

**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 1022-2F4BS
<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> ST UT ML 22651	<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>	2395 FNL 1381 FWL	SE	2	10.0 S	22.0 E	S
<b>Top of Uppermost Producing Zone</b>	2069 FNL 2144 FWL	SE	2	10.0 S	22.0 E	S
<b>At Total Depth</b>	2069 FNL 2144 FWL	SE	2	10.0 S	22.0 E	S

<b>21. COUNTY</b> UINTAH	<b>22. DISTANCE TO NEAREST LEASE LINE (Feet)</b> 2042	<b>23. NUMBER OF ACRES IN DRILLING UNIT</b> 620
<b>24. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)</b> 852	<b>25. PROPOSED DEPTH</b> MD: 8731 TVD: 8605	
<b>26. ELEVATION - GROUND LEVEL</b> 5012	<b>27. BOND NUMBER</b> 22013542	<b>28. 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
SURF	11	8.625	0 - 2180	28.0	J-55 LT&C	0.2	Type V	180	1.15	15.8
							Class G	270	1.15	15.8
PROD	7.875	4.5	0 - 8731	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> 08/01/2011	<b>EMAIL</b> andrew.lytle@anadarko.com
<b>API NUMBER ASSIGNED</b> 43047517640000	<b>APPROVAL</b>   Permit Manager	

**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 1022-2F4BS**

Surface: 2395 FNL / 1381 FWL      SENW  
 BHL: 2069 FNL / 2144 FWL      SENW

Section 2 T10S R22E

Uintah County, Utah  
 Mineral Lease: ST UT ML 22651

**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	1099	
Birds Nest	1357	Water
Mahogany	1730	Water
Wasatch	4157	Gas
Mesaverde	6462	Gas
MVU2	7399	Gas
MVL1	7988	Gas
TVD	8605	Gas
TD	8731	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 8605' TVD, approximately equals  

$$\frac{5,507 \text{ psi}}{0.64 \text{ psi/ft}} = \text{actual bottomhole gradient}$$

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

Maximum anticipated surface pressure equals approximately 3,602 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		TENSION
CONDUCTOR	14"	0-40'				3,390	1,880	348,000	N/A
SURFACE	8-5/8"	0 to 2,180	28.00	IJ-55	LTC	2.48	1.84	6.51	N/A
PRODUCTION	4-1/2"	0 to 8,731	11.60	I-80	LTC/BTC	1.11	1.14	3.41	4.48

**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	1,680'	65/35 Poz + 6% Gel + 10 pps gilsonite + 0.25 pps Flocele + 3% salt BWOW	160	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	3,651'	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

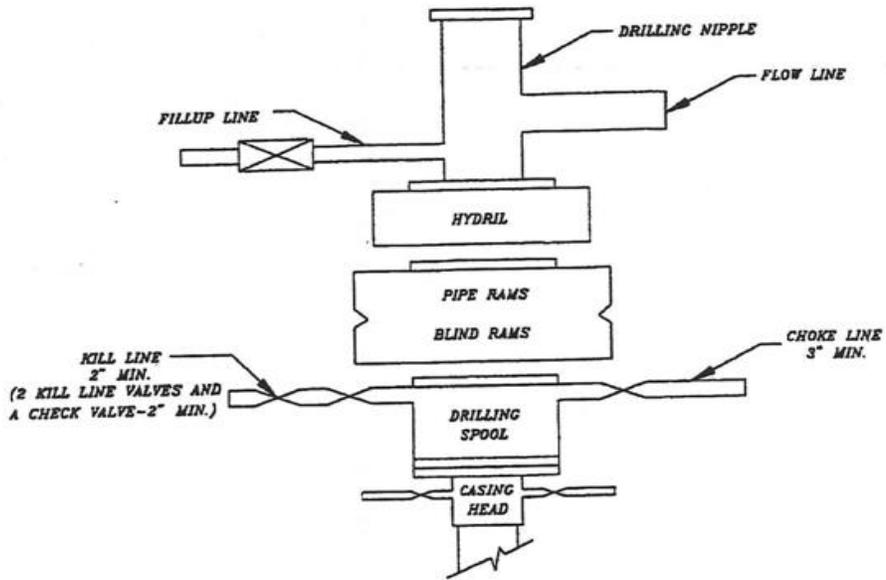
DATE: \_\_\_\_\_

DRILLING SUPERINTENDENT:

Kenny Gathings / Lovel Young

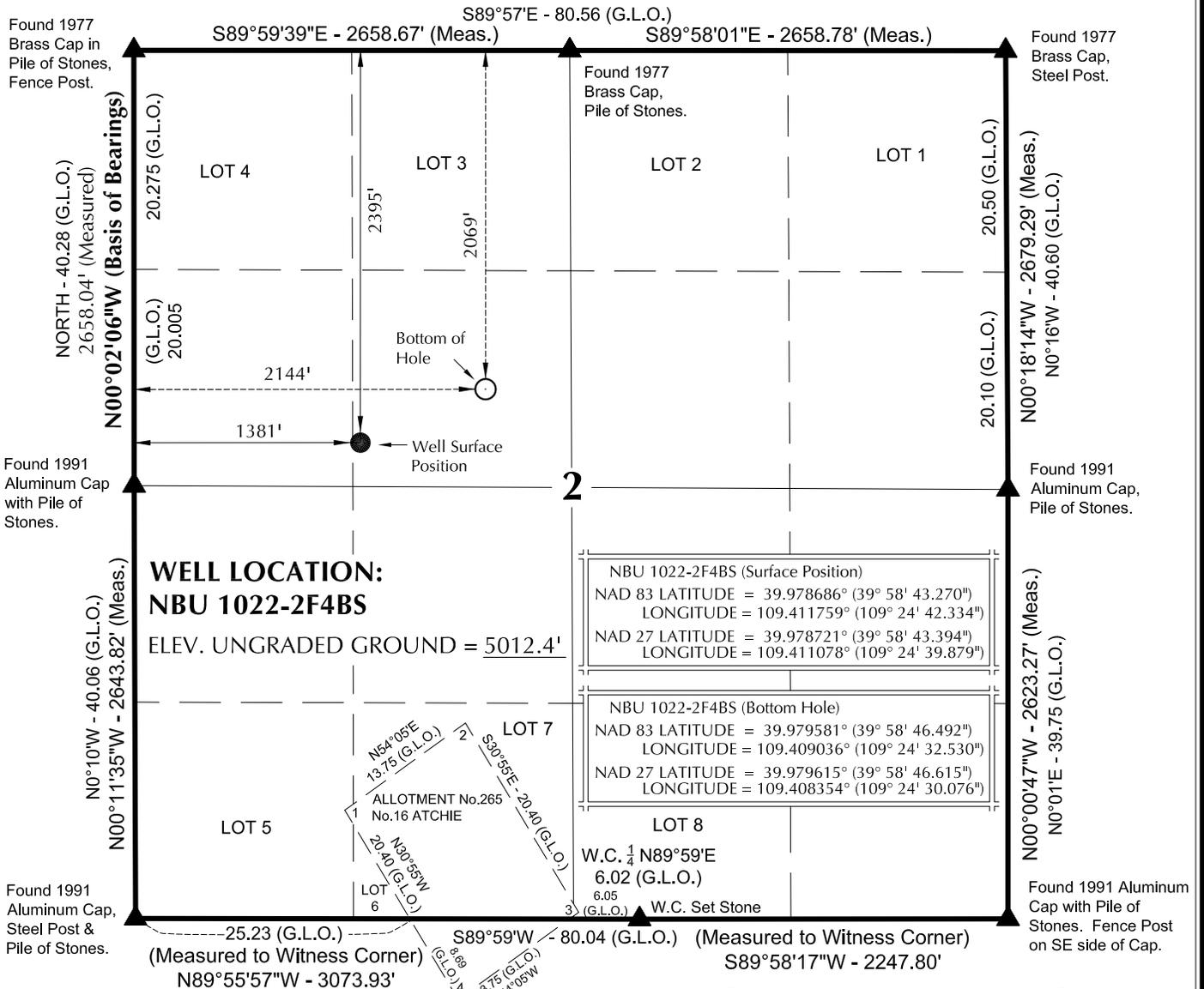
DATE: \_\_\_\_\_

EXHIBIT A  
NBU 1022-2F4BS



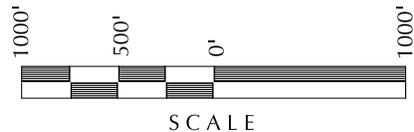
SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK

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



**NOTES:**

- ▲ = Section Corners Located
- 1. Well footages are measured at right angles to the Section Lines.
- 2. G.L.O. distances are shown in feet or chains.  
1 chain = 66 feet.
- 3. The Bottom of hole bears N66°50'10"E - 830.10' from the Surface Position.
- 4. Bearings are based on Global Positioning Satellite observations.
- 5. 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.

No. 6028691  
**JOHN R. SLAUGH**  
 PROFESSIONAL LAND SURVEYOR  
 REGISTRATION No. 6028691  
 STATE OF UTAH 1-31-11

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

**WELL PAD: NBU 1022-2F**

**NBU 1022-2F4BS  
 WELL PLAT**

**2069' FNL, 2144' FWL (Bottom Hole)  
 SE 1/4 NW 1/4 OF SECTION 2, 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

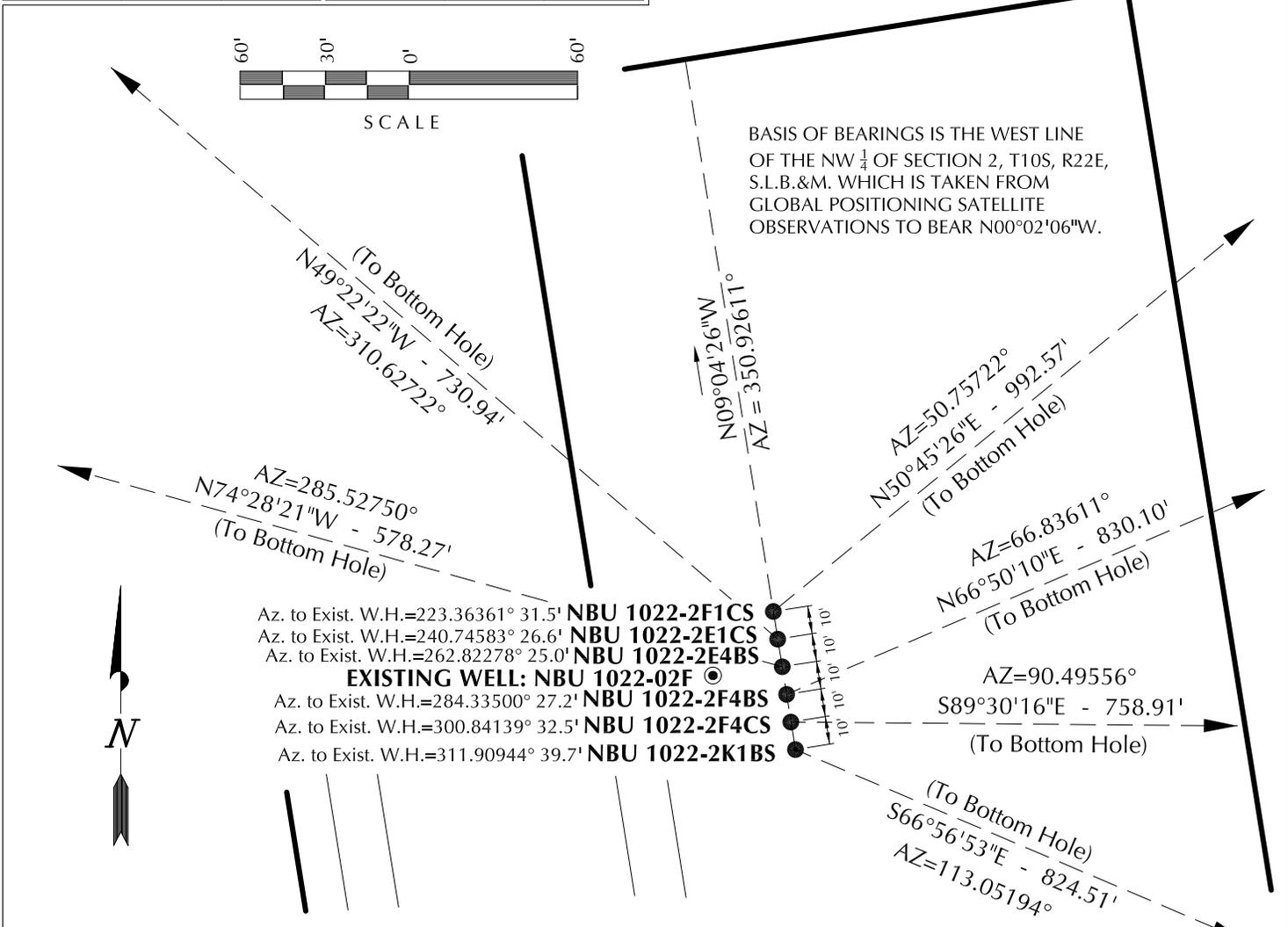
**TIMBERLINE** (435) 789-1365  
 ENGINEERING & LAND SURVEYING, INC.  
 209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE SURVEYED: 01-11-11	SURVEYED BY: R.Y.	SHEET NO: <b>3</b>
DATE DRAWN: 01-28-11	DRAWN BY: E.M.S.	
SCALE: 1" = 1000'		3 OF 18

WELL NAME	SURFACE POSITION					BOTTOM HOLE				
	NAD83		NAD27		FOOTAGES	NAD83		NAD27		FOOTAGES
	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	
NBU 1022-2K1BS	39°58'43.075"	109°24'42.293"	39°58'43.199"	109°24'39.839"	2415' FNL 1384' FWL	39°58'39.881"	109°24'32.553"	39°58'40.005"	109°24'30.099"	2566' FSL 2142' FWL
NBU 1022-2F4CS	39°58'43.172"	109°24'42.314"	39°58'43.296"	109°24'39.860"	2405' FNL 1382' FWL	39°58'43.103"	109°24'32.569"	39°58'43.227"	109°24'30.114"	2412' FNL 2141' FWL
NBU 1022-2F4BS	39°58'43.270"	109°24'42.334"	39°58'43.394"	109°24'39.879"	2395' FNL 1381' FWL	39°58'46.492"	109°24'32.530"	39°58'46.615"	109°24'30.076"	2069' FNL 2144' FWL
NBU 1022-2E4BS	39°58'43.367"	109°24'42.354"	39°58'43.491"	109°24'39.899"	2386' FNL 1379' FWL	39°58'44.900"	109°24'49.508"	39°58'45.024"	109°24'47.053"	2231' FNL 822' FWL
NBU 1022-2E1CS	39°58'43.465"	109°24'42.374"	39°58'43.589"	109°24'39.920"	2376' FNL 1377' FWL	39°58'48.170"	109°24'49.495"	39°58'48.294"	109°24'47.040"	1900' FNL 823' FWL
NBU 1022-2F1CS	39°58'43.563"	109°24'42.394"	39°58'43.687"	109°24'39.940"	2366' FNL 1376' FWL	39°58'49.762"	109°24'32.517"	39°58'49.886"	109°24'30.063"	1738' FNL 2145' FWL
NBU 1022-02F	39°58'43.337"	109°24'42.672"	39°58'43.461"	109°24'40.218"	2389' FNL 1354' FWL	39°58'43.337"	109°24'42.672"	39°58'43.461"	109°24'40.218"	

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 1022-2K1BS	-322.8'	758.7'	NBU 1022-2F4CS	-6.6'	758.9'	NBU 1022-2F4BS	326.5'	763.2'	NBU 1022-2E4BS	154.8'	-557.2'
NBU 1022-2E1CS	475.9'	-554.8'	NBU 1022-2F1CS	627.9'	768.7'						



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



**609 CONSULTING, LLC**  
2155 North Main Street  
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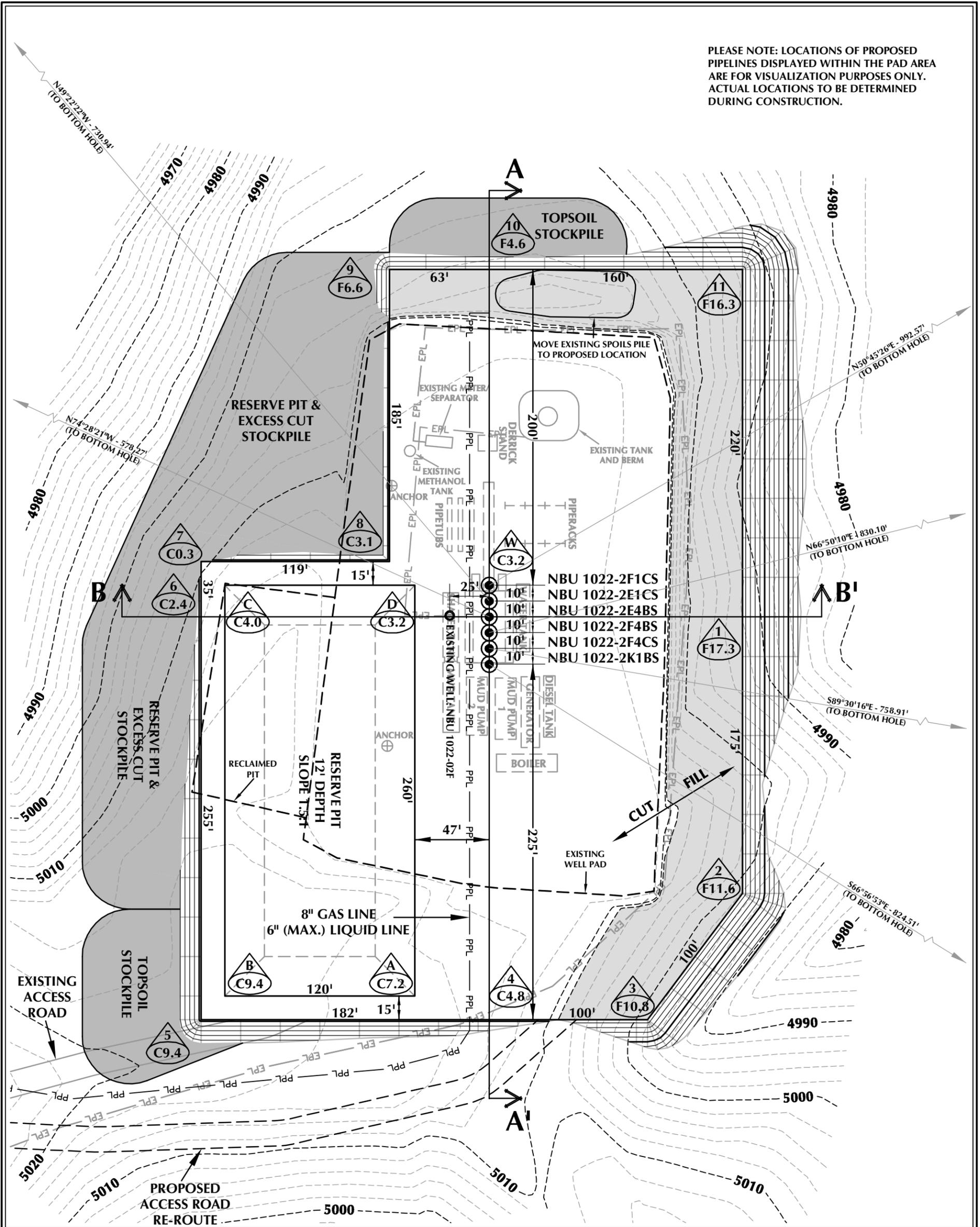
**TIMBERLINE** (435) 789-1365  
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

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

**WELL PAD - NBU 1022-2F**

**WELL PAD INTERFERENCE PLAT**  
WELLS - NBU 1022-2K1BS, NBU 1022-2F4CS,  
NBU 1022-2F4BS, NBU 1022-2E4BS,  
NBU 1022-2E1CS & NBU 1022-2F1CS  
LOCATED IN SECTION 2, T10S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH.

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



**WELL PAD - NBU 1022-2F DESIGN SUMMARY**

EXISTING GRADE @ CENTER OF WELL PAD = 5012.5'  
 FINISHED GRADE ELEVATION = 5009.3'  
 CUT SLOPES = 1.5:1  
 FILL SLOPES = 1.5:1  
 TOTAL WELL PAD AREA = 3.77 ACRES  
 TOTAL DISTURBANCE AREA = 6.34 ACRES  
 SHRINKAGE FACTOR = 1.10  
 SWELL FACTOR = 1.00

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

**WELL PAD - NBU 1022-2F**

WELL PAD - LOCATION LAYOUT  
 NBU 1022-2K1BS, NBU 1022-2F4CS,  
 NBU 1022-2F4BS, NBU 1022-2E4BS,  
 NBU 1022-2E1CS & NBU 1022-2F1CS  
 LOCATED IN SECTION 2, 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 QUANTITIES**

TOTAL CUT FOR WELL PAD = 16,867 C.Y.  
 TOTAL FILL FOR WELL PAD = 15,122 C.Y.  
 TOPSOIL @ 6" DEPTH = 1,749 C.Y.  
 EXCESS MATERIAL = 1,745 C.Y.

