'). PO: Coring (coring at 1' per hour). Drill from 2569' to 2592' with Corion bit and BHA. Drilling with max. weight on bit, 11 to 12,000#. Rig Service. Drill from 2592' to 2618'. Drill from 2618' to 2622'. Drilling break @ 2619' to 2622', lost complete returns. Pulled Corion drill stem with wireline, as per wellsite Geologist picked up core barrel and ran on wireline. Mixed and pumped LCM pill and regained circ. Coring from 2622' to 2632'.
- 09/19/05 2632' (0'). PO: Circulating. Core from 2632' to 2635'. Retrieve core with wire line. Recovered 13', full recovery. Circulate with full returns. Lay down 5" DP & DC's. Lay down Corion BHA. Pick up 6 1/4" drill collars and 4" drill pipe. Make up re-run Security bit, shock sub, and IBS. Run in hole and tag @ 2558'. Circulate hole clean with full returns. Ream from 2558' to 2635' and circulate.
- 09/20/05 2805' (173'). PO: Drilling ahead. Circulate out samples. Drill from 2632' to 2699' while waiting on logging truck. Circulate with full returns. Stand Kelly back, rig up Weatherford Wire Line and run Scientific Drilling Gyro. The horizontal displacement {in feet} at measured depth of 2660' is 86.91 in a direction of 127.43° {going southeast}. Rig down Weatherford and POH standing back DP & DC's in derrick. Rig up Weatherford and run CBL/GR. Ran GR to TD and logged up to surface. Ran CBL from bottom of surface csg to surface. Rig down loggers. Trip in hole with bit, PU Kelly and break circ. Ream 30' to bottom. Drill from 2696' to 2722' and circ samples. Drill from 2722' to 2766' and circ samples. Drill from 2766' to 2776' and circ samples. Drill from 2776' to 2781' and circ samples. Drill ahead to 2805'.

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- 09/21/05 3005' (200'). PO: Work pipe, attempt to establish circulation. Drill from 2805' to 2886'. Change out rotating head rubber and drill from 2886' to 2892'. Circulate samples and drill from 2892' to 2916'. Circulate samples, and drill from 2916' to 2918'. Survey @ 2918' = 5-½°. Drill from 2918' to 3005' with 10 to 15,000 # weight on bit. Repair rotating head rubber. Survey @ 3005' = 5°. Bit plugged, POH. Wash out shock sub & bit and LD same. Slip & cut drill line, and adjust brakes. Change out 5" pipe rams and install 4" rams. Test to 3000 psi – OK. Pick up mud motor and run in hole. Pick up Kelly and attempt to circulate. No returns, stuck pipe. Worked stuck pipe free. Work pipe while trying to establish circulation.
- 09/22/05 3108' (103'). PO: Drilling ahead with air, with full returns. Circulate and work pipe while waiting on replacement rotating head (bearings had seized up). Air Comp LLC compressor went down and unable to supply air and POOH. Mud motor and bit plugged with cuttings & LCM, unable to wash out motor. Change out rotating heads. RIH with bit, shock sub, and IBS. Run in with collars and pipe to bottom of casing. WO compressor parts. Compressor parts arrived, installed new starter. Trip in hole and pick up Kelly 1 joint off bottom and break circulation. Ream from 2975' to 3005'. Drill from 3005' to 3108'.
- 09/23/05 3582' (474'). PO: Drilling ahead. Drill from 3108' to 3235' with air and mud. Survey @ 3195 - 4°. Drill from 3235' to 3297'. Service rig. Drill from 3297' to 3519'. Survey @ 3519 – 3-¾°. Drill from 3519' to 3582'. Gas: 17-50 units, and Avg: 30 units. Lithology: sandstone, siltstone, and minor coal.
- 09/24/05 3922' (340'). PO: Drilling ahead. Drill from 3582' to 3598'. Bit showing excessive torque. Circulate and drop survey. Trip out of hole to change bits, no drag, keeping hole full with no problems. Service Rig. Survey @ 3598' – 3-3/4°. Drill from 3598' to 3922'. Lithology: sandstone and siltstone.
- 09/25/05 4340' (418'). PO: Circulate and condition mud. Drill from 3929' to 4024'. Rig Service, Ran Wire Line Survey @ 3984' = 2 ½°. Drill from 4024' to 4340'. Lithology: siltstone and shale.
- 09/26/05 4795' (455'). PO: Drilling ahead. Heavy winds and rain since 2:00 a.m. Drill from 4330' to 4382'. Survey @ 4370' = 2-3/4°. Trip out of hole for bit. RIH with BHA. Test motor - OK. Run in hole, (running in slow with motor). Drill from 4382' to 4450'. Drill from 4450' to 4795'. Lithology: shale and minor siltstone.

