

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

FORM 3

AMENDED REPORT

<b>APPLICATION FOR PERMIT TO DRILL</b>		<b>1. WELL NAME and NUMBER</b> NBU 1022-11B4BS
<b>2. TYPE OF WORK</b> DRILL NEW WELL <input checked="" type="checkbox"/> REENTER P&A WELL <input type="checkbox"/> DEEPEN WELL <input type="checkbox"/>		<b>3. FIELD OR WILDCAT</b> NATURAL BUTTES
<b>4. TYPE OF WELL</b> Gas Well Coalbed Methane Well: NO		<b>5. UNIT or COMMUNITIZATION AGREEMENT NAME</b> NATURAL BUTTES
<b>6. NAME OF OPERATOR</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. OPERATOR PHONE</b> 720 929-6515
<b>8. ADDRESS OF OPERATOR</b> P.O. Box 173779, Denver, CO, 80217		<b>9. OPERATOR E-MAIL</b> julie.jacobson@anadarko.com
<b>10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)</b> UO1197A-ST	<b>11. MINERAL OWNERSHIP</b> FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>	<b>12. SURFACE OWNERSHIP</b> FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
<b>13. NAME OF SURFACE OWNER (if box 12 = 'fee')</b>		<b>14. SURFACE OWNER PHONE (if box 12 = 'fee')</b>
<b>15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')</b>		<b>16. SURFACE OWNER E-MAIL (if box 12 = 'fee')</b>
<b>17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')</b>	<b>18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS</b> YES <input checked="" type="checkbox"/> (Submit Commingling Application) NO <input type="checkbox"/>	<b>19. SLANT</b> VERTICAL <input type="checkbox"/> DIRECTIONAL <input checked="" type="checkbox"/> HORIZONTAL <input type="checkbox"/>

20. LOCATION OF WELL	FOOTAGES	QTR-QTR	SECTION	TOWNSHIP	RANGE	MERIDIAN
<b>LOCATION AT SURFACE</b>	1633 FNL 2601 FEL	SWNE	11	10.0 S	22.0 E	S
<b>Top of Uppermost Producing Zone</b>	908 FNL 1804 FEL	NWNE	11	10.0 S	22.0 E	S
<b>At Total Depth</b>	908 FNL 1804 FEL	NWNE	11	10.0 S	22.0 E	S

<b>21. COUNTY</b> UINTAH	<b>22. DISTANCE TO NEAREST LEASE LINE (Feet)</b> 908	<b>23. NUMBER OF ACRES IN DRILLING UNIT</b> 1674
<b>27. ELEVATION - GROUND LEVEL</b> 5032	<b>25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)</b> 1103	<b>26. PROPOSED DEPTH</b> MD: 8615 TVD: 8445
	<b>28. BOND NUMBER</b> 22013542	<b>29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE</b> 43-8496

**Hole, Casing, and Cement Information**

String	Hole Size	Casing Size	Length	Weight	Grade & Thread	Max Mud Wt.	Cement	Sacks	Yield	Weight
<b>Surf</b>	11	8.625	0 - 2060	28.0	J-55 LT&C	0.2	Type V	180	1.15	15.8
							Class G	270	1.15	15.8
<b>Prod</b>	7.875	4.5	0 - 8615	11.6	I-80 LT&C	12.5	Premium Lite High Strength	270	3.38	11.0
							50/50 Poz	1200	1.31	14.3

**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 type="checkbox"/> AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)	<input type="checkbox"/> FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER
<input checked="" type="checkbox"/> DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)	<input checked="" type="checkbox"/> TOPOGRAPHICAL MAP

<b>NAME</b> Andy Lytle	<b>TITLE</b> Regulatory Analyst	<b>PHONE</b> 720 929-6100
<b>SIGNATURE</b>	<b>DATE</b> 08/10/2011	<b>EMAIL</b> andrew.lytle@anadarko.com
<b>API NUMBER ASSIGNED</b> 43047518130000	<b>APPROVAL</b>   Permit Manager	

**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 1022-11B4BS**

Surface: 1633 FNL / 2601 FEL SWNE  
 BHL: 908 FNL / 1804 FEL NWNE

Section 11 T10S R22E

Uintah County, Utah  
 Mineral Lease: UO1197A-ST

**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	908	
Birds Nest	1248	Water
Mahogany	1614	Water
Wasatch	4038	Gas
Mesaverde	6274	Gas
MVU2	7254	Gas
MVL1	7818	Gas
TVD	8445	Gas
TD	8615	Gas

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

*Please refer to the attached Drilling Program*

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

*Please refer to the attached Drilling Program*

5. **Drilling Fluids Program:**

*Please refer to the attached Drilling Program*

6. **Evaluation Program:**

*Please refer to the attached Drilling Program*

**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 8445' TVD, approximately equals  
5,405 psi 0.64 psi/ft = actual bottomhole gradient

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Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,535 psi (bottom hole pressure  
minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

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Per Onshore Order No. 2 - Max Anticipated Surf. Press. (MASP) = (Pore Pressure at next csg point -  
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

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

**9. Variances:**

*Please refer to the attached Drilling Program.*

*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 11 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 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 8-5/8 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 refer to the attached Drilling Program.*





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

**CASING PROGRAM**

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS			
						BURST	COLLAPSE	LTC	BTC
CONDUCTOR	14"	0-40'							
SURFACE	8-5/8"	0 to 2,060	28.00	IJ-55	LTC	3,390 2.63	1,880 1.95	348,000 6.89	N/A N/A
PRODUCTION	4-1/2"	0 to 8,615	11.60	I-80	LTC/BTC	7,780 1.11	6,350 1.16	279,000 3.45	367,000 4.54

**Surface Casing:**

(Burst Assumptions: TD = 12.5 ppg) 0.73 psi/ft = frac gradient @ surface shoe  
Fracture at surface shoe with 0.1 psi/ft gas gradient above  
(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.64 psi/ft = bottomhole gradient  
(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)

**CEMENT PROGRAM**

	FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE LEAD	500'	Premium cmt + 2% CaCl + 0.25 pps flocele	180	60%	15.80	1.15
Option 1 TOP OUT CMT (6 jobs)	1,200'	20 gals sodium silicate + Premium cmt + 2% CaCl + 0.25 pps flocele	270	0%	15.80	1.15
<b>NOTE: If well will circulate water to surface, option 2 will be utilized</b>						
SURFACE LEAD	1,560'	65/35 Poz + 6% Gel + 10 pps gilsonite + 0.25 pps Flocele + 3% salt BWOW	150	35%	11.00	3.82
Option 2 TAIL	500'	Premium cmt + 2% CaCl + 0.25 pps flocele	150	35%	15.80	1.15
TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.80	1.15
PRODUCTION LEAD	3,535'	Premium Lite II +0.25 pps celloflake + 5 pps gilsonite + 10% gel + 0.5% extender	270	20%	11.00	3.38
TAIL	5,080'	50/50 Poz/G + 10% salt + 2% gel + 0.1% R-3	1,200	35%	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. No centralizers will be used.

**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.

Surveys will be taken at 1,000' minimum intervals.

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

DRILLING ENGINEER:

Nick Spence / Danny Showers

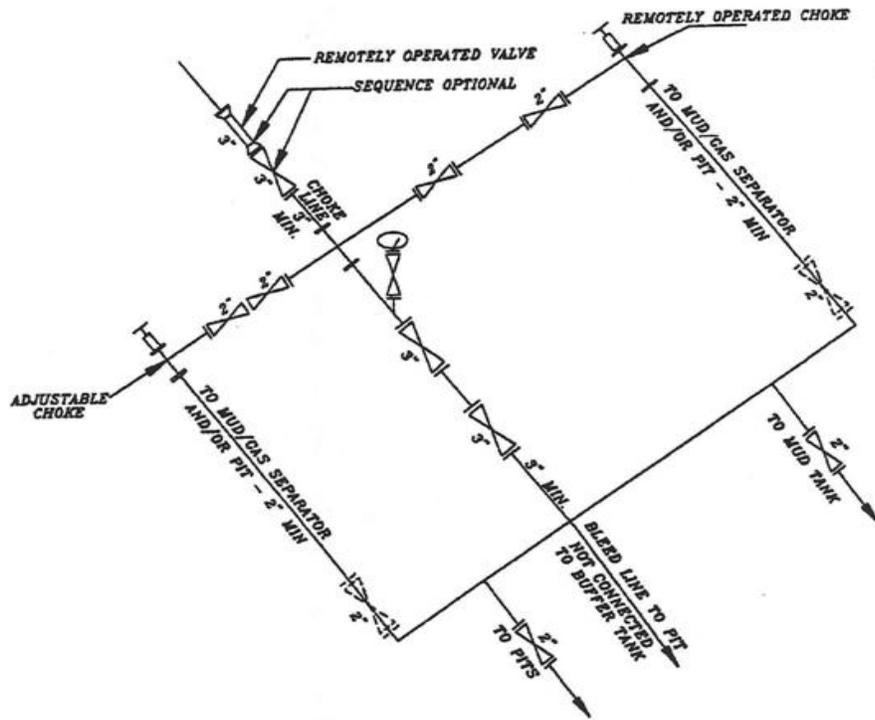
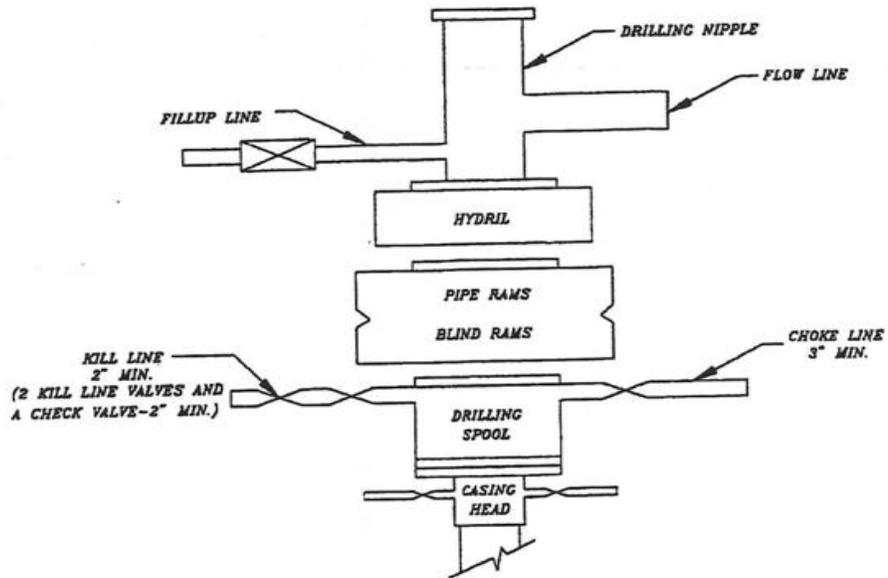
DATE: \_\_\_\_\_

DRILLING SUPERINTENDENT:

Kenny Gathings / Lovel Young

DATE: \_\_\_\_\_

EXHIBIT A  
NBU 1022-11B4BS



SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK

# T10S, R22E, S.L.B.&M.

S89°59'W - 80.04 (G.L.O.)

Found 1991 Aluminum Cap, Steel Post & Pile of Stones.

N89°55'57"W - 3073.93'  
(Measured to Witness Corner)

S89°58'17"W (Basis of Bearings)  
2247.80' (Measured to Witness Corner)

Found 1991 Aluminum Cap with Pile of Stones. Fence Post on SE side of Cap.

N00°06'51"W  
1320.03' (Meas.)  
20,005 (G.L.O.)

ALLOTMENT No.265  
No.16 ATCHIE

LOT 1

Found 1991 Aluminum Cap in Pile of Stones.

W.C. Found Set Stone  
N89°59'E  
6.02 (G.L.O.)

Bottom of Hole

1804'

1633'

**WELL LOCATION:  
NBU 1022-11B4BS**

ELEV. UNGRADED  
GROUND = 5032.0'

2601'

Well Surface Position

Not Monumented

11

N00°09'14"W  
1320.53' (Meas.)  
20,005 (G.L.O.)

Found 1991 Aluminum Cap, Pile of Stones.

N0°06'W - 80.02 (G.L.O.)  
N00°06'14"W - 2640.39' (Meas.)

40.01 (G.L.O.)

NBU 1022-11B4BS (Surface Position)  
NAD 83 LATITUDE = 39.966219° (39° 57' 58.387")  
LONGITUDE = 109.407002° (109° 24' 25.206")  
NAD 27 LATITUDE = 39.966253° (39° 57' 58.510")  
LONGITUDE = 109.406320° (109° 24' 22.753")

NBU 1022-11B4BS (Bottom Hole)  
NAD 83 LATITUDE = 39.968206° (39° 58' 05.540")  
LONGITUDE = 109.404136° (109° 24' 14.891")  
NAD 27 LATITUDE = 39.968240° (39° 58' 05.664")  
LONGITUDE = 109.403455° (109° 24' 12.439")

Found 1991 Aluminum Cap, Set Stone West of Cap, Pile of Stones

N00°25'25"E - 5276.36' (Meas.)  
N0°01'W (G.L.O.)

Found Uintah County Aluminum Cap on 3/4" rebar. Pile of Stones

N89°59'34"W - 2633.26' (Meas.)

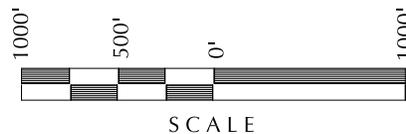
S89°56'39"W - 2638.49' (Meas.)

N89°59'W - 79.98 (G.L.O.)

**NOTES:**

▲ = Section Corners Located

- Well footages are measured at right angles to the Section Lines.
- G.L.O. distances are shown in feet or chains.  
1 chain = 66 feet.
- The Bottom of hole bears N47°55'54"E 1081.44' from the Surface Position.
- Bearings are based on Global Positioning Satellite observations.
- Basis of elevation is Tri-Sta "Two Water" located in the NW 1/4 of Section 1, T10S, R21E, S.L.B.&M. The elevation of this Tri-Sta is shown on the Big Pack Mtn NE 7.5 Min. Quadrangle as being 5238'.



**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.

John R. Blaugh  
PROFESSIONAL LAND SURVEYOR  
REGISTRATION NO. 6028691  
STATE OF UTAH 1-17-11

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

**WELL PAD: NBU 1022-11G2**

**NBU 1022-11B4BS  
WELL PLAT**

**908' FNL, 1804' FEL (Bottom Hole)  
NW 1/4 NE 1/4 OF SECTION 11, T10S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH.**



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

**TIMBERLINE**

(435) 789-1365

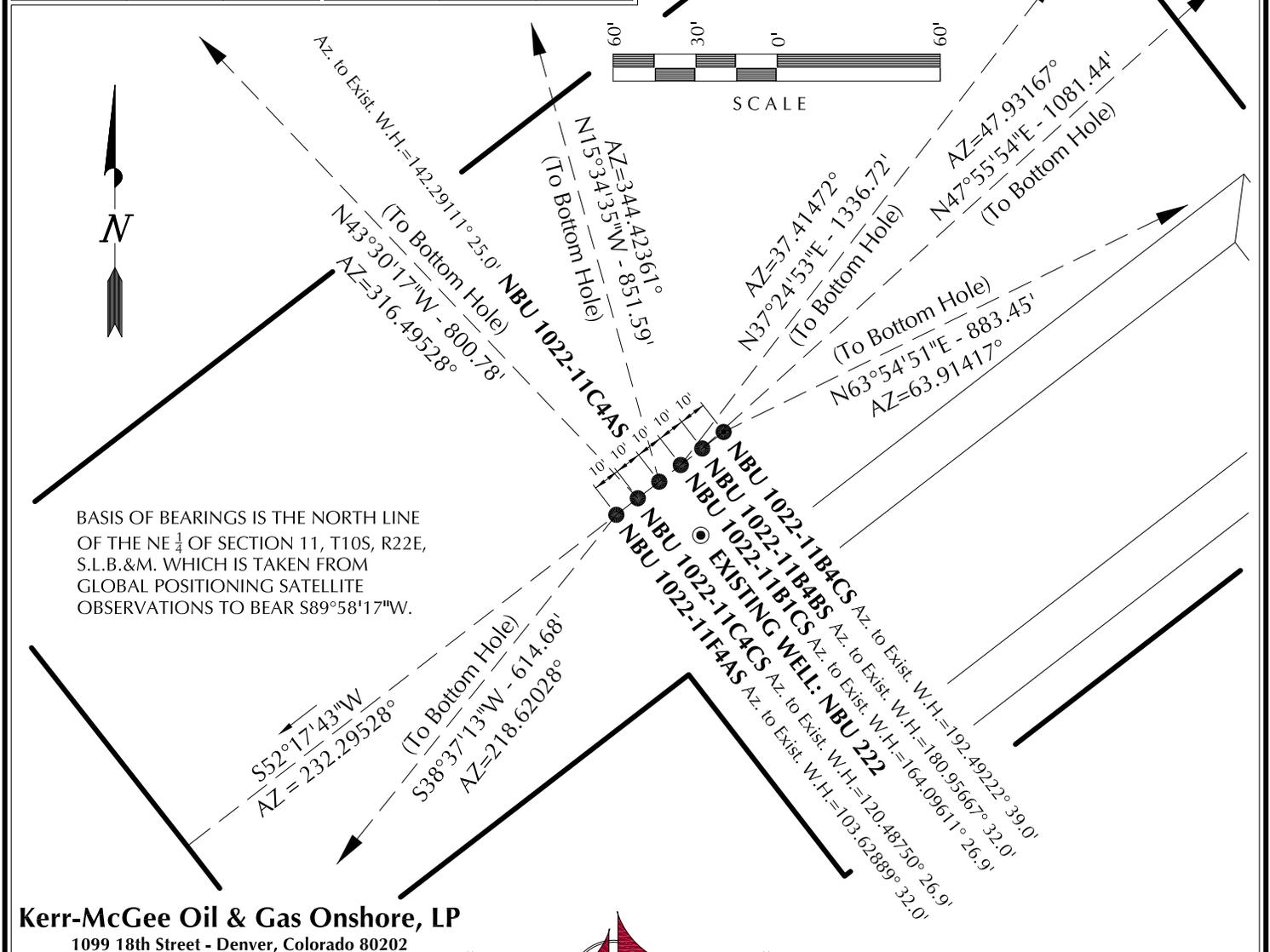
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE SURVEYED: 12-28-10	SURVEYED BY: M.S.B.	SHEET NO: <b>2</b>
DATE DRAWN: 01-13-11	DRAWN BY: E.M.S.	
SCALE: 1" = 1000'		2 OF 18

WELL NAME	SURFACE POSITION					BOTTOM HOLE				
	NAD83		NAD27		FOOTAGES	NAD83		NAD27		FOOTAGES
	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	
NBU 1022-11B4CS	39°57'58.447"	109°24'25.104"	39°57'58.571"	109°24'22.651"	1627' FNL	39°58'02.280"	109°24'14.913"	39°58'02.404"	109°24'12.460"	1238' FNL
NBU 1022-11B4BS	39°57'58.387"	109°24'25.206"	39°57'58.510"	109°24'22.753"	2594' FEL	39°58'05.540"	109°24'14.891"	39°58'05.664"	109°24'12.439"	908' FNL
NBU 1022-11B1CS	39°57'58.326"	109°24'25.307"	39°57'58.450"	109°24'22.854"	1633' FNL	39°58'08.811"	109°24'14.870"	39°58'08.934"	109°24'12.417"	577' FNL
NBU 1022-11C4AS	39°57'58.266"	109°24'25.409"	39°57'58.390"	109°24'22.956"	2609' FEL	39°58'06.372"	109°24'28.338"	39°58'06.496"	109°24'25.885"	1805' FNL
NBU 1022-11C4CS	39°57'58.206"	109°24'25.510"	39°57'58.329"	109°24'23.058"	1651' FNL	39°58'03.948"	109°24'32.584"	39°58'04.071"	109°24'30.131"	2462' FWL
NBU 1022-11F4AS	39°57'58.145"	109°24'25.612"	39°57'58.269"	109°24'23.159"	2625' FEL	39°57'53.403"	109°24'30.542"	39°57'53.526"	109°24'28.089"	1071' FNL
NBU 222	39°57'58.071"	109°24'25.213"	39°57'58.194"	109°24'22.760"	1665' FNL	39°58'48.834"	109°24'30.542"	39°58'48.834"	109°24'30.542"	2131' FNL
	39°57'58.131"	109°24'25.213"	39°57'58.165"	109°24'22.760"	2602' FEL					2288' FWL

RELATIVE COORDINATES - From Surface Position to Bottom Hole

WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST
NBU 1022-11B4CS	388.5'	793.5'	NBU 1022-11B4BS	724.6'	802.8'	NBU 1022-11B1CS	1,061.7'	812.2'	NBU 1022-11C4AS	820.3'	-228.7'
NBU 1022-11C4CS	580.8'	-551.3'	NBU 1022-11F4AS	-480.2'	-383.7'						



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

**WELL PAD - NBU 1022-11G2**

**WELL PAD INTERFERENCE PLAT**  
WELLS - NBU 1022-11B4CS, NBU 1022-11B4BS, NBU 1022-11B1CS, NBU 1022-11C4AS, NBU 1022-11C4CS & NBU 1022-11F4AS LOCATED IN SECTION 11, T10S, R22E, S.L.B.&M., UINTAH COUNTY, UTAH.



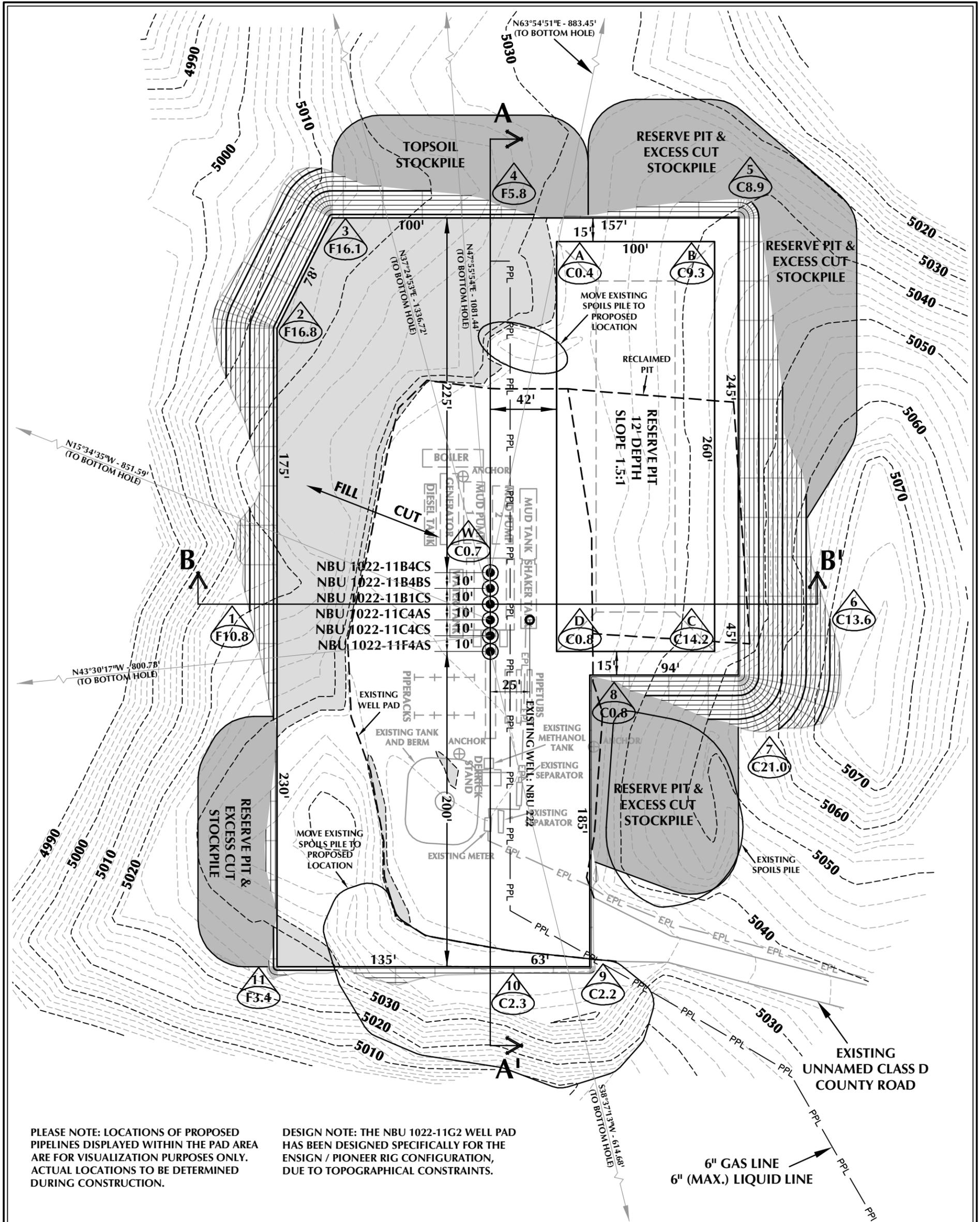
**CONSULTING, LLC**  
2155 North Main Street  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

**TIMBERLINE**

(435) 789-1365

ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE SURVEYED: 12-28-10	SURVEYED BY: M.S.B.	SHEET NO: <b>7</b>
DATE DRAWN: 01-13-11	DRAWN BY: E.M.S.	
SCALE: 1" = 60'		7 OF 18



PLEASE NOTE: LOCATIONS OF PROPOSED PIPELINES DISPLAYED WITHIN THE PAD AREA ARE FOR VISUALIZATION PURPOSES ONLY. ACTUAL LOCATIONS TO BE DETERMINED DURING CONSTRUCTION.

DESIGN NOTE: THE NBU 1022-11G2 WELL PAD HAS BEEN DESIGNED SPECIFICALLY FOR THE ENSIGN / PIONEER RIG CONFIGURATION, DUE TO TOPOGRAPHICAL CONSTRAINTS.

**WELL PAD - NBU 1022-11G2 DESIGN SUMMARY**

EXISTING GRADE @ CENTER OF WELL PAD = 5032.1'  
 FINISHED GRADE ELEVATION = 5031.4'  
 CUT SLOPES = 1.5:1  
 FILL SLOPES = 1.5:1  
 TOTAL WELL PAD AREA = 3.40 ACRES  
 TOTAL DAMAGE AREA = 5.62 ACRES  
 SHRINKAGE FACTOR = 1.10  
 SWELL FACTOR = 1.00

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

**WELL PAD - NBU 1022-11G2**

**WELL PAD - LOCATION LAYOUT**  
 NBU 1022-11B4CS, NBU 1022-11B4BS,  
 NBU 1022-11B1CS, NBU 1022-11C4AS,  
 NBU 1022-11C4CS & NBU 1022-11F4AS  
 LOCATED IN SECTION 11, T10S, R22E,  
 S.L.B.&M., UINTAH COUNTY, UTAH

**WELL PAD QUANTITIES**  
 TOTAL CUT FOR WELL PAD = 13,013 C.Y.  
 TOTAL FILL FOR WELL PAD = 10,794 C.Y.  
 TOPSOIL @ 6" DEPTH = 1,850 C.Y.  
 EXCESS MATERIAL = 2,219 C.Y.