**RESERVE PIT QUANTITIES**

TOTAL CUT FOR RESERVE PIT  
 +/- 11,020 C.Y.  
 RESERVE PIT CAPACITY (2' OF FREEBOARD)  
 +/- 42,290 BARRELS

**WELL PAD LEGEND**

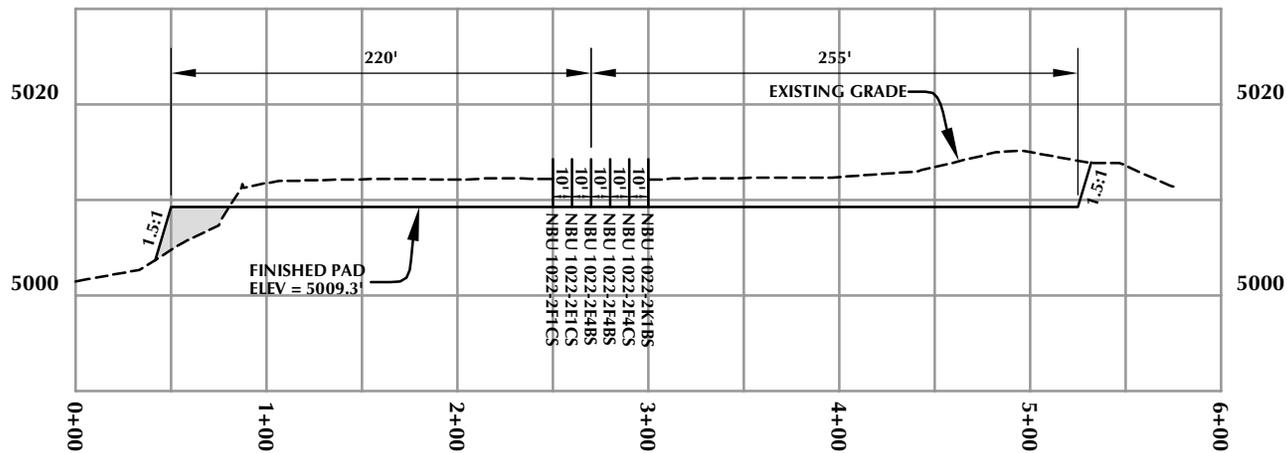
- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PROPOSED BOTTOM HOLE LOCATION
- EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)
- PROPOSED PIPELINE
- EXISTING PIPELINE



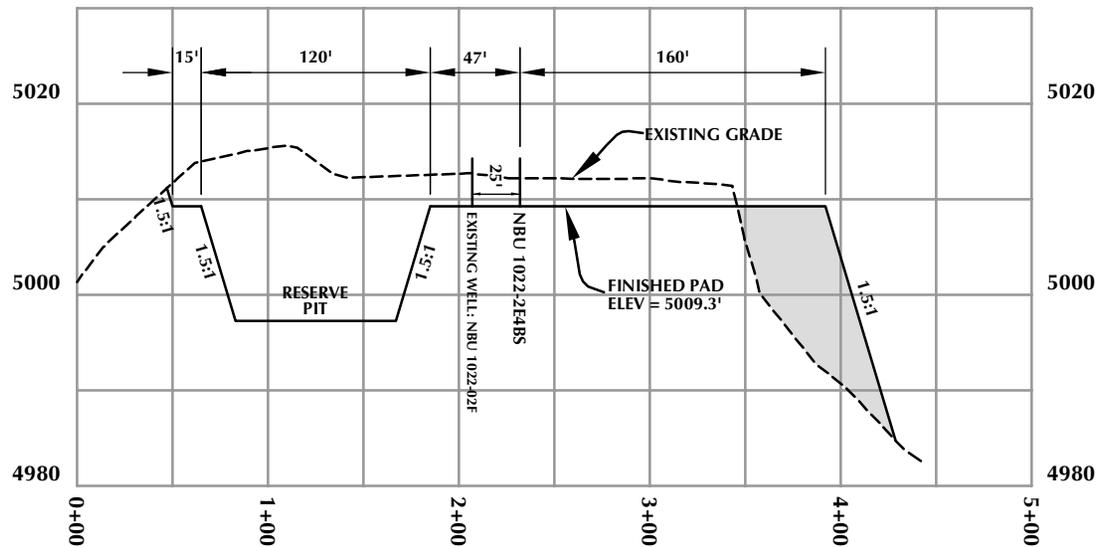
HORIZONTAL 0 30' 60' 1" = 60'  
 2' CONTOURS

SCALE: 1"=60' DATE: 3/30/11 SHEET NO:  
 REVISED: **8** 8 OF 18

**TIMBERLINE** (435) 789-1365  
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 209 NORTH 300 WEST - VERNAL, UTAH 84078



**CROSS SECTION A-A'**



**CROSS SECTION B-B'**

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

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

**WELL PAD - NBU 1022-2F**

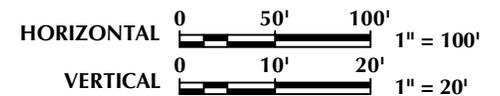
**WELL PAD - CROSS SECTIONS**  
NBU 1022-2K1BS, NBU 1022-2F4CS,  
NBU 1022-2F4BS, NBU 1022-2E4BS,  
NBU 1022-2E1CS & NBU 1022-2F1CS  
LOCATED IN SECTION 2, T10S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH



**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: 3/30/11

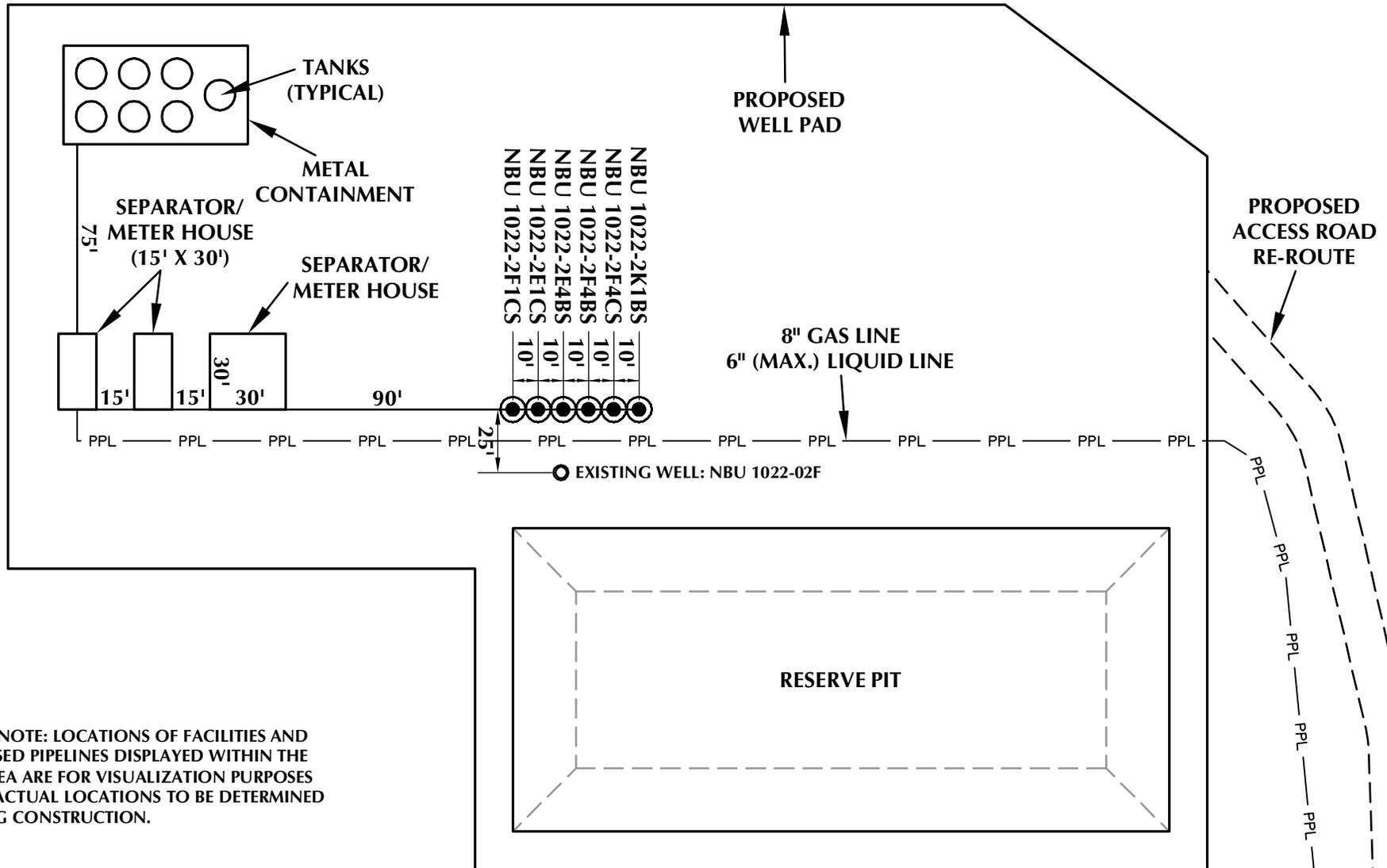
SHEET NO:

REVISED:

**9**

9 OF 18

**RECEIVED: August 01, 2011**



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

WELL PAD - NBU 1022-2F

WELL PAD - FACILITIES DIAGRAM  
NBU 1022-2K1BS, NBU 1022-2F4CS,  
NBU 1022-2F4BS, NBU 1022-2E4BS,  
NBU 1022-2E1CS & NBU 1022-2F1CS  
LOCATED IN SECTION 2, T10S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH



CONSULTING, LLC  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
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**WELL PAD LEGEND**

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



HORIZONTAL 0 30' 60' 1" = 60'

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

Scale: 1"=60' Date: 3/30/11  
REVISED:

SHEET NO:  
**10** 10 OF 18

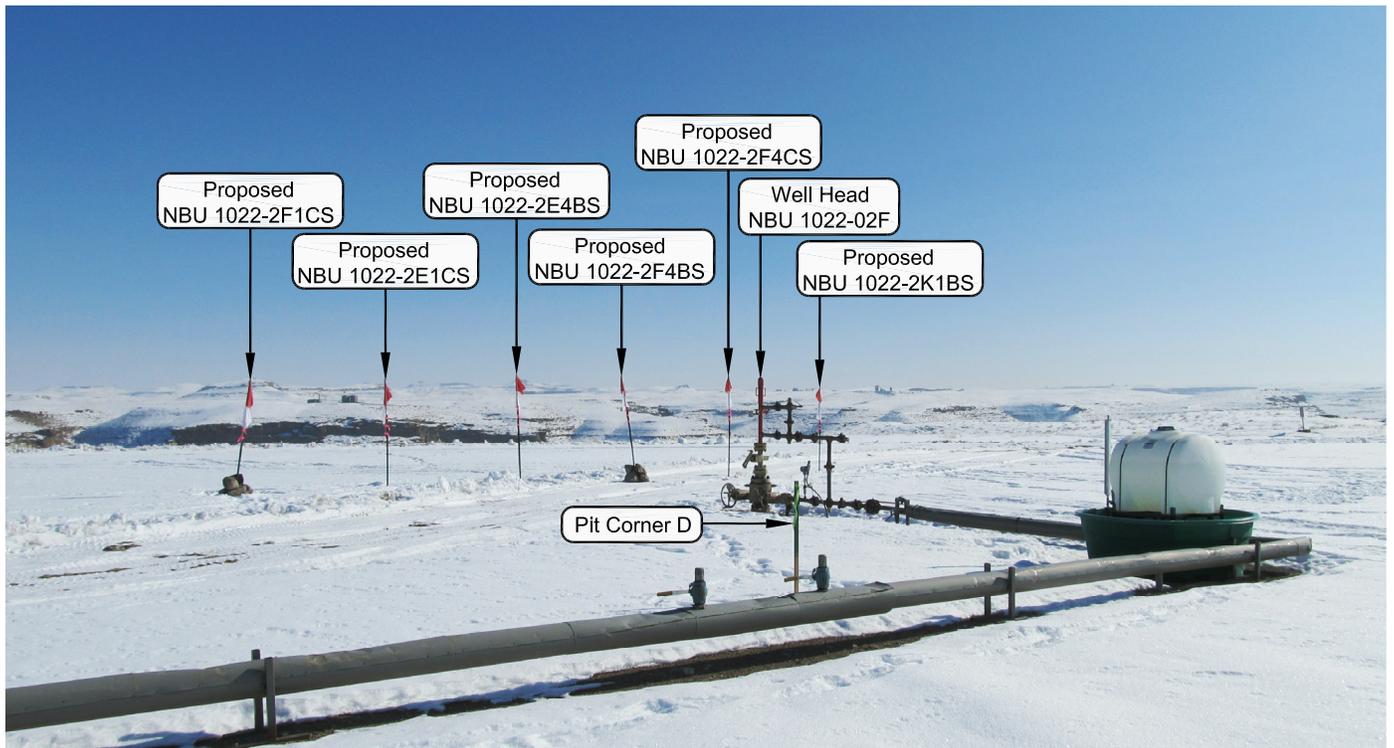


PHOTO VIEW: FROM PIT CORNER D TO LOCATION STAKE

CAMERA ANGLE: SOUTHEASTERLY



PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD

CAMERA ANGLE: NORTHEASTERLY

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

**WELL PAD - NBU 1022-2F**

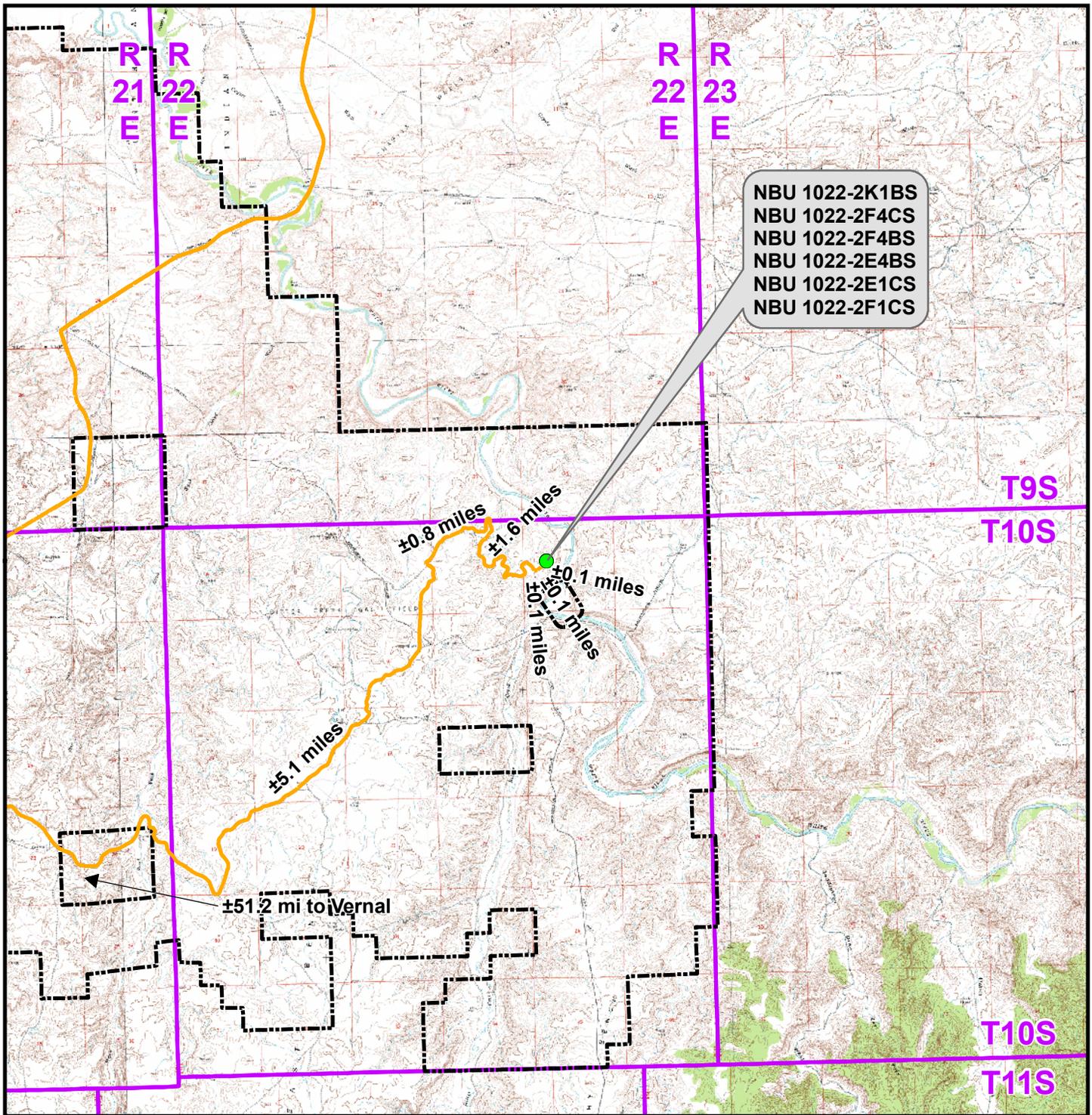
**LOCATION PHOTOS**  
 NBU 1022-2K1BS, NBU 1022-2F4CS,  
 NBU 1022-2F4BS, NBU 1022-2E4BS,  
 NBU 1022-2E1CS & NBU 1022-2F1CS  
 LOCATED IN SECTION 2, T10S, R22E,  
 S.L.B.&M., Uintah County, Utah.



**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: 01-28-11	PHOTOS TAKEN BY: M.S.B.	SHEET NO: <b>11</b>
DATE DRAWN: 01-31-11	DRAWN BY: E.M.S.	
Date Last Revised:		11 OF 18



NBU 1022-2K1BS  
 NBU 1022-2F4CS  
 NBU 1022-2F4BS  
 NBU 1022-2E4BS  
 NBU 1022-2E1CS  
 NBU 1022-2F1CS

**Legend**

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

Distance From Well Pad - NBU 1022-2F To Unit Boundary: ±1,808ft

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

**WELL PAD - NBU 1022-2F**

**TOPO A**  
 NBU 1022-2K1BS, NBU 1022-2F4CS,  
 NBU 1022-2F4BS, NBU 1022-2E4BS,  
 NBU 1022-2E1CS & NBU 1022-2F1CS  
 LOCATED IN SECTION 2, T10S, R22E,  
 S.L.B.&M., UINTAH COUNTY, UTAH

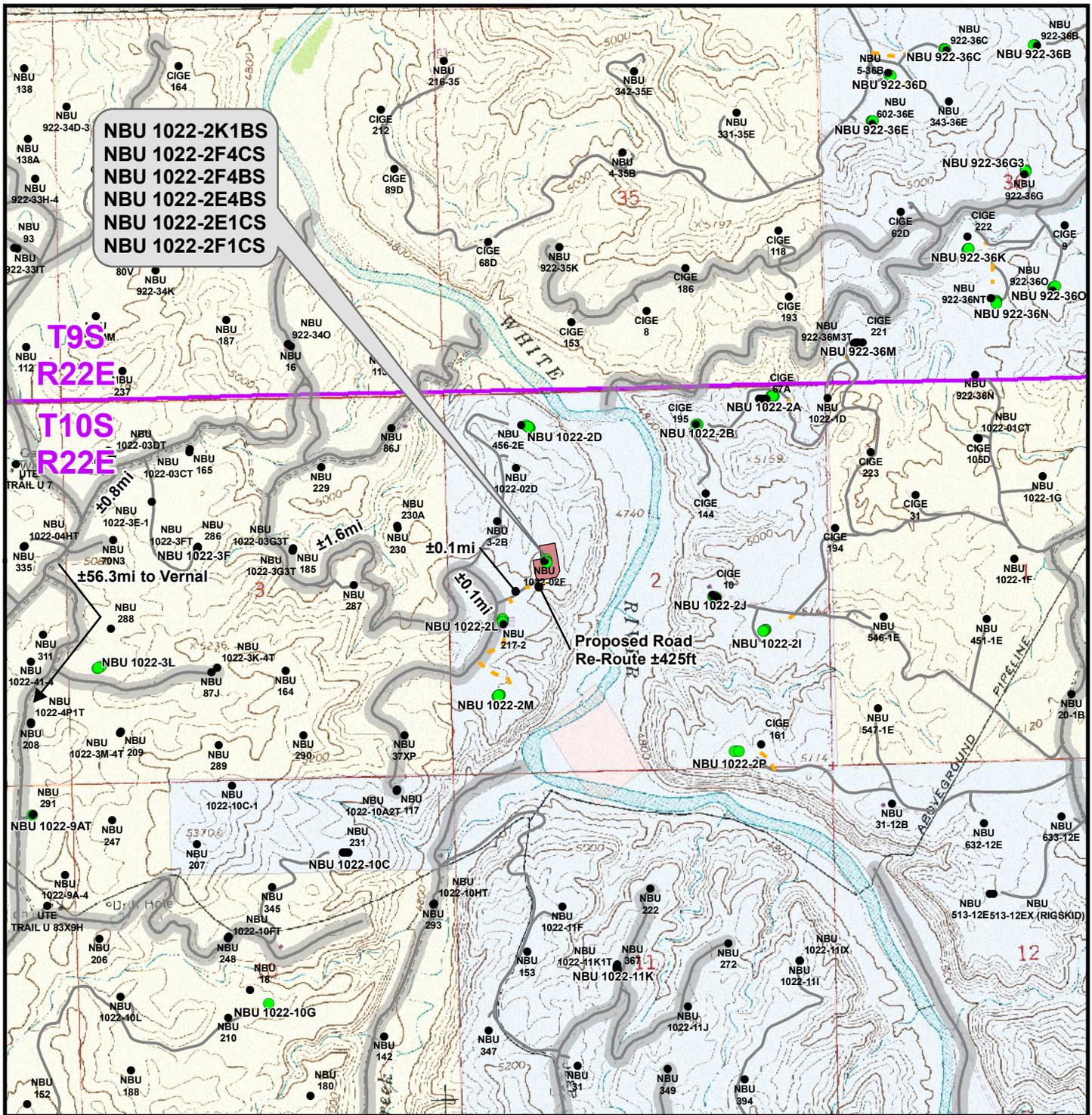


**CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1:100,000	NAD83 USP Central
Drawn: KGS	Date: 30 Mar 2011
Revised:	Date:

