

**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 1022-10C1BS
<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> 720 929-6587
<b>8. ADDRESS OF OPERATOR</b> P.O. Box 173779, Denver, CO, 80217		<b>9. OPERATOR E-MAIL</b> mary.mondragon@anadarko.com
<b>10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)</b> UO 01197A	<b>11. MINERAL 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>12. SURFACE OWNERSHIP</b> FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
<b>15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')</b>		<b>14. SURFACE OWNER PHONE (if box 12 = 'fee')</b>
<b>17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')</b>		<b>16. SURFACE OWNER E-MAIL (if box 12 = 'fee')</b>
<b>18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS</b> YES <input type="checkbox"/> (Submit Commingling Application) NO <input checked="" 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>	1065 FNL 1523 FEL	NWNE	10	10.0 S	22.0 E	S
<b>Top of Uppermost Producing Zone</b>	163 FNL 2252 FWL	NENW	10	10.0 S	22.0 E	S
<b>At Total Depth</b>	163 FNL 2252 FWL	NENW	10	10.0 S	22.0 E	S

<b>21. COUNTY</b> UINTAH	<b>22. DISTANCE TO NEAREST LEASE LINE (Feet)</b> 163	<b>23. NUMBER OF ACRES IN DRILLING UNIT</b> 203
	<b>25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)</b> 83	<b>26. PROPOSED DEPTH</b> MD: 8700 TVD: 9109
<b>27. ELEVATION - GROUND LEVEL</b> 5058	<b>28. BOND NUMBER</b> 22013542	<b>29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE</b> Permit #43-8496

**ATTACHMENTS**

**VERIFY THE FOLLOWING ARE ATTACHED IN ACCORCANCE 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> Kathy Schneebeck-Dulnoan	<b>TITLE</b> Staff Regulatory Analyst	<b>PHONE</b> 720 929-6007
<b>SIGNATURE</b>	<b>DATE</b> 04/22/2009	<b>EMAIL</b> Kathy.SchneebeckDulnoan@anadarko.com
<b>API NUMBER ASSIGNED</b> 43047503580000	<b>APPROVAL</b>   Permit Manager	

<b>Proposed Hole, Casing, and Cement</b>						
<b>String</b>	<b>Hole Size</b>	<b>Casing Size</b>	<b>Top (MD)</b>	<b>Bottom (MD)</b>		
Prod	7.875	4.5	0	9109		
<b>Pipe</b>	<b>Grade</b>	<b>Length</b>	<b>Weight</b>			
	Grade N-80 LT&C	9109	11.6			

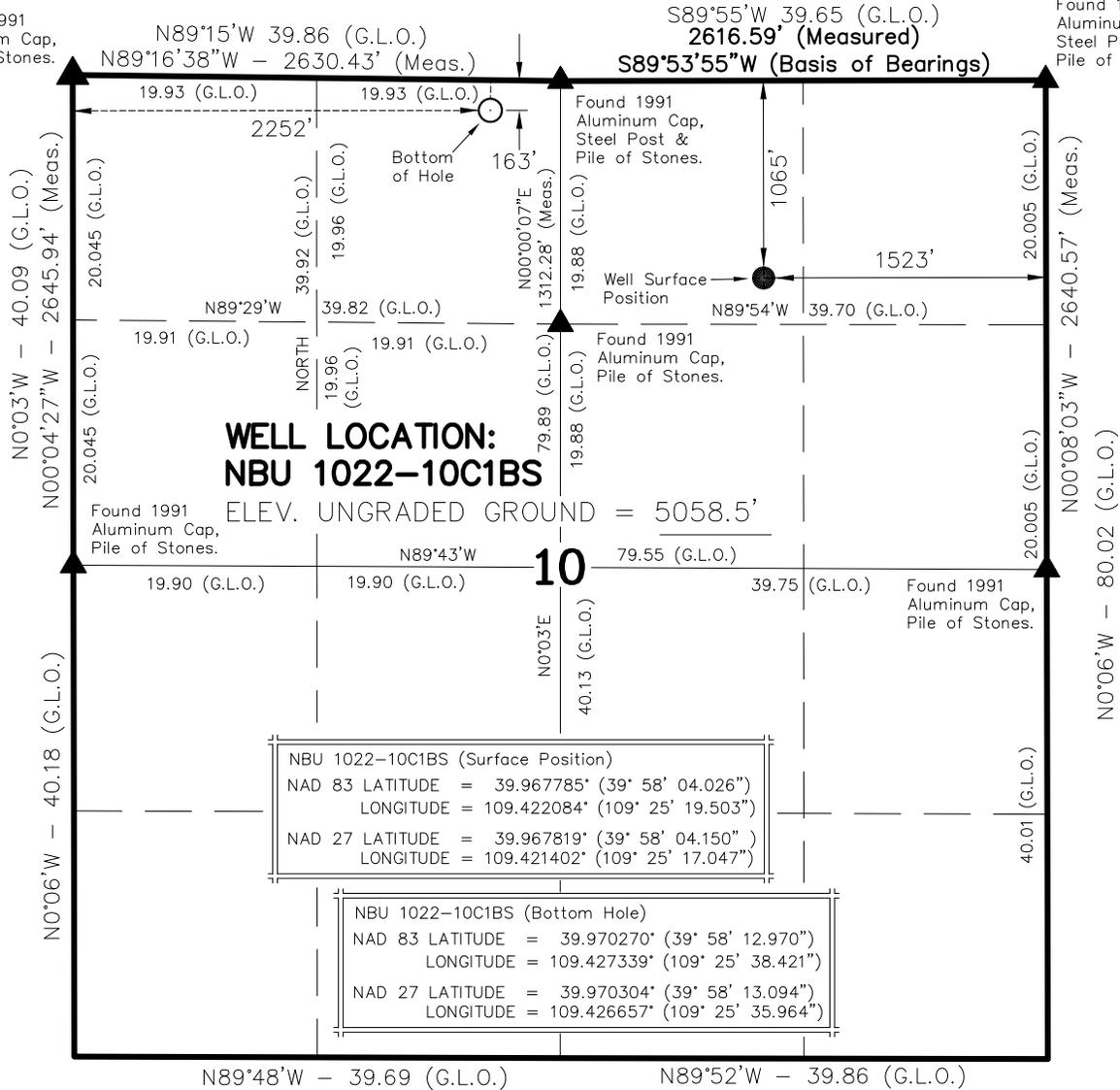
<b>Proposed Hole, Casing, and Cement</b>						
<b>String</b>	<b>Hole Size</b>	<b>Casing Size</b>	<b>Top (MD)</b>	<b>Bottom (MD)</b>		
Surf	12.25	9.625	0	2050		
<b>Pipe</b>	<b>Grade</b>	<b>Length</b>	<b>Weight</b>			
	Grade J-55 LT&C	2050	36.0			

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

Found 1991  
Aluminum Cap,  
Pile of Stones.

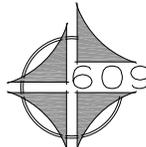
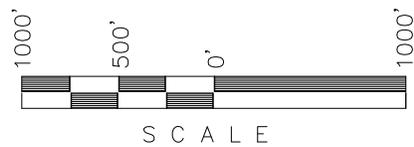
S89°55'W 39.65 (G.L.O.)  
2616.59' (Measured)

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



**NOTES:**

- ▲ = Section Corners Located
- 1. Well footages are measured at right angles to the Section Lines.
- 2. G.L.O. distances are shown in feet or chains. 1 chain = 66 feet.
- 3. The Bottom of hole bears N58°27'21"W 1729.22' 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 ¼ 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.

*Kerry R. Kay*  
No. 362251  
KOLBY R. KAY  
REGISTERED LAND SURVEYOR  
STATE OF UTAH

REGISTERED LAND SURVEYOR  
REGISTRATION NO. 362251  
STATE OF UTAH

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

**NBU 1022-10C1BS  
WELL PLAT**  
163' FNL, 2252' FWL (Bottom Hole)  
NE ¼ NW ¼ OF SECTION 10, T10S, R22E,  
S.L.B.&M. UTAH COUNTY, UTAH.

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

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

DATE SURVEYED: 09-15-08	SURVEYED BY: M.S.B.	<b>SHEET</b> <b>1</b> <b>OF 13</b>
DATE DRAWN: 10-03-08	DRAWN BY: E.M.S.	
SCALE: 1" = 1000'	Date Last Revised: 01-22-09	



# **ANADARKO PETROLEUM CORP.**

**UINTAH COUNTY, UTAH (nad 27)**

**NBU 1022-10B PAD**

**NBU 1022-10C1BS**

**NBU 1022-10C1BS**

**Plan: Design #1**

## **Standard Planning Report**

**12 December, 2008**





Project: UINTAH COUNTY, UTAH (nad 27)  
 Site: NBU 1022-10B PAD  
 Well: NBU 1022-10C1BS  
 Wellbore: NBU 1022-10C1BS  
 Design: Design #1  
 Latitude: 39° 58' 4.152 N  
 Longitude: 109° 25' 17.040 W  
 GL: 5055.00  
 KB: WELL @ 5075.00ft (Original Well Elev)



**Weatherford**

**ANTI-COLLISION RISK: FROM 1200' TO 1500' MD THERE ARE SEVERE COLLISION RISKS WITH THE NBU-231 ACTUAL, CLOSEST CENTER TO CENTER DISTANCE IS 1.97'**

WELL DETAILS: NBU 1022-10C1BS							
+N/-S	+E/-W	Northing	Ground Level: Easting	5055.00 Latitude	Longitude	Slot	
3.64	-58.85	14518241.20	2082734.06	39° 58' 4.152 N	109° 25' 17.040 W		

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)							
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape	
PBHL_NBU 1022-10C1BS	8700.00	906.94	-1532.93	39° 58' 13.080 N	109° 25' 35.976 W	Circle (Radius: 25.00)	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	3.64	-58.85	0.00	0.00	0.00	
2	1960.00	0.00	0.00	1960.00	3.64	-58.85	0.00	0.00	0.00	
3	2952.00	29.76	301.50	2908.00	135.25	-273.62	3.00	301.50	251.89	
4	5318.53	29.76	301.50	4962.41	749.01	-1275.20	0.00	0.00	1426.56	
5	6508.93	0.00	0.00	6100.00	906.94	-1532.93	2.50	180.00	1728.83	
6	9108.93	0.00	0.00	8700.00	906.94	-1532.93	0.00	0.00	1728.83	PBHL_NBU 1022-10C1BS

