

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

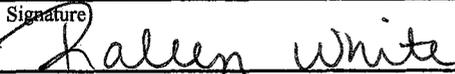
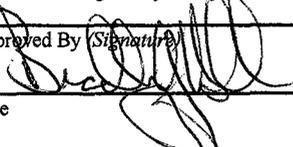
FORM APPROVED  
OMB NO. 1004-0137  
Expires: July 31, 2010

5. Lease Serial No. UTU-142430	
6. If Indian, Allottee or Tribe Name Ute Tribe	
7. If Unit or CA Agreement, Name and No. 891008900A	
8. Lease Name and Well No. NBU 920-33L	
9. API Well No. <b>43-047-40568</b>	
1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER	10. Field and Pool, or Exploratory Natural Buttes Field
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone	11. Sec., T., R., M., or Blk. and Survey or Area 33 T 9S R 20E Lot 2 S.L.B. & M.
2. Name of Operator Kerr-McGee Oil & Gas Onshore, LP	12. County or Parish Uintah
3a. Address PO Box 173779 Denver, CO 80217-3779	13. State Utah
3b. Phone No. (include area code) Raleen White 720-929-6666	14. Distance in miles and direction from the nearest town or post office* Approximately 39 miles south of Vernal, Utah
4. Location of well (Report location clearly and in accordance with any State requirements.)* At surface 2,299' FSL 625' FWL NW/4 SW/4 Lat. 39.9901 Long. -109.67886 At proposed prod. zone <b>612852X</b> <b>4427287Y</b> <b>39.990120</b> <b>-109.678179</b>	15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any) 625'
16. No. of acres in lease 688.60	17. Spacing Unit dedicated to this well Unit well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. ±1,000'	19. Proposed Depth 10,500'
20. BLM/ BIA Bond No. on file <b>W4B000291</b>	21. Elevations (Show whether DF, RT, GR, etc.) 4,869' GR KB
22. Approximate date work will start* ASAP	23. Estimated duration 10 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1 shall be attached to this form:

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Well plat certified by a registered surveyor.</li> <li>2. A Drilling Plan.</li> <li>3. A Surface Use Plan ( if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).</li> </ol> | <ol style="list-style-type: none"> <li>4. Bond to cover the operations unless covered by existing bond on file(see item 20 above).</li> <li>5. Operator certification.</li> <li>6. Such other site specific information and/ or plans as may be required by the a authorized officer.</li> </ol> |
|---|--|

25. Signature 	Name (Printed/ Typed) Raleen White	Date 2-13-09
Title Sr Regulatory Analyst	E-mail: raleen.white@anadarko.com	Phone: 720-929-6666
Approved By (Signature) 	Name (Printed/ Typed) BRADLEY G. HILL	Date 03-02-09
Title Office	ENVIRONMENTAL MANAGER	

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, are attached.

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.

\* (Instructions on page 2)

**RECEIVED**

**FEB 17 2009**

**Federal Approval of this  
Action is Necessary**

DIV. OF OIL, GAS & MINING



**NBU 920-33L  
NWSW Sec. 33, T9S R20E  
UINTAH COUNTY, UTAH  
UTU-142430**

**ONSHORE ORDER NO. 1**

***DRILLING PROGRAM***

1. – 2. **Estimated Tops of Important Geologic Markers:**  
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

<u>Formation</u>	<u>Depth</u>	<u>Resource</u>
Uinta	0 – Surface	
Green River	1,623'	
Birds Nest	1,854'	Water
Mahogany	2,333'	Water
Wasatch	5,065'	Gas
Mesaverde	8,403'	Gas
MVU2	9,216'	Gas
MVL1	9,736'	Gas
TD	10,500'	

3. **Pressure Control Equipment** (Schematic Attached)

*Please see the Natural Buttes Unit Standard Operating Procedure (SOP).*

4. **Proposed Casing & Cementing Program:**

*Please see the Natural Buttes Unit SOP. See attached drilling diagram.*

5. **Drilling Fluids Program:**

*Please see the Natural Buttes Unit SOP.*

6. **Evaluation Program:**

*Please see the Natural Buttes Unit SOP.*

7. **Abnormal Conditions:**

Maximum anticipated bottomhole pressure calculated at 10,500' TD, approximately equals 6,705 psi (calculated at 0.64 psi/foot).

Maximum anticipated surface pressure equals approximately 4,395 psi (bottomhole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot).

**8. Anticipated Starting Dates:**

*Drilling is planned to commence immediately upon approval of this application.*

**9. Variances:**

*Please see Natural Buttes Unit SOP Onshore Order #2 – Air Drilling Variance*

*Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2*

- *Blowout Prevention Equipment (BOPE) requirements;*
- *Mud program requirements; and*
- *Special drilling operation (surface equipment placement) requirements associated with air drilling.*

*This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.*

*The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.*

*More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.*

**Background**

*In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.*

*Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.*

*The air rig is then mobilized to drill the surface casing hole by drilling a 12-1/4 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 12-1/4 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 9-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.*

*KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.*

***Variance for BOPE Requirements***

*The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.*

***Variance for Mud Material Requirements***

*Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.*

***Variance for Special Drilling Operation (surface equipment placement) Requirements***

*Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.*

*Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.*

*Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.*

*Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.*

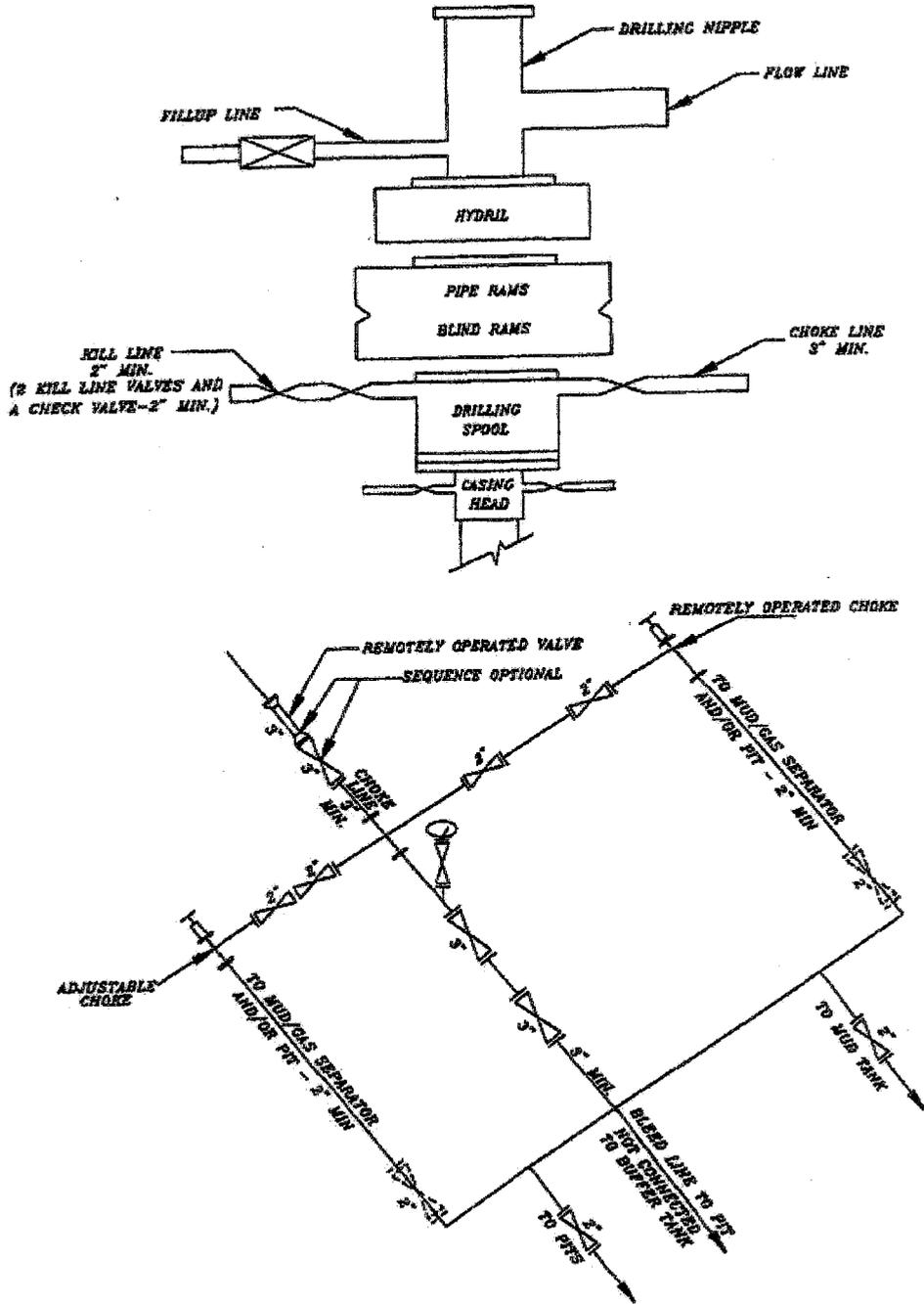
***Conclusion***

*The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.*

**10. Other Information:**

*Please see Natural Buttes Unit SOP.*

EXHIBIT A  
 NBU 920-33L



**SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK**

**NBU 920-33L  
NWSW Sec. 33 T9S R20E  
UINTAH COUNTY, UTAH  
UTU-142430**

**ONSHORE ORDER NO. 1**

***MULTI-POINT SURFACE USE & OPERATIONS PLAN***

**1. Existing Roads:**

Refer to the attached location directions.

Refer to Topo Maps A and B for location of access roads within a 2-mile radius.

**2. Planned Access Roads:**

Approximately  $\pm 2,480'$  of new access road is proposed. Refer to Topo Map B.

*Existence of pipelines; maximum grade; turnouts; major cut and fills, culverts, or bridges; gates, cattle guards, fence cuts, or modifications to existing facilities were determined at the on-site.*

*Please see the Natural Buttes Unit Standard Operating Procedure (SOP).*

**3. Location of Existing Wells Within a 1-Mile Radius:**

Please refer to Topo Map C.

**4. Location of Existing & Proposed Facilities:**

*Please see the Natural Buttes Unit SOP.*

Refer to Topo Map D for the location of the proposed pipelines.

**Variances to Best Management Practices (BMPs) Requested:**

This exception to the BMP should be granted by the BLM Authorized Officer because indurated bedrock, such as sandstone, is at or within 2 feet of the surface and the soil has a poor history for successful rehabilitation.

All facilities will be painted within six months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded. The requested color is Shadow gray (2.5Y 6/2), a non-reflective earthtone.

**Interim Surface Reclamation Plan:**

This exception is requested due to the current twin and multi-well program. If determined that this well will not be a candidate for either twinning &/or multi-well the operator shall spread the topsoil pile on the location up to the rig anchor points. The location will be reshaped to the original contour to the extent possible. The operator will reseed the area using the BLM recommended seed mixture and reclamation methods.

5. **Location and Type of Water Supply:**

*Please see the Natural Buttes SOP.*

6. **Source of Construction Materials:**

*Please see the Natural Buttes SOP.*

7. **Methods of Handling Waste Materials:**

*Please see the Natural Buttes SOP.*

A plastic reinforced liner is to be used as discussed during on-site inspection. It will be a minimum of 20 mil thick and felt, with sufficient bedding used to cover any rocks. The liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash or scrap that could puncture the liner will be disposed of in the pit.

Any produced water from the proposed well will be contained in a water tank and will then be hauled by truck to one of the pre-approved disposal sites: RNI, Sec. 5, T9S, R22E, NBU #159, Sec. 35, T9S R21E, Ace Oilfield, Sec. 2, T6S, R20E, MC&MC, Sec. 12, T6S, R19E, Pipeline Facility Sec. 36, T9S, R20E, Goat Pasture Evaporation Pond SW/4 Sec. 16, T10S, R22E, Bonanza Evaporation Pond Sec. 2, T10S, R23E (*Request is in lieu of filing Form 3160-5, after initial production*).

8. **Ancillary Facilities:**

*Please see the Natural Buttes SOP.*

9. **Well Site Layout:** (See Location Layout Diagram)

The attached Location Layout Diagram describes drill pad cross-sections, cuts and fills, and locations of the mud tanks, reserve pit, flare pit, pipe racks, trailer parking, spoil dirt stockpile(s), and surface material stockpile(s).

Please see the attached diagram to describe rig orientation, parking areas, and access roads.

Location size may change prior to the drilling of the well due to the current rig availability. If the proposed location is not large enough to accommodate the drilling rig. The location will be re-surveyed and a form 3160-5 will be submitted.

10. **Plans for Reclamation of the Surface:**

*Please see the Natural Buttes SOP.*

Operator shall call the BIA for the seed mixture when the final reclamation occurs.

**11. Surface/Mineral Ownership:**

The well pad and access road are located on lands owned by:

Ute Indian Tribe  
P.O. Box 70  
Fort Duchesne, Utah 84026  
(435) 722-5141

The mineral ownership is listed below:

United States of America  
Bureau of Land Management  
170 South 500 East  
Vernal, UT 84078  
(435)781-4400

**12. Stipulations/Notices/Mitigation:**

There are no stipulations or notices for this location.