Sheet No:  
12 12 of 18



NBU 1022-2K1BS  
 NBU 1022-2F4CS  
 NBU 1022-2F4BS  
 NBU 1022-2E4BS  
 NBU 1022-2E1CS  
 NBU 1022-2F1CS

Proposed Road  
 Re-Route ±425ft

**Legend**

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

Total Proposed Road Re-Route Length: ±425ft

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

**WELL PAD - NBU 1022-2F**

**TOPO B**  
 NBU 1022-2K1BS, NBU 1022-2F4CS,  
 NBU 1022-2F4BS, NBU 1022-2E4BS,  
 NBU 1022-2E1CS & NBU 1022-2F1CS  
 LOCATED IN SECTION 2, T10S, R22E,  
 S.L.B.&M., UTAH COUNTY, UTAH

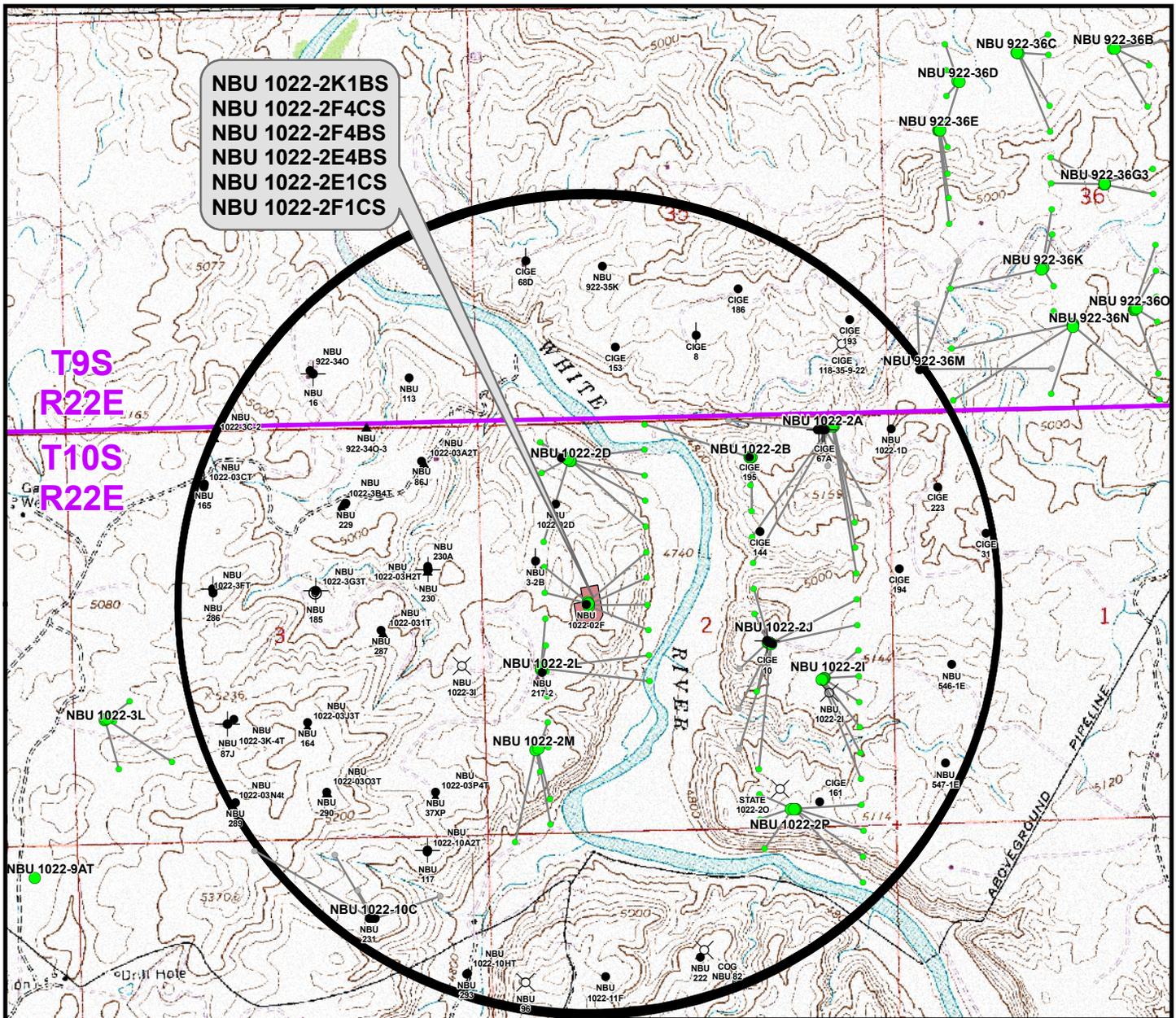


**CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan, WY 82801  
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Scale: 1" = 2,000ft  
 NAD83 USP Central  
 Drawn: KGS  
 Revised: Date: 30 Mar 2011

Sheet No:  
**13**  
 13 of 18



Proposed Well	Nearest Well Bore	Footage
NBU 1022-2K1BS	NBU 1022-02F	862ft
NBU 1022-2F4CS	NBU 1022-02F	787ft
NBU 1022-2F4BS	NBU 1022-02F	852ft
NBU 1022-2E4BS	NBU 3-2B	424ft
NBU 1022-2E1CS	NBU 3-2B	135ft
NBU 1022-2F1CS	NBU 1022-02F	1,024ft

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

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

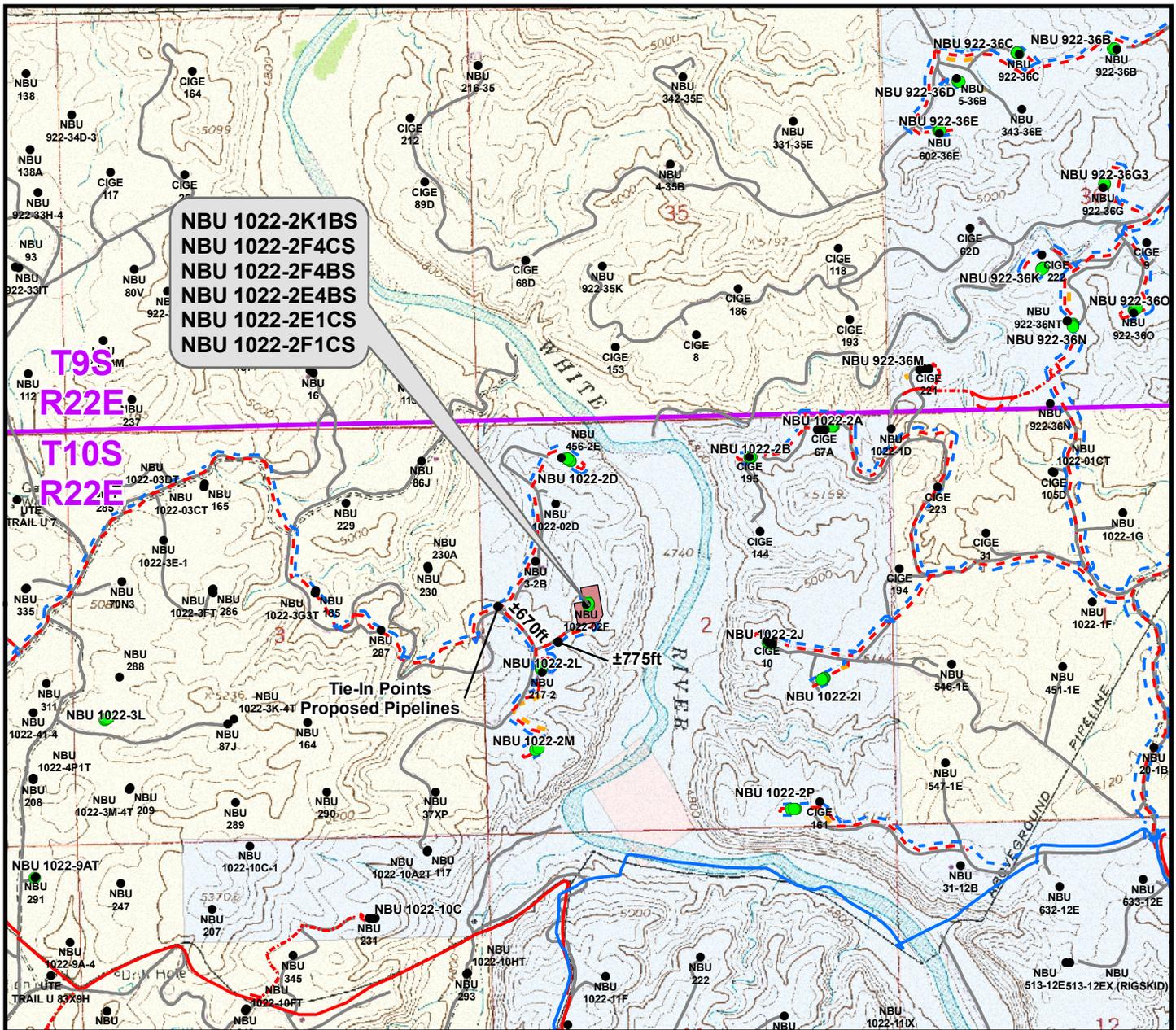
**WELL PAD - NBU 1022-2F**

**TOPO C**  
NBU 1022-2K1BS, NBU 1022-2F4CS,  
NBU 1022-2F4BS, NBU 1022-2E4BS,  
NBU 1022-2E1CS & NBU 1022-2F1CS  
LOCATED IN SECTION 2, 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: KGS	Date: 30 Mar 2011	14 of 18
Revised:	Date:	



Proposed Liquid Pipeline	Length
Proposed 6" (Max.) (Meter House to Edge of Pad)	±475ft
Proposed 6" (Max.) (Edge of Pad to 2L Intersection)	±775ft
Proposed 6" (Max.) (2L Intersection to 2D Intersection)	±670ft
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±1,920ft</b>

Proposed Gas Pipeline	Length
Proposed 8" (Meter House to Edge of Pad)	±475ft
Proposed 8" (Edge of Pad to 2L Intersection)	±775ft
Proposed 10" (2L Intersection to 2D Intersection)	±670ft
<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±1,920ft</b>

**Legend**

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

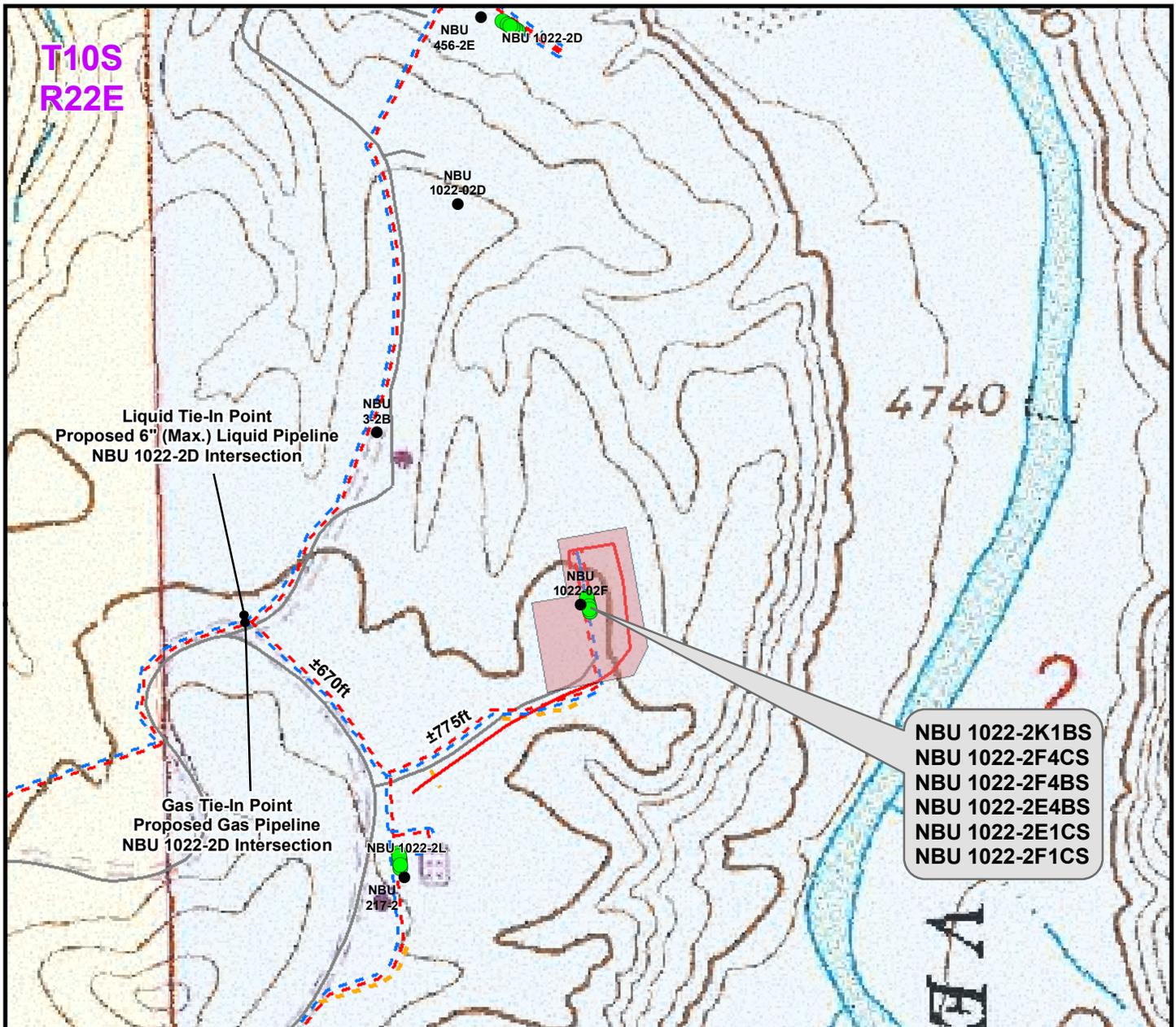
**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1022-2F**

**TOPO D**  
NBU 1022-2K1BS, NBU 1022-2F4CS,  
NBU 1022-2F4BS, NBU 1022-2E4BS,  
NBU 1022-2E1CS & NBU 1022-2F1CS  
LOCATED IN SECTION 2, 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>15</b>
Drawn: TL	Date: 30 Mar 2011	15 of 18
Revised:	Date:	



Proposed Liquid Pipeline	Length
Proposed 6" (Max.) (Meter House to Edge of Pad)	±475ft
Proposed 6" (Max.) (Edge of Pad to 2L Intersection)	±775ft
Proposed 6" (Max.) (2L Intersection to 2D Intersection)	±670ft
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±1,920ft</b>

Proposed Gas Pipeline	Length
Proposed 8" (Meter House to Edge of Pad)	±475ft
Proposed 8" (Edge of Pad to 2L Intersection)	±775ft
Proposed 10" (2L Intersection to 2D Intersection)	±670ft
<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±1,920ft</b>

**Legend**

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

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

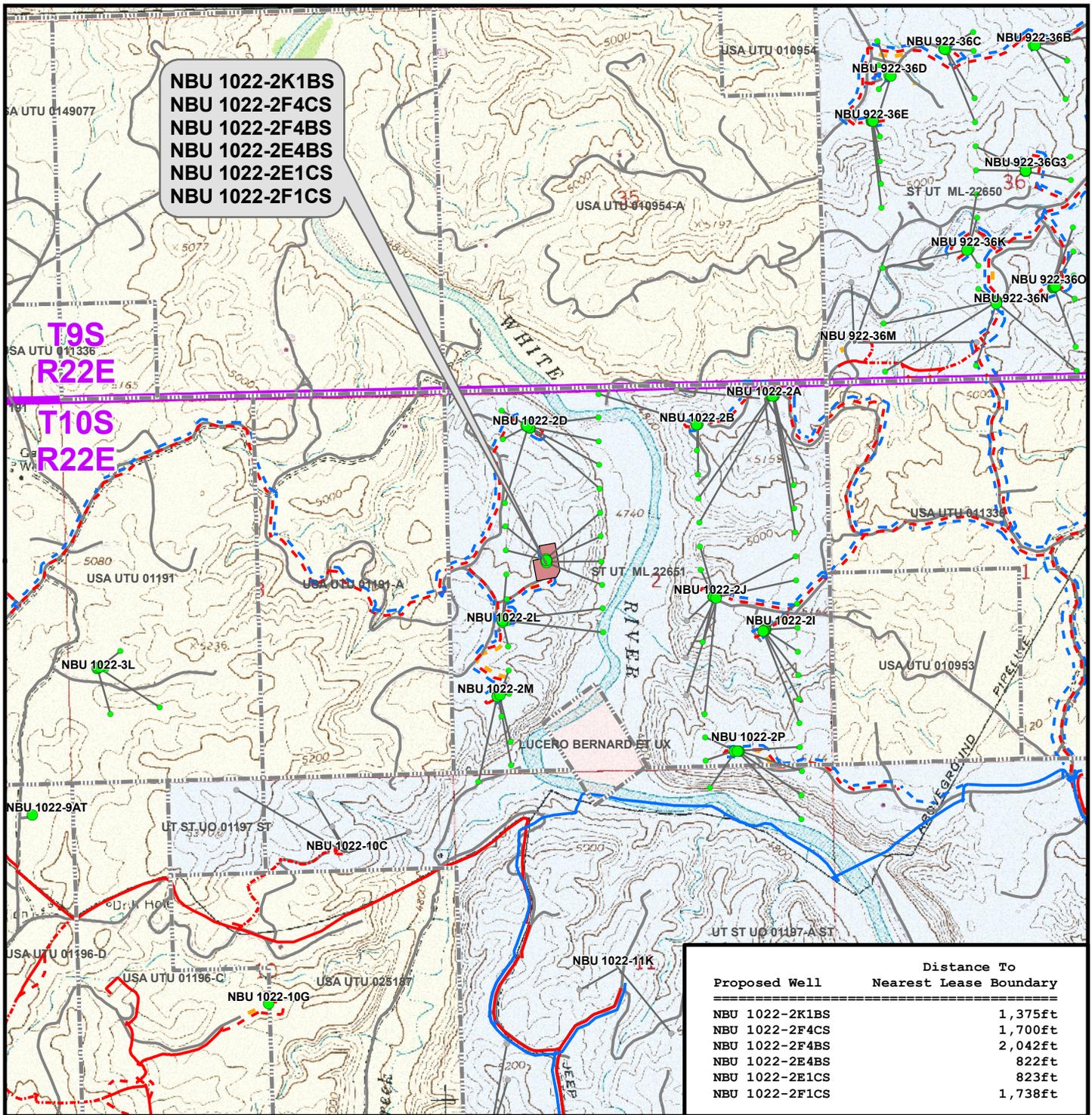
**WELL PAD - NBU 1022-2F**

**TOPO D2 (PAD & PIPELINE DETAIL)**  
NBU 1022-2K1BS, NBU 1022-2F4CS,  
NBU 1022-2F4BS, NBU 1022-2E4BS,  
NBU 1022-2E1CS & NBU 1022-2F1CS  
LOCATED IN SECTION 2, 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" = 500ft	NAD83 USP Central	Sheet No:
Drawn: TL	Date: 30 Mar 2011	<b>16</b> 16 of 18
Revised:	Date:	



**Legend**

- Well - Proposed
- Bottom Hole - Proposed
- Bottom Hole - Existing
- Well Path
- Well Pad
- ▭ Lease Boundary
- 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 1022-2F**

**TOPO E**  
 NBU 1022-2K1BS, NBU 1022-2F4CS,  
 NBU 1022-2F4BS, NBU 1022-2E4BS,  
 NBU 1022-2E1CS & NBU 1022-2F1CS  
 LOCATED IN SECTION 2, T10S, R22E,  
 S.L.B.&M., UTAH COUNTY, UTAH

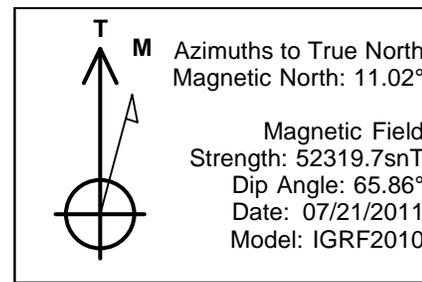
**609**  
**CONSULTING, LLC**  
 2155 North Main Street  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182

Scale: 1" = 2,000ft	NAD83 USP Central	Sheet No: <b>17</b>
Drawn: TL	Date: 30 Mar 2011	<b>17</b> of 18
Revised:	Date:	