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- 09/27/05 5585' (790'). PO: Drilling ahead with motor. Drill from 4780' to 4997'. Run wire line survey @ 4724' - 1 3/4°. Drill from 4997' to 5081'. Service Rig. Drill from 5081' to 5239'. Run wireline survey @ 5166' - 3/4°. Drill from 5239' to 5585'. Lithology: shale and minor siltstone.
- 09/28/05 5872' (287'). PO: Circulate to run logs. Drill to 5712' with good returns. Circ out samples per Geologist. Drill from 5712' to 5728'. Circ out samples per Geologist. Drill from 5728' to 5744'. Circ out samples per Geologist. Service Rig. Drill from 5744' to 5754'. Circ out samples per Geologist. Drill to 5872' and circulate per Geologist, looking for casing point. Lithology: shale, minor siltstone and sandstone.
- 09/29/05 5873' (1'). PO: Logging. Drill from 5871' to TD @ 5873' in Ferron formation. Stopped drilling per wellsite Geologist. Circulate samples. Run wireline survey @ 5862' - miss-run. Make 10 stand short trip, no drag, no fill. Circulate. Run wire line survey @ 5862' - 3/4°. Pull out of hole to Log. Wait on Halliburton Loggers. Rig up Loggers and run logs. Loggers TD is 5873'. Lithology: shale, with trace of sandstone.
- 09/30/05 5873' (0'). PO: Wash 7" casing to bottom. Finished Logging. Rig down loggers. Run in hole to circulate prior to running 7" csg. Hit tight spot @ 5199'. Pick up Kelly and circulate down 1 JT. Finish in hole to 5873', no fill, and circulate. Rig Service. Pull out of hole with drill pipe to run csg. Rig up Weatherford and lay down 20, 6-1/4" DC's. Pull wear ring. Last survey in 8 3/4 " hole @ 5862' - 3/4°. Notified Mark Jones with WOGCC, Don Stevens with BLM and Mike Smith with USFS of running csg. Wait on csg crew. Rig up Weatherford and run 145 jts of 7" 23#, J55, LT&C casing. Make up Halliburton swedge and circulate. Washed 6' to 5868', unable to land hanger.
- 10/01/05 5873' (0'). PO: Test BOPE. Continued to attempt to land hanger by pumping and working csg. Worked casing down 1-1/2' from being able to land. Began getting extreme drag while working casing. Set csg on bottom and prepared to cement. Csg. shoe @ 5871', and DV tool @ 1558'. RD casing crew. RU Halliburton and prepare to pump stage 1. Held safety meeting and tested all lines to 3000 PSI. Mixed cement with fresh city water. Mix & pump 190 sacks of Type V cement, with yield of 3.84 cubic ft/sk, 11.0 ppg, pumped @ 5.5 bpm with maximum psi of 820. Followed by 215 sacks of Type G cement with yield of 1.62 cubic ft/sk, 14.20 ppg with no returns during first stage. Circulate and WOC, unloading 4-3/4" DC's for 6 1/4" hole. Prepare to pump 2nd stage through DV tool. Mix & pump

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cmt with fresh city water. Pumped 55 sacks of CBM Lite Type 3 cement, 1.62 yield, @ 10.50 ppg, followed by 50 sacks of Type G cement, 1.15 yeild, @ 15.80 ppg. Had partial returns on 2nd stage. RD Halliburton. Nipple down BOP'S, set slips, and cut off csg. Nipple up BOP'S and LD 5 1/2" Kelly and PU rental 4 1/4" Kelly. Test BOPE.