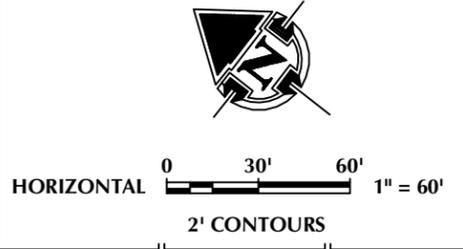
**RESERVE PIT QUANTITIES**  
 TOTAL CUT FOR RESERVE PIT  
 +/- 8,870 C.Y.  
 RESERVE PIT CAPACITY (2' OF FREEBOARD)  
 +/- 33,770 BARRELS



**609 CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan, WY 82801  
 Phone 307-674-0609  
 Fax 307-674-0182

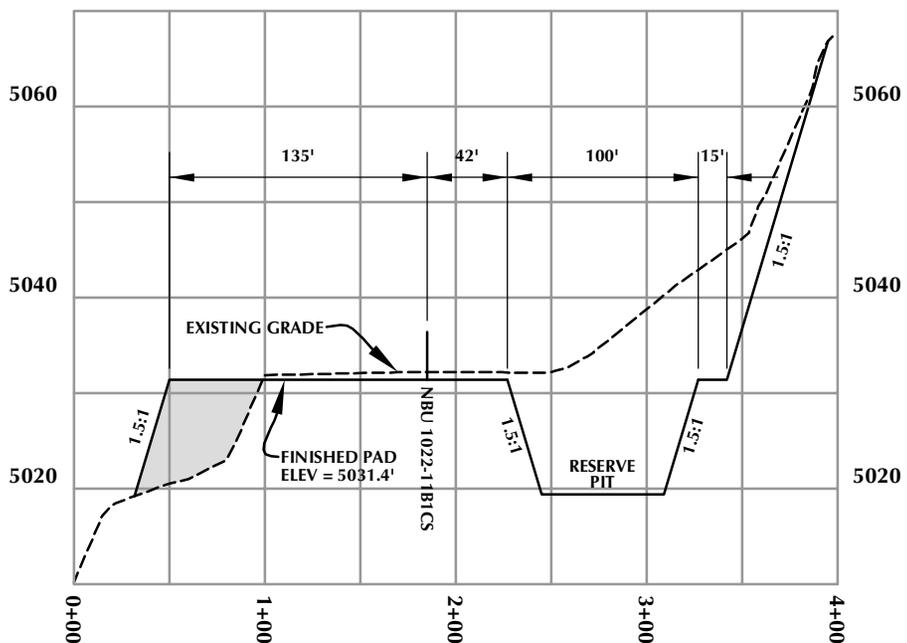
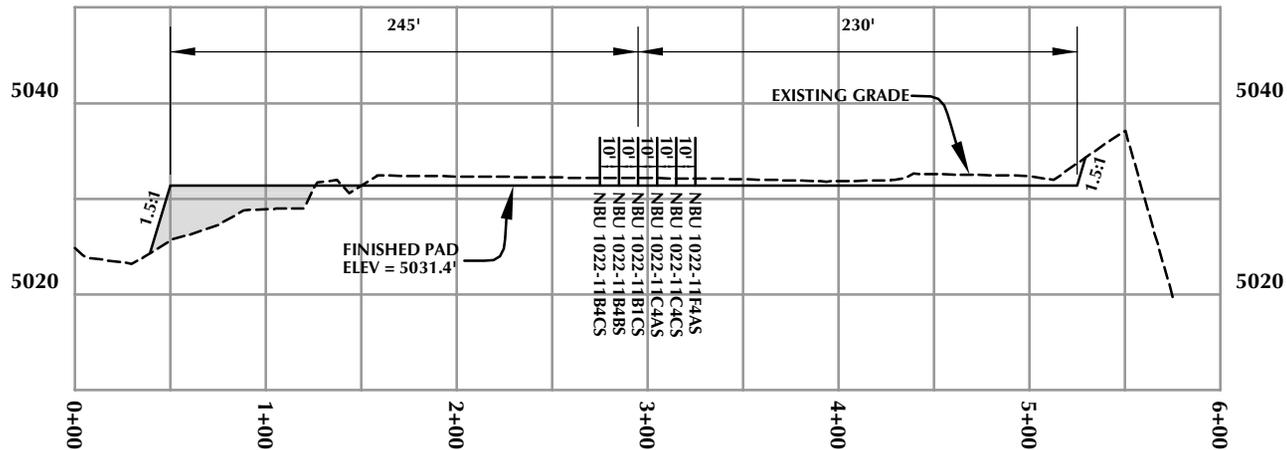
**TIMBERLINE ENGINEERING & LAND SURVEYING, INC.**  
 209 NORTH 300 WEST - VERNAL, UTAH 84078  
 (435) 789-1365

- WELL PAD LEGEND**
- EXISTING WELL LOCATION
  - PROPOSED WELL LOCATION
  - PROPOSED BOTTOM HOLE LOCATION
  - EXISTING CONTOURS (2' INTERVAL)
  - PROPOSED CONTOURS (2' INTERVAL)
  - PROPOSED PIPELINE
  - EXISTING PIPELINE



SCALE: 1"=60' DATE: 3/3/11 SHEET NO: **8** OF 18  
 REVISED:

C:\ANADARKO\2010\_62\_NBU\_FOCUS\_1022-11\_14\DWG\NBU\_1022-11G2\_PAD\_11G2\_PAD\_20110105.dwg, 3/3/2011 4:40:17 PM



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

WELL PAD - NBU 1022-11G2

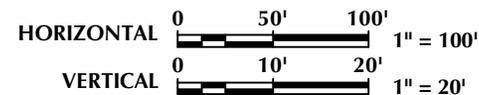
WELL PAD - CROSS SECTIONS  
NBU 1022-11B4CS, NBU 1022-11B4BS,  
NBU 1022-11B1CS, NBU 1022-11C4AS,  
NBU 1022-11C4CS & NBU 1022-11F4AS  
LOCATED IN SECTION 11, T10S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH



CONSULTING, LLC  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

**TIMBERLINE**  
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

(435) 789-1365



Scale: 1"=100'

Date: 3/3/11

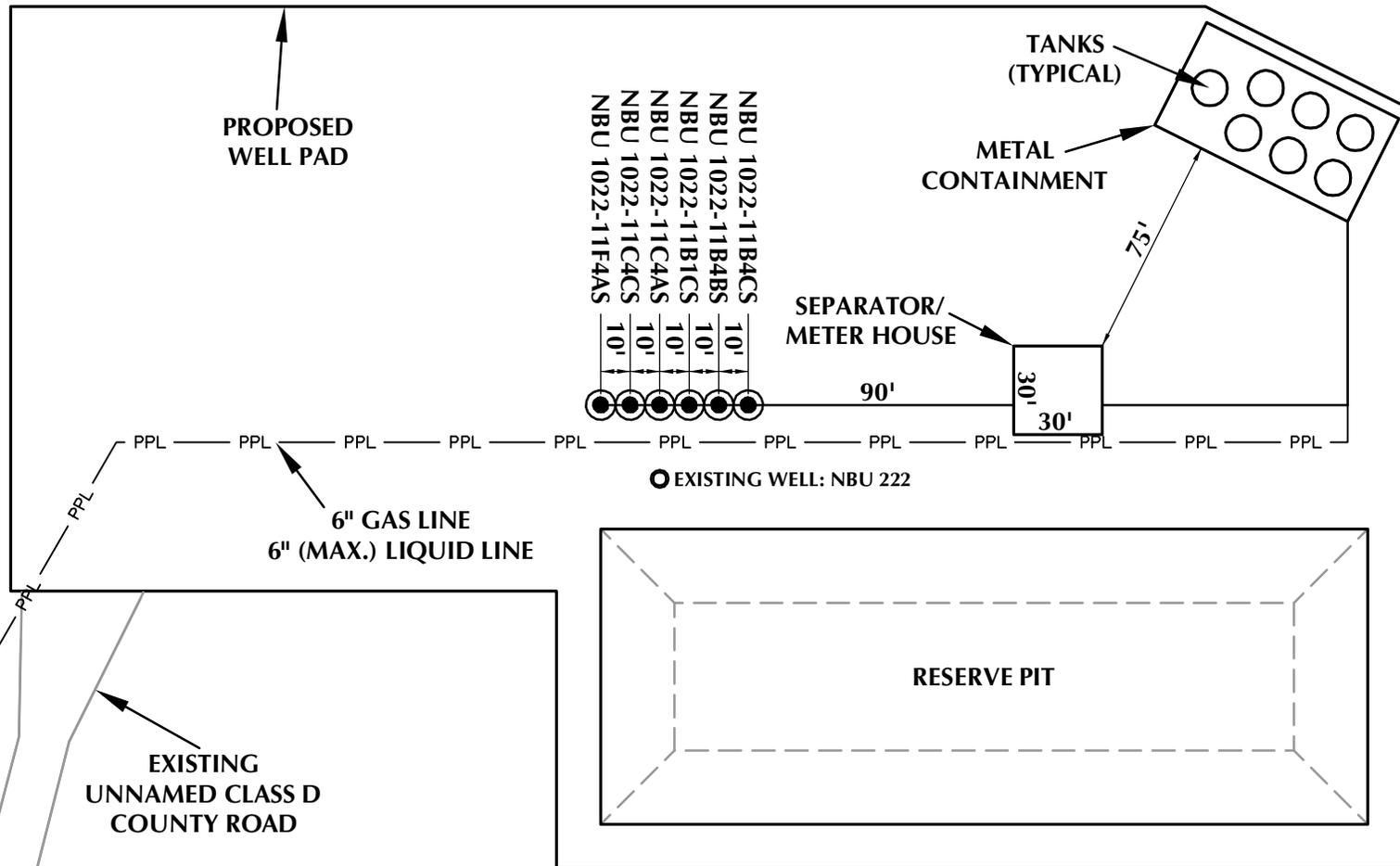
SHEET NO:

REVISED:

**9**

9 OF 18

PLEASE NOTE: LOCATIONS OF FACILITIES AND PROPOSED PIPELINES DISPLAYED WITHIN THE PAD AREA ARE FOR VISUALIZATION PURPOSES ONLY. ACTUAL LOCATIONS TO BE DETERMINED DURING CONSTRUCTION.



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

WELL PAD - NBU 1022-11G2

WELL PAD - FACILITIES DIAGRAM  
NBU 1022-11B4CS, NBU 1022-11B4BS,  
NBU 1022-11B1CS, NBU 1022-11C4AS,  
NBU 1022-11C4CS & NBU 1022-11F4AS  
LOCATED IN SECTION 11, T10S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH



CONSULTING, LLC  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

**WELL PAD LEGEND**

- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PPL — PROPOSED PIPELINE
- EPL — EXISTING PIPELINE



HORIZONTAL 1" = 60'

**TIMBERLINE** (435) 789-1365  
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

Scale: 1"=60' Date: 3/3/11  
REVISED:

SHEET NO:  
**10** 10 OF 18

**RECEIVED: August 10, 2011**

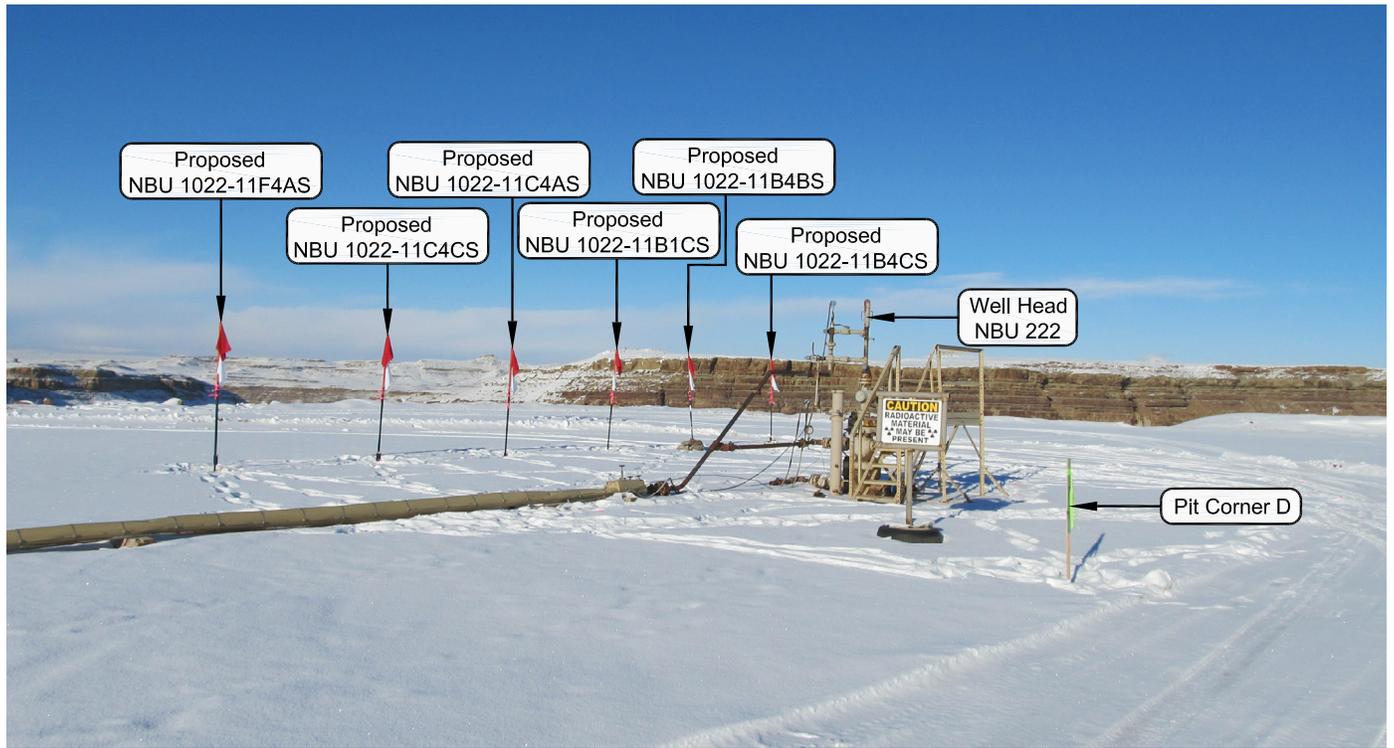


PHOTO VIEW: FROM PIT CORNER D TO LOCATION STAKE

CAMERA ANGLE: NORTHEASTERLY



PHOTO VIEW: FROM EXISTING ACCESS ROAD

CAMERA ANGLE: NORTHWESTERLY

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

**WELL PAD - NBU 1022-11G2**

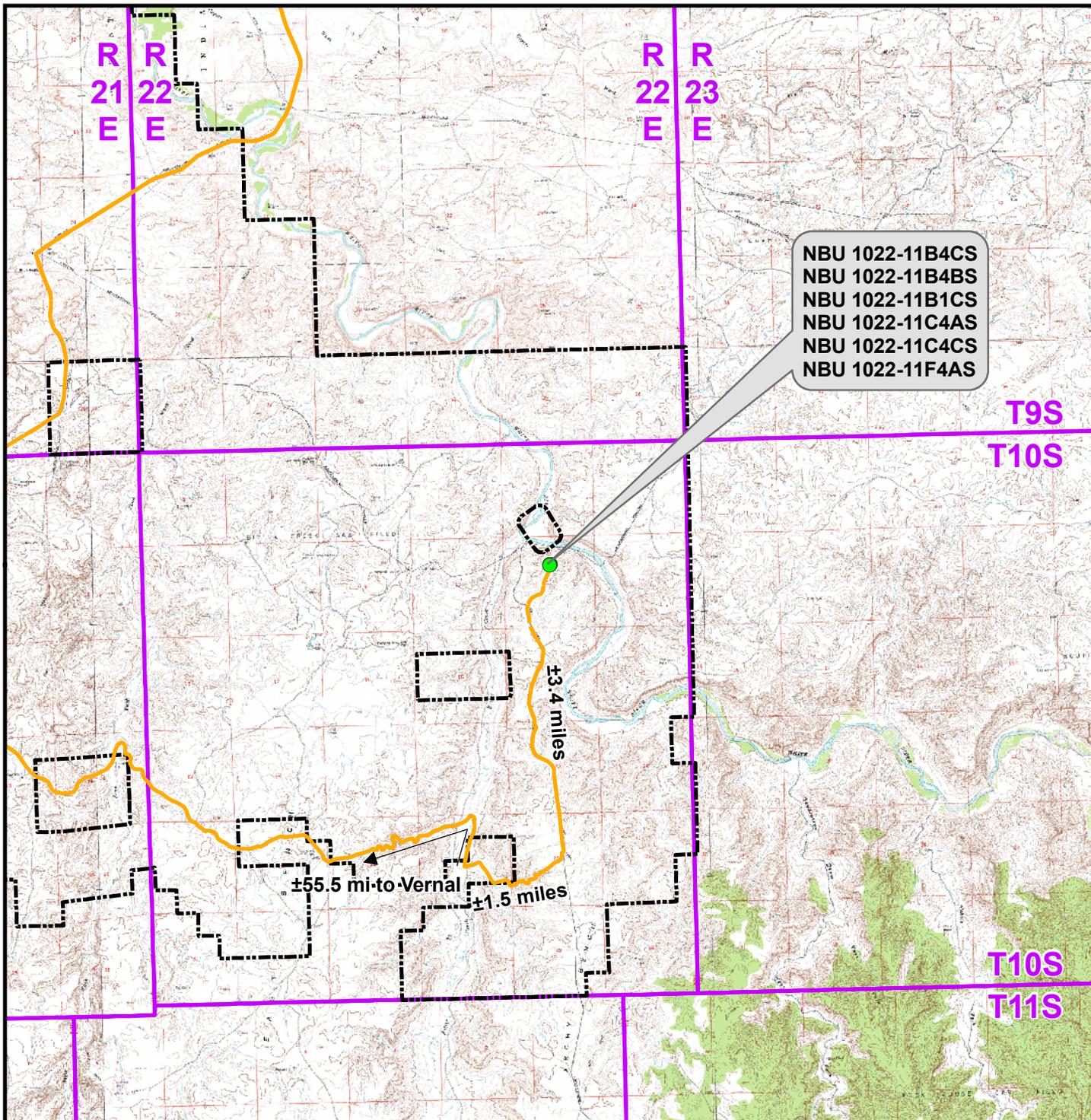
**LOCATION PHOTOS**  
 NBU 1022-11B4CS, NBU 1022-11B4BS,  
 NBU 1022-11B1CS, NBU 1022-11C4AS,  
 NBU 1022-11C4CS & NBU 1022-11F4AS  
 LOCATED IN SECTION 11, T10S, R22E,  
 S.L.B.&M., Uintah County, Utah.



**CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan WY 82801  
 Phone 307-674-0609  
 Fax 307-674-0182

**TIMBERLINE** (435) 789-1365  
 ENGINEERING & LAND SURVEYING, INC.  
 209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE PHOTOS TAKEN: 01-10-11	PHOTOS TAKEN BY: M.S.B.	SHEET NO: <b>11</b>
DATE DRAWN: 01-13-11	DRAWN BY: E.M.S.	
Date Last Revised:		11 OF 18



NBU 1022-11B4CS  
 NBU 1022-11B4BS  
 NBU 1022-11B1CS  
 NBU 1022-11C4AS  
 NBU 1022-11C4CS  
 NBU 1022-11F4AS

T9S  
 T10S

T10S  
 T11S

±3.4 miles

±55.5 mi-to-Vernal  
 ±1.5 miles

**Legend**

- Proposed Well Location
- Natural Buttes Unit Boundary
- Access Route - Proposed

Distance From Well Pad - NBU 1022-11G2 To Unit Boundary: ±1,361ft

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

**WELL PAD - NBU 1022-11G2**

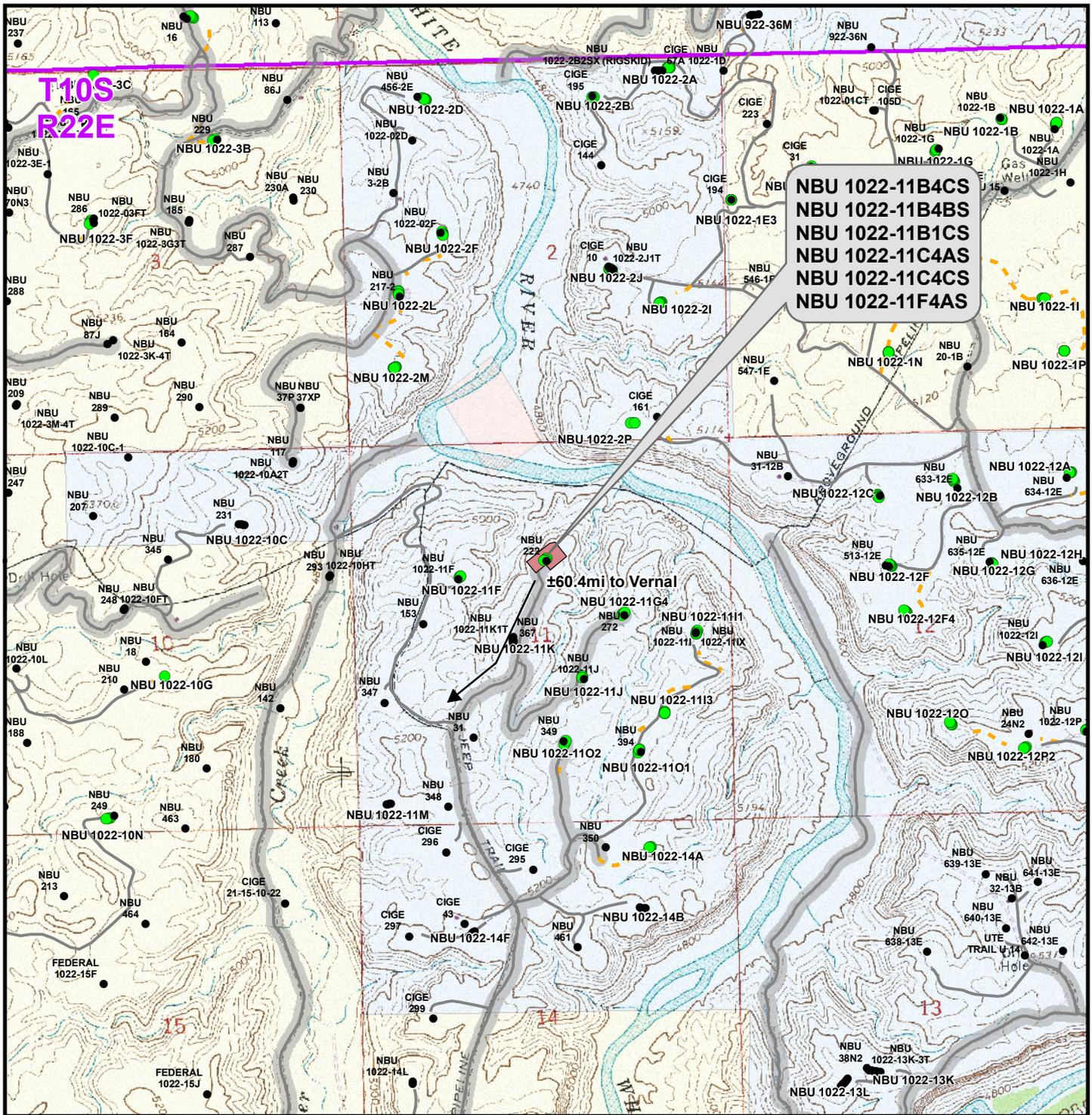
TOPO A

NBU 1022-11B4CS, NBU 1022-11B4BS,  
 NBU 1022-11B1CS, NBU 1022-11C4AS,  
 NBU 1022-11C4CS & NBU 1022-11F4AS  
 LOCATED IN SECTION 11, T10S, R22E,  
 S.L.B.&M., UINTAH COUNTY, UTAH

**609**  
 CONSULTING, LLC  
 2155 North Main Street  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1:100,000	NAD83 USP Central	Sheet No:
Drawn: TL	Date: 3 Mar 2011	<b>12</b>
Revised:	Date:	



NBU 1022-11B4CS  
 NBU 1022-11B4BS  
 NBU 1022-11B1CS  
 NBU 1022-11C4AS  
 NBU 1022-11C4CS  
 NBU 1022-11F4AS

±60.4mi to Vernal

**Legend**

- Well - Proposed
- Well - Existing
- Well Pad
- Road - Proposed
- Road - Existing
- County Road
- Bureau of Land Management
- Indian Reservation
- State
- Private

Total Proposed Road Length: ±0ft

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

**WELL PAD - NBU 1022-11G2**

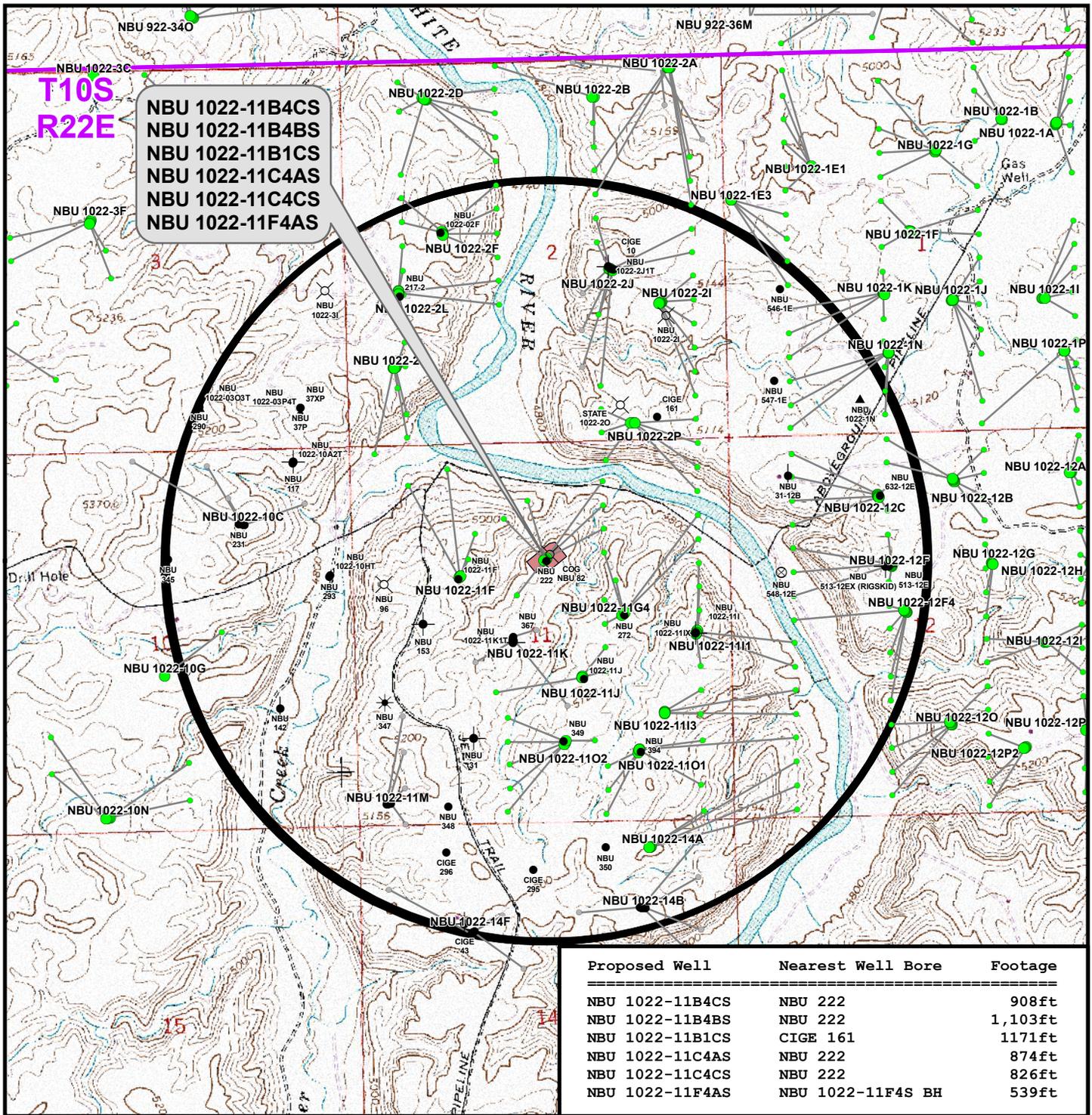
**TOPO B**  
 NBU 1022-11B4CS, NBU 1022-11B4BS,  
 NBU 1022-11B1CS, NBU 1022-11C4AS,  
 NBU 1022-11C4CS & NBU 1022-11F4AS  
 LOCATED IN SECTION 11, T10S, R22E,  
 S.L.B.&M., UTAH COUNTY, UTAH



**CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1" = 2,000ft	NAD83 USP Central	Sheet No:	<b>13</b>
Drawn: TL	Date: 3 Mar 2011	13 of 18	
Revised:	Date:		



Proposed Well	Nearest Well Bore	Footage
NBU 1022-11B4CS	NBU 222	908ft
NBU 1022-11B4BS	NBU 222	1,103ft
NBU 1022-11B1CS	CIGE 161	1171ft
NBU 1022-11C4AS	NBU 222	874ft
NBU 1022-11C4CS	NBU 222	826ft
NBU 1022-11F4AS	NBU 1022-11F4S BH	539ft

**Legend**

- Well - Proposed
- Bottom Hole - Proposed
- Well Pad
- Well Path
- Bottom Hole - Existing
- Well - 1 Mile Radius

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

- Producing
- Temporarily-Abandoned
- ★ Active
- Shut-In
- ⊕ Spudded (Drilling commenced; Not yet completed)
- ⊕ Approved permit (APD); not yet spudded
- ⊕ Plugged and Abandoned
- ⊕ New Permit (Not yet approved or drilled)
- ⊕ Location Abandoned
- ⊕ Inactive
- ⊕ Dry hole marker; buried
- ⊕ Drilling Operations Suspended
- ⊕ Returned APD (Unapproved)

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

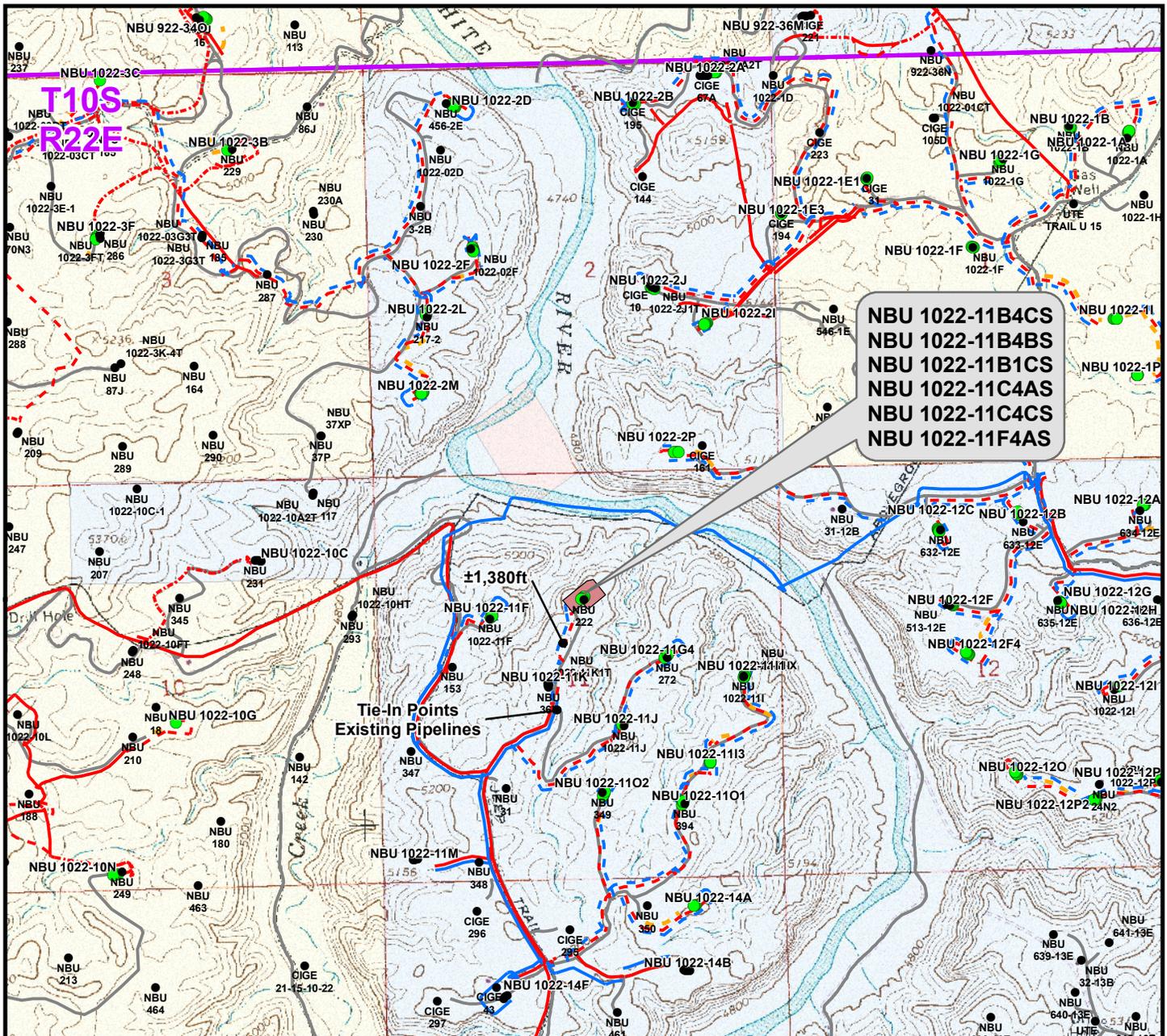
**WELL PAD - NBU 1022-11G2**

**TOPO C**  
NBU 1022-11B4CS, NBU 1022-11B4BS,  
NBU 1022-11B1CS, NBU 1022-11C4AS,  
NBU 1022-11C4CS & NBU 1022-11F4AS  
LOCATED IN SECTION 11, T10S, R22E,  
S.L.B.&M., UTAH COUNTY, UTAH

**609**  
CONSULTING, LLC  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2,000ft	NAD83 USP Central	Sheet No: <b>14</b>
Drawn: TL	Date: 3 Mar 2011	14 of 18
Revised:	Date:	