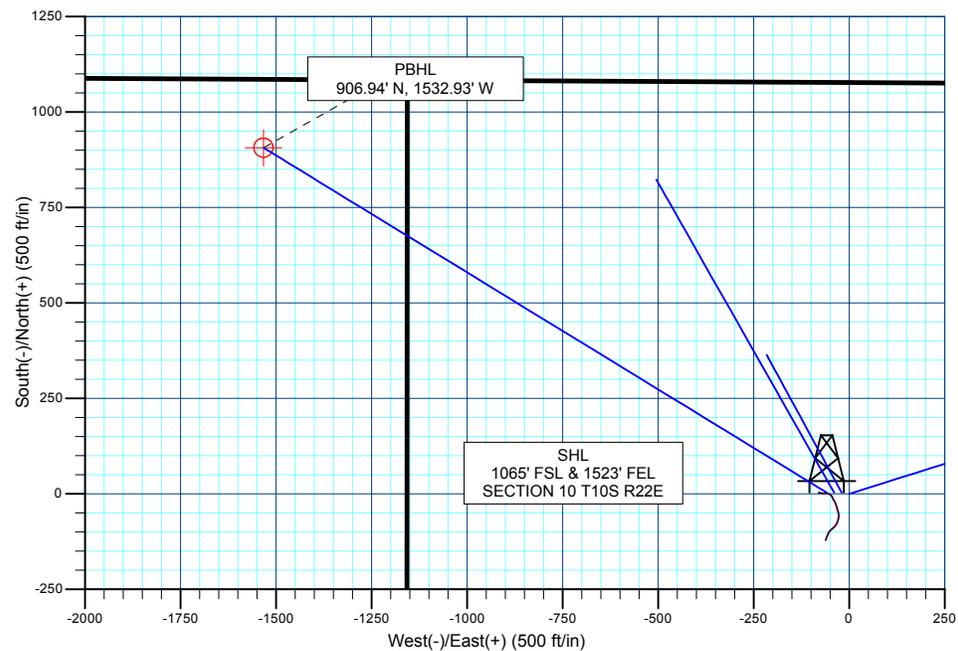
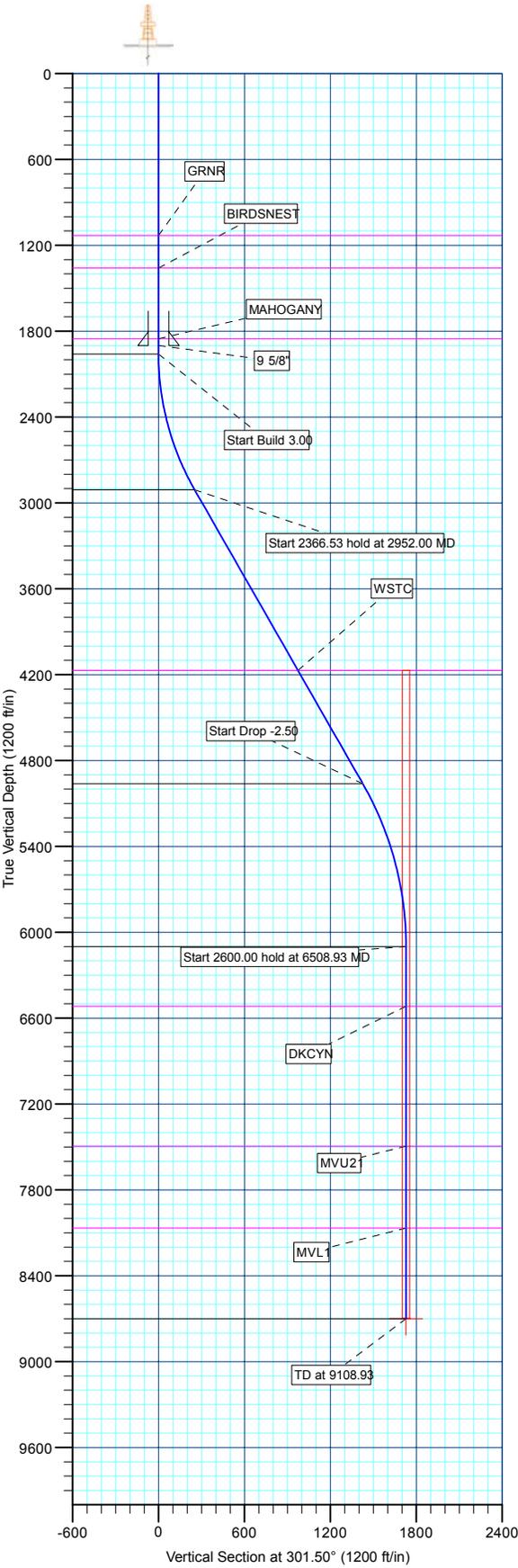
LEGEND	
<span style="color: blue;">—</span>	NBU 1022-10B1BS, NBU 1022-10B1BS, Design #1 V0
<span style="color: red;">—</span>	NBU 231 ACTUAL, NBU 231 ACTUAL, NBU 231 ACTUAL V0
<span style="color: blue;">—</span>	NBU 1022-10A4BS, NBU 1022-10A4BS, Design #1 V0
<span style="color: blue;">—</span>	NBU 1022-10B4BS, NBU 1022-10B4BS, Design #1 V0
<span style="color: blue;">—</span>	Design #1

**Azimuths to True North**  
Magnetic North: 11.38°

**Magnetic Field**  
Strength: 52585.7snT  
Dip Angle: 65.95°  
Date: 12/12/2008  
Model: BGGM2008

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1131.00	1131.00	GRNR
1359.00	1359.00	BIRDSNEST
1853.00	1853.00	MAHOGANY
4170.00	4405.74	WSTC
6518.00	6926.93	DKCYN
7494.00	7902.93	MVU21
8067.00	8475.93	MVL1

CASING DETAILS			
TVD	MD	Name	Size
1900.00	1900.00	9 5/8"	9.62





<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site:</b>	NBU 1022-10B PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1022-10C1BS		
<b>Design:</b>	Design #1		

<b>Project</b>	UINTAH COUNTY, UTAH (nad 27),		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Fee	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	NBU 1022-10B PAD, SECTION10 T10S R22E				
<b>Site Position:</b>		<b>Northing:</b>	14,518,238.60ft	<b>Latitude:</b>	39° 58' 4.116 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,082,792.97ft	<b>Longitude:</b>	109° 25' 16.284 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b>	1.01 °

<b>Well</b>	NBU 1022-10C1BS					
<b>Well Position</b>	<b>+N/-S</b>	3.64 ft	<b>Northing:</b>	14,518,241.20ft	<b>Latitude:</b>	39° 58' 4.152 N
	<b>+E/-W</b>	-58.85 ft	<b>Easting:</b>	2,082,734.06ft	<b>Longitude:</b>	109° 25' 17.040 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	5,055.00ft

<b>Wellbore</b>	NBU 1022-10C1BS				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2008	12/12/2008	11.38	65.95	52,586

<b>Design</b>	Design #1			
<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	3.64	-58.85	301.50

<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	3.64	-58.85	0.00	0.00	0.00	0.00	
1,960.00	0.00	0.00	1,960.00	3.64	-58.85	0.00	0.00	0.00	0.00	
2,952.00	29.76	301.50	2,908.00	135.25	-273.62	3.00	3.00	0.00	301.50	
5,318.53	29.76	301.50	4,962.41	749.01	-1,275.20	0.00	0.00	0.00	0.00	
6,508.93	0.00	0.00	6,100.00	906.94	-1,532.93	2.50	-2.50	0.00	180.00	
9,108.93	0.00	0.00	8,700.00	906.94	-1,532.93	0.00	0.00	0.00	0.00	PBHL_NBU 1022-1



<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site:</b>	NBU 1022-10B PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1022-10C1BS		
<b>Design:</b>	Design #1		

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)	
1,960.00	0.00	0.00	1,960.00	3.64	-58.85	0.00	0.00	0.00	0.00	0.00
<b>Start Build 3.00</b>										
2,000.00	1.20	301.50	2,000.00	3.86	-59.21	0.42	3.00	3.00	3.00	0.00
2,100.00	4.20	301.50	2,099.87	6.32	-63.23	5.13	3.00	3.00	3.00	0.00
2,200.00	7.20	301.50	2,199.37	11.51	-71.69	15.06	3.00	3.00	3.00	0.00
2,300.00	10.20	301.50	2,298.21	19.41	-84.59	30.18	3.00	3.00	3.00	0.00
2,400.00	13.20	301.50	2,396.12	30.01	-101.88	50.46	3.00	3.00	3.00	0.00
2,500.00	16.20	301.50	2,492.83	43.26	-123.51	75.83	3.00	3.00	3.00	0.00
2,600.00	19.20	301.50	2,588.09	59.15	-149.43	106.23	3.00	3.00	3.00	0.00
2,700.00	22.20	301.50	2,681.62	77.62	-179.57	141.58	3.00	3.00	3.00	0.00
2,800.00	25.20	301.50	2,773.18	98.61	-213.84	181.77	3.00	3.00	3.00	0.00
2,900.00	28.20	301.50	2,862.51	122.09	-252.14	226.69	3.00	3.00	3.00	0.00
2,952.00	29.76	301.50	2,908.00	135.25	-273.62	251.89	3.00	3.00	3.00	0.00
<b>Start 2366.53 hold at 2952.00 MD</b>										
3,000.00	29.76	301.50	2,949.66	147.70	-293.94	275.71	0.00	0.00	0.00	0.00
3,100.00	29.76	301.50	3,036.47	173.64	-336.26	325.35	0.00	0.00	0.00	0.00
3,200.00	29.76	301.50	3,123.28	199.57	-378.58	374.99	0.00	0.00	0.00	0.00
3,300.00	29.76	301.50	3,210.10	225.50	-420.91	424.62	0.00	0.00	0.00	0.00
3,400.00	29.76	301.50	3,296.91	251.44	-463.23	474.26	0.00	0.00	0.00	0.00
3,500.00	29.76	301.50	3,383.72	277.37	-505.55	523.90	0.00	0.00	0.00	0.00
3,600.00	29.76	301.50	3,470.53	303.31	-547.87	573.53	0.00	0.00	0.00	0.00
3,700.00	29.76	301.50	3,557.34	329.24	-590.20	623.17	0.00	0.00	0.00	0.00
3,800.00	29.76	301.50	3,644.15	355.18	-632.52	672.81	0.00	0.00	0.00	0.00
3,900.00	29.76	301.50	3,730.96	381.11	-674.84	722.45	0.00	0.00	0.00	0.00
4,000.00	29.76	301.50	3,817.77	407.05	-717.16	772.08	0.00	0.00	0.00	0.00
4,100.00	29.76	301.50	3,904.59	432.98	-759.49	821.72	0.00	0.00	0.00	0.00
4,200.00	29.76	301.50	3,991.40	458.92	-801.81	871.36	0.00	0.00	0.00	0.00
4,300.00	29.76	301.50	4,078.21	484.85	-844.13	920.99	0.00	0.00	0.00	0.00
4,400.00	29.76	301.50	4,165.02	510.79	-886.45	970.63	0.00	0.00	0.00	0.00
4,405.74	29.76	301.50	4,170.00	512.28	-888.88	973.48	0.00	0.00	0.00	0.00
<b>WSTC</b>										
4,500.00	29.76	301.50	4,251.83	536.72	-928.78	1,020.27	0.00	0.00	0.00	0.00
4,600.00	29.76	301.50	4,338.64	562.66	-971.10	1,069.90	0.00	0.00	0.00	0.00
4,700.00	29.76	301.50	4,425.45	588.59	-1,013.42	1,119.54	0.00	0.00	0.00	0.00
4,800.00	29.76	301.50	4,512.26	614.53	-1,055.75	1,169.18	0.00	0.00	0.00	0.00
4,900.00	29.76	301.50	4,599.07	640.46	-1,098.07	1,218.81	0.00	0.00	0.00	0.00
5,000.00	29.76	301.50	4,685.89	666.40	-1,140.39	1,268.45	0.00	0.00	0.00	0.00
5,100.00	29.76	301.50	4,772.70	692.33	-1,182.71	1,318.09	0.00	0.00	0.00	0.00
5,200.00	29.76	301.50	4,859.51	718.27	-1,225.04	1,367.73	0.00	0.00	0.00	0.00
5,300.00	29.76	301.50	4,946.32	744.20	-1,267.36	1,417.36	0.00	0.00	0.00	0.00
5,318.53	29.76	301.50	4,962.41	749.01	-1,275.20	1,426.56	0.00	0.00	0.00	0.00
<b>Start Drop -2.50</b>										
5,400.00	27.72	301.50	5,033.83	769.48	-1,308.60	1,465.73	2.50	-2.50	0.00	0.00
5,500.00	25.22	301.50	5,123.34	792.77	-1,346.61	1,510.31	2.50	-2.50	0.00	0.00
5,600.00	22.72	301.50	5,214.71	813.99	-1,381.25	1,550.94	2.50	-2.50	0.00	0.00
5,700.00	20.22	301.50	5,307.76	833.12	-1,412.46	1,587.54	2.50	-2.50	0.00	0.00
5,800.00	17.72	301.50	5,402.32	850.11	-1,440.18	1,620.05	2.50	-2.50	0.00	0.00
5,900.00	15.22	301.50	5,498.21	864.92	-1,464.36	1,648.41	2.50	-2.50	0.00	0.00
6,000.00	12.72	301.50	5,595.24	877.54	-1,484.94	1,672.55	2.50	-2.50	0.00	0.00
6,100.00	10.22	301.50	5,693.23	887.93	-1,501.90	1,692.44	2.50	-2.50	0.00	0.00
6,200.00	7.72	301.50	5,792.00	896.08	-1,515.20	1,708.04	2.50	-2.50	0.00	0.00
6,300.00	5.22	301.50	5,891.36	901.97	-1,524.81	1,719.31	2.50	-2.50	0.00	0.00
6,400.00	2.72	301.50	5,991.11	905.59	-1,530.72	1,726.24	2.50	-2.50	0.00	0.00