- 10/02/05 5873' (0'). PO: Drilling csg shoe @ 5873'. Test BOPE to 2000 psi - OK. Pick up one 4-3/4" drill collar and 6-1/4" bit. RIH with no problems and ran wear ring. Pick up BHA and run in hole to DV tool. Tag DV tool @ 1558', with about 4' of cement on top of tool. Trip in hole to cement and shoe. Tagged cement @ 5868' and shoe @ 5872'. Drilling shoe.
- 10/03/05 6030' (157'). PO: Drilling ahead. Drill from 5873' to 5935' with air & mud. Shut down the air in order to get samples. Rig Service. Drill from 5935' to 6021' and lost circulation. Top of Ferron @ 5993'. Pull out of hole with 5 stands while mixing LCM pill. Start up air equipment and prepare to drill with air & mud. RIH with 5 stands. Drill with air & mud and regained circulation. BGG: 33-102 units, Average: 60 units. Lithology: shale, Blue Gate sand, and Ferron.
- 10/04/05 6227' (196'). PO: TOO H for bit. Drill from 6030' to 6125' with air and mud with full returns. Service Rig. Drill from 6125' to 6219' with air and mud with full returns. Thaw out frozen lines to drawworks, put methanol in all lines. Drill from 6219' to 6227'. Bit acting up, excessive torque, prepare to make trip for new bit. Drop survey, start out of hole for new bit. New Prognosis: Tununk @ 6487', Dakota @ 6833', TD @ 6930'?. BGG: 8 - 171 units, Average: 23 units. Lithology: sandstone and Ferron formation. *Note: heavy snowfall and high winds last 24 hours.*
- 10/05/05 6338' (111'). Drilling in Ferron formation. Finished pulling out of hole (very slow due to extreme cold weather). Break out bit and retrieve survey. Survey @ 6227' - 1°. Make up new bit, thaw out lines, and run in hole to 3500'. Cut drill line and service rig. Finished in hole with new bit. Pick up Kelly and break circulation. Ream 30' to bottom with very little fill. Drill from 6227' to 6338' with air & mud. Had full returns. Trip Gas: 56 units, BGG: 13 - 39 units and average gas: 20 units. Lithology: 100% sandstone.
- 10/06/05 6490' (152'). PO: Drilling in Ferron formation. Drill from 6338' to 6408' with air and mud, and full returns. Service Rig. Drill from 6408' to 6490' with 500 cfm air and mud. BGG: 15-58 units, average: 28 units. Lithology: 100% sand.

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- 10/07/05 6819' (329'). PO: Drilling in the Tununk formation. Drill from 6490' to 6503' with air and mud. Bit began to torque. Start out of hole to pick up motor and PDC. Hydraulic hose to drawworks burst. Repaired same with a temporary clamp, rig did not have any replacement hoses. Finished pulling out of hole, broke out bit and laid down, pick up 4 3/4" motor and 6 1/4" PDC bit. Installed new hydraulic hoses that Toolpusher picked up in town. Run in hole with motor and PDC. Tag up @ 6130', pick up Kelly and attempt to circulate. Reamed from 6190' to 6220', and ran 4 stands in hole. PU Kelly and ream from 6478' to 6503'. Drill with 600 cfm and 8.8 ppg mud. Drill from 6503' to 6819', with 600 cfm air and mud. Trip Gas: 86 units, Background Gas: 16-51 units, Average Gas: 25 units. Lithology: 100% shale. Top of Tununk formation @ 6493'.
- 10/08/05 6955' (136'). PO: Drilling ahead. Drill from 6819' to 6877' with motor, PDC, 600 cfm and mud. Service rig. Drill from 6877' to 6909' with 98% returns. Run wire line survey @ 6909' - 1°. Drill from 6909' to 6940'. Bit slowed to 2' per hour, and torque increased. Pull out of hole for new bit, LD motor and PDC. PDC looked OK. Make up new bit and RIH. Run in hole slow due to freezing weather. Ream from 6882' to 6940', losing mud while reaming. Lost approximately 350 bbls. Drill from 6940' to 6955' with air and mud, and 98% returns. Trip gas: 83 units, Background gas: 25 to 108 units, average gas: 75 units, connection gas: 235 units @ 6877'. Top of Dakota formation @ 6860'. *Note: high winds and snow during night.*
- 10/09/05 **7000' TD (45')**. PO: Wiper trip for logging. Drill from 6955' to **Total Depth @ 7000'** with mud and 600 cfm air. Circulate & condition hole to log to run logs. Drop Survey, POOH, break out bit and remove survey. Survey @ 7000' - 1-3/4°. Cut drill line. Rig up Halliburton loggers. Could not get below 6250'. 1st run: Quad Combo, 2nd run: Rest. & GR. Lost spring off Sonic tool (1-1/2" x 2' piece of metal). Rig down loggers. Run in hole for wiper trip. Gas: 22-47 units, average gas: 35 units. Lithology: sand and shale.
- 10/10/05 7000' TD. PO: Attempt to free stuck logging tools. Finish running in hole and attempt to circulate. Unable to start Air Comp units, continue pumping trying to regain circulation. Pumped approximately 350 bbls of mud away. Pull 20 stands up into casing. WO parts to repair Air Comp compressors. WO parts to arrive from Grand Junction, Colorado. Parts arrived and installed @ 16:30 hrs. Run in hole with 20 stands, did not indicate ledges @ 6250'. Pick up Kelly and attempt to circulate. Pumped 150 bbls mud before getting returns. Circulate & condition mud to log and build up volume for

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lost mud. Pull out of hole to log. Rig up loggers and RIH with Quad combo to 6960'. Logged up to 6210'. Tools sticking, and unable to go up or down.