**NBU 1022-11B4CS  
NBU 1022-11B4BS  
NBU 1022-11B1CS  
NBU 1022-11C4AS  
NBU 1022-11C4CS  
NBU 1022-11F4AS**

**Tie-In Points  
Existing Pipelines**

Proposed Liquid Pipeline	Length	Proposed Gas Pipeline	Length
Proposed 6" (Max.) (Meter House to Edge of Pad)	±575ft	Proposed 6" (Meter House to Edge of Pad)	±575ft
Proposed 6" (Max.) (Edge of Pad to Existing Liquid Pipeline)	±1,380ft	Proposed 6" (Edge of Pad to Existing 8" Gas Pipeline)	±1,380ft
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±1,955ft</b>	<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±1,955ft</b>

**Legend**

- Well - Proposed
- Well - Existing
- Well Pad
- - - Gas Pipeline - Proposed
- - - Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- - - Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

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

**WELL PAD - NBU 1022-11G2**

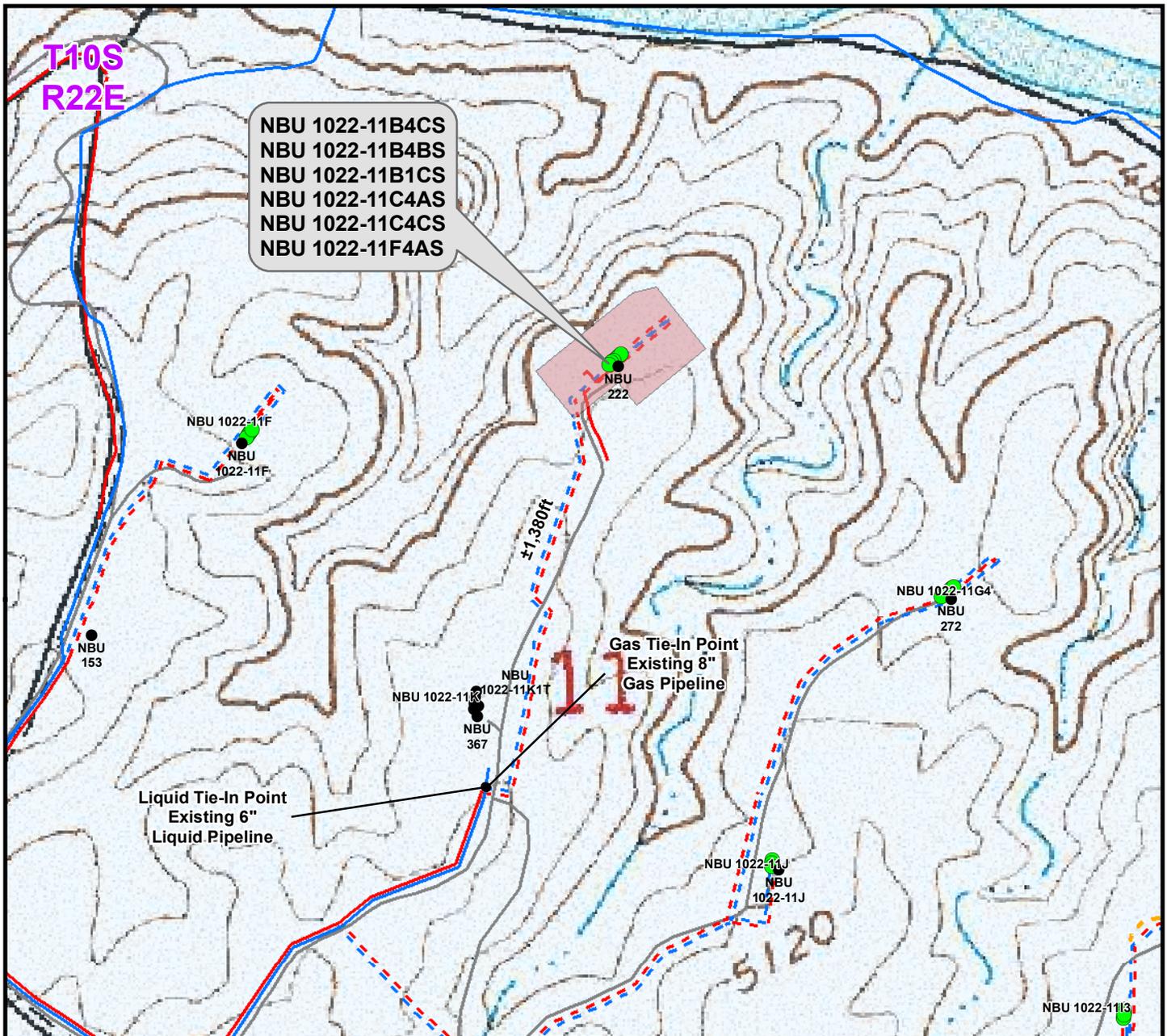
**TOPO D**  
NBU 1022-11B4CS, NBU 1022-11B4BS,  
NBU 1022-11B1CS, NBU 1022-11C4AS,  
NBU 1022-11C4CS & NBU 1022-11F4AS  
LOCATED IN SECTION 11, T10S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH

**609**

CONSULTING, LLC  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2,000ft	NAD83 USP Central	Sheet No: <b>15</b> 15 of 18
Drawn: JFE	Date: 8 Feb 2011	
Revised:	Date:	



Proposed Liquid Pipeline	Length
Proposed 6" (Max.) (Meter House to Edge of Pad)	±575ft
Proposed 6" (Max.) (Edge of Pad to Existing Liquid Pipeline)	±1,380ft
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±1,955ft</b>

Proposed Gas Pipeline	Length
Proposed 6" (Meter House to Edge of Pad)	±575ft
Proposed 6" (Edge of Pad to Existing 8" Gas Pipeline)	±1,380ft
<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±1,955ft</b>

**Legend**

- Well - Proposed
- Well - Existing
- Well Pad
- - - Gas Pipeline - Proposed
- - - Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- - - Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

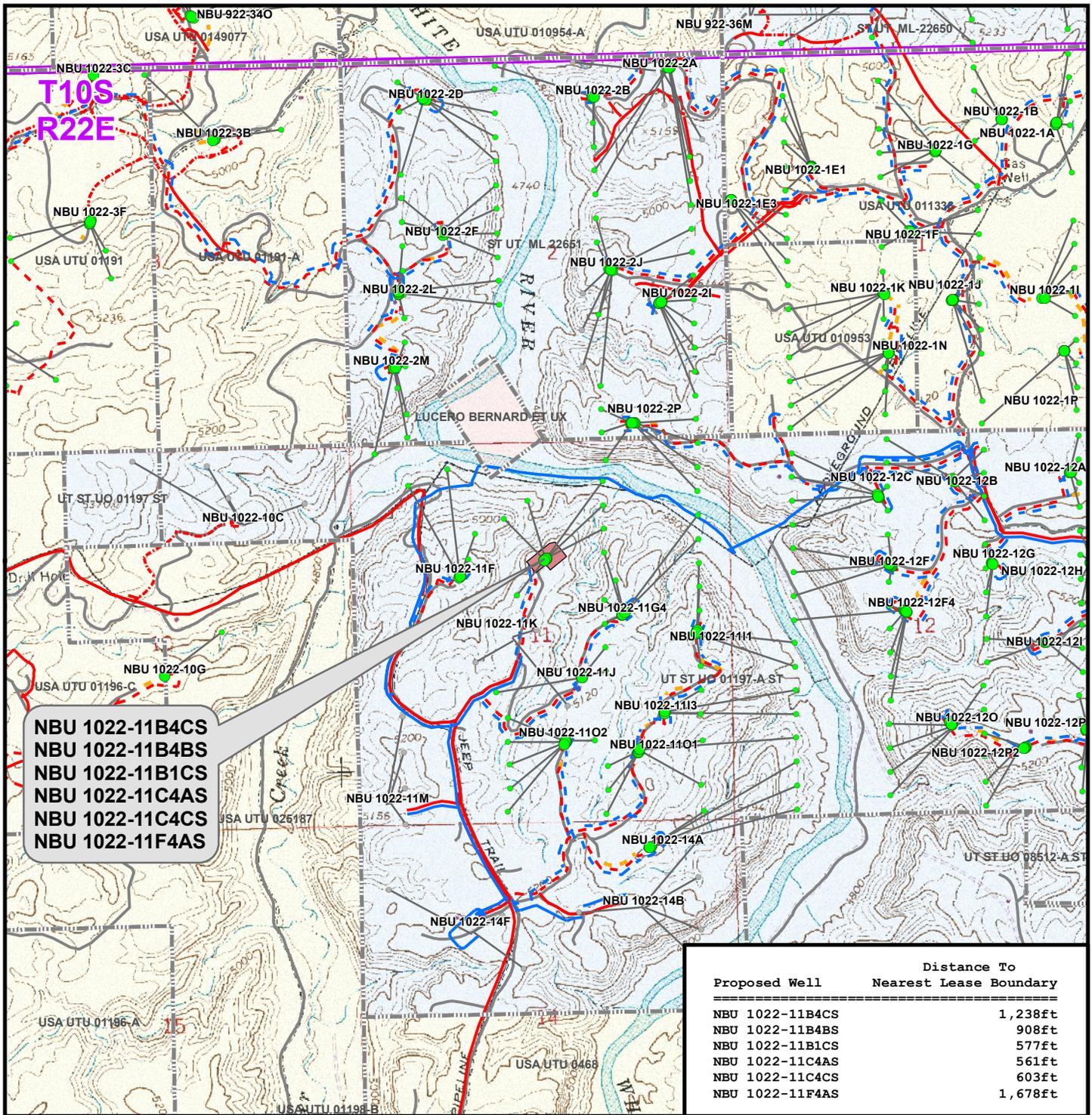
**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1022-11G2**

**TOPO D2 (PAD & PIPELINE DETAIL)**  
 NBU 1022-11B4CS, NBU 1022-11B4BS,  
 NBU 1022-11B1CS, NBU 1022-11C4AS,  
 NBU 1022-11C4CS & NBU 1022-11F4AS  
 LOCATED IN SECTION 11, T10S, R22E,  
 S.L.B.&M., UTAH COUNTY, UTAH

**CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182

Scale: 1" = 500ft	NAD83 USP Central	Sheet No:
Drawn: JFE	Date: 8 Feb 2011	<b>16</b> 16 of 18
Revised:	Date:	



**Legend**

- Well - Proposed
- Well Pad
- - - Gas Pipeline - Proposed
- - - Liquid Pipeline - Proposed
- - - Road - Proposed
- Bureau of Land Management
- Bottom Hole - Proposed
- ▭ Lease Boundary
- - - Gas Pipeline - To Be Upgraded
- - - Liquid Pipeline - Existing
- - - Road - Existing
- Indian Reservation
- Bottom Hole - Existing
- - - Gas Pipeline - Existing
- - - State
- - - Private
- Well Path

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

**WELL PAD - NBU 1022-11G2**

**TOPO E**

NBU 1022-11B4CS, NBU 1022-11B4BS,  
 NBU 1022-11B1CS, NBU 1022-11C4AS,  
 NBU 1022-11C4CS & NBU 1022-11F4AS  
 LOCATED IN SECTION 11, T10S, R22E,  
 S.L.B.&M., UINTAH COUNTY, UTAH



**CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1" = 2,000ft	NAD83 USP Central	Sheet No:
Drawn: TL	Date: 8 Feb 2011	17
Revised:	Date:	

**Kerr-McGee Oil & Gas Onshore, LP  
WELL PAD - NBU 1022-11G2  
WELLS – NBU 1022-11B4CS, NBU 1022-11B4BS,  
NBU 1022-11B1CS, NBU 1022-11C4AS,  
NBU 1022-11C4CS & NBU 1022-11F4AS  
Section 11, T10S, R22E, S.L.B.&M.**

From the intersection of U.S. Highway 40 and 500 East Street in Vernal, Utah, proceed in an easterly, then southerly direction along U.S. Highway 40 approximately 3.3 miles to the junction of State Highway 45. Exit right and proceed in a southerly direction along State Highway 45 approximately 20.2 miles to the junction of the Glen Bench Road (County B Road 3260). Exit right and proceed in a southwesterly direction along the Glen Bench Road approximately 23.8 miles to the intersection of the Bitter Creek Road (County B Road 4120). Exit left and proceed in a southeasterly direction along the Bitter Creek Road approximately 8.2 miles to the junction of the Bitter Creek Cut Off Road (County B Road 4140). Exit left and proceed in an easterly direction along the Bitter Creek Cut Off Road approximately 1.5 miles to the junction of the Archy Bench Road (County D Road 4150). Exit left and proceed in a northerly direction along the Archy Bench Road, then an existing Class D County Road, approximately 3.4 miles to the proposed well location.

Total distance from Vernal, Utah to the proposed well location is approximately 60.4 miles in a southerly direction.



WELL DETAILS: NBU 1022-11B4BS

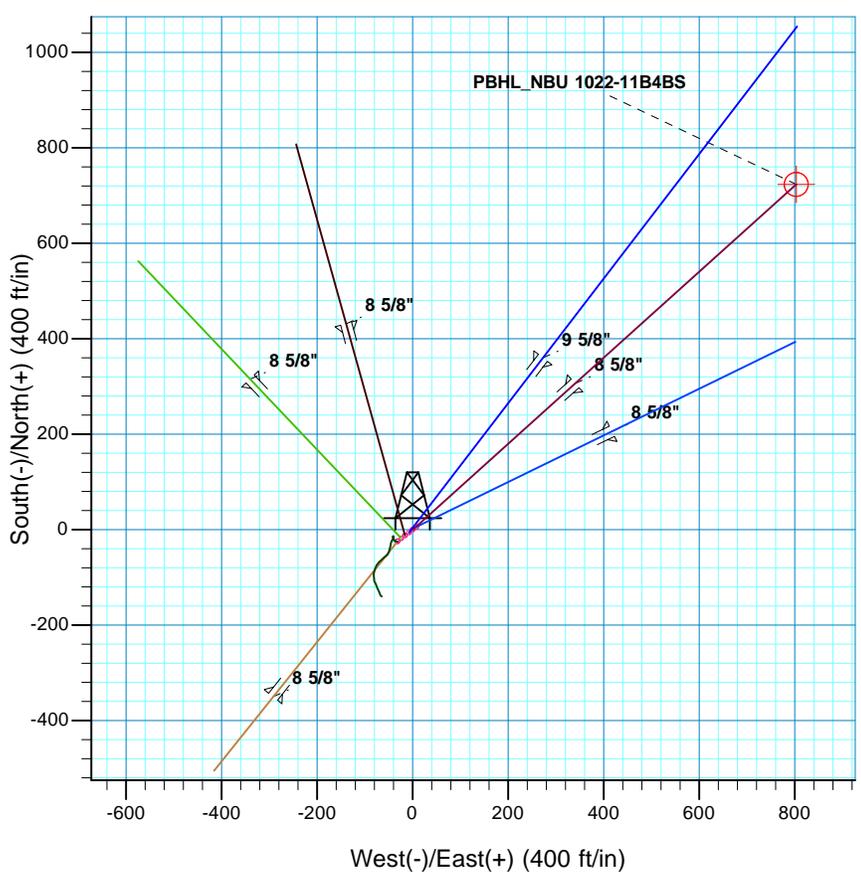
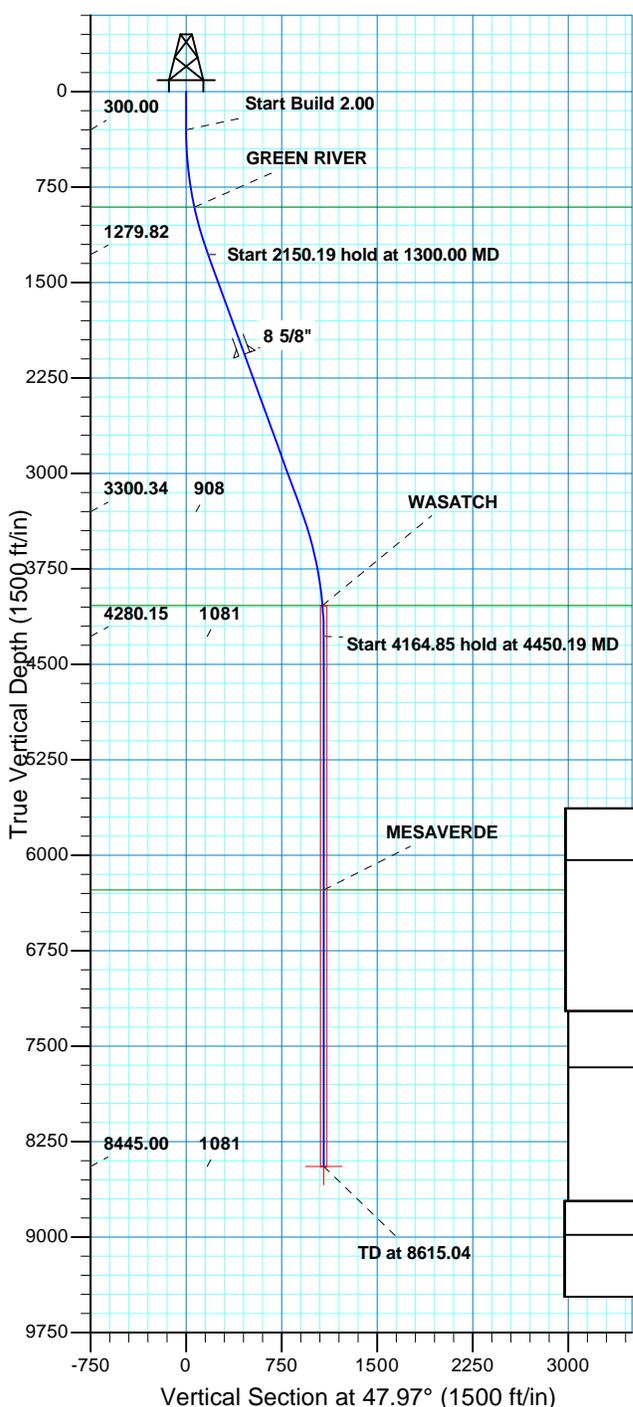
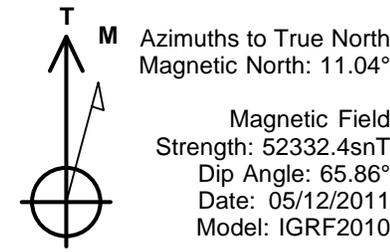
GL 5031 & KB 14 @ 5045.00ft (ASSUMED)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14517745.73	2086969.81	39° 57' 58.511 N	109° 24' 22.752 W

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	8445.00	723.71	802.92	14518483.67	2087759.67	39° 58' 5.664 N	109° 24' 12.438 W	Circle (Radius: 25.00)

- plan hits target center



SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
1300.00	20.00	47.97	1279.82	115.67	128.33	2.00	47.97	172.77	
3450.19	20.00	47.97	3300.34	608.04	674.59	0.00	0.00	908.18	
4450.19	0.00	0.00	4280.15	723.71	802.92	2.00	180.00	1080.95	
8615.04	0.00	0.00	8445.00	723.71	802.92	0.00	0.00	1080.95	PBHL_NBU 1022-11B4BS

PROJECT DETAILS: Uintah County, UT UTM12		
Geodetic System: Universal Transverse Mercator (US Survey Feet)		
Datum: NAD 1927 - Western US		
Ellipsoid: Clarke 1866		
Zone: Zone 12N (114 W to 108 W)		
Location: SECTION 11 T10S R22E		
System Datum: Mean Sea Level		

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
908.00	912.66	GREEN RIVER
4038.00	4207.75	WASATCH
6274.00	6444.04	MESAVERDE

CASING DETAILS			
TVD	MD	Name	Size
2064.00	2134.51	8 5/8"	8.625

RECEIVED



# **Kerr McGee Oil and Gas Onshore LP**

**Uintah County, UT UTM12  
NBU 1022-11G2 PAD  
NBU 1022-11B4BS**

**OH**

**Plan: PLAN #1 5-12-11 RHS**

## **Standard Planning Report**

**12 May, 2011**





SDI  
Planning Report



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-11G2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 5-12-11 RHS		

<b>Project</b>	Uintah County, UT UTM12		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	NBU 1022-11G2 PAD, SECTION 11 T10S R22E				
<b>Site Position:</b>	<b>Northing:</b>	14,517,745.73 usft	<b>Latitude:</b>	39° 57' 58.511 N	
<b>From:</b> Lat/Long	<b>Easting:</b>	2,086,969.80 usft	<b>Longitude:</b>	109° 24' 22.752 W	
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	1.02 °

<b>Well</b>	NBU 1022-11B4BS, 1633 FNL 2601 FEL					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,517,745.73 usft	<b>Latitude:</b>	39° 57' 58.511 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	2,086,969.80 usft	<b>Longitude:</b>	109° 24' 22.752 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	5,031.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	05/12/2011	11.04	65.86	52,332

<b>Design</b>	PLAN #1 5-12-11 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	47.97

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	20.00	47.97	1,279.82	115.67	128.33	2.00	2.00	0.00	47.97	
3,450.19	20.00	47.97	3,300.34	608.04	674.59	0.00	0.00	0.00	0.00	
4,450.19	0.00	0.00	4,280.15	723.71	802.92	2.00	-2.00	0.00	180.00	
8,615.04	0.00	0.00	8,445.00	723.71	802.92	0.00	0.00	0.00	0.00	PBHL_NBU 1022-11E



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-11G2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 5-12-11 RHS		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>										
400.00	2.00	47.97	399.98	1.17	1.30	1.75	2.00	2.00	2.00	0.00
500.00	4.00	47.97	499.84	4.67	5.18	6.98	2.00	2.00	2.00	0.00
600.00	6.00	47.97	599.45	10.51	11.66	15.69	2.00	2.00	2.00	0.00
700.00	8.00	47.97	698.70	18.67	20.71	27.88	2.00	2.00	2.00	0.00
800.00	10.00	47.97	797.47	29.14	32.33	43.52	2.00	2.00	2.00	0.00
900.00	12.00	47.97	895.62	41.91	46.50	62.60	2.00	2.00	2.00	0.00
912.66	12.25	47.97	908.00	43.69	48.48	65.26	2.00	2.00	2.00	0.00
<b>GREEN RIVER</b>										
1,000.00	14.00	47.97	993.06	56.97	63.21	85.10	2.00	2.00	2.00	0.00
1,100.00	16.00	47.97	1,089.64	74.30	82.43	110.98	2.00	2.00	2.00	0.00
1,200.00	18.00	47.97	1,185.27	93.87	104.15	140.21	2.00	2.00	2.00	0.00
1,300.00	20.00	47.97	1,279.82	115.67	128.33	172.77	2.00	2.00	2.00	0.00
<b>Start 2150.19 hold at 1300.00 MD</b>										
1,400.00	20.00	47.97	1,373.78	138.57	153.74	206.97	0.00	0.00	0.00	0.00
1,500.00	20.00	47.97	1,467.75	161.47	179.14	241.17	0.00	0.00	0.00	0.00
1,600.00	20.00	47.97	1,561.72	184.37	204.55	275.37	0.00	0.00	0.00	0.00
1,700.00	20.00	47.97	1,655.69	207.27	229.95	309.58	0.00	0.00	0.00	0.00
1,800.00	20.00	47.97	1,749.66	230.16	255.36	343.78	0.00	0.00	0.00	0.00
1,900.00	20.00	47.97	1,843.63	253.06	280.76	377.98	0.00	0.00	0.00	0.00
2,000.00	20.00	47.97	1,937.60	275.96	306.17	412.18	0.00	0.00	0.00	0.00
2,100.00	20.00	47.97	2,031.57	298.86	331.57	446.38	0.00	0.00	0.00	0.00
2,134.51	20.00	47.97	2,064.00	306.76	340.34	458.19	0.00	0.00	0.00	0.00
<b>8 5/8"</b>										
2,200.00	20.00	47.97	2,125.54	321.76	356.98	480.59	0.00	0.00	0.00	0.00
2,300.00	20.00	47.97	2,219.51	344.66	382.38	514.79	0.00	0.00	0.00	0.00
2,400.00	20.00	47.97	2,313.48	367.56	407.79	548.99	0.00	0.00	0.00	0.00
2,500.00	20.00	47.97	2,407.45	390.46	433.19	583.19	0.00	0.00	0.00	0.00
2,600.00	20.00	47.97	2,501.42	413.35	458.60	617.39	0.00	0.00	0.00	0.00
2,700.00	20.00	47.97	2,595.39	436.25	484.00	651.60	0.00	0.00	0.00	0.00
2,800.00	20.00	47.97	2,689.35	459.15	509.41	685.80	0.00	0.00	0.00	0.00
2,900.00	20.00	47.97	2,783.32	482.05	534.81	720.00	0.00	0.00	0.00	0.00
3,000.00	20.00	47.97	2,877.29	504.95	560.22	754.20	0.00	0.00	0.00	0.00
3,100.00	20.00	47.97	2,971.26	527.85	585.63	788.40	0.00	0.00	0.00	0.00
3,200.00	20.00	47.97	3,065.23	550.75	611.03	822.61	0.00	0.00	0.00	0.00
3,300.00	20.00	47.97	3,159.20	573.65	636.44	856.81	0.00	0.00	0.00	0.00
3,400.00	20.00	47.97	3,253.17	596.54	661.84	891.01	0.00	0.00	0.00	0.00
3,450.19	20.00	47.97	3,300.34	608.04	674.59	908.18	0.00	0.00	0.00	0.00
<b>Start Drop -2.00</b>										
3,500.00	19.00	47.97	3,347.29	619.17	686.94	924.80	2.00	-2.00	-2.00	0.00
3,600.00	17.00	47.97	3,442.38	639.86	709.90	955.71	2.00	-2.00	-2.00	0.00
3,700.00	15.00	47.97	3,538.50	658.32	730.38	983.28	2.00	-2.00	-2.00	0.00
3,800.00	13.00	47.97	3,635.53	674.52	748.35	1,007.48	2.00	-2.00	-2.00	0.00
3,900.00	11.00	47.97	3,733.33	688.45	763.80	1,028.27	2.00	-2.00	-2.00	0.00
4,000.00	9.00	47.97	3,831.81	700.07	776.70	1,045.64	2.00	-2.00	-2.00	0.00
4,100.00	7.00	47.97	3,930.83	709.40	787.05	1,059.57	2.00	-2.00	-2.00	0.00
4,200.00	5.00	47.97	4,030.28	716.40	794.81	1,070.03	2.00	-2.00	-2.00	0.00
4,207.75	4.85	47.97	4,038.00	716.84	795.31	1,070.69	2.00	-2.00	-2.00	0.00
<b>WASATCH</b>										



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-11G2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 5-12-11 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,300.00	3.00	47.97	4,130.03	721.07	800.00	1,077.01	2.00	-2.00	0.00
4,400.00	1.00	47.97	4,229.96	723.41	802.60	1,080.51	2.00	-2.00	0.00
4,450.19	0.00	0.00	4,280.15	723.71	802.92	1,080.95	2.00	-2.00	0.00
<b>Start 4164.85 hold at 4450.19 MD</b>									
4,500.00	0.00	0.00	4,329.96	723.71	802.92	1,080.95	0.00	0.00	0.00
4,600.00	0.00	0.00	4,429.96	723.71	802.92	1,080.95	0.00	0.00	0.00
4,700.00	0.00	0.00	4,529.96	723.71	802.92	1,080.95	0.00	0.00	0.00
4,800.00	0.00	0.00	4,629.96	723.71	802.92	1,080.95	0.00	0.00	0.00
4,900.00	0.00	0.00	4,729.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,000.00	0.00	0.00	4,829.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,100.00	0.00	0.00	4,929.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,200.00	0.00	0.00	5,029.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,300.00	0.00	0.00	5,129.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,400.00	0.00	0.00	5,229.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,500.00	0.00	0.00	5,329.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,600.00	0.00	0.00	5,429.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,700.00	0.00	0.00	5,529.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,800.00	0.00	0.00	5,629.96	723.71	802.92	1,080.95	0.00	0.00	0.00
5,900.00	0.00	0.00	5,729.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,000.00	0.00	0.00	5,829.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,100.00	0.00	0.00	5,929.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,200.00	0.00	0.00	6,029.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,300.00	0.00	0.00	6,129.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,400.00	0.00	0.00	6,229.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,444.04	0.00	0.00	6,274.00	723.71	802.92	1,080.95	0.00	0.00	0.00
<b>MESAVERDE</b>									
6,500.00	0.00	0.00	6,329.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,600.00	0.00	0.00	6,429.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,700.00	0.00	0.00	6,529.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,800.00	0.00	0.00	6,629.96	723.71	802.92	1,080.95	0.00	0.00	0.00
6,900.00	0.00	0.00	6,729.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,000.00	0.00	0.00	6,829.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,100.00	0.00	0.00	6,929.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,200.00	0.00	0.00	7,029.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,300.00	0.00	0.00	7,129.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,400.00	0.00	0.00	7,229.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,500.00	0.00	0.00	7,329.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,600.00	0.00	0.00	7,429.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,700.00	0.00	0.00	7,529.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,800.00	0.00	0.00	7,629.96	723.71	802.92	1,080.95	0.00	0.00	0.00
7,900.00	0.00	0.00	7,729.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,000.00	0.00	0.00	7,829.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,100.00	0.00	0.00	7,929.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,200.00	0.00	0.00	8,029.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,300.00	0.00	0.00	8,129.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,400.00	0.00	0.00	8,229.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,500.00	0.00	0.00	8,329.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,600.00	0.00	0.00	8,429.96	723.71	802.92	1,080.95	0.00	0.00	0.00
8,615.04	0.00	0.00	8,445.00	723.71	802.92	1,080.95	0.00	0.00	0.00
<b>PBHL_NBU 1022-11B4BS</b>									



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 5031 & KB 14 @ 5045.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-11G2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 5-12-11 RHS		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_NBU 1022-11B4E - hit/miss target - Shape	0.00	0.00	8,445.00	723.71	802.92	14,518,483.67	2,087,759.67	39° 58' 5.664 N	109° 24' 12.438 W
- plan hits target center - Circle (radius 25.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,134.51	2,064.00	8 5/8"	8.625	11.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
912.66	908.00	GREEN RIVER			
4,207.75	4,038.00	WASATCH			
6,444.04	6,274.00	MESAVERDE			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
300.00	300.00	0.00	0.00	Start Build 2.00	
1,300.00	1,279.82	115.67	128.33	Start 2150.19 hold at 1300.00 MD	
3,450.19	3,300.34	608.04	674.59	Start Drop -2.00	
4,450.19	4,280.15	723.71	802.92	Start 4164.85 hold at 4450.19 MD	
8,615.04	8,445.00	723.71	802.92	TD at 8615.04	

<b>NBU 1022-11B1CS</b>			
Surface:	1639 FNL / 2609 FEL	SWNE	Lot
BHL:	577 FNL / 1805 FEL	NWNE	Lot
<b>NBU 1022-11B4BS</b>			
Surface:	1633 FNL / 2601 FEL	SWNE	Lot
BHL:	908 FNL / 1804 FEL	NWNE	Lot
<b>NBU 1022-11B4CS</b>			
Surface:	1627 FNL / 2594 FEL	SWNE	Lot
BHL:	1238 FNL / 1803 FEL	NWNE	Lot
<b>NBU 1022-11C4AS</b>			
Surface:	1645 FNL / 2617 FEL	SWNE	Lot
BHL:	825 FNL / 2462 FWL	NENW	Lot 1
<b>NBU 1022-11C4CS</b>			
Surface:	1651 FNL / 2625 FEL	SWNE	Lot
BHL:	1071 FNL / 2131 FWL	NENW	Lot 1
<b>NBU 1022-11F4AS</b>			
Surface:	1657 FNL / 2633 FEL	SWNE	Lot
BHL:	2138 FNL / 2288 FWL	SENE	Lot

Pad: 1022-11G2 PAD  
Section 11 T10S R22E  
Mineral Lease: UO1197A-ST

Uintah County, Utah  
Operator: Kerr-McGee Oil & Gas Onshore LP

This SUPO contains surface operating procedures for Kerr-McGee Oil & Gas Onshore LP (KMG), a wholly owned subsidiary of Anadarko Petroleum Corporation (APC) pertaining to actions that involve the State of Utah School and Institutional Trust Lands Administration (SITLA) in the development of minerals leased to APC/KMG (including but not limited to, APDs/SULAs/ROEs/ROWs and/or easements.)