<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site:</b>	NBU 1022-10B PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1022-10C1BS		
<b>Design:</b>	Design #1		

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)
6,500.00	0.22	301.50	6,091.07	906.93	-1,532.91	1,728.81	2.50	-2.50	0.00
6,508.93	0.00	0.00	6,100.00	906.94	-1,532.93	1,728.83	2.50	-2.50	654.81
<b>Start 2600.00 hold at 6508.93 MD</b>									
6,600.00	0.00	0.00	6,191.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
6,700.00	0.00	0.00	6,291.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
6,800.00	0.00	0.00	6,391.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
6,900.00	0.00	0.00	6,491.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
6,926.93	0.00	0.00	6,518.00	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
<b>DKCYN</b>									
7,000.00	0.00	0.00	6,591.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,100.00	0.00	0.00	6,691.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,200.00	0.00	0.00	6,791.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,300.00	0.00	0.00	6,891.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,400.00	0.00	0.00	6,991.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,500.00	0.00	0.00	7,091.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,600.00	0.00	0.00	7,191.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,700.00	0.00	0.00	7,291.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,800.00	0.00	0.00	7,391.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,900.00	0.00	0.00	7,491.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
7,902.93	0.00	0.00	7,494.00	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
<b>MVU21</b>									
8,000.00	0.00	0.00	7,591.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,100.00	0.00	0.00	7,691.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,200.00	0.00	0.00	7,791.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,300.00	0.00	0.00	7,891.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,400.00	0.00	0.00	7,991.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,475.93	0.00	0.00	8,067.00	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
<b>MVL1</b>									
8,500.00	0.00	0.00	8,091.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,600.00	0.00	0.00	8,191.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,700.00	0.00	0.00	8,291.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,800.00	0.00	0.00	8,391.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
8,900.00	0.00	0.00	8,491.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
9,000.00	0.00	0.00	8,591.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
9,100.00	0.00	0.00	8,691.07	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
9,108.93	0.00	0.00	8,700.00	906.94	-1,532.93	1,728.83	0.00	0.00	0.00
<b>PBHL_NBU 1022-10C1BS</b>									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (in)	Hole Diameter (in)
1,900.00	1,900.00	9 5/8"		9.62	12.25



<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site:</b>	NBU 1022-10B PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1022-10C1BS		
<b>Design:</b>	Design #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,131.00	1,131.00	GRNR		0.00		
1,359.00	1,359.00	BIRDSNEST		0.00		
1,853.00	1,853.00	MAHOGANY		0.00		
4,405.74	4,170.00	WSTC		0.00		
6,926.93	6,518.00	DKCYN		0.00		
7,902.93	7,494.00	MVU21		0.00		
8,475.93	8,067.00	MVL1		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,960.00	1,960.00	3.64	-58.85	Start Build 3.00	
2,952.00	2,908.00	135.25	-273.62	Start 2366.53 hold at 2952.00 MD	
5,318.53	4,962.41	749.01	-1,275.20	Start Drop -2.50	
6,508.93	6,100.00	906.94	-1,532.93	Start 2600.00 hold at 6508.93 MD	
9,108.93	8,700.00	906.94	-1,532.93	TD at 9108.93	



# **ANADARKO PETROLEUM CORP.**

**UINTAH COUNTY, UTAH (nad 27)  
NBU 1022-10B PAD  
NBU 1022-10C1BS**

**NBU 1022-10C1BS  
Design #1**

## **Anticollision Report**

**12 December, 2008**





<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Reference Site:</b>	NBU 1022-10B PAD	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	NBU 1022-10C1BS	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Design #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	12/12/2008		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	9,108.93	Design #1 (NBU 1022-10C1BS)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
NBU 1022-10B PAD						
NBU 1022-10B1BS - NBU 1022-10B1BS - Design #1	1,960.00	1,960.00	19.62	11.08	2.297	CC
NBU 1022-10B1BS - NBU 1022-10B1BS - Design #1	2,000.00	2,000.20	19.77	11.05	2.268	ES, SF
NBU 231 ACTUAL - NBU 231 ACTUAL - NBU 231 ACTL	1,310.21	1,290.49	1.97	-3.85	0.339	Level 1, CC, ES, SF

<b>Offset Design</b> NBU 1022-10B PAD - NBU 1022-10B1BS - NBU 1022-10B1BS - Design #1												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance				Minimum Separation		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	90.00	3.64	-39.24	19.62				
100.00	100.00	100.00	100.00	0.09	0.09	90.00	3.64	-39.24	19.62	19.44	0.18	109.101	
200.00	200.00	200.00	200.00	0.31	0.31	90.00	3.64	-39.24	19.62	18.99	0.63	31.172	
300.00	300.00	300.00	300.00	0.54	0.54	90.00	3.64	-39.24	19.62	18.54	1.08	18.183	
400.00	400.00	400.00	400.00	0.76	0.76	90.00	3.64	-39.24	19.62	18.09	1.53	12.835	
500.00	500.00	500.00	500.00	0.99	0.99	90.00	3.64	-39.24	19.62	17.64	1.98	9.918	
600.00	600.00	600.00	600.00	1.21	1.21	90.00	3.64	-39.24	19.62	17.19	2.43	8.082	
700.00	700.00	700.00	700.00	1.44	1.44	90.00	3.64	-39.24	19.62	16.74	2.88	6.819	
800.00	800.00	800.00	800.00	1.66	1.66	90.00	3.64	-39.24	19.62	16.29	3.33	5.897	
900.00	900.00	900.00	900.00	1.89	1.89	90.00	3.64	-39.24	19.62	15.84	3.78	5.195	
1,000.00	1,000.00	1,000.00	1,000.00	2.11	2.11	90.00	3.64	-39.24	19.62	15.39	4.23	4.643	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	90.00	3.64	-39.24	19.62	14.94	4.68	4.196	
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	90.00	3.64	-39.24	19.62	14.49	5.12	3.828	
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	90.00	3.64	-39.24	19.62	14.04	5.57	3.519	
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	90.00	3.64	-39.24	19.62	13.59	6.02	3.257	
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	90.00	3.64	-39.24	19.62	13.14	6.47	3.031	
1,600.00	1,600.00	1,600.00	1,600.00	3.46	3.46	90.00	3.64	-39.24	19.62	12.69	6.92	2.834	
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	90.00	3.64	-39.24	19.62	12.25	7.37	2.661	
1,800.00	1,800.00	1,800.00	1,800.00	3.91	3.91	90.00	3.64	-39.24	19.62	11.80	7.82	2.508	
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	90.00	3.64	-39.24	19.62	11.35	8.27	2.372	
1,960.00	1,960.00	1,960.00	1,960.00	4.27	4.27	90.00	3.64	-39.24	19.62	11.08	8.54	2.297	CC
2,000.00	2,000.00	2,000.20	2,000.20	4.36	4.36	148.07	4.01	-39.44	19.77	11.05	8.72	2.268	ES, SF
2,100.00	2,099.87	2,100.67	2,100.54	4.57	4.58	143.64	8.15	-41.79	21.52	12.39	9.14	2.356	
2,200.00	2,199.37	2,200.98	2,200.34	4.80	4.81	136.40	16.85	-46.73	25.55	15.99	9.56	2.673	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Weatherford International Ltd.**  
Anticollision Report



