

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

FORM 3

AMENDED REPORT   
(highlight changes)

**APPLICATION FOR PERMIT TO DRILL**

1A. TYPE OF WORK: DRILL <input checked="" type="checkbox"/> REENTER <input type="checkbox"/> DEEPEN <input type="checkbox"/>				5. MINERAL LEASE NO: ML-22140	6. SURFACE: Tribal
				7. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ute Tribe	
B. TYPE OF WELL: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> OTHER _____ SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input checked="" type="checkbox"/>				8. UNIT or CA AGREEMENT NAME: 891008900A	
2. NAME OF OPERATOR: Kerr-McGee Oil & Gas Onshore, LP				9. WELL NAME and NUMBER: NBU 920-32E	
3. ADDRESS OF OPERATOR: PO Box 173779 Denver CO 80202-3779				10. FIELD AND POOL, OR WILDCAT: Natural Buttes Field	
4. LOCATION OF WELL (FOOTAGES) AT SURFACE: 2,052' FNL 707' FWL Lat: 39.993200 Long: -109.696740 NAD 27 AT PROPOSED PRODUCING ZONE: 44275954 -109.696787				11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Sec 32 T 9S R 20E S.L.B. & M. SWNW	
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE: Approximately 38.2 miles south of Vernal, Utah				12. COUNTY: Uintah	13. STATE UTAH
15. DISTANCE TO NEAREST PROPERTY OR LEASE LINE (FEET) 707'		16. NUMBER OF ACRES IN LEASE: 320.00		17. NUMBER OF ACRES ASSIGNED TO THIS WELL: Unit well	
18. DISTANCE TO NEAREST WELL (DRILLING, COMPLETED, OR APPLIED FOR) ON THIS LEASE (FEET) ±1,200'		19. PROPOSED DEPTH: 10,600' MD		20. BOND DESCRIPTION: 22013542	
21. ELEVATIONS (SHOW WHETHER DF, RT, GR, ETC.): 4,844' KB		22. APPROXIMATE DATE WORK WILL START: ASAP		23. ESTIMATED DURATION: 10 days	

**PROPOSED CASING AND CEMENTING PROGRAM**

SIZE OF HOLE	CASING SIZE, GRADE, AND WEIGHT PER FOOT		SETTING DEPTH	CEMENT TYPE, QUANTITY, YIELD, AND SLURRY WEIGHT		
12.25"	9.625"	J-55 36#	2,800' (MD)	Premium Cement	215	1.18 15.60
				Premium Cement	50	1.18 15.60
7.875"	4.5"	P-110 11.6#	10,600' (MD)	Premium Lite II	510	3.38 11.00
				50/50 Poz G	1,660	1.31 14.30

**ATTACHMENTS**

VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER     | <input checked="" type="checkbox"/> COMPLETE DRILLING PLAN                                   |
| <input checked="" type="checkbox"/> EVIDENCE OF DIVISION OF WATER RIGHTS APPROVAL FOR USE OF WATER | <input type="checkbox"/> FORM 5, IF OPERATOR IS PERSON OR COMPANY OTHER THAN THE LEASE OWNER |

NAME (PLEASE PRINT) Raleen White TITLE Sr. Regulatory Analyst

SIGNATURE Raleen White

Approved by the [Signature]  
Utah Division of  
Oil, Gas and Mining

**RECEIVED**  
FEB 17 2009

(This space for State use only)

**Federal Approval of this  
Action is Necessary**

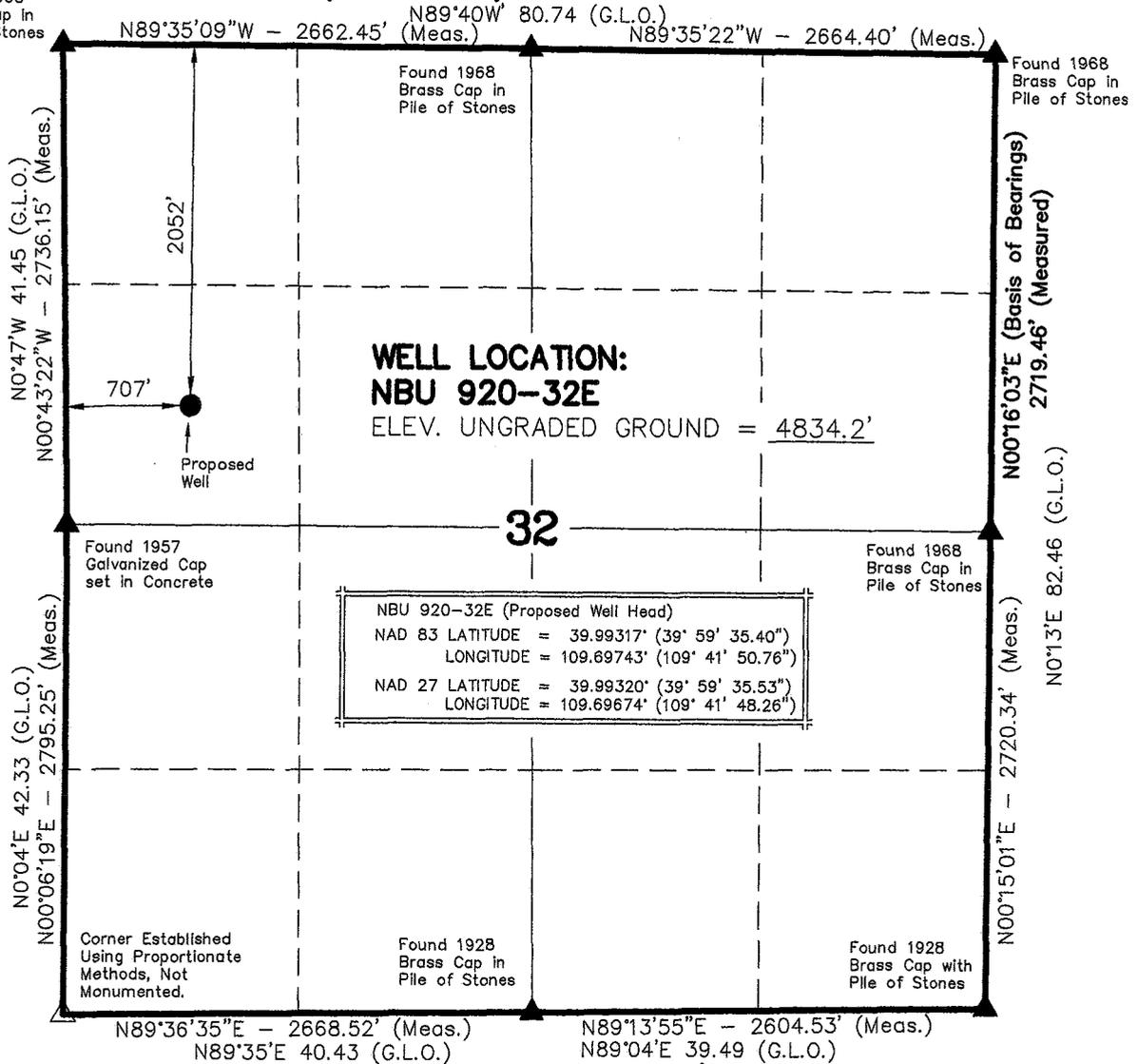
DIV. OF OIL, GAS & MINING

API NUMBER ASSIGNED: 43047-40561

Date: 04-27-09  
By: [Signature]

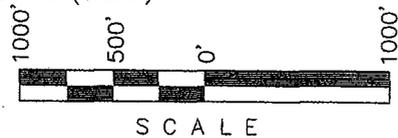
# T9S, R20E, S.L.B.&M.

Found 1968  
Brass Cap in  
Pile of Stones



**NOTES:**

- ▲ = Section Corners Located
- 1. Well footages are measured at right angles to the Section Lines.
- 2. G.L.O. distances are shown in feet or chains. 1 chain = 66 feet.
- 3. Bearings are based on Global Positioning Satellite observations.
- 4. Basis of elevation is the Northwest Corner of Section 12, T9S, R20E, S.L.B.&M. The elevation of this Section Corner is shown on the Ouray SE 7.5 Min. Quadrangle as being 4676'.



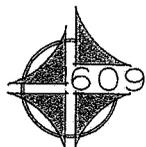
**SURVEYOR'S CERTIFICATE**

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

No. 362251  
KOLBY R.  
REGISTERED LAND SURVEYOR  
STATE OF UTAH

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

**NBU 920-32E  
WELL PLAT**  
2052' FNL, 707' FWL  
SW ¼ NW ¼ OF SECTION 32, 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

**TIMBERLINE** (435) 789-1365  
ENGINEERING & LAND SURVEYING, INC.  
38 WEST 100 NORTH - VERNAL, UTAH 84078

DATE SURVEYED: 12-18-08	SURVEYED BY: D.J.S.	SHEET <b>1</b> OF 9
DATE DRAWN: 12-31-08	DRAWN BY: E.M.S.	
SCALE: 1" = 1000'		Date Last Revised:

**NBU 920-32E  
SWNW Sec. 32, T9S R20E  
UINTAH COUNTY, UTAH  
ML-22140**

**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	1,622'	
Birds Nest	1,855'	Water
Mahogany	2,313'	Water
Wasatch	5,111'	Gas
Mesaverde	8,484'	Gas
MVU2	9,354'	Gas
MVL1	9,849'	Gas
TD	10,600'	

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 10,600' TD, approximately equals 6,769 psi (calculated at 0.64 psi/foot).

Maximum anticipated surface pressure equals approximately 4,437 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.*

NBU 920-32E  
SWNW Sec. 32 T9S R20E  
UINTAH COUNTY, UTAH  
ML-22140

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  $\pm 1,190'$  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.

**Variations 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:

SITLA  
675 East 500 South, Suite 500  
Salt Lake City, UT 84102

**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

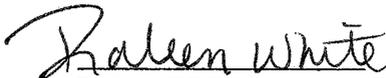
Certification: All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees.

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 State Surety Bond #22013542.