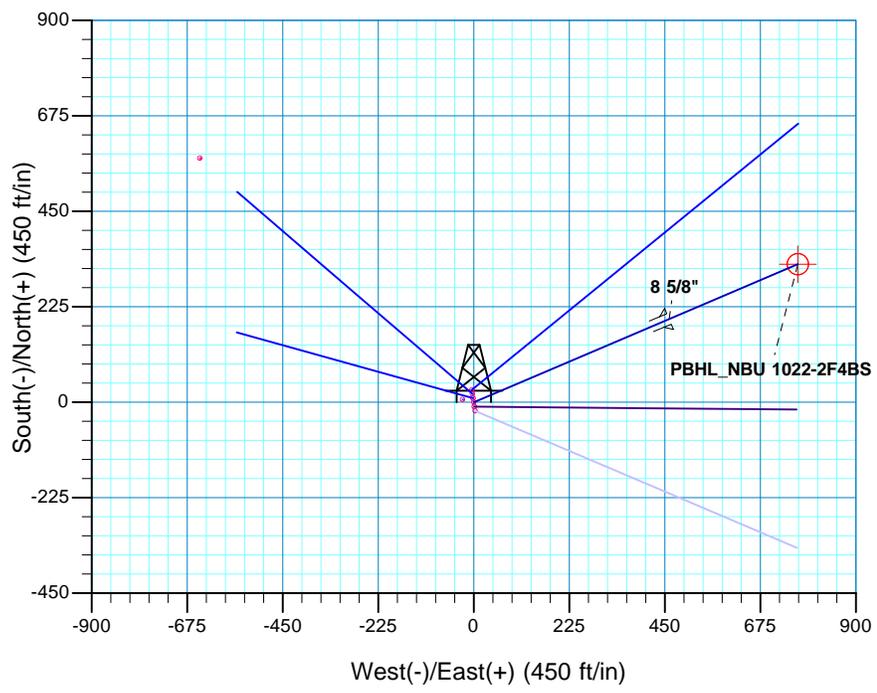
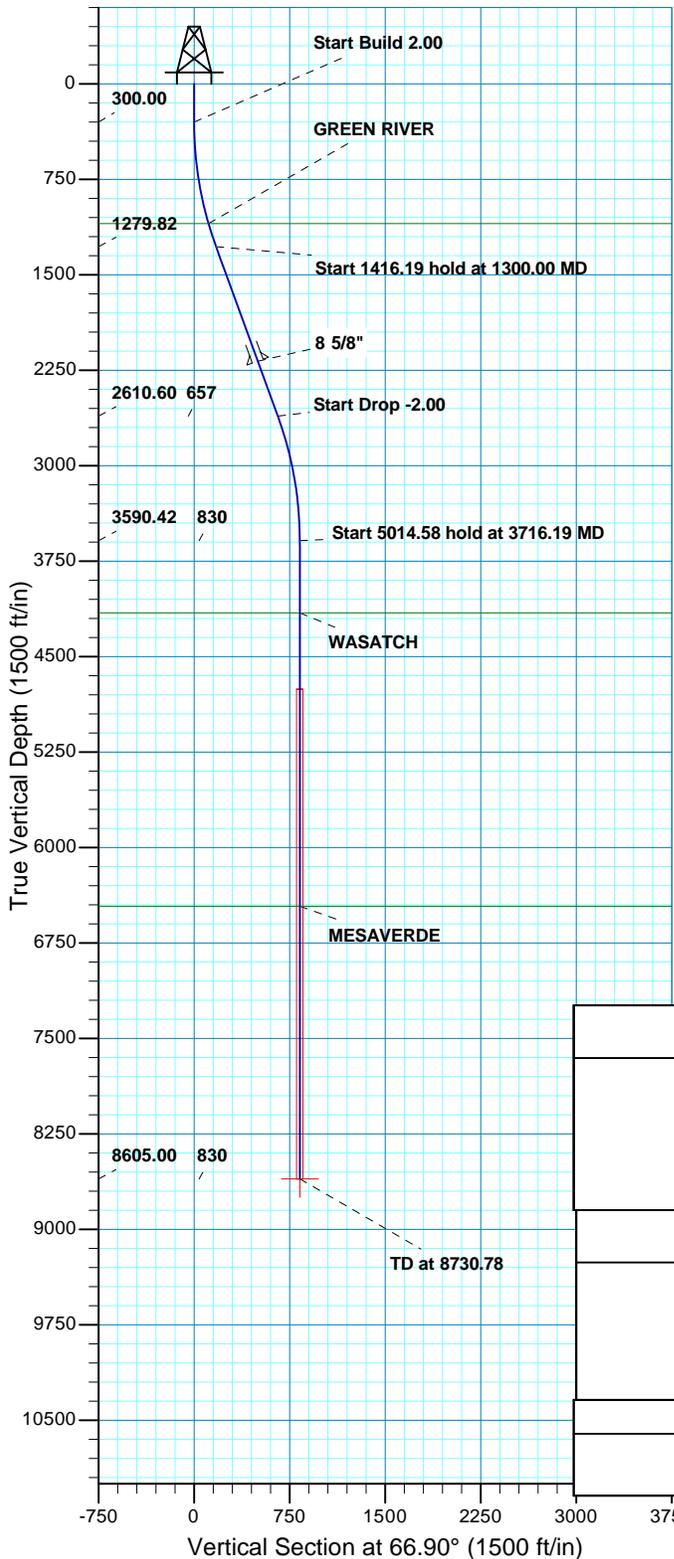
**Kerr-McGee Oil & Gas Onshore, LP  
WELL PAD - NBU 1022-2F  
WELLS – NBU 1022-2K1BS, NBU 1022-2F4CS,  
NBU 1022-2F4BS, NBU 1022-2E4BS,  
NBU 1022-2E1CS & NBU 1022-2F1CS  
Section 2, T10S, R22E, S.L.B.&M.**

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 3.9 miles to a Class D County Road to the northeast. Exit left and proceed in a northeasterly direction along the Class D County Road approximately 5.1 miles to a second Class D County Road to the northeast. Exit right and proceed in a northeasterly direction along the second Class D County Road approximately 0.8 miles to a third Class D County Road to the south. Exit right and proceed in a southerly, then easterly direction along the third Class D County Road approximately 1.6 miles to a fourth Class D County Road to the southeast. Exit right and proceed in a southeasterly direction along the Class D County Road approximately 0.1 miles to an existing access road to the northeast. Exit left and proceed in a northeasterly direction approximately 0.1 miles to the proposed access road. Follow road flags in a northeasterly direction approximately 425 feet to the proposed well location.

Total distance from Vernal, Utah to the proposed well location is approximately 59.0 miles in a southerly direction.



WELL DETAILS: NBU 1022-2F4BS								
GL 5009' & KB 4' @ 5013.00ft (ASSUMED)								
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude			
0.00	0.00	606129.83	2585325.06	39° 58' 43.395 N	109° 24' 39.881 W			
DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	8605.00	325.66	763.34	606473.22	2586080.59	39° 58' 46.614 N	109° 24' 30.074 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	66.90	1279.82	67.80	158.91	2.00	66.90	172.77	
2716.19	20.00	66.90	2610.60	257.86	604.43	0.00	0.00	657.13	
3716.19	0.00	0.00	3590.42	325.66	763.34	2.00	180.00	829.90	
8730.78	0.00	0.00	8605.00	325.66	763.34	0.00	0.00	829.90	PBHL_NBU 1022-2F4BS

PROJECT DETAILS: Uintah County, UT NAD27		
Geodetic System:	US State Plane 1927 (Exact solution)	
Datum:	NAD 1927 (NADCON CONUS)	
Ellipsoid:	Clarke 1866	
Zone:	Utah Central 4302	
Location:	SECTION 2 T10S R22E	
System Datum:	Mean Sea Level	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1099.00	1109.74	GREEN RIVER
4157.00	4282.78	WASATCH
6462.00	6587.78	MESAVERDE

CASING DETAILS			
TVD	MD	Name	Size
2180.00	2257.96	8 5/8"	8.625

RECEIVED



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

**Uintah County, UT NAD27  
NBU 1022-2F PAD  
NBU 1022-2F4BS**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**21 July, 2011**





SDI  
Planning Report



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-2F4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT NAD27	<b>MD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-2F PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-2F4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

<b>Project</b>	Uintah County, UT NAD27		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Utah Central 4302		

<b>Site</b>	NBU 1022-2F PAD, SECTION 2 T10S R22E				
<b>Site Position:</b>		<b>Northing:</b>	606,149.44 usft	<b>Latitude:</b>	39° 58' 43.590 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,585,321.52 usft	<b>Longitude:</b>	109° 24' 39.920 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	1.34 °

<b>Well</b>	NBU 1022-2F4BS, 2395 FNL 1381 FWL					
<b>Well Position</b>	<b>+N/-S</b>	-19.68 ft	<b>Northing:</b>	606,129.83 usft	<b>Latitude:</b>	39° 58' 43.395 N
	<b>+E/-W</b>	3.08 ft	<b>Easting:</b>	2,585,325.06 usft	<b>Longitude:</b>	109° 24' 39.881 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	5,009.00 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	07/21/11	11.02	65.86	52,320

<b>Design</b>	PLAN #1 PRELIMINARY			
<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	66.90

<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	66.90	1,279.82	67.80	158.91	2.00	2.00	0.00	66.90	
2,716.19	20.00	66.90	2,610.60	257.86	604.43	0.00	0.00	0.00	0.00	
3,716.19	0.00	0.00	3,590.42	325.66	763.34	2.00	-2.00	0.00	180.00	
8,730.78	0.00	0.00	8,605.00	325.66	763.34	0.00	0.00	0.00	0.00	PBHL_NBU 1022-2F4



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-2F4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT NAD27	<b>MD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-2F PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-2F4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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	66.90	399.98	0.68	1.61	1.75	2.00	2.00	2.00	0.00
500.00	4.00	66.90	499.84	2.74	6.42	6.98	2.00	2.00	2.00	0.00
600.00	6.00	66.90	599.45	6.16	14.43	15.69	2.00	2.00	2.00	0.00
700.00	8.00	66.90	698.70	10.94	25.64	27.88	2.00	2.00	2.00	0.00
800.00	10.00	66.90	797.47	17.08	40.03	43.52	2.00	2.00	2.00	0.00
900.00	12.00	66.90	895.62	24.57	57.58	62.60	2.00	2.00	2.00	0.00
1,000.00	14.00	66.90	993.06	33.39	78.27	85.10	2.00	2.00	2.00	0.00
1,100.00	16.00	66.90	1,089.64	43.55	102.08	110.98	2.00	2.00	2.00	0.00
1,109.74	16.19	66.90	1,099.00	44.61	104.56	113.68	2.00	2.00	2.00	0.00
<b>GREEN RIVER</b>										
1,200.00	18.00	66.90	1,185.27	55.02	128.97	140.21	2.00	2.00	2.00	0.00
1,300.00	20.00	66.90	1,279.82	67.80	158.91	172.77	2.00	2.00	2.00	0.00
<b>Start 1416.19 hold at 1300.00 MD</b>										
1,400.00	20.00	66.90	1,373.78	81.22	190.37	206.97	0.00	0.00	0.00	0.00
1,500.00	20.00	66.90	1,467.75	94.64	221.83	241.17	0.00	0.00	0.00	0.00
1,600.00	20.00	66.90	1,561.72	108.06	253.29	275.37	0.00	0.00	0.00	0.00
1,700.00	20.00	66.90	1,655.69	121.48	284.75	309.58	0.00	0.00	0.00	0.00
1,800.00	20.00	66.90	1,749.66	134.90	316.20	343.78	0.00	0.00	0.00	0.00
1,900.00	20.00	66.90	1,843.63	148.32	347.66	377.98	0.00	0.00	0.00	0.00
2,000.00	20.00	66.90	1,937.60	161.74	379.12	412.18	0.00	0.00	0.00	0.00
2,100.00	20.00	66.90	2,031.57	175.16	410.58	446.38	0.00	0.00	0.00	0.00
2,200.00	20.00	66.90	2,125.54	188.58	442.04	480.59	0.00	0.00	0.00	0.00
2,257.96	20.00	66.90	2,180.00	196.36	460.27	500.41	0.00	0.00	0.00	0.00
<b>8 5/8"</b>										
2,300.00	20.00	66.90	2,219.51	202.01	473.50	514.79	0.00	0.00	0.00	0.00
2,400.00	20.00	66.90	2,313.48	215.43	504.96	548.99	0.00	0.00	0.00	0.00
2,500.00	20.00	66.90	2,407.45	228.85	536.42	583.19	0.00	0.00	0.00	0.00
2,600.00	20.00	66.90	2,501.42	242.27	567.87	617.39	0.00	0.00	0.00	0.00
2,700.00	20.00	66.90	2,595.39	255.69	599.33	651.60	0.00	0.00	0.00	0.00
2,716.19	20.00	66.90	2,610.60	257.86	604.43	657.13	0.00	0.00	0.00	0.00
<b>Start Drop -2.00</b>										
2,800.00	18.32	66.90	2,689.76	268.66	629.73	684.64	2.00	-2.00	2.00	0.00
2,900.00	16.32	66.90	2,785.22	280.34	657.12	714.42	2.00	-2.00	2.00	0.00
3,000.00	14.32	66.90	2,881.66	290.71	681.42	740.84	2.00	-2.00	2.00	0.00
3,100.00	12.32	66.90	2,978.96	299.75	702.62	763.89	2.00	-2.00	2.00	0.00
3,200.00	10.32	66.90	3,077.01	307.46	720.68	783.52	2.00	-2.00	2.00	0.00
3,300.00	8.32	66.90	3,175.69	313.82	735.58	799.72	2.00	-2.00	2.00	0.00
3,400.00	6.32	66.90	3,274.87	318.82	747.30	812.47	2.00	-2.00	2.00	0.00
3,500.00	4.32	66.90	3,374.43	322.46	755.84	821.75	2.00	-2.00	2.00	0.00
3,600.00	2.32	66.90	3,474.26	324.73	761.17	827.55	2.00	-2.00	2.00	0.00
3,700.00	0.32	66.90	3,574.22	325.64	763.30	829.86	2.00	-2.00	2.00	0.00
3,716.19	0.00	0.00	3,590.42	325.66	763.34	829.90	2.00	-2.00	2.00	0.00
<b>Start 5014.58 hold at 3716.19 MD</b>										
3,800.00	0.00	0.00	3,674.22	325.66	763.34	829.90	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,774.22	325.66	763.34	829.90	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,874.22	325.66	763.34	829.90	0.00	0.00	0.00	0.00



SDI  
Planning Report



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-2F4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT NAD27	<b>MD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-2F PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-2F4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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)	
4,100.00	0.00	0.00	3,974.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,074.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,282.78	0.00	0.00	4,157.00	325.66	763.34	829.90	0.00	0.00	0.00	
<b>WASATCH</b>										
4,300.00	0.00	0.00	4,174.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,274.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,374.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,474.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,574.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,674.22	325.66	763.34	829.90	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,774.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,874.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,100.00	0.00	0.00	4,974.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,074.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,174.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,274.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,374.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,474.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,574.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,674.22	325.66	763.34	829.90	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,774.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,874.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,974.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,074.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,174.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,274.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,374.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,587.78	0.00	0.00	6,462.00	325.66	763.34	829.90	0.00	0.00	0.00	
<b>MESAVERDE</b>										
6,600.00	0.00	0.00	6,474.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,574.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,674.22	325.66	763.34	829.90	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,774.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,874.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,974.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,074.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,300.00	0.00	0.00	7,174.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,400.00	0.00	0.00	7,274.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,374.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,474.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,574.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,800.00	0.00	0.00	7,674.22	325.66	763.34	829.90	0.00	0.00	0.00	
7,900.00	0.00	0.00	7,774.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,874.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,100.00	0.00	0.00	7,974.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,200.00	0.00	0.00	8,074.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,174.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,400.00	0.00	0.00	8,274.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,374.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,474.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,700.00	0.00	0.00	8,574.22	325.66	763.34	829.90	0.00	0.00	0.00	
8,730.78	0.00	0.00	8,605.00	325.66	763.34	829.90	0.00	0.00	0.00	



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-2F4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT NAD27	<b>MD Reference:</b>	GL 5009' & KB 4' @ 5013.00ft (ASSUMED)
<b>Site:</b>	NBU 1022-2F PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-2F4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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)
TD at 8730.78 - PBHL_NBU 1022-2F4BS									

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_NBU 1022-2F4BS - hit/miss target - Shape - Circle (radius 25.00)	0.00	0.00	8,605.00	325.66	763.34	606,473.23	2,586,080.58	39° 58' 46.614 N	109° 24' 30.074 W

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
2,257.96	2,180.00	8 5/8"	8.625	11.000

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,109.74	1,099.00	GREEN RIVER			
4,282.78	4,157.00	WASATCH			
6,587.78	6,462.00	MESAVERDE			

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
300.00	300.00	0.00	0.00	Start Build 2.00
1,300.00	1,279.82	67.80	158.91	Start 1416.19 hold at 1300.00 MD
2,716.19	2,610.60	257.86	604.43	Start Drop -2.00
3,716.19	3,590.42	325.66	763.34	Start 5014.58 hold at 3716.19 MD
8,730.78	8,605.00	325.66	763.34	TD at 8730.78

<b>NBU 1022-2E1CS</b>			
Surface:	2376 FNL / 1377 FWL	SENW	Lot
BHL:	1900 FNL / 823 FWL	SWNW	Lot
<b>NBU 1022-2E4BS</b>			
Surface:	2386 FNL / 1379 FWL	SENW	Lot
BHL:	2231 FNL / 822 FWL	SWNW	Lot
<b>NBU 1022-2F1CS</b>			
Surface:	2366 FNL / 1376 FWL	SENW	Lot
BHL:	1738 FNL / 2145 FWL	SENW	Lot
<b>NBU 1022-2F4BS</b>			
Surface:	2395 FNL / 1381 FWL	SENW	Lot
BHL:	2069 FNL / 2144 FWL	SENW	Lot
<b>NBU 1022-2F4CS</b>			
Surface:	2405 FNL / 1382 FWL	SENW	Lot
BHL:	2412 FNL / 2141 FWL	SENW	Lot
<b>NBU 1022-2K1BS</b>			
Surface:	2415 FNL / 1384 FWL	SENW	Lot
BHL:	2566 FSL / 2142 FWL	NESW	Lot

Pad: NBU 1022-2F PAD  
Section 2 T10S R22E  
Mineral Lease: ST UT ML 22651

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:**

One new access road is proposed (see Topo Map B). The  $\pm 425'$  re-route will follow the proposed gas and liquid pipelines from the South edge of the pad to the existing access road. Applicable Uintah County encroachment and/or pipeline crossing permits will be obtained prior to construction/development. No other pipelines will be crossed at this location.

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 1022-02F. The NBU 1022-02F well location is a vertical producing well according to Utah Division of Oil, Gas and Mining (UDOGM) records as of July 19, 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  $\pm 1,920'$  and the individual segments are broken up as follows:

- $\pm 475'$  (0.09 miles) –New 8" buried gas pipeline from the meter to the edge of the pad. Please refer to Topo D2 - Pad and Pipeline Detail.
- $\pm 775'$  (0.15 miles) –New 8" buried gas pipeline from the edge of pad to the tie-in at the proposed 1022-2L Intersection. Please refer to Topo D2 - Pad and Pipeline Detail.
- $\pm 670'$  (0.13 miles) –New 10" buried gas pipeline from the proposed 1022-2L Intersection to the tie-in at the proposed 1022-2D Intersection. Please refer to Topo D2 - Pad and Pipeline Detail.