<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Reference Site:</b>	NBU 1022-10B PAD	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	NBU 1022-10C1BS	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,300.00	2,298.21	2,301.05	2,299.24	5.04	5.05	129.00	30.05	-54.23	32.19	22.18	10.01	3.217		
2,400.00	2,396.12	2,400.78	2,396.87	5.31	5.32	122.85	47.68	-64.23	41.59	31.08	10.51	3.956		
2,500.00	2,492.83	2,500.06	2,492.90	5.62	5.62	118.18	69.61	-76.68	53.73	42.62	11.11	4.836		
2,600.00	2,588.09	2,598.83	2,586.98	6.01	5.99	114.70	95.69	-91.49	68.51	56.69	11.83	5.794		
2,700.00	2,681.62	2,697.00	2,678.85	6.47	6.42	112.07	125.78	-108.57	85.84	73.15	12.69	6.765		
2,800.00	2,773.18	2,794.51	2,768.21	7.04	6.94	110.03	159.69	-127.82	105.61	91.88	13.73	7.694		
2,900.00	2,862.51	2,891.29	2,854.82	7.72	7.55	108.39	197.22	-149.13	127.74	112.78	14.96	8.539		
2,952.00	2,908.00	2,941.33	2,898.71	8.12	7.91	107.64	218.11	-160.98	140.14	124.45	15.69	8.932		
3,000.00	2,949.66	2,987.34	2,938.51	8.52	8.25	107.14	238.20	-172.39	151.95	135.54	16.41	9.262		
3,100.00	3,036.47	3,082.94	3,019.40	9.38	9.05	105.18	282.49	-197.53	177.16	159.13	18.04	9.823		
3,200.00	3,123.28	3,179.39	3,100.19	10.28	9.94	103.25	328.30	-223.54	202.84	183.06	19.78	10.255		
3,300.00	3,210.10	3,275.84	3,180.99	11.22	10.85	101.75	374.12	-249.55	228.69	207.11	21.57	10.600		
3,400.00	3,296.91	3,372.29	3,261.78	12.18	11.80	100.56	419.93	-275.55	254.65	231.24	23.41	10.878		
3,500.00	3,383.72	3,468.74	3,342.57	13.16	12.77	99.59	465.74	-301.56	280.69	255.41	25.28	11.103		
3,600.00	3,470.53	3,566.18	3,424.27	14.16	13.74	98.80	511.92	-327.77	306.76	279.60	27.16	11.295		
3,700.00	3,557.34	3,666.91	3,510.43	15.16	14.59	98.66	557.28	-353.52	331.99	303.05	28.94	11.472		
3,800.00	3,644.15	3,768.16	3,599.26	16.18	15.38	99.25	599.52	-377.50	356.02	325.34	30.68	11.605		
3,900.00	3,730.96	3,869.54	3,690.27	17.21	16.12	100.44	638.35	-399.54	378.97	346.58	32.38	11.702		
4,000.00	3,817.77	3,970.65	3,782.92	18.24	16.81	102.11	673.55	-419.53	401.03	367.00	34.03	11.784		
4,100.00	3,904.59	4,071.10	3,876.64	19.28	17.44	104.19	704.98	-437.37	422.52	386.93	35.59	11.872		
4,200.00	3,991.40	4,170.52	3,970.87	20.32	18.00	106.60	732.53	-453.01	443.79	406.75	37.03	11.984		
4,300.00	4,078.21	4,268.56	4,065.04	21.37	18.50	109.28	756.19	-466.44	465.24	426.91	38.33	12.137		
4,400.00	4,165.02	4,364.89	4,158.63	22.42	18.92	112.16	776.02	-477.69	487.31	447.85	39.46	12.348		
4,500.00	4,251.83	4,459.23	4,251.13	23.47	19.27	115.18	792.09	-486.82	510.43	470.02	40.41	12.630		
4,600.00	4,338.64	4,551.33	4,342.10	24.53	19.57	118.29	804.59	-493.91	535.02	493.85	41.17	12.995		
4,700.00	4,425.45	4,640.98	4,431.14	25.58	19.80	121.42	813.68	-499.08	561.47	519.73	41.74	13.451		
4,800.00	4,512.26	4,728.02	4,517.90	26.65	19.98	124.54	819.61	-502.44	590.12	547.98	42.13	14.005		
4,900.00	4,599.07	4,812.32	4,602.13	27.71	20.11	127.59	822.62	-504.15	621.23	578.87	42.37	14.663		
5,000.00	4,685.89	4,896.09	4,685.89	28.77	20.20	130.62	823.13	-504.44	654.98	612.54	42.44	15.433		
5,100.00	4,772.70	4,982.90	4,772.70	29.84	20.29	133.54	823.13	-504.44	690.77	648.34	42.43	16.281		
5,200.00	4,859.51	5,069.71	4,859.51	30.90	20.39	136.20	823.13	-504.44	728.19	685.79	42.40	17.176		
5,300.00	4,946.32	5,156.52	4,946.32	31.97	20.49	138.62	823.13	-504.44	766.99	724.64	42.36	18.108		
5,318.53	4,962.41	5,172.61	4,962.41	32.17	20.50	139.05	823.13	-504.44	774.32	731.97	42.35	18.284		
5,400.00	5,033.83	5,244.03	5,033.83	32.94	20.58	141.33	823.13	-504.44	805.95	763.73	42.23	19.087		
5,500.00	5,123.34	5,333.54	5,123.34	33.74	20.69	143.74	823.13	-504.44	842.72	800.64	42.07	20.029		
5,600.00	5,214.71	5,424.91	5,214.71	34.46	20.79	145.78	823.13	-504.44	876.86	834.89	41.97	20.891		
5,700.00	5,307.76	5,517.96	5,307.76	35.11	20.90	147.50	823.13	-504.44	908.08	866.16	41.92	21.664		
5,800.00	5,402.32	5,612.52	5,402.32	35.68	21.01	148.93	823.13	-504.44	936.13	894.23	41.90	22.343		
5,900.00	5,498.21	5,708.41	5,498.21	36.18	21.13	150.12	823.13	-504.44	960.83	918.92	41.91	22.927		
6,000.00	5,595.24	5,805.44	5,595.24	36.60	21.25	151.08	823.13	-504.44	982.01	940.08	41.94	23.416		
6,100.00	5,693.23	5,903.43	5,693.23	36.95	21.37	151.84	823.13	-504.44	999.57	957.58	41.98	23.809		
6,200.00	5,792.00	6,002.20	5,792.00	37.24	21.49	152.41	823.13	-504.44	1,013.39	971.36	42.04	24.108		
6,300.00	5,891.36	6,101.56	5,891.36	37.46	21.62	152.82	823.13	-504.44	1,023.42	981.32	42.09	24.312		
6,400.00	5,991.11	6,201.31	5,991.11	37.61	21.75	153.07	823.13	-504.44	1,029.59	987.43	42.16	24.422		
6,508.93	6,100.00	6,310.20	6,100.00	37.72	21.89	94.66	823.13	-504.44	1,031.90	989.67	42.23	24.434		
6,600.00	6,191.07	6,401.27	6,191.07	37.78	22.01	94.66	823.13	-504.44	1,031.90	989.43	42.47	24.300		
6,700.00	6,291.07	6,501.27	6,291.07	37.86	22.14	94.66	823.13	-504.44	1,031.90	989.17	42.73	24.148		
6,800.00	6,391.07	6,601.27	6,391.07	37.94	22.28	94.66	823.13	-504.44	1,031.90	988.90	43.00	23.996		
6,900.00	6,491.07	6,701.27	6,491.07	38.02	22.41	94.66	823.13	-504.44	1,031.90	988.62	43.28	23.845		
7,000.00	6,591.07	6,801.27	6,591.07	38.11	22.55	94.66	823.13	-504.44	1,031.90	988.35	43.55	23.694		
7,100.00	6,691.07	6,901.27	6,691.07	38.19	22.69	94.66	823.13	-504.44	1,031.90	988.07	43.83	23.543		
7,200.00	6,791.07	7,001.27	6,791.07	38.28	22.83	94.66	823.13	-504.44	1,031.90	987.79	44.11	23.393		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Reference Site:</b>	NBU 1022-10B PAD	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	NBU 1022-10C1BS	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 ft	
Survey Program: 0-MWD													Offset Well Error:		0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
							+N/-S (ft)	+E/-W (ft)							
7,300.00	6,891.07	7,101.27	6,891.07	38.36	22.97	94.66	823.13	-504.44	1,031.90	987.50	44.40	23.243			
7,400.00	6,991.07	7,201.27	6,991.07	38.45	23.12	94.66	823.13	-504.44	1,031.90	987.21	44.68	23.094			
7,500.00	7,091.07	7,301.27	7,091.07	38.54	23.26	94.66	823.13	-504.44	1,031.90	986.92	44.97	22.945			
7,600.00	7,191.07	7,401.27	7,191.07	38.63	23.40	94.66	823.13	-504.44	1,031.90	986.63	45.27	22.797			
7,700.00	7,291.07	7,501.27	7,291.07	38.72	23.55	94.66	823.13	-504.44	1,031.90	986.34	45.56	22.649			
7,800.00	7,391.07	7,601.27	7,391.07	38.81	23.70	94.66	823.13	-504.44	1,031.90	986.04	45.86	22.502			
7,900.00	7,491.07	7,701.27	7,491.07	38.90	23.85	94.66	823.13	-504.44	1,031.90	985.74	46.16	22.356			
8,000.00	7,591.07	7,801.27	7,591.07	39.00	24.00	94.66	823.13	-504.44	1,031.90	985.44	46.46	22.211			
8,100.00	7,691.07	7,901.27	7,691.07	39.09	24.15	94.66	823.13	-504.44	1,031.90	985.13	46.76	22.066			
8,200.00	7,791.07	8,001.27	7,791.07	39.19	24.30	94.66	823.13	-504.44	1,031.90	984.83	47.07	21.922			
8,300.00	7,891.07	8,101.27	7,891.07	39.28	24.46	94.66	823.13	-504.44	1,031.90	984.52	47.38	21.779			
8,400.00	7,991.07	8,201.27	7,991.07	39.38	24.61	94.66	823.13	-504.44	1,031.90	984.21	47.69	21.637			
8,500.00	8,091.07	8,301.27	8,091.07	39.48	24.77	94.66	823.13	-504.44	1,031.90	983.89	48.00	21.496			
8,600.00	8,191.07	8,401.27	8,191.07	39.58	24.93	94.66	823.13	-504.44	1,031.90	983.58	48.32	21.356			
8,700.00	8,291.07	8,501.27	8,291.07	39.68	25.08	94.66	823.13	-504.44	1,031.90	983.26	48.64	21.216			
8,800.00	8,391.07	8,601.27	8,391.07	39.78	25.24	94.66	823.13	-504.44	1,031.90	982.94	48.96	21.078			
8,900.00	8,491.07	8,701.27	8,491.07	39.89	25.40	94.66	823.13	-504.44	1,031.90	982.62	49.28	20.940			
9,000.00	8,591.07	8,801.27	8,591.07	39.99	25.56	94.66	823.13	-504.44	1,031.90	982.30	49.60	20.803			
9,108.93	8,700.00	8,810.20	8,600.00	40.11	25.58	94.66	823.13	-504.44	1,036.73	986.95	49.78	20.825			