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

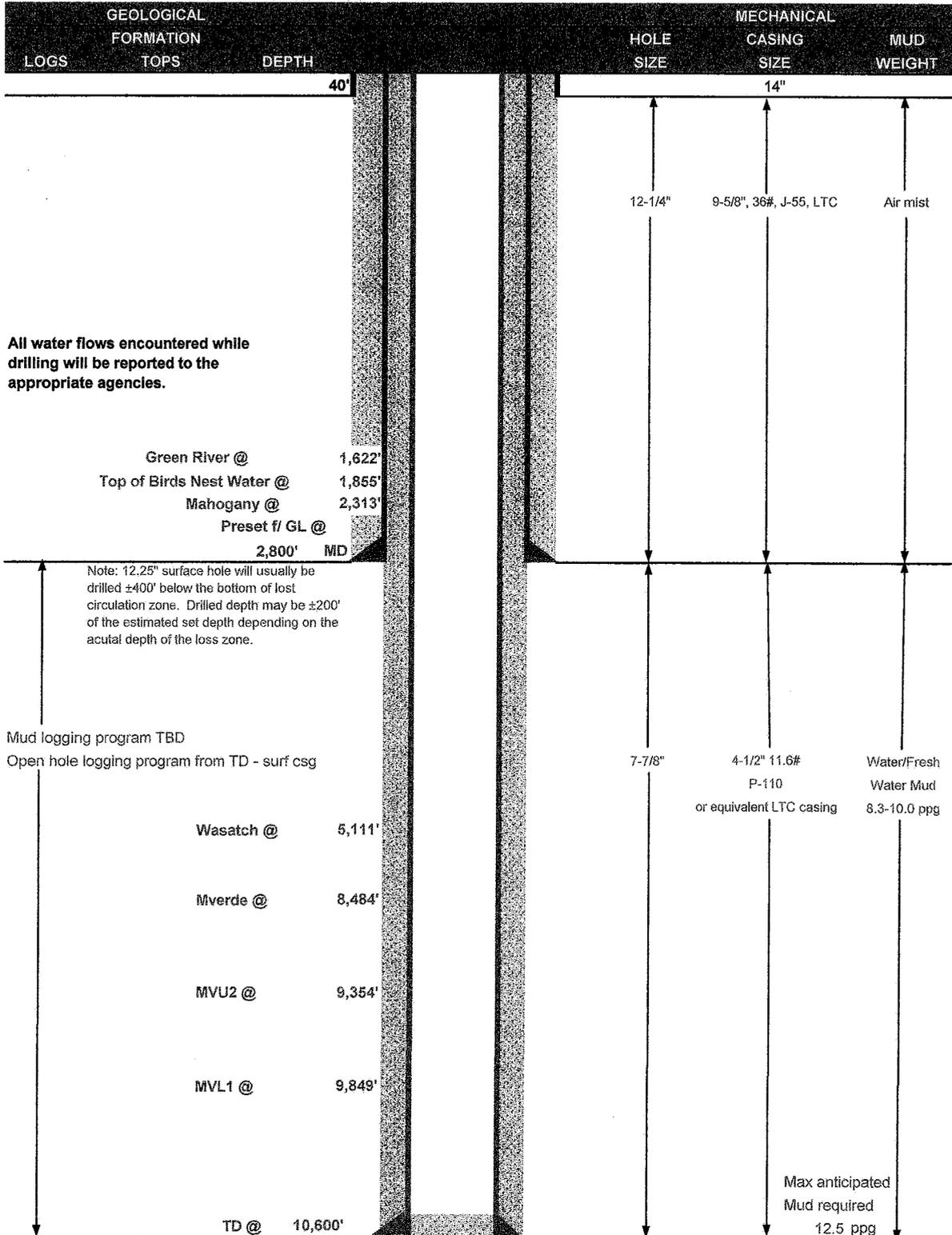
2/4/2009

Date



# KERR-McGEE OIL & GAS ONSHORE LP DRILLING PROGRAM

COMPANY NAME KERR-McGEE OIL & GAS ONSHORE LP DATE February 4, 2009  
 WELL NAME NBU 920-32E TD 10,600' MD/TVD  
 FIELD Natural Buttes COUNTY Uintah STATE Utah ELEVATION 4,829' GL KB 4,844'  
 SURFACE LOCATION SW/4 NW/4 2,052' FNL 707' FWL Sec 32 T 9S R 20E BHL Straight Hole  
 Latitude: 39.993200 Longitude: -109.696740 NAD 27  
 OBJECTIVE ZONE(S) Wasatch/Mesaverde  
 ADDITIONAL INFO Regulatory Agencies: UDOGM (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'				3,520	2,020	453,000
SURFACE	9-5/8"	0 to 2800	36.00	J-55	LTC	0.77	1.54	5.72
PRODUCTION	4-1/2"	0 to 10600	11.60	P-110	LTC	2.35	1.10	2.60

- 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 4,437 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 6,769 psi

## CEMENT PROGRAM

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE	LEAD	500	Premium cmt + 2% CaCl + .25 pps flocele	215	60%	15.60	1.18
Option 1	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
SURFACE	Option 2	NOTE: If well will circulate water to surface, option 2 will be utilized					
	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	4,610'	Premium Lite II + 3% KCl + 0.25 pps celloflake + 5 pps gilsonite + 10% gel + 0.5% extender	500	60%	11.00	3.38
	TAIL	5,990'	50/50 Poz/G + 10% salt + 2% gel + 1% R-3	1670	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:

John Huycke / Grant Schluender

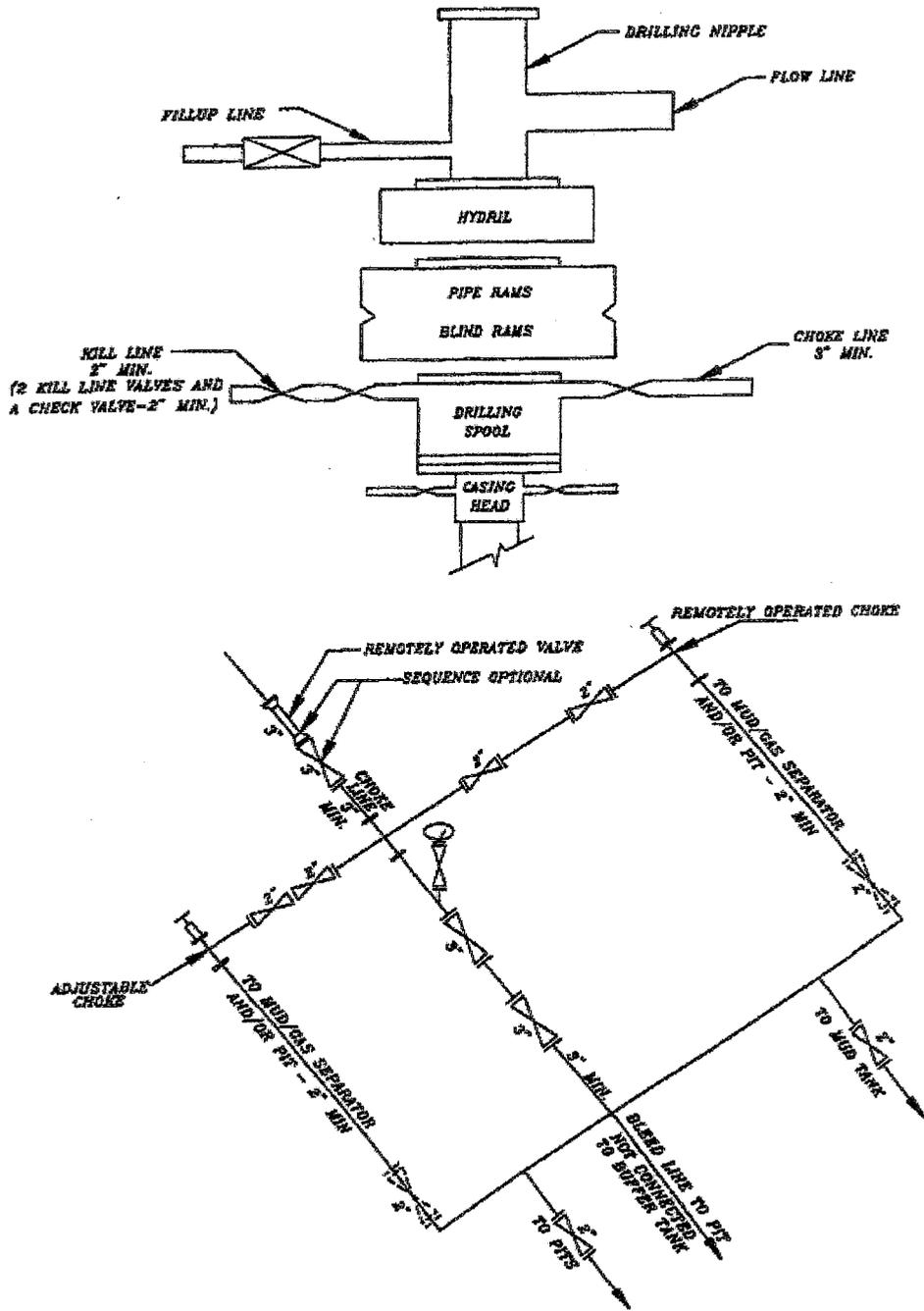
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DRILLING SUPERINTENDENT:

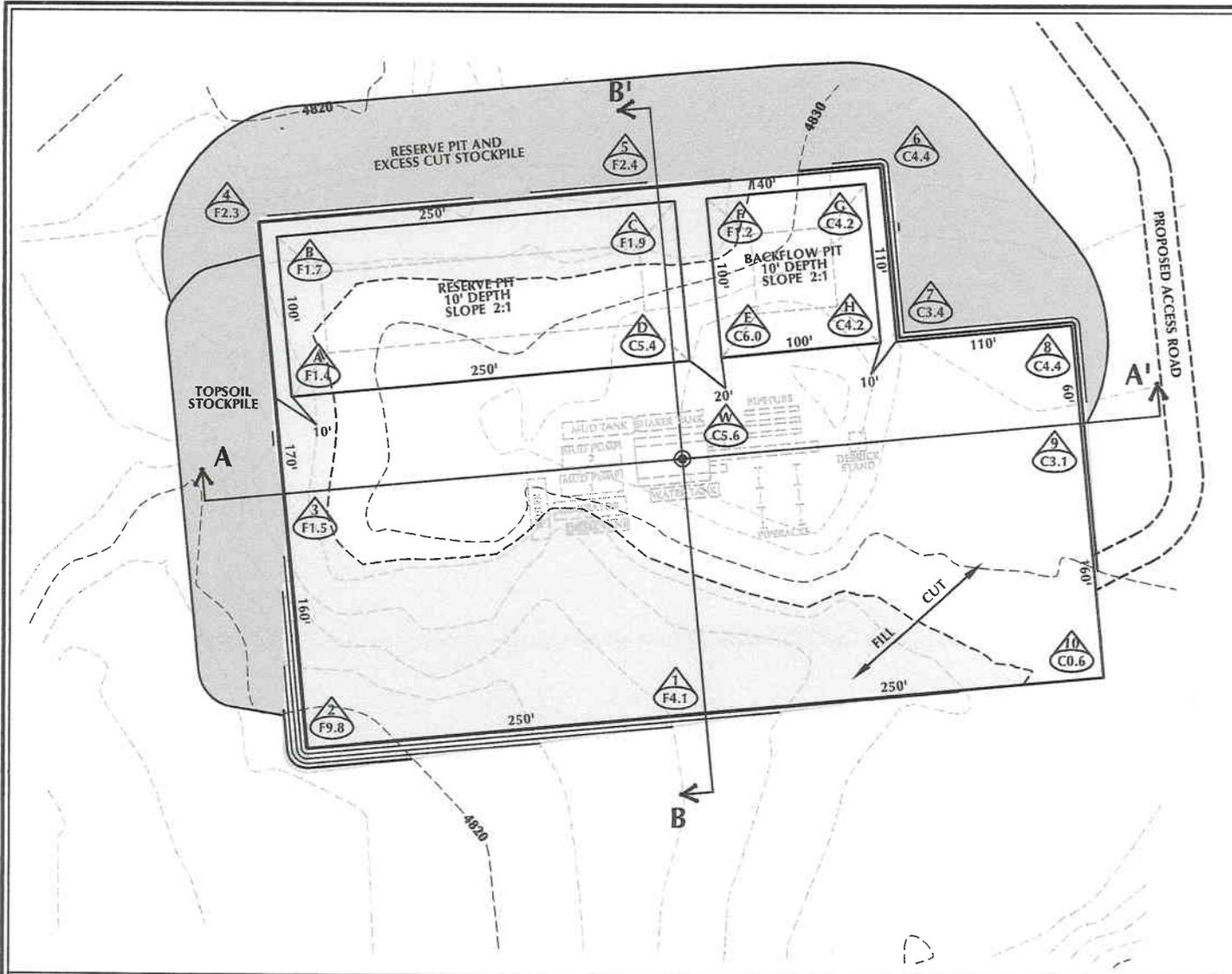
John Merkel / Lovel Young

DATE:

EXHIBIT A  
NBU 920-32K



SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK



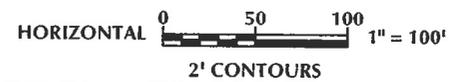
**WELL PAD LEGEND**

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

**WELL PAD NBU 920-32E QUANTITIES**

EXISTING GRADE @ LOC. STAKE = 4,834.2'  
 FINISHED GRADE ELEVATION = 4,828.6'  
 CUT SLOPES = 1.5:1  
 FILL SLOPES = 1.5:1

TOTAL CUT FOR WELL PAD = 8,450 C.Y.  
 TOTAL FILL FOR WELL PAD = 8,295 C.Y.  
 TOPSOIL @ 6" DEPTH = 2,993 C.Y.  
 EXCESS MATERIAL = 155 C.Y.  
 TOTAL DISTURBANCE = 3.71 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