See associated Utah Division of Oil, Gas, and Mining (UDOGM) Form 3(s), plats, maps, and other attachments for site-specific information on projects represented herein.

In accordance with Utah Oil & Gas Conservation Rule R649-3-11 pertaining to Directional Drilling, these wells will be directionally drilled. Refer to Topo Map A for directions to the location and Topo Maps A and B for location of access roads within a 2-mile radius.

**A. Existing Roads:**

Existing roads consist of county and improved/unimproved lease roads. KMG will maintain existing roads in a condition that is the same as or better than before operations began and in a safe and usable condition. Maintenance of existing roads will continue until final abandonment and reclamation of well pads and/or other facilities. The road maintenance may include, but is not limited to, blading, ditching, culvert installation/cleanout, surfacing, and dust control.

Typically, roads, gathering lines and electrical distribution lines will occupy common disturbance corridors and roadways will be used as working space. All disturbances located in the same corridor will overlap each other to the maximum extent possible; in no case will the maximum disturbance width of the access road and utility corridors exceed 50', unless otherwise approved.

**B. Planned Access Roads:**

No new access road is proposed.

If there are roads that are new or to be reconstructed, they will be located, designed, and maintained to meet the standards of SITLA and other commonly accepted Best Management Practices (BMPs). If a new road/corridor were to cross a water of the United States, KMG will adhere to the requirements of applicable Nationwide or Individual Permits of the Department of Army Corps of Engineers.

During the onsite, turnouts, major cut and fills, culverts, bridges, gates, cattle guards, low water crossings, or modifications needed to existing infrastructure/facilities were determined, as applicable, are typically shown on attached Exhibits and Topo maps.

**C. Location of Existing and Proposed Facilities:**

This pad will expand the existing pad for the NBU 222. The NBU 222 well location is a vertical producing well according to Utah Division of Oil, Gas and Mining (UDOGM) records as of August 5, 2011.

Production facilities (see Well Pad Design Summary and Facilities Diagram):

Production facilities will be installed on the disturbed portion of the well pad and may include bermed components (typically excluding dehy's and/or separators) that contain fluids (i.e. production tanks, produced liquids tanks). The berms will be constructed of compacted subsoil or corrugated metal, impervious, designed to hold 110% of the capacity of the largest tank, and be independent of the back cut. All permanent (on-site six months or longer) above ground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earth-tone color chosen at the onsite in coordination with SITLA.

**Gathering Facilities:**

The following pipeline transmission facilities will apply if the well is productive (see Topo D):

The total gas gathering (steel line pipe with fusion bond epoxy coating) pipeline distances from the meter to the tie in point is  $\pm 1,955'$  and the individual segments are broken up as follows:

$\pm 575'$  (0.11 miles) –New 6" buried gas pipeline from the meter to the edge of the pad. Please refer to Topo D2 - Pad and Pipeline Detail.

$\pm 1,380'$  (0.26 miles) –New 6" buried gas pipeline from the edge of pad to the tie-in at the existing 8" gas pipeline. Please refer to Topo D2 - Pad and Pipeline Detail.

The total liquid gathering pipeline distance from the separator to the tie in point is  $\pm 1,955'$  and the individual segments are broken up as follows:

$\pm 575'$  (0.11 miles) –New 6" (max) buried liquid pipeline from the separator to the edge of the pad. Please refer to Topo D2 - Pad and Pipeline Detail.

$\pm 1,380'$  (0.26 miles) –New 6" (max) buried liquid pipeline from the edge of pad to the tie-in at the existing 6" liquid pipeline. refer to Topo D2 - Pad and Pipeline Detail.

The liquid gathering lines will be made of polyethylene or a composite polyethylene/steel or polyethylene/fiberglass that is not subject to internal or external pipe corrosion. The content of the produced fluids to be transferred by the liquid gathering system will be approximately 92% produced water and 8% condensate. Trunk line valve connections for the water gathering system will be below ground but accessible from the surface in order to prevent freezing during winter time.

The proposed pipelines will be buried and will include gas gathering and liquid gathering pipelines in the same trench. Where the pipeline is adjacent to the road or well pad, the road and/or well pad will be utilized for construction activities and staging. KMG requests a permanent 30' right-of-way adjacent to the road for life-of-project for maintenance, repairs, and/or upgrades, no additional right-of-way will be needed beyond the 30'. Where the pipeline is not adjacent to the road or well pad, KMG requests a temporary 45' construction right-of-way 30' permanent right-of-way.

The proposed trench width for the pipeline would range from 18-48 inches and will be excavated to a depth of 48 to 60 inches of normal soil cover or 24 inches of cover in consolidated rock. During construction blasting may occur along the proposed right-of-way where trenching equipment cannot cut into the bedrock. Large debris and rocks removed from the earth during trenching and blasting that could not be returned to the trench would be distributed evenly and naturally in the project area. The proposed pipelines will be pressure tested pneumatically (depending on size) or with fluids (either fresh or produced). If fluids are used, there will be no discharge to the surface.

Pipeline signs will be installed along the right-of-way to indicate the pipeline proximity and ownership, as well as to provide emergency contact phone numbers. Above ground valves, T's, and/or cathodic protection will be installed at various locations for connection, corrosion prevention and/or for safety purposes.

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

Water for drilling purposes will be obtained from one of the following sources:

- Dalbo Inc.'s underground well located in Ouray, Utah, Sec. 32 T4S R3E, Water User Claim number 43-8496, application number 53617.
- Price Water Pumping Inc. Green River and White River, various sources, Water Right Number 49-1659, application number: a35745.

Water will be hauled to location over the roads marked on Maps A and B.

No water well is to be drilled on this lease.

**E. Source of Construction Materials:**

Construction operations will typically be completed with native materials found on location. If needed, construction materials that must be imported to the site (mineral material aggregate, soils or materials suitable for fill/surfacing) will be obtained from a nearby permitted source and described in subsequent Sundry requests. No construction materials will be removed from State lands without prior approval from SITLA.

**F. Methods for Handling Waste Materials:**

Should the well be productive, produced water will be contained in a water tank and will be transported by pipeline and/or truck to an approved disposal sites facilities and/or Salt Water Disposal (SWD) injection well. Currently, those facilities are:

RNI in Sec. 5 T9S R22E  
 Ace Oilfield in Sec. 2 T6S R20E  
 MC&MC in Sec. 12 T6S R19E  
 Pipeline Facility in Sec. 36 T9S R20E  
 Goat Pasture Evaporation Pond in SW/4 Sec. 16 T10S R22E  
 Bonanza Evaporation Pond in Sec. 2 T10S R23E  
 Ouray #1 SWD in Sec. 1 T9S R21E  
 NBU 159 SWD in Sec. 35 T9S R21E  
 CIGE 112D SWD in Sec. 19 T9S R21E  
 CIGE 114 SWD in Sec. 34 T9S R21E  
 NBU 921-34K SWD in Sec. 34 T9S R21E  
 NBU 921-33F SWD in Sec. 33 T9S R21E  
 NBU 921-34L SWD in Sec. 34 T9S R21E

Drill cuttings and/or fluids will be contained in the reserve/frac pit. Cuttings will be buried in pit(s) upon closure. Unless otherwise approved, no oil or other oil-based drilling additives, chromium/metals-based, or saline muds will be used during drilling. Only fresh water (as specified above), biodegradable polymer soap, bentonite clay, and/or non-toxic additives will be used in the mud system.

Pits will be constructed to minimize the accumulation of surface runoff. Should fluid hydrocarbons be encountered during drilling, completions or well testing, product will either be contained in test tanks on the well site or evacuated by vacuum trucks and transported to an approved disposal/sales facility. Should petroleum hydrocarbons unexpectedly be released into a pit, they will be removed as soon as practical but in no case will they remain longer than 72 hours unless an alternate is approved by SITLA. Should timely removal prove infeasible, the pit will be netted with mesh no larger than 1 inch until such time as hydrocarbons can be removed. Hydrocarbon removal will also take place prior to the closure of the pit, unless authorization is provided for disposal via alternative pit closure methods (e.g. solidification.)

The reserve and/or fracture stimulation pit will be lined with a synthetic material 20 mil or thicker. The liner will be installed over smooth fill subgrade that is free of pockets, loose rocks, or other materials (i.e. sand, sifted dirt, bentonite, straw, etc.) that could damage the liner. Any additional pits necessary for subsequent operations, such as temporary flare or workover pits, will be contained within the originally approved well pad and disturbance boundaries. Such temporary pits will be backfilled and reclaimed within 180 days of completion of work at a well location.

For the protection of livestock and wildlife, all open pits and cellars will be fenced/covered to prevent wildlife or livestock entry. Total height of pit fencing will be at least 42 inches and corner posts will be cemented and/or braced in such a manner as to keep the fence tight at all times. Standard steel, wood, or pipe posts shall be used between the corner braces. Maximum distance between any 2 fence posts shall be no greater than 16 feet.

Pits containing drilling cuttings, mud, and/or completions fluids will be allowed to dry. Any free fluids remaining after after six (6) months from reaching total depth, date of completion, and/or determination of inactivity will be removed (as weather conditions allow) to an approved site and the pit reclaimed. Additional drying methods may include fly-ash solidification or sprinkler evaporation. Installation and operation of any sprinklers, pumps, and equipment will ensure that water spray or mist does not drift. Reserve pit liners will be cut off or folded as near to the mud surface as possible and as safety considerations allow and buried on location.

No garbage or non-exempt substances as defined by Resource Conservation and Recovery Act (RCRA) subtitle C will be placed in the reserve pit. All refuse generated during construction, drilling, completion, and well testing activities will be contained in an enclosed receptacle, removed from the drill locations promptly, and transported to an approved disposal facility.

Portable, self-contained chemical toilets and/or sewage processing facilities will be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents disposed of in an approved sewage disposal facility. All applicable regulations pertaining to disposal of human and solid waste will be observed.

Any undesirable event, including accidental release of fluids, or release in excess of reportable quantities, will be managed according to the notification requirements of UDOGMs "Reporting Oil and Gas Undesirable Events" rule. Where State wells are participatory to a Federal agreement, according to NTL-3A, the appropriate Federal agencies will be notified.

#### **Materials Management**

Hazardous materials above reportable quantities will not be produced by drilling or completing proposed wells or constructing the pipelines/facilities. The term "hazardous materials" as used here means: (1) any substance, pollutant, or containment listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended 42 U.S.C. 9601 et seq., and the regulations issued under CERCLA; and (2) any hazardous waste as defined in RCRA of 1976, as amended. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of while producing any well.

Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act (SARA) in quantities of 10,000 pounds or more may be produced and/or stored at production facilities and may be kept in limited quantities on drilling sites and well locations for short periods of time during drilling or completion activities.

#### **G. Ancillary Facilities:**

None are anticipated.

#### **H. Well Site Layout (see Well Pad Design Summary):**

The location, orientation and aerial extent of each drill pad; reserve/completion/flare pit; access road ingress/egress points, drilling rig, dikes/ditches, existing wells/infrastructure; proposed cuts and fills; and topsoil and spoil material stockpile locations are depicted on the exhibits for each project, where applicable. Site-specific conditions may require slight deviation in actual equipment and facility layout; however, the area of disturbance, as described in the survey, will not be exceeded.

Coordinates are provided in the National Spatial Reference System, North American Datum, 1927 (NAD27) or latest edition. Distances are depicted on each plat to the nearest two adjacent section lines.

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

Surface reclamation will be undertaken in two phases: interim and final. Interim reclamation is conducted following well completion and extends through the period of production. This reclamation is for the area of the well pad that is not required for production activities. Final reclamation is conducted following well plugging/conversion and/or facility abandonment processes.

Reclamation activities in both phases may include but is not limited to the re-contouring or re-configuration of topographic surfaces, restoration of drainage systems, segregation of spoils materials, minimizing surface disturbance, re-evaluating backfill requirements, pit closure, topsoil redistribution, soil treatments, seeding and weed control.

**Interim Reclamation**

Interim reclamation includes pit closure, re-contouring (where possible), soil bed preparation, topsoil placement, seeding, and/or weed control.

Interim re-contouring involves bringing all construction material from cuts and fills back onto the well pad and site and reestablishing the natural contours where desirable and practical. Fill and stockpiled spoils no longer necessary to the operation will be spread on the cut slopes and covered with stockpiled topsoil. All stockpiled top soils will be used for interim reclamation where practical to maintain soil viability. Where possible, the land surface will be left "rough" after re-contouring to ensure that the maximum surface area will be available to support the reestablishment of vegetative cover.

A reserve pit, upon being allowed to dry, will be backfilled and compacted with cover materials that are void of any topsoil, vegetation, large stones, rocks or foreign objects. Soils that are moisture laden, saturated, or partially/completely frozen will not be used for backfill or cover. The pit area will be mounded to allow for settling and to promote positive surface drainage away from the pit.

**Final Reclamation**

Final reclamation will be performed for newly drilled unproductive wells and/or at the end of the life of a productive well. As soon as practical after the conclusion of drilling and testing operations, unproductive drill holes will be plugged and abandoned (P&A). Site and road reclamation will commence following plugging. In no case will reclamation at non-producing locations be initiated later than six (6) months from the date a well is plugged. A joint inspection of the disturbed area to be reclaimed may be requested by KMG. The primary purpose of this inspection will be to review the existing conditions, or agree upon a revised final reclamation and abandonment plan. A Notice of Intent to Abandon will be filed for final recommendations regarding surface reclamation.

After plugging, all wellhead equipment that is no longer needed will be removed, and the well site will be reclaimed. Final contouring will blend with and follow as closely as practical the natural terrain and contours of the original site and surrounding areas. After re-contouring, final grading will be conducted over the entire surface of the well site and access road. Where practical, the area will be ripped to a depth of 18 to 24 inches on 18 to 24-inch centers and surface materials will be pitted with small depressions to form longitudinal depressions 12 to 18 inches deep perpendicular to the natural flow of water.

All unnecessary surface equipment and structures (e.g. cattle guards) and water control structures (e.g. culverts, drainage pipes) not needed to facilitate successful reclamation will be removed during final reclamation. Roads that will be reclaimed will be ripped to a depth of 18 inches where practical, re-contoured to approximate the original contour of the ground and seeded.

Upon successfully completing reclamation of a P&A location, a Final Abandonment Notice will be submitted to UDOGM.

**Seeding and Measures Common to Interim and Final Reclamation**

Reclaimed areas may be fenced to exclude grazing and encourage re-vegetation.

On slopes where severe erosion can become a problem and the use of machinery is not practical, seed will be hand broadcast and raked with twice the specified amount of seed. The slope will be stabilized using materials specifically designed to prevent erosion on steep slopes and hold seed in place so vegetation can become permanently established. These materials will include, but are not limited to, erosion control blankets and bonded fiber matrix at a rate to achieve a minimum of 80 percent soil coverage.

Seeding will occur year-round as conditions allow. Seed mixes appropriate to the native plant community as determined and specified for each project location based on the site specific soils will be used for re-vegetation. The site specific seed mix will be provided by SITLA.

**J. Surface/Mineral Ownership:**

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

**L. Other Information:**

None

**M. Lessee's or Operators' Representative & Certification:**

Andy Lytle  
Regulatory Analyst I  
Kerr-McGee Oil & Gas Onshore LP  
PO Box 173779  
Denver, CO 80217-3779  
(720) 929-6100

Tommy Thompson  
General Manager, Drilling  
Kerr-McGee Oil & Gas Onshore LP  
PO 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.

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.

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 terms and conditions of the lease for the operations conducted upon leased lands.

Bond coverage for State lease activities is provided by State Surety Bond 22013542, and for applicable Federal lease activities and pursuant to 43 CFR 3104, 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.

  
\_\_\_\_\_  
Andy Lytle

August 5, 2011  
\_\_\_\_\_  
Date



JOSEPH D. JOHNSON  
LANDMAN

Joseph D. Johnson  
1099 18TH STREET STE. 1800 • DENVER, CO 80202  
720-929-6708 • FAX 720-929-7708  
E-MAIL: JOE.JOHNSON@ANADARKO.COM

August 5, 2011

Ms. Diana Mason  
Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, UT 84114-6100

Re: Directional Drilling R649-3-11  
NBU 1022-11B4BS  
T10S-R22E  
Section 11: SWNE  
Surface: 1633' FNL, 2601' FEL  
T10S-R22E  
Section 11: NWNE  
Bottom Hole: 908.0' FNL, 1804.0' FEL  
Uintah County, Utah

Dear Ms. Mason:

Pursuant to the filing of Kerr-McGee Oil & Gas Onshore LP's (Kerr-McGee) Application for Permit to Drill regarding the above referenced well, we are hereby submitting this letter in accordance with Oil & Gas Conservation Rule R649-3-11 pertaining to the Exception to Location and Siting of Wells.

- Kerr-McGee's NBU 1022-11B4BS is located within the Natural Buttes Unit area.
- Kerr-McGee is permitting this well as a directional well in order to minimize surface disturbance. Locating the well at the surface location and directionally drilling from this location, Kerr-McGee will be able to utilize the existing road and pipelines in the area.
- Furthermore, Kerr-McGee certifies that it is the sole working interest owner within 460 feet of the entire directional well bore.

Therefore, based on the above stated information Kerr-McGee Oil & Gas Onshore LP requests the permit be granted pursuant to R649-3-11.

Sincerely,

KERR-MCGEE OIL & GAS ONSHORE LP

A handwritten signature in blue ink, appearing to read 'Joe D. Johnson', with a horizontal line underneath.

Joseph D. Johnson  
Landman

# 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)

August 19, 2011

Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

Subject: 2011 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 2011 within the Natural Buttes Unit, Uintah County, Utah.

API #	WELL NAME	LOCATION
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(Proposed PZ WASATCH-MESA VERDE)

**NBU 1022-11F PAD**

43-047-51797	NBU 1022-11C2CS	Sec 11 T10S R22E 1860 FNL 1499 FWL
	BHL	Sec 11 T10S R22E 0370 FNL 1365 FWL

43-047-51799	NBU 1022-11C3DS	Sec 11 T10S R22E 1852 FNL 1505 FWL
	BHL	Sec 11 T10S R22E 1268 FNL 1726 FWL

43-047-51800	NBU 1022-11D1CS	Sec 11 T10S R22E 1868 FNL 1493 FWL
	BHL	Sec 11 T10S R22E 0576 FNL 0818 FWL

43-047-51801	NBU 1022-11F2DS	Sec 11 T10S R22E 1844 FNL 1512 FWL
	BHL	Sec 11 T10S R22E 1622 FNL 1625 FWL

**NBU 1022-11G2 PAD**

43-047-51802	NBU 1022-11B4CS	Sec 11 T10S R22E 1627 FNL 2594 FEL
	BHL	Sec 11 T10S R22E 1238 FNL 1803 FEL

43-047-51813	NBU 1022-11B4BS	Sec 11 T10S R22E 1633 FNL 2601 FEL
	BHL	Sec 11 T10S R22E 0908 FNL 1804 FEL

43-047-51815	NBU 1022-11B1CS	Sec 11 T10S R22E 1639 FNL 2609 FEL
	BHL	Sec 11 T10S R22E 0577 FNL 1805 FEL

43-047-51817	NBU 1022-C4AS	Sec 11 T10S R22E 1645 FNL 2617 FEL
	BHL	Sec 11 T10S R22E 0825 FNL 2462 FWL

43-047-51818	NBU 1022-11C4CS	Sec 11 T10S R22E 1651 FNL 2625 FEL
	BHL	Sec 11 T10S R22E 1071 FNL 2131 FWL

**RECEIVED: August 22, 2011**

API #	WELL NAME	LOCATION						
(Proposed PZ WASATCH-MESA VERDE)								
43-047-51855	NBU 1022-11F4AS	Sec 11	T10S	R22E	1657	FNL	2633	FEL
	BHL	Sec 11	T10S	R22E	2138	FNL	2288	FWL
<b>NBU 1022-2A PAD</b>								
43-047-51803	NBU 1022-2G1CS	Sec 02	T10S	R22E	0165	FNL	0760	FEL
	BHL	Sec 02	T10S	R22E	1905	FNL	1814	FEL
43-047-51807	NBU 1022-2G1BS	Sec 02	T10S	R22E	0164	FNL	0770	FEL
	BHL	Sec 02	T10S	R22E	1573	FNL	1815	FEL
43-047-51808	NBU 1022-2H1BS	Sec 02	T10S	R22E	0167	FNL	0730	FEL
	BHL	Sec 02	T10S	R22E	1410	FNL	0494	FEL
43-047-51812	NBU 1022-2H1CS	Sec 02	T10S	R22E	0166	FNL	0740	FEL
	BHL	Sec 02	T10S	R22E	1743	FNL	0494	FEL
43-047-51825	NBU 1022-2H4BS	Sec 02	T10S	R22E	0165	FNL	0750	FEL
	BHL	Sec 02	T10S	R22E	2074	FNL	0493	FEL
<b>NBU 1022-11G4 PAD</b>								
43-047-51805	NBU 1022-11A4CS	Sec 11	T10S	R22E	2411	FNL	1535	FEL
	BHL	Sec 11	T10S	R22E	1075	FNL	0490	FEL
43-047-51814	NBU 1022-11H1BS	Sec 11	T10S	R22E	2405	FNL	1526	FEL
	BHL	Sec 11	T10S	R22E	1406	FNL	0490	FEL
43-047-51822	NBU 1022-11G4CS	Sec 11	T10S	R22E	2435	FNL	1566	FEL
	BHL	Sec 11	T10S	R22E	2559	FNL	1799	FEL
43-047-51823	NBU 1022-11G1BS	Sec 11	T10S	R22E	2423	FNL	1550	FEL
	BHL	Sec 11	T10S	R22E	1568	FNL	1802	FEL
43-047-51837	NBU 1022-11G1CS	Sec 11	T10S	R22E	2417	FNL	1542	FEL
	BHL	Sec 11	T10S	R22E	1954	FNL	1646	FEL
43-047-51853	NBU 1022-11G4BS	Sec 11	T10S	R22E	2429	FNL	1558	FEL
	BHL	Sec 11	T10S	R22E	2229	FNL	1800	FEL
<b>NBU 1022-2I PAD</b>								
43-047-51809	NBU 1022-2I4CS	Sec 02	T10S	R22E	1886	FSL	0949	FEL
	BHL	Sec 02	T10S	R22E	1576	FSL	0492	FEL
43-047-51810	NBU 1022-2P1BS	Sec 02	T10S	R22E	1881	FSL	0957	FEL
	BHL	Sec 02	T10S	R22E	1245	FSL	0492	FEL
43-047-51824	NBU 1022-2I1CS	Sec 02	T10S	R22E	1895	FSL	0931	FEL
	BHL	Sec 02	T10S	R22E	2240	FSL	0493	FEL
43-047-51829	NBU 1022-2I4BS	Sec 02	T10S	R22E	1890	FSL	0940	FEL
	BHL	Sec 02	T10S	R22E	1909	FSL	0492	FEL
43-047-51838	NBU 1022-2P4BS	Sec 02	T10S	R22E	1872	FSL	0975	FEL
	BHL	Sec 02	T10S	R22E	0581	FSL	0492	FEL
43-047-51852	NBU 1022-2P1CS	Sec 02	T10S	R22E	1877	FSL	0966	FEL
	BHL	Sec 02	T10S	R22E	0913	FSL	0492	FEL
<b>NBU 1022-2B PAD</b>								
43-047-51811	NBU 1022-2B1CS	Sec 02	T10S	R22E	0544	FNL	1813	FEL
	BHL	Sec 02	T10S	R22E	0579	FNL	1818	FEL

API #	WELL NAME	LOCATION						
(Proposed PZ WASATCH-MESA VERDE)								
43-047-51827	NBU 1022-2B4CS	Sec 02	T10S	R22E	0543	FNL	1793	FEL
		BHL Sec 02	T10S	R22E	1242	FNL	1816	FEL
43-047-51828	NBU 1022-2B4BS	Sec 02	T10S	R22E	0543	FNL	1803	FEL
		BHL Sec 02	T10S	R22E	0910	FNL	1817	FEL
43-047-51830	NBU 1022-2C1BS	Sec 02	T10S	R22E	0544	FNL	1823	FEL
		BHL Sec 02	T10S	R22E	0090	FNL	2158	FWL
<b>NBU 1022-11J PAD</b>								
43-047-51816	NBU 1022-11K4BS	Sec 11	T10S	R22E	1980	FSL	2131	FEL
		BHL Sec 11	T10S	R22E	1804	FSL	1963	FWL
43-047-51843	NBU 1022-11J1CS	Sec 11	T10S	R22E	1990	FSL	2130	FEL
		BHL Sec 11	T10S	R22E	2065	FSL	1797	FEL
43-047-51851	NBU 1022-11J1BS	Sec 11	T10S	R22E	2000	FSL	2129	FEL
		BHL Sec 11	T10S	R22E	2395	FSL	1798	FEL
<b>NBU 1022-2J PAD</b>								
43-047-51819	NBU 1022-2G4CS	Sec 02	T10S	R22E	2375	FSL	1639	FEL
		BHL Sec 02	T10S	R22E	2568	FNL	1813	FEL
43-047-51820	NBU 1022-2H4CS	Sec 02	T10S	R22E	2351	FSL	1584	FEL
		BHL Sec 02	T10S	R22E	2406	FNL	0493	FEL
43-047-51844	NBU 1022-2J4BS	Sec 02	T10S	R22E	2367	FSL	1621	FEL
		BHL Sec 02	T10S	R22E	1741	FSL	1811	FEL
43-047-51845	NBU 1022-2O1CS	Sec 02	T10S	R22E	2343	FSL	1566	FEL
		BHL Sec 02	T10S	R22E	0747	FSL	1808	FEL
43-047-51847	NBU 1022-2I1BS	Sec 02	T10S	R22E	2347	FSL	1575	FEL
		BHL Sec 02	T10S	R22E	2572	FSL	0493	FEL
43-047-51854	NBU 1022-2G4BS	Sec 02	T10S	R22E	2359	FSL	1602	FEL
		BHL Sec 02	T10S	R22E	2237	FNL	1814	FEL
<b>NBU 1022-O1 PAD</b>								
43-047-51821	NBU 1022-11O1CS	Sec 11	T10S	R22E	0944	FSL	1360	FEL
		BHL Sec 11	T10S	R22E	0744	FSL	1793	FEL
43-047-51831	NBU 1022-11O4CS	Sec 11	T10S	R22E	0925	FSL	1366	FEL
		BHL Sec 11	T10S	R22E	0079	FSL	1824	FEL
43-047-51832	NBU 1022-11P1BS	Sec 11	T10S	R22E	0973	FSL	1351	FEL
		BHL Sec 11	T10S	R22E	1068	FSL	0474	FEL
43-047-51833	NBU 1022-11P4BS	Sec 11	T10S	R22E	0954	FSL	1357	FEL
		BHL Sec 11	T10S	R22E	0456	FSL	0504	FEL
43-047-51836	NBU 1022-12M1BS	Sec 11	T10S	R22E	0963	FSL	1354	FEL
		BHL Sec 12	T10S	R22E	1077	FSL	0824	FWL
43-047-51856	NBU 1022-11O4BS	Sec 11	T10S	R22E	0935	FSL	1363	FEL
		BHL Sec 11	T10S	R22E	0413	FSL	1792	FEL

API #	WELL NAME	LOCATION						
(Proposed PZ WASATCH-MESA VERDE)								
<b>NBU 1022-11I1 PAD</b>								
43-047-51834	NBU 1022-11I1CS	Sec 11	T10S	R22E	2545	FSL	0532	FEL
	BHL	Sec 11	T10S	R22E	2112	FSL	0481	FEL
43-047-51835	NBU 1022-12L1CS	Sec 11	T10S	R22E	2554	FSL	0528	FEL
	BHL	Sec 12	T10S	R22E	2070	0FSL	823	FWL
43-047-51857	NBU 1022-11H4BS	Sec 11	T10S	R22E	2582	FSL	0518	FEL
	BHL	Sec 11	T10S	R22E	2067	FNL	0489	FEL
43-047-51858	NBU 1022-11H4CS	Sec 11	T10S	R22E	2592	FSL	0514	FEL
	BHL	Sec 11	T10S	R22E	2398	FNL	0489	FEL
43-047-51861	NBU 1022-12L1BS	Sec 11	T10S	R22E	2564	FSL	0525	FEL
	BHL	Sec 12	T10S	R22E	2401	FSL	0822	FWL
43-047-51863	NBU 1022-11H1CS	Sec 11	T10S	R22E	2573	FSL	0521	FEL
	BHL	Sec 11	T10S	R22E	1737	FNL	0490	FEL
<b>NBU 1022-2P PAD</b>								
43-047-51839	NBU 1022-2P4CS	Sec 02	T10S	R22E	0221	FSL	1342	FEL
	BHL	Sec 02	T10S	R22E	0255	FSL	0496	FEL
43-047-51841	NBU 1022-11B1BS	Sec 02	T10S	R22E	0221	FSL	1382	FEL
	BHL	Sec 11	T10S	R22E	0280	FNL	1755	FEL
43-047-51842	NBU 1022-11A1BS	Sec 02	T10S	R22E	0221	FSL	1352	FEL
	BHL	Sec 11	T10S	R22E	0080	FNL	0473	FEL
43-047-51846	NBU 1022-2O4CS	Sec 02	T10S	R22E	0220	FSL	1402	FEL
	BHL	Sec 02	T10S	R22E	0095	FSL	1804	FEL
43-047-51848	NBU 1022-11A4BS	Sec 02	T10S	R22E	0221	FSL	1372	FEL
	BHL	Sec 11	T10S	R22E	0744	FNL	0490	FEL
43-047-51849	NBU 1022-2O4BS	Sec 02	T10S	R22E	0221	FSL	1392	FEL
	BHL	Sec 02	T10S	R22E	0415	FSL	1807	FEL
43-047-51850	NBU 1022-11A1CS	Sec 02	T10S	R22E	0221	FSL	1362	FEL
	BHL	Sec 11	T10S	R22E	0413	FNL	0491	FEL
<b>NBU 1022-14A PAD</b>								
43-047-51840	NBU 1022-11P4CS	Sec 14	T10S	R22E	0379	FNL	1228	FEL
	BHL	Sec 11	T10S	R22E	0088	FSL	0466	FEL
43-047-51860	NBU 1022-12M1CS	Sec 14	T10S	R22E	0385	FNL	1236	FEL
	BHL	Sec 12	T10S	R22E	0746	FSL	0825	FWL
43-047-51868	NBU 1022-12M4BS	Sec 14	T10S	R22E	0391	FNL	1244	FEL
	BHL	Sec 12	T10S	R22E	0415	FSL	0825	FWL
43-047-51870	NBU 1022-12M4CS	Sec 14	T10S	R22E	0397	FNL	1252	FEL
	BHL	Sec 12	T10S	R22E	0086	FSL	0819	FWL
<b>NBU 1022-11O2 PAD</b>								
43-047-51859	NBU 1022-11K4CS	Sec 11	T10S	R22E	1103	FSL	2372	FEL
	BHL	Sec 11	T10S	R22E	1442	FSL	2113	FWL