**Weatherford International Ltd.**  
Anticollision Report



<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Reference Site:</b>	NBU 1022-10B PAD	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	NBU 1022-10C1BS	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-92.55	2.70	-79.99	29.11					
100.00	100.00	80.00	80.00	0.09	0.11	-92.55	2.70	-79.99	21.16	20.96	0.20	107.871		
200.00	200.00	180.03	180.03	0.31	0.34	-92.20	2.83	-79.94	21.11	20.45	0.66	32.090		
300.00	300.00	280.22	280.21	0.54	0.58	-91.13	3.23	-79.45	20.60	19.48	1.12	18.392		
400.00	400.00	380.13	380.12	0.76	0.79	-90.41	3.50	-78.49	19.64	18.08	1.56	12.600		
500.00	500.00	480.23	480.21	0.99	1.02	-90.38	3.52	-77.76	18.90	16.90	2.00	9.429		
600.00	600.00	580.25	580.23	1.21	1.25	-90.54	3.48	-76.47	17.62	15.16	2.46	7.156		
700.00	700.00	680.21	680.18	1.44	1.47	-91.90	3.10	-75.24	16.40	13.49	2.91	5.637		
800.00	800.00	780.27	780.23	1.66	1.70	-94.32	2.50	-73.95	15.14	11.78	3.36	4.502		
900.00	900.00	880.36	880.30	1.89	1.95	-96.96	2.04	-71.98	13.23	9.40	3.83	3.451		
1,000.00	1,000.00	980.32	980.23	2.11	2.20	-101.41	1.48	-69.59	10.95	6.64	4.31	2.540		
1,100.00	1,100.00	1,080.39	1,080.27	2.34	2.46	-106.07	1.29	-67.01	8.50	3.70	4.80	1.772		
1,200.00	1,200.00	1,180.37	1,180.18	2.56	2.72	-113.90	1.61	-63.43	5.01	-0.28	5.28	0.948	Level 1	
1,300.00	1,300.00	1,280.29	1,280.02	2.79	2.99	-164.91	1.69	-59.38	2.02	-3.75	5.77	0.350	Level 1	
1,310.21	1,310.21	1,290.49	1,290.21	2.81	3.02	-177.43	1.67	-58.94	1.97	-3.85	5.82	0.339	Level 1, CC, ES, SF	
1,400.00	1,400.00	1,380.20	1,379.85	3.01	3.25	126.28	1.11	-55.40	4.29	-1.97	6.26	0.685	Level 1	
1,500.00	1,500.00	1,480.14	1,479.73	3.24	3.50	121.07	-0.35	-52.23	7.74	1.01	6.73	1.149	Level 2	
1,600.00	1,600.00	1,580.12	1,579.65	3.46	3.74	121.42	-2.13	-49.40	11.09	3.88	7.20	1.539		
1,700.00	1,700.00	1,680.09	1,679.58	3.69	3.98	122.99	-4.04	-47.01	14.12	6.46	7.66	1.843		
1,800.00	1,800.00	1,780.16	1,779.60	3.91	4.19	126.01	-6.27	-45.21	16.87	8.76	8.10	2.081		
1,900.00	1,900.00	1,880.15	1,879.55	4.14	4.39	130.07	-8.69	-44.20	19.16	10.63	8.53	2.246		
1,960.00	1,960.00	1,940.12	1,939.50	4.27	4.52	132.03	-10.13	-43.57	20.57	11.79	8.79	2.341		
2,000.00	2,000.00	1,980.08	1,979.46	4.36	4.60	-168.65	-11.07	-43.12	21.96	13.01	8.95	2.455		
2,100.00	2,099.87	2,079.73	2,079.07	4.57	4.82	-168.56	-13.51	-41.87	29.16	19.81	9.35	3.119		
2,200.00	2,199.37	2,178.85	2,178.14	4.80	5.04	-169.88	-16.15	-40.43	41.76	32.03	9.74	4.290		
2,300.00	2,298.21	2,277.28	2,276.52	5.04	5.27	-171.59	-18.66	-38.79	59.58	49.48	10.10	5.899		
2,400.00	2,396.12	2,374.59	2,373.78	5.31	5.49	-172.75	-21.29	-37.41	82.41	71.98	10.44	7.897		
2,500.00	2,492.83	2,470.51	2,469.66	5.62	5.72	-173.65	-23.98	-36.04	110.38	99.64	10.74	10.278		
2,600.00	2,588.09	2,564.86	2,563.95	6.01	5.93	-174.13	-27.07	-34.97	143.36	132.35	11.01	13.021		
2,700.00	2,681.62	2,657.42	2,656.46	6.47	6.14	-174.54	-30.13	-33.94	181.23	169.98	11.25	16.105		
2,800.00	2,773.18	2,747.63	2,746.61	7.04	6.34	-174.87	-33.18	-32.98	223.88	212.41	11.47	19.518		
2,900.00	2,862.51	2,835.20	2,834.12	7.72	6.54	-175.08	-36.43	-32.07	271.35	259.69	11.66	23.266		
2,952.00	2,908.00	2,879.78	2,878.67	8.12	6.64	-175.18	-38.11	-31.56	297.89	286.13	11.76	25.341		
3,000.00	2,949.66	2,920.77	2,919.62	8.52	6.74	-175.34	-39.64	-31.08	322.95	310.97	11.98	26.961		
3,100.00	3,036.47	3,006.65	3,005.44	9.38	6.93	-175.57	-42.90	-30.20	375.07	362.62	12.45	30.116		
3,200.00	3,123.28	3,092.51	3,091.23	10.28	7.13	-175.75	-46.08	-29.42	427.09	414.14	12.94	32.993		
3,300.00	3,210.10	3,178.48	3,177.14	11.22	7.33	-175.91	-49.10	-28.64	479.01	465.56	13.45	35.627		
3,400.00	3,296.91	3,266.27	3,264.88	12.18	7.54	-176.06	-51.93	-27.92	530.73	516.77	13.96	38.022		
3,500.00	3,383.72	3,355.14	3,353.72	13.16	7.74	-176.22	-54.34	-27.43	582.01	567.53	14.48	40.191		
3,600.00	3,470.53	3,442.74	3,441.30	14.16	7.94	-176.36	-56.34	-27.20	632.88	617.87	15.00	42.181		
3,700.00	3,557.34	3,528.62	3,527.15	15.16	8.13	-176.45	-58.52	-27.17	683.71	668.19	15.53	44.035		
3,800.00	3,644.15	3,614.65	3,613.15	16.18	8.32	-176.49	-61.03	-27.32	734.58	718.53	16.05	45.756		
3,900.00	3,730.96	3,701.70	3,700.14	17.21	8.49	-176.50	-63.86	-27.75	785.39	768.81	16.58	47.368		
4,000.00	3,817.77	3,788.86	3,787.25	18.24	8.67	-176.47	-66.98	-28.50	836.10	818.99	17.11	48.858		
4,100.00	3,904.59	3,876.33	3,874.65	19.28	8.85	-176.42	-70.31	-29.54	886.70	869.05	17.64	50.255		
4,200.00	3,991.40	3,963.98	3,962.22	20.32	9.02	-176.36	-73.76	-30.80	937.17	918.99	18.18	51.555		
4,300.00	4,078.21	4,054.41	4,052.57	21.37	9.18	-176.30	-77.29	-32.33	987.45	968.74	18.71	52.769		
4,400.00	4,165.02	4,147.24	4,145.33	22.42	9.35	-176.26	-80.38	-34.17	1,037.24	1,018.00	19.25	53.890		
4,500.00	4,251.83	4,237.88	4,235.91	23.47	9.51	-176.25	-82.87	-36.20	1,086.56	1,066.78	19.78	54.939		
4,600.00	4,338.64	4,325.04	4,323.02	24.53	9.65	-176.23	-85.16	-38.19	1,135.79	1,115.49	20.30	55.950		
4,700.00	4,425.45	4,412.60	4,410.53	25.58	9.80	-176.22	-87.46	-40.21	1,185.00	1,164.17	20.82	56.903		
4,800.00	4,512.26	4,502.71	4,500.59	26.65	9.94	-176.22	-89.72	-42.38	1,234.08	1,212.72	21.36	57.788		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Weatherford International Ltd.**  
Anticollision Report