**13. Other Information:**

A Class III archaeological survey has been performed and will be submitted upon receipt. Paleo report is attached.

**14. Lessee's or Operator's Representative & Certification:**

Raleen White  
Sr. Regulatory Analyst  
Kerr-McGee Oil & Gas Onshore LP  
P.O. Box 173779  
Denver, CO 80217-3779  
(720) 929-6666

Tommy Thompson  
Drilling Manager  
Kerr-McGee Oil & Gas Onshore LP  
P.O. Box 173779  
Denver, CO 80217-3779  
(720) 929-6724

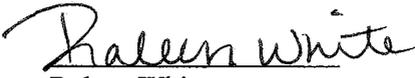
Certification: All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees.

Kerr-McGee Oil & Gas Onshore LP is considered to be the operator of the subject well. Kerr-McGee Oil & Gas Onshore LP agrees to be responsible under the terms and conditions of the lease for the operations conducted upon leased lands.

The Operator will be fully responsible for the actions of its subcontractors. A complete copy of the approved "Application for Permit to Drill" will be furnished to the field representative(s) to ensure compliance and shall be on location during all construction and drilling operations.

Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided by Bureau of Land Management Nationwide Bond #WYB000291.

I hereby certify that I, or persons under my supervision, have inspected the proposed drill site and access route, that I am familiar with the conditions that currently exist; that I have full knowledge of the State and Federal laws applicable to this operation; that the statements made in this plan are, to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

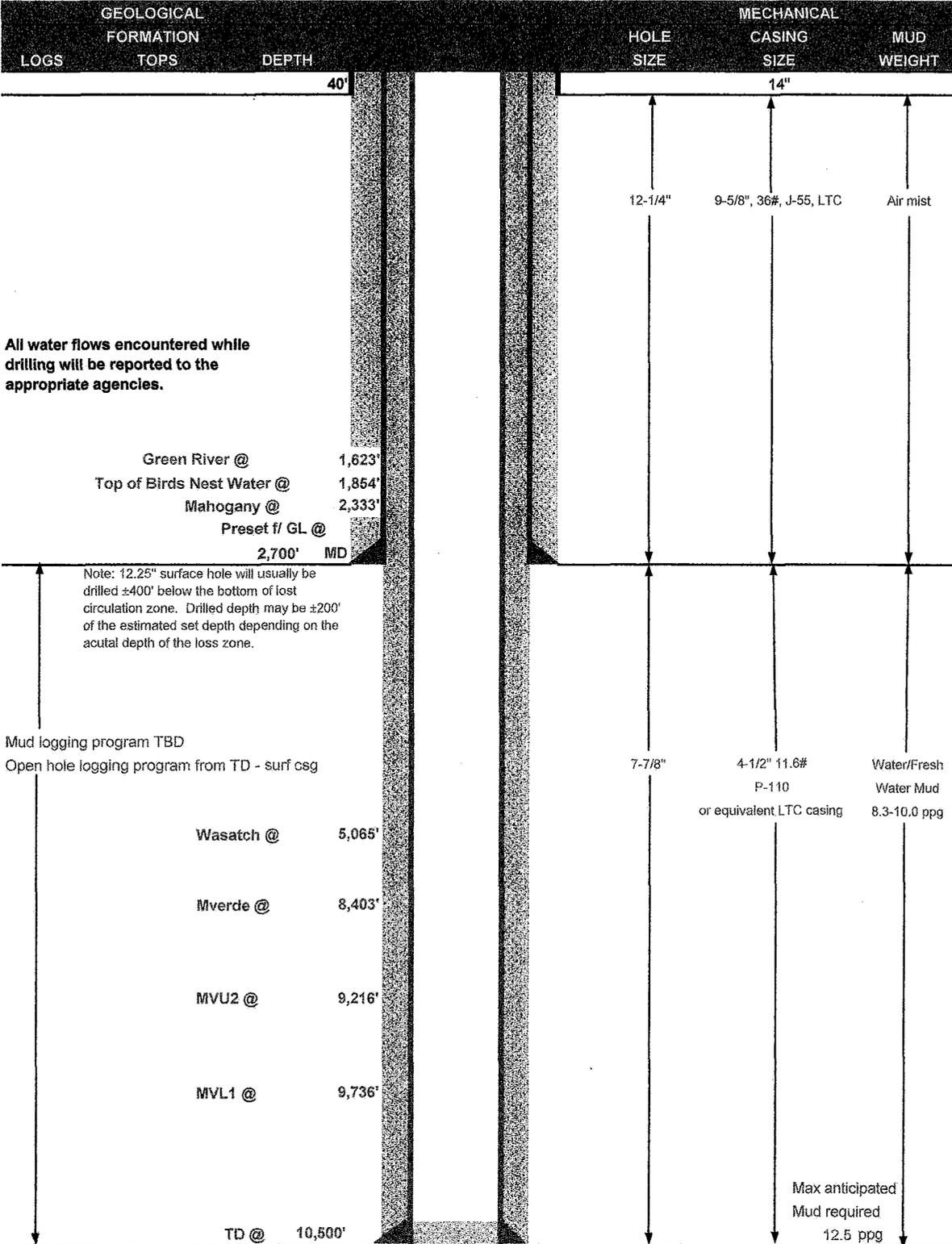
  
Raleen White

2/2/2009  
Date



# KERR-McGEE OIL & GAS ONSHORE LP DRILLING PROGRAM

COMPANY NAME KERR-McGEE OIL & GAS ONSHORE LP      DATE February 5, 2009  
 WELL NAME NBU 920-33L      TD 10,500'      MD/TVD  
 FIELD Natural Buttes      COUNTY Uintah      STATE Utah      ELEVATION 4,869'      GL KB 4,884'  
 SURFACE LOCATION NW/4 SW/4 2,299' FSL 625' FWL Sec 33 T 9S R 20E Lot 2      BHL Straight Hole  
 Latitude: 39.990100      Longitude: -109.678860      NAD 83  
 OBJECTIVE ZONE(S) Wasatch/Mesaverde  
 ADDITIONAL INFO Regulatory Agencies: BLM (MINERALS), BIA (SURFACE), UDOGM, Tri-County Health Dept.





**KERR-McGEE OIL & GAS ONSHORE LP**  
**DRILLING PROGRAM**

**CASING PROGRAM**

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS		
						BURST	COLLAPSE	TENSION
CONDUCTOR	14"	0-40'						
SURFACE	9-5/8"	0 to 2700	36.00	J-55	LTC	3,520	2,020	453,000
						0.78	1.60	5.93
PRODUCTION	4-1/2"	0 to 10500	11.60	P-110	LTC	10,690	7,580	279,000
						2.37	1.11	2.62

- 1) Max Anticipated Surf. Press.(MASP) (Surface Casing) = (Pore Pressure at next csg point-(0.22 psi/ft-partial evac gradient x TVD of next csg point))
- 2) MASP (Prod Casing) = Pore Pressure at TD - (0.22 psi/ft-partial evac gradient x TD)  
 (Burst Assumptions: TD = 12.5 ppg) 0.22 psi/ft = gradient for partially evac wellbore  
 (Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)  
 MASP 4,395 psi
- 3) Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD  
 (Burst Assumptions: TD = 12.5 ppg) 0.64 psi/ft = bottomhole gradient  
 (Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)  
 MABHP 6,705 psi

**CEMENT PROGRAM**

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE Option 1	LEAD	500	Premium cmt + 2% CaCl + .25 pps flocele	215	60%	15.60	1.18
	TOP OUT CMT (1)	200	20 gals sodium silicate + Premium cmt + 2% CaCl + .25 pps flocele	50		15.60	1.18
	TOP OUT CMT (2)	as required	Premium cmt + 2% CaCl	as req.		15.60	1.18
<b>NOTE: If well will circulate water to surface, option 2 will be utilized</b>							
SURFACE Option 2	LEAD	1500	Prem cmt + 16% Gel + 10 pps gilsonite + 25 pps flocele + 3% salt BWOC.	170	35%	11.00	3.82
	TAIL	500	Premium cmt + 2% CaCl + .25 pps flocele	180	35%	15.60	1.18
	TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.60	1.18
PRODUCTION	LEAD	4,560'	Premium Lite II + 3% KCl + 0.25 pps celloflake + 5 pps gilsonite + 10% gel + 0.5% extender	500	60%	11.00	3.38
	TAIL	5,940'	50/50 Poz/G + 10% salt + 2% gel + 1% R-3	1660	60%	14.30	1.31

\*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained  
 \*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

**FLOAT EQUIPMENT & CENTRALIZERS**

SURFACE	Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe.
PRODUCTION	Float shoe, 1 jt, float collar. Centralize first 3 joints & every third joint to top of tail cement with bow spring centralizers.

**ADDITIONAL INFORMATION**

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip.

Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

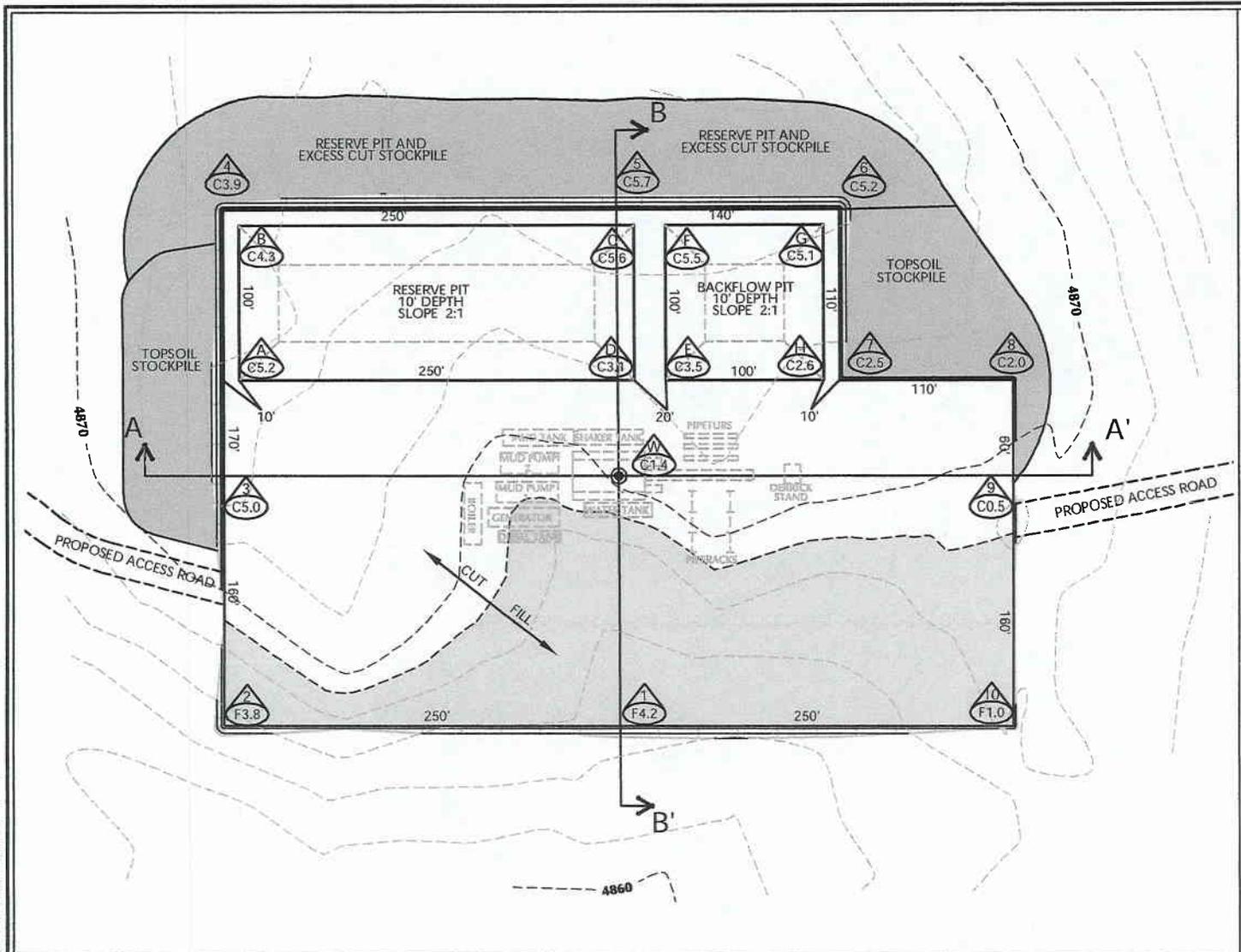
Drop Totco surveys every 2000'. Maximum allowable hole angle is 5 degrees.

Most rigs have PVT Systems for mud monitoring. If no PVT is available, visual monitoring will be utilized.