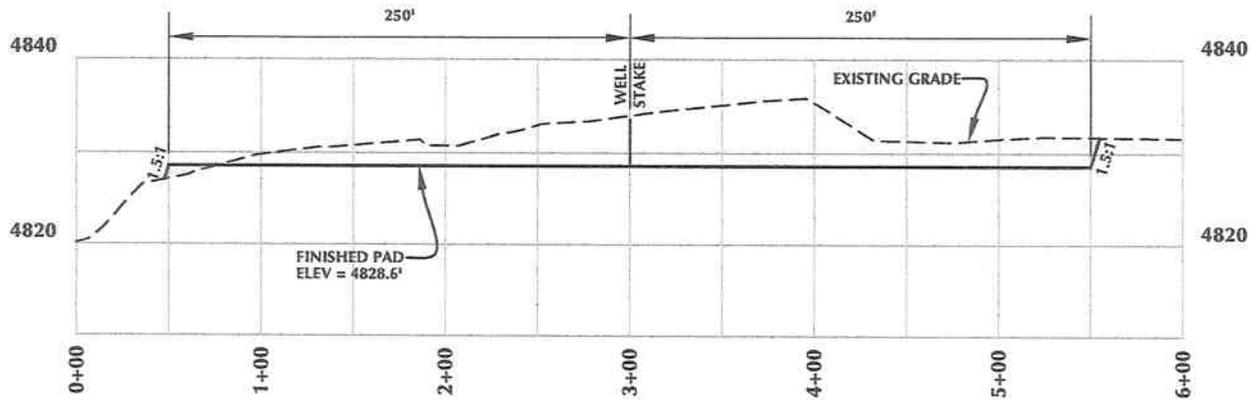


**CONSULTING, LLC**  
 371 Coffeen Avenue  
 Sheridan WY 82801  
 Phone 307-674-0609  
 Fax 307-674-0182

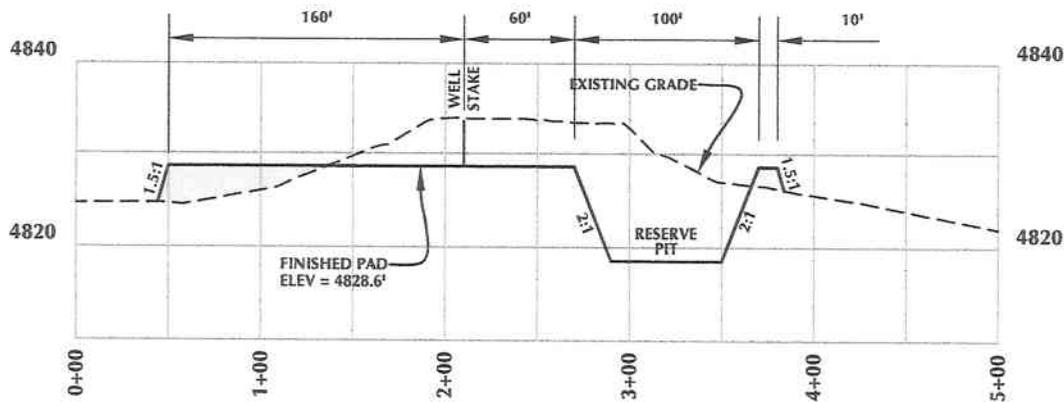
**NBU 920-32E**  
**WELL PAD - LOCATION LAYOUT**  
 2052' FNL, 707' FWL  
 SW1/4NW1/4, SECTION 32, T.9S., R.20E.  
 S.L.B.&M., UINTAH COUNTY, UTAH

Scale: 1"=100'	Date: 1/5/09	SHEET NO:
REVISED:	BY DATE	<b>2</b> 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'**

**KERR-MCGEE OIL & GAS  
ONSHORE L.P.**

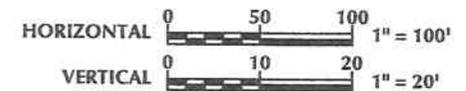
1099 18th Street - Denver, Colorado 80202



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

**NBU 920-32E  
WELL PAD - CROSS SECTIONS  
2052' FNL, 707' FWL  
SW1/4NW1/4, SECTION 32, T.9S., R.20E.  
S.L.B.&M., UINTAH COUNTY, UTAH**

Scale: 1"=100'	Date: 1/5/09	SHEET NO:
REVISID:	BY DATE	<b>3</b> 3 OF 9



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

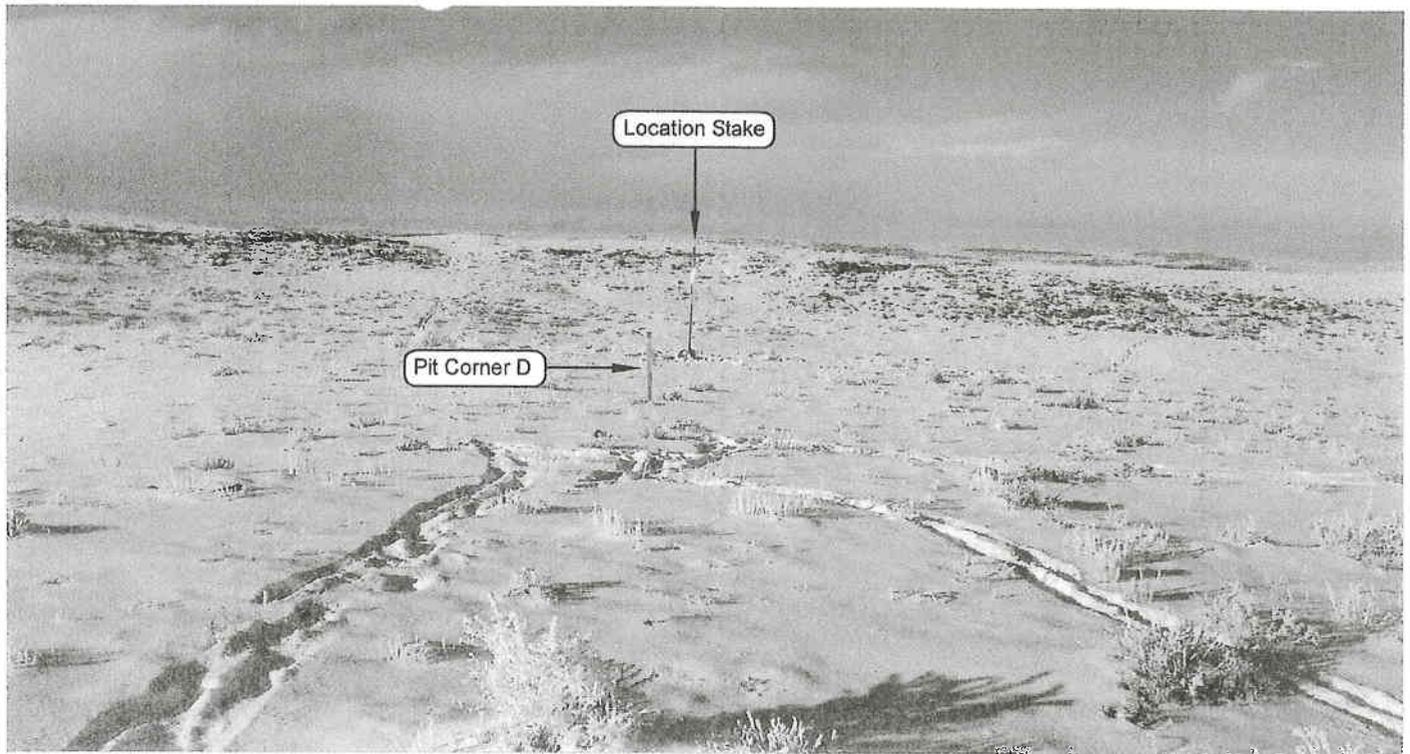


PHOTO VIEW: FROM PIT CORNER D TO LOCATION STAKE

CAMERA ANGLE: WESTERLY

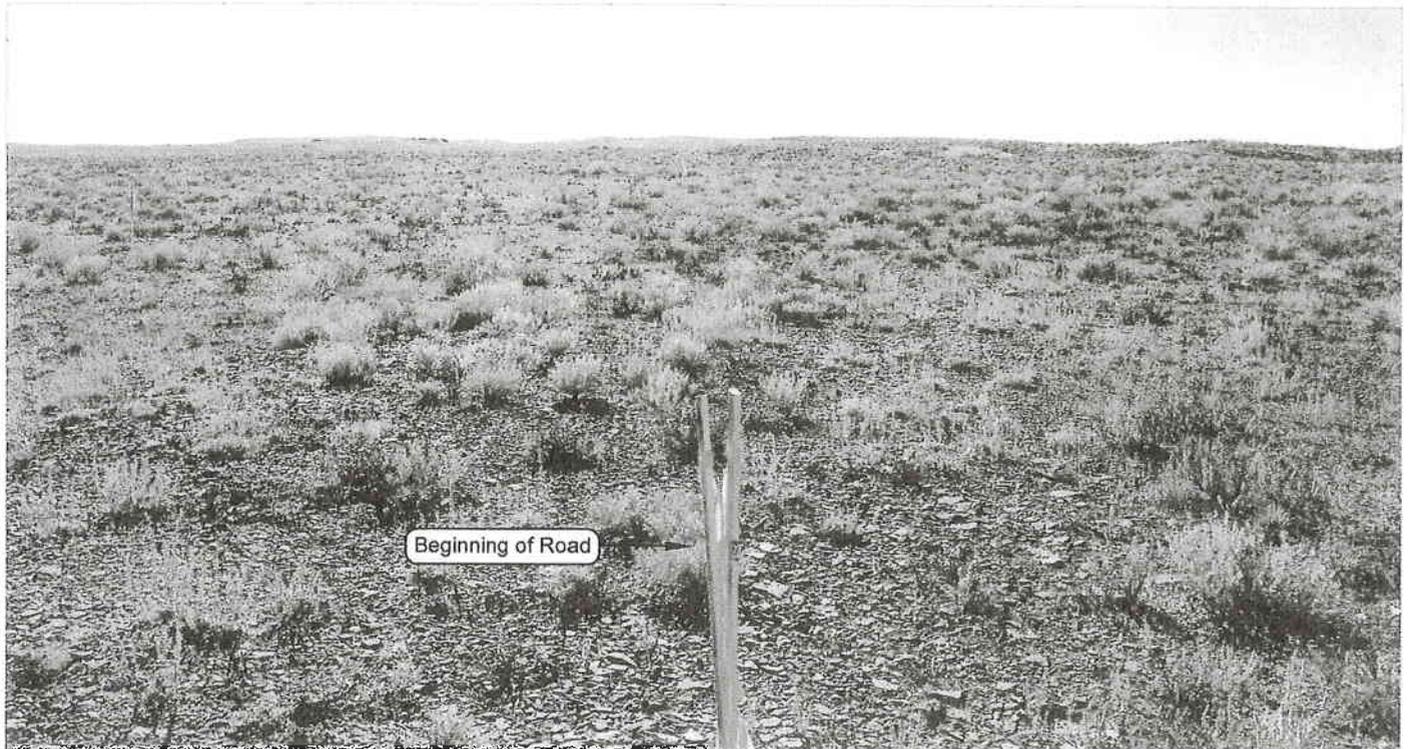
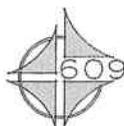


PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD

CAMERA ANGLE: SOUTHERLY

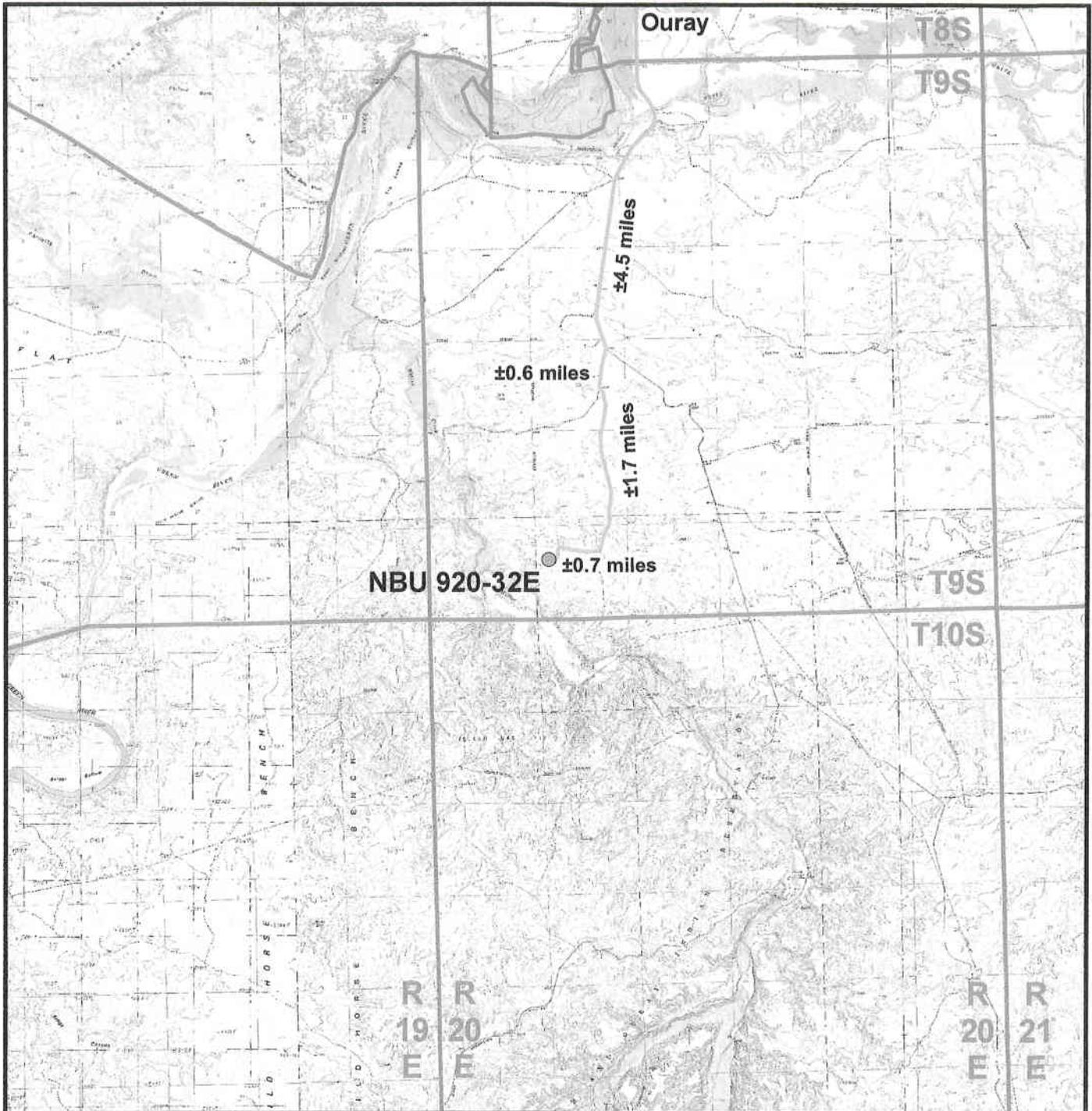
**Kerr-McGee**  
**Oil & Gas Onshore, LP**  
 1099 18th Street - Denver, Colorado 80202

NBU 920-32E  
 2052' FNL, 707' FWL  
 SW  $\frac{1}{4}$  NW  $\frac{1}{4}$  OF SECTION 32, T9S, R20E,  
 S.L.B.&M. UINTAH COUNTY, UTAH.



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

<b>LOCATION PHOTOS</b>		DATE TAKEN: 10-27-08
		DATE DRAWN: 10-28-08
TAKEN BY: M.S.B.	DRAWN BY: E.M.S.	REVISED: 12-23-08
<b>Timberline</b>		(435) 789-1365
Engineering & Land Surveying, Inc.		
38 WEST 100 NORTH	VERNAL, UTAH 84078	
		<b>SHEET</b> 4 <b>OF 9</b>



**Legend**

- Proposed NBU 920-32E Well Location
- Access Route - Proposed

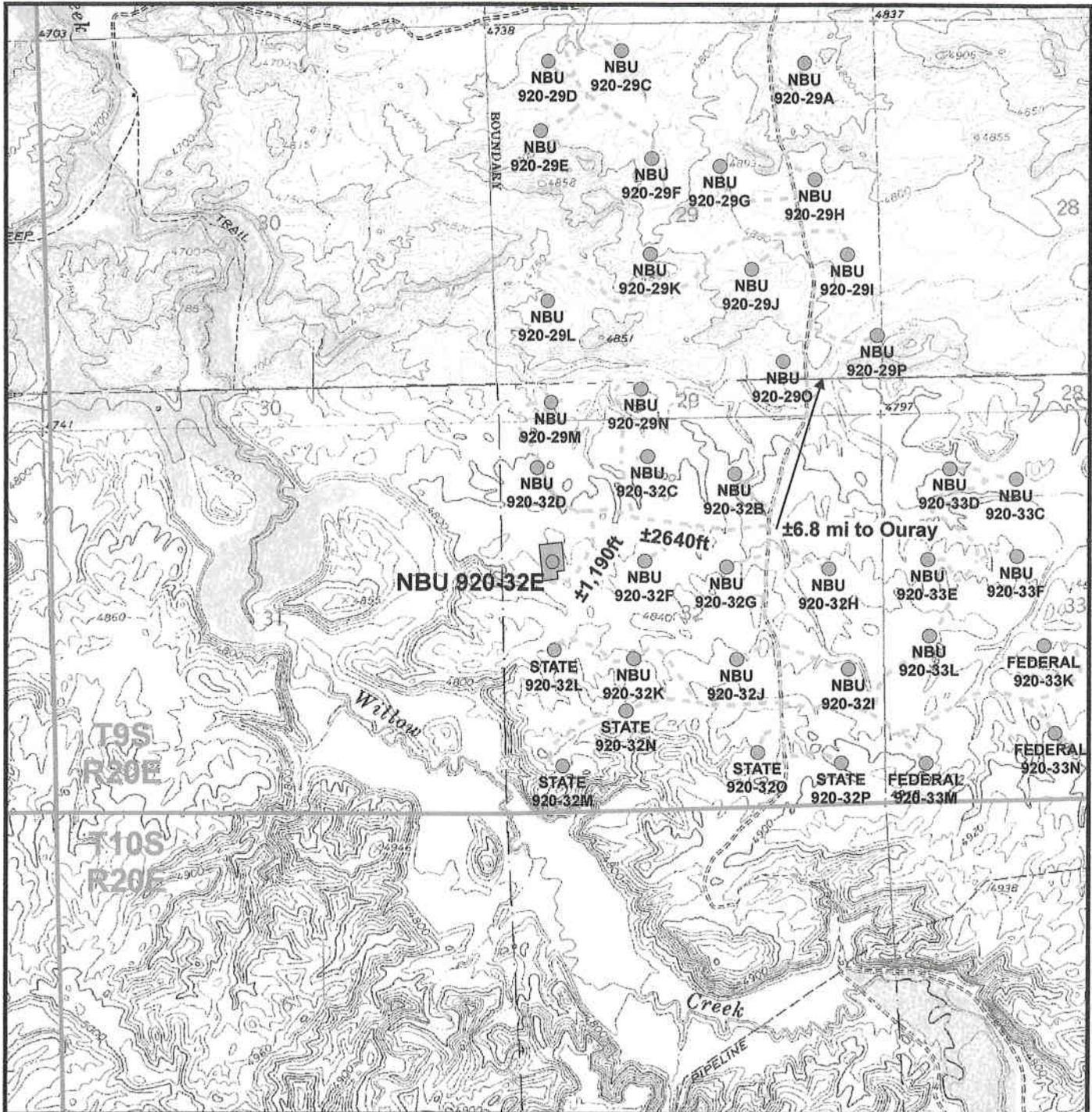
**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202

**NBU 920-32E**  
**Topo A**  
 2052' FNL, 707' FWL  
 SW¼ NW¼, Section 32, 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	5
Revised:	Date:	



**Legend**

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

Total Proposed Road Length: ±1,190ft

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

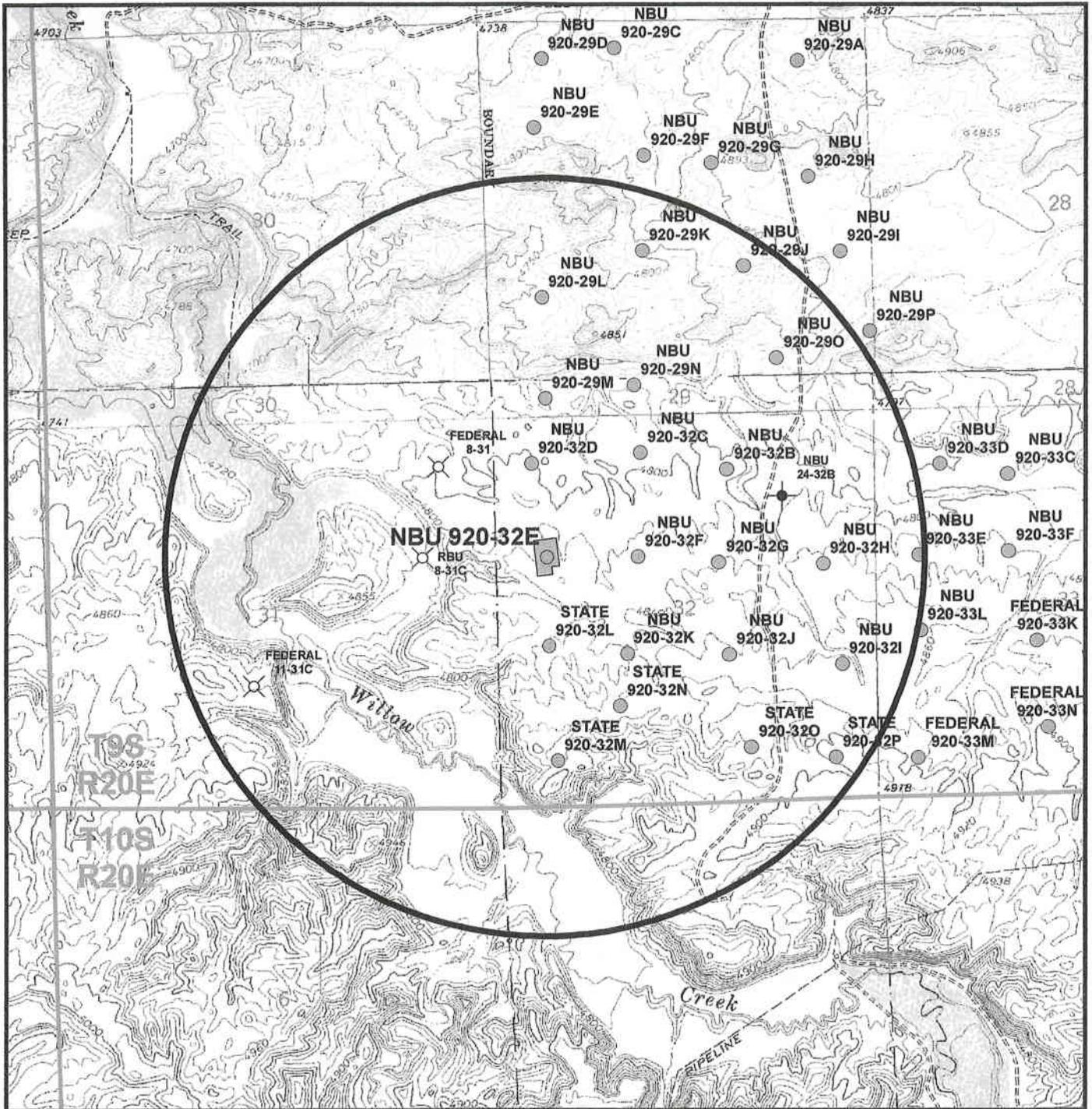
**NBU 920-32E**  
**Topo B**  
**2052' FNL, 707' FWL**  
**SW¼ NW¼, Section 32, T9S, R20E**  
**S.L.B.&M., Uintah County, Utah**