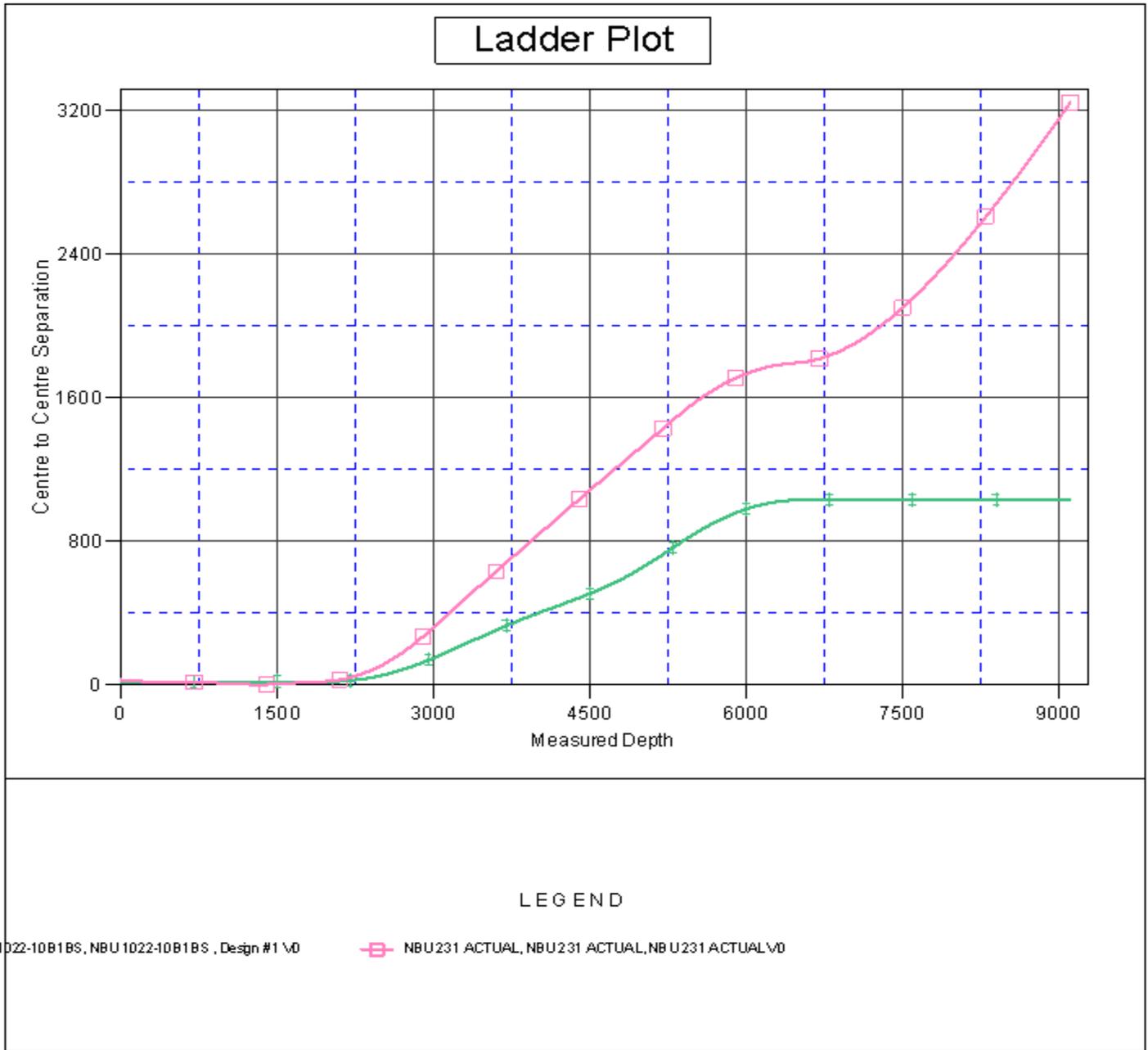
<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Reference Site:</b>	NBU 1022-10B PAD	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	NBU 1022-10C1BS	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 ft	
Survey Program: 100-NS-GYRO-MS													Offset Well Error:		0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
4,900.00	4,599.07	4,593.08	4,590.90	27.71	10.09	-176.21	-91.82	-44.72	1,282.94	1,261.05	21.89	58.616			
5,000.00	4,685.89	4,679.16	4,676.93	28.77	10.23	-176.21	-93.66	-46.93	1,331.72	1,309.30	22.41	59.413			
5,100.00	4,772.70	4,764.76	4,762.49	29.84	10.37	-176.23	-95.29	-48.86	1,380.60	1,357.66	22.94	60.179			
5,200.00	4,859.51	4,848.57	4,846.28	30.90	10.52	-176.26	-96.76	-50.51	1,429.62	1,406.15	23.48	60.894			
5,300.00	4,946.32	4,930.96	4,928.63	31.97	10.68	-176.28	-98.35	-51.93	1,478.91	1,454.89	24.02	61.572			
5,318.53	4,962.41	4,946.19	4,943.86	32.17	10.71	-176.29	-98.67	-52.17	1,488.07	1,463.95	24.12	61.696			
5,400.00	5,033.83	5,014.05	5,011.70	32.94	10.84	-176.37	-100.13	-53.16	1,527.20	1,502.42	24.78	61.632			
5,500.00	5,123.34	5,100.57	5,098.19	33.74	11.03	-176.46	-102.00	-54.22	1,571.92	1,546.37	25.55	61.526			
5,600.00	5,214.71	5,188.74	5,186.33	34.46	11.23	-176.54	-103.85	-55.04	1,612.87	1,586.60	26.27	61.402			
5,700.00	5,307.76	5,280.77	5,278.34	35.11	11.44	-176.60	-105.80	-55.77	1,649.93	1,622.98	26.95	61.231			
5,800.00	5,402.32	5,374.63	5,372.17	35.68	11.66	-176.63	-107.95	-56.59	1,682.94	1,655.37	27.57	61.038			
5,900.00	5,498.21	5,468.90	5,466.41	36.18	11.88	-176.65	-110.26	-57.45	1,711.87	1,683.72	28.14	60.830			
6,000.00	5,595.24	5,563.93	5,561.41	36.60	12.11	-176.65	-112.62	-58.23	1,736.69	1,708.04	28.65	60.614			
6,100.00	5,693.23	5,665.03	5,662.47	36.95	12.35	-176.64	-115.05	-58.99	1,757.29	1,728.18	29.11	60.370			
6,200.00	5,792.00	5,770.17	5,767.59	37.24	12.59	-176.62	-117.07	-59.85	1,773.29	1,743.78	29.51	60.097			
6,300.00	5,891.36	5,869.98	5,867.39	37.46	12.82	-176.60	-118.67	-60.73	1,784.73	1,754.90	29.82	59.843			
6,400.00	5,991.11	5,967.80	5,965.19	37.61	13.05	-176.56	-120.44	-61.64	1,791.92	1,761.85	30.07	59.598			
6,508.93	6,100.00	5,977.00	5,974.39	37.72	13.07	124.93	-120.62	-61.72	1,797.63	1,767.60	30.03	59.871			
6,600.00	6,191.07	5,977.00	5,974.39	37.78	13.07	124.93	-120.62	-61.72	1,805.27	1,775.11	30.16	59.858			
6,700.00	6,291.07	5,977.00	5,974.39	37.86	13.07	124.93	-120.62	-61.72	1,818.88	1,788.56	30.32	59.991			
6,800.00	6,391.07	5,977.00	5,974.39	37.94	13.07	124.93	-120.62	-61.72	1,837.85	1,807.36	30.48	60.296			
6,900.00	6,491.07	5,977.00	5,974.39	38.02	13.07	124.93	-120.62	-61.72	1,861.99	1,831.35	30.64	60.764			
7,000.00	6,591.07	5,977.00	5,974.39	38.11	13.07	124.93	-120.62	-61.72	1,891.12	1,860.32	30.81	61.386			
7,100.00	6,691.07	5,977.00	5,974.39	38.19	13.07	124.93	-120.62	-61.72	1,925.01	1,894.04	30.97	62.153			
7,200.00	6,791.07	5,977.00	5,974.39	38.28	13.07	124.93	-120.62	-61.72	1,963.42	1,932.28	31.14	63.053			
7,300.00	6,891.07	5,977.00	5,974.39	38.36	13.07	124.93	-120.62	-61.72	2,006.08	1,974.77	31.31	64.078			
7,400.00	6,991.07	5,977.00	5,974.39	38.45	13.07	124.93	-120.62	-61.72	2,052.73	2,021.25	31.48	65.216			
7,500.00	7,091.07	5,977.00	5,974.39	38.54	13.07	124.93	-120.62	-61.72	2,103.10	2,071.45	31.65	66.457			
7,600.00	7,191.07	5,977.00	5,974.39	38.63	13.07	124.93	-120.62	-61.72	2,156.93	2,125.12	31.82	67.791			
7,700.00	7,291.07	5,977.00	5,974.39	38.72	13.07	124.93	-120.62	-61.72	2,213.98	2,181.99	31.99	69.208			
7,800.00	7,391.07	5,977.00	5,974.39	38.81	13.07	124.93	-120.62	-61.72	2,273.99	2,241.83	32.16	70.701			
7,900.00	7,491.07	5,977.00	5,974.39	38.90	13.07	124.93	-120.62	-61.72	2,336.74	2,304.41	32.34	72.259			
8,000.00	7,591.07	5,977.00	5,974.39	39.00	13.07	124.93	-120.62	-61.72	2,402.02	2,369.51	32.51	73.877			
8,100.00	7,691.07	5,977.00	5,974.39	39.09	13.07	124.93	-120.62	-61.72	2,469.62	2,436.93	32.69	75.545			
8,200.00	7,791.07	5,977.00	5,974.39	39.19	13.07	124.93	-120.62	-61.72	2,539.37	2,506.50	32.87	77.259			
8,300.00	7,891.07	5,977.00	5,974.39	39.28	13.07	124.93	-120.62	-61.72	2,611.08	2,578.03	33.05	79.011			
8,400.00	7,991.07	5,977.00	5,974.39	39.38	13.07	124.93	-120.62	-61.72	2,684.60	2,651.37	33.23	80.797			
8,500.00	8,091.07	5,977.00	5,974.39	39.48	13.07	124.93	-120.62	-61.72	2,759.78	2,726.37	33.41	82.611			
8,600.00	8,191.07	5,977.00	5,974.39	39.58	13.07	124.93	-120.62	-61.72	2,836.50	2,802.91	33.59	84.450			
8,700.00	8,291.07	5,977.00	5,974.39	39.68	13.07	124.93	-120.62	-61.72	2,914.63	2,880.86	33.77	86.308			
8,800.00	8,391.07	5,977.00	5,974.39	39.78	13.07	124.93	-120.62	-61.72	2,994.06	2,960.11	33.95	88.182			
8,900.00	8,491.07	5,977.00	5,974.39	39.89	13.07	124.93	-120.62	-61.72	3,074.69	3,040.55	34.14	90.069			
9,000.00	8,591.07	5,977.00	5,974.39	39.99	13.07	124.93	-120.62	-61.72	3,156.43	3,122.11	34.32	91.966			
9,108.93	8,700.00	5,977.00	5,974.39	40.11	13.07	124.93	-120.62	-61.72	3,246.64	3,212.12	34.52	94.041			



<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Reference Site:</b>	NBU 1022-10B PAD	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	NBU 1022-10C1BS	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

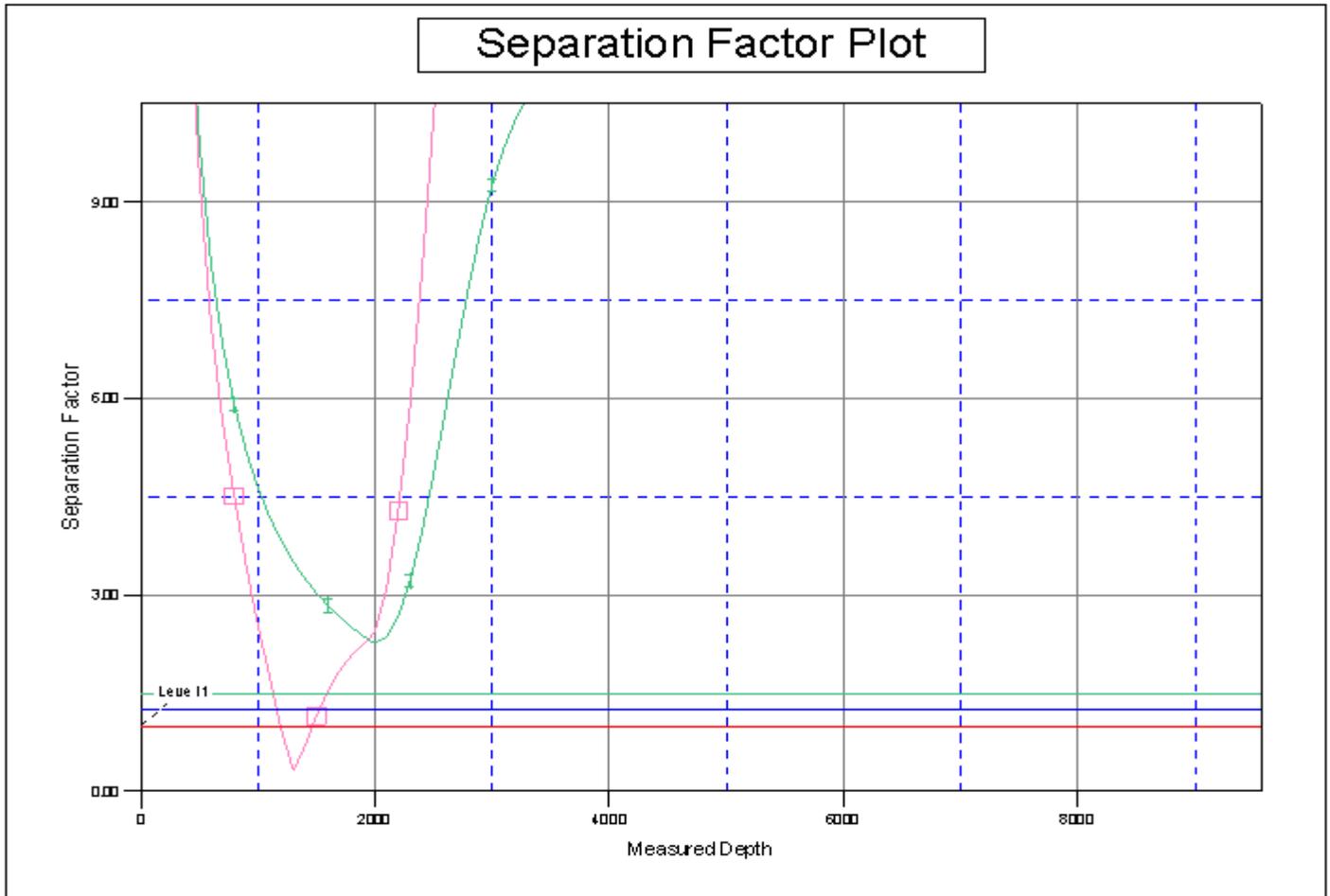
Reference Depths are relative to WELL @ 5075.00ft (Original Well Elev) Coordinates are relative to: NBU 1022-10B PAD  
 Offset Depths are relative to Offset Datum Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 12N  
 Central Meridian is 111° 0' 0.000 W ° Grid Convergence at Surface is: 1.01°