API #	WELL NAME	LOCATION						
(Proposed PZ WASATCH-MESA VERDE)								
43-047-51862	NBU 1022-11N1BS	Sec 11	T10S	R22E	1094	FSL	2377	FEL
		BHL Sec 11	T10S	R22E	1111	FSL	2105	FWL
43-047-51864	NBU 1022-11N1CS	Sec 11	T10S	R22E	1085	FSL	2382	FEL
		BHL Sec 11	T10S	R22E	0801	FSL	2127	FWL
43-047-51865	NBU 1022-11N4BS	Sec 11	T10S	R22E	1077	FSL	2387	FEL
		BHL Sec 11	T10S	R22E	0462	FSL	2127	FWL
43-047-51867	NBU 1022-11N4CS	Sec 11	T10S	R22E	1068	FSL	2392	FEL
		BHL Sec 11	T10S	R22E	0146	FSL	2084	FWL
43-047-51869	NBU 1022-11O2AS	Sec 11	T10S	R22E	1111	FSL	2367	FEL
		BHL Sec 11	T10S	R22E	1102	FSL	1964	FEL
<b>NBU 1022-11I3 PAD</b>								
43-047-51866	NBU 1022-11I4BS	Sec 11	T10S	R22E	1489	FSL	0996	FEL
		BHL Sec 11	T10S	R22E	1774	FSL	0485	FEL
43-047-51871	NBU 1022-11I4CS	Sec 11	T10S	R22E	1459	FSL	0997	FEL
		BHL Sec 11	T10S	R22E	1443	FSL	0497	FEL
43-047-51872	NBU 1022-12L4BS	Sec 11	T10S	R22E	1479	FSL	0996	FEL
		BHL Sec 12	T10S	R22E	1739	FSL	0823	FWL
43-047-51873	NBU 1022-12L4CS	Sec 11	T10S	R22E	1469	FSL	0996	FEL
		BHL Sec 12	T10S	R22E	1408	FSL	0824	FWL

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

Michael L. Coulthard  Digitally signed by Michael L. Coulthard  
 DN: cn=Michael L. Coulthard, o=Bureau of Land Management,  
 ou=Branch of Minerals, email=Michael\_Coulthard@blm.gov, c=US  
 Date: 2011.08.19 08:43:17 -06'00'

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

MCoulthard:mc:8-19-11

**RECEIVED: August 22, 2011**



**From:** Jim Davis  
**To:** Hill, Brad; Mason, Diana  
**CC:** Bonner, Ed; Garrison, LaVonne; Lytle, Andy  
**Date:** 9/26/2011 5:08 PM  
**Subject:** Anadarko APD approvals 10S 22E Sec 2, 11 and 14  
**Attachments:** Anadarko Approvals from SITLA 9.26.11.xls

The following APDs have been approved by SITLA including arch clearance and paleo clearance:

4304751840 NBU 1022-11P4CS  
4304751860 NBU 1022-12M1CS  
4304751868 NBU 1022-12M4BS  
4304751870 NBU 1022-12M4CS  
4304751803 NBU 1022-2G1CS  
4304751807 NBU 1022-2G1BS  
4304751808 NBU 1022-2H1BS  
4304751812 NBU 1022-2H1CS  
4304751825 NBU 1022-2H4BS  
4304751811 NBU 1022-2B1CS  
4304751827 NBU 1022-2B4CS  
4304751828 NBU 1022-2B4BS  
4304751830 NBU 1022-2C1BS  
4304751809 NBU 1022-2I4CS  
4304751810 NBU 1022-2P1BS  
4304751824 NBU 1022-2I1CS  
4304751829 NBU 1022-2I4BS  
4304751838 NBU 1022-2P4BS  
4304751852 NBU 1022-2P1CS  
4304751839 NBU 1022-2P4CS  
4304751841 NBU 1022-11B1BS  
4304751842 NBU 1022-11A1BS  
4304751846 NBU 1022-2O4CS  
4304751848 NBU 1022-11A4BS  
4304751849 NBU 1022-2O4BS  
4304751850 NBU 1022-11A1CS

These APDS are approved including arch clearance but will require **spot paleo monitoring** as recommended in the applicable paleo reports:

4304751758 NBU 1022-2C1CS  
4304751767 NBU 1022-2C4BS  
4304751768 NBU 1022-2C4CS  
4304751779 NBU 1022-2D1BS  
4304751780 NBU 1022-2D4BS  
4304751782 NBU 1022-2E1BS  
4304751783 NBU 1022-2F1BS  
4304751760 NBU 1022-2E4BS  
4304751761 NBU 1022-2F1CS  
4304751764 NBU 1022-2F4BS  
4304751765 NBU 1022-2F4CS  
4304751766 NBU 1022-2K1BS  
4304751785 NBU 1022-2E1CS  
4304751775 NBU 1022-2L4CS  
4304751778 NBU 1022-2M1BS  
4304751781 NBU 1022-2M1CS  
4304751784 NBU 1022-2M4BS  
4304751786 NBU 1022-2M4CS  
4304751789 NBU 1022-11D2AS

4304751802 NBU 1022-11B4CS  
4304751813 NBU 1022-11B4BS  
4304751815 NBU 1022-11B1CS  
4304751817 NBU 1022-11C4AS  
4304751818 NBU 1022-11C4CS  
4304751855 NBU 1022-11F4AS  
4304751805 NBU 1022-11A4CS  
4304751814 NBU 1022-11H1BS  
4304751822 NBU 1022-11G4CS  
4304751823 NBU 1022-11G1BS  
4304751837 NBU 1022-11G1CS  
4304751853 NBU 1022-11G4BS  
4304751834 NBU 1022-11I1CS  
4304751835 NBU 1022-12L1CS  
4304751857 NBU 1022-11H4BS  
4304751858 NBU 1022-11H4CS  
4304751861 NBU 1022-12L1BS  
4304751863 NBU 1022-11H1CS  
4304751866 NBU 1022-11I4BS  
4304751871 NBU 1022-11I4CS  
4304751872 NBU 1022-12L4BS  
4304751873 NBU 1022-12L4CS  
4304751816 NBU 1022-11K4BS  
4304751843 NBU 1022-11J1CS  
4304751851 NBU 1022-11J1BS  
4304751859 NBU 1022-11K4CS  
4304751862 NBU 1022-11N1BS  
4304751864 NBU 1022-11N1CS  
4304751865 NBU 1022-11N4BS  
4304751867 NBU 1022-11N4CS  
4304751869 NBU 1022-11O2AS

These APDS are approved including arch clearance but will require **full paleo monitoring** as recommended in the applicable paleo reports:

4304751771 NBU 1022-2E4CS  
4304751772 NBU 1022-2L1CS  
4304751773 NBU 1022-2L1BS  
4304751774 NBU 1022-2L4BS  
4304751776 NBU 1022-2K1CS  
4304751777 NBU 1022-2K4BS  
4304751819 NBU 1022-2G4CS  
4304751820 NBU 1022-2H4CS  
4304751844 NBU 1022-2J4BS  
4304751845 NBU 1022-2O1CS  
4304751847 NBU 1022-2I1BS  
4304751854 NBU 1022-2G4BS  
4304751797 NBU 1022-11C2CS  
4304751799 NBU 1022-11C3DS  
4304751800 NBU 1022-11D1CS  
4304751801 NBU 1022-11F2DS  
4304751821 NBU 1022-11O1CS  
4304751831 NBU 1022-11O4CS  
4304751832 NBU 1022-11P1BS  
4304751833 NBU 1022-11P4BS  
4304751836 NBU 1022-12M1BS  
4304751856 NBU 1022-11O4BS

That's a big enough list that I'm including a simple spreadsheet that has this same information, but organized in such a way as may be more useful to some of you.

Thanks.

-Jim

Jim Davis  
Utah Trust Lands Administration  
jimdavis1@utah.gov  
Phone: (801) 538-5156

Well Name	KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 1022-11B4B			
String	Surf	Prod		
Casing Size(")	8.625	4.500		
Setting Depth (TVD)	1994	8445		
Previous Shoe Setting Depth (TVD)	40	1994		
Max Mud Weight (ppg)	8.3	12.5		
BOPE Proposed (psi)	500	5000		
Casing Internal Yield (psi)	3390	7780		
Operators Max Anticipated Pressure (psi)	5405	12.3		

Calculations	Surf String	8.625	"
Max BHP (psi)	.052*Setting Depth*MW=	861	
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	622	NO <input type="checkbox"/> air drill
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	422	YES <input type="checkbox"/> OK
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	431	NO <input type="checkbox"/> Reasonable depth for area
Required Casing/BOPE Test Pressure=		1994	psi
*Max Pressure Allowed @ Previous Casing Shoe=		40	psi *Assumes 1psi/ft frac gradient

Calculations	Prod String	4.500	"
Max BHP (psi)	.052*Setting Depth*MW=	5489	
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	4476	YES <input type="checkbox"/>
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	3631	YES <input type="checkbox"/> OK
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	4070	NO <input type="checkbox"/> Reasonable
Required Casing/BOPE Test Pressure=		5000	psi
*Max Pressure Allowed @ Previous Casing Shoe=		1994	psi *Assumes 1psi/ft frac gradient

Calculations	String		"
Max BHP (psi)	.052*Setting Depth*MW=		
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=		NO <input type="checkbox"/>
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=		NO <input type="checkbox"/>
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=		NO <input type="checkbox"/>
Required Casing/BOPE Test Pressure=			psi
*Max Pressure Allowed @ Previous Casing Shoe=			psi *Assumes 1psi/ft frac gradient

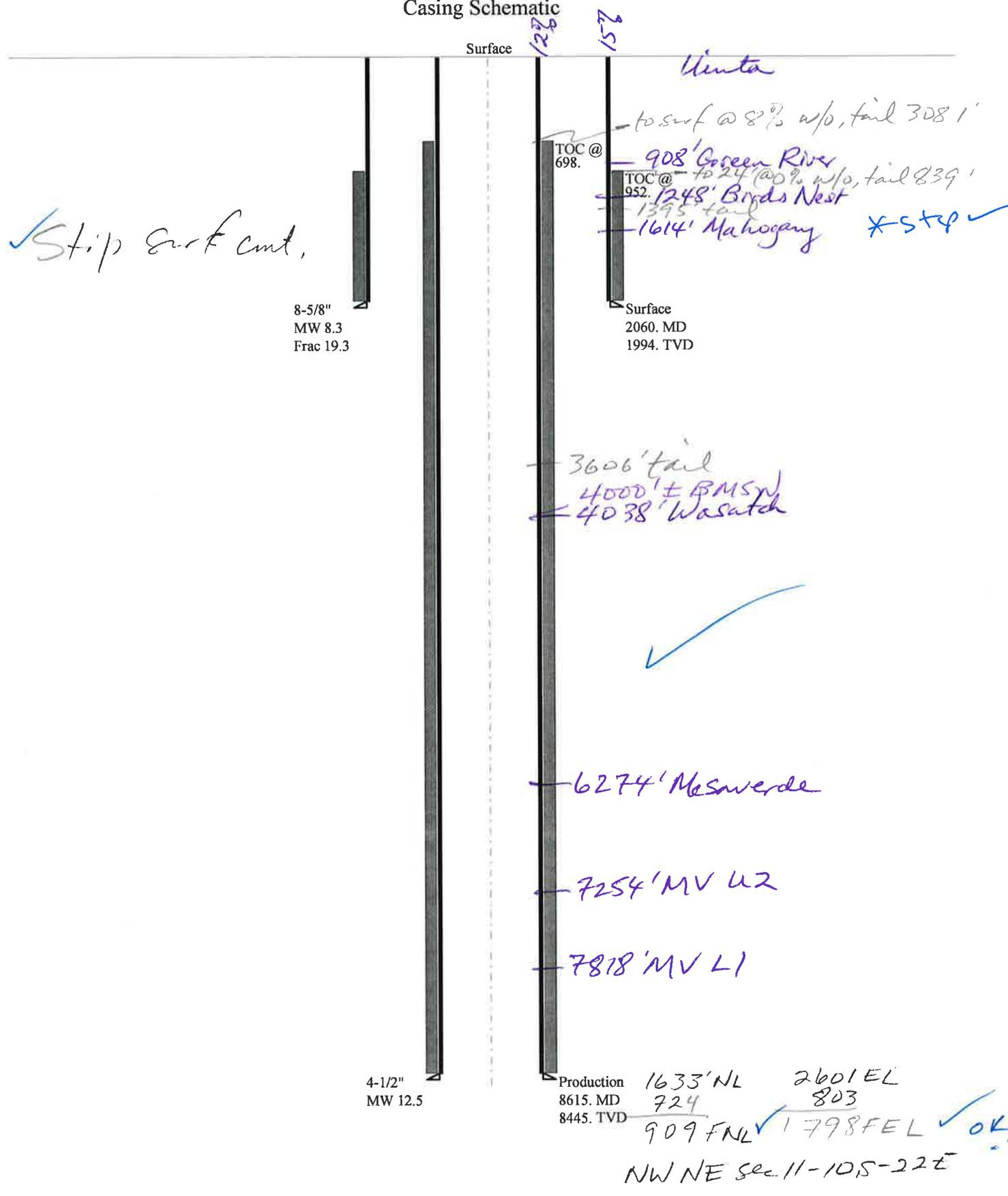
Calculations	String		"
Max BHP (psi)	.052*Setting Depth*MW=		
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=		NO <input type="checkbox"/>
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=		NO <input type="checkbox"/>
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=		NO <input type="checkbox"/>
Required Casing/BOPE Test Pressure=			psi

API Well Number: 43047518130000

*Max Pressure Allowed @ Previous Casing Shoe=	<input type="text"/>	psi *Assumes 1psi/ft frac gradient
---	----------------------	------------------------------------

# 43047518130000 NBU 1022-11B4BS

## Casing Schematic



Well name:	<b>43047518130000 NBU 1022-11B4BS</b>	
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>	
String type:	Surface	Project ID: 43-047-51813
Location:	UINTAH COUNTY	

**Design parameters:**

**Collapse**

Mud weight: 8.330 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: 74 °F  
Bottom hole temperature: 102 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft  
Cement top: 952 ft

**Burst**

Max anticipated surface pressure: 1,813 psi  
Internal gradient: 0.120 psi/ft  
Calculated BHP 2,052 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.70 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

Tension is based on air weight.  
Neutral point: 1,799 ft

**Directional Info - Build & Drop**

Kick-off point 300 ft  
Departure at shoe: 433 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 20 °

**Re subsequent strings:**

Next setting depth: 8,615 ft  
Next mud weight: 12.500 ppg  
Next setting BHP: 5,594 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 2,060 ft  
Injection pressure: 2,060 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)	Est. Cost (\$)
1	2060	8.625	28.00	I-55	LT&C	1994	2060	7.892	81576
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	863	1880	2.179	2052	3390	1.65	55.8	348	6.23 J

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

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

Date: August 29, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 1994 ft, a mud weight of 8.33 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.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

Well name:	<b>43047518130000 NBU 1022-11B4BS</b>	
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>	
String type:	Production	Project ID: 43-047-51813
Location:	UINTAH COUNTY	

**Design parameters:**

**Collapse**

Mud weight: 12.500 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: 74 °F  
Bottom hole temperature: 192 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft  
Cement top: 698 ft

**Burst**

Max anticipated surface pressure: 3,626 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 5,484 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: 1.60 (B)

Tension is based on air weight.  
Neutral point: 7,037 ft

**Directional Info - Build & Drop**

Kick-off point 300 ft  
Departure at shoe: 1081 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 0 °

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	8615	4.5	11.60	I-80	LT&C	8445	8615	3.875	113718
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	5484	6360	1.160	5484	7780	1.42	98	212	2.16 J

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

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

Date: August 29, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 8445 ft, a mud weight of 12.5 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.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

# ON-SITE PREDRILL EVALUATION

## Utah Division of Oil, Gas and Mining

**Operator** KERR-MCGEE OIL & GAS ONSHORE, L.P.  
**Well Name** NBU 1022-11B4BS  
**API Number** 43047518130000      **APD No** 4359      **Field/Unit** NATURAL BUTTES  
**Location: 1/4,1/4** SWNE      **Sec** 11      **Tw** 10.0S      **Rng** 22.0E      1633 FNL 2601 FEL  
**GPS Coord (UTM)** 636107 4425017      **Surface Owner**

### Participants

Andy Lytle, Sheila Wopsock, Charles Chase, Grizz Oleen, Mark Kuehn, Doyle Holmes, (Kerr McGee). John Slaugh, Mitch Batty, (Timberline). Jim Davis (SITLA). David Hackford, (DOGMA).

### Regional/Local Setting & Topography

The general area is in the southeast portion of the Natural Buttes Unit on the northeast end of a major drainage divide called Archy Bench. Within this area is the White River and rugged drainages that drain into it. Topography is varied and frequently dissected by short draws or washes, which become overly steep as they approach the White River breaks or rim. Distance to the White River varies from ¼ mile to 2 miles. The side drainages are dry except for ephemeral flows. No seeps or springs exist in the area. An occasional pond has been constructed to supply water for livestock and antelope. Vernal, Utah is approximately 41 air miles to the northwest. Access from Vernal is approximately 60.4 road miles following Utah State, Uintah County and oilfield development roads. Five wells, in addition to this one will be directionally drilled from this pad. (For a total of six new wells). There is one existing well on this pad. (The NBU 222). At this time, the decision rather to PA or TA this well has not been made. This proposed location takes in an existing location, and very little new construction will be necessary except for digging the reserve pit. The existing access road will be adequate and will be used. The location runs in a northeast-southwest direction along the top of a flat topped ridge. This ridge breaks off sharply into rugged secondary canyons on the north, west and east sides. New construction will consist of approx. 50 feet on all sides of the existing pad, and an additional 50 feet on the east side for reserve pit and excess cut stockpile. No drainage concerns exist, and no diversions will be needed. The pad as modified should be stable and should be a suitable location for seven wells, and is on the best site available in the immediate area.

### Surface Use Plan

#### **Current Surface Use**

Wildlife Habitat  
Existing Well Pad

<b>New Road Miles</b>	<b>Well Pad</b>	<b>Src Const Material</b>	<b>Surface Formation</b>
0	<b>Width</b> 292 <b>Length</b> 425	Onsite	UNTA

**Ancillary Facilities** N

**Waste Management Plan Adequate?** Y

### Environmental Parameters

**Affected Floodplains and/or Wetlands** N

**Flora / Fauna**

Prickly pear, wild onion, shadscale, mat saltbrush, Indian ricegrass, halogeton, pepper grass, annuals and curly Vegetation is a salt desert shrub type. Principal species present are cheatgrass, black sagebrush, stipa, mesquite grass.

Sheep, antelope, raptors and small mammals and birds.

**Soil Type and Characteristics**

Shallow rocky sandy loam.

**Erosion Issues** N

**Sedimentation Issues** N

**Site Stability Issues** N

**Drainage Diverson Required?** N

**Berm Required?** N

**Erosion Sedimentation Control Required?** N

**Paleo Survey Run?** Y **Paleo Potential Observed?** N **Cultural Survey Run?** Y **Cultural Resources?** N

**Reserve Pit**

**Site-Specific Factors**

**Site Ranking**

<b>Distance to Groundwater (feet)</b>	100 to 200	5
<b>Distance to Surface Water (feet)</b>	>1000	0
<b>Dist. Nearest Municipal Well (ft)</b>	>5280	0
<b>Distance to Other Wells (feet)</b>		20
<b>Native Soil Type</b>	Mod permeability	10
<b>Fluid Type</b>	Fresh Water	5
<b>Drill Cuttings</b>	Normal Rock	0
<b>Annual Precipitation (inches)</b>		0
<b>Affected Populations</b>		
<b>Presence Nearby Utility Conduits</b>	Not Present	0
<b>Final Score</b>		40

1 Sensitivity Level

**Characteristics / Requirements**

The reserve pit is planned in an area of cut on the east side of the location. Dimensions are 100' x 260' x 12' deep with 2' of freeboard. Kerr McGee agreed to line the pit with a 30-mil liner and 2 layers of felt.

**Closed Loop Mud Required?** N **Liner Required?** Y **Liner Thickness** 30 **Pit Underlayment Required?** Y

**Other Observations / Comments**

David Hackford  
**Evaluator**

8/18/2011  
**Date / Time**

# Application for Permit to Drill Statement of Basis

10/19/2011

## Utah Division of Oil, Gas and Mining

Page 1

<b>APD No</b>	<b>API WellNo</b>	<b>Status</b>	<b>Well Type</b>	<b>Surf Owner</b>	<b>CBM</b>
4359	43047518130000	SITLA	GW	S	No
<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>Surface Owner-APD</b>		
<b>Well Name</b>	NBU 1022-11B4BS	<b>Unit</b>		NATURAL BUTTES	
<b>Field</b>	NATURAL BUTTES	<b>Type of Work</b>		DRILL	
<b>Location</b>	SWNE 11 10S 22E S 1633 FNL 2601 FEL GPS Coord (UTM) 636039E 4425218N				

### Geologic Statement of Basis

Kerr McGee proposes to set 2,060' 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 4,000'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the center of Section 11. 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. Production casing cement should be brought up above the base of the moderately saline ground water to isolate it from fresher waters uphole.

Brad Hill  
**APD Evaluator**

8/30/2011  
**Date / Time**

### Surface Statement of Basis

The general area is in the southeast portion of the Natural Buttes Unit on the northeast end of a major drainage divide called Archy Bench. Within this area is the White River and rugged drainages that drain into it. Topography is varied and frequently dissected by short draws or washes, which become overly steep as they approach the White River breaks or rim. Distance to the White River varies from ¼ mile to 2 miles. The side drainages are dry except for ephemeral flows. No seeps or springs exist in the area. An occasional pond has been constructed to supply water for livestock and antelope. Vernal, Utah is approximately 41 air miles to the northwest. Access from Vernal is approximately 60.4 road miles following Utah State, Uintah County and oilfield development roads. The existing access road will be adequate and will be used.

Six wells will be directionally drilled from this location. They are the NBU 1022-11B4CS, NBU 1022-11B4BS, NBU 1022-11B1CS, NBU 1022-11C4AS, NBU 1022-11C4CS and the NBU 1022-11F4AS. The existing location has one existing well. This well is the NBU 222, and at this time the decision rather to PA or TA this well has not been made. The location is on a flat topped ridge that runs in a northeast-southwest direction. This ridge breaks off sharply into rugged secondary canyons on the north, west and east sides. No drainage concerns exist, and no diversions will be needed. The pad as modified should be stable and sufficient for seven wells, and is the best site for a location in the immediate area.

Excess material will be stockpiled on the east and south sides of the location. Approx. 50' of additional construction will be necessary on all sides of the original location.

Both the surface and minerals are owned by SITLA. Jim Davis of SITLA and Ben Williams with DWR were invited by email to the pre-site evaluation. Jim Davis was present. Kerr McGee was told to consult with SITLA for reclamation standards including seeding mixes to be used.

David Hackford  
**Onsite Evaluator**

8/18/2011  
**Date / Time**

Conditions of Approval / Application for Permit to Drill

**RECEIVED: October 19, 2011**

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# Application for Permit to Drill Statement of Basis

10/19/2011

Utah Division of Oil, Gas and Mining

Page 2

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<b>Category</b>	<b>Condition</b>
Pits	A synthetic liner with a minimum thickness of 30 mils with a felt subliner shall be properly installed and maintained in the reserve pit.
Pits	The reserve pit should be located on the east side of the location.

## WORKSHEET APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 8/10/2011**API NO. ASSIGNED:** 43047518130000**WELL NAME:** NBU 1022-11B4BS**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995)**PHONE NUMBER:** 720 929-6100**CONTACT:** Andy Lytle**PROPOSED LOCATION:** SWNE 11 100S 220E**Permit Tech Review:** **SURFACE:** 1633 FNL 2601 FEL**Engineering Review:** **BOTTOM:** 0908 FNL 1804 FEL**Geology Review:** **COUNTY:** UINTAH**LATITUDE:** 39.96621**LONGITUDE:** -109.40642**UTM SURF EASTINGS:** 636039.00**NORTHINGS:** 4425218.00**FIELD NAME:** NATURAL BUTTES**LEASE TYPE:** 3 - State**LEASE NUMBER:** UO1197A-ST**PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE**SURFACE OWNER:** 3 - State**COALBED METHANE:** NO**RECEIVED AND/OR REVIEWED:**

- PLAT
- Bond: STATE/FEE - 22013542
- Potash
- Oil Shale 190-5
- Oil Shale 190-3
- Oil Shale 190-13
- Water Permit: 43-8496
- RDCC Review:
- Fee Surface Agreement
- Intent to Commingle

**Commingle Approved****LOCATION AND SITING:**

- R649-2-3.
- Unit:** NATURAL BUTTES
- R649-3-2. General
- R649-3-3. Exception
- Drilling Unit
- Board Cause No:** Cause 173-14
- Effective Date:** 12/2/1999
- Siting:** 460' Fr U Bdry & Uncommitted Tracts
- R649-3-11. Directional Drill

**Comments:** Presite Completed

**Stipulations:**

- 3 - Commingle - ddoucet
- 5 - Statement of Basis - bhill
- 15 - Directional - dmason
- 17 - Oil Shale 190-5(b) - dmason
- 25 - Surface Casing - hmaconnald



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*

### Permit To Drill

\*\*\*\*\*

**Well Name:** NBU 1022-11B4BS  
**API Well Number:** 43047518130000  
**Lease Number:** UO1197A-ST  
**Surface Owner:** STATE  
**Approval Date:** 10/19/2011

**Issued to:**

KERR-MCGEE OIL & GAS ONSHORE, L.P., P.O. Box 173779, Denver, CO 80217

**Authority:**

Pursuant to Utah Code Ann. §40-6-1 et seq., and Utah Administrative Code R649-3-1 et seq., the Utah Division of Oil, Gas and Mining issues conditions of approval, and permit to drill the listed well. This permit is issued in accordance with the requirements of Cause 173-14. The expected producing formation or pool is the WASATCH-MESA VERDE Formation(s), completion into any other zones will require filing a Sundry Notice (Form 9). Completion and commingling of more than one pool will require approval in accordance with R649-3-22.

**Duration:**

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

**Commingle:**

In accordance with Board Cause No. 173-14, commingling of the production from the Wasatch formation and the Mesaverde formation in this well is allowed.

**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.

**Conditions of Approval:**

In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.

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

Surface casing shall be cemented to the surface.

Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis (copy attached).

**Additional Approvals:**

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

- Any changes to the approved drilling plan – contact Dustin Doucet
- Significant plug back of the well – contact Dustin Doucet
- Plug and abandonment of the well – contact Dustin Doucet

**Notification Requirements:**

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

- Within 24 hours following the spudding of the well – contact Carol Daniels  
OR  
submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website at <http://oilgas.ogm.utah.gov>
- 24 hours prior to testing blowout prevention equipment - contact Dan Jarvis
- 24 hours prior to cementing or testing casing – contact Dan Jarvis
- Within 24 hours of making any emergency changes to the approved drilling program – contact Dustin Doucet
- 24 hours prior to commencing operations to plug and abandon the well – contact Dan Jarvis

**Contact Information:**

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

- Carol Daniels 801-538-5284 - office
- Dustin Doucet 801-538-5281 - office  
801-733-0983 - after office hours
- Dan Jarvis 801-538-5338 - office  
801-231-8956 - after office hours

**Reporting Requirements:**

All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:

- Entity Action Form (Form 6) – due within 5 days of spudding the well
- Monthly Status Report (Form 9) – due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) – due prior to implementation
- Written Notice of Emergency Changes (Form 9) – due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) – due prior to implementation
- Report of Water Encountered (Form 7) – due within 30 days after completion
- Well Completion Report (Form 8) – due within 30 days after completion or plugging

**Approved By:**



For John Rogers  
Associate Director, Oil & Gas

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>	<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UO1197A-ST
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>
<b>1. TYPE OF WELL</b> Gas Well	<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>8. WELL NAME and NUMBER:</b> NBU 1022-11B4BS
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>9. API NUMBER:</b> 43047518130000
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1633 FNL 2601 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 11 Township: 10.0S Range: 22.0E 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 type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input checked="" type="checkbox"/> SPUD REPORT Date of Spud: 1/12/2012	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> DRILLING REPORT 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 type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	OTHER: <input style="width: 100px;" type="text"/>

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

MIRU PETE MARTIN BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'. RAN 14" 36.7# SCHEDULE 10 PIPE. CMT W/28 SX READY MIX. SPUD WELL ON 01/12/2012 AT 1500 HRS.

**Accepted by the  
 Utah Division of  
 Oil, Gas and Mining  
 FOR RECORD ONLY  
 January 19, 2012**

<b>NAME (PLEASE PRINT)</b> Sheila Wopsock	<b>PHONE NUMBER</b> 435 781-7024	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 1/18/2012	

## BLM - Vernal Field Office - Notification Form

Operator KERR-McGEE OIL & GAS Rig Name/# CAPSTAR #310  
 Submitted By GINA BECKER Phone Number 720.929.6086  
 Well Name/Number NBU 1022-11B4BS  
 Qtr/Qtr SWNE Section 11 Township 10S Range 22E  
 Lease Serial Number UO 01197A ST  
 API Number 4304751813

Spud Notice – Spud is the initial spudding of the well, not drilling out below a casing string.

Date/Time 01/12/2012 10:00 HRS AM  PM

Casing – Please report time casing run starts, not cementing times.