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



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



**Legend**

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

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

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

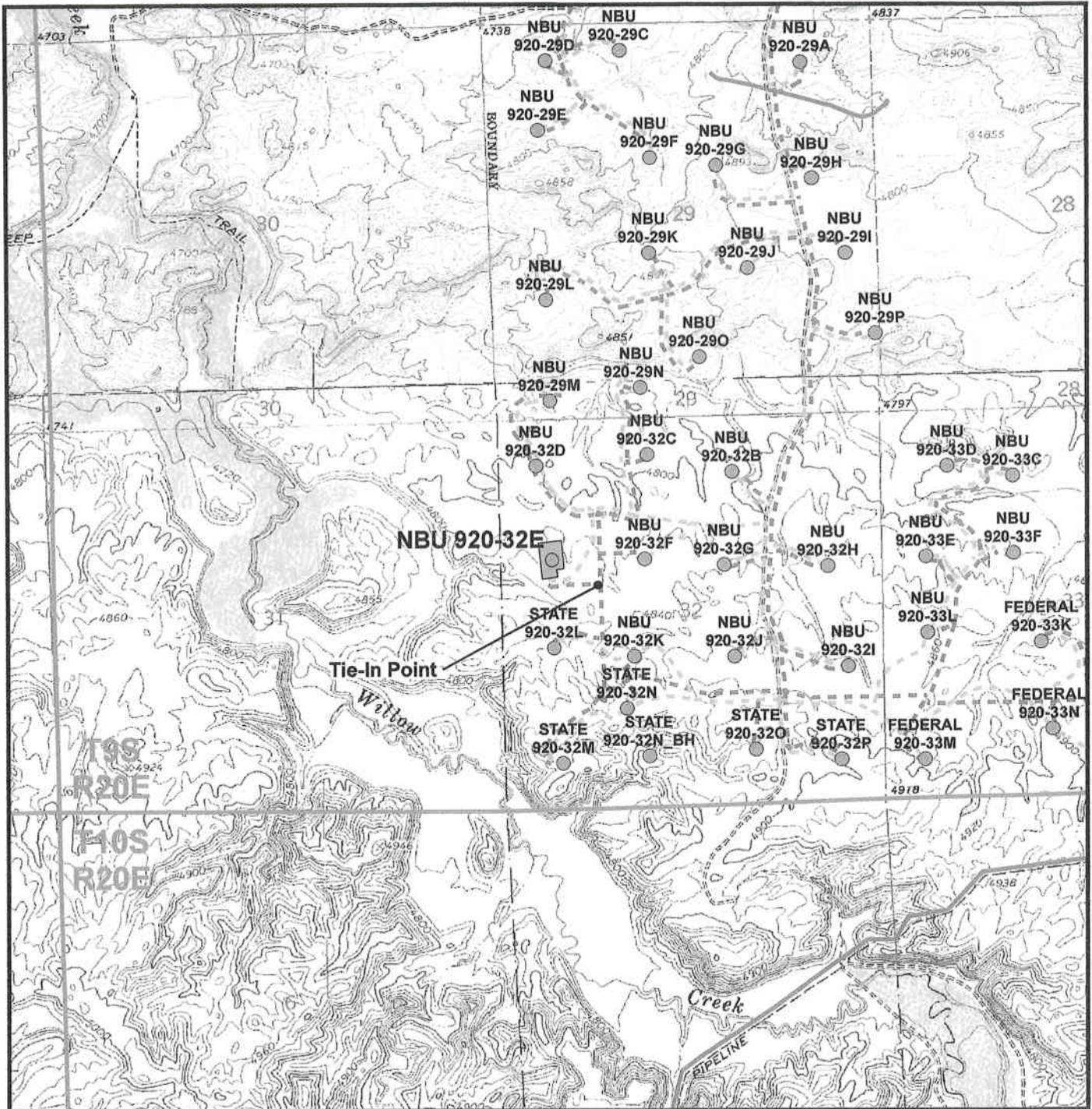
**NBU 920-32E**  
**Topo C**  
**2052' FNL, 707' FWL**  
**SW¼ NW¼, Section 32, T9S, R20E**  
**S.L.B.&M., Uintah County, Utah**



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Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:
Drawn: JELo	Date: 18 Dec 2008	7
Revised:	Date:	



**Legend**

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

Total Proposed Pipeline Length: ±923ft

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

**NBU 920-32E**  
**Topo D**  
**2052' FNL, 707' FWL**  
**SW¼ NW¼, Section 32, T9S, R20E**  
**S.L.B.&M., Uintah County, Utah**



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 371 Coffeen Avenue  
 Sheridan, WY 82801  
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Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:	<b>8</b>
Drawn: JELo	Date: 18 Dec 2008	<b>8 of 9</b>	
Revised:	Date:		

**Kerr-McGee Oil & Gas Onshore, LP**  
**NBU 920-32E**  
**Section 32, 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 1.7 MILES TO THE PROPOSED ACCESS ROAD. FOLLOW ROAD FLAGS IN A WESTERLY, THEN SOUTHERLY DIRECTION APPROXIMATELY 3,830 FEET TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM VERNAL, UTAH TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 38.2 MILES IN A SOUTHERLY DIRECTION.

IPC #08-362

## **Paleontological Reconnaissance Survey Report**

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**Survey of Kerr McGee's Proposed Gathering Pipeline, Well Pads,  
Access Roads, and Pipelines for "NBU #920-29M & N",  
"NBU #920-32C, E, F, & K", & "State #920-32L,  
M, N, & O" (Sec. 29 & 32, T 9 S, R 20 E)**

Big Pack Mtn NW  
Topographic Quadrangle  
Uintah County, Utah

December 18, 2008

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 #920-29M & N", "NBU #920-32C, E, F, & K", & "State #920-32L, M, N, & O" (Sec. 29 & 32, T 9 S, R 20 E) was conducted by Daniel Burk 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 #920-29M & N", "NBU #920-32C, E, F, & K", & "State #920-32L, M, N, & O" (Sec. 29 & 32, T 9 S, R 20 E) are located on Ute Indian Reservation land less than a 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 #920-29M**

The proposed access road and pipeline begin in the NW/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E at the north edge of the proposed well pad "NBU #920-32D" and travel approximately 800 feet north and east where they enter the well pad in the SW/SW quarter-quarter section of Sec. 29 (Figure 1). The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**NBU #920-29N**

The proposed access road and pipeline begin in the NE/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E near the well pad "NBU #920-32C" and travel north for approximately 1000 feet where they enter the well pad in the SE/SW quarter-quarter section of Sec. 29 (Figure 1). The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**NBU #920-32C**

The proposed pipeline begins at the end of the gathering pipeline in the center of the NW quarter section of Sec. 32, T 9 S, R 20 E and travels east for approximately 500 feet where it turns north and parallels the access road (Figure 1). The pipeline and access road travel north for approximately 700 feet where they enter the well pad in the NE/NW quarter-quarter section of Sec. 32. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds. No fossils were found.

**NBU #920-32E**

The proposed access road, pipeline, and well pad are located in the SW/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins along the access road for "NBU #920-32D" and travels south and west to where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels west for approximately 600 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Scattered isolated turtle shell and bone fragments were found on the pad and along the access road.

**NBU #920-32F**

The proposed access road, pipeline, and well pad are located in the SE/NW quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins along the access road for "NBU #920-32D" and travels southwest for approximately 500 feet where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels east approximately 500 feet where it enters the well pad. The proposed pipeline, access road, and well pad are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from fine to medium-grained maroon sandstone beds (2-3 m thick) which outcrop in the area. Trace fossil burrows were observed near the pipeline tie-in, just west of the pad.

**NBU #920-32K**

The proposed access road, pipeline, and well pad are located in the NE/SW quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins off the proposed access road for "State #920- 32N" and travels northwest approximately 800 feet where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels northwest for approximately 300 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**State #920-32L**

The proposed access road begins at the northwest corner of the well pad "NBU #920-32K" in the NE/SW quarter-quarter of Sec. 32, T 9 S, R 20 S and travels northwest approximately 600 feet where it enters the well pad in the NW/SW quarter-quarter section of Sec. 32 (Figure 1). The proposed pipeline begins along the access road where it intersects the gathering pipeline and parallels the access road to the well pad. The proposed well pad, access road and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

**State #920-32M**

The proposed access road begins at the western edge of the well pad "NBU #920-32N" in the NE/SW quarter-quarter section of Sec. 32, T 9 S, R 20 E and travels southwest approximately 1000 feet where it enters the well pad in the SW/SW quarter-quarter section of Sec. 32 (Figure 1). The proposed pipeline begins at the gathering pipeline in the center of the SW quarter section Sec. 32 and travels southwest where it parallels the access road until it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds. No fossils were found.

**State #920-32N**

The proposed access road begins at an existing two-track in the SW/SE quarter-quarter section of Sec. 32, T 9 S, R 20 E and travels west approximately 2000 feet where it enters the well pad in the SE/SW quarter-quarter section of Sec. 32 (Figure 1). The proposed pipeline begins at the gathering pipeline in the SE/SW quarter-quarter section of Sec. 32 and travels southeast for approximately 100 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement.

The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

#### State #920-320

The proposed access road, pipeline, and well pad are located in the SW/SE quarter-quarter section of Sec. 32, T 9 S, R 20 E (Figure 1). The proposed access road begins off an existing road and travels west approximately 100 feet where it enters the well pad. The proposed pipeline begins at the gathering pipeline and travels south approximately 300 feet where it enters the well pad. The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. No fossils were found.

#### Gathering Pipeline

The proposed gathering pipeline begins in the center of the NW quarter section of Sec. 32, T 9 S, R 20 E and travels south for approximately 0.5 miles, turns east and travels for approximately 0.5 miles, and turns north and travels for approximately 600 feet where it ends in the NW/SE quarter-quarter section of Sec. 32 (Figure 1). The proposed gathering pipeline is located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop in the area. No fossils were found.

### SURVEY RESULTS

PROJECT	GEOLOGY	PALEONTOLOGY
"NBU #920-29M" (Sec. 29, T 9 S, R 20 E)	The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.	No fossils were found. <b>Class 3a</b>
"NBU #920-29N" (Sec. 29, T 9 S, R 20 E)	The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.	No fossils were found. <b>Class 3a</b>

<p><b>"NBU #920-32C"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>"NBU #920-32E"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>Scattered isolated turtle shell and bone fragments were found on the pad and along the access road. <b>Class 3a</b></p>
<p><b>"NBU #920-32F"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed pipeline begins at the gathering pipeline and travels east approximately 500 feet where it enters the well pad. The proposed pipeline, access road, and well pad are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from fine to medium-grained maroon sandstone beds (2-3 m thick) which outcrop in the area.</p>	<p>Trace fossil burrows were observed near the pipeline tie-in, just west of the pad. <b>Class 3a</b></p>
<p><b>"NBU #920-32K"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>"State #920-32L"</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>

<p><b>“State #920-32M”</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan and maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop beneath the tan and maroon sandstone beds.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>“State #920-32N”</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained, up to 4 m thick, and stratigraphically above the maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>“State #920-32O”</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed well pad, access road, and pipeline are located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of maroon sandstone beds. The maroon sandstone beds are fine to medium-grained and up to 3 m thick.</p>	<p>No fossils were found. <b>Class 3a</b></p>
<p><b>“Gathering Pipeline”</b> (Sec. 32, T 9 S, R 20 E)</p>	<p>The proposed gathering pipeline is located on rolling hills covered in desert pavement. The pebbles and cobbles of the pavement are derived from the occasional outcrop of tan or maroon sandstone beds. The tan sandstone beds are medium to coarse-grained and up to 4 m thick. The maroon sandstone beds are fine to medium-grained and up to 3 m thick. Variegated mudstone beds (up to 2 m thick) also outcrop in the area.</p>	<p>No fossils were found. <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 #920-29M & N", "NBU #920-32C, F, E, & K", & "State #920-32L, N, M, & O" (Sec. 29 & 32, T 9 S, R 20 E). The well pads and the associated access roads and pipelines covered in this report showed little to no signs of vertebrate fossils. Therefore, we recommend that no paleontological restrictions should be placed on the development of the projects included in this report.