The total liquid gathering pipeline distance from the separator to the tie in point is  $\pm 1,920'$  and the individual segments are broken up as follows:

- $\pm 475'$  (0.09 miles) – Up to 6" new buried liquid pipeline from the separator to the edge of the pad. Please refer to Topo D2 - Pad and Pipeline Detail.
- $\pm 775'$  (0.15 miles) – Up to 6" new buried liquid pipeline from the edge of pad to the tie-in at the proposed 1022-2L Intersection . Topo D2 - Pad and Pipeline Detail.
- $\pm 670'$  (0.13 miles) – Up to 6" new buried liquid pipeline from the tie-in at the proposed 1022-2L Intersection to the tie-in at the proposed 1022-2D Intersection . Please 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

July 19, 2011

Date



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

July 25, 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 1022-2F4BS  
T10S-R22E  
Section 2: SENW  
Surface: 2395' FNL, 1381' FWL  
T10S-R22E  
Section 2: SENW  
Bottom Hole: 2069' FNL, 2144' FWL  
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 1022-2F4BS 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 5, 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 1022-2F PAD**

43-047-51760	NBU 1022-E4BS	Sec 02 T10S R22E 2386 FNL 1379 FWL
	BHL	Sec 02 T10S R22E 2231 FNL 0822 FWL

43-047-51761	NBU 1022-2F1CS	Sec 02 T10S R22E 2366 FNL 1376 FWL
	BHL	Sec 02 T10S R22E 1738 FNL 2145 FWL

43-047-51764	NBU 1022-2F4BS	Sec 02 T10S R22E 2395 FNL 1381 FWL
	BHL	Sec 02 T10S R22E 2069 FNL 2144 FWL

43-047-51765	NBU 1022-2F4CS	Sec 02 T10S R22E 2405 FNL 1382 FWL
	BHL	Sec 02 T10S R22E 2412 FNL 2141 FWL

43-047-51766	NBU 1022-2K1BS	Sec 02 T10S R22E 2415 FNL 1384 FWL
	BHL	Sec 02 T10S R22E 2566 FSL 2142 FWL

43-047-51785	NBU 1022-2E1CS	Sec 02 T10S R22E 2376 FNL 1377 FWL
	BHL	Sec 02 T10S R22E 1900 FNL 0823 FWL

**NBU 1022-2D PAD**

43-047-51767	NBU 1022-2C4BS	Sec 02 T10S R22E 0526 FNL 1185 FWL
	BHL	Sec 02 T10S R22E 0745 FNL 2148 FWL

43-047-51768	NBU 1022-2C4CS	Sec 02 T10S R22E 0537 FNL 1202 FWL
	BHL	Sec 02 T10S R22E 1076 FNL 2147 FWL

43-047-51779	NBU 1022-2D1BS	Sec 02 T10S R22E 0503 FNL 1152 FWL
	BHL	Sec 02 T10S R22E 0291 FNL 0807 FWL

**RECEIVED: August 08, 2011**

API #	WELL NAME	LOCATION
(Proposed PZ WASATCH-MESA VERDE)		
43-047-51780	NBU 1022-2D4BS	Sec 02 T10S R22E 0514 FNL 1168 FWL BHL Sec 02 T10S R22E 0692 FNL 0820 FWL
43-047-51782	NBU 1022-2E1BS	Sec 02 T10S R22E 0520 FNL 1177 FWL BHL Sec 02 T10S R22E 1569 FNL 0823 FWL
43-047-51783	NBU 1022-2F1BS	Sec 02 T10S R22E 0531 FNL 1193 FWL BHL Sec 02 T10S R22E 1407 FNL 2146 FWL
<b>NBU 1022-2L PAD</b>		
43-047-51771	NBU 1022-2E4CS	Sec 02 T10S R22E 2127 FSL 0750 FWL BHL Sec 02 T10S R22E 2561 FNL 0822 FWL
43-047-51772	NBU 1022-2L1CS	Sec 02 T10S R22E 2087 FSL 0753 FWL BHL Sec 02 T10S R22E 2067 FSL 0821 FWL
43-047-51773	NBU 1022-2L1BS	Sec 02 T10S R22E 2117 FSL 0751 FWL BHL Sec 02 T10S R22E 2398 FSL 0822 FWL
43-047-51774	NBU 1022-2L4BS	Sec 02 T10S R22E 2077 FSL 0754 FWL BHL Sec 02 T10S R22E 1736 FSL 0821 FWL
43-047-51776	NBU 1022-2K1CS	Sec 02 T10S R22E 2107 FSL 0752 FWL BHL Sec 02 T10S R22E 2235 FSL 2141 FWL
43-047-51777	NBU 1022-2K4BS	Sec 02 T10S R22E 2097 FSL 0752 FWL BHL Sec 02 T10S R22E 1904 FSL 2140 FWL
<b>NBU 1022-2M PAD</b>		
43-047-51775	NBU 1022-2L4CS	Sec 02 T10S R22E 1075 FSL 0695 FWL BHL Sec 02 T10S R22E 1406 FSL 0820 FWL
43-047-51778	NBU 1022-2M1BS	Sec 02 T10S R22E 1071 FSL 0686 FWL BHL Sec 02 T10S R22E 1075 FSL 0820 FWL
43-047-51781	NBU 1022-2M1CS	Sec 02 T10S R22E 1057 FSL 0659 FWL BHL Sec 02 T10S R22E 0771 FSL 0704 FWL
43-047-51784	NBU 1022-2M4BS	Sec 02 T10S R22E 1066 FSL 0677 FWL BHL Sec 02 T10S R22E 0414 FSL 0819 FWL
43-047-51786	NBU 1022-2M4CS	Sec 02 T10S R22E 1062 FSL 0668 FWL BHL Sec 02 T10S R22E 0092 FSL 0822 FWL
43-047-51789	NBU 1022-11D2AS	Sec 02 T10S R22E 1053 FSL 0650 FWL BHL Sec 11 T10S R22E 0133 FNL 0360 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: 2011.08.08 08:31:52 -06'00'

**RECEIVED: August 08, 2011**

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

MCoulthard:mc:8-5-11

**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 1022-2F4BS			
String	SURF	PROD		
Casing Size(")	8.625	4.500		
Setting Depth (TVD)	2116	8605		
Previous Shoe Setting Depth (TVD)	40	2116		
Max Mud Weight (ppg)	8.3	12.5		
BOPE Proposed (psi)	500	5000		
Casing Internal Yield (psi)	3390	7780		
Operators Max Anticipated Pressure (psi)	5507	12.3		

Calculations	<b>SURF String</b>	<b>8.625</b>	<b>"</b>	
Max BHP (psi)	.052*Setting Depth*MW=	913		
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	659	NO	air drill
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	447	YES	OK
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	456	NO	Reasonable for area
Required Casing/BOPE Test Pressure=		2116	psi	
*Max Pressure Allowed @ Previous Casing Shoe=		40	psi *Assumes 1psi/ft frac gradient	

Calculations	<b>PROD String</b>	<b>4.500</b>	<b>"</b>	
Max BHP (psi)	.052*Setting Depth*MW=	5593		
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	4560	YES	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	3700	YES	OK
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	4165	NO	Reasonable
Required Casing/BOPE Test Pressure=		5000	psi	
*Max Pressure Allowed @ Previous Casing Shoe=		2116	psi *Assumes 1psi/ft frac gradient	

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

Calculations	<b>String</b>		<b>"</b>	
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	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=		NO	
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=		NO	
Required Casing/BOPE Test Pressure=			psi	

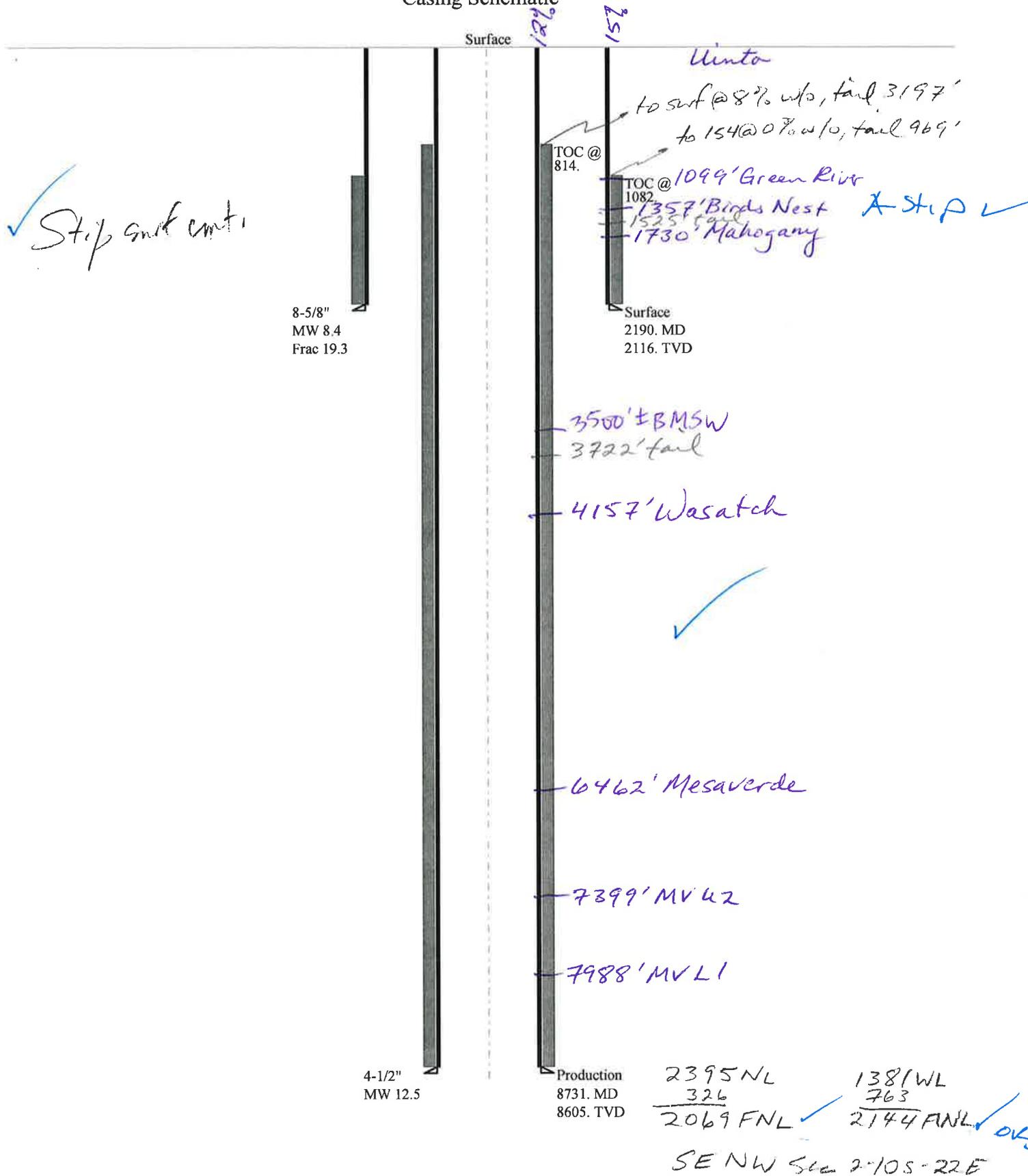
API Well Number: 43047517640000

\*Max Pressure Allowed @ Previous Casing Shoe=

psi \*Assumes 1psi/ft frac gradient

# 43047517640000 NBU 1022-2F4BS

## Casing Schematic



Well name:	<b>43047517640000 NBU 1022-2F4BS</b>		
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>		
String type:	Surface	Project ID:	43-047-51764
Location:	UINTAH COUNTY		

**Design parameters:**

**Collapse**

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

**Minimum design factors:**

**Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
 Surface temperature: 74 °F  
 Bottom hole temperature: 104 °F  
 Temperature gradient: 1.40 °F/100ft  
 Minimum section length: 100 ft

Cement top: 1,082 ft

**Burst**

Max anticipated surface pressure: 1,927 psi  
 Internal gradient: 0.120 psi/ft  
 Calculated BHP 2,181 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: 1,911 ft

**Directional Info - Build & Drop**

Kick-off point 300 ft  
 Departure at shoe: 477 ft  
 Maximum dogleg: 2 °/100ft  
 Inclination at shoe: 20 °

**Re subsequent strings:**

Next setting depth: 8,605 ft  
 Next mud weight: 12.500 ppg  
 Next setting BHP: 5,588 psi  
 Fracture mud wt: 19.250 ppg  
 Fracture depth: 2,190 ft  
 Injection pressure: 2,190 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	2190	8.625	28.00	I-55	LT&C	2116	2190	7.892	86724

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	923	1880	2.036	2181	3390	1.55	59.3	348	5.87 J

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

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

Date: August 18, 2011  
 Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 2116 ft, a mud weight of 8.4 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

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>43047517640000 NBU 1022-2F4BS</b>		
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>		
String type:	Production	Project ID:	43-047-51764
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: 194 °F  
 Temperature gradient: 1.40 °F/100ft  
 Minimum section length: 100 ft  
 Cement top: 814 ft

**Burst**

Max anticipated surface pressure: 3,695 psi  
 Internal gradient: 0.220 psi/ft  
 Calculated BHP 5,588 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)

**Directional Info - Build & Drop**

Kick-off point 300 ft  
 Departure at shoe: 830 ft  
 Maximum dogleg: 2 °/100ft  
 Inclination at shoe: 0 °

Tension is based on air weight.  
 Neutral point: 7,123 ft

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	8731	4.5	11.60	I-80	LT&C	8605	8731	3.875	115249

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	5588	6360	1.138	5588	7780	1.39	99.8	212	2.12 J

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

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

Date: August 18, 2011  
 Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 8605 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 1022-2F4BS  
**API Number** 43047517640000      **APD No** 4294      **Field/Unit** NATURAL BUTTES  
**Location: 1/4,1/4** SENW      **Sec 2 Tw** 10.0S      **Rng** 22.0E      2395 FNL 1381 FWL  
**GPS Coord (UTM)** 635680 4426398      **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, (DOGM).

### 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 59.0 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 1022-O2F). 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 reclaimed and a new access road of 425 feet will be constructed. The location runs in a north-south direction along the top of a flat topped ridge. This ridge breaks off sharply into rugged secondary canyons especially on the south and east sides. New construction will consist of approx. 60 feet to the south and east of the existing pad, and 50 feet on the north and west sides 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>
0.12	<b>Width 300 Length 425</b>	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 west side of the location. Dimensions are 120' x 255' 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

10/5/2011

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>
4294	43047517640000	LOCKED	GW	S	No
<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>Surface Owner-APD</b>		
<b>Well Name</b>	NBU 1022-2F4BS		<b>Unit</b>	NATURAL BUTTES	
<b>Field</b>	NATURAL BUTTES		<b>Type of Work</b>	DRILL	
<b>Location</b>	SEW 2 10S 22E S 2395 FNL 1381 FWL GPS Coord (UTM)			635683E	4426382N

### Geologic Statement of Basis

Kerr McGee proposes to set 2,180' 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 3,500'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the center of Section 2. 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

9/21/2011  
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 59.0 road miles following Utah State, Uintah County and oilfield development roads. The existing access road will be reclaimed and a new one of 425 feet will be constructed.

Six wells will be directionally drilled from this location. They are the NBU 1022-2K1BS, NBU 1022-2F4CS, NBU 1022-2F4BS, NBU 1022-2E4BS, NBU 1022-2E1CS, and the NBU 1022-2F1CS. The existing location has one existing well. This well is the NBU 1022-O2F 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 north-south direction. This ridge breaks off sharply into rugged secondary canyons on the south 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.

Excess material will be stockpiled on the north side of the new reserve pit. Approx. 60' of additional construction will be necessary on the south and east 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 05, 2011**

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# Application for Permit to Drill Statement of Basis

10/5/2011

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 west side of the location.

## WORKSHEET APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 8/1/2011**API NO. ASSIGNED:** 43047517640000**WELL NAME:** NBU 1022-2F4BS**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995)**PHONE NUMBER:** 720 929-6100**CONTACT:** Andy Lytle**PROPOSED LOCATION:** SENW 02 100S 220E**Permit Tech Review:** **SURFACE:** 2395 FNL 1381 FWL**Engineering Review:** **BOTTOM:** 2069 FNL 2144 FWL**Geology Review:** **COUNTY:** Uintah**LATITUDE:** 39.97861**LONGITUDE:** -109.41104**UTM SURF EASTINGS:** 635683.00**NORTHINGS:** 4426382.00**FIELD NAME:** NATURAL BUTTES**LEASE TYPE:** 3 - State**LEASE NUMBER:** ST UT ML 22651**PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE**SURFACE OWNER:** 3 - State**COALBED METHANE:** NO**RECEIVED AND/OR REVIEWED:**

- PLAT
- Bond: STATE - 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 - hmadonald



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 1022-2F4BS  
**API Well Number:** 43047517640000  
**Lease Number:** ST UT ML 22651  
**Surface Owner:** STATE  
**Approval Date:** 10/5/2011

**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.

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

Surface casing shall be cemented to the surface.

**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>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	5. LEASE DESIGNATION AND SERIAL NUMBER: ST UT ML 22651
1. TYPE OF WELL Gas Well	6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
2. NAME OF OPERATOR: KERR-MCGEE OIL & GAS ONSHORE, L.P.	7. UNIT or CA AGREEMENT NAME: NATURAL BUTTES
3. ADDRESS OF OPERATOR: P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	8. WELL NAME and NUMBER: NBU 1022-2F4BS
4. LOCATION OF WELL FOOTAGES AT SURFACE: 2395 FNL 1381 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SENW Section: 02 Township: 10.0S Range: 22.0E Meridian: S	9. API NUMBER: 43047517640000
5. PHONE NUMBER: 720 929-6511	9. FIELD and POOL or WILDCAT: NATURAL BUTTES
	COUNTY: UINTAH
	STATE: UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT Approximate date work will start: 3/19/2012	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> SUBSEQUENT REPORT 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"/> SPUD REPORT Date of Spud:	<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.

The operator requests approval for changes in the drilling plan. Specifically, the operator requests approval for a FIT waiver, a closed loop drilling option and 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: March 20, 2012

By: 

NAME (PLEASE PRINT) Jaime Scharnowske	PHONE NUMBER 720 929-6304	TITLE Regulatory Analyst
SIGNATURE N/A	DATE 3/19/2012	

**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 1022-2F4BS**

Surface: 2395 FNL / 1381 FWL      SENW  
 BHL: 2069 FNL / 2144 FWL      SENW

Section 2 T10S R22E

Uintah County, Utah  
 Mineral Lease: ST UT ML 22651

**ONSHORE ORDER NO. 1****DRILLING PROGRAM**

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

<u>Formation</u>	<u>Depth</u>	<u>Resource</u>
Uinta	0 - Surface	
Green River	1,099'	
Birds Nest	1,357'	Water
Mahogany	1,730'	Water
Wasatch	4,157'	Gas
Mesaverde	6,462'	Gas
Sego	8,605'	Gas
TVD	8,605'	
TD	8,731'	

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 8605' TVD, approximately equals  
5,507 psi 0.64 psi/ft = actual bottomhole gradient

---

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

Maximum anticipated surface pressure equals approximately 3,602 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 not put the booster and standby compressor opposite from the bleed line.

Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the bleed 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**

**CASING PROGRAM**

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS			
						BURST	LTC		DQX
							COLLAPSE	TENSION	
CONDUCTOR	14"	0-40'							
SURFACE	8-5/8"	0 to 2,180	28.00	IJ-55	LTC	3,390	1,880	348,000	N/A
						2.48	1.84	6.51	N/A
PRODUCTION	4-1/2"	0 to 5,000	11.60	I-80	DQX	7,780	6,350	223,000	267,035
						1.11	1.14	6.37	3.26
	4-1/2"	5,000 to 8,731'	11.60	I-80	LTC	1.11	1.14	6.37	

**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
NOTE: If well will circulate water to surface, option 2 will be utilized							
SURFACE	LEAD	1,680'	65/35 Poz + 6% Gel + 10 pps gilsonite + 0.25 pps Flocele + 3% salt BWOW	160	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	3,651'	Premium Lite II +0.25 pps celloflake + 5 pps gilsonite + 10% gel + 0.5% extender	290	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**

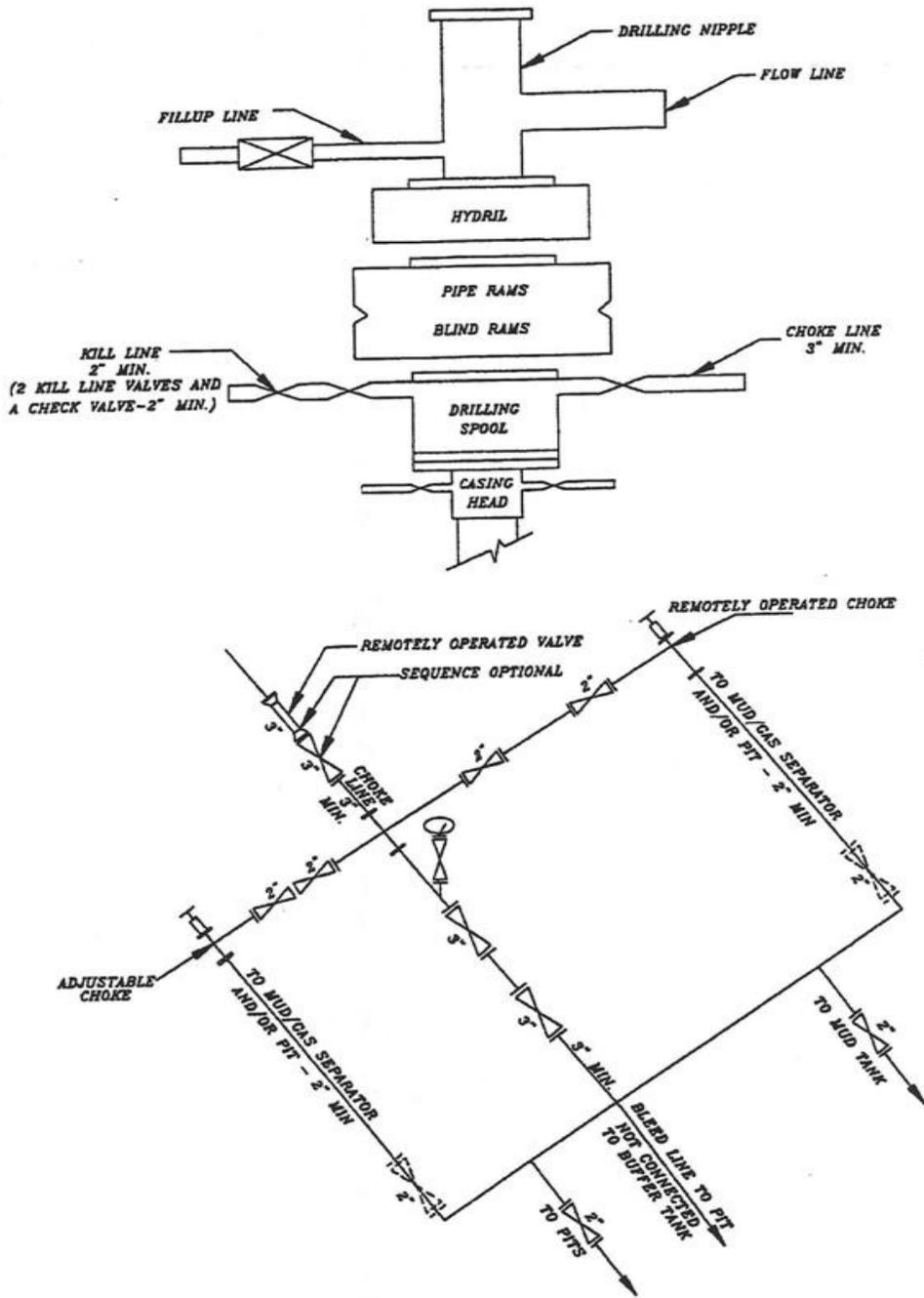
SURFACE	Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe
PRODUCTION	Float shoe, 1 jt, float collar. 15 centralizers for a Mesaverde and 20 for a Blackhawk well. 1 centralizer on the first 3 joints and one every third joint thereafter.