DRILLING ENGINEER: \_\_\_\_\_ DATE: \_\_\_\_\_  
 John Huycke / Grant Schluender

DRILLING SUPERINTENDENT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 John Merkel / Lovel Young

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**WELL PAD LEGEND**

- WELL LOCATION
- - - EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)

**WELL PAD NBU 920-33L QUANTITIES**

EXISTING GRADE @ LOC. STAKE = 4,870.4'  
 FINISHED GRADE ELEVATION = 4,869.0'  
 CUT SLOPES = 1.5:1  
 FILL SLOPES = 1.5:1

TOTAL CUT FOR WELL PAD = 10,567 C.Y.  
 TOTAL FILL FOR WELL PAD = 4,557 C.Y.  
 TOPSOIL @ 6" DEPTH = 3,002 C.Y.  
 EXCESS MATERIAL = 6,010 C.Y.  
 TOTAL DISTURBANCE = 3.72 ACRES  
 SHRINKAGE FACTOR = 1.10  
 SWELL FACTOR = 1.00  
 RESERVE PIT CAPACITY (2' OF FREEBOARD)  
 +/- 25,880 BARRELS  
 RESERVE PIT VOLUME  
 +/- 7,185 CY  
 BACKFLOW PIT CAPACITY (2' OF FREEBOARD)  
 +/- 8,780 BARRELS  
 BACKFLOW PIT VOLUME  
 +/- 2,520 CY

**KERR-MCGEE OIL & GAS  
 ONSHORE L.P.**  
 1099 18th Street - Denver, Colorado 80202



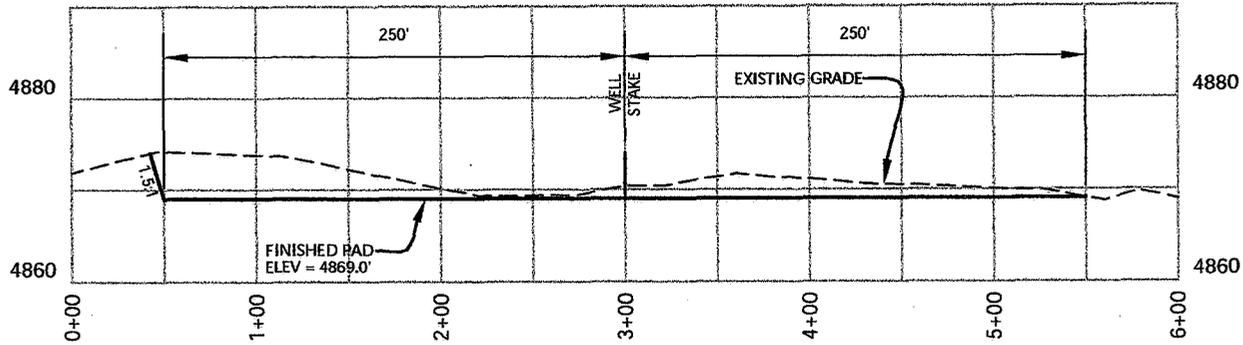
**CONSULTING, LLC**  
 371 Coffeen Avenue  
 Sheridan WY 82801  
 Phone 307-674-0609  
 Fax 307-674-0182

**NBU 920-33L  
 WELL PAD - LOCATION LAYOUT**  
 2299' FSL, 625' FWL  
 LOT 2 OF SECTION 33, T9S, R20E,  
 S.L.B.&M., UINTAH COUNTY, UTAH

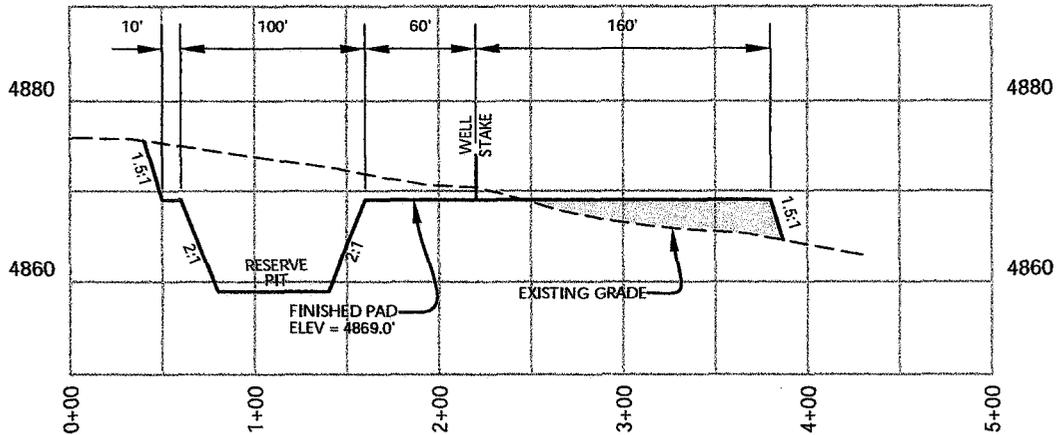
Scale: 1"=100'	Date: 1/15/09	SHEET NO:
REVISED:	BY DATE	2 2 OF 9



**Timberline** (435) 789-1365  
**Engineering & Land Surveying, Inc.**  
 38 WEST 100 NORTH VERNAL, UTAH 84078



**CROSS SECTION A-A'**



**CROSS SECTION B-B'**

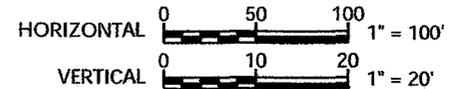
NOTE: CROSS SECTION B-B' DEPICTS  
MAXIMUM RESERVE PIT DEPTH.

KERR-MCGEE OIL & GAS  
ONSHORE L.P.  
1099 18th Street - Denver, Colorado 80202



CONSULTING, LLC  
371 Coffeen Avenue  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

NBU 920-33L  
WELL PAD - CROSS SECTIONS  
2299' FSL, 625' FWL  
LOT 2 OF SECTION 33, T9S, R20E,  
S.L.B.&M., Uintah County, Utah