Buried pipeline will encounter Uinta formational sediments along most of the staked pipeline corridors yet indications from surface fossils predict that little if any vertebrate fossils will be disturbed.

**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.**

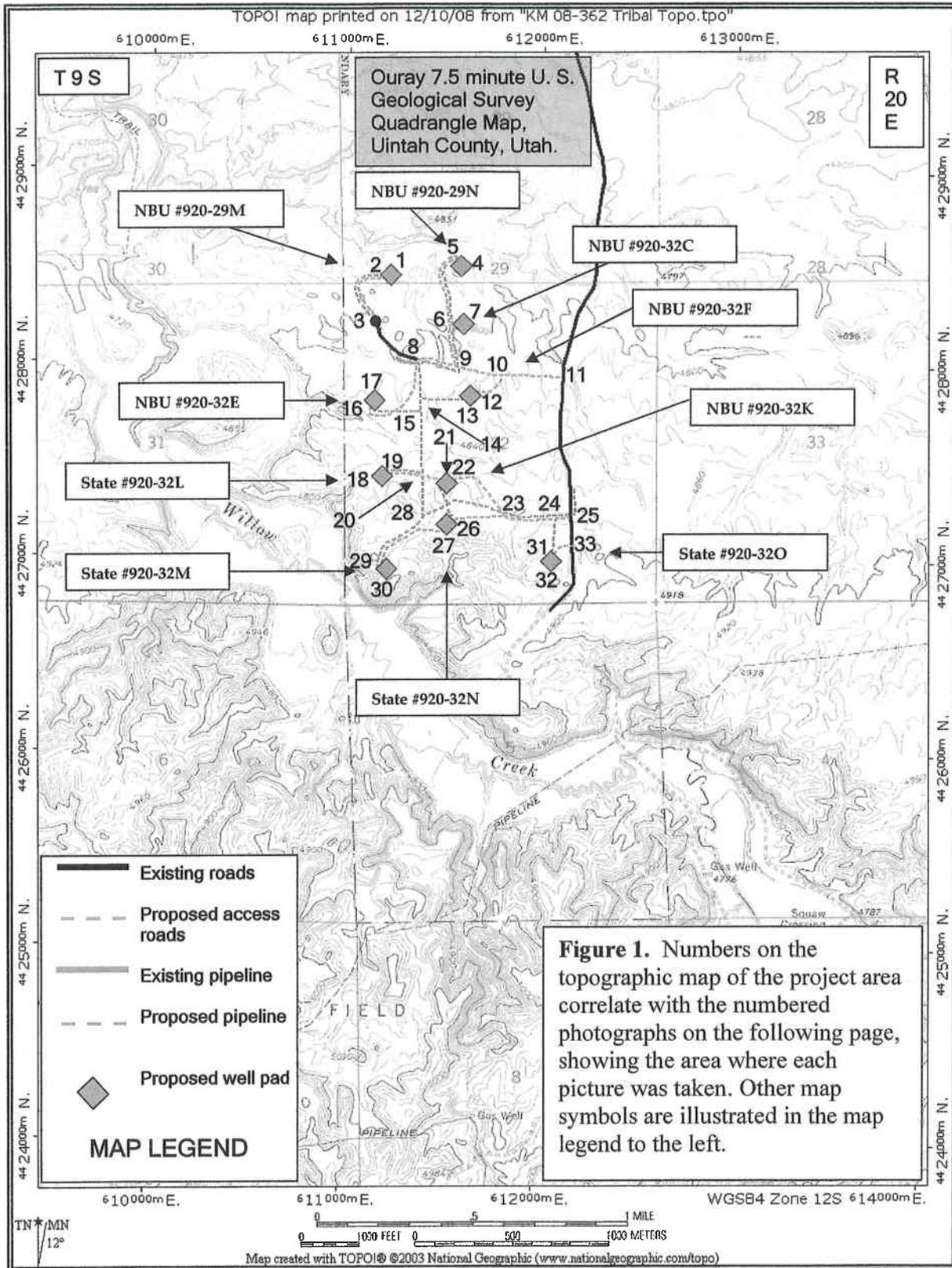


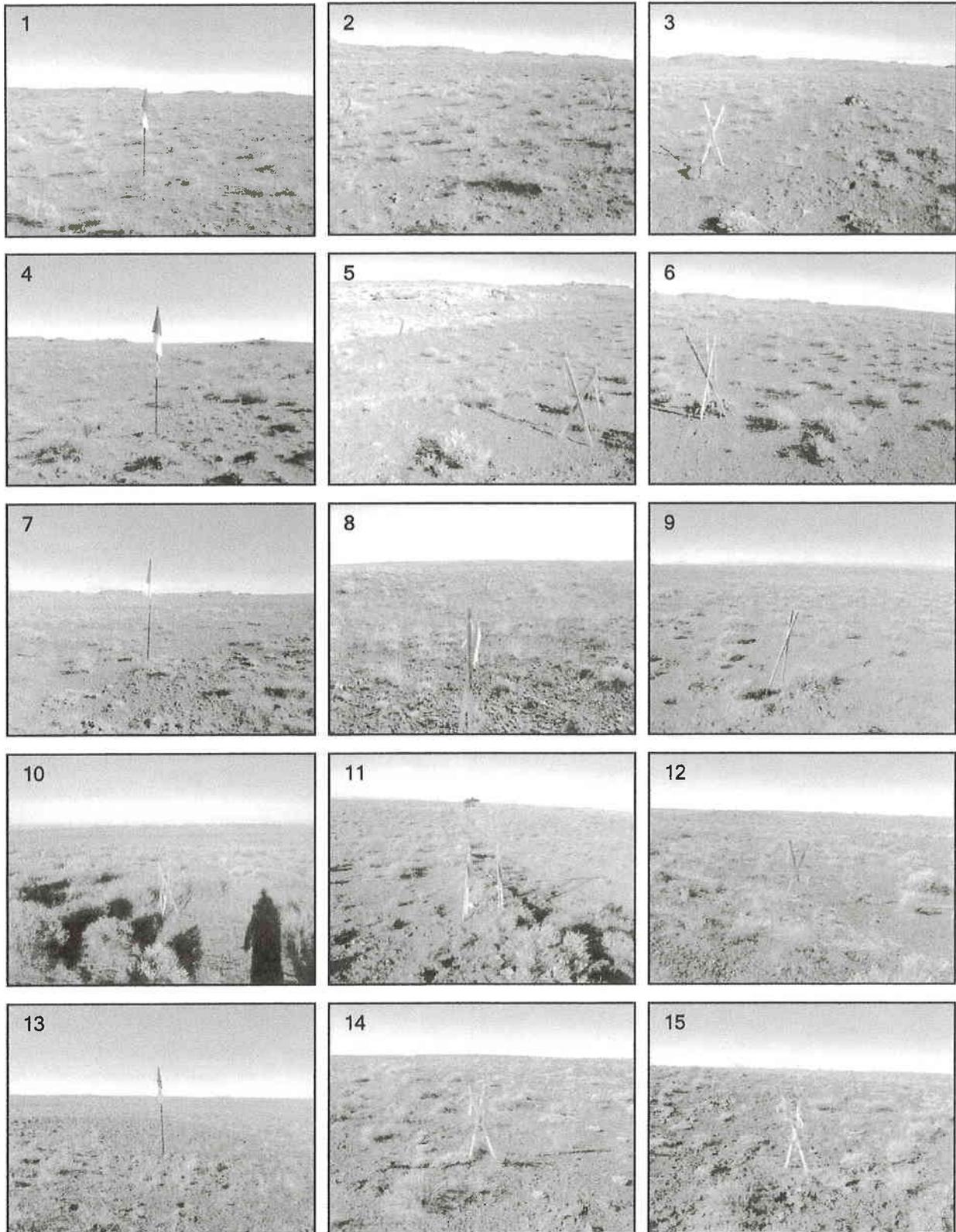
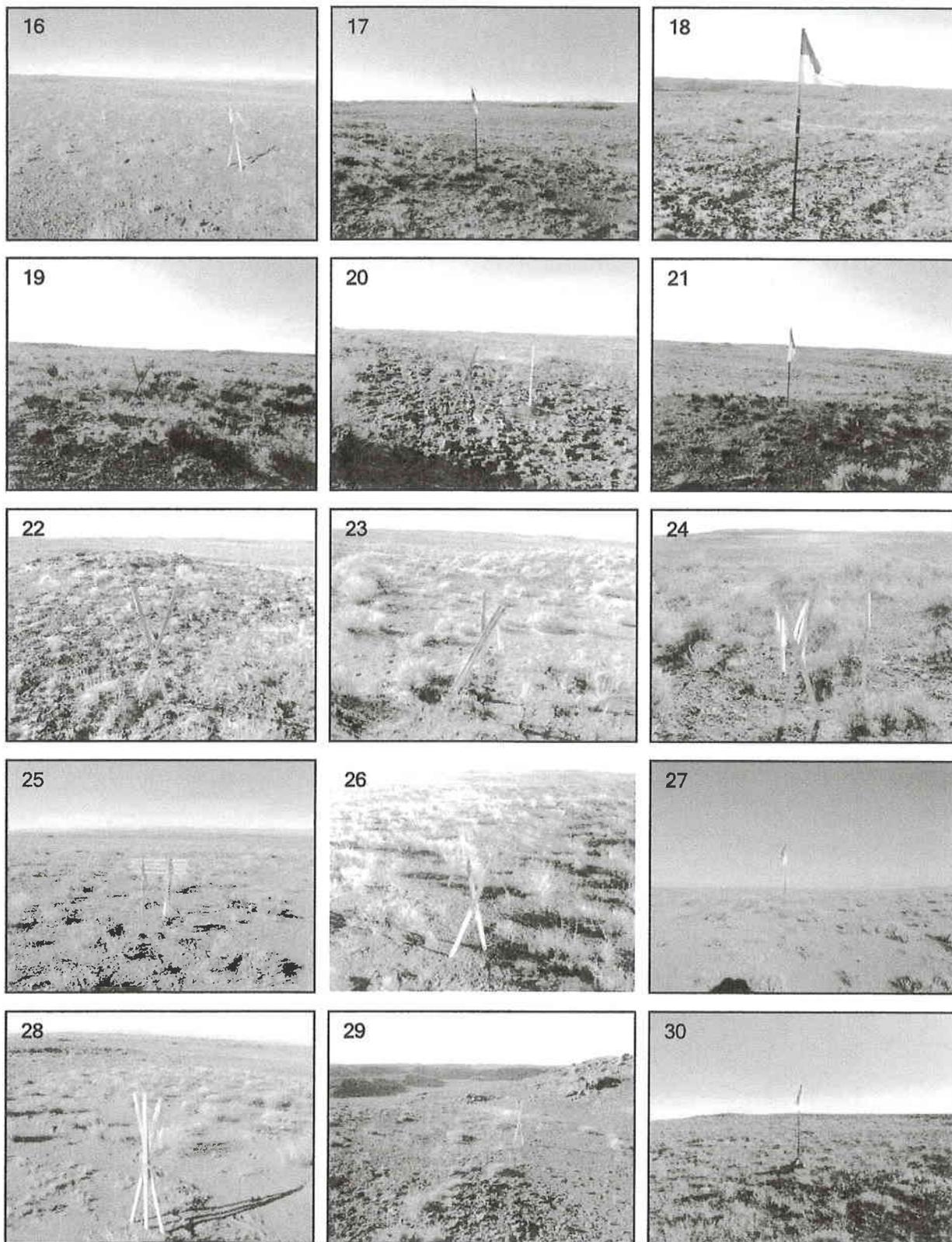
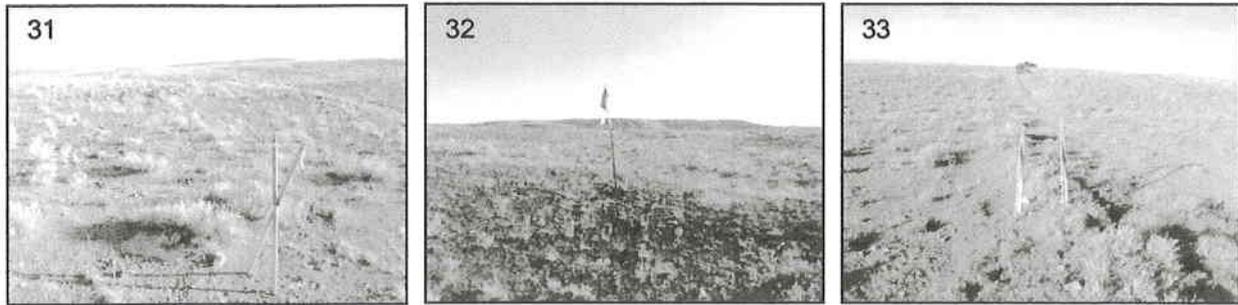
Figure 1. *continued...*