- 10/11/05 7000' TD. PO: POOH with overshot. Halliburton advised that maximum pull on wireline is 11,000# (company safety policy). After discussions with Denver office it was decided to cut and thread to retrieve logging tools. Order and WO fishing tools. Service rig. Move DC's around in derrick to cut and thread in hole. Held safety meeting with rig hands, wireline hands and fishing tool personnel. Discussed procedures to retrieve logging tools. PU fishing tools and prepare to go in hole. Start in hole with overshot. Hit tight spot at 6100'. Work pipe trying to get to top of fish. Loggers line cut. POOH with line. Left approximately 100' of line in hole. Rig Down loggers. POOH to pick up wireline spear. Top of Fish @ 6120'.
- 10/12/05 7000' TD (0'). PO: RIH to TD to clean out and prepare to P&A. Finish pulling out of hole with overshot. LD overshot, inspect same, no indication that overshot had been on fish. PU wireline spear and run in hole. Work spear down on wire, work & rotate in order to engage wire. POOH with spear slowly, spear dragging indicating we had wire. Recover approximately 60' of wire with no tools attached to wire. Inspected end of the wire which indicated wire was pulled from rope socket and that all wire has been recovered. PU overshot and run in hole. Tag fish and pick up Kelly. Circulate through overshot before engaging fish. Stand back Kelly and engage fish. Overshot slipped over fish on first try. PU Kelly and pressure up on fish, fish is in overshot. Pull out of hole slowly with occasional drag. Recovered entire fish. LD and break out logging tools. Load out logging tools. Break out overshot and load out fishing tools. Clean up floor, start in hole with 6-1/4" bit + drill collars. Will clean out hole and plug & abandon.
- 10/13/05 7000' TD (0'). PO: RIH open-ended to P&A. Trip in hole to bottom of casing. Finished in hole and tag fill @ 6882'. PU Kelly and prepare to clean out to T.D. Gained circulation after pumping 100 bbls. Continued to circulate and condition hole. Set back Kelly, POOH and stand back drill pipe in derrick. Lay down 18 rental 4-3/4" DC's. Trip in hole open-ended to bottom of casing. PU 18 joints of drill pipe and clean-up floor. Notified Mark Jones, state of Utah inspector of our intent to P&A well. Plugging procedure from Eric Jones of BLM Moab office approved by Chuck Pollard, PCR VP Engineering & Operations.

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- 10/14/05 7000' TD (0'). PO: Setting plugs. Finish running to bottom with open-ended drill pipe, run in slow to avoid plugging pipe. Circulate with mud & air while rigging up Halliburton. RU Halliburton to 9-5/8" casing. Pressure test 7" X 9-5/8" annulus to determine TOC. Pressure increased immediately when Halliburton kicked in pump. Pressured up to 240 psi and held solid @ 220 psi for 15 minutes. Bled down pressure and prepare for 1st plug @ 7000'. Set 1st plug across Dakota from 7000'-6760' with 53 sxs of Class G Neat cement at 15.8 ppg. Set 2nd plug from 6543'-5773' with 166 sxs of Class G Neat with 3% CaCl. Pull up 12 stds and WOC 6 hrs. Cement sample on surface was hard, solid. RIH, unable to find plug. POOH, PU Halliburton cement retainer and RIH. Set cmt retainer @ 5819'. Cement below tool with 20 sxs Class G Neat. Pull out of retainer and cement with 20 sxs Class G Neat with full circulation. POOH laying down DP to next plug @ top of Emery @ 2352'. Air Comp LLC released @ 2100 hrs 10-14-05. *Note: plugging procedure revised per Chuck Pollard. Chuck advised BLM that perforations were not necessary since in step 1 annulus did hold pressure. Eric Jones of BLM agreed to revision.*
- 10/15/05 7000' TD (0'). PO: Release rig at 0400 hrs, 10/16/05. LD drill pipe, and load out Halliburton cement retainer tool. Run in hole open-ended to set plug across Emery formation from 2227'-2427'. Cement with 30 sacks of Class G Neat @ 15.8 ppg. LD drill pipe and pull up to 1663'. Set balanced plug from 1663'-1513' and cement with 30 sacks Class G Neat cement. LD drill pipe and pull up to 1130'. Set balanced plug from 1130'-1030' with 30 sacks of Class G Neat cement. All cement weights were @ 15.8 ppg. Finish laying down drill pipe leaving 1 stand in derrick. ND BOP's, and RIH with 1 stand. RU Halliburton and spot plug from 50' to surface. Cement with 10 sacks of Class G Neat cement. LD last 2 joints and RD Halliburton. Cement is @ surface and standing full. Clean out cellar and mud pits. Rig released @ 0400 hrs 10/16/05. *Note: all state and federal agencies were notified of the P&A, but none showed up on location. The State of Utah inspector called and advised of what to put on dry hole marker. Welder will do this on Tuesday 10/18/05 after rig is moved off location. Mike Smith will inspect the location at that time. FINAL REPORT.*