- Surface Casing  
 Intermediate Casing  
 Production Casing  
 Liner  
 Other

RECEIVED

JAN 11 2012

DIV. OF OIL, GAS &amp; MINING

Date/Time 01/21/2012 08:00 HRS AM  PM

BOPE

- Initial BOPE test at surface casing point  
 BOPE test at intermediate casing point  
 30 day BOPE test  
 Other

Date/Time \_\_\_\_\_ AM  PM

Remarks ESTIMATED DATE AND TIME. PLEASE CONTACT KENNY GATHINGS AT

435.828.0986 OR LOVELL YOUNG AT 435.781.7051

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

FORM 6

**ENTITY ACTION FORM**

Operator: KERR MCGEE OIL & GAS ONSHORE LP Operator Account Number: N 2995  
 Address: 1368 SOUTH 1200 EAST  
city VERNAL  
state UT zip 84078 Phone Number: (435) 781-7024

**Well 1**

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751802	NBU 1022-11B4CS		SWNE	11	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
<i>B</i>	99999	<i>2900</i>	1/12/2012			1/18/2012	
<b>Comments:</b> MIRU PETE MARTIN BUCKET RIG. <i>WSMVD</i> SPUD WELL ON 01/12/2012 AT 1200 HRS <i>BHL = NWNE</i>							

**Well 2**

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751813	NBU 1022-11B4BS		SWNE	11	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
<i>B</i>	99999	<i>2900</i>	1/12/2012			1/18/2012	
<b>Comments:</b> MIRU PETE MARTIN BUCKET RIG. <i>WSMVD</i> SPUD WELL ON 01/12/2012 AT 1500 HRS <i>BHL = NWNE</i>							

**Well 3**

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751815	NBU 1022-11B1CS		SWNE	11	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
<i>B</i>	99999	<i>2900</i>	1/14/2012			1/18/2012	
<b>Comments:</b> MIRU PETE MARTIN BUCKET RIG. <i>WSMVD</i> SPUD WELL ON 01/14/2012 AT 1100 HRS. <i>BHL = NWNE</i>							

**ACTION CODES:**

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

SHEILA WOPSOCK

Name (Please Print)

Signature

REGULATORY ANALYST

Title

1/16/2012

Date

(5/2000)

**RECEIVED**

JAN 17 2012

DIV. OF OIL, GAS & MINING *ee*

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<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>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UO1197A-ST
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 1022-11B4BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1633 FNL 2601 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 11 Township: 10.0S Range: 22.0E Meridian: S		<b>9. API NUMBER:</b> 43047518130000
<b>PHONE NUMBER:</b> 720 929-6511		<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		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> CONVERT WELL TYPE <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 type="checkbox"/> WILDCAT WELL DETERMINATION <input type="checkbox"/> OTHER	
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> APD EXTENSION	
<input type="checkbox"/> SPUD REPORT Date of Spud:	OTHER: <input style="width: 100px;" type="text"/>	
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 1/28/2012		
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. MIRU AIR RIG ON JAN. 26, 2012. DRILLED SURFACE HOLE TO 2260'. RAN SURFACE CASING AND CEMENTED. WELL IS WAITING ON ROTARY RIG. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH WELL COMPLETION REPORT.		
<b>Accepted by the          Utah Division of          Oil, Gas and Mining          FOR RECORD ONLY          January 30, 2012</b>		
<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske	<b>PHONE NUMBER</b> 720 929-6304	<b>TITLE</b> Regularatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 1/30/2012	

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>
<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>1. TYPE OF WELL</b> Gas Well	<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UO1197A-ST
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>PHONE NUMBER:</b> 720 929-6511	<b>8. WELL NAME and NUMBER:</b> NBU 1022-11B4BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1633 FNL 2601 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 11 Township: 10.0S Range: 22.0E Meridian: S	<b>9. API NUMBER:</b> 43047518130000
	<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: 1/17/2012	<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 checked="" 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 type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	OTHER: <input style="width: 100px;" type="text"/>

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

The Operator requests approval for changes in the drilling plan. Specifically, the Operator requests approval for a FIT wavier, closed loop drilling option, and a production casing change. All other aspects of the previously approved drilling plan will not change. Please see the attachment. Thank you.

**Approved by the Utah Division of Oil, Gas and Mining**  
**Date:** February 02, 2012  
**By:** *Derek Duff*

<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske	<b>PHONE NUMBER</b> 720 929-6304	<b>TITLE</b> Regularatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 1/17/2012	

**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 1022-11B4BS**

Surface: 1633 FNL / 2601 FEL SWNE  
 BHL: 908 FNL / 1804 FEL NWNE

Section 11 T10S R22E

Uintah County, Utah  
 Mineral Lease: UO1197A-ST

**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	908'	
Birds Nest	1,248'	Water
Mahogany	1,614'	Water
Wasatch	4,038'	Gas
Mesaverde	6,274'	Gas
MVU2	7,254'	Gas
MVL1	7,818'	Gas
TVD	8,445'	
TD	8,615'	

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

Please refer to the attached Drilling Program

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

Please refer to the attached Drilling Program

5. **Drilling Fluids Program:**

Please refer to the attached Drilling Program

6. **Evaluation Program:**

Please refer to the attached Drilling Program

**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 8445' TVD, approximately equals  
5,405 psi 0.64 psi/ft = actual bottomhole gradient

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Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,535 psi (bottom hole pressure  
minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

---

Per Onshore Order No. 2 - Max Anticipated Surf. Press. (MASP) = (Pore Pressure at next csg point -  
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

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

**9. Variances:**

Please refer to the attached Drilling Program.  
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 for the first 200 feet, then will drill a 11 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 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 8-5/8 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.

**Variance for FIT Requirements**

KMG also respectfully requests a variance to Onshore Order 2, Section III, Part Bi, for the pressure integrity test (PIT, also known as a formation integrity test (FIT)). This well is not an exploratory well and is being drilled in an area where the formation integrity is well known. Additionally, when an FIT is run with the mud weight as required, the casing shoe frequently breaks down and causes subsequent lost circulation when drilling the entire depth of the well.

**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.

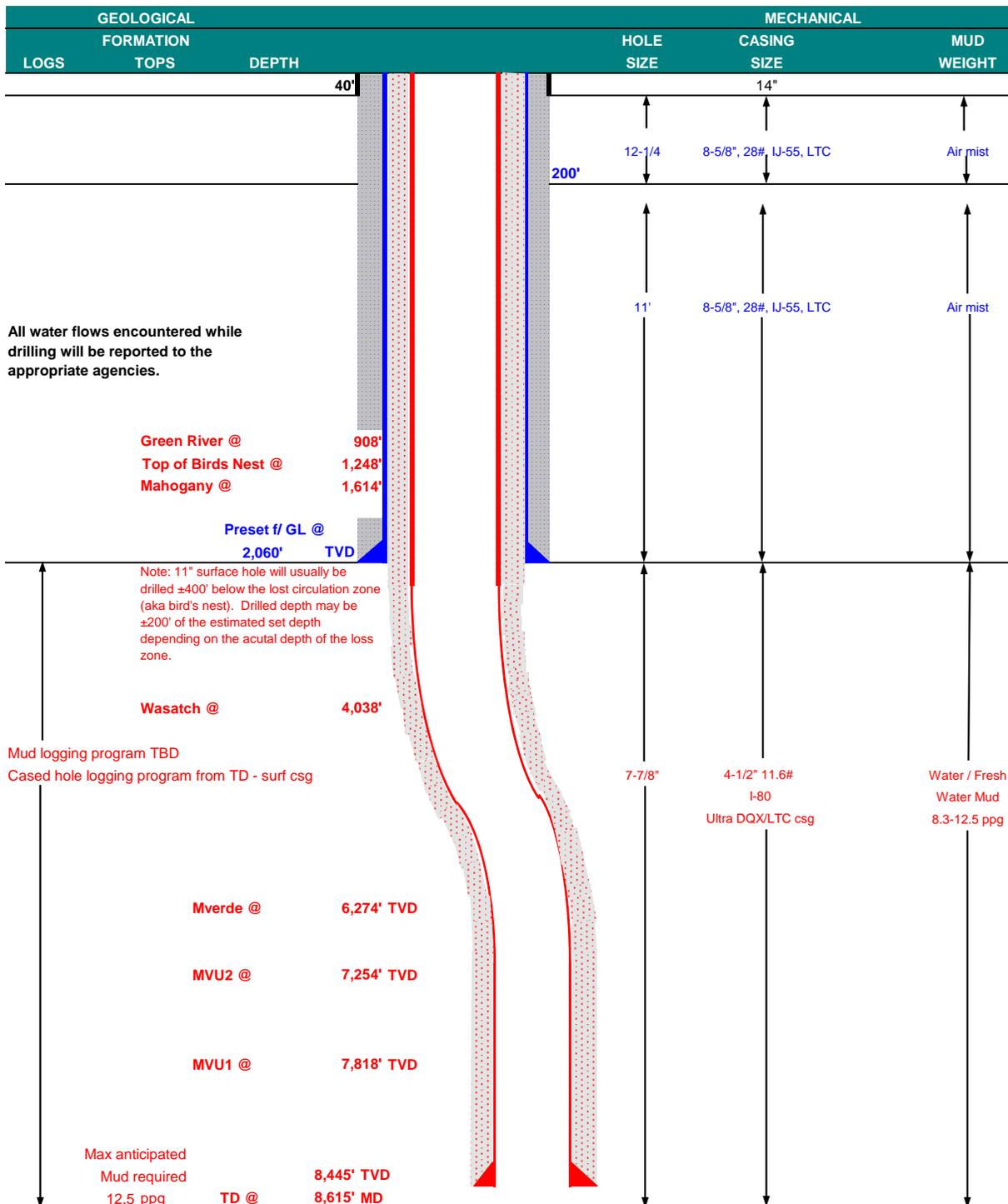
10. **Other Information:**

Please refer to the attached Drilling Program.



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

COMPANY NAME	KERR-McGEE OIL & GAS ONSHORE LP		DATE	January 17, 2012	
WELL NAME	NBU 1022-11B4BS		TD	8,445' TVD	8,615' MD
FIELD	Natural Buttes	COUNTY	Uintah	STATE	Utah
SURFACE LOCATION	SWNE 1633 FNL	2601 FEL	Sec 11	T 10S	R 22E
	Latitude: 39.966253	Longitude: -109.406320	NAD 27		
BTM HOLE LOCATION	NWNE 908 FNL	1804 FEL	Sec 11	T 10S	R 22E
	Latitude: 39.968240	Longitude: -109.403455	NAD 27		
OBJECTIVE ZONE(S)	Wasatch/Mesaverde				
ADDITIONAL INFO	Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept.				





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

**CASING PROGRAM**

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS			
						BURST	LTC		DQX TENSION
							COLLAPSE		
CONDUCTOR	14"	0-40'				3,390	1,880	348,000	N/A
SURFACE	8-5/8"	0 to 2,060	28.00	IJ-55	LTC	2.63	1.95	6.89	N/A
						7,780	6,350	223,000	267,035
PRODUCTION	4-1/2"	0 to 5,000	11.60	I-80	DQX	1.11	1.16		3.30
						1.11	1.16	6.57	

**Surface casing:**

(Burst Assumptions: TD = 12.5 ppg) 0.73 psi/ft = frac gradient @ surface shoe  
Fracture at surface shoe with 0.1 psi/ft gas gradient above  
(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.64 psi/ft = bottomhole gradient  
(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)

**CEMENT PROGRAM**

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE Option 1	LEAD	500'	Premium cmt + 2% CaCl + 0.25 pps flocele	180	60%	15.80	1.15
	TOP OUT CMT (6 jobs)	1,200'	20 gals sodium silicate + Premium cmt + 2% CaCl + 0.25 pps flocele	270	0%	15.80	1.15
<b>NOTE: If well will circulate water to surface, option 2 will be utilized</b>							
SURFACE Option 2	LEAD	1,560'	65/35 Poz + 6% Gel + 10 pps gilsonite + 0.25 pps Flocele + 3% salt BWOW	150	35%	11.00	3.82
	TAIL	500'	Premium cmt + 2% CaCl + 0.25 pps flocele	150	35%	15.80	1.15
	TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.80	1.15
PRODUCTION	LEAD	3,535'	Premium Lite II +0.25 pps celloflake + 5 pps gilsonite + 10% gel + 0.5% extender	280	35%	12.00	3.38
	TAIL	5,080'	50/50 Poz/G + 10% salt + 2% gel + 0.1% R-3	1,200	35%	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. 15 centralizers for a Mesaverde and 20 for a Blackhawk well. 1 centralizer on the first 3 joints and one every third joint thereafter.

**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.

Surveys will be taken at 1,000' minimum intervals.

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

**DRILLING ENGINEER:**

Nick Spence / Danny Showers / Chad Loesel

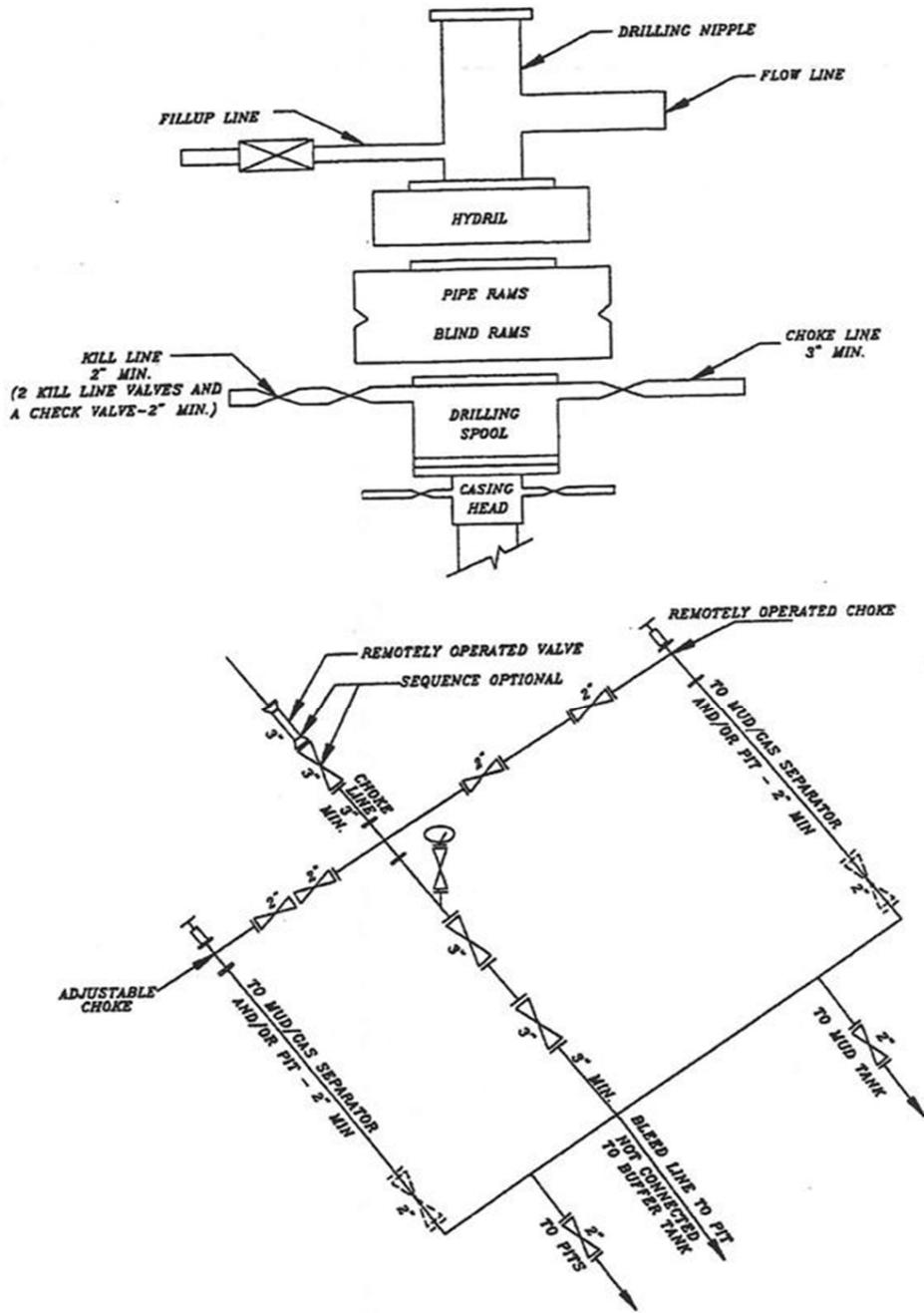
**DATE:**

**DRILLING SUPERINTENDENT:**

Kenny Gathings / Lovel Young

**DATE:**

**EXHIBIT A**  
**NBU 1022-11B4BS**



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

Requested Drilling Options:

Kerr-McGee will use either a closed loop drilling system that will require one pit and one cuttings storage area to be constructed on the drilling pad or a traditional drilling operation with one pit used for drilling and completion operations. The cuttings storage area will be used to contain only the de-watered drill cuttings and will be lined and bermed to prevent any liquid runoff. The drill cuttings will be buried in the completion pit once completion operations are completed according to traditional pit closure standards. The pit will be constructed to allow for completion operations. The completion operations pit will be lined with a synthetic material 20 mil or thicker and will be used for the completing of the wells on the pad or used as part of our Aandarko Completions Transportation System (ACTS). Using the closed loop drilling system will allow Kerr-McGee to decrease the amount of disturbance/footprint on location compared to a single large drilling/completions pit.

If Kerr-McGee does not use a closed loop drilling system, it will construct a traditional drilling/completions pit to contain drill cuttings and for use in completion operations. The pit will be lined with a synthetic material 20 mil or thicker. The drill cuttings will be buried in the pit using traditional pit closure standards.

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<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>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UO1197A-ST
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 1022-11B4BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1633 FNL 2601 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 11 Township: 10.0S Range: 22.0E Meridian: S		<b>9. API NUMBER:</b> 43047518130000
<b>PHONE NUMBER:</b> 720 929-6511		<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		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> ALTER CASING	
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CASING REPAIR	
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 3/3/2012	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	
	<input type="checkbox"/> CHANGE TUBING	
	<input type="checkbox"/> CHANGE WELL STATUS	
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	
	<input type="checkbox"/> CHANGE WELL NAME	
	<input type="checkbox"/> DEEPEN	
	<input type="checkbox"/> CONVERT WELL TYPE	
	<input type="checkbox"/> OPERATOR CHANGE	
	<input type="checkbox"/> FRACTURE TREAT	
	<input type="checkbox"/> PRODUCTION START OR RESUME	
	<input type="checkbox"/> PLUG AND ABANDON	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> RECLAMATION OF WELL SITE	
	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> WATER SHUTOFF	
	<input type="checkbox"/> VENT OR FLARE	
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	
	<input type="checkbox"/> SI TA STATUS EXTENSION	
	<input type="checkbox"/> OTHER	
	OTHER: <input style="width: 100px;" type="text"/>	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.  MIRU ROTARY RIG. FINISHED DRILLING FROM 2260' TO 8635' ON MARCH 2, 2012. RAN 4-1/2" 11.6# I-80 PRODUCTION CASING. CEMENTED PRODUCTION CASING. RELEASED ENSIGN 146 RIG ON MARCH 3, 2012 @ 08:00 HRS. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH THE WELL COMPLETION REPORT. WELL IS WAITING ON FINAL COMPLETION ACTIVITIES.		
<b>Accepted by the          Utah Division of          Oil, Gas and Mining          FOR RECORD ONLY          March 06, 2012</b>		
<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske	<b>PHONE NUMBER</b> 720 929-6304	<b>TITLE</b> Regularatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 3/4/2012	

State of Utah - Notification Form

Operator Anadarko Petroleum Rig Name/# Ensign 146  
Submitted By KENT MOORE Phone Number 435- 828-0987  
Well Name/Number NBU 1022-11B4BS  
Qtr/Qtr SW/NE Section 11 Township 10S Range 22E  
Lease Serial Number UO1197A-ST  
API Number 4304751813

Casing – Time casing run starts, not cementing times.

- Production Casing
- Other

Date/Time 3/2/12 16:00 AM  PM

BOPE

- Initial BOPE test at surface casing point
- Other

Date/Time \_\_\_\_\_ AM  PM

RECEIVED

MAR 01 2012

DIV. OF OIL, GAS & MINING

Rig Move

Location To: \_\_\_\_\_

Date/Time \_\_\_\_\_ AM  PM

Remarks \_\_\_\_\_

\_\_\_\_\_

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UO1197A-ST
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>
		<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 1022-11B4BS	
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047518130000	
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6511	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1633 FNL 2601 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 11 Township: 10.0S Range: 22.0E 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 type="checkbox"/> NOTICE OF INTENT Approximate date work will start:  <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:  <input type="checkbox"/> SPUD REPORT Date of Spud:  <input checked="" type="checkbox"/> DRILLING REPORT Report Date: 4/26/2012	<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 checked="" 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 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.		
THE SUBJECT WELL WAS PLACED ON PRODUCTION ON APRIL 26, 2012 AT 1200 HOURS. THE CHRONOLOGICAL WELL HISTORY WILL BE SUBMITTED WITH THE WELL COMPLETION REPORT.		
<b>Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY May 08, 2012</b>		
<b>NAME (PLEASE PRINT)</b> Gina Becker	<b>PHONE NUMBER</b> 720 929-6086	<b>TITLE</b> Regulatory Analyst II
<b>SIGNATURE</b> N/A	<b>DATE</b> 4/26/2012	

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

AMENDED REPORT  FORM 8  
(highlight changes)

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG**

5. LEASE DESIGNATION AND SERIAL NUMBER:  
**UO1197A-ST**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT or CA AGREEMENT NAME  
**UTU63047A**

8. WELL NAME and NUMBER:  
**NBU 1022-11B4BS**

9. API NUMBER:  
**4304751813**

10. FIELD AND POOL, OR WLD/CAT  
**NATURAL BUTTES**

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:  
**SWNE 11 10S 22E S**

12. COUNTY  
**UINTAH**

13. STATE  
**UTAH**

14. DATE SPUNDED: **1/12/2012**

15. DATE T.D. REACHED: **3/2/2012**

16. DATE COMPLETED: **4/26/2012**

ABANDONED  READY TO PRODUCE

17. ELEVATIONS (DF, RKB, RT, GL):  
**5032 GL**

18. TOTAL DEPTH: MD **8,635** TVD **8,474**

19. PLUG BACK T.D.: MD **8,578** TVD **8,417**

20. IF MULTIPLE COMPLETIONS, HOW MANY? \*

21. DEPTH BRIDGE MD PLUG SET: TVD

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)  
**CBL/CMI/GR/CCL**

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

2. NAME OF OPERATOR:  
**KERR MCGEE OIL & GAS ONSHORE, L.P.**

3. ADDRESS OF OPERATOR:  
**P.O. BOX 173779 CITY DENVER STATE CO ZIP 80217**

PHONE NUMBER:  
**(720) 929-6000**

4. LOCATION OF WELL (FOOTAGES)  
AT SURFACE: **SWNE 1633 FNL 2601 FEL S11,T10S,R22E**  
AT TOP PRODUCING INTERVAL REPORTED BELOW: **NWNE 901 FNL 1810 FEL S11,T10S,R22E**  
AT TOTAL DEPTH: **NWNE 918 FNL 1814 FEL S11,T10S,R22E** *BHL by HSM*

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

HOLE SIZE	SIZE/GRADE	WEIGHT (#/R.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
20"	14" STL	36.7#	0	40		28			
11"	8 5/8" IJ-55	28#	0	2,255		600		0	
7 7/8"	4 1/2" I-80	11.6#	0	8,622		1,440		980	

**25. TUBING RECORD**

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	7,843							

26. PRODUCING INTERVALS					27. PERFORATION RECORD				
FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)	INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS	
(A) MESAVERDE	6,470	8,344			6,470 8,344	0.36	142	Open <input checked="" type="checkbox"/>	Squeezed <input type="checkbox"/>
(B)								Open <input type="checkbox"/>	Squeezed <input type="checkbox"/>
(C)								Open <input type="checkbox"/>	Squeezed <input type="checkbox"/>
(D)								Open <input type="checkbox"/>	Squeezed <input type="checkbox"/>

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

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
6470-8344	PUMP 8,037 BBLs SLICK H2O & 172,038 LBS 30/50 OTTAWA SAND
	6 STAGES

29. ENCLOSED ATTACHMENTS:

ELECTRICAL/MECHANICAL LOGS  GEOLOGIC REPORT  DST REPORT  DIRECTIONAL SURVEY

SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION  CORE ANALYSIS  OTHER: \_\_\_\_\_

30. WELL STATUS:  
**PROD**

31. INITIAL PRODUCTION

INTERVAL A (As shown in Item #26)

DATE FIRST PRODUCED: 4/26/2012		TEST DATE: 5/2/2012		HOURS TESTED: 24		TEST PRODUCTION RATES: →	OIL - BBL: 0	GAS - MCF: 3,398	WATER - BBL: 170	PROD. METHOD:
CHOKE SIZE: 2064	TBG. PRESS. 1,365	CSG. PRESS. 1,712	API GRAVITY	BTU - GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL - BBL: 0	GAS - MCF: 3,398	WATER - BBL: 170	INTERVAL STATUS: PROD

INTERVAL B (As shown in Item #26)

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

INTERVAL C (As shown in Item #26)

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

INTERVAL D (As shown in Item #26)

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

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

33. SUMMARY OF POROUS ZONES (Include Aquifers):

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

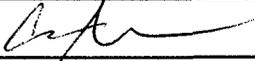
34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)
				GREEN RIVER	908
				BIRD'S NEST	1,254
				MAHOGANY	1,639
				WASATCH	4,229
				MESAVERDE	6,414

35. ADDITIONAL REMARKS (Include plugging procedure)

The first 160' of the surface hole was drilled with a 12 1/4" bit. The remainder of surface hole was drilled with an 11" bit. DQX csg was run from surface to 4969'; LTC csg was run from 4969' to 8622'. Attached is the chronological well history, perforation report & final survey.

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

NAME (PLEASE PRINT) CARA MAHLER TITLE REGULATORY ANALYST  
 SIGNATURE  DATE 6/13/2012

This report must be submitted within 30 days of

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

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

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

Send to: Utah Division of Oil, Gas and Mining  
 1594 West North Temple, Suite 1210  
 Box 145801  
 Salt Lake City, Utah 84114-5801

Phone: 801-538-5340  
 Fax: 801-359-3940

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE

Spud Date: 1/27/2012

Project: UTAH-UJINTAH

Site: NBU 1022-11G2 PAD

Rig Name No: ENSIGN 146/146, CAPSTAR 310/310

Event: DRILLING

Start Date: 11/22/2011

End Date: 3/3/2012

Active Datum: RKB @5,045.01ft (above Mean Sea Level)

UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation	
1/26/2012	19:00 - 20:00	1.00	MIRU	01	E	P		RIG DOWN PREPARE FOR SKID	
	20:00 - 20:30	0.50	MIRU	07	A	P		RIG SERVICE / SAFETY MEETING WITH HOWCROFT RIG MOVE COMPANY	
	20:30 - 22:30	2.00	MIRU	01	C	P		SKID RIG TO WELL #2 OF 6 ON PAD THE NBU 1022-11B4BS	
	22:30 - 23:30	1.00	MIRU	14	A	P		WELD ON CONDUCTOR AND RIG UP FLOW LINE	
	23:30 - 0:00	0.50	MIRU	01	B	P		RIG UP PREPARE TO SPUD PICK UP BHA AND MAKE UP 12.25" BIT	
1/27/2012	0:00 - 0:30	0.50	DRLSUR	06	A	P		PICK UP 12.25" BIT AND MUD MOTOR AIR OUT PUMPS AND PREPARE TO SPUD	
	0:30 - 2:00	1.50	DRLSUR	02	C	P		SPUD WELL WITH 12.25" BIT DRILL F/ 40' - 160' WOB 8-22 ROT 50-65 GPM 350-680 DHR 63/122 NO LOSSES AVE ROP 73 FT HR	
	2:00 - 4:30	2.50	DRLSUR	06	A	P		TOOH PICK UP DIRECTIONAL TOOLS AND 11" BIT ORIENT MWD TOOL TO MUD MOTOR AND TIH INSTALL NEW ROT RUBBER	
	4:30 - 11:30	7.00	DRLSUR	02	C	P		DRILL 11" HOLE F/ 160' - 977' WOB 22-28 ROT 50-60 DHR 122 GPM 680 AVE ROP 116 FT HR LAST SURVEY 10.64 AZI 46.46	
	11:30 - 12:00	0.50	DRLSUR	07	A	P		DAILY RIG SERVICE	
	12:00 - 20:00	8.00	DRLSUR	02	C	P		DRILL 11" HOLE F/ 977' - 1731' ROT 50-60 DHR 122 GPM 680 WO 22-28 AVE ROP 94 FT HR	
	20:00 - 0:00	4.00	DRLSUR	08	H	Z		TOOH FOR MWD TOOL EYE FAILURE INSTALL NEW MWD TOOL AND TIH	
	1/28/2012	0:00 - 3:00	3.00	DRLSUR	06	H	Z		TIH WITH NEW MWD TOOL RETAKING LAST 3 SURVEYS
		3:00 - 9:00	6.00	DRLSUR	02	C	P		DRILL 11" HOLE F/ 1731' - 2260' AVE ROP 58 FT HR WOB 18-20 ROT 45-55 DHR 122 AIR ON AT 1400' 700-800 CFM LAST SURVEY 19.79 DEG 44.62 AZI 7 FT LEFT 1 FT HIGH OF PROPOSED LINE
9:00 - 9:30		0.50	DRLSUR	05	C	P		CIRCULATE AND CONDITION MUD PRIOR TO LDDS	
9:30 - 13:00		3.50	DRLSUR	06	A	P		TOOH LAYING DOWN DRILL STRING L/D MWD TOOLS, MUD MOTOR, BIT, AND ALL BHA	
13:00 - 13:30		0.50	DRLSUR	12	A	P		RIG UP TO RUN 8.625" CASING	
13:30 - 15:30		2.00	DRLSUR	12	C	P		RUN 51 JOINTS 8.625 J55 28# SURFACE CASING SHOE AT 2249' BAFFLE AT 2205' NO CIRCULATION	
15:30 - 16:00		0.50	DRLSUR	12	B	P		RIG UP PRO PETRO CEMENTERS	
16:00 - 17:30		1.50	DRLSUR	12	E	P		PRESSURE TEST LINES TO 1500 PSI. PUMP 20 BBLs OF WATER AHEAD. PUMP 20 BBLs OF 8.3# GEL WATER AHEAD. PUMP (300 SX) 61.4 BBLs OF 15.8# 1.15 YD 5 GAL/SK PREMIUM CEMENT. DROP PLUG ON FLY. DISPLACE W/ 138 BBLs OF H2O. FINAL LIFT OF 500 PSI AT 4 BBL/MIN. BUMP PLUG W/550 PSI HELD FOR 1 MIN. FLOAT DID HOLD.	
17:30 - 18:00		0.50	DRLSUR	14	A	P		CUT CONDUCTOR AND HANG OFF CASING ENSURING CASING IN MIDDLE OF CONDUCTOR	