Figure 1. *continued...*

**Figure 1.** *continued...*



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**WORKSHEET  
APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 02/17/2009

API NO. ASSIGNED: 43-047-40561

WELL NAME: NBU 920-32E  
 OPERATOR: KERR-MCGEE OIL & GAS ( N2995 )  
 CONTACT: RALEEN WHITE

PHONE NUMBER: 720-929-6666

PROPOSED LOCATION:

SWNW 32 090S 200E  
 SURFACE: 2052 FNL 0707 FWL  
 BOTTOM: 2052 FNL 0707 FWL  
 COUNTY: UINTAH  
 LATITUDE: 39.99311 LONGITUDE: -109.6968  
 UTM SURF EASTINGS: 611258 NORTHINGS: 4427595  
 FIELD NAME: NATURAL BUTTES ( 630 )

INSPECT LOCATN BY: / /		
Tech Review	Initials	Date
Engineering	DKD	4/23/09
Geology		
Surface		

LEASE TYPE: 3 - State  
 LEASE NUMBER: ML-22140  
 SURFACE OWNER: 2 - Indian

PROPOSED FORMATION: WSMVD  
 COALBED METHANE WELL? NO

RECEIVED AND/OR REVIEWED:

- Plat
- Bond: Fed[] Ind[] Sta[] Fee[]  
(No. 22013542 )
- 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' Fr u/bdy & uncomm. Tract 1
- R649-3-11. Directional Drill

COMMENTS:

*See Separate File*

STIPULATIONS:

- 1- Federal Approval
- 2- Oil Shale
- 3- Surface Csg Cont Strip
- 4- STATEMENT OF BASIS

API Number: 4304740561

Well Name: NBU 920-32E

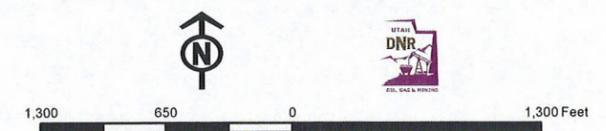
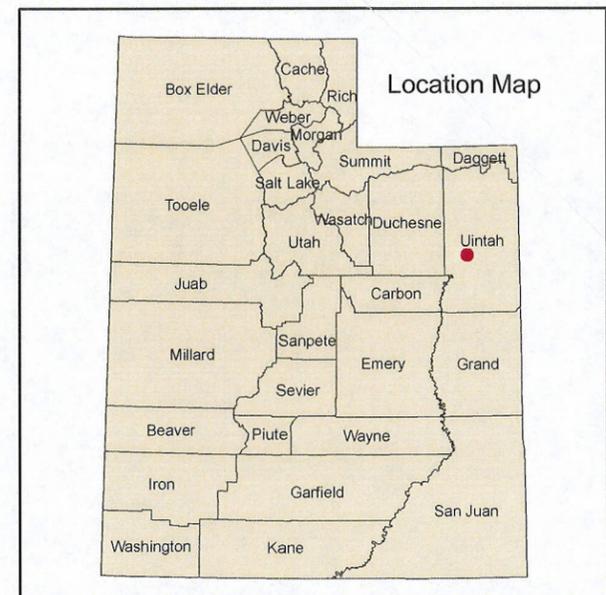
Township 09.0 S Range 20.0 E Section 32

Meridian: SLBM

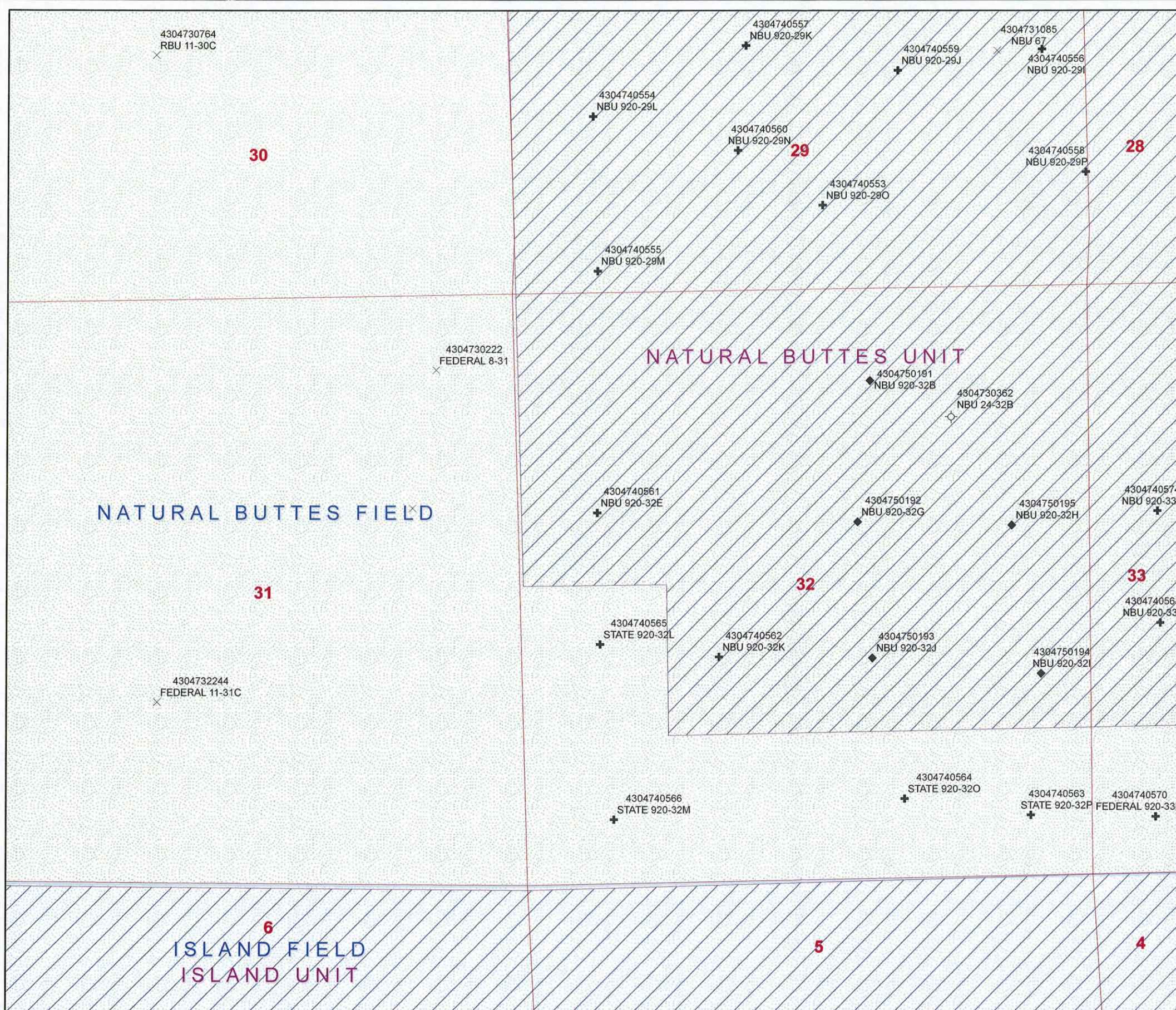
Operator: KERR-MCGEE OIL & GAS ONSHORE, L.P.

Map Prepared:  
Map Produced by Diana Mason

Units	Wells Query Events
STATUS	✕ <all other values>
ACTIVE	GIS_STAT_TYPE
EXPLORATORY	<Null>
GAS STORAGE	APD
NF PP OIL	DRL
NF SECONDARY	GI
PI OIL	GS
PP GAS	LA
PP GEOTHERML	NEW
PP OIL	OPS
SECONDARY	PA
TERMINATED	PGW
Fields	POW
STATUS	RET
ACTIVE	SGW
COMBINED	SOW
Sections	TA
	TW
	WD
	WI
	WS



1:11,349



# Application for Permit to Drill

## Statement of Basis

Utah Division of Oil, Gas and Mining

4/27/2009

Page 1

APD No	API WellNo	Status	Well Type	Surf Ownr	CBM
1446	43-047-40561-00-00		GW	I	No
<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>Surface Owner-APD</b>		
<b>Well Name</b>	NBU 920-32E	<b>Unit</b>	NATURAL BUTTES		
<b>Field</b>	NATURAL BUTTES		<b>Type of Work</b>		
<b>Location</b>	SWNW 32 9S 20E S 2052 FNL 707 FWL GPS Coord (UTM) 611258E 4427595N				

### Geologic Statement of Basis

Kerr McGee proposes to set 2,800' of surface casing at this location. The depth to the base of the moderately saline water at this location is estimated to be at a depth of 1,400'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the center of Section 32. The surface formation at this site is the Uinta Formation. The Uinta Formation is made up of interbedded shales and sandstones. The sandstones are mostly lenticular and discontinuous and should not be a significant source of useable ground water. The proposed casing and cement should adequately protect. Any usable ground water.

Brad Hill  
APD Evaluator

4/27/2009  
Date / Time

### Surface Statement of Basis

The surface rights for the proposed well are owned by the Ute Tribe. The operator is responsible for obtaining any required surface permits or rights-of-way.