Scale: 1"=100'	Date: 1/15/09	SHEET NO:
REVISED:	BY DATE	3 3 OF 9

**Timberline** (435) 789-1365  
Engineering & Land Surveying, Inc.  
38 WEST 100 NORTH VERNAL, UTAH 84078

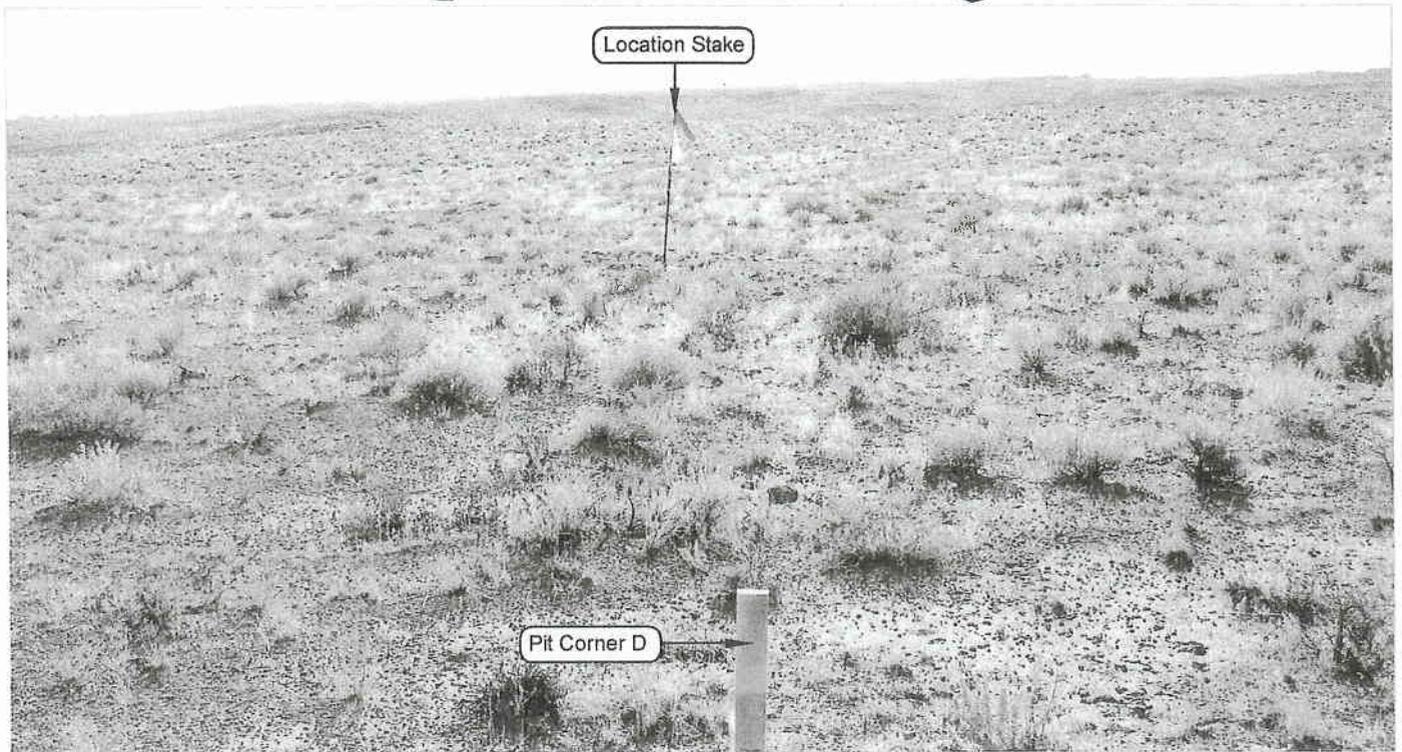


PHOTO VIEW: FROM PIT CORNER D TO LOCATION STAKE

CAMERA ANGLE: SOUTHEASTERLY

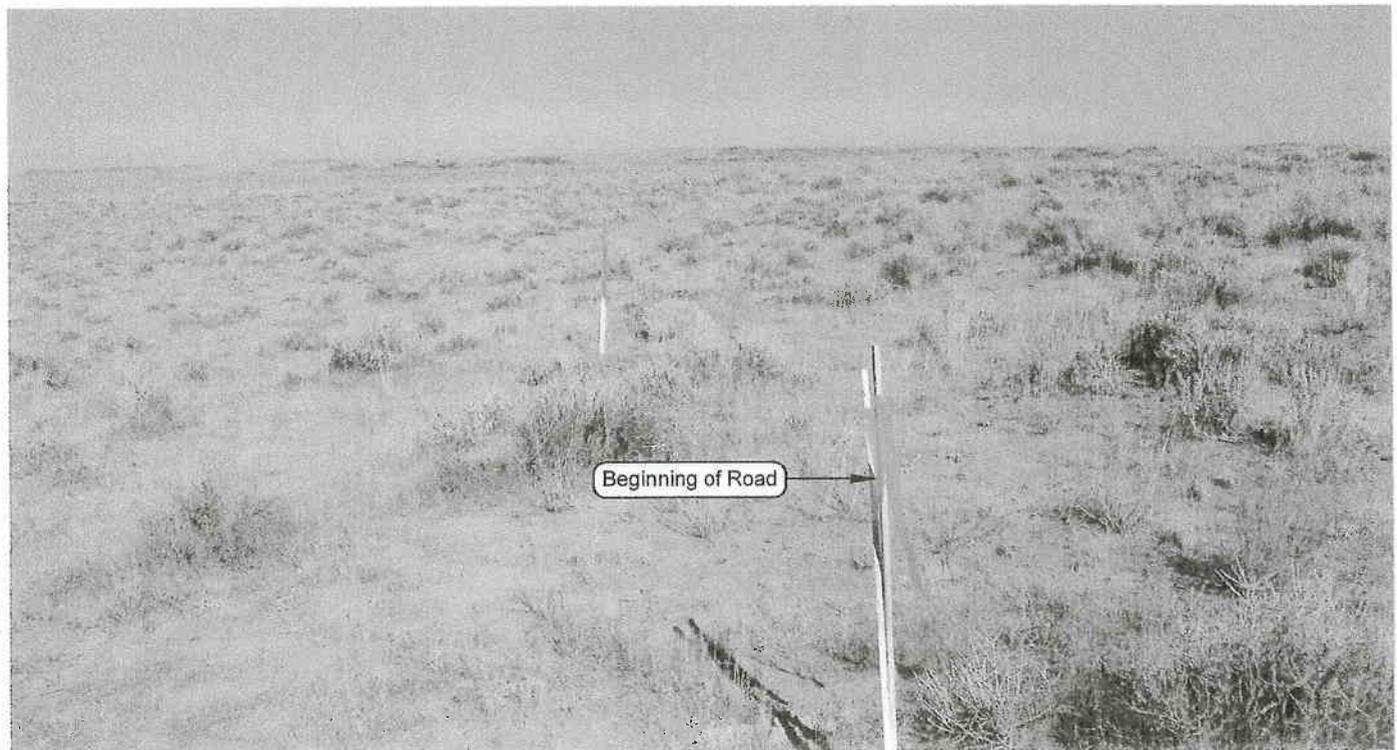


PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD

CAMERA ANGLE: NORTHEASTERLY

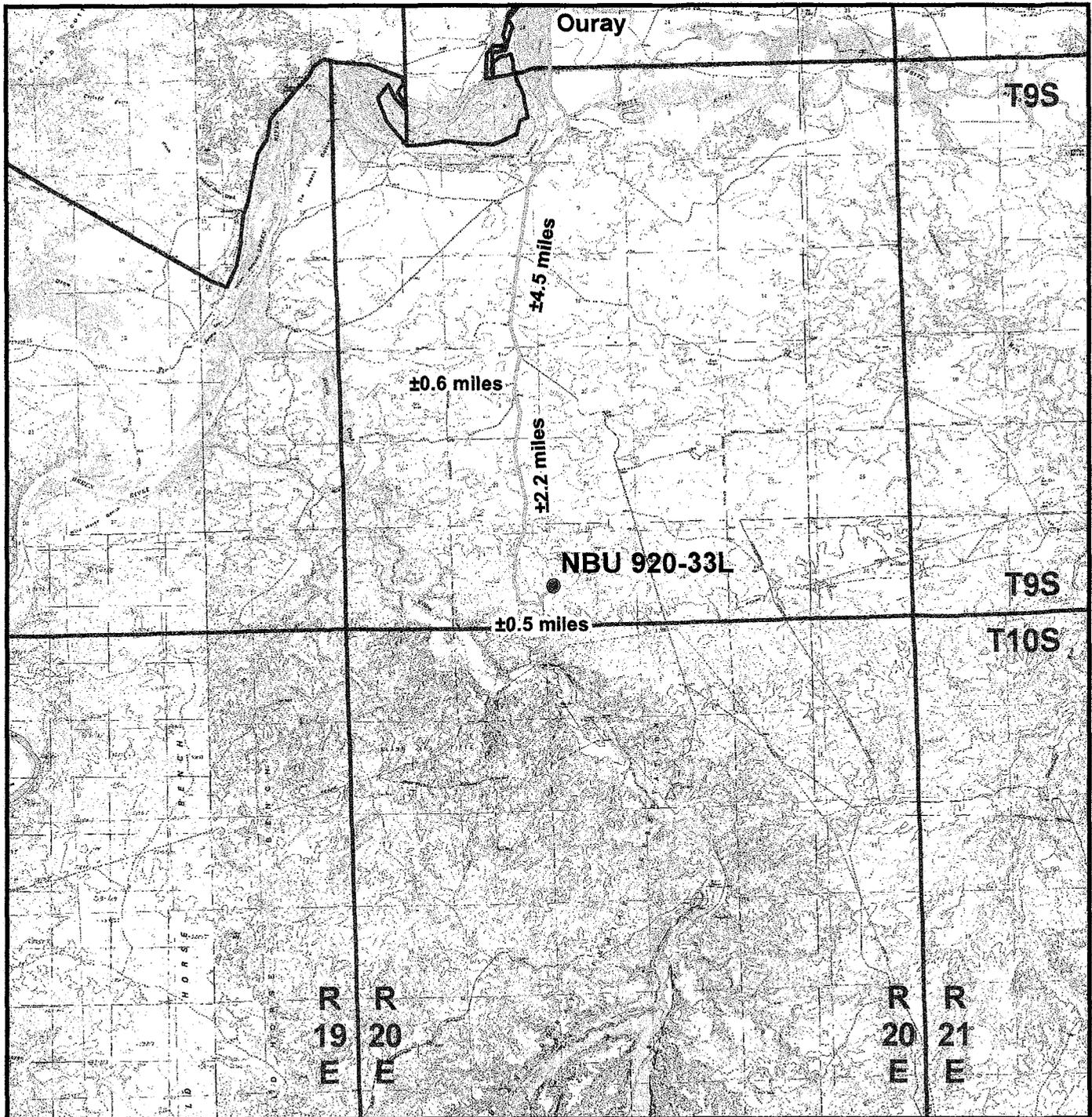
**Kerr-McGee**  
**Oil & Gas Onshore, LP**  
 1099 18th Street - Denver, Colorado 80202

NBU 920-33L  
 2299' FSL, 625' FWL  
 LOT 2 OF SECTION 33, T9S, R20E,  
 S.L.B.&M. UINTAH COUNTY, UTAH.



CONSULTING, LLC  
 371 Coffeen Avenue  
 Sheridan WY 82801  
 Phone 307-674-0609  
 Fax 307-674-0182

<b>LOCATION PHOTOS</b>		DATE TAKEN: 10-28-08
		DATE DRAWN: 10-29-08
TAKEN BY: M.S.B.	DRAWN BY: E.M.S.	REVISED:
<i>Timberline</i> <b>Engineering &amp; Land Surveying, Inc.</b>		(435) 789-1365
38 WEST 100 NORTH VERNAL, UTAH 84078		SHEET <b>4</b> OF 9



**Legend**

- Proposed NBU 920-33L Well Location
- - - - - Access Route - Proposed

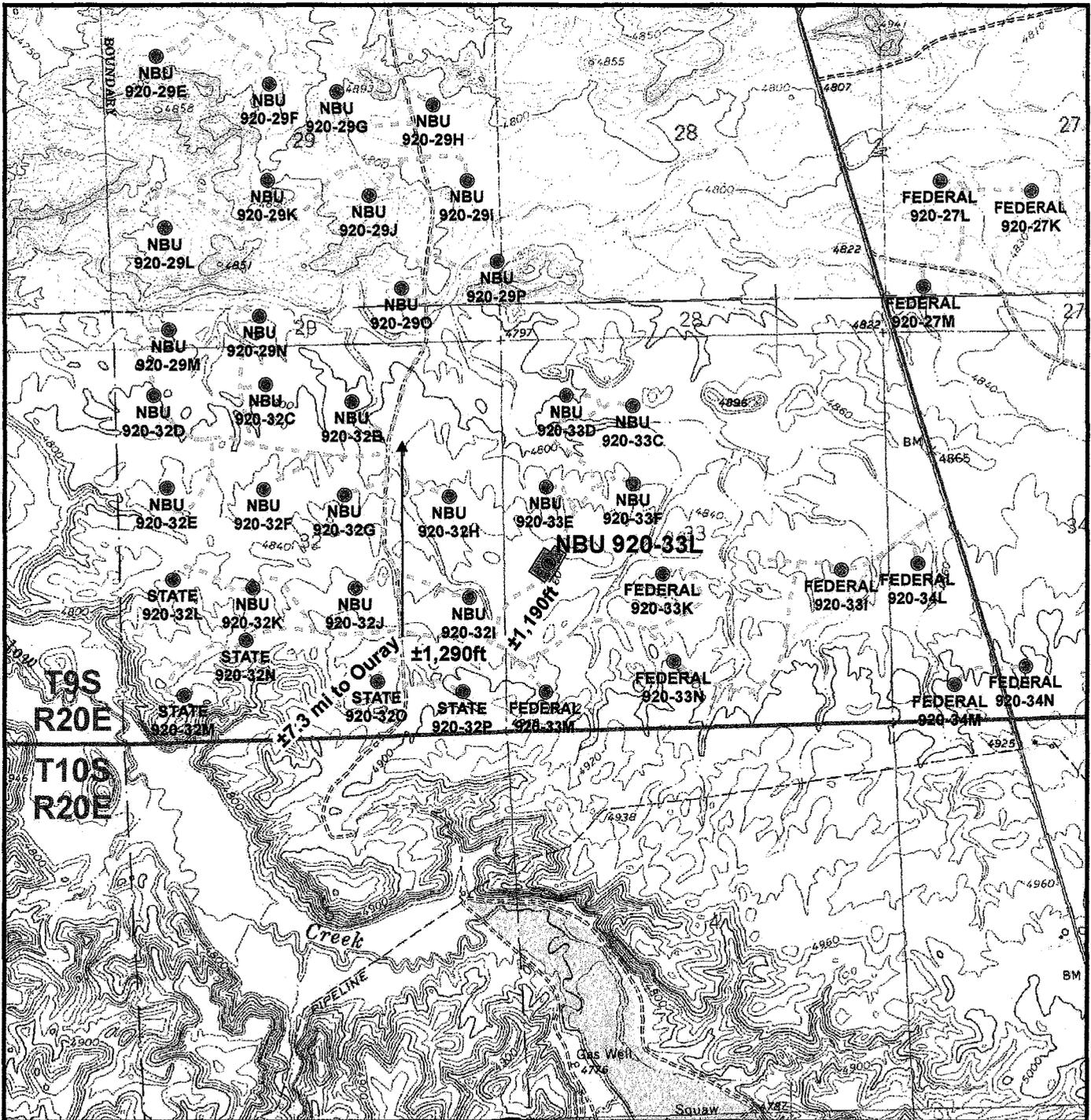
**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202

**NBU 920-33L**  
**Topo A**  
**2299' FSL, 625' FWL**  
**LOT 2 OF SECTION 33, T9S, R20E**  
**S.L.B.&M., Uintah County, Utah**

**CONSULTING, LLC**  
 371 Coffeen Avenue  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1:100,000	NAD83 USP Central	Sheet No:
Drawn: JELo	Date: 18 Dec 2008	<b>5</b> 5 of 9
Revised:	Date:	



**Legend**

Total Proposed Road Length: ±2,480ft

- Well - Proposed
- Well Pad
- Road - Proposed
- Road - Existing

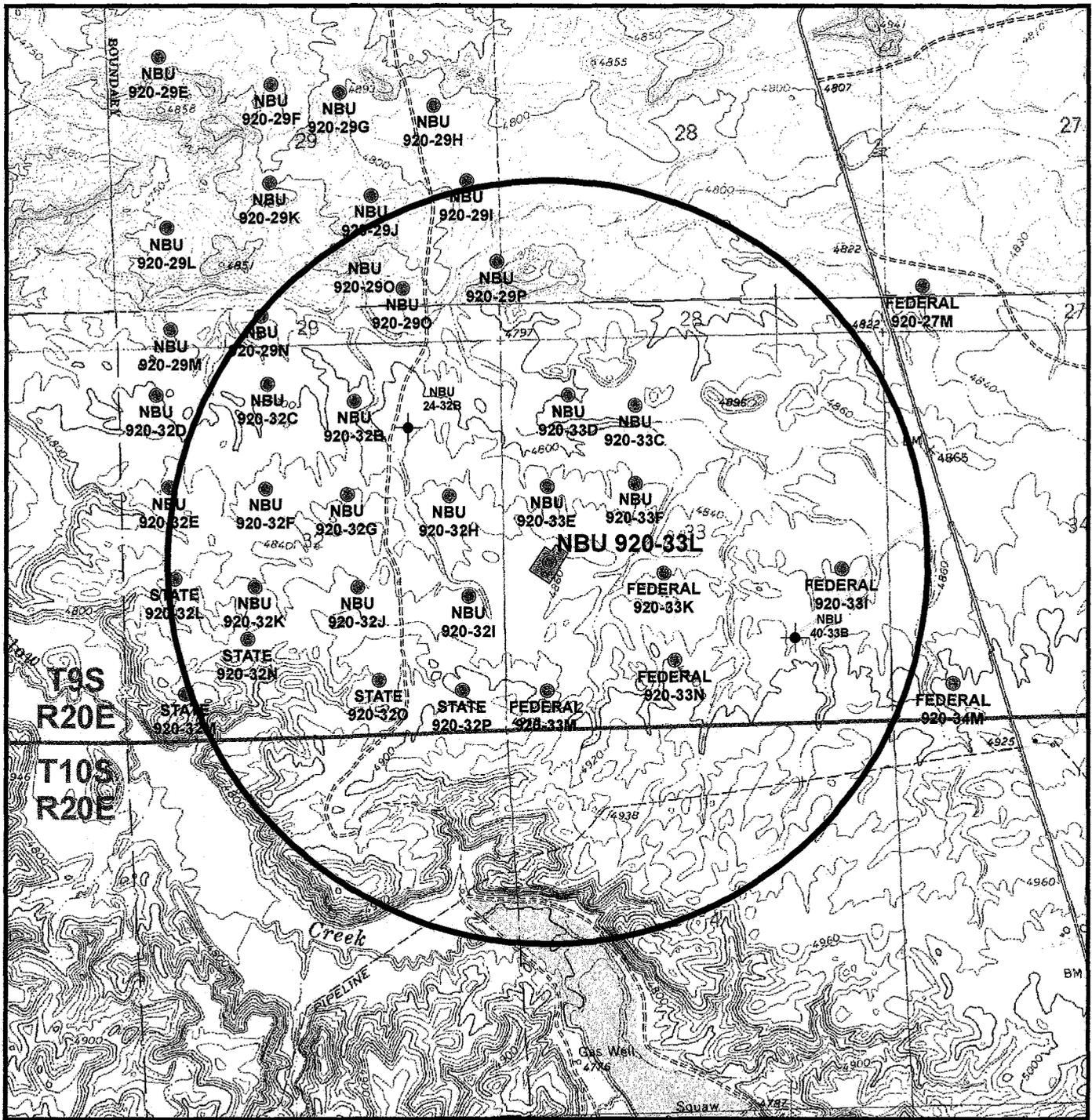
**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202



**CONSULTING, LLC**  
 371 Coffeen Avenue  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182

**NBU 920-33L**  
**Topo B**  
 2299' FSL, 625' FWL  
 LOT 2 OF SECTION 33, T9S, R20E  
 S.L.B.&M., Uintah County, Utah

Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:
Drawn: JELO	Date: 18 Dec 2008	<b>6</b>
Revised:	Date:	6 of 9



**Legend**

Well locations derived from State of Utah, Dept. of Natural Resources, Division of Oil, Gas and Mining

- Well - Proposed
- ◻ Well - 1 Mile Radius
- Producing
- ⊗ Location Abandoned
- ⬮ Shut-In
- ▨ Well Pad
- ▲ Approved permit (APD); not yet spudded
- Temporarily-Abandoned
- Spudded (Drilling commenced; Not yet comple)
- ⬮ Plugged and Abandoned