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE

Spud Date: 1/27/2012

Project: UTAH-UINTAH

Site: NBU 1022-11G2 PAD

Rig Name No: ENSIGN 146/146, CAPSTAR 310/310

Event: DRILLING

Start Date: 11/22/2011

End Date: 3/3/2012

Active Datum: RKB @5,045.01ft (above Mean Sea Level)

UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	18:00 - 19:00	1.00	DRLSUR	12	E	P		PUMP (300 SX) 26 BBLS OF SAME TAIL CEMENT W/ 4% CALC. (2 TOPOUTS)DOWN BACKSIDE. WAIT 1 HOURS, IN BETWEEN EACH TOPOUT, SHUT DOWN AND CLEAN TRUCK. NO CEMENT TO SURFACE. WILL TOP OUT ON NEXT JOB RELEASE RIG @ 1900 1-28-2012
2/27/2012	11:00 - 12:30	1.50	RDMO	01	C	P		HPJSM SKID RIG, TO THE NBU 1022-11B4BS WELL 5/6
	12:30 - 13:00	0.50	DRLPRO	14	A	P		N/UP BOPE
	13:00 - 16:30	3.50	DRLPRO	15	A	P		TEST BOPE, RAMS, CHOKE, CHOKE LINE, MANUAL VALVES, FLOOR VALVES, HCR & IBOP 250 LOW 5000 HIGH, ANNULAR 250 LOW 2500 HIGH (NO TEST), CASING 1500
	16:30 - 17:00	0.50	DRLPRO	14	B	P		SET WEARBUSHING
	17:00 - 18:30	1.50	DRLPRO	09	A	P		CUT DRILLING LINE 106' / INSPECT BRAKES
	18:30 - 21:00	2.50	DRLPRO	06	A	P		P/UP SECURITY FX65, WETHERFORD MM 1.83 deg .20 RPG, RITH DIRECTIONAL BHA SCRIBE & ORIENT, RIH TAG CEMENT @2156'
	21:00 - 21:30	0.50	DRLPRO	07	B	P		LEVEL DERRICK - INSTALL ROTATING HEAD
	21:30 - 22:30	1.00	DRLPRO	02	F	P		DRILL CEMENT, FE & RATHOLE F/2156' TO 2265'
	22:30 - 0:00	1.50	DRLPRO	02	D	P		DRILL/SLIDE F/2265' TO 2483' (218' @ 145fph) MW 8.4, VIS 28, WOB 20, RPM 45, MM RPM 115, TQ 5/7, SPM 112, GPM 550 PSI OFF/ON 1600/1288, PU 103, SO 75, ROT 102, (SLIDE 40' 20.3% 0.58 HRS) ( ROT 157' / 0.83 hrs 79.7 %)
2/28/2012	0:00 - 15:00	15.00	DRLPRO	02	D	P		NOV ON LINE DRILL/SLIDE F/ 2483' TO 4401' (1918' @ 127 fph) MW 8.5, VIS 25, WOB 20, RPM 45, MM RPM 115, TQ 8/7, SPM 112, GPM 550 PSI OFF/ON 1633 / 2052, PU 137, SO 130, ROT 133 (SLIDE 308' 15.8% 3.5 HRS 23.3% OF TIME) ( ROT 1631' / 84.2% 11.5 HRS 76% )
	15:00 - 15:30	0.50	DRLPRO	07	A	P		NOV ON LINE SERVICE RIG
	15:30 - 0:00	8.50	DRLPRO	02	D	P		DRILL/SLIDE F/ 4401' TO 5580' (1179' @ 138 fph) MW 8.5, VIS 25, WOB 20, RPM 45, MM RPM 115, TQ 8/7, SPM 112, GPM 550 PSI OFF/ON 1900 / 2200, PU 165, SO 142, ROT 148 (SLIDE 47' 14.6% 7.83 HRS 9.8% OF TIME) ( ROT 1179' / 85.4% 8.5 HRS 90% ) NOV ON LINE

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE

Spud Date: 1/27/2012

Project: UTAH-UINTAH

Site: NBU 1022-11G2 PAD

Rig Name No: ENSIGN 146/146, CAPSTAR 310/310

Event: DRILLING

Start Date: 11/22/2011

End Date: 3/3/2012

Active Datum: RKB @5,045.01ft (above Mean Sea Level)

UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
2/29/2012	0:00 - 15:00	15.00	DRLPRO	02	D	P		DRILL/SLIDE F/ 5580' TO 7126' (1546 @ 103fph) MW 8.5, VIS 26 WOB 20, RPM 35 MM RPM 98 TQ 8/7 SPM 100, GPM 490 PSI OFF/ON 1650/1975 - DIFF 300/375 PU 219, SO 156, ROT 178 SLIDE 30'/.50 hrs 3% ROT 1516' / 97% NOV - DEWATERING 12' N & 10' W OF TARGET CENTER RIG SER
	15:00 - 15:30	0.50	DRLPRO	07	A	P		
	15:30 - 0:00	8.50	DRLPRO					DRILL/SLIDE F/ 7126' TO 7745' (619 @ 72fph) MW 11.5, VIS 36 WOB 20, RPM 35 MM RPM 98 TQ 8/7 SPM 100, GPM 490 PSI OFF/ON 2450/2850 - DIFF 300/400 PU 210, SO 158, ROT 173 ROT 100%) NOV - OFF LINE 17' N & 10' W OF TARGET CENTER MUD UP SYSTEM @ 7450'
3/1/2012	0:00 - 6:30	6.50	DRLPRO	02	D	P		DRILL/SLIDE F/7745' TO 7948' (203' @ 31fph) MW 11.5, VIS 36 WOB 20/25, RPM 35 MM RPM 98 TQ 8/11 SPM 100, GPM 490 PSI OFF/ON 2450/2850 - DIFF 300/400 PU 210, SO 158, ROT 173 ROT 100% NOV - OFF LINE 16' N & 11' W OF TARGET CENTER
	6:30 - 14:00	7.50	DRLPRO	06	A	P		TRIP FOR BIT, BACKREAM F/7948' TO 6281' - 21 STANDS, CONTINUE TRIP OUT TO 4641' PULLED TIGHT - BACKREAM F/4641' TO 4551', CONTINUE TRIP OUT, L/DN BIT & MUD MOTOR - BIT GRADE 1-2-WT-I-PR - POSSIBLE WEAK MOTOR
	14:00 - 20:30	6.50	DRLPRO	06	A	P		P/UP HUGHES Q506F & HUNTING MUD MOTOR .21 RPG 1.50 DEG, RIH BREAK CIRC @ 2254 8 5/8" CASING SHOE - RIH REAMED TIGHT SPOTS @ 6624' & 6700' - WASHED TO BOTTOM F/7900' TO 7948' - 10/20' FLARE FOR 30 MIN

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE

Spud Date: 1/27/2012

Project: UTAH-UINTAH

Site: NBU 1022-11G2 PAD

Rig Name No: ENSIGN 146/146, CAPSTAR 310/310

Event: DRILLING

Start Date: 11/22/2011

End Date: 3/3/2012

Active Datum: RKB @5,045.01ft (above Mean Sea Level)

UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	20:30 - 0:00	3.50	DRLPRO	02	D	P		DRLG F/7948' TO 8210' (262' @ 75fph) MW 11.9 VIS 36 WOB 20, RPM 35 MM RPM 98 TQ 8/11 SPM 100, GPM 480 PSI OFF/ON 2550/2900 - DIFF 300/350 PU 218, SO 167, ROT 186 ROT 100% NOV - OFF LINE 5.51' N & 14.25' W OF TARGET CENTER 4/6' FLARE WHILE DRILLING F/7950' TO 8210' - 10/25' CONNECTION FLARE
3/2/2012	0:00 - 6:00	6.00	DRLPRO	02	D	P		DRLG F/8210' TO 8635' (TD WELL) MW 12.4 VIS 38 WOB 20, RPM 35 MM RPM 99 TQ 8/11 SPM 96, GPM 470 PSI OFF/ON 2550/2900 - DIFF 300/350 PU 218, SO 167, ROT 186 ROT 100% NOV - OFF LINE 7.38' S & 15.27' W OF TARGET CENTER 4/6' FLARE WHILE DRILLING F/8210' TO 8600' - 10/15' CONNECTION FLARE
	6:00 - 7:30	1.50	DRLPRO	05	C	P		CIRC.
	7:30 - 14:30	7.00	DRLPRO	06	D	P		TRIP OUT FOR PRODUCTION CASING, BACK REAM F/ 8635' TO 7003' CONTINUE TRIP OUT - NO HOLE PROBLEMS ON TRIP OUT, L/DN MUD MOTOR & BIT - BIT GRADE 0-1-NO-A-I-NO-TD
	14:30 - 15:00	0.50	DRLPRO	14	B	P		RETRIEVE WEARBUSHING
	15:00 - 0:00	9.00	CSG	12	C	P		HPJSM, R/UP FRANKS & RUN 203 JTS 4.5" PROD CASING - FLOAT SHOE @ 8621', FLOAT COLLAR 8576', MESA MKR 6404', XOVER 4948' - CASING @ 8184' @ MIDNIGHT
3/3/2012	0:00 - 0:30	0.50	CSG	12	C	P		HPJSM, R/UP FRANKS & RUN 203 JTS 4.5" PROD CASING - FLOAT SHOE @ 8621', FLOAT COLLAR 8576', MESA MKR 6404', XOVER 4948' - RUN CASING TO 8621'
	0:30 - 3:00	2.50	CSG	05	D	P		CIRC BTMS UP, BTMS UP GAS REACHED SURFACE - FLOWLINE UNDER SUB FROM BOP TO SUB WALL PARTED - CLOSED ANNULAR AND CONTINUE CIRC TILL GAS CLEARED WELL BORE - REMOVED DAMAGED FLOWLINE FROM UNDER SUB & REPLACED WITH EXTRA PIECE OF FLOWLINE ON LOCATION - FLARE ON BTMS UP 30/35'

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE		Spud Date: 1/27/2012	
Project: UTAH-UINTAH		Site: NBU 1022-11G2 PAD	Rig Name No: ENSIGN 146/146, CAPSTAR 310/310
Event: DRILLING		Start Date: 11/22/2011	End Date: 3/3/2012
Active Datum: RKB @5,045.01ft (above Mean Sea Level)		UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	3:00 - 5:30	2.50	CSG	12	E	P		HPJSM, R/UP BJ & CEMENT 4.5" PROD CASING, TEST LINES 5000 PSI, PUMP 25 BBLS FRESH WATER, 500 SKS LEAD 13.0 PPG 1.77 YIELD, TAIL 940 SKS 14.3 PPG, 1.31 YIELD, DROPPED PLUG & DISPLACED W/133 BBLS FRESH WATER W/0.1 gal/bbl CLAYFIX II & 0.01 gal/bbl ALDACIDE G @ 2552 PSI, BUMPED PLUG @ 3185 PSI - FLOATS HELD W/1.50 BBLS RETURN, GOOD RETURNS DURING CMT JOB W/5 BBLS SPACER WATER TO SURFACE - R/DN BJ - TOP OF TAIL 3700'
	5:30 - 6:00	0.50	CSG	12	C	P		SET C-22 SLIPS WITH 90K STRING WEIGHT - WEATHERFORD REP DONDI HUMPHERY
	6:00 - 8:00	2.00	CSG	14	A	P		N/DN BOPE, ROUGH CUT CASING & LAY OUT, RELEASE RIG @ 08:00

1 General

1.1 Customer Information

Company	US ROCKIES REGION
Representative	
Address	

1.2 Well/Wellbore Information

Well	NBU 1022-11B4BS BLUE	Wellbore No.	OH
Well Name	NBU 1022-11B4BS	Wellbore Name	NBU 1022-11B4BS
Report No.	1	Report Date	4/5/2012
Project	UTAH-UJINTAH	Site	NBU 1022-11G2 PAD
Rig Name/No.		Event	COMPLETION
Start Date	4/5/2012	End Date	4/26/2012
Spud Date	1/27/2012	Active Datum	RKB @5,045.01ft (above Mean Sea Level)
UWI	SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0		

1.3 General

Contractor	CASED HOLE SOLUTIONS	Job Method		Supervisor	DAVE DANIELS
Perforated Assembly	PRODUCTION CASING	Conveyed Method			

1.4 Initial Conditions

Fluid Type		Fluid Density	
Surface Press		Estimate Res Press	
TVD Fluid Top		Fluid Head	
Hydrostatic Press		Press Difference	
Balance Cond	NEUTRAL		

1.5 Summary

Gross Interval	6,470.0 (ft)-8,344.0 (ft)	Start Date/Time	4/9/2012 12:00AM
No. of Intervals	33	End Date/Time	4/9/2012 12:00AM
Total Shots	142	Net Perforation Interval	47.00 (ft)
Avg Shot Density	3.02 (shot/ft)	Final Surface Pressure	
		Final Press Date	

2 Intervals

2.1 Perforated Interval

Date	Formation/Reservoir	CCL@ (ft)	CCL-T S (ft)	MD Top (ft)	MD Base (ft)	Shot Density (shot/ft)	Misfires/Add. Shot	Diameter (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
4/9/2012 12:00AM	MESAVERDE/			6,470.0	6,471.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO	N

2.1 Perforated Interval (Continued)

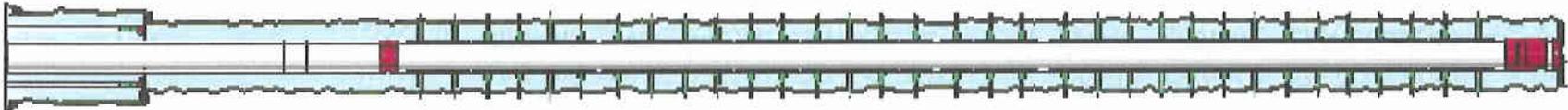
Date	Formation/ Reservoir	CCL@ (ft)	CCL-T S (ft)	MD Top (ft)	MD Base (ft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
4/9/2012 12:00AM	MESAVERDE/			6,533.0	6,534.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,594.0	6,596.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,632.0	6,633.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,648.0	6,649.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,662.0	6,664.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,782.0	6,783.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,832.0	6,833.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,902.0	6,903.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			6,930.0	6,932.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,000.0	7,001.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,028.0	7,030.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,114.0	7,116.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,164.0	7,165.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,214.0	7,215.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,294.0	7,297.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,510.0	7,512.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,588.0	7,591.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,628.0	7,631.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,888.0	7,889.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,934.0	7,935.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			7,963.0	7,964.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	

2.1 Perforated Interval (Continued)

Date	Formation/Reservoir	CCL@ (ft)	CCL-T S (ft)	MD Top (ft)	MD Base (ft)	Shot Density (shot/ft)	Misfires/Add. Shot	Diameter (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
4/9/2012 12:00AM	MESAVERDE/			8,000.0	8,001.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,012.0	8,013.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,051.0	8,052.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,070.0	8,072.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,115.0	8,116.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,139.0	8,140.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,156.0	8,157.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,167.0	8,168.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,214.0	8,215.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,277.0	8,278.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
4/9/2012 12:00AM	MESAVERDE/			8,342.0	8,344.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	

3 Plots

3.1 Wellbore Schematic



**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE		Spud Date: 1/27/2012	
Project: UTAH-UINTAH		Site: NBU 1022-11G2 PAD	Rig Name No: MILES 3/3
Event: COMPLETION		Start Date: 4/5/2012	End Date: 4/26/2012
Active Datum: RKB @5,045.01ft (above Mean Sea Level)		UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
1/27/2012	-							
4/7/2012	9:30 - 11:00	1.50	COMP	33		P		FILL SURFACE CSG. MIRU B&C QUICK TEST. PSI TEST T/ 1000 PSI. HELD FOR 15 MIN LOST 13 PSI. PSI TEST T/ 3500 PSI. HELD FOR 15 MIN LOST 21 PSI. 1ST PSI TEST T/ 7000 PSI. HELD FOR 30 MIN LOST 58 PSI. NO COMMUNICATION OR MIGRATION WITH SURFACE CSG BLEED OFF PSI. MOVE T/ NEXT WELL. SWIFW
4/14/2012	7:00 - 10:00	3.00	COMP	37		P		PERF STG 1)PU 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH PERF AS PER PERF DESIGN. POOH. SWIFW
4/16/2012	7:00 - 18:00	11.00	COMP	36	B	P		FRAC STG 1)WHP 1731 PSI, BRK 4191 PSI @ 4.7 BPM. ISIP 2662 PSI, FG .72 CALC HOLES OPEN @ 50.1 BPM @ 4774 PSI = 100% HOLES OPEN. (24/24 HOLES OPEN) ISIP 2546 PSI, FG .75, NPI -116 PSI. MP 6181 PSI, MR 50.6 BPM, AP 4741 PSI, AR 50.3 BPM PUMPED 30/50 OTTAWA SAND IN THIS STAGE X-OVER FOR WL  PERF STG 2)PU 4 1/2 8K HAL CBP & 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 8102' P/U PERF AS PER PERF DESIGN. POOH. SWIFN

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE		Spud Date: 1/27/2012	
Project: UTAH-UINTAH		Site: NBU 1022-11G2 PAD	Rig Name No: MILES 3/3
Event: COMPLETION		Start Date: 4/5/2012	End Date: 4/26/2012
Active Datum: RKB @5,045.01ft (above Mean Sea Level)		UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
4/17/2012	7:00 - 18:00	11.00	COMP	36	B	P		<p>FRAC STG 2)WHP 2044 PSI, BRK 3321 PSI @ 4.1 BPM. ISIP 2201 PSI, FG .71.  CALC HOLES OPEN @ 50.2 BPM @ 5091 PSI = 93% HOLES OPEN. (22/24 HOLES OPEN)  ISIP 2650 PSI, FG .77, NPI 449 PSI.  MP 5802 PSI, MR 50.5 BPM, AP 5000 PSI, AR 50.3 BPM  PUMPED 30/50 OTTAWA SAND IN THIS STAGE X-OVER FOR WL</p> <p>PERF STG 3)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 7661' P/U PERF AS PER PERF DESIGN. POOH. X-OVER FOR FRAC CREW</p> <p>FRAC STG 3)WHP 1327 PSI, BRK 3589 PSI @ 4.4 BPM. ISIP 2018 PSI, FG .71.  CALC HOLES OPEN @ 50.2 BPM @ 4829 PSI = 93% HOLES OPEN. (22/24 HOLES OPEN)  ISIP 2220 PSI, FG .73, NPI 202 PSI.  MP 6567 PSI, MR 50.6 BPM, AP 4656 PSI, AR 50.4 BPM  PUMPED 30/50 OTTAWA SAND IN THIS STAGE X-OVER FOR WL</p> <p>PERF STG 4)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 7327' P/U PERF AS PER PERF DESIGN. POOH. SWIFN</p>
4/18/2012	7:00 - 18:00	11.00	COMP	36	B	P		<p>FRAC STG 4)WHP 1550 PSI, BRK 3110 PSI @ 4.8 BPM. ISIP 2511 PSI, FG .79  CALC HOLES OPEN @ 50.3 BPM @ 5030 PSI = 100% HOLES OPEN. (24/24 HOLES OPEN)  ISIP 2210 PSI, FG .75, NPI -301 PSI.  MP 6344 PSI, MR 50.8 BPM, AP 4901 PSI, AR 50.3 BPM  PUMPED 30/50 OTTAWA SAND IN THIS STAGE X-OVER FOR WL</p> <p>PERF STG 5)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 7060' P/U PERF AS PER PERF DESIGN. POOH. X-OVER FOR FRAC CREW</p> <p>FRAC STG 5)WHP 1805 PSI, BRK 2017 PSI @ 2.3 BPM. ISIP 1797 PSI, FG .70.  CALC HOLES OPEN @ 50.2 BPM @ 4481 PSI = 95% HOLES OPEN. (23/24 HOLES OPEN)  ISIP 2084 PSI, FG .74, NPI 287 PSI.  MP 4868 PSI, MR 50.8 BPM, AP 3977 PSI, AR 50.4 BPM  PUMPED 30/50 OTTAWA SAND IN THIS STAGE. SWIFN</p>

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE

Spud Date: 1/27/2012

Project: UTAH-UINTAH

Site: NBU 1022-11G2 PAD

Rig Name No: MILES 3/3

Event: COMPLETION

Start Date: 4/5/2012

End Date: 4/26/2012

Active Datum: RKB @5,045.01ft (above Mean Sea Level)

UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
4/19/2012	7:00 - 15:00	8.00	COMP	36	B	P		<p>PERF STG 6)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 6694' P/U PERF AS PER PERF DESIGN. POOH. X-OVER FOR FRAC CREW</p> <p>FRAC STG 6)WHP 259 PSI, BRK 2375 PSI @ 4.1 BPM. ISIP 707 PSI, FG .55. CALC HOLES OPEN @ 50.2 BPM @ 3766 PSI = 82% HOLES OPEN. (20/24 HOLES OPEN) ISIP 2060 PSI, FG .75, NPI 1353 PSI. MP 4469 PSI, MR 50.5 BPM, AP 3858 PSI, AR 50.2 BPM PUMPED 30/50 OTTAWA SAND IN THIS STAGE X-OVER FOR WL</p> <p>PU 4 1/2" CBP RIH SET KILL PLUG @ 6420' POOH , RD FRAC &amp; WL CREWS SWFN</p> <p>TOTAL SAND= 172,038# TOTAL CLFL= 8,037 BBLs</p>
4/25/2012	11:00 - 12:30	1.50	COMP	30	A	P		<p>MOVE OVER FROM 11B4CS. RUSU. ND WH. NU BOP. RU FLOOR AND TBG EQUIP. SPOT TBG.</p>
	12:30 - 18:00	5.50	COMP	31	I	P		<p>MU 3-7/8" BIT, POBS, AND 1.87" XN. RIH AS MEAS AND PU 2-3/8" L-80 TBG. TAG AT 6382' W/ #202. RU DRLG EQUIP. FILL TBG AND PRES TEST CSG TO 3000#. GOOD. 201-JTS IN, EOT AT 6372'. SDFN.</p>
4/26/2012	6:30 - 6:45	0.25	COMP	48		P		<p>JSA- D/O PLUGS. LAND TBG.</p>

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-11B4BS BLUE

Spud Date: 1/27/2012

Project: UTAH-UINTAH

Site: NBU 1022-11G2 PAD

Rig Name No: MILES 3/3

Event: COMPLETION

Start Date: 4/5/2012

End Date: 4/26/2012

Active Datum: RKB @5,045.01ft (above Mean Sea Level)

UWI: SW/NE/0/10/S/22/E/11/0/0/26/PM/N/1633/E/0/2601/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
------	-------------------	------------------	-------	------	-------------	-----	-----------------	-----------

6:45 - 14:30

7.75

COMP

44

C

P

EST CIRC AND D/O PLUGS.

#1- C/O 18' SAND TO CBP AT 6420'. D/O IN 4 MIN.  
300# INC. 0# FCP. RIH.  
#2- C/O 30' SAND TO CBP AT 6694'. D/O IN 10 MIN.  
400# INC. 0-200# FCP. RIH.  
#3- C/O 30' SAND TO CBP AT 7060'. D/O IN 8 MIN.  
300# INC. 100-300# FCP. RIH.  
#4- C/O 90' SAND TO CBP AT 7327'. D/O IN 8 MIN.  
500# INC. 200-500# FCP. RIH.  
#5- C/O 30' SAND TO CBP AT 7661'. D/O IN 5 MIN.  
500# INC. 400-1500# FCP. RIH.  
#6- C/O 30' SAND TO CBP AT 8102'. D/O IN 6 MIN.  
500# INC. 800-1200# FCP. RIH.  
PBTD AT 8576', BTM PERF AT 8344'. C/O TO 8463'  
W/ 267-JTS IN, (119' RATHOLE). CIRC CLEAN.

RD PWR SWMVEL. POOH AS LD 20-JTS TBG. PU 4"  
10K HANGER. LUB IN AND LAND 247-JTS 2-3/8"  
L-80 TBG W/ EOT AT 7842.96'. RD FLOOR. ND BOP.  
NU WH. HOOK UP FLOW LINES. POBS AT 1800#.  
PRES TEST LINES TO 3000#. SITP 600#. SICP 2650#.  
TURN OVER TO FBC AND SALES. RDSU.

TBG DETAIL	KB	14.00
4" 10K HANGER		.83
247-JTS 2-3/8" L-80		7825.93
1.87" XN POBS		2.20
EOT		7842.96

283-JTS DELIVERED  
36-JTS TRANSFERED TO 11B1CS

TLTR 8037, LRT 1100, LLTR 6937.

4/27/2012

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Project: UTAH - UTM (feet), NAD27, Zone 12N  
 Site: UINTAH, NBU 1022-11G2 Pad  
 Well: NBU 1022-11B4BS  
 Wellbore: NBU 1022-11B4BS  
 Section:  
 SHL:  
 Design: NBU 1022-11B4BS  
 Latitude: 39.966253  
 Longitude: -109.406320  
 GL: 5031.00  
 KB: 14' RKB + 5031' GL @ 5045.00ft

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4025.00	4158.65	WASATCH
4625.00	4758.66	top of cylinder
6271.00	6404.70	MESAVERDE
8436.00	8569.74	SEGO

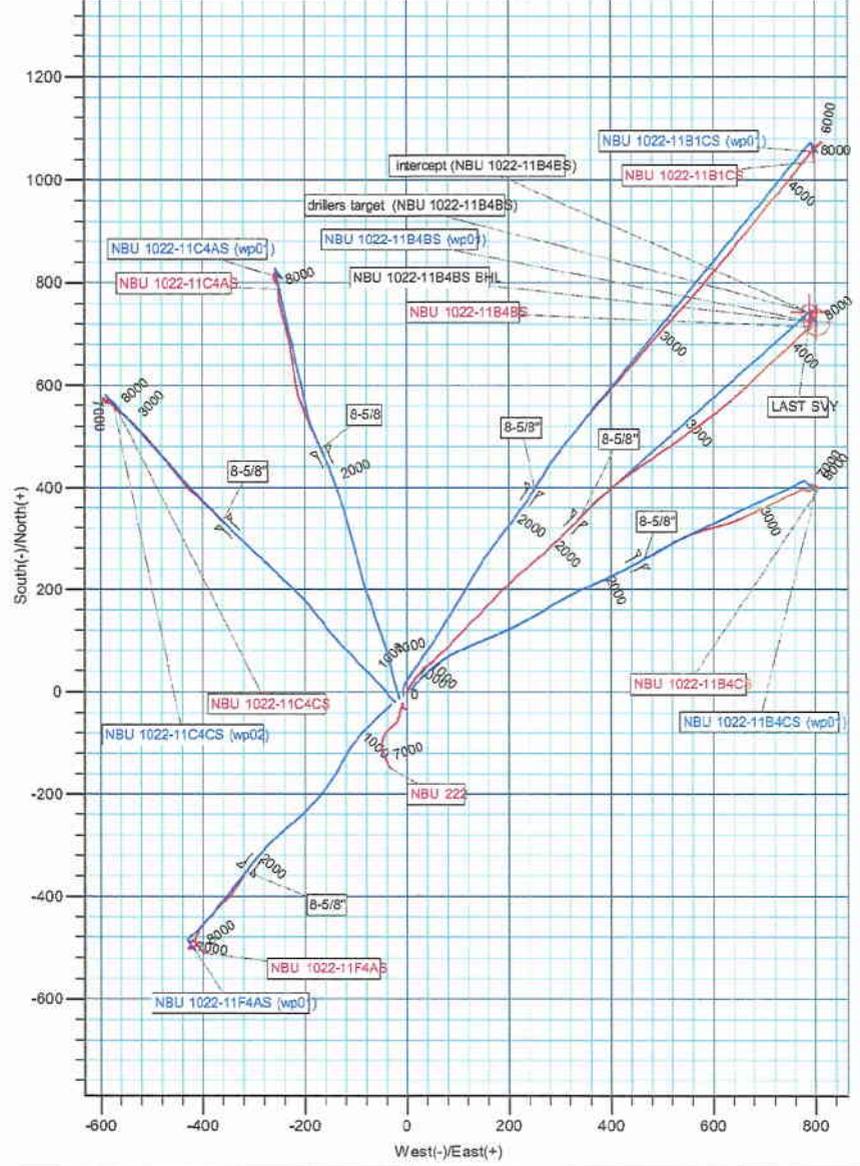
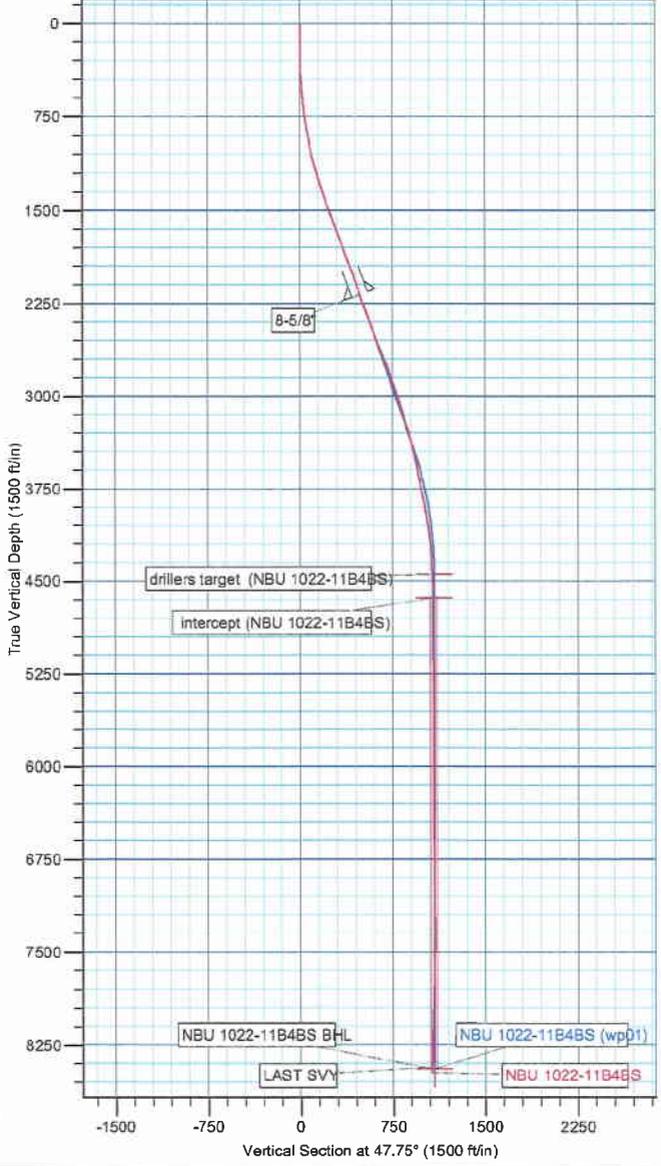
WELL DETAILS: NBU 1022-11C4CS					
+N/-S	+E/-W	Northing	Ground Level: Easting	5031.00 Latitude	Longitude
-18.21	-23.82	14517727.10	2086946.31	39.966203	-109.406405
					Slot