**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:** \_\_\_\_\_ **DATE:** \_\_\_\_\_  
 Nick Spence / Danny Showers / Chad Loesel  
**DRILLING SUPERINTENDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_  
 Kenny Gathings / Lovel Young

### EXHIBIT A NBU 1022-2F4BS



**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.

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> ST UT ML 22651
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 1022-2F4BS	
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047517640000	
<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> 2395 FNL 1381 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SENW Section: 02 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 checked="" type="checkbox"/> SPUD REPORT Date of Spud: 3/19/2012  <input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> ACIDIZE  <input type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION  <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input type="checkbox"/> OTHER	
	<input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input 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.		
MIRU TRIPLE A BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'. RAN 14" 36.7# SCHEDULE 10 CONDUCTOR PIPE. CEMENT WITH 28 SACKS READY MIX. SPUD WELL LOCATION ON MARCH 19, 2012 AT 17:00 HRS.		
<b>Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY March 21, 2012</b>		
<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske	<b>PHONE NUMBER</b> 720 929-6304	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 3/21/2012	

<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>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ST UT ML 22651
<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 1022-2F4BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2395 FNL 1381 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SENW Section: 02 Township: 10.0S Range: 22.0E Meridian: S		<b>9. API NUMBER:</b> 43047517640000
<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: 3/25/2012	<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"/> NEW CONSTRUCTION	
	<input type="checkbox"/> PRODUCTION START OR RESUME	
	<input type="checkbox"/> PLUG AND ABANDON	
	<input type="checkbox"/> PLUG BACK	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> RECLAMATION OF WELL SITE	
	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION	
	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> TEMPORARY ABANDON	
	<input type="checkbox"/> WATER SHUTOFF	
	<input type="checkbox"/> VENT OR FLARE	
	<input type="checkbox"/> WATER DISPOSAL	
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	
	<input type="checkbox"/> SI TA STATUS EXTENSION	
	<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. MIRU AIR RIG ON MARCH 23, 2012. DRILLED SURFACE HOLE TO 2,388'. 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          March 28, 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> 3/26/2012	

ENTITY ACTION FORM

Operator: KERR McGEE OIL & GAS ONSHORE LP Operator Account Number: N 2995  
 Address: P.O. Box 173779  
City Denver  
State CO Zip 80217 Phone Number: (720) 929-6304

Well 1

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751766	NBU 1022-2K1BS		SEnw	2	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
B	99999	2900	3/19/2012			4/24/12	
Comments: MIRU BUCKET RIG SPUD WELL LOCATION ON 3/19/2012 AT 10:00 HOURS. <span style="float: right;">WSMVD</span>							

Well 2

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751765	NBU 1022-2F4CS		SEnw	2	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
B	99999	2900	3/19/2012			4/24/12	
Comments: MIRU BUCKET RIG SPUD WELL LOCATION ON 3/19/2012 AT 13:30 HOURS. <span style="float: right;">WSMVD</span>							

Well 3

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751764	NBU 1022-2F4BS		SEnw	2	10S	22e	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
B	99999	2900	3/19/2012			4/24/12	
Comments: MIRU BUCKET RIG SPUD WELL LOCATION ON 3/19/2012 AT 17:00 HOURS. <span style="float: right;">WSMVD</span>							

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)

JAIME SCHARNOWSKE

Name (Please Print)

*Jaime Scharnowske*

Signature

REGULATORY ANALYST

4/12/2012

Title

Date

RECEIVED

APR 18 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 1022-2F4BS  
Qtr/Qtr SE/NW Section 2 Township 10S Range 22E  
Lease Serial Number ST UT ML 22651  
API Number 4304751764

Casing – Time casing run starts, not cementing times.

- Production Casing
- Other

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

RECEIVED  
APR 27 2012

BOPE

- Initial BOPE test at surface casing point
- Other

DIV. OF OIL, GAS & MINING

Date/Time 4/27/12 20:00 AM  PM

Rig Move

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

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

Remarks \_\_\_\_\_  
\_\_\_\_\_

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>
<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ST UT ML 22651	
<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>	
<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES	
<b>8. WELL NAME and NUMBER:</b> NBU 1022-2F4BS	
<b>9. API NUMBER:</b> 43047517640000	
<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES	
<b>COUNTY:</b> UINTAH	
<b>STATE:</b> UTAH	

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

<b>1. TYPE OF WELL</b> Gas Well	
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	
<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>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2395 FNL 1381 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SENW Section: 02 Township: 10.0S Range: 22.0E Meridian: S	

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 type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 5/2/2012	<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 ROTARY RIG. FINISHED DRILLING FROM 2388' TO 8777' ON 4/30/2012. RAN 4-1/2" 11.6# I-80 PRODUCTION CASING. CEMENTED PRODUCTION CASING. RELEASED ENSIGN 146 RIG ON 5/2/2012 @ 10:00 HRS. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH THE WELL COMPLETION REPORT. WELL IS WAITING ON FINAL COMPLETION ACTIVITIES.

Accepted by the  
 Utah Division of  
 Oil, Gas and Mining  
**FOR RECORD ONLY**  
 May 09, 2012

<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> 5/3/2012	

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>  <b>5.LEASE DESIGNATION AND SERIAL NUMBER:</b> ST UT ML 22651
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>  <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 1022-2F4BS
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047517640000
<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> 2395 FNL 1381 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SENW Section: 02 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

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 type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 7/6/2012	<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.

No activity for the month of June 2012. Well TD at 8,777'.

**Accepted by the**  
**Utah Division of**  
**Oil, Gas and Mining**  
**FOR RECORD ONLY**  
 July 09, 2012

<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> 7/6/2012	

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>
<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ST UT ML 22651	
<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>	
<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES	
<b>8. WELL NAME and NUMBER:</b> NBU 1022-2F4BS	
<b>9. API NUMBER:</b> 43047517640000	
<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES	
<b>COUNTY:</b> UINTAH	
<b>STATE:</b> UTAH	

**SUNDRY NOTICES AND REPORTS ON WELLS**

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

<b>1. TYPE OF WELL</b> Gas Well	
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	
<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>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2395 FNL 1381 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SENW Section: 02 Township: 10.0S Range: 22.0E Meridian: S	

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 type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 7/10/2012	<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 checked="" 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 SUBJECT WELL WAS PLACED ON PRODUCTION ON 7/10/2012 AT 4:00 P.M. THE CHRONOLOGICAL WELL HISTORY WILL BE SUBMITTED WITH THE WELL COMPLETION REPORT.

Accepted by the  
 Utah Division of  
 Oil, Gas and Mining  
**FOR RECORD ONLY**  
 July 16, 2012

<b>NAME (PLEASE PRINT)</b> Cara Mahler	<b>PHONE NUMBER</b> 720 929-6029	<b>TITLE</b> Regulatory Analyst I
<b>SIGNATURE</b> N/A	<b>DATE</b> 7/13/2012	

**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:  
**ST UT ML 22651**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

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

8. WELL NAME and NUMBER:  
**NBU 1022-2F4BS**

9. API NUMBER:  
**4304751764**

10. FIELD AND POOL, OR WILDCAT  
**NATURAL BUTTES**

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:  
**SENW 2 10S 22E S**

12. COUNTY  
**UINTAH**

13. STATE  
**UTAH**

14. DATE SPUDDED: **3/19/2012**

15. DATE T.D. REACHED: **5/2/2012**

16. DATE COMPLETED: **7/10/2012** ABANDONED  READY TO PRODUCE

17. ELEVATIONS (DF, RKB, RT, GL):  
**5009 GL**

18. TOTAL DEPTH: MD **8,777** TVD **8,659**

19. PLUG BACK T.D.: MD **8,717** TVD **8,599**

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)  
**HDIL/ZDL/CNGR-CBL/GR/CCL/TEMP**

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: **SENW 2395 FNL 1381 FWL S2,T10S,R22E**  
AT TOP PRODUCING INTERVAL REPORTED BELOW: **SENW 2054 FNL 2136 FWL S2,T10S,R22E**  
AT TOTAL DEPTH: **SENW 2077 FNL 2155 FWL S2,T10S,R22E** *BHL by HGM*

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

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
20"	14" STL	36.7#	0	40		28			
11"	8 5/8" IJ-55	28#	0	2,370		750		0	
7 7/8"	4 1/2" I-80	11.6#	0	8,762		1,517		800	

**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"	7,963							

**26. PRODUCING INTERVALS**

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)	INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
(A) MESAVERDE	6,773	8,421			6,773 8,421	0.36	168	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"/>

**27. PERFORATION RECORD**

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

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
6773-8421	PUMP 7,565 BBLs SLICK H2O & 147,100 LBS 30/50 OTTAWA SAND
	7 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 RECEIVED**

**31. INITIAL PRODUCTION**

**INTERVAL A (As shown in Item #26)**

DATE FIRST PRODUCED: <b>7/10/2012</b>		TEST DATE: <b>7/16/2012</b>		HOURS TESTED: <b>24</b>		TEST PRODUCTION RATES: →		OIL – BBL: <b>0</b>	GAS – MCF: <b>3,176</b>	WATER – BBL: <b>0</b>	PROD. METHOD: <b>FLWG</b>
CHOKE SIZE: <b>20/64</b>	TBG. PRESS. <b>2,066</b>	CSG. PRESS. <b>2,460</b>	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL: <b>0</b>	GAS – MCF: <b>3,176</b>	WATER – BBL: <b>0</b>	INTERVAL STATUS: <b>PROD</b>	

**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.)**

**SOLD**

**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	1,099
				BIRD'S NEST	1,377
				MAHOGANY	1,777
				WASATCH	4,297
				MESAVERDE	6,540

**35. ADDITIONAL REMARKS (Include plugging procedure)**

The first 210' 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 4984'; LTC csg was run from 4984' to 8762'. 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 8/27/2012

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 Phone: 801-538-5340  
 1594 West North Temple, Suite 1210  
 Box 145801 Fax: 801-359-3940  
 Salt Lake City, Utah 84114-5801

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW

Spud Date: 3/24/2012

Project: UTAH-UINTAH

Site: NBU 1022-2F PAD

Rig Name No: ENSIGN 146/146, PROPETRO 11/11

Event: DRILLING

Start Date: 12/8/2011

End Date: 5/2/2012

Active Datum: RKB @5,023.00usft (above Mean Sea Level)

UWI: SE/NW0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
3/23/2012	16:30 - 23:00	6.50	MIRU	01	A	P		12 MILE RIG MOVE, 12 LOADS, 4 MOUNTAIN WEST TRUCKS 8 PERSONAL, J.D. FIELD SERVICES 2 TRUCKS 2 PERSONAL, 10 PRO PETRO PERSONAL
	23:00 - 0:00	1.00	MIRU	01	B	P		NBU 1022 - 2F4BS ( WELL 3 OF 6 ) INSTALL DIVERTOR HEAD AND BLUEY LINE. BUILD DITCH. SPOT IN RIG. SPOT IN CATWALK AND PIPE RACKS. RIG UP PIT PUMP. RIG UP PUMP. PRIME PUMP. INSPECT RIG. SAFETY MEETING
3/24/2012	0:00 - 5:30	5.50	MIRU	01	B	P		MOVE TO NBU 1022-2F4BS ( WELL 3 OF 6 ) INSTALL DIVERTOR HEAD AND BLUEY LINE. BUILD DITCH. SPOT IN RIG. SPOT IN CATWALK AND PIPE RACKS. RIG UP PIT PUMP. RIG UP PUMP. PRIME PUMP. INSPECT RIG.
	5:30 - 6:00	0.50	DRLSUR	06	A	P		POOH PU 11" BIT & DIR. TOOLS (AFTER INSPECTION)
	6:00 - 7:00	1.00	DRLSUR	02	D	P		DRL F/ 44' T/210' (166'@ 166' PER HR) W.O.B. 5-15K RPM 45 UP/DWN/ROT 20/20/20 PSI ON/OFF 600/400 M.W. 8.4# VIS 27
	7:00 - 7:30	0.50	DRLSUR	06	A	P		TOOH LDDP & BHA #1
	7:30 - 9:00	1.50	DRLSUR	06	A	P		TIH #2 BHA WTH 11" BIT
	9:00 - 0:00	15.00	DRLSUR	02	D	P		DRL F/210' T/1900' (1690'@ 112.6' PER HR) W.O.B. 20K RPM 45 UP/DWN/ROT 75/50/60 PSI ON/OFF 1600/1300 M.W.8.4# VIS 27
	0:00 - 7:00	7.00	DRLSUR	02	D	P		3' RIGHT 9' HIGH OF TARGET DRL F/1900'- T/2388' ( 488'@ 69.7' PER HR) WOB 20K RPM 45 UP/DWN/ROT 82/57/67 PSI ON/OFF 1750/1500 M.W. 8.4# VIS 27
3/25/2012	7:00 - 9:00	2.00	DRLSUR	05	C	P		CIRCULATE FOR CASING
	9:00 - 12:00	3.00	DRLSUR	06	D	P		LDDS, BHA & DIRECTIONAL TOOLS
	12:00 - 13:00	1.00	DRLSUR	12	A	P		MOVE PIPE RACKS AND CATWALK. PULL DIVERTER HEAD. RIG UP TO RUN CSG. MOVE CSG INTO POSITION TO P/U.
	13:00 - 16:00	3.00	DRLSUR	12	C	P		RUN 53 JTS 8 5/8, 28# J55 CASING SET SHOE @ 2353.9' SET BAFFLE @ 2309.8' LAND CASING @ 16:00
	16:00 - 17:00	1.00	DRLSUR	12	B	P		HOLD SAFETY MEETING, PUMP ON CASING RUN 200' OF 1". RIG DOWN RIG MOVE OFF WELL, REBUILD DITCH. RIG UP CEMENT TRUCK, 2" HARD LINES.

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW

Spud Date: 3/24/2012

Project: UTAH-UINTAH

Site: NBU 1022-2F PAD

Rig Name No: ENSIGN 146/146, PROPETRO 11/11

Event: DRILLING

Start Date: 12/8/2011

End Date: 5/2/2012

Active Datum: RKB @5,023.00usft (above Mean Sea Level)

UWI: SE/NW/010/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	17:00 - 18:30	1.50	DRLSUR	12	E	P		HOLD SAFETY MEETING. PRO PETRO CMTERS MAKE UP HEAD & LOAD PLUG TEST LINES TO 2000 PSI. PUMP 50 BBLS OF 8.4# H2O AHEAD, FULL RETURNS PUMP 20 BBLS OF 8.4# GEL WATER AHEAD. PUMP 300 SX (61.4 BBLS) OF 15.8# 1.15 YIELD TAIL(2% CALC, 1/4# /SK OF FLOCELE). DROP PLUG ON FLY AND DISPLACE W/ 146.5 BBLS OF 8.4# H2O. LIFT PRESSURE 350 PSI. BUMP PLUG AND HOLD 700 PSI FOR 5 MIN. NO RETURNS THRU OUT JOB. PUMP 150 SX (30.7 BBLS) 15.8# CMT W/4% CALCIUM DOWN 1".
	20:00 - 20:30	0.50	DRLSUR	13	A	P		WOC, 1.5 HOURS PUMP 300 SKS (61.4 BBLS) CLEAN TRUCKS & RIG DWN CMTERS. NO RETURNS RIG DOWN - SKID RIG 10' - RIG UP
4/27/2012	19:00 - 21:00	2.00	MIRU	01	C	P		N/UP BOPE
	21:00 - 22:00	1.00	DRLPRO	14	A	P		TEST BOPE, RAMS, CHOKE, CHOKE LINE, MANUAL VALVES, FLOOR VALVES, HCR & IBOP 250 LOW 5000 HIGH, ANNULAR 250 LOW 2500 HIGH, CASING 1500
	22:00 - 0:00	2.00	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, CASING 1500
4/28/2012	0:00 - 1:00	1.00	DRLPRO	15	A	P		INSTALL WEARBUSHING
	1:00 - 1:30	0.50	DRLPRO	14	B	P		P/UP SMITH MDI616 BIT, HUNTING MUD MOTOR 1.50 deg .21 RPG, RIH DIRECTIONAL B HA SCRIBE & ORIENT, RIH TAG CEMENT @ 2245'
	1:30 - 4:00	2.50	DRLPRO	06	A	P		CENTER & LEVEL RIG, INSTALL ROTATING HEAD
	4:00 - 5:00	1.00	DRLPRO	07	B	P		DRILL CEMENT, FLOAT EQUIPMENT & RATHOLE F/2245' TO 2893'
	5:00 - 6:00	1.00	DRLPRO	02	F	P		DRILL/SLIDE F/2398' TO 2677' (279' @139fph)
	6:00 - 8:00	2.00	DRLPRO	02	D	P		MW 8.5 VIS 27 WOB 22 RPM 45 MM RPM 115 TQ 6/8 SPM 112 GPM 550 PSI OFF/ON 1550/1925 DIFF 300/375 PU 114, SO 100, ROT 102 NOV - ON LINE SLIDE 38%/50 hrs 25% ROT 241'/1.5 hrs 75%
	8:00 - 8:30	0.50	DRLPRO	07	A	P		2' LOW 4' LEFT OF CENTER LINE RIG SER

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW

Spud Date: 3/24/2012

Project: UTAH-UINTAH

Site: NBU 1022-2F PAD

Rig Name No: ENSIGN 146/146, PROPETRO 11/11

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Start Date: 12/8/2011

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UWI: SE/NW0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	8:30 - 17:00	8.50	DRLPRO	02	D	P		DRILL/SLIDE F/2677' TO 4127' 1450' @170fph MW 8.5 VIS 27 WOB 22 RPM 45 MM RPM 115 TQ 6/8 SPM 112 GPM 550 PSI OFF/ON 1875/2250 DIFF 300/375 PU 138, SO 122, ROT 143 NOV - ON LINE SLIDE 120'/1.25 hrs 14% ROT 1330'/6.75 hrs 86% 27' NORTH 11' WEST OF CENTER TARGET
	17:00 - 18:30	1.50	DRLPRO	08	B	Z		TROUBLE SHOOT TOP DRIVE - ROTATING ENCODER & FLOATING BAILS - TECH'S DETERMINED CONTROL CABLE IN SERVICE LOOP BAD
	18:30 - 0:00	5.50	DRLPRO	02	D	P		DRILL/SLIDE F/4127' TO 5200' (1073' @195fph) MW 8.5 VIS 27 WOB 22 RPM 45 MM RPM 115 TQ 6/8 SPM 112 GPM 550 PSI OFF/ON 1975/2325 DIFF 300/375 PU 160, SO 140, ROT 145 NOV - ON LINE SLIDE 27'/1.50 hrs 9% ROT 1046'/5.00 hrs 91% 27' NORTH 10' WEST OF CENTER TARGET
4/29/2012	0:00 - 10:00	10.00	DRLPRO	02	D	P		DRILL/SLIDE F/5200' TO 6575' (1375' @137fph) MW 8.5 VIS 27 WOB 22 RPM 45 MM RPM 115 TQ 6/8 SPM 112 GPM 550 PSI OFF/ON 2150/2450 DIFF 300 PU 195, SO 150, ROT 168 NOV - ON LINE SLIDE 45'/1 hrs 10% ROT 1046'/5.00 hrs 90% 21' NORTH 9' WEST OF CENTER
	10:00 - 10:30	0.50	DRLPRO	07	A	P		RIG SER

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW

Spud Date: 3/24/2012

Project: UTAH-UINTAH

Site: NBU 1022-2F PAD

Rig Name No: ENSIGN 146/146, PROPETRO 11/11

Event: DRILLING

Start Date: 12/8/2011

End Date: 5/2/2012

Active Datum: RKB @5,023.00usft (above Mean Sea Level)