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

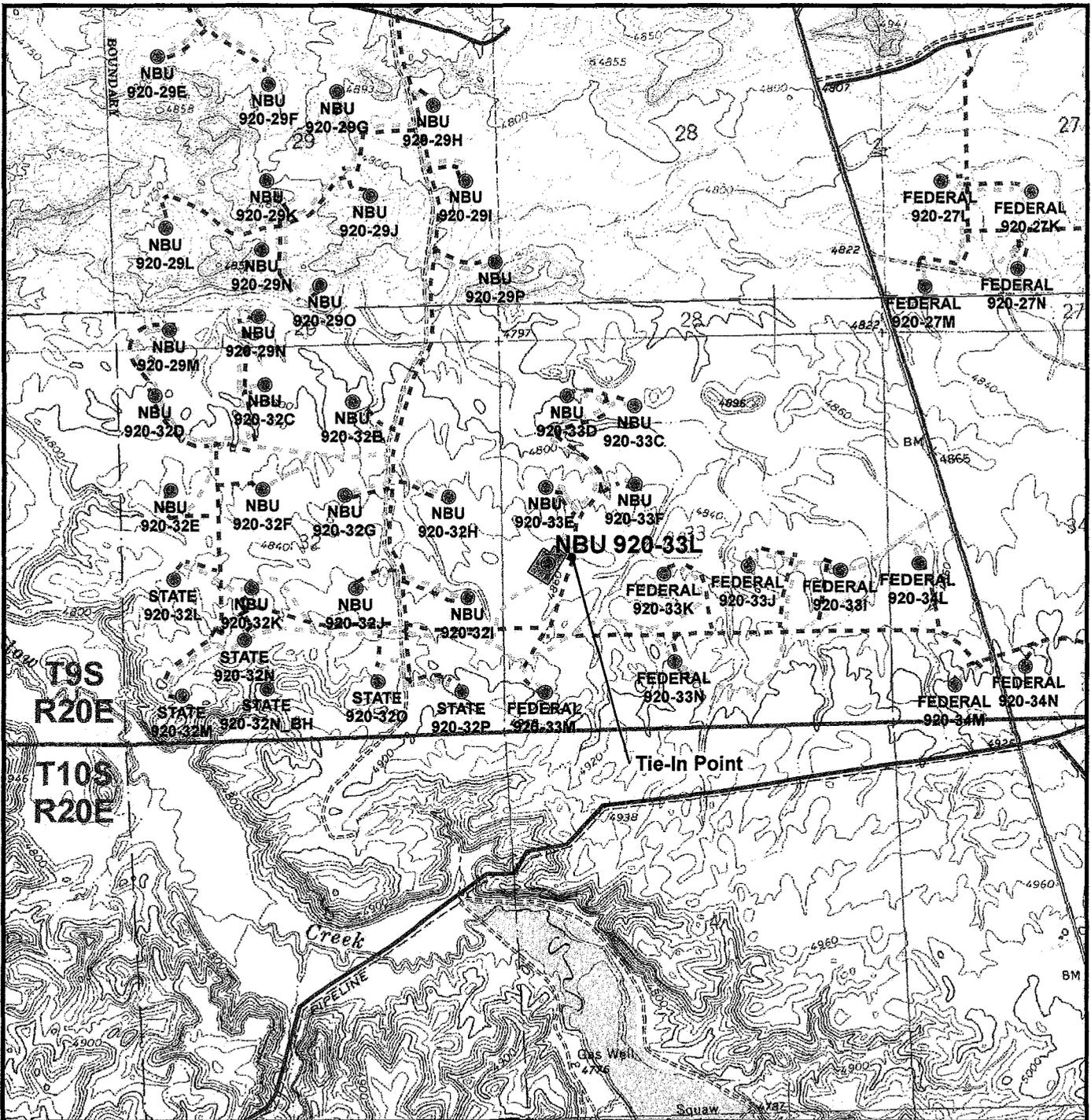
**NBU 920-33L**  
Topo C  
2299' FSL, 625' FWL  
LOT 2 OF SECTION 33, T9S, R20E  
S.L.B.&M., Uintah County, Utah



**CONSULTING, LLC**  
371 Coffeen Avenue  
Sheridan, WY 82801  
Phone (307) 674-0609  
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Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:
Drawn: JELo	Date: 18 Dec 2008	<b>7</b>
Revised:	Date:	7 of 9



**Legend**

- Well - Proposed
- Well Pad
- Pipeline - Proposed
- Road - Proposed
- Pipeline - Existing
- Road - Existing

Proposed Pipeline Length From Tie-In Point To Edge Of Pad: ±50ft  
 Proposed Pipeline Length Around Pad: ±60ft

**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202

**NBU 920-33L**  
 Topo D  
 2299' FSL, 625' FWL  
 LOT 2 OF SECTION 33, T9S, R20E  
 S.L.B.&M., Uintah County, Utah

  
**CONSULTING, LLC**  
 371 Coffeen Avenue  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:	<b>8</b>
Drawn: JELo	Date: 18 Dec 2008	8 of 9	
Revised:	Date:		

**Kerr-McGee Oil & Gas Onshore, LP**  
**NBU 920-33L**  
**Section 33, T9S, R20E, S.L.B.&M.**

PROCEED IN A WESTERLY DIRECTION FROM VERNAL, UTAH ALONG U.S. HIGHWAY 40 APPROXIMATELY 13.9 MILES TO THE JUNCTION OF STATE HIGHWAY 88. EXIT LEFT AND PROCEED IN A SOUTHERLY DIRECTION ALONG STATE HIGHWAY 88 APPROXIMATELY 16.8 MILES TO OURAY, UTAH. FROM OURAY, PROCEED IN A SOUTHERLY DIRECTION ALONG THE SEEP RIDGE ROAD (COUNTY B ROAD 2810) APPROXIMATELY 4.5 MILES TO THE INTERSECTION OF THE WILD HORSE BENCH ROAD (A CLASS D COUNTY ROAD). EXIT RIGHT AND PROCEED IN A SOUTHERLY DIRECTION ALONG THE WILD HORSE BENCH ROAD APPROXIMATELY 0.6 MILES TO THE INTERSECTION OF THE WILLOW CREEK ROAD (A CLASS D COUNTY ROAD). EXIT LEFT AND PROCEED IN A SOUTHERLY DIRECTION ALONG THE WILLOW CREEK ROAD APPROXIMATELY 2.2 MILES TO THE PROPOSED ACCESS ROAD. FOLLOW ROAD FLAGS IN AN EASTERLY, THEN NORTHEASTERLY DIRECTION APPROXIMATELY 2,480 FEET TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM VERNAL, UTAH TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 38.5 MILES IN A SOUTHERLY DIRECTION.

IPC #08-363

## **Paleontological Reconnaissance Survey Report**

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**Survey of Kerr McGee's Proposed Gathering Pipeline, Well Pads,  
Access Roads, and Pipelines for "NBU #920-33C, D, E, F,  
& L" & "Federal #920-33M" (Sec. 33, T 9 S, R 20 E)**

Big Pack Mtn NW  
Topographic Quadrangle  
Uintah County, Utah

January 9, 2009

Prepared by Stephen D. Sandau  
Paleontologist for  
Intermountain Paleo-Consulting  
P. O. Box 1125  
Vernal, Utah 84078

## INTRODUCTION

At the request of Raleen White of Kerr McGee Onshore LP and authorized by Bruce Pargeets of the Ute Indian Tribe and by Larry Love, Director of the Ute Indian Tribe's Energy and Minerals Department, a paleontological reconnaissance survey of Kerr McGee's proposed gathering pipeline, well pads, access roads, and pipelines for "NBU #920-33C, D, E, F, & L" & "Federal #920-33M" (Sec. 33, T 9 S, R 20 E) was conducted by Simon Masters on December 9, 2008. The survey was conducted under the Ute Indian Tribe Business License FY 2009, #A09-1308 and the accompanying Access Permit (effective 10/15/2008 through 3/31/2009). This survey to locate, identify and evaluate paleontological resources was done to meet requirements of the National Environmental Policy Act of 1969 and other State and Federal laws and regulations that protect paleontological resources.

## FEDERAL AND STATE REQUIREMENTS

As mandated by the Federal and State government, paleontologically sensitive geologic formations on State lands that are considered for exchange or may be impacted due to ground disturbance require paleontological evaluation. This requirement complies with:

- 1) The National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et. Seq., P.L. 91-190);
- 2) The Federal Land Policy and Management Act (FLPMA) of 1976 (90 Stat. 2743, 43 U.S.C. § 1701-1785, et. Seq., P.L. 94-579) and
- 3) The National Historic Preservation Act. 16 U.S.C. § 470-1, P.L. 102-575 in conjunction with 42 U.S.C. § 5320

The new Potential Fossil Yield Classification (PFYC) System (October, 2007) replaces the Condition Classification System from Handbook H-8270-1. Geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential.

- **Class 1 – Very Low.** Geologic units (igneous, metamorphic, or Precambrian) not likely to contain recognizable fossil remains.
- **Class 2 – Low.** Sedimentary geologic units not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils. (Including modern eolian, fluvial and colluvial deposits etc...)
- **Class 3 – Moderate or Unknown.** Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.
  - **Class 3a – Moderate Potential.** The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.
  - **Class 3b – Unknown Potential.** Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but

little information about the paleontological resources of the unit or the area is known.

- **Class 4 – High.** Geologic units containing a high occurrence of vertebrate fossils or scientifically significant invertebrate or plant fossils, but may vary in abundance and predictability.
  - **Class 4a** – Outcrop areas with high potential are extensive (greater than two acres) and paleontological resources may be susceptible to adverse impacts from surface disturbing actions.
  - **Class 4b** – Areas underlain by geologic units with high potential but have lowered risks of disturbance due to moderating circumstances such as a protective layer of soil or alluvial material; or outcrop areas are smaller than two contiguous acres.
- **Class 5 – Very High.** Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils.
  - **Class 5a** - Outcrop areas with very high potential are extensive (greater than two acres) and paleontological resources may be susceptible to adverse impacts from surface disturbing actions.
  - **Class 5b** - Areas underlain by geologic units with very high potential but have lowered risks of disturbance due to moderating circumstances such as a protective layer of soil or alluvial material; or outcrop areas are smaller than two contiguous acres.

It should be noted that many fossils, though common and unimpressive in and of themselves, can be important paleo-environmental, depositional, and chronostratigraphic indicators.

## LOCATION

Kerr McGee's proposed gathering pipeline, well pads, access roads, and pipelines for "NBU #920-33C, D, E, F, & L" & "Federal #920-33M" (Sec. 33, T 9 S, R 20 E) are located on Ute Indian Reservation land about one mile east of Willow Creek, approximately 5-6 miles south of the Green River, and some 7-8 miles south of Ouray, Utah. The project area can be found on the Big Pack Mtn NW 7.5 minute U. S. Geological Survey Quadrangle Map, Uintah County, Utah.

## PREVIOUS WORK

The basins of western North America have long produced some of the richest fossil collections in the world. Early Cenozoic sediments are especially well represented throughout the western interior. Paleontologists started field work in Utah's Uinta Basin as early as 1870 (Betts, 1871; Marsh, 1871, 1875a, 1875b). The Uinta Basin is located in the northeastern corner of Utah and covers approximately 31,000 sq. km (12,000 sq. miles) ranging in elevation from 1,465 to 2,130 m (4,800 to 7,000 ft) (Marsell, 1964; Hamblin et al., 1987). Middle to late Eocene time marked a period of dramatic change in the climate, flora, (Stucky, 1992) and fauna (Black and Dawson, 1966) of North America.

## GEOLOGICAL AND PALEONTOLOGICAL OVERVIEW

Early in the geologic history of Utah, some 1,000 to 600 Ma, an east-west trending basin developed creating accommodation for 25,000 feet of siliclastics. Uplift of that filled-basin during the early Cenozoic formed the Uinta Mountains (Rasmussen et al., 1999). With the rise of the Uinta Mountains the asymmetrical synclinal Uinta Basin is thought to have formed through the effects of down warping in connection with the uplift. Throughout the Paleozoic and Mesozoic deposition fluctuated between marine and non-marine environments laying down a thick succession of sediments in the area now occupied by the Uinta Basin. Portions of these beds crop out on the margins of the basin due to tectonic events during the late Mesozoic.

Early Tertiary Uinta Basin sediments were deposited in alternating lacustrine and fluvial environments. Large shallow lakes periodically covered most of the basin and surrounding areas during early to mid Eocene time (Abbott, 1957). These lacustrine sediments show up in the western part of the basin, dipping 2-3 degrees to the northeast and are lost in the subsurface on the east side. The increase of cross-bedded, coarse-grained sandstone and conglomerates preserved in paleo-channels indicates a transition to a fluvial environment toward the end of the epoch.

Four Eocene formations are recognized in the Uinta Basin: the Wasatch, Green River, Uinta and Duchesne River, respectively (Wood, 1941). The Uinta Formation is subdivided into two lithostratigraphic units namely: the Wagonhound Member (Wood, 1934), formerly known as Uinta A and B (Osborn, 1895, 1929) and the Myton Member previously regarded as the Uinta C.