Brad Hill  
Onsite Evaluator

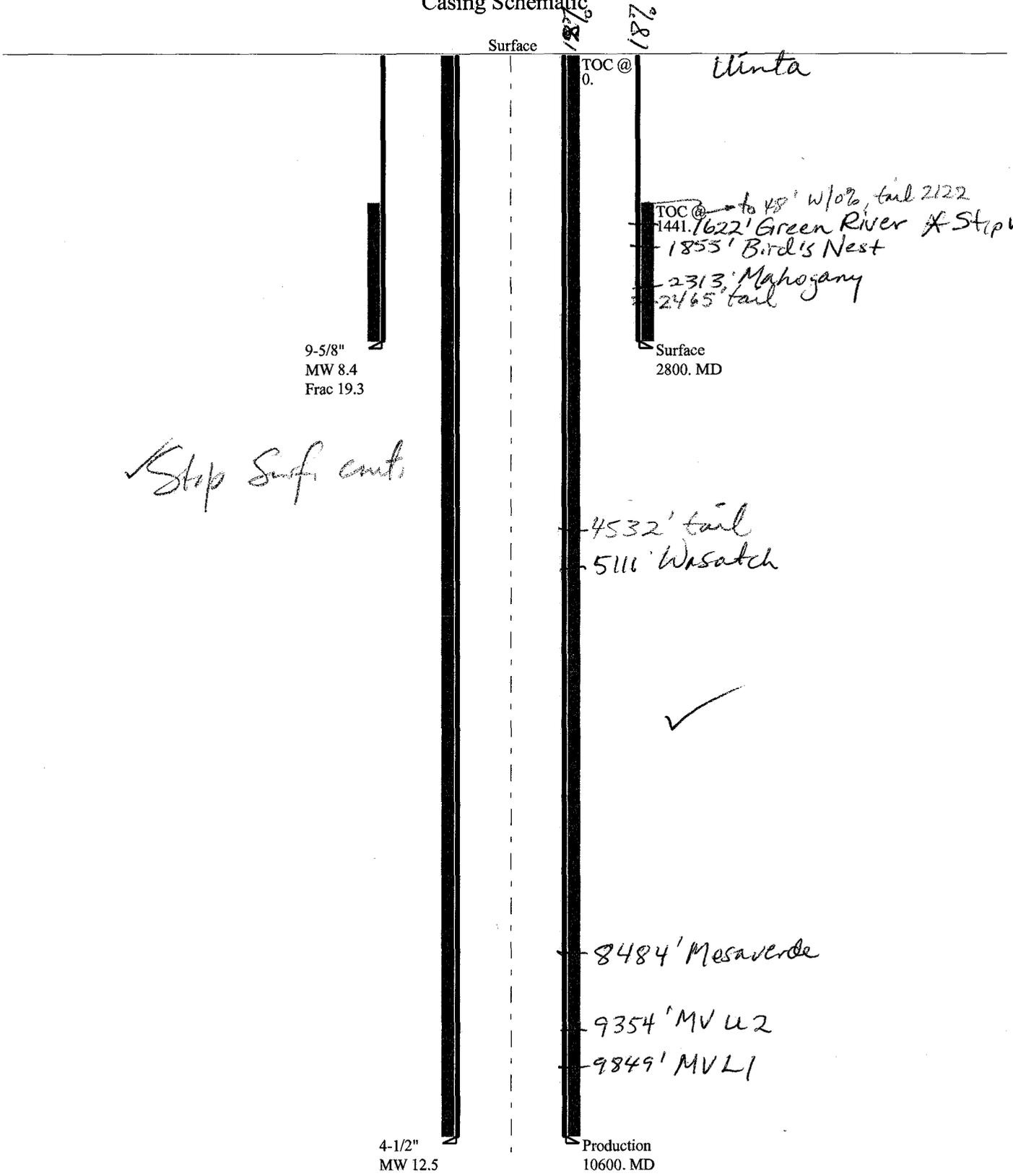
4/27/2009  
Date / Time

### Conditions of Approval / Application for Permit to Drill

Category	Condition
	None

43047405610000 NBU 920-32E

Casing Schematic



Surface

187  
187

TOC @ 0.

Uinta

to 45' w/0% tail 2122  
 TOC @ 1441.7622' Green River \* Stop ✓  
 1855' Bird's Nest  
 2313' Mahogany  
 2465' tail

9-5/8"  
MW 8.4  
Frac 19.3

Surface  
2800. MD

✓ Stop Surf. cont.

4532' tail  
 5116 Wasatch



8484' Mesaverde  
 9354' MV U2  
 9849' MVL1

4-1/2"  
MW 12.5

Production  
10600. MD

Well name:	<b>43047405610000 NBU 920-32E</b>	
Operator:	<b>Kerr McGee Oil &amp; Gas Onshore L.P.</b>	
String type:	Surface	Project ID: 43-047-40561-0000
Location:	Uintah County, Utah	

**Design parameters:**

**Collapse**

Mud weight: 8.400 ppg  
Design is based on evacuated pipe.

**Minimum design factors:**

**Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 75 °F  
Bottom hole temperature: 114 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 1,300 ft  
Cement top: 1,441 ft

**Burst**

Max anticipated surface pressure: 2,184 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 2,800 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

Tension is based on buoyed weight.  
Neutral point: 2,452 ft

**Non-directional string.**

**Re subsequent strings:**

Next setting depth: 10,600 ft  
Next mud weight: 12.500 ppg  
Next setting BHP: 6,883 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 2,800 ft  
Injection pressure: 2,800 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	2800	9.625	36.00	J-55	LT&C	2800	2800	8.796	1215.4

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	1222	2020	1.653	2800	3520	1.26	88	453	5.13 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: (801) 538-5357  
FAX: (801) 359-3940

Date: April 16, 2009  
Salt Lake City, Utah

Remarks:  
Collapse is based on a vertical depth of 2800 ft, a mud weight of 8.4 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Well name:	43047405610000 NBU 920-32E		
Operator:	Kerr McGee Oil & Gas Onshore L.P.		
String type:	Production	Project ID:	43-047-40561-0000
Location:	Uintah County, Utah		

**Design parameters:**

**Collapse**

Mud weight: 12.500 ppg  
 Internal fluid density: 2.330 ppg

**Burst**

Max anticipated surface pressure: 4,551 psi  
 Internal gradient: 0.220 psi/ft  
 Calculated BHP: 6,883 psi

No backup mud specified.

**Minimum design factors:**

**Collapse:**

Design factor: 1.125

**Burst:**

Design factor: 1.00

**Tension:**

8 Round STC: 1.80 (J)  
 8 Round LTC: 1.80 (J)  
 Buttress: 1.60 (J)  
 Premium: 1.50 (J)  
 Body yield: 1.50 (B)

Tension is based on buoyed weight.  
 Neutral point: 8,619 ft

**Environment:**

H2S considered? No  
 Surface temperature: 75 °F  
 Bottom hole temperature: 223 °F  
 Temperature gradient: 1.40 °F/100ft  
 Minimum section length: 1,500 ft

Cement top: Surface

**Non-directional string.**

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	10600	4.5	11.60	P-110	LT&C	10600	10600	3.875	925

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	5600	7580	1.354	6883	10690	1.55	100	279	2.79 J

Prepared by: Helen Sadik-Macdonald  
 Div of Oil, Gas & Mining

Phone: (801) 538-5357  
 FAX: (801) 359-3940

Date: March 26, 2009  
 Salt Lake City, Utah

Remarks:  
 Collapse is based on a vertical depth of 10600 ft, a mud weight of 12.5 ppg. An internal gradient of .121 psi/ft was used for collapse from TD. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

1876 w/o

**BOPE REVIEW**

**Kerr-McGee NBU 920-32E**

**API 43-047-40561-0000**

**INPUT**

Well Name

Kerr-McGee NBU 920-32E		API 43-047-40561-0000	
String 1	String 2		
Casing Size (")	9 5/8	4 1/2	
Setting Depth (TVD)	2800	10600	
Previous Shoe Setting Depth (TVD)	40	2800	
Max Mud Weight (ppg)	8.4	12.5	✓
BOPE Proposed (psi)	500	5000	
Casing Internal Yield (psi)	3520	10690	
Operators Max Anticipated Pressure (psi)	6769	12.3 ppg	✓

**Calculations**

		String 1	9 5/8 "		
Max BHP [psi]	.052*Setting Depth*MW =		1223	<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>	
MASP (Gas) [psi]	Max BHP-(0.12*Setting Depth) =		887	NO	Air Drill to surface shoe with diverter
MASP (Gas/Mud) [psi]	Max BHP-(0.22*Setting Depth) =		607	NO	
<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>					
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth) =		616	NO	<i>Reasonable Depth in area</i>
Required Casing/BOPE Test Pressure			2464	psi	
*Max Pressure Allowed @ Previous Casing Shoe =			40	psi	*Assumes 1psi/ft frac gradient

**Calculations**

		String 2	4 1/2 "		
Max BHP [psi]	.052*Setting Depth*MW =		6890	<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>	
MASP (Gas) [psi]	Max BHP-(0.12*Setting Depth) =		5618	NO	
MASP (Gas/Mud) [psi]	Max BHP-(0.22*Setting Depth) =		4558	YES	✓
<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>					
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth) =		5174	← NO	<i>Reasonable</i>
Required Casing/BOPE Test Pressure			5000	psi	
*Max Pressure Allowed @ Previous Casing Shoe =			2800	psi	*Assumes 1psi/ft frac gradient

# 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
(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

April 27, 2009

Kerr-McGee Oil & Gas Onshore, LP  
P O Box 173779  
Denver, CO 80202-3779

Re: NBU 920-32E Well, 2052' FNL, 707' FWL, SW NW, Sec. 32, 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 43-047-40561.

Sincerely,

Gil Hunt  
Associate Director

pab  
Enclosures

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



Operator: Kerr-McGee Oil & Gas Onshore, LP

Well Name & Number NBU 920-32E

API Number: 43-047-40561

Lease: ML-22140

Location: SW NW                      Sec. 32                      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

The operator is required to notify the Division of Oil, Gas and Mining of the following action during drilling of this well:

- 24 hours prior to cementing or testing casing – contact Dan Jarvis
- 24 hours prior to testing blowout prevention equipment – contact Dan Jarvis
- 24 hours prior to spudding the well – contact Carol Daniels
- Within 24 hours of any emergency changes made to the approved drilling program – contact Dustin Doucet
- Prior to commencing operations to plug and abandon the well – contact Dan Jarvis

The operator is required to get approval from the Division of Oil, Gas and Mining before performing any of the following actions during the drilling of this well:

- Plugging and abandonment or significant plug back of this well – contact Dustin Doucet
- Any changes to the approved drilling plan – contact Dustin Doucet

The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voice mail message if the person is not available to take the call):

- Dan Jarvis at:           (801) 538-5338 office           (801) 942-0871 home
- Carol Daniels at:       (801) 538-5284 office
- 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.

Page 2

43-047-40561

April 27, 2009

4. Compliance with the State of Utah Antiquities Act forbids disturbance of archeological, historical, or paleontological remains. Should archeological, historical or paleontological remains be encountered during your operations, you are required to immediately suspend all operations and immediately inform the Trust Lands Administration and the Division of State History of the discovery of such remains.
5. Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis. (Copy Attached)
6. 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.
7. Surface casing shall be cemented to the surface.
8. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.

<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> ML-22140
<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 920-32E
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047405610000
<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> 2052 FNL 0707 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNW Section: 32 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: 4/27/2010	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input checked="" type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	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:** April 20, 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> 4/19/2010	



**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 43047405610000**

**API:** 43047405610000

**Well Name:** NBU 920-32E

**Location:** 2052 FNL 0707 FWL QTR SWNW SEC 32 TWNP 090S RNG 200E MER S

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

**Date Original Permit Issued:** 4/27/2009

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?  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 rightof- 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

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

**Signature:** Danielle Piernot

**Date:** 4/19/2010

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

**Date:** April 20, 2010

**By:** 

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML-22140
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b> UTE
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>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 920-32E
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<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6515 Ext	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2052 FNL 0707 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNW Section: 32 Township: 09.0S Range: 20.0E Meridian: S		<b>COUNTY:</b> UINTAH
		<b>STATE:</b> UTAH
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 4/27/2011  <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: <input style="width: 100px;" type="text"/>	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.		
<p>Kerr-McGee Oil &amp; 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.</p>		
		<p><b>Approved by the Utah Division of Oil, Gas and Mining</b></p> <p><b>Date:</b> <u>04/14/2011</u></p> <p><b>By:</b> <u></u></p>
<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A		<b>DATE</b> 4/7/2011



**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 43047405610000**

**API:** 43047405610000

**Well Name:** NBU 920-32E

**Location:** 2052 FNL 0707 FWL QTR SWNW SEC 32 TWNP 090S RNG 200E MER S

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**Date Original Permit Issued:** 4/27/2009

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

**Signature:** Andy Lytle

**Date:** 4/7/2011

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



GARY R. HERBERT  
Governor

GREG 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

June 20, 2012

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

Re: APD Rescinded – NBU 920-32E, Sec. 32, T. 9S, R. 20E  
Uintah County, Utah API No. 43-047-40561

Ladies and Gentlemen:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on April 27, 2009. On April 20, 2010 and April 14, 2011 the Division granted a one-year APD extension. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective June 20, 2012.

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  
SITLA, Ed Bonner