UWI: SE/NW/0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	10:30 - 0:00	13.50	DRLPRO	02	D	P		DRILL/SLIDE F/6575' TO 7855' (1280' @94fph) MW 11.3 VIS 37 WOB 22 RPM 35 MM RPM 102 TQ 6/8 SPM 100 GPM 490 PSI OFF/ON 2580/2950 DIFF 370 PU 210, SO 170, ROT 182 NOV - ON LINE SLIDE 20%/50 hrs 3% ROT 1260'/13 hrs 97% 14' NORTH 7' WEST OF CENTER
4/30/2012	0:00 - 8:30	8.50	DRLPRO	02	D	P		DRILL/SLIDE F/7855' TO 8479' (624' @73fph) MW 11.3 VIS 38 WOB 22 RPM 35 MM RPM 102 TQ 6/8 SPM 100 GPM 490 PSI OFF/ON 2550/2985 DIFF 370/400 PU 233, SO 175, ROT 190 NOV - OFF LINE SLIDE 0% ROT 100% 14' NORTH 7' WEST OF CENTER
	8:30 - 9:00	0.50	DRLPRO	07	A	P		RIG SER
	9:00 - 13:30	4.50	DRLPRO	02	D	P		DRILL/SLIDE F/8479' TO 8777' (298' @ 66fph) MW 12.0 VIS 40 WOB 22/24 RPM 35 MM RPM 100 TQ 8/12 SPM 98 GPM 480 PSI OFF/ON 2650/2975 DIFF 325 PU 248, SO 183, ROT 196 NOV - OFF LINE SLIDE 0% ROT 100% 6' SOUTH 9' EAST OF CENTER 5/15' FLARE ON CONNECTIONS WHILE BRINGING MW TO 12.0
	13:30 - 15:00	1.50	DRLPRO	05	C	P		CIRC - 20' FLARE FOR 20 MIN
	15:00 - 21:30	6.50	DRLPRO	06	E	P		WIPER TRIP, BACKREAM F/8777' TO 6530' - 25 STANDS, CONTINUE TRIP OUT TO 2369' - WASH THROUGH TIGHT AREA 5200' & 4260'
	21:30 - 0:00	2.50	DRLPRO	06	E	P		WIPER TRIP - TRIP IN F/2369' TO 2800' BREAK CIRC @ 2800' "OK" - CONTINUE TRIP IN WASH THROUGH TIGHT AREAS @ 4050' & 5100' @ MIDNIGHT
5/1/2012	0:00 - 4:00	4.00	DRLPRO	06	E	P		WIPER TRIP - TRIP IN F/5100' TO 8742' - WASH F/8742' TO 8777' - WASH THROUGH TIGHT SPOTS @ 5650', 5810', 6175', 6544', 6865' - LOST 75 BBLs MUD ON TRIP IN
	4:00 - 5:30	1.50	DRLPRO	05	C	P		CIRC OUT GAS - 30/40' FLARE - 15 MIN - RAISE MW TO 12.3

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW

Spud Date: 3/24/2012

Project: UTAH-UINTAH

Site: NBU 1022-2F PAD

Rig Name No: ENSIGN 146/146, PROPETRO 11/11

Event: DRILLING

Start Date: 12/8/2011

End Date: 5/2/2012

Active Datum: RKB @5,023.00usft (above Mean Sea Level)

UWI: SE/NW/0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	5:30 - 13:30	8.00	DRLPRO	06	B	P		TRIP OUT FOR LOGS - BACKREAM F/8777' TO 7708' - 15 STANDS, CONTINUE TRIP OUT SURFACE, L/DN MUD MOTOR (WASHED THROUGH TIGHT SPOT @ 5140')
	13:30 - 14:00	0.50	DRLPRO	14	B	P		RETRIEVE WEARBUSHING
	14:00 - 18:30	4.50	EVALPR	11	D	P		PRE-JOB SAFETY MEETING - R/UP BAKER ATLAS & RUN TRIPLE COMBO TO LOGGERS TD @ 4058' - BRIDGED OFF
	18:30 - 0:00	5.50	CSGPRO	12	C	P		PRE-JOB SAFETY MEETING - RIG UP FRANKS & RUN 206 JOINTS 4.5" LTC/DQX 11.60 I-80 PROD CASING, FLOAT SHOE 8761', FLOAT COLLAR 8716', MESA MKR 6545', XOVER 4962' - WASH THROUGH TIGHT SPOT @ 4100' - 4250' @ MIDNIGHT
5/2/2012	0:00 - 4:30	4.50	CSGPRO	12	C	P		RUN 4.5 PROD CASING F/4250' TO 8761' - (4.5" LTC/DQX 11.60 I-80 PROD CASING, FLOAT SHOE 8761', FLOAT COLLAR 8716', MESA MKR 6545', XOVER 4962)
	4:30 - 5:30	1.00	CSGPRO	05	D	P		CIRC - 10/20' FLARE 15 MIN
	5:30 - 8:00	2.50	CSGPRO	12	E	P		HPJSM, R/UP BJ & CEMENT 4.5" PROD CASING, TEST LINES 5000 PSI, DROP BOTTOM PLUG, PUMP 5 BBLs FRESH WATER, 40 BBLs SEAL BOND WEIGHTED SPACER @ 12.3 PPG, 515 SKS LEAD 13.0 PPG 1.77 YIELD, TAIL 1002 SKS 14.3 PPG, 1.31 YIELD, DROPPED PLUG & DISPLACED W/135 BBLs FRESH WATER W/0.1 gal/bbl CLAYFIX II & 0.01 gal/bbl ALDACIDE G @ 2850 PSI, BUMPED PLUG @ 3460 PSI - FLOATS HELD W/1.50 BBLs RETURN, GOOD RETURNS DURING CMT JOB W/2 BBLs LEAD CEMENT TO SURFACE - R/DN BJ
	8:00 - 8:30	0.50	CSGPRO	14	B	P		SET C-22 SLIPS W/95K STRING WEIGHT - WEATHERFORD DARRELL POLAND
	8:30 - 10:00	1.50	CSGPRO	14	A	P		NIPPLE DOWN BOPE - ROUGH CUT CASING - RELEASE RIG @ 10:00

1 General

1.1 Customer Information

Company	US ROCKIES REGION
Representative	
Address	

1.2 Well/Wellbore Information

Well	NBU 1022-2F4BS YELLOW	Wellbore No.	OH
Well Name	NBU 1022-2F4BS	Wellbore Name	NBU 1022-2F4BS
Report No.	1	Report Date	7/2/2012
Project	UTAH-UINTAH	Site	NBU 1022-2F PAD
Rig Name/No.		Event	COMPLETION
Start Date	7/2/2012	End Date	7/10/2012
Spud Date	3/24/2012	Active Datum	RKB @5,023.00usft (above Mean Sea Level)
UWI	SE/NW/0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0		

1.3 General

Contractor	CASED HOLE SOLUTIONS	Job Method	PERFORATE	Supervisor	ED GUDAC
Perforated Assembly	PRODUCTION CASING	Conveyed Method	WIRELINE		

1.4 Initial Conditions

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

1.5 Summary

Gross Interval	6,773.0 (usft)-8,421.0 (usft)	Start Date/Time	7/2/2012 12:00AM
No. of Intervals	32	End Date/Time	7/2/2012 12:00AM
Total Shots	168	Net Perforation Interval	42.00 (usft)
Avg Shot Density	4.00 (shot/ft)	Final Surface Pressure	
		Final Press Date	

2 Intervals

2.1 Perforated Interval

Date	Formation/Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/Add. Shot	Diameter (in)	Carr Type /Stage No	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
7/2/2012 12:00AM	MESAVERDE/			6,773.0	6,774.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO	N

2.1 Perforated Interval (Continued)

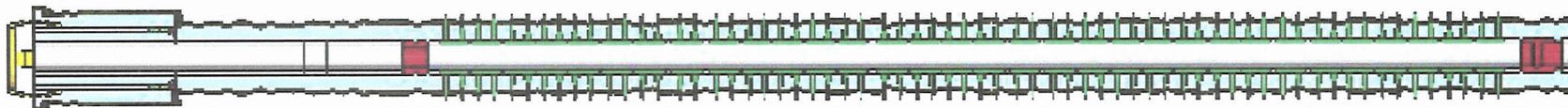
Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Stage No	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
7/2/2012 12:00AM	MESAVERDE/			6,809.0	6,810.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			6,863.0	6,864.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			6,890.0	6,892.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			6,909.0	6,910.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			6,960.0	6,962.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,009.0	7,012.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,130.0	7,131.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,257.0	7,258.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,301.0	7,302.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,309.0	7,310.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,333.0	7,335.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,377.0	7,378.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,554.0	7,555.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,578.0	7,579.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,600.0	7,602.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,629.0	7,631.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,740.0	7,741.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,839.0	7,840.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,867.0	7,868.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,900.0	7,901.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			7,922.0	7,924.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	

2.1 Perforated Interval (Continued)

Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Stage No	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
7/2/2012 12:00AM	MESAVERDE/			7,987.0	7,988.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,039.0	8,040.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,062.0	8,064.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,116.0	8,118.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,226.0	8,227.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,240.0	8,241.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,272.0	8,273.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,316.0	8,317.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,365.0	8,366.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
7/2/2012 12:00AM	MESAVERDE/			8,420.0	8,421.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	

3 Plots

3.1 Wellbore Schematic



**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW		Spud Date: 3/24/2012	
Project: UTAH-UINTAH		Site: NBU 1022-2F PAD	Rig Name No: MILES 3/3, MILES 3/3
Event: COMPLETION		Start Date: 7/2/2012	End Date: 7/10/2012
Active Datum: RKB @5,023.00usft (above Mean Sea Level)		UWI: SE/NW/0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub-Code	P/U	MD From (usft)	Operation
3/24/2012	-							
6/27/2012	14:30 - 14:45	0.25	COMP	33		P		RU HOT OILER, FILLED SURFACE WITH 1 BBL TMAC PRESSURED TO 1500 PSI LOST 300 PSI 1 MIN PRESSURED TO 1500 PSI LOST 200 PSI 1 MIN PRESSURED TO 1500 PSI LOST 100 PSI 1 MIN BLED WELL DOWN, MOVED TO NEXT WELL
6/28/2012	12:00 - 13:30	1.50	COMP	33		P		FILL SURFACE CSG. MIRU B&C QUICK TEST. PSI TEST T/ 1000 PSI. HELD FOR 15 MIN LOST 19 PSI. PSI TEST T/ 3500 PSI. HELD FOR 15 MIN LOST 44 PSI. 1ST PSI TEST T/ 7000 PSI. HELD FOR 30 MIN LOST 81 PSI. NO COMMUNICATION OR MIGRATION WITH SURFACE CSG BLEED OFF PSI. MOVE T/ NEXT WELL. SWFW
6/29/2012	7:00 - 10:30	3.50	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. SWFW
7/2/2012	7:00 - 7:15	0.25	COMP	48		P		HSM, REVIEW RIG UP
	7:15 - 9:00	1.75	COMP	46	E	Z		DID NOT BRING ALL CHEMICAL W/ TO LOC. SDFN.
7/3/2012	5:45 - 6:00	0.25	COMP	48		P		HSM, REVIEW FRAC

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW		Spud Date: 3/24/2012	
Project: UTAH-UINTAH	Site: NBU 1022-2F PAD	Rig Name No: MILES 3/3, MILES 3/3	
Event: COMPLETION	Start Date: 7/2/2012	End Date: 7/10/2012	
Active Datum: RKB @5,023.00usft (above Mean Sea Level)		UWI: SE/NW/0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	6:00 - 17:30	11.50	COMP	36	B	P		<p>8,148PERF &amp; FRAC FOLLOWING WELL AS PER DESIGN W/ 30/50 MESH SAND &amp; SLK WTR. ALL CBP'S ARE HALIBURTON 8K CBP'S. REFER TO STIM PJR FOR FLUID, SAND AND CHEMICAL VOLUME PUM'D</p> <p>FRAC STG #1] WHP=2,815#, BRK DN PERFS=4,613#, @=4.8 BPM, INJ RT=46.6, INJ PSI=4,025#, INITIAL ISIP=2,758#, INITIAL FG=.76, FINAL ISIP=2,442#, FINAL FG=.73, AVERAGE RATE=45.6, AVERAGE PRESSURE=4,200#, MAX RATE=46.7, MAX PRESSURE=5,686#, NET PRESSURE INCREASE=-316#, 24/24 100% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #2] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=8,148', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW</p> <p>FRAC STG #2] WHP=1,228#, BRK DN PERFS=3,181#, @=4.8 BPM, INJ RT=50.4, INJ PSI=4,517#, INITIAL ISIP=2,174#, INITIAL FG=.70, FINAL ISIP=2,670#, FINAL FG=.76, AVERAGE RATE=50.4, AVERAGE PRESSURE=4,493#, MAX RATE=50.5, MAX PRESSURE=4,800#, NET PRESSURE INCREASE=496#, 19/24 79% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #3] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,954', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW SWFN.</p>
7/4/2012	6:30 - 6:45	0.25	COMP	48		P		HSM, HIGH PRESSURE LINES / WIRE LINE

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW

Spud Date: 3/24/2012

Project: UTAH-UINTAH

Site: NBU 1022-2F PAD

Rig Name No: MILES 3/3, MILES 3/3

Event: COMPLETION

Start Date: 7/2/2012

End Date: 7/10/2012

Active Datum: RKB @5,023.00usft (above Mean Sea Level)

UWI: SE/NW0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	6:45 - 18:30	11.75	COMP	36	B	P		<p>FRAC STG #3] WHP=1,842#, BRK DN PERFS=4,916#, @=7.6 BPM, INJ RT=57.1, INJ PSI=4,842#, INITIAL ISIP=2,492#, INITIAL FG=.75, FINAL ISIP=1,900#, FINAL FG=.68, AVERAGE RATE=57, AVERAGE PRESSURE=4,919#, MAX RATE=57.2, MAX PRESSURE=5,033#, NET PRESSURE INCREASE=-592#, 24/24 100% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #4] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,661', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW. [MISSFIRE PLUG DID NOT SET, POOH FIX PROBLEM RERUN]</p> <p>FRAC STG #4] WHP=921#, BRK DN PERFS=6,065#, @=2.2 BPM, INJ RT=57.1, INJ PSI=4,937#, INITIAL ISIP=2,325#, INITIAL FG=.87, FINAL ISIP=2,160#, FINAL FG=.72, AVERAGE RATE=57.2, AVERAGE PRESSURE=4,396#, MAX RATE=57.3, MAX PRESSURE=5,115#, NET PRESSURE INCREASE=-165#, 24/24 100% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #5] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,408', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW SWMFN.</p>
7/5/2012	6:45 - 7:00	0.25	COMP	48		P		HSM, SLIPS / TRIPS / FALLS

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW		Spud Date: 3/24/2012	
Project: UTAH-UINTAH		Site: NBU 1022-2F PAD	Rig Name No: MILES 3/3, MILES 3/3
Event: COMPLETION		Start Date: 7/2/2012	End Date: 7/10/2012
Active Datum: RKB @5,023.00usft (above Mean Sea Level)		UWI: SE/NW/0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usff)	Operation
	7:00 - 17:30	10.50	COMP	36	B	P		<p>FRAC STG #5] WHP=1,240#, BRK DN PERFS=4,681#, @=6.7 BPM, INJ RT=50, INJ PSI=4,060#, INITIAL ISIP=2,352#, INITIAL FG=.75, FINAL ISIP=2,514#, FINAL FG=.78, AVERAGE RATE=50, AVERAGE PRESSURE=3,985#, MAX RATE=50.1, MAX PRESSURE=4,116#, NET PRESSURE INCREASE=122#, 24/24 100% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #6] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,161', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW</p> <p>FRAC STG #6] WHP=975#, BRK DN PERFS=3,027#, @=6.8 BPM, INJ RT=47.3, INJ PSI=4,268#, INITIAL ISIP=2,225#, INITIAL FG=.75, FINAL ISIP=2,249#, FINAL FG=.75, AVERAGE RATE=4,332, AVERAGE PRESSURE=4,332#, MAX RATE=49.5, MAX PRESSURE=4,598#, NET PRESSURE INCREASE=24#, 20/24 83% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #7] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=6,940', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW</p> <p>FRAC STG #7] WHP=1,235#, BRK DN PERFS=3,011#, @=5 BPM, INJ RT=49.6, INJ PSI=3,681#, INITIAL ISIP=1,755#, INITIAL FG=.69, FINAL ISIP=2,127#, FINAL FG=.74, AVERAGE RATE=49.5, AVERAGE PRESSURE=3,771#, MAX RATE=49.7, MAX PRESSURE=3,946#, NET PRESSURE INCREASE=372#, 22/24 92% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>P/U RIH W/ HALIBURTON 8K CBP, SET FOR TOP KILL @=6,723'</p> <p>TOTAL FLUID PUMP'D=7,565 BBLS TOTAL SAND PUMP'D=147,100# HSM, JSA</p>
7/10/2012	6:45 - 7:00	0.25	COMP	48		P		
	7:00 - 8:00	1.00	COMP	30	A	P		MIRU, ND WH, NU BOP'S, RU FLOOR & TBG EQUIP, SPOT IN TBG TRAILER
	8:00 - 10:00	2.00	COMP	31	I	P		P/U TBG, REMOVE THREAD PROTECTORS, TALLY & DRIFT TBG TO KILL PLUG @6,734'
	10:00 - 10:30	0.50	COMP	47	B	P		PRESS TEST BOP'S TO 3,000 PSI FOR 15 MIN, LOST 0 PSI

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW		Spud Date: 3/24/2012	
Project: UTAH-UINTAH		Site: NBU 1022-2F PAD	Rig Name No: MILES 3/3, MILES 3/3
Event: COMPLETION		Start Date: 7/2/2012	End Date: 7/10/2012
Active Datum: RKB @5,023.00usft (above Mean Sea Level)		UWI: SE/NW0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	10:30 - 16:00	5.50	COMP	44	C	P		<p>MIRU PWR SWWL &amp; NEW WASHINGTON RUBBER</p> <p>C/O 35' SAND, TAG 1ST PLUG @ 6,734' DRL PLUG IN 4 MIN. 0 PSI INCREASE RIH, CSG PRESS 0 PSI.</p> <p>C/O 30' SAND, TAG 2ND PLUG @ 6,923' DRL PLUG IN 5 MIN. 300 PSI INCREASE RIH, CSG PRESS 0 PSI.</p> <p>C/O 45' SAND, TAG 3RD PLUG @ 7,156' DRL PLUG IN 4 MIN. 700 PSI INCREASE RIH, CSG PRESS 300 PSI.</p> <p>C/O 40' SAND, TAG 4TH PLUG @ 7,407' DRL PLUG IN 6 MIN. 200 PSI INCREASE RIH, CSG PRESS 600 PSI.</p> <p>C/O 36' SAND, TAG 5TH PLUG @ 7,663' DRL PLUG IN 7 MIN. 200 PSI INCREASE RIH, CSG PRESS 500 PSI.</p> <p>C/O 45' SAND, TAG 6TH PLUG @ 7,941' DRL PLUG IN 8 MIN. 300 PSI INCREASE RIH, CSG PRESS 500 PSI.</p> <p>C/O 35' SAND, TAG 7TH PLUG @ 8,138' DRL PLUG IN 9 MIN. 100 PSI INCREASE RIH, CSG PRESS 700 PSI.</p> <p>PBTD @ 8,717', BTM PERF @ 8,421', RIH TO 8,564, 143' PAST BTM PERF (NO TAG) W/ 270 JTS 2 3/8" L-80 TBG, LD 19 JTS, PU &amp; STRIP IN TBG HANGER &amp; LAND TBG W/ 251 JTS 2 3/8" L-80, EOT 7,963.13".</p> <p>RD POWER SWIVEL, FLOOR &amp; TBG EQUIP, ND BOPS, NU WH, DROP BALL TO SHEAR OFF BIT W/ 2000 PSI, LET BIT FALL FOR 20 MIN.</p> <p>TURN OVER TO FLOW BACK CREW, RD &amp; MOVE TO NEXT WELL ON PAD.</p> <p>KB= 14' 4 1/16" WEATHERFORD HANGER= .83' TBG DELIVERED 283 JTS 251 JTS 2 3/8" L-80 = 7,946.10' TBG USED 251 JTS POBS= 2.20' TBG RETURNED 32 JTS EOT @7,963.13'</p> <p>TWTR= 7,565 BBLS TWR= 1,400 BBLS TWLTR= 6,165 BBLS</p> <p>WELL TURNED TO SALES @ 16:00 HR ON 7/10/2012, 1800 MCFD, 1920 BWPDP, FCP 2500#, TRP 2600#, 20/64".</p>
	16:00 - 16:00	0.00	COMP	50				
7/11/2012	-							

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1022-2F4BS YELLOW

Spud Date: 3/24/2012

Project: UTAH-UINTAH

Site: NBU 1022-2F PAD

Rig Name No: MILES 3/3, MILES 3/3

Event: COMPLETION

Start Date: 7/2/2012

End Date: 7/10/2012

Active Datum: RKB @5,023.00usft (above Mean Sea Level)

UWI: SE/NW0/10/S/22/E/2/0/0/26/PM/N/2395/W/0/1381/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
7/12/2012		-						

Project: UTAH - UTM (feet), NAD27, Zone 12N  
 Site: UINTAH\_NBU 1022-2F PAD  
 Well: NBU 1022-2F4BS  
 Wellbore: NBU 1022-2F4BS  
 Section:  
 SHL:  
 Design: NBU 1022-2F4BS (wp01)  
 Latitude: 39.978721  
 Longitude: -109.411078  
 GL: 5009.00  
 KB: 14' RKB + GL @ 5023.00ft (ENSIGN 146)

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	
1067.00	1076.17	GREEN RIVER	
1349.00	1372.97	BIRDS NEST	
1843.00	1899.74	MAHOGANY MARKER	
4168.00	4290.84	WASATCH	
4768.00	4890.86	TOP OF THE CYLINDER	
6462.00	6584.90	MESAVERDE	
8629.00	8751.95	SEGO	