<b>Company:</b>	ANADARKO PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Site NBU 1022-10B PAD
<b>Project:</b>	UINTAH COUNTY, UTAH (nad 27)	<b>TVD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Reference Site:</b>	NBU 1022-10B PAD	<b>MD Reference:</b>	WELL @ 5075.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	NBU 1022-10C1BS	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5075.00ft (Original Well Elev) Coordinates are relative to: NBU 1022-10B PAD  
 Offset Depths are relative to Offset Datum Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 12N  
 Central Meridian is 111° 0' 0.000 W ° Grid Convergence at Surface is: 1.01°



LEGEND

J 1022-10B1BS, NBU 1022-10B1BS , Design #1 WD

— NBU231 ACTUAL, NBU 231 ACTUAL, NBU 231 ACTUAL WD



# Weatherford®

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**NBU 1022-10C1BS**

Pad: NBU 1022-10B (NBU 231)  
Surface: 1,065' FNL, 1,523' FEL (NW/4NE/4)  
BHL: 163' FNL 2,252' FWL (NE/4NW/4)  
Sec. 10 T10S R22E

Uintah, Utah  
Mineral Lease: UO 01197

**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	1,131'	
Birds Nest	1,359'	Water
Mahogany	1,853'	Water
Wasatch	4,170'	Gas
Mesaverde	6,518'	Gas
MVU2	7,494'	Gas
MVL1	8,067'	Gas
TVD	8,700'	
TD	9,109'	

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 bottomhole pressure calculated at 9,109' TD, approximately equals 5,202 psi (calculated at 0.57 psi/foot).

Maximum anticipated surface pressure equals approximately 3,055 psi (bottomhole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot).

**8. Anticipated Starting Dates:**

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

**9. Variances:**

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

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

#### ***Variance for BOPE Requirements***

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

#### ***Variance for Mud Material Requirements***

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

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

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

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

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

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

***Conclusion***

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

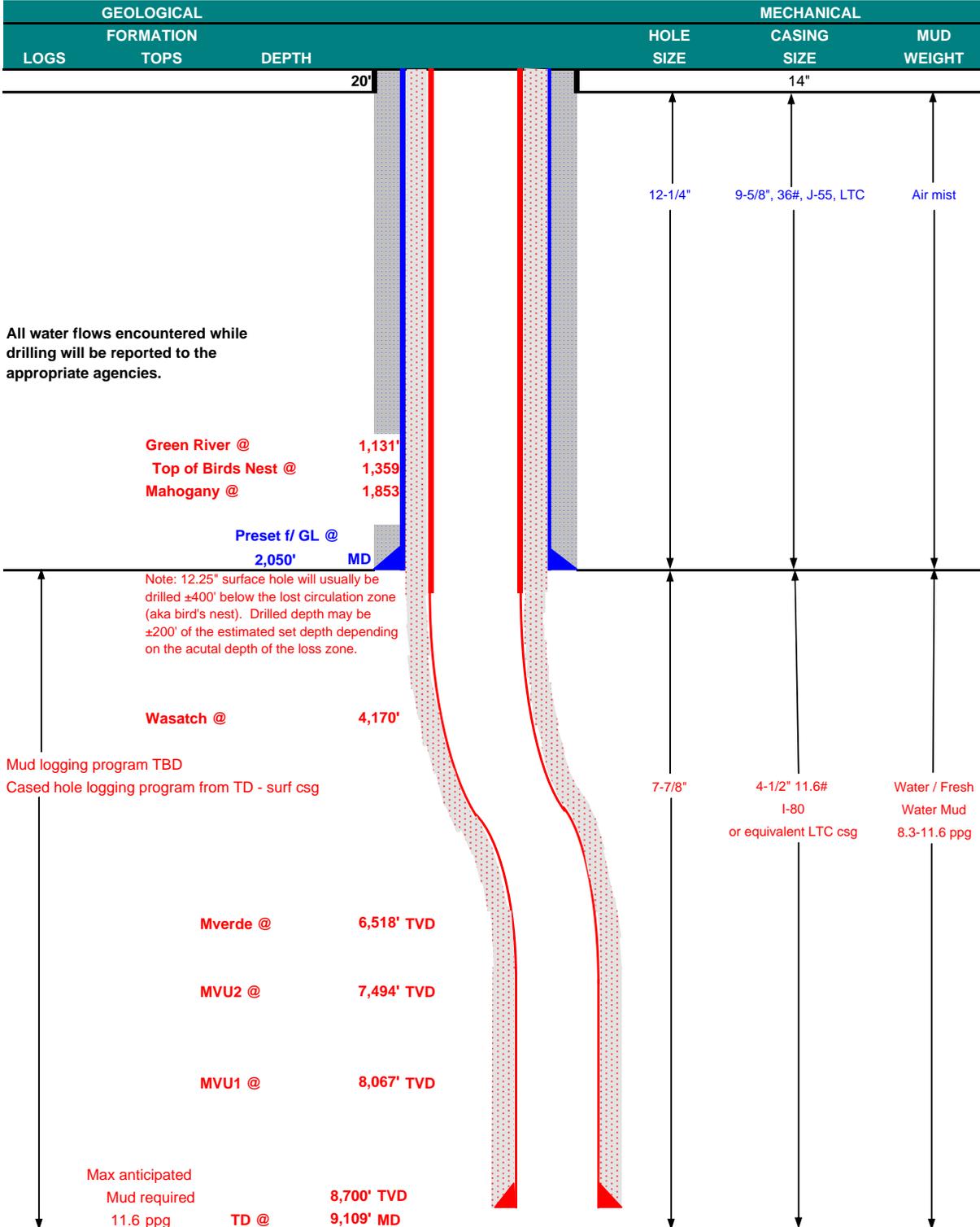
**10. Other Information:**

*Please refer to the attached Drilling Program.*



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

COMPANY NAME	KERR-McGEE OIL & GAS ONSHORE LP		DATE	April 22, 2009			
WELL NAME	<b>NBU 1022-10C1BS</b>		TD	8,700'	TVD	9,109' MD	
FIELD	Natural Buttes	COUNTY	Uintah	STATE	Utah	ELEVATION	5,058.5' GL    KB 5,074'
SURFACE LOCATION	NW/4 NE/4 1,065' FNL 1,523' FEL		Sec 10	T 10S	R 22E		
	Latitude: 39.967819		Longitude: -109.421402		NAD 27		
BTM HOLE LOCATION	NE/4 NW/4 163' FNL 2,252' FWL		Sec 10	T 10S	R 22E		
	Latitude: 39.970304		Longitude: -109.426657		NAD 27		
OBJECTIVE ZONE(S)	Wasatch/Mesaverde						
ADDITIONAL INFO	Regulatory Agencies: SITLA (Minerals), UDOGM (Surface), Tri-County Health Dept.						





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

### CASING PROGRAM

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS		
						BURST	COLLAPSE	TENSION
CONDUCTOR	14"	0-40'				3520	2020	453000
SURFACE	9-5/8"	0 to 2,050	36.00	J-55	LTC	1.01	2.11	7.81
PRODUCTION	4-1/2"	0 to 9,109	11.60	I-80	LTC	2.23	1.16	2.18

1) Max Anticipated Surf. Press. (MASP) (Surface Casing) = (Pore Pressure at next csg point - (0.22 psi/ft - partial evac gradient x TVD of next csg point))

2) MASP (Prod Casing) = Pore Pressure at TD - (0.22 psi/ft - partial evac gradient x TD)  
 (Burst Assumptions: TD = 11.6 ppg) 0.22 psi/ft = gradient for partially evac wellbore  
 (Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing \* Buoy. Fact. of water)  
**MASP 3,235 psi**

3) Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD  
 (Burst Assumptions: TD = 11.6 ppg) 0.59 psi/ft = bottomhole gradient  
 (Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing \* Buoy. Fact. of water)  
**MABHP 5,391 psi**

### CEMENT PROGRAM

	FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE Option 1	LEAD 500	Premium cmt + 2% CaCl + 0.25 pps flocele	215	60%	15.60	1.18
	TOP OUT CMT (1) 200	20 gals sodium silicate + Premium cmt + 2% CaCl + 0.25 pps flocele	50		15.60	1.18
	TOP OUT CMT (2) as required	Premium cmt + 2% CaCl	as req.		15.60	1.18
SURFACE Option 2	<b>NOTE: If well will circulate water to surface, option 2 will be utilized</b>					
	LEAD 1500	65/35 Poz + 6% Gel + 10 pps gilsonite + .25 pps Flocele + 3% salt BWOW	360	35%	12.60	1.81
	TAIL 500	Premium cmt + 2% CaCl + 0.25 pps flocele	180	35%	15.60	1.18
	TOP OUT CMT as required	Premium cmt + 2% CaCl	as req.		15.60	1.18
PRODUCTION	LEAD 3,669'	Premium Lite II + 3% KCl + 0.25 pps celloflake + 5 pps gilsonite + 10% gel + 0.5% extender	350	40%	11.00	3.38
	TAIL 5,440'	50/50 Poz/G + 10% salt + 2% gel +.1% R-3	1330	40%	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.