Within the Uinta Basin in northeast Utah, the Uinta Formation in the western part of the basin is composed primarily of lacustrine sediments inter-fingering with over-bank deposits of silt, and mudstone and westward flowing channel sands and fluvial clays, muds, and sands in the east (Bryant et al, 1990; Ryder et al, 1976). Stratigraphic work done by early geologists and paleontologists within the Uinta Formation focused on the definition of rock units and attempted to define a distinction between early and late Uintan faunas (Riggs, 1912; Peterson and Kay, 1931; Kay 1934). More recent work focused on magnetostratigraphy, radioscopic chronology, and continental biostratigraphy (Flynn, 1986; Prothero, 1996). Well-known for its fossiliferous nature and distinctive mammalian fauna of mid-Eocene Age, the Uinta Formation is the type formation for the Uintan Land Mammal Age (Wood et al, 1941).

The Duchesne River Formation of the Uinta Basin in northeastern Utah is composed of a succession of fluvial and flood plain deposits composed of mud, silt, and sandstone. The source area for these late Eocene deposits is from the Uinta Mountains indicated by paleocurrent data (Anderson and Picard, 1972). In Peterson's (1931c) paper, the name "Duchesne Formation" was applied to the formation and it was later changed to the "Duchesne River Formation" by Kay (1934). The formation is divided up into four members: the Brennan Basin, Dry Gulch Creek, LaPoint, and Starr Flat (Anderson and Picard, 1972). Debates concerning the Duchesne River Formation, as to whether its age was late Eocene or early Oligocene, have surfaced throughout the literature of the last century (Wood et al., 1941; Scott 1945). Recent paleo-magnetostratigraphic work (Prothero, 1996) shows that the Duchesne River Formation is late Eocene in time.

## **FIELD METHODS**

In order to determine if the proposed project area contained any paleontological resources, a reconnaissance survey was performed. An on-site observation of the proposed areas undergoing surficial disturbance is necessary because judgments made from topographic maps alone are often unreliable. Areas of low relief have potential to be erosional surfaces with the possibility of bearing fossil materials rather than surfaces covered by unconsolidated sediment or soils.

When found within the proposed construction areas, outcrops and erosional surfaces were checked to determine if fossils were present and to assess needs. Careful effort is made during surveys to identify and evaluate significant fossil materials or fossil horizons when they are found. Microvertebrates, although rare, are occasionally found in anthills or upon erosional surfaces and are of particular importance.

## **PROJECT AREA**

The project area is situated in the Wagonhound Member (Uinta A & B) of the Uinta Formation. The following list provides a description of the individual wells and their associated pipelines and access roads.

### **NBU #920-33C**

The proposed well pad, access road, and pipeline are located in the NE/NW quarter-quarter section of Sec. 33, T 9 S, R 20 E (Figure 1). The staked well pad, pipeline, and access road are located primarily on desert pavement of resistant, varnished sandstone fragments and colluvium of the Wagonhound Member (Uinta A and B) of the Uinta Formation. Adjacent to the staked well pad, access road, and pipeline is a butte consisting of alternating fluvial, quartz-rich, tan, medium-grained sandstone; purple siltstone; green-purple mudstone; and structureless, purple, fine-grained, globular sandstone capped by a massive, tan sandstone.

A large mammalian distal humerus (*?brontothere*) was discovered on the southwestern corner of the well pad, near the access road and pipeline tie-in, as well as unidentifiable, highly weathered turtle fragments. The distal humerus shows signs of transverse compression, indicating it may have sourced from the sandstone in the butte.

#### **NBU #920-33D**

The proposed access road and pipeline begin off the northern side of the well pad for "NBU 920-33L" in the NW/SW quarter-quarter section of Sec. 33, T 9 S, R 20 E (Figure 1). They travel northeast for about a quarter of a mile, turns and travels northwest for another quarter of a mile, turns northeast again and travels a little under a quarter mile, before turning west and travels a few hundred feet to the proposed well pad in the NW/NW quarter-quarter section of Sec. 33. The staked well pad, pipeline, and access road are located primarily on desert pavement of resistant, varnished sandstone fragments and colluvium of the Wagonhound Member (Uinta A and B) of the Uinta Formation. Along the northern edge of the well pad is a butte consisting of alternating fluvial, quartz-rich, tan, medium-grained sandstone; purple siltstone; green-purple mudstone; and structureless, purple, fine-grained, globular sandstone capped by a massive, tan sandstone. Many individual turtles were located, one of which is referred to *Apalone* sp. The material is sourcing from the sandstone on the pad.

#### **NBU #920-33E**

The proposed well pad, access road, and pipeline are located in the SW/NW quarter-quarter section of Sec. 33, T 9 S, R 20 E (Figure 1). The staked well pad, access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad consist of a well-indurated, purple siltstone; purple, fine-grained sandstone; and green mudstone. No fossil resources were discovered.

#### **NBU #920-33F**

The proposed well pad, access road, and pipeline are located in the SE/NW quarter-quarter section of Sec. 33, T 9 S, R 20 E (Figure 1). The staked well pad, access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad consist of a well-indurated, purple siltstone; purple, fine-grained sandstone; and green mudstone. No fossil resources were discovered.

#### **NBU #920-33L**

The proposed well pad, access road, and pipeline are located in the NW/SW quarter-quarter section of Sec. 33, T 9 S, R 20 E (Figure 1). The staked well pad, access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad consist of a well-indurated, purple siltstone; purple, fine-grained sandstone; and green mudstone. No fossil resources were discovered.

#### **Federal #920-33M**

The proposed well pad and pipeline are located in the SW/SW quarter-quarter section of Sec. 33 T 9 S, R 20 E (Figure 1). The proposed pipeline begins off the Gathering Pipeline and travels southwest for 0.2 miles where it ties in to the proposed well pad. The proposed access road begins in the SE/SE quarter-quarter section of Sec. 32, T 9 S, R 20 E and heads east for approximately 0.3 miles where it terminates at the proposed well pad. The staked well pad,

access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad are a well-indurated; purple siltstone and purple, fine-grained sandstone. No fossil resources were discovered.

### Gathering Pipeline

The proposed Gathering Pipeline ties in to another pipeline in the SE/SE quarter-quarter section of Sec. 32, T 9 S, R 20 S and travels east for about half a mile before terminating at another pipeline tie in the SW/SW quarter-quarter section of Sec. 33 (Figure 1). The pipeline is located on a thin soil horizon with dense, low shrub cover. Outcrops on or near the pipeline route are a well-indurated, purple siltstone and purple, fine-grained sandstone. No fossil resources were discovered.

### SURVEY RESULTS

PROJECT	GEOLOGY	PALEONTOLOGY
"NBU #920-33C" (Sec. 33, T 9 S, R 20 E)	The staked well pad, pipeline, and access road are located primarily on desert pavement of resistant, varnished sandstone fragments and colluvium of the Wagonhound Member (Uinta A and B) of the Uinta Formation. Adjacent to the staked well pad, access road, and pipeline is a butte consisting of alternating fluvial, quartz-rich, tan, medium-grained sandstone; purple siltstone; green-purple mudstone; and structureless, purple, fine-grained, globular sandstone capped by a massive, tan sandstone.	A large mammalian distal humerus ( <i>?brontothere</i> ) was discovered on the southwestern corner of the well pad, near the access road and pipeline tie-in, as well as unidentifiable, highly weathered turtle fragments. The distal humerus shows signs of transverse compression, indicating it may have sourced from the sandstone in the butte. <b>Class 4a</b>
"NBU #920-33D" (Sec. 33, T 9 S, R 20 E)	The staked well pad, pipeline, and access road are located primarily on desert pavement of resistant, varnished sandstone fragments and colluvium of the Wagonhound Member (Uinta A and B) of the Uinta Formation. Along the northern edge of the well pad is a butte consisting of alternating fluvial, quartz-rich, tan, medium-grained sandstone; purple siltstone; green-purple mudstone; and structureless, purple, fine-grained, globular sandstone capped by a massive, tan sandstone.	Many individual turtles were located, one of which is referred to <i>Apalone</i> sp. The material is sourcing from the sandstone on the pad. <b>Class 4a</b>
"NBU #920-33E" (Sec. 33, T 9 S, R 20 E)	The staked well pad, access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad consist of a well-indurated, purple siltstone; purple, fine-grained sandstone; and green mudstone.	No fossil resources were discovered. <b>Class 3a</b>

<p><b>“NBU #920-33F”</b> (Sec. 33, T 9 S, R 20 E)</p>	<p>The staked well pad, access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad consist of a well-indurated, purple siltstone; purple, fine-grained sandstone; and green mudstone.</p>	<p>No fossil resources were discovered. <b>Class 3a</b></p>
<p><b>“NBU #920-33L”</b> (Sec. 33, T 9 S, R 20 E)</p>	<p>The staked well pad, access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad consist of a well-indurated, purple siltstone; purple, fine-grained sandstone; and green mudstone.</p>	<p>No fossil resources were discovered. <b>Class 3a</b></p>
<p><b>“Federal #920-33M”</b> (Sec. 33, T 9 S, R 20 E)</p>	<p>The staked well pad, access road, and pipeline are located on a thin soil horizon with dense, low shrub cover. Outcrops near the well pad are a well-indurated; purple siltstone and purple, fine-grained sandstone.</p>	<p>No fossil resources were discovered. <b>Class 3a</b></p>
<p><b>“Gathering Pipeline”</b> (Sec. 32 &amp; 33, T 9 S, R 20 E)</p>	<p>The pipeline is located on a thin soil horizon with dense, low shrub cover. Outcrops on or near the pipeline route are a well-indurated, purple siltstone and purple, fine-grained sandstone.</p>	<p>No fossil resources were discovered. <b>Class 3a</b></p>

## RECOMMENDATIONS

A reconnaissance survey was conducted for Kerr McGee’s proposed gathering pipeline, well pads, access roads, and pipelines for “NBU #920-33C, D, E, F, & L” & “Federal #920-33M” (Sec. 33, T 9 S, R 20 E). The well pads and the associated access roads and pipelines covered in this report showed some signs of vertebrate fossils, therefore, we advise the following recommendations.

**Due to the fossils found and the amount of exposed bed rock containing these fossils, we recommend that a permitted paleontologist be present to monitor the beginning of the construction process and there after perform a spot monitor of the proposed access roads, pipelines, and well pads for “NBU #920-33C and NBU #920-33D.”**

**Furthermore, we recommend that no other paleontological restrictions should be placed on the development of the remaining projects included in this report.**

Nevertheless, if any vertebrate fossil(s) are found during construction within the project area, recommendations are that a paleontologist is immediately notified in order to collect fossil materials in danger of being destroyed. Any vertebrate fossils found should be carefully moved outside of the construction areas to be check by a permitted paleontologist.