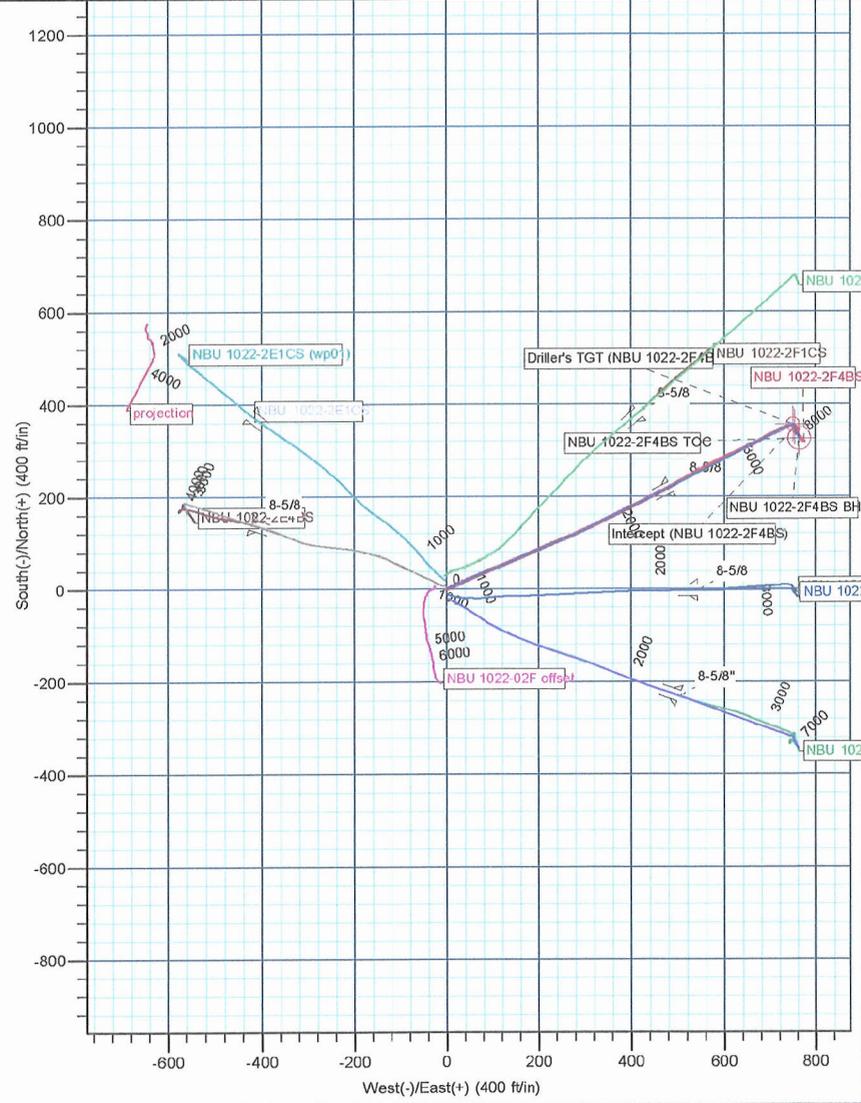
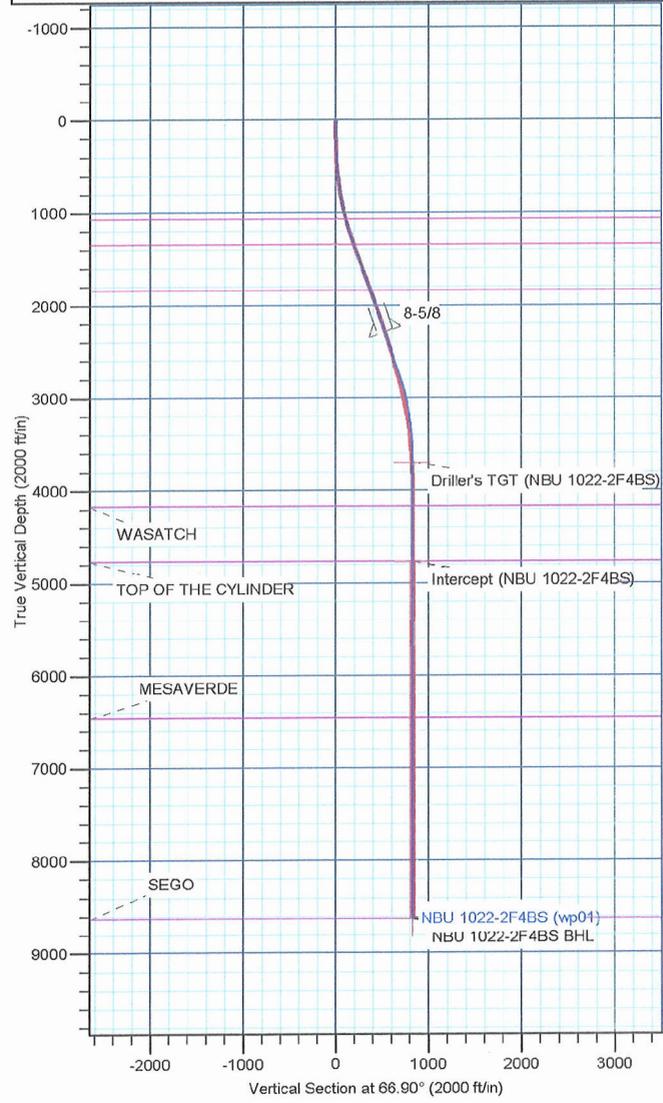
WELL DETAILS: NBU 1022-2F4BS						
+N/-S	+E/-W	Northing	Ground Level: Easting	5009.00 Latitude	Longitude	Slot
0.00	0.00	1452262.25	2085555.63	39.978721	-109.411078	

CASING DETAILS			
TVD	MD	Name	Size
2287.26	2369.92	8-5/8	8-5/8

Azimuths to True North  
 Magnetic North: 10.93°  
 Magnetic Field  
 Strength: 52249.6snT  
 Dip Angle: 65.85°  
 Date: 4/3/2012  
 Model: IGRF2010

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
Driller's TGT (NBU 1022-2F4BS)	3700.00	355.72	749.68	14522631.27	2086298.86	39.979698	-109.408403	Circle (Radius: 15.00)	
Intercept (NBU 1022-2F4BS)	4768.00	349.50	753.00	14522625.11	2086302.28	39.979681	-109.408391	Point	
NBU 1022-2F4BS TOC	4768.00	325.62	763.28	14522601.42	2086312.99	39.979615	-109.408354	Circle (Radius: 25.00)	
NBU 1022-2F4BS BHL	8629.00	325.62	763.28	14522601.42	2086312.99	39.979615	-109.408354	Point	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	
2334.00	18.55	62.62	2253.20	216.56	475.07	0.00	0.00	521.94	
2834.00	18.55	62.62	2727.23	289.71	616.31	0.00	0.00	680.56	
3736.80	0.51	97.02	3613.97	355.81	748.92	2.01	179.08	828.47	
3822.83	0.51	97.02	3700.00	355.72	749.68	0.00	0.00	829.14	
3975.50	0.39	156.70	3852.66	355.16	750.56	0.30	133.34	829.72	
8751.95	0.39	156.70	8629.00	325.62	763.28	0.00	0.00	829.83	



# **US ROCKIES REGION PLANNING**

**UTAH - UTM (feet), NAD27, Zone 12N**

**UINTAH\_NBU 1022-2F PAD**

**NBU 1022-2F4BS**

**NBU 1022-2F4BS**

**Design: NBU 1022-2F4BS**

## **Standard Survey Report**

**23 August, 2012**

# Andarko Petroleum Corporation

## Survey Report

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-2F4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Site:</b>	UINTAH_NBU 1022-2F PAD	<b>MD Reference:</b>	14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Well:</b>	NBU 1022-2F4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-2F4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-2F4BS	<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 1022-2F PAD		
<b>Site Position:</b>		<b>Northing:</b>	14,522,242.28 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,085,559.35 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	39.978666
		<b>Longitude:</b>	-109.411066
		<b>Grid Convergence:</b>	1.02 °

<b>Well</b>	NBU 1022-2F4BS		
<b>Well Position</b>	+N/-S	0.00 ft	<b>Northing:</b> 14,522,262.25 usft
	+E/-W	0.00 ft	<b>Easting:</b> 2,085,555.63 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b> ft
			<b>Latitude:</b> 39.978721
			<b>Longitude:</b> -109.411078
			<b>Ground Level:</b> 5,009.00 ft

<b>Wellbore</b>	NBU 1022-2F4BS		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF2010	4/3/2012	10.93
			<b>Dip Angle (°)</b> 65.85
			<b>Field Strength (nT)</b> 52,250

<b>Design</b>	NBU 1022-2F4BS		
<b>Audit Notes:</b>			
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL
		<b>Tie On Depth:</b>	10.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>
	10.00	0.00	0.00
			<b>Direction (°)</b> 66.26

<b>Survey Program</b>	Date 8/23/2012		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>
151.00	2,334.00	Survey #1 (NBU 1022-2F4BS)	MWD
2,445.00	8,777.00	Survey #2 (NBU 1022-2F4BS)	MWD
			<b>Description</b>
			MWD - STANDARD
			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)
10.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00
151.00	0.18	283.57	151.00	0.05	-0.22	-0.18	0.13	0.13	0.00
179.00	0.09	16.03	179.00	0.08	-0.25	-0.20	0.73	-0.32	330.21
207.00	0.44	28.87	207.00	0.20	-0.19	-0.10	1.26	1.25	45.86
235.00	0.53	52.33	235.00	0.37	-0.04	0.11	0.77	0.32	83.79
261.00	0.62	60.33	261.00	0.52	0.18	0.37	0.46	0.35	30.77
290.00	0.79	62.79	289.99	0.68	0.49	0.73	0.60	0.59	8.48
319.00	1.14	65.87	318.99	0.89	0.93	1.21	1.22	1.21	10.62
350.00	1.49	64.11	349.98	1.20	1.58	1.92	1.14	1.13	-5.68
440.00	2.92	66.48	439.91	2.62	4.73	5.39	1.59	1.59	2.63

# Andarko Petroleum Corporation

## Survey Report

<b>Company:</b> US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b> Well NBU 1022-2F4BS
<b>Project:</b> UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b> 14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Site:</b> UINTAH_NBU 1022-2F PAD	<b>MD Reference:</b> 14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Well:</b> NBU 1022-2F4BS	<b>North Reference:</b> True
<b>Wellbore:</b> NBU 1022-2F4BS	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> NBU 1022-2F4BS	<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)	
530.00	4.48	63.49	529.72	5.11	9.98	11.19	1.75	1.73	-3.32	
620.00	6.24	64.99	619.33	8.74	17.56	19.59	1.96	1.96	1.67	
710.00	8.10	64.43	708.62	13.55	27.71	30.82	2.07	2.07	-0.62	
800.00	10.20	67.71	797.47	19.31	40.81	45.13	2.40	2.33	3.64	
890.00	11.70	66.39	885.83	25.99	56.54	62.22	1.69	1.67	-1.47	
980.00	13.10	67.89	973.73	33.48	74.35	81.54	1.60	1.56	1.67	
1,070.00	14.95	67.36	1,061.04	41.79	94.52	103.34	2.06	2.06	-0.59	
1,160.00	16.80	67.45	1,147.60	51.24	117.25	127.96	2.06	2.06	0.10	
1,250.00	18.78	67.55	1,233.30	61.77	142.65	155.45	2.20	2.20	0.11	
1,340.00	20.31	67.01	1,318.11	73.40	170.42	185.55	1.71	1.70	-0.60	
1,430.00	21.19	65.16	1,402.27	86.33	199.56	217.43	1.22	0.98	-2.06	
1,520.00	20.31	68.68	1,486.43	98.85	228.87	249.30	1.70	-0.98	3.91	
1,610.00	21.02	68.68	1,570.64	110.39	258.46	281.03	0.79	0.79	0.00	
1,700.00	20.14	66.04	1,654.90	122.55	287.66	312.66	1.42	-0.98	-2.93	
1,790.00	19.52	62.88	1,739.57	135.70	315.20	343.16	1.38	-0.69	-3.51	
1,880.00	19.52	63.58	1,824.39	149.25	342.05	373.19	0.26	0.00	0.78	
1,970.00	19.43	64.46	1,909.24	162.39	369.02	403.17	0.34	-0.10	0.98	
2,060.00	19.70	63.67	1,994.05	175.57	396.13	433.29	0.42	0.30	-0.88	
2,150.00	18.99	62.53	2,078.97	189.06	422.71	463.06	0.89	-0.79	-1.27	
2,240.00	18.73	62.00	2,164.13	202.59	448.46	492.08	0.35	-0.29	-0.59	
2,334.00	18.55	62.62	2,253.20	216.56	475.07	522.05	0.28	-0.19	0.66	
<b>tie on</b>										
2,445.00	16.78	59.67	2,358.97	232.77	504.58	555.59	1.79	-1.59	-2.66	
2,536.00	16.49	58.62	2,446.16	246.13	526.94	581.44	0.46	-0.32	-1.15	
2,627.00	15.63	59.46	2,533.61	259.08	548.53	606.41	0.98	-0.95	0.92	
2,717.00	15.75	62.84	2,620.26	270.82	569.84	630.65	1.02	0.13	3.76	
2,808.00	17.06	65.96	2,707.55	281.89	593.02	656.32	1.73	1.44	3.43	
2,899.00	15.00	64.84	2,795.01	292.34	615.87	681.45	2.29	-2.26	-1.23	
2,989.00	13.63	64.84	2,882.21	301.80	636.01	703.69	1.52	-1.52	0.00	
3,080.00	11.13	63.46	2,971.09	310.29	653.58	723.19	2.77	-2.75	-1.52	
3,171.00	10.81	65.34	3,060.43	317.77	669.19	740.49	0.53	-0.35	2.07	
3,261.00	11.13	61.96	3,148.78	325.38	684.53	757.59	0.80	0.36	-3.76	
3,352.00	8.81	62.71	3,238.40	332.70	698.47	773.31	2.55	-2.55	0.82	
3,443.00	8.94	64.34	3,328.31	338.96	711.04	787.33	0.31	0.14	1.79	
3,533.00	6.69	65.09	3,417.47	344.19	722.10	799.56	2.50	-2.50	0.83	
3,624.00	6.19	66.09	3,507.90	348.42	731.39	809.77	0.56	-0.55	1.10	
3,715.00	4.06	65.96	3,598.53	351.72	738.82	817.90	2.34	-2.34	-0.14	
3,805.00	2.75	79.84	3,688.37	353.40	743.86	823.18	1.71	-1.46	15.42	
3,896.00	1.94	98.96	3,779.29	353.54	747.53	826.60	1.23	-0.89	21.01	
3,987.00	2.00	98.59	3,870.24	353.06	750.62	829.24	0.07	0.07	-0.41	
4,077.00	0.50	101.59	3,960.21	352.75	752.56	830.89	1.67	-1.67	3.33	
4,168.00	0.75	118.21	4,051.21	352.39	753.47	831.58	0.34	0.27	18.26	
4,259.00	0.88	124.09	4,142.20	351.72	754.57	832.32	0.17	0.14	6.46	

# Andarko Petroleum Corporation

## Survey Report

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-2F4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Site:</b>	UINTAH_NBU 1022-2F PAD	<b>MD Reference:</b>	14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Well:</b>	NBU 1022-2F4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-2F4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-2F4BS	<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)	
4,349.00	0.75	132.96	4,232.19	350.93	755.58	832.92	0.20	-0.14	9.86	
4,440.00	0.88	115.96	4,323.18	350.21	756.64	833.61	0.30	0.14	-18.68	
4,530.00	1.06	129.46	4,413.17	349.38	757.90	834.43	0.32	0.20	15.00	
4,621.00	0.94	135.21	4,504.16	348.32	759.08	835.08	0.17	-0.13	6.32	
4,712.00	1.06	140.96	4,595.14	347.13	760.14	835.57	0.17	0.13	6.32	
4,802.00	1.00	139.21	4,685.13	345.89	761.17	836.02	0.08	-0.07	-1.94	
4,893.00	1.19	132.21	4,776.11	344.66	762.39	836.63	0.25	0.21	-7.69	
4,984.00	0.63	219.84	4,867.10	343.64	762.77	836.57	1.45	-0.62	96.30	
5,074.00	1.06	291.21	4,957.09	343.56	761.68	835.54	1.16	0.48	79.30	
5,165.00	1.06	293.84	5,048.08	344.20	760.12	834.38	0.05	0.00	2.89	
5,256.00	0.94	263.71	5,139.06	344.46	758.61	833.10	0.59	-0.13	-33.11	
5,346.00	0.69	240.71	5,229.06	344.12	757.41	831.85	0.45	-0.28	-25.56	
5,437.00	0.75	230.09	5,320.05	343.47	756.47	830.73	0.16	0.07	-11.67	
5,528.00	0.63	214.46	5,411.04	342.67	755.73	829.74	0.24	-0.13	-17.18	
5,618.00	0.81	210.09	5,501.04	341.71	755.13	828.80	0.21	0.20	-4.86	
5,709.00	1.19	191.71	5,592.02	340.23	754.62	827.74	0.54	0.42	-20.20	
5,800.00	0.31	245.09	5,683.01	339.20	754.20	826.94	1.14	-0.97	58.66	
5,890.00	1.00	13.84	5,773.01	339.86	754.17	827.18	1.35	0.77	143.06	
5,981.00	0.69	22.59	5,864.00	341.14	754.57	828.06	0.37	-0.34	9.62	
6,072.00	0.50	42.21	5,954.99	341.94	755.05	828.82	0.30	-0.21	21.56	
6,162.00	0.69	51.21	6,044.99	342.57	755.73	829.70	0.23	0.21	10.00	
6,253.00	0.56	81.96	6,135.98	342.98	756.60	830.66	0.39	-0.14	33.79	
6,344.00	0.63	105.71	6,226.98	342.90	757.52	831.47	0.28	0.08	26.10	
6,435.00	0.63	105.84	6,317.97	342.63	758.49	832.24	0.00	0.00	0.14	
6,525.00	0.81	311.71	6,407.97	342.92	758.49	832.36	1.56	0.20	-171.26	
6,616.00	0.63	306.34	6,498.96	343.64	757.60	831.84	0.21	-0.20	-5.90	
6,707.00	1.31	314.46	6,589.95	344.67	756.46	831.21	0.76	0.75	8.92	
6,797.00	1.06	316.84	6,679.93	346.00	755.15	830.55	0.28	-0.28	2.64	
6,888.00	0.94	300.34	6,770.92	346.99	753.93	829.83	0.34	-0.13	-18.13	
6,978.00	0.63	275.34	6,860.91	347.41	752.80	828.96	0.51	-0.34	-27.78	
7,069.00	0.63	278.71	6,951.90	347.53	751.81	828.10	0.04	0.00	3.70	
7,160.00	0.56	140.71	7,042.90	347.26	751.60	827.80	1.22	-0.08	-151.65	
7,250.00	0.50	125.09	7,132.90	346.69	752.20	828.12	0.17	-0.07	-17.36	
7,341.00	0.75	172.59	7,223.89	345.87	752.60	828.16	0.61	0.27	52.20	
7,432.00	0.75	148.34	7,314.89	344.78	752.99	828.08	0.35	0.00	-26.65	
7,522.00	0.81	154.34	7,404.88	343.70	753.57	828.18	0.11	0.07	6.67	
7,613.00	0.94	149.46	7,495.87	342.48	754.23	828.29	0.16	0.14	-5.36	
7,704.00	0.94	150.59	7,586.85	341.19	754.98	828.45	0.02	0.00	1.24	
7,794.00	1.19	145.71	7,676.84	339.77	755.87	828.69	0.30	0.28	-5.42	
7,885.00	1.06	136.46	7,767.82	338.38	756.98	829.15	0.24	-0.14	-10.16	
7,976.00	0.94	133.34	7,858.81	337.26	758.10	829.73	0.14	-0.13	-3.43	
8,066.00	1.13	143.46	7,948.79	336.04	759.17	830.21	0.29	0.21	11.24	
8,157.00	1.50	141.96	8,039.77	334.38	760.44	830.71	0.41	0.41	-1.65	

# Andarko Petroleum Corporation

## Survey Report

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-2F4BS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Site:</b>	UINTAH_NBU 1022-2F PAD	<b>MD Reference:</b>	14' RKB + GL @ 5023.00ft (ENSIGN 146)
<b>Well:</b>	NBU 1022-2F4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1022-2F4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	NBU 1022-2F4BS	<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)
8,247.00	1.88	142.46	8,129.73	332.28	762.06	831.35	0.42	0.42	0.56
8,338.00	2.13	137.34	8,220.67	329.85	764.12	832.25	0.34	0.27	-5.63
8,429.00	1.88	137.96	8,311.62	327.50	766.26	833.27	0.28	-0.27	0.68
8,519.00	1.94	140.59	8,401.57	325.23	768.22	834.15	0.12	0.07	2.92
8,610.00	2.19	137.71	8,492.51	322.75	770.37	835.12	0.30	0.27	-3.16
8,727.00	2.07	145.55	8,609.43	319.36	773.07	836.22	0.27	-0.10	6.70
last mwd survey									
8,777.00	2.07	145.55	8,659.40	317.87	774.09	836.56	0.00	0.00	0.00
projection to td									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,334.00	2,253.20	216.56	475.07	tie on
8,727.00	8,609.43	319.36	773.07	last mwd survey
8,777.00	8,659.40	317.87	774.09	projection to td

Checked By: _____	Approved By: _____	Date: _____
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