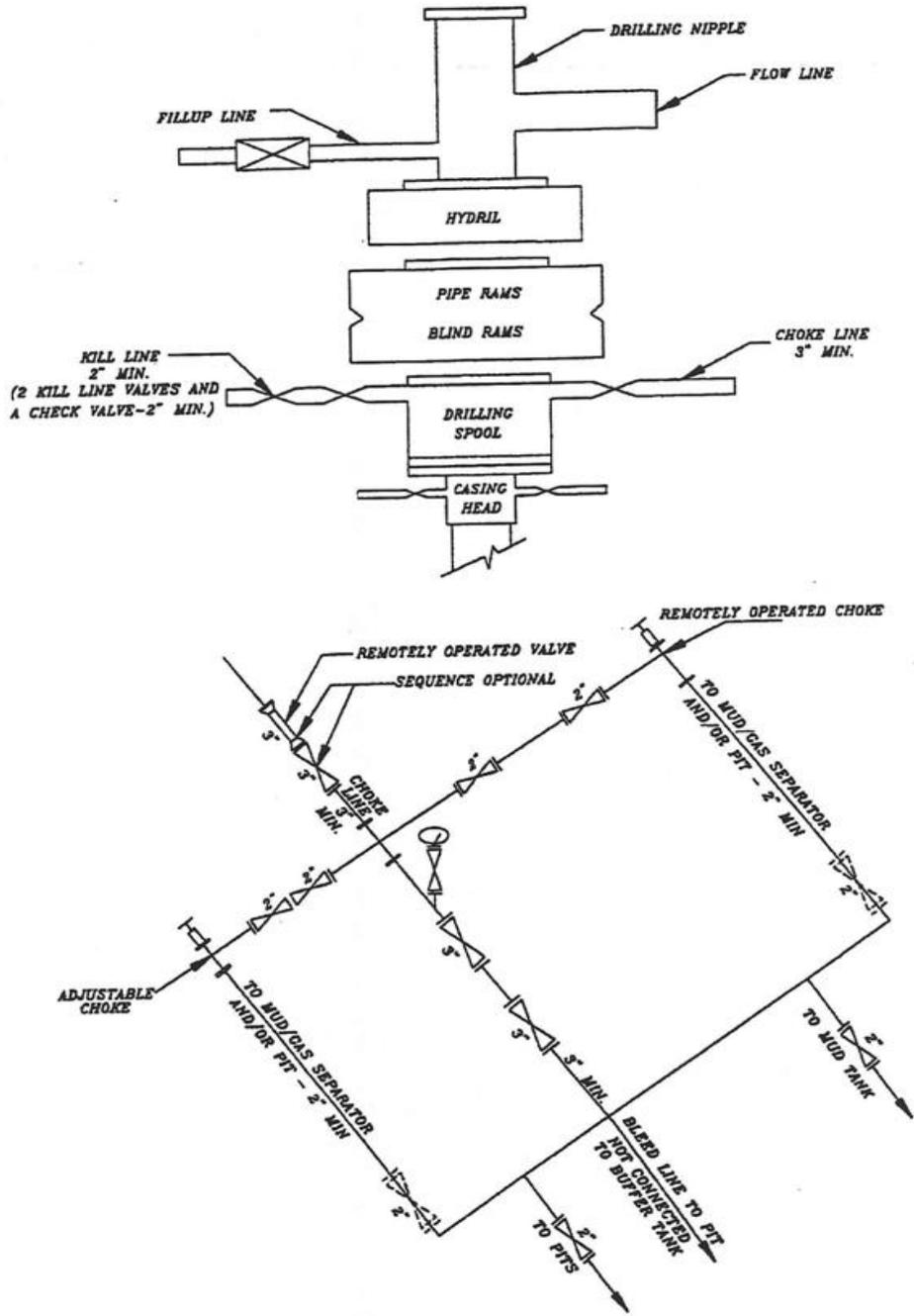
DRILLING ENGINEER: \_\_\_\_\_  
John Huycke / Grant Schluender

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

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

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

### EXHIBIT A NBU 1022-10C1BS



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

# WELL PAD INTERFERENCE PLAT

## DIRECTIONAL PAD - NBU 231



**SURFACE POSITION FOOTAGES:**

NBU 1022-10C1BS  
1065' FNL & 1523' FEL

NBU 1022-10B2AS  
1066' FNL & 1503' FEL

NBU 1022-10B4BS  
1066' FNL & 1483' FEL

NBU 1022-10A4BS  
1067' FNL & 1463' FEL

NBU 231 (Existing Well Head)  
1064' FNL & 1543' FEL

BASIS OF BEARINGS IS THE EAST LINE OF THE NE 1/4 OF SECTION 10, T10S, R22E, S.L.B.&M. WHICH IS TAKEN FROM GLOBAL POSITIONING SATELLITE OBSERVATIONS TO BEAR N00°08'03"W.

**BOTTOM HOLE FOOTAGES**

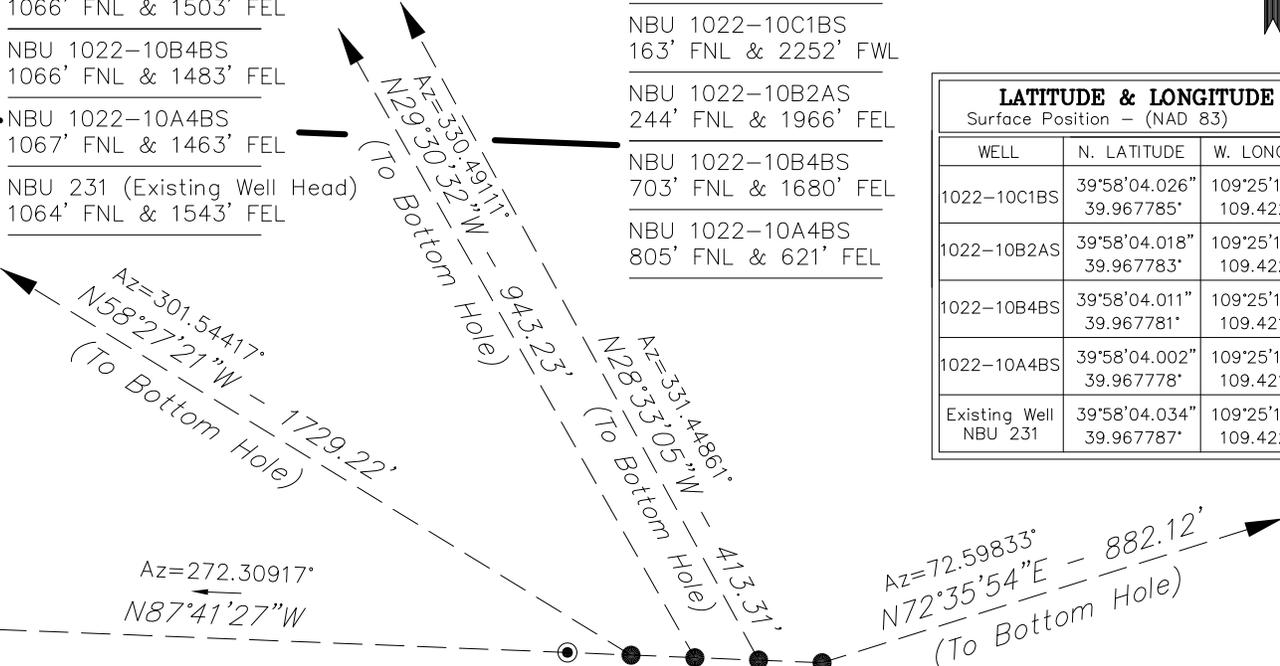
NBU 1022-10C1BS  
163' FNL & 2252' FWL

NBU 1022-10B2AS  
244' FNL & 1966' FEL

NBU 1022-10B4BS  
703' FNL & 1680' FEL

NBU 1022-10A4BS  
805' FNL & 621' FEL

LATITUDE & LONGITUDE Surface Position - (NAD 83)		
WELL	N. LATITUDE	W. LONGITUDE
1022-10C1BS	39°58'04.026" 39.967785°	109°25'19.503" 109.422084°
1022-10B2AS	39°58'04.018" 39.967783°	109°25'19.246" 109.422013°
1022-10B4BS	39°58'04.011" 39.967781°	109°25'18.989" 109.421941°
1022-10A4BS	39°58'04.002" 39.967778°	109°25'18.733" 109.421870°
Existing Well NBU 231	39°58'04.034" 39.967787°	109°25'19.759" 109.422155°



RELATIVE COORDINATES From Surface Position to Bottom Hole		
WELL	NORTH	EAST
1022-10C1BS	905'	-1474'
1022-10B2AS	821'	-465'
1022-10B4BS	363'	-198'
1022-10A4BS	264'	842'

LATITUDE & LONGITUDE Surface Position - (NAD 27)		
WELL	N. LATITUDE	W. LONGITUDE
1022-10C1BS	39°58'04.150" 39.967819°	109°25'17.047" 109.421402°
1022-10B2AS	39°58'04.142" 39.967817°	109°25'16.790" 109.421331°
1022-10B4BS	39°58'04.135" 39.967815°	109°25'16.533" 109.421259°
1022-10A4BS	39°58'04.126" 39.967813°	109°25'16.277" 109.421188°
Existing Well NBU 231	39°58'04.158" 39.967822°	109°25'17.304" 109.421473°

**EXISTING WELL: NBU 231**

**NBU 1022-10C1BS**  
Az. to exist. W.H.=272.30917° 20.0'

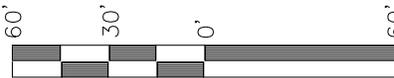
**NBU 1022-10B2AS**  
Az. to exist. W.H.=272.30917° 40.0'

**NBU 1022-10B4BS**  
Az. to exist. W.H.=272.30917° 60.0'

**NBU 1022-10A4BS**  
Az. to exist. W.H.=272.30917° 80.0'

LATITUDE & LONGITUDE Bottom Hole - (NAD 83)		
WELL	N. LATITUDE	W. LONGITUDE
1022-10C1BS	39°58'12.970" 39.970270°	109°25'38.421" 109.427339°
1022-10B2AS	39°58'12.130" 39.970036°	109°25'25.207" 109.423669°
1022-10B4BS	39°58'07.599" 39.968777°	109°25'21.523" 109.422645°
1022-10A4BS	39°58'06.605" 39.968501°	109°25'07.923" 109.418867°

LATITUDE & LONGITUDE Bottom Hole - (NAD 27)		
WELL	N. LATITUDE	W. LONGITUDE
1022-10C1BS	39°58'13.094" 39.970304°	109°25'35.964" 109.426657°
1022-10B2AS	39°58'12.254" 39.970071°	109°25'22.751" 109.422986°
1022-10B4BS	39°58'07.723" 39.968812°	109°25'19.067" 109.421963°
1022-10A4BS	39°58'06.728" 39.968536°	109°25'05.467" 109.418185°



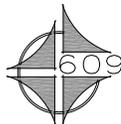
SCALE

**Kerr-McGee**

**Oil & Gas Onshore, LP**

1099 18th Street - Denver, Colorado