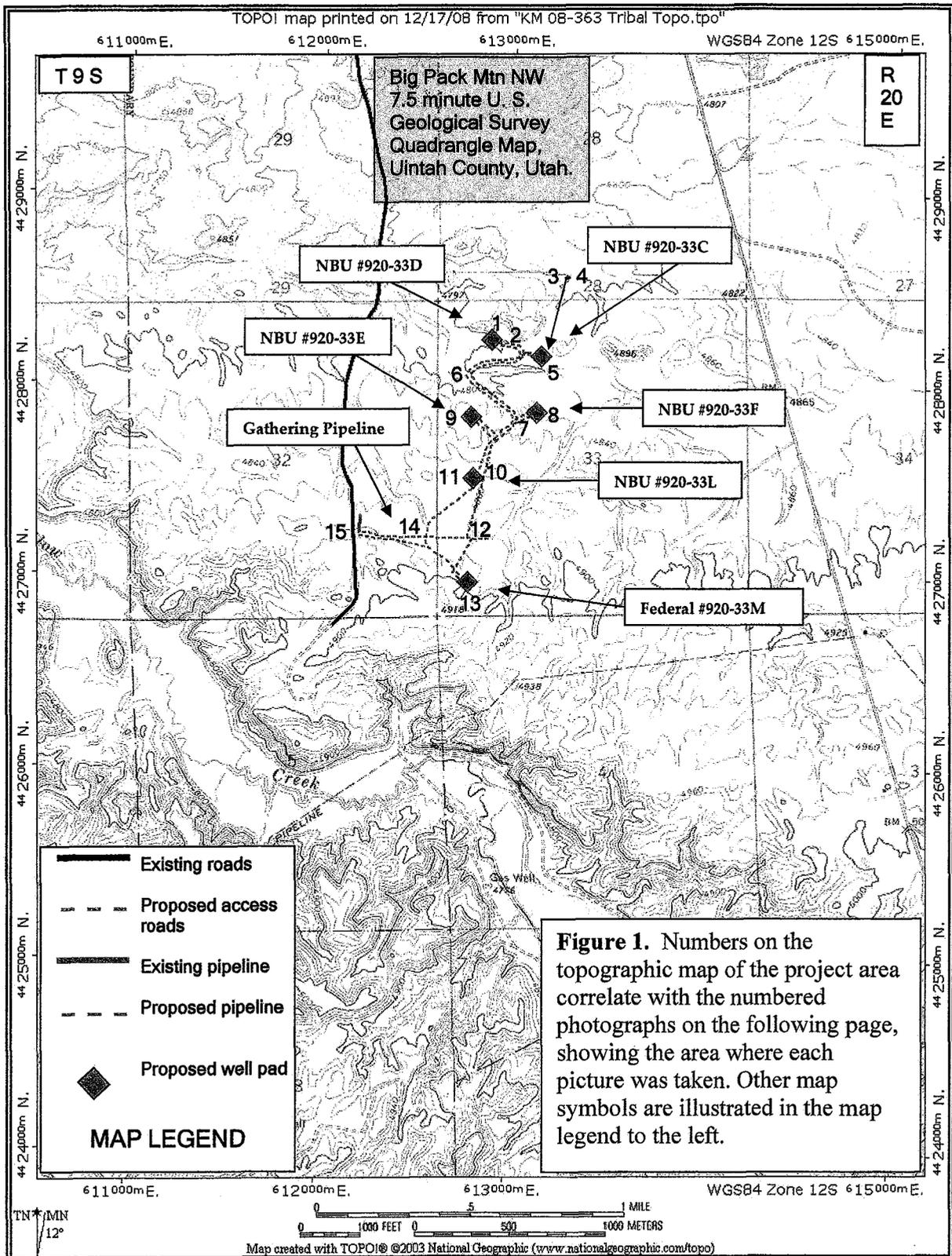


Figure 1. *continued...*

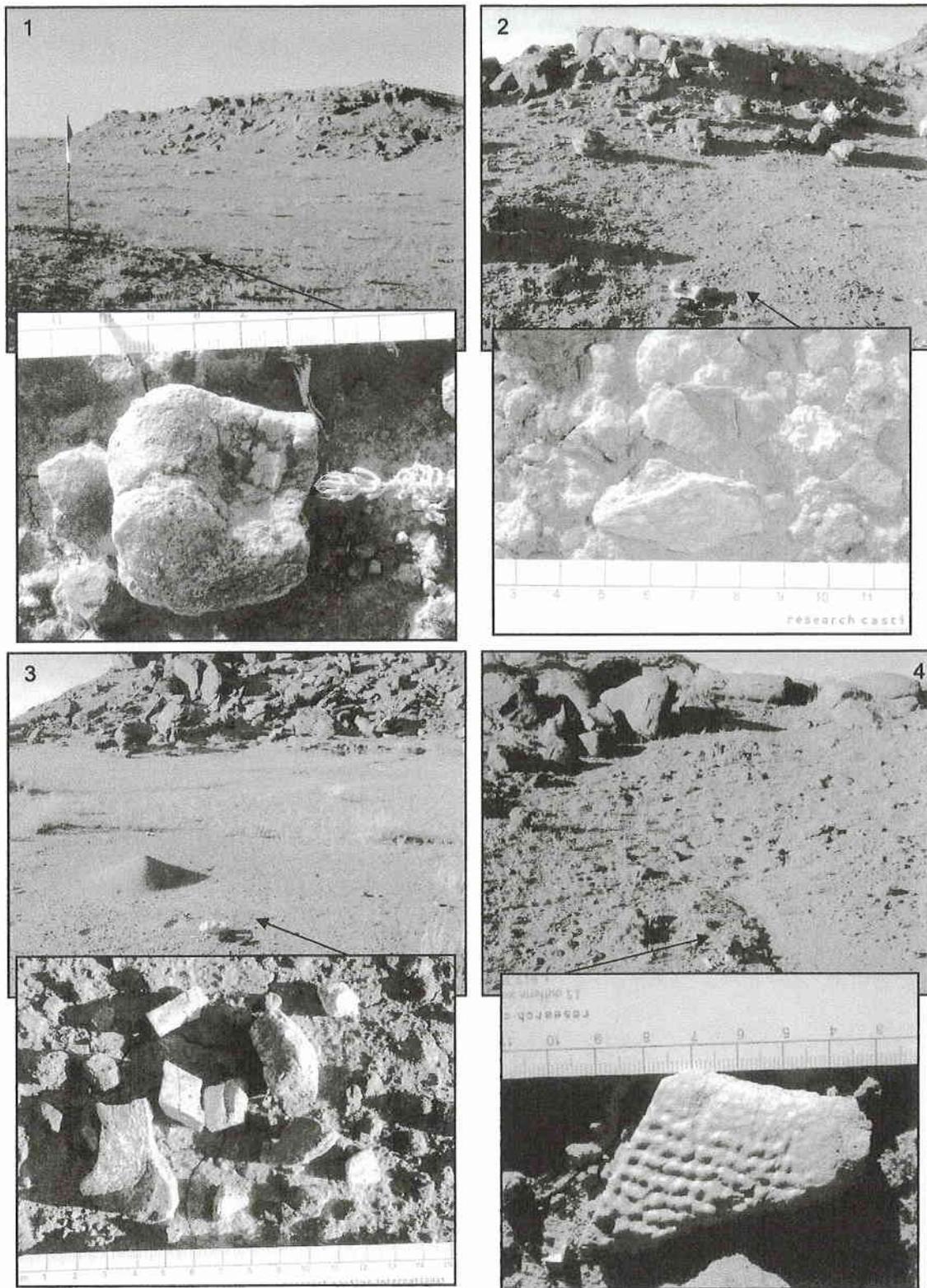
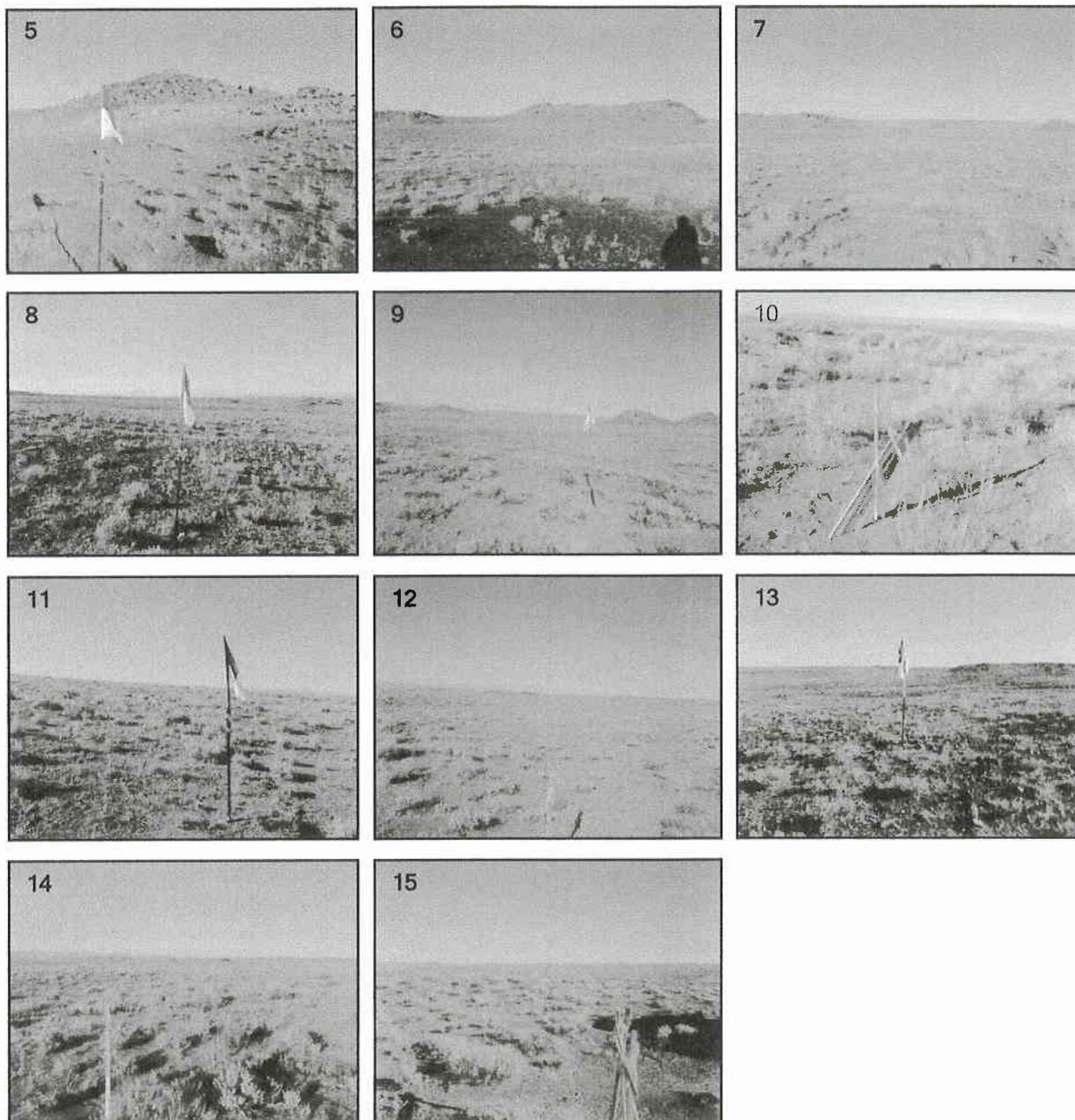


Figure 1. *continued...*

**REFERENCES CITED**

- Abbott, W., 1957, Tertiary of the Uinta Basin: Intermountain Assoc. Petroleum Geologists Guidebook, Eighth Ann. Field Conf., p. 102-109.
- Anderson, D. W., and Picard, M. D., 1972, Stratigraphy of the Duchesne River Formation (Eocene-Oligocene?), northern Uinta Basin, northeastern Utah: Utah Geological and Mineralogical Survey Bulletin 97, p. 1-28.
- Betts, C. W., 1871, The Yale College expedition of 1870: Harper's New Monthly Magazine, v. 43, p. 663-671.
- Black, C. C. and Dawson, M. R., 1966, A Review of Late Eocene Mammalian Faunas from North America: American Journal of Science, v. 264, p. 321-349.
- Bryant, B., Naeser C. W., Marvin R. F., Mahnert H. H., 1989, Cretaceous and Paleogene Sedimentary Rocks and Isotopic Ages of Paleogene Tuffs, Uinta basin, Utah. And Ages of Late Paleogene and Neogene Tuffs and the Beginning of Rapid Regional Extension, Eastern Boundary of the Basin and Range Province near Salt lake City, Utah: In: Evolution of Sedimentary basins-Uinta and Piceance Basins. U. S. Geological Survey Bulletin 1787-J, K.
- Flynn, J. J., 1986, Correlation and geochronology of middle Eocene strata from the western United States: Palaeogeographic, Palaeoclimatology, Palaeoecology, v. 55, p. 335-406.
- Hamblin, A. H. and Miller, W. E., 1987, Paleogeography and Paleoecology of the Myton Pocket, Uinta Basin, Utah (Uinta Formation-Upper Eocene): Brigham Young University Geology Studies, v. 34, p 33-60.
- Kay, J. L., 1934, Tertiary formations of the Uinta Basin, Utah: Annals of Carnegie Museum, v. 23, p. 357-371.
- Marsell, R. E., 1964, Geomorphology of the Uinta Basin-A Brief Sketch: Thirteenth annual Field Conference. Association of Petroleum Geologists, p. 34-46.
- Marsh, O. C., 1871, on the geology of the Eastern Uintah Mountains: American Journal of Science and Arts, v. 1, p. 1-8.
- \_\_\_\_\_ 1875a, Ancient lake basins of the Rocky Mountain region: American Journal of Science and Arts, v. 9, p. 49-52.
- \_\_\_\_\_ 1875b, Notice of new Tertiary mammals, IV: American Journal of Science and Arts, Third Series, v. 9, p. 239-250.

- Osborn, H. F., 1895, Fossil mammals of the Uinta beds, expedition of 1894: American Museum of Natural History Bulletin, v. 7, p. 71-106.
- \_\_\_\_\_, 1929, The Titanotheres of Ancient Wyoming, Dakota and Nebraska: Monograph of the U. S. Geological Survey, v. 55, p. 1-953.
- Peterson, O. A., 1931c, new species from the Oligocene of the Uinta: Annals of Carnegie Museum, v. 21, p. 61-78.
- Peterson, O. A. and Kay, J. L., 1931, The Upper Uinta Formation of Northeastern Utah: Annals of the Carnegie Museum, v. 20, p. 293-306.
- Prothero, D. R., 1996, Magnetic Stratigraphy and biostratigraphy of the middle Eocene Uinta Formation, Uinta Basin, Utah, *in* Prothero, D. R., and Emry, R. J. editors, The Terrestrial Eocene-Oligocene Transition in North America, p. 3-24.
- Rasmussen, D. T., Conroy, G. C., Friscia, A. R., Townsend, K. E. and Kinkel, M. D., 1999, Mammals of the middle Eocene Uinta Formation: Vertebrate Paleontology of Utah, p. 401-420.
- Riggs, E. S., 1912. New or Little Known Titanotheres from the Lower Uintah Formations: Field Museum of Natural History Geological Series, v. 159, p. 17-41.
- Ryder, R. T., Fouch, T. D., Elison, J. H., 1976, Early Tertiary sedimentation in the western Uinta Basin, Utah: Geological Society of America Bulletin v. 87, p. 496-512.
- Scott, W. B., 1945, The Mammalia of the Duchesne River Oligocene: Transactions of the American Philosophical Society, v. 34, p. 209-253.
- Stucky, R. K., 1992, Mammalian faunas in North America of Bridgerian to early Arikareean "age" (Eocene and Oligocene), *in* Prothero, D. R., and Berggren, W. A., eds., Eocene-Oligocene climatic and biotic evolution: Princeton University Press, p. 464-493.
- Wood, H. E., 1934, Revision of the Hyrachyidae: American Museum of Natural History Bulletin, v. 67, p. 181-295.
- \_\_\_\_\_, and others, 1941, Nomenclature and Correlation of the North America Continental Tertiary: Geol. Soc. Amer. Bull., v. 52, no. 1, Jan. 1, p. 1-48. 52, no. 1, Jan. 1, p. 1-48.