CASING DETAILS			
TVD	MD	Name	Size
2164.25	2249.50	8-5/8"	8-5/8"

Azimuths to True North  
 Magnetic North: 10.95°  
 Magnetic Field  
 Strength: 52260.2nT  
 Dip Angle: 65.84°  
 Date: 2/1/2010  
 Model: IGRF2010

DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
drillers target (NBU 1022-11B4CS)	3736.00	413.73	778.26	14518173.30	2087740.55	39.967389	-109.403543	Circle (Radius: 15.00)
Intercept (NBU 1022-11B4CS)	4625.00	410.17	782.35	14518169.81	2087744.71	39.967379	-109.403528	Point
NBU 1022-11B4CS BHL	8436.00	393.73	801.25	14518153.71	2087763.90	39.967334	-109.403461	Circle (Radius: 25.00)

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	
2210.00	21.98	61.76	2127.62	252.80	451.74	0.00	0.00	507.09	
2360.00	21.98	61.76	2266.71	279.37	501.20	0.00	0.00	563.20	
2642.41	16.41	64.62	2533.33	321.51	583.87	2.00	171.77	655.97	
2932.00	16.41	64.62	2811.12	356.57	657.78	0.00	0.00	737.77	
3869.64	0.00	0.00	3736.00	413.73	778.26	1.75	180.00	871.11	
3995.17	0.38	131.02	3861.52	413.46	778.57	0.30	131.02	871.27	
8569.74	0.38	131.02	8436.00	393.73	801.25	0.00	0.00	882.99	



# Anadarko Petroleum Corp

## Survey Report

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Site:</b>	UINTAH_NBU 1022-11G2 Pad	<b>MD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Well:</b>	NBU 1022-11B4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-11B4BS	<b>Database:</b>	edmp

<b>Project</b> UTAH - UTM (feet), NAD27, Zone 12N			
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b> UINTAH_NBU 1022-11G2 Pad			
<b>Site Position:</b>		<b>Northing:</b>	14,517,752.07 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,086,977.54 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	39.966270
		<b>Longitude:</b>	-109.406292
		<b>Grid Convergence:</b>	1.02 °

<b>Well</b> NBU 1022-11B4BS			
<b>Well Position</b>	+N-S	0.00 ft	<b>Northing:</b> 14,517,745.73 usft
	+E-W	0.00 ft	<b>Easting:</b> 2,086,969.80 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b> ft
			<b>Latitude:</b> 39.966253
			<b>Longitude:</b> -109.406320
			<b>Ground Level:</b> 5,031.00 ft

<b>Wellbore</b> NBU 1022-11B4BS					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/1/2012	10.95	65.84	52,260

<b>Design</b> NBU 1022-11B4BS					
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	5.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N-S (ft)</b>	<b>+E-W (ft)</b>	<b>Direction (°)</b>	
	5.00	0.00	0.00	47.75	

<b>Survey Program</b> Date 3/7/2012					
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
193.00	2,190.00	Survey #1 (NBU 1022-11B4BS)	MWD	MWD - STANDARD	
2,266.00	8,635.00	Survey #2 (NBU 1022-11B4BS)	MWD	MWD - STANDARD	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00
193.00	0.35	320.95	193.00	0.45	-0.36	0.03	0.19	0.19	0.00
255.00	0.53	359.27	255.00	0.88	-0.48	0.23	0.54	0.29	61.81
345.00	2.20	27.13	344.97	2.83	0.30	2.13	1.94	1.86	30.96
438.00	3.34	27.83	437.86	6.82	2.38	6.34	1.23	1.23	0.75
532.00	5.01	31.79	531.61	12.73	5.82	12.86	1.80	1.78	4.21
625.00	6.07	35.48	624.17	20.18	10.81	21.57	1.20	1.14	3.97
720.00	6.87	43.43	718.57	28.40	17.63	32.15	1.26	0.84	8.37
814.00	8.62	46.20	811.71	37.36	26.58	44.80	1.90	1.86	2.95
908.00	10.64	46.46	904.38	48.22	37.96	60.52	2.15	2.15	0.28

# Anadarko Petroleum Corp

## Survey Report

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Site:</b>	UINTAH_NBU 1022-11G2 Pad	<b>MD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Well:</b>	NBU 1022-11B4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-11B4BS	<b>Database:</b>	edmp

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,001.00	12.40	46.46	995.50	61.01	51.42	79.08	1.89	1.89	0.00
1,094.00	14.42	46.99	1,085.96	75.79	67.13	100.65	2.18	2.17	0.57
1,187.00	16.09	44.44	1,175.68	92.89	84.62	125.09	1.93	1.80	-2.74
1,280.00	18.20	42.86	1,264.54	112.74	103.53	152.43	2.32	2.27	-1.70
1,376.00	18.64	43.65	1,355.62	134.83	124.31	182.67	0.53	0.46	0.82
1,470.00	19.96	44.27	1,444.34	157.19	145.88	213.67	1.42	1.40	0.66
1,566.00	20.40	44.09	1,534.45	180.94	168.96	246.73	0.46	0.46	-0.19
1,661.00	20.14	45.76	1,623.56	204.24	192.20	279.59	0.67	-0.27	1.76
1,757.00	20.49	48.22	1,713.59	226.97	216.57	312.91	0.96	0.36	2.56
1,851.00	20.31	49.71	1,801.70	248.48	241.28	345.67	0.58	-0.19	1.59
1,945.00	20.49	47.87	1,889.80	270.06	265.93	378.43	0.71	0.19	-1.96
2,039.00	19.96	46.55	1,978.01	292.14	289.78	410.92	0.74	-0.56	-1.40
2,133.00	19.96	45.41	2,066.36	314.43	312.85	442.99	0.41	0.00	-1.21
2,190.00	19.79	44.62	2,119.97	328.13	326.56	462.35	0.56	-0.30	-1.39
2,266.00	19.61	41.49	2,191.52	346.84	344.04	487.87	1.41	-0.24	-4.12
2,357.00	19.55	46.31	2,277.27	368.80	365.17	518.27	1.78	-0.07	5.30
2,447.00	19.71	48.94	2,362.04	389.17	387.50	548.50	1.00	0.18	2.92
2,538.00	19.88	52.73	2,447.66	408.62	411.39	579.26	1.42	0.19	4.16
2,628.00	21.25	54.86	2,531.93	427.28	436.90	610.69	1.73	1.52	2.37
2,719.00	22.56	55.86	2,616.35	446.56	464.84	644.34	1.50	1.44	1.10
2,810.00	22.75	55.86	2,700.33	466.24	493.85	679.04	0.21	0.21	0.00
2,900.00	21.00	54.86	2,783.85	485.29	521.44	712.27	1.99	-1.94	-1.11
2,991.00	18.69	52.86	2,869.44	503.48	546.40	742.98	2.65	-2.54	-2.20
3,082.00	18.94	55.48	2,955.58	520.65	570.19	772.14	0.97	0.27	2.88
3,172.00	17.94	52.98	3,040.96	537.27	593.30	800.41	1.42	-1.11	-2.78
3,263.00	16.94	50.98	3,127.78	554.06	614.79	827.61	1.28	-1.10	-2.20
3,354.00	18.25	49.36	3,214.52	571.69	635.90	855.09	1.54	1.44	-1.78
3,444.00	15.13	46.73	3,300.72	588.92	655.15	880.93	3.57	-3.47	-2.92
3,535.00	12.94	45.11	3,389.00	604.25	671.02	902.98	2.44	-2.41	-1.78
3,626.00	12.06	46.11	3,477.84	618.04	685.09	922.66	1.00	-0.97	1.10
3,717.00	11.25	48.11	3,566.96	630.55	698.55	941.04	0.99	-0.89	2.20
3,807.00	11.31	44.98	3,655.22	642.66	711.32	958.64	0.68	0.07	-3.48
3,898.00	13.25	48.73	3,744.14	655.85	725.47	977.98	2.30	2.13	4.12
3,988.00	11.25	48.73	3,832.08	668.44	739.82	997.07	2.22	-2.22	0.00
4,079.00	9.94	46.36	3,921.53	679.72	752.18	1,013.80	1.52	-1.44	-2.60
4,169.00	8.88	45.86	4,010.32	689.92	762.78	1,028.51	1.18	-1.18	-0.56
4,260.00	7.50	44.11	4,100.39	699.08	771.96	1,041.45	1.54	-1.52	-1.92
4,351.00	6.00	48.36	4,190.76	706.50	779.65	1,052.14	1.74	-1.65	4.87
4,442.00	3.94	55.23	4,281.41	711.44	785.77	1,059.99	2.35	-2.26	7.55
4,532.00	2.19	44.23	4,371.28	714.44	789.51	1,064.78	2.04	-1.94	-12.22
4,607.32	1.98	52.74	4,446.55	716.26	791.55	1,067.51	0.50	-0.28	11.30
<b>drillers target (NBU 1022-11B4BS)</b>									
4,623.00	1.94	54.73	4,462.22	716.58	791.98	1,068.04	0.50	-0.24	12.71

# Anadarko Petroleum Corp

## Survey Report

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Site:</b>	UINTAH_NBU 1022-11G2 Pad	<b>MD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Well:</b>	NBU 1022-11B4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-11B4BS	<b>Database:</b>	edmp

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,714.00	1.06	337.73	4,553.19	718.24	792.92	1,069.86	2.19	-0.97	-84.62	
4,797.24	1.00	339.00	4,636.42	719.64	792.37	1,070.38	0.07	-0.07	1.53	
<b>intercept (NBU 1022-11B4BS)</b>										
4,804.00	1.00	339.11	4,643.18	719.75	792.32	1,070.43	0.07	-0.07	1.62	
4,895.00	0.75	339.23	4,734.17	721.05	791.83	1,070.93	0.27	-0.27	0.13	
4,986.00	0.81	337.48	4,825.16	722.20	791.37	1,071.37	0.07	0.07	-1.92	
5,077.00	0.69	321.61	4,916.15	723.22	790.79	1,071.62	0.26	-0.13	-17.44	
5,167.00	0.44	319.61	5,006.15	723.91	790.23	1,071.67	0.28	-0.28	-2.22	
5,258.00	1.94	8.98	5,097.13	725.70	790.24	1,072.88	1.85	1.65	54.25	
5,349.00	1.50	357.98	5,188.09	728.41	790.44	1,074.85	0.60	-0.48	-12.09	
5,440.00	0.88	358.23	5,279.07	730.30	790.37	1,076.08	0.68	-0.68	0.27	
5,530.00	0.38	357.98	5,369.06	731.29	790.34	1,076.72	0.56	-0.56	-0.28	
5,621.00	0.13	43.73	5,460.06	731.66	790.40	1,077.02	0.33	-0.27	50.27	
5,712.00	0.13	137.48	5,551.06	731.66	790.54	1,077.12	0.21	0.00	103.02	
5,802.00	0.63	151.36	5,641.06	731.15	790.85	1,077.00	0.56	0.56	15.42	
5,893.00	0.75	146.11	5,732.05	730.22	791.42	1,076.80	0.15	0.13	-5.77	
5,984.00	0.63	319.36	5,823.05	730.10	791.43	1,076.73	1.51	-0.13	190.39	
6,074.00	0.56	349.48	5,913.04	730.91	791.03	1,076.97	0.35	-0.08	33.47	
6,165.00	0.31	354.23	6,004.04	731.59	790.92	1,077.35	0.28	-0.27	5.22	
6,256.00	0.25	4.48	6,095.04	732.04	790.91	1,077.64	0.09	-0.07	11.26	
6,346.00	0.13	77.23	6,185.04	732.25	791.03	1,077.87	0.27	-0.13	80.83	
6,437.00	0.44	105.36	6,276.04	732.18	791.46	1,078.15	0.36	0.34	30.91	
6,528.00	0.75	133.61	6,367.03	731.68	792.23	1,078.38	0.46	0.34	31.04	
6,618.00	1.00	15.84	6,457.03	732.03	792.87	1,079.09	1.67	0.28	-130.86	
6,709.00	0.81	1.86	6,548.02	733.44	793.11	1,080.21	0.32	-0.21	-15.36	
6,800.00	0.63	23.11	6,639.01	734.54	793.33	1,081.11	0.35	-0.20	23.35	
6,890.00	0.44	28.98	6,729.01	735.30	793.69	1,081.89	0.22	-0.21	6.52	
6,981.00	0.31	45.11	6,820.00	735.78	794.03	1,082.47	0.18	-0.14	17.73	
7,072.00	0.56	58.98	6,911.00	736.18	794.59	1,083.15	0.30	0.27	15.24	
7,163.00	0.94	347.36	7,002.00	737.14	794.81	1,083.96	1.02	0.42	-78.70	
7,253.00	0.44	312.36	7,091.99	738.09	794.39	1,084.29	0.70	-0.56	-38.89	
7,344.00	1.56	336.36	7,182.97	739.46	793.63	1,084.65	1.29	1.23	26.37	
7,435.00	0.75	324.86	7,273.96	741.08	792.79	1,085.12	0.92	-0.89	-12.64	
7,525.00	0.19	292.86	7,363.95	741.62	792.32	1,085.13	0.66	-0.62	-35.56	
7,616.00	0.31	239.61	7,454.95	741.56	791.97	1,084.82	0.27	0.13	-58.52	
7,707.00	0.63	195.98	7,545.95	740.95	791.62	1,084.16	0.50	0.35	-47.95	
7,797.00	0.94	201.23	7,635.94	739.79	791.21	1,083.08	0.35	0.34	5.83	
7,887.00	1.50	190.36	7,725.92	737.94	790.73	1,081.48	0.67	0.62	-12.08	
7,980.00	1.94	200.98	7,818.88	735.27	789.95	1,079.11	0.58	0.47	11.42	
8,070.00	2.00	189.23	7,908.82	732.30	789.15	1,076.52	0.45	0.07	-13.06	
8,161.00	1.94	188.48	7,999.77	729.21	788.67	1,074.09	0.07	-0.07	-0.82	
8,251.00	2.00	185.48	8,089.72	726.14	788.30	1,071.74	0.13	0.07	-3.33	
8,342.00	1.69	197.61	8,180.67	723.28	787.74	1,069.41	0.55	-0.34	13.33	
8,433.00	1.69	184.23	8,271.63	720.66	787.23	1,067.27	0.43	0.00	-14.70	

# Anadarko Petroleum Corp

## Survey Report

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Site:</b>	UINTAH_NBU 1022-11G2 Pad	<b>MD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Well:</b>	NBU 1022-11B4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-11B4BS	<b>Database:</b>	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100uaff)	Turn Rate (°/100usft)
8,523.00	1.56	186.98	8,361.59	718.12	786.99	1,065.38	0.17	-0.14	3.06
8,585.00	1.78	177.07	8,423.57	716.32	786.93	1,064.14	0.58	0.35	-15.98
<b>LAST SVY - NBU 1022-11B4BS BHL</b>									
8,635.00	1.78	177.07	8,473.54	714.77	787.01	1,063.15	0.00	0.00	0.00
<b>PROJECTION</b>									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,585.00	8,423.57	716.32	786.93	LAST SVY
8,635.00	8,473.54	714.77	787.01	PROJECTION

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



# Anadarko Petroleum Corp

## Survey Report - Geographic

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Site:</b>	UINTAH_NBU 1022-11G2 Pad	<b>MD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Well:</b>	NBU 1022-11B4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-11B4BS	<b>Database:</b>	edmp

<b>Project</b>	UTAH - UTM (feet), NAD27, Zone 12N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	UINTAH_NBU 1022-11G2 Pad				
<b>Site Position:</b>		<b>Northing:</b>	14,517,752.07 usft	<b>Latitude:</b>	39.966270
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,086,977.54 usft	<b>Longitude:</b>	-109.406292
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	1.02 °

<b>Well</b>	NBU 1022-11B4BS					
<b>Well Position</b>	+N-S	0.00 ft	<b>Northing:</b>	14,517,745.73 usft	<b>Latitude:</b>	39.966253
	+E-W	0.00 ft	<b>Easting:</b>	2,086,969.80 usft	<b>Longitude:</b>	-109.406320
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	5,031.00 ft

<b>Wellbore</b>	NBU 1022-11B4BS				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2/1/2012	10.95	65.84	52,260

<b>Design</b>	NBU 1022-11B4BS				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	5.00
<b>Vertical Section:</b>		<b>Depth From (TVD) (ft)</b>	<b>+N-S (ft)</b>	<b>+E-W (ft)</b>	<b>Direction (°)</b>
		5.00	0.00	0.00	47.75

<b>Survey Program</b>	<b>Date</b>	3/7/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
193.00	2,190.00	Survey #1 (NBU 1022-11B4BS)	MWD	MWD - STANDARD	
2,266.00	8,635.00	Survey #2 (NBU 1022-11B4BS)	MWD	MWD - STANDARD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N-S (ft)</b>	<b>+E-W (ft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>	
5.00	0.00	0.00	5.00	0.00	0.00	14,517,745.73	2,086,969.80	39.966253	-109.406320	
193.00	0.35	320.95	193.00	0.45	-0.36	14,517,746.17	2,086,969.43	39.966254	-109.406322	
255.00	0.53	359.27	255.00	0.88	-0.48	14,517,746.61	2,086,969.30	39.966256	-109.406322	
345.00	2.20	27.13	344.97	2.83	0.30	14,517,748.57	2,086,970.05	39.966261	-109.406319	
438.00	3.34	27.83	437.86	6.82	2.38	14,517,752.59	2,086,972.06	39.966272	-109.406312	
532.00	5.01	31.79	531.61	12.73	5.82	14,517,758.57	2,086,975.39	39.966288	-109.406300	
625.00	6.07	35.48	624.17	20.18	10.81	14,517,766.11	2,086,980.25	39.966309	-109.406282	
720.00	6.87	43.43	718.57	28.40	17.63	14,517,774.45	2,086,986.93	39.966331	-109.406257	
814.00	8.62	46.20	811.71	37.36	26.58	14,517,783.56	2,086,995.72	39.966356	-109.406225	
908.00	10.64	46.46	904.38	48.22	37.96	14,517,794.62	2,087,006.90	39.966385	-109.406185	
1,001.00	12.40	46.46	995.50	61.01	51.42	14,517,807.65	2,087,020.13	39.966421	-109.406137	

# Anadarko Petroleum Corp

## Survey Report - Geographic

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Site:</b>	UINTAH_NBU 1022-11G2 Pad	<b>MD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Well:</b>	NBU 1022-11B4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-11B4BS	<b>Database:</b>	edmp

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
1,094.00	14.42	46.99	1,085.96	75.79	67.13	14,517,822.71	2,087,035.57	39.966461	-109.406081	
1,187.00	16.09	44.44	1,175.68	92.89	84.62	14,517,840.12	2,087,052.75	39.966508	-109.406018	
1,280.00	18.20	42.86	1,264.54	112.74	103.53	14,517,860.31	2,087,071.30	39.966563	-109.405951	
1,376.00	18.64	43.65	1,355.62	134.83	124.31	14,517,882.76	2,087,091.69	39.966623	-109.405877	
1,470.00	19.96	44.27	1,444.34	157.19	145.88	14,517,905.51	2,087,112.85	39.966685	-109.405800	
1,566.00	20.40	44.09	1,534.45	180.94	168.96	14,517,929.66	2,087,135.51	39.966750	-109.405717	
1,661.00	20.14	45.76	1,623.56	204.24	192.20	14,517,953.38	2,087,158.32	39.966814	-109.405634	
1,757.00	20.49	48.22	1,713.59	226.97	216.57	14,517,976.54	2,087,182.28	39.966876	-109.405548	
1,851.00	20.31	49.71	1,801.70	248.48	241.28	14,517,998.48	2,087,206.61	39.966935	-109.405459	
1,945.00	20.49	47.87	1,889.80	270.06	265.93	14,518,020.51	2,087,230.86	39.966995	-109.405371	
2,039.00	19.96	46.55	1,978.01	292.14	289.78	14,518,043.00	2,087,254.31	39.967055	-109.405286	
2,133.00	19.96	45.41	2,066.36	314.43	312.85	14,518,065.71	2,087,276.99	39.967116	-109.405204	
2,190.00	19.79	44.62	2,119.97	328.13	326.56	14,518,079.65	2,087,290.44	39.967154	-109.405155	
2,266.00	19.61	41.49	2,191.52	346.84	344.04	14,518,098.67	2,087,307.59	39.967205	-109.405093	
2,357.00	19.55	46.31	2,277.27	368.80	365.17	14,518,121.00	2,087,328.33	39.967266	-109.405017	
2,447.00	19.71	48.94	2,362.04	389.17	387.50	14,518,141.77	2,087,350.29	39.967322	-109.404938	
2,538.00	19.88	52.73	2,447.66	408.62	411.39	14,518,161.64	2,087,373.82	39.967375	-109.404852	
2,628.00	21.25	54.86	2,531.93	427.28	436.90	14,518,180.75	2,087,399.00	39.967426	-109.404761	
2,719.00	22.56	55.86	2,616.35	446.56	464.84	14,518,200.53	2,087,426.59	39.967479	-109.404662	
2,810.00	22.75	55.86	2,700.33	466.24	493.85	14,518,220.72	2,087,455.24	39.967533	-109.404558	
2,900.00	21.00	54.86	2,783.85	485.29	521.44	14,518,240.26	2,087,482.49	39.967586	-109.404460	
2,991.00	18.69	52.86	2,869.44	503.48	546.40	14,518,258.89	2,087,507.12	39.967635	-109.404371	
3,082.00	18.94	55.48	2,955.58	520.65	570.19	14,518,276.49	2,087,530.60	39.967683	-109.404286	
3,172.00	17.94	52.98	3,040.96	537.27	593.30	14,518,293.52	2,087,553.40	39.967728	-109.404203	
3,263.00	16.94	50.98	3,127.78	554.06	614.79	14,518,310.69	2,087,574.59	39.967774	-109.404127	
3,354.00	18.25	49.36	3,214.52	571.69	635.90	14,518,328.69	2,087,595.39	39.967823	-109.404051	
3,444.00	15.13	46.73	3,300.72	588.92	655.15	14,518,346.27	2,087,614.33	39.967870	-109.403983	
3,535.00	12.94	45.11	3,389.00	604.25	671.02	14,518,361.88	2,087,629.92	39.967912	-109.403926	
3,626.00	12.06	46.11	3,477.84	618.04	685.09	14,518,375.91	2,087,643.74	39.967950	-109.403876	
3,717.00	11.25	48.11	3,566.96	630.55	698.55	14,518,388.67	2,087,656.97	39.967984	-109.403828	
3,807.00	11.31	44.98	3,655.22	642.66	711.32	14,518,401.00	2,087,669.53	39.968018	-109.403782	
3,898.00	13.25	48.73	3,744.14	655.85	725.47	14,518,414.44	2,087,683.44	39.968054	-109.403732	
3,988.00	11.25	48.73	3,832.08	668.44	739.82	14,518,427.29	2,087,697.56	39.968088	-109.403680	
4,079.00	9.94	46.36	3,921.53	679.72	752.18	14,518,438.79	2,087,709.71	39.968119	-109.403636	
4,169.00	8.88	45.86	4,010.32	689.92	762.78	14,518,449.17	2,087,720.14	39.968147	-109.403599	
4,260.00	7.50	44.11	4,100.39	699.08	771.96	14,518,458.49	2,087,729.15	39.968172	-109.403566	
4,351.00	6.00	48.36	4,190.76	706.50	779.65	14,518,466.05	2,087,736.70	39.968193	-109.403538	
4,442.00	3.94	55.23	4,281.41	711.44	785.77	14,518,471.10	2,087,742.74	39.968206	-109.403516	
4,532.00	2.19	44.23	4,371.28	714.44	789.51	14,518,474.17	2,087,746.42	39.968215	-109.403503	
4,607.32	1.98	52.74	4,446.55	716.26	791.55	14,518,476.02	2,087,748.43	39.968220	-109.403496	
<b>drillers target (NBU 1022-11B4BS)</b>										
4,623.00	1.94	54.73	4,462.22	716.58	791.98	14,518,476.35	2,087,748.85	39.968221	-109.403494	
4,714.00	1.06	337.73	4,553.19	718.24	792.92	14,518,478.03	2,087,749.76	39.968225	-109.403491	
4,797.24	1.00	339.00	4,636.42	719.64	792.37	14,518,479.41	2,087,749.18	39.968229	-109.403493	
<b>intercept (NBU 1022-11B4BS)</b>										
4,804.00	1.00	339.11	4,643.18	719.75	792.32	14,518,479.52	2,087,749.14	39.968229	-109.403493	
4,895.00	0.75	339.23	4,734.17	721.05	791.83	14,518,480.81	2,087,748.62	39.968233	-109.403495	
4,986.00	0.81	337.48	4,825.16	722.20	791.37	14,518,481.96	2,087,748.14	39.968236	-109.403496	
5,077.00	0.69	321.61	4,916.15	723.22	790.79	14,518,482.97	2,087,747.54	39.968239	-109.403499	
5,167.00	0.44	319.61	5,006.15	723.91	790.23	14,518,483.65	2,087,746.97	39.968241	-109.403501	
5,258.00	1.94	8.98	5,097.13	725.70	790.24	14,518,485.44	2,087,746.95	39.968246	-109.403501	
5,349.00	1.50	357.98	5,188.09	728.41	790.44	14,518,488.15	2,087,747.10	39.968253	-109.403500	
5,440.00	0.88	358.23	5,279.07	730.30	790.37	14,518,490.04	2,087,747.00	39.968258	-109.403500	
5,530.00	0.38	357.98	5,369.06	731.29	790.34	14,518,491.03	2,087,746.95	39.968261	-109.403500	
5,621.00	0.13	43.73	5,460.06	731.66	790.40	14,518,491.40	2,087,747.01	39.968262	-109.403500	

# Anadarko Petroleum Corp

## Survey Report - Geographic

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-11B4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Site:</b>	UINTAH_NBU 1022-11G2 Pad	<b>MD Reference:</b>	14' RKB + 5031' GL @ 5045.00ft
<b>Well:</b>	NBU 1022-11B4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-11B4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-11B4BS	<b>Database:</b>	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,712.00	0.13	137.48	5,551.06	731.66	790.54	14,518,491.40	2,087,747.15	39.968262	-109.403499
5,802.00	0.63	151.36	5,641.06	731.15	790.85	14,518,490.90	2,087,747.46	39.968261	-109.403498
5,893.00	0.75	146.11	5,732.05	730.22	791.42	14,518,489.98	2,087,748.05	39.968258	-109.403496
5,984.00	0.63	319.36	5,823.05	730.10	791.43	14,518,489.86	2,087,748.06	39.968258	-109.403496
6,074.00	0.56	349.48	5,913.04	730.91	791.03	14,518,490.66	2,087,747.64	39.968260	-109.403498
6,165.00	0.31	354.23	6,004.04	731.59	790.92	14,518,491.34	2,087,747.52	39.968262	-109.403498
6,256.00	0.25	4.48	6,095.04	732.04	790.91	14,518,491.79	2,087,747.51	39.968263	-109.403498
6,346.00	0.13	77.23	6,185.04	732.25	791.03	14,518,492.01	2,087,747.62	39.968264	-109.403498
6,437.00	0.44	105.36	6,276.04	732.18	791.46	14,518,491.94	2,087,748.06	39.968263	-109.403496
6,528.00	0.75	133.61	6,367.03	731.68	792.23	14,518,491.45	2,087,748.83	39.968262	-109.403493
6,618.00	1.00	15.84	6,457.03	732.03	792.87	14,518,491.82	2,087,749.47	39.968263	-109.403491
6,709.00	0.81	1.86	6,548.02	733.44	793.11	14,518,493.23	2,087,749.68	39.968267	-109.403490
6,800.00	0.63	23.11	6,639.01	734.54	793.33	14,518,494.33	2,087,749.88	39.968270	-109.403490
6,890.00	0.44	28.98	6,729.01	735.30	793.69	14,518,495.10	2,087,750.23	39.968272	-109.403488
6,981.00	0.31	45.11	6,820.00	735.78	794.03	14,518,495.58	2,087,750.56	39.968273	-109.403487
7,072.00	0.56	58.98	6,911.00	736.18	794.59	14,518,495.99	2,087,751.11	39.968274	-109.403485
7,163.00	0.94	347.36	7,002.00	737.14	794.81	14,518,496.96	2,087,751.31	39.968277	-109.403484
7,253.00	0.44	312.36	7,091.99	738.09	794.39	14,518,497.90	2,087,750.88	39.968280	-109.403486
7,344.00	1.56	336.36	7,182.97	739.46	793.63	14,518,499.26	2,087,750.10	39.968283	-109.403488
7,435.00	0.75	324.86	7,273.96	741.08	792.79	14,518,500.86	2,087,749.23	39.968288	-109.403491
7,525.00	0.19	292.86	7,363.95	741.62	792.32	14,518,501.40	2,087,748.74	39.968289	-109.403493
7,616.00	0.31	239.61	7,454.95	741.56	791.97	14,518,501.32	2,087,748.39	39.968289	-109.403494
7,707.00	0.63	195.98	7,545.95	740.95	791.62	14,518,500.71	2,087,748.05	39.968287	-109.403496
7,797.00	0.94	201.23	7,635.94	739.79	791.21	14,518,499.54	2,087,747.67	39.968284	-109.403497
7,887.00	1.50	190.36	7,725.92	737.94	790.73	14,518,497.69	2,087,747.22	39.968279	-109.403499
7,980.00	1.94	200.98	7,818.88	735.27	789.95	14,518,495.01	2,087,746.49	39.968272	-109.403502
8,070.00	2.00	189.23	7,908.82	732.30	789.15	14,518,492.02	2,087,745.74	39.968264	-109.403504
8,161.00	1.94	188.48	7,999.77	729.21	788.67	14,518,488.92	2,087,745.32	39.968255	-109.403506
8,251.00	2.00	185.48	8,089.72	726.14	788.30	14,518,485.84	2,087,745.00	39.968247	-109.403507
8,342.00	1.69	197.61	8,180.67	723.28	787.74	14,518,482.97	2,087,744.49	39.968239	-109.403509
8,433.00	1.69	184.23	8,271.63	720.66	787.23	14,518,480.35	2,087,744.03	39.968232	-109.403511
8,523.00	1.56	186.98	8,361.59	718.12	786.99	14,518,477.81	2,087,743.83	39.968225	-109.403512
8,585.00	1.78	177.07	8,423.57	716.32	786.93	14,518,476.01	2,087,743.81	39.968220	-109.403512
<b>LAST SVY - NBU 1022-11B4BS BHL</b>									
8,635.00	1.78	177.07	8,473.54	714.77	787.01	14,518,474.46	2,087,743.92	39.968216	-109.403512
<b>PROJECTION</b>									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
8,585.00	8,423.57	716.32	786.93	LAST SVY
8,635.00	8,473.54	714.77	787.01	PROJECTION

Checked By: _____	Approved By: _____	Date: _____
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