**WORKSHEET**  
**APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 02/17/2009

API NO. ASSIGNED: 43-047-40568
--------------------------------

WELL NAME: NBU 920-33L  
 OPERATOR: KERR-MCGEE OIL & GAS ( N2995 )  
 CONTACT: RALEEN WHITE

PHONE NUMBER: 720-929-6666

PROPOSED LOCATION:

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

NWSW 33 090S 200E  
 SURFACE: 2299 FSL 0625 FWL  
 BOTTOM: 2299 FSL 0625 FWL  
 COUNTY: UINTAH  
 LATITUDE: 39.99012 LONGITUDE: -109.6782  
 UTM SURF EASTINGS: 612852 NORTHINGS: 4427287  
 FIELD NAME: NATURAL BUTTES ( 630 )

LEASE TYPE: 1 - Federal  
 LEASE NUMBER: UTU-142430  
 SURFACE OWNER: 2 - Indian

PROPOSED FORMATION: WSMVD  
 COALBED METHANE WELL? NO

RECEIVED AND/OR REVIEWED:

- Plat
- Bond: Fed[1] Ind[] Sta[] Fee[]  
(No. WYB000291 )
- Potash (Y/N)
- Oil Shale 190-5 (B) or 190-3 or 190-13
- Water Permit  
(No. 43-8496 )
- RDCC Review (Y/N)  
(Date: \_\_\_\_\_ )
- Fee Surf Agreement (Y/N)
- Intent to Commingle (Y/N)

LOCATION AND SITING:

- \_\_\_\_\_ R649-2-3.
- Unit: NATURAL BUTTES
- \_\_\_\_\_ R649-3-2. General  
Siting: 460' From Qtr/Qtr & 920' Between Wells
- \_\_\_\_\_ R649-3-3. Exception
- Drilling Unit  
Board Cause No: 173-14  
Eff Date: 12-2-1999  
Siting: 460' From Qtr/Qtr & 920' Between Wells
- \_\_\_\_\_ R649-3-11. Directional Drill

COMMENTS:

*See Separate file*

STIPULATIONS:

*1- Federal Approval  
2- Oil Shale*



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, Utah 84145-0155

**IN REPLY REFER TO:**

**3160**

**(UT-922)**

March 2, 2009

**Memorandum**

**To:** Assistant District Manager Minerals, Vernal District

**From:** Michael Coulthard, Petroleum Engineer

**Subject:** 2009 Plan of Development Natural Buttes Unit Uintah County, Utah.

Pursuant to email between Diana Whitney, Division of Oil, Gas and Mining, and Mickey Coulthard, Utah State Office, Bureau of Land Management, the following wells are planned for calendar year 2009 within the Natural Buttes Unit, Uintah County, Utah.

API #	WELL NAME	LOCATION
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(Proposed PZ Wasatch/MesaVerde)

43-047-40553	NBU 920-290	Sec 29 T09S R20E 0746 FSL 2465 FEL
43-047-40554	NBU 920-29L	Sec 29 T09S R20E 1572 FSL 0754 FWL
43-047-40555	NBU 920-29M	Sec 29 T09S R20E 0159 FSL 0757 FWL
43-047-40556	NBU 920-29I	Sec 29 T09S R20E 2164 FSL 0400 FEL
43-047-40557	NBU 920-29K	Sec 29 T09S R20E 2208 FSL 2197 FWL
43-047-40558	NBU 920-29P	Sec 29 T09S R20E 1038 FSL 0018 FEL
43-047-40559	NBU 920-29J	Sec 29 T09S R20E 1977 FSL 1747 FEL
43-047-40560	NBU 920-29N	Sec 29 T09S R20E 1254 FSL 2098 FWL
43-047-40542	NBU 920-22O	Sec 22 T09S R20E 0198 FSL 2487 FEL
43-047-40543	NBU 920-22K	Sec 22 T09S R20E 2128 FSL 2497 FWL
43-047-40544	NBU 920-22I	Sec 22 T09S R20E 1965 FSL 0599 FEL
43-047-40545	NBU 920-22J	Sec 22 T09S R20E 2086 FSL 1575 FEL
43-047-40538	NBU 920-20B	Sec 20 T09S R20E 1229 FNL 1580 FEL
43-047-40536	NBU 920-20C	Sec 20 T09S R20E 0963 FNL 1754 FWL
43-047-40537	NBU 920-20F	Sec 20 T09S R20E 1794 FNL 2199 FWL
43-047-40539	NBU 920-20E	Sec 20 T09S R20E 1644 FNL 1084 FWL
43-047-40540	NBU 920-20D	Sec 20 T09S R20E 0646 FNL 0686 FWL
43-047-40541	NBU 920-21J	Sec 21 T09S R20E 2346 FSL 1748 FEL
43-047-40561	NBU 920-32E	Sec 32 T09S R20E 2052 FNL 0707 FWL
43-047-40562	NBU 920-32K	Sec 32 T09S R20E 2095 FSL 1813 FWL
43-047-40567	NBU 920-33D	Sec 33 T09S R20E 0821 FNL 0925 FWL
43-047-40568	NBU 920-33L	Sec 33 T09S R20E 2299 FSL 0625 FWL
43-047-40574	NBU 920-33E	Sec 33 T09S R20E 2079 FNL 0611 FWL
43-047-40575	NBU 920-33C	Sec 33 T09S R20E 0971 FNL 1851 FWL

43-047-40576 NBU 920-33F Sec 33 T09S R20E 2048 FNL 1845 FWL  
43-047-40535 NBU 920-15PT Sec 15 T09S R20E 0591 FSL 0696 FEL

This office has no objection to permitting the wells at this time.

/s/ Michael L. Coulthard

bcc: File – Natural Buttes Unit  
Division of Oil Gas and Mining  
Central Files  
Agr. Sec. Chron  
Fluid Chron

MCoulthard:mc:3-2-09



JON M. HUNTSMAN, JR.  
Governor

GARY R. HERBERT  
Lieutenant Governor

# State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

March 2, 2009

Kerr-McGee Oil & Gas Onshore, LP  
P O Box 173779  
Denver, CO 80217-3779

Re: NBU 920-33L Well, 2299' FSL, 625' FWL, NW SW, Sec. 33, T. 9 South, R. 20 East,  
Uintah 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.

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 43-047-40568.

Sincerely,

Gil Hunt  
Associate Director

pab  
Enclosures

cc: Uintah County Assessor  
Bureau of Land Management, Vernal Office



Operator: Kerr-McGee Oil & Gas Onshore, LP

Well Name & Number NBU 920-33L

API Number: 43-047-40568

Lease: UTU-142430

Location: NW SW                      Sec. 33                      T. 9 South                      R. 20 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 Dustin Doucet at (801) 538-5281 office      (801) 733-0983 home

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. In accordance with Order in Cause No. 190-5(b) dated October 28, 1982, the Operator shall comply with requirements of Rules R649-3-31 and R649-3-27 pertaining to Designated Oil Shale Areas. Additionally, the operator shall ensure that the surface and/or production casing is properly cemented over the entire oil shale interval as defined by Rule R649-3-31. The Operator shall report the actual depth the oil shale is encountered to the Division.

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>  <b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU-142430
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  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.	<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b> UTE  <b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>1. TYPE OF WELL</b> Gas Well	<b>8. WELL NAME and NUMBER:</b> NBU 920-33L
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047405680000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6007 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2299 FSL 0625 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWSW Section: 33 Township: 09.0S Range: 20.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES  <b>COUNTY:</b> UINTAH  <b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 3/2/2010  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input checked="" type="checkbox"/> APD EXTENSION OTHER:

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

Kerr-McGee Oil & Gas Onshore, L.P. (Kerr-McGee) respectfully requests an extension to this APD for the maximum time allowed. Please contact the undersigned with any questions and/or comments. Thank you.

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

Date: March 01, 2010

By: 

<b>NAME (PLEASE PRINT)</b> Danielle Piernot	<b>PHONE NUMBER</b> 720 929-6156	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 2/25/2010	



The Utah Division of Oil, Gas, and Mining

- State of Utah
- Department of Natural Resources
Electronic Permitting System - Sundry Notices

Request for Permit Extension Validation Well Number 43047405680000

API: 43047405680000

Well Name: NBU 920-33L

Location: 2299 FSL 0625 FWL QTR NWSW SEC 33 TWP 090S RNG 200E MER S

Company Permit Issued to: KERR-MCGEE OIL & GAS ONSHORE, L.P.

Date Original Permit Issued: 3/2/2009

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?
• Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?
• Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?
• Have there been any changes to the access route including ownership, or rightof- way, which could affect the proposed location?
• Has the approved source of water for drilling changed?
• 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?
• Is bonding still in place, which covers this proposed well?

Approved by the Utah Division of Oil, Gas and Mining

Signature: Danielle Piernot

Date: 2/25/2010

Title: Regulatory Analyst Representing: KERR-MCGEE OIL & GAS ONSHORE, L.P.

Date: March 01, 2010

By: [Signature]



# United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
Green River District-Vernal Field Office  
170 South 500 East  
Vernal, UT 84078  
(435) 781-4400 Fax: (435) 781-4410  
<http://www.blm.gov/ut/st/en/fo/vernal.html>



**NOV 01 2010**

IN REPLY REFER TO:  
3160 (UTG011)

Julie Jacobson  
Kerr McGee Oil & Gas Onshore LP  
PO Box 173779  
Denver, CO 80217-3779

Re: Request to Return APD  
Well No. NBU 920-33L  
Lot 2, Sec. 33, T9S, R20E  
Uintah County, Utah  
Lease No. UTU-0142430  
Natural Buttes Unit

43 047 40568

Dear Ms. Jacobson:

The Application for Permit to Drill (APD) for the above referenced well received in this office on February 17, 2009, is being returned unapproved per your request to this office in an email message received on September 30, 2010. If you intend to drill at this location at a future date, a new APD must be submitted.

If you have any questions regarding APD processing, please contact Cindy Severson at (435) 781-4455.

Sincerely,

James H. Sparger  
Acting Assistant Field Manager  
Lands & Mineral Resources

Enclosures

cc: UDOGM

**RECEIVED**

**NOV 17 2010**

**DIV. OF OIL, GAS & MINING**



GARY R. HERBERT  
Governor

GREGORY S. BELL  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

March 15, 2011

Danielle Piernot  
Kerr-McGee Oil & Gas Onshore, L.P.  
P.O Box 173779  
Denver, CO 80217

43 047 40568  
NBU 920-33L  
9S 20E 33

Re: APDs Rescinded for Kerr McGee O&G Onshore, L.P. Company,  
Uintah County

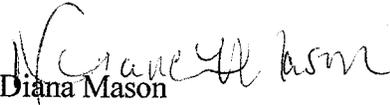
Dear Ms. Piernot:

Enclosed find the list of APDs that are being rescinded per your request to Kerr-McGee Oil & Gas Onshore, L.P. No drilling activity at these locations has been reported to the division. Therefore, approval to drill these wells is hereby rescinded, effective March 14, 2011.

A new APD must be filed with this office for approval prior to the commencement of any future work on the subject location.

If any previously unreported operations have been performed on this well location, it is imperative that you notify the Division immediately.

Sincerely,

  
Diana Mason  
Environmental Scientist

cc: Well File  
Bureau of Land Management, Vernal

43-047-50275	NBU 605-35E
43-047-40547	FEDERAL 920-27K
43-047-40549	FEDERAL 920-27J
43-047-40550	FEDERAL 920-27O
43-047-40551	FEDERAL 920-27L
43-047-40552	FEDERAL 920-27N
43-047-40570	FEDERAL 920-33M
43-047-40571	FEDERAL 920-33I
43-047-40578	FEDERAL 920-34M
43-047-40579	FEDERAL 920-34N
43-047-50767	FEDERAL 920-27M
43-047-40553	NBU 920-29O
43-047-40554	NBU 920-29L
43-047-40555	NBU 920-29M
43-047-40556	NBU 920-29I
43-047-40557	NBU 920-29K
43-047-40558	NBU 920-29P
43-047-40559	NBU 920-29J
43-047-40560	NBU 920-29N
→ 43-047-40568	NBU 920-33L
43-047-40574	NBU 920-33E
43-047-40575	NBU 920-33C
43-047-40576	NBU 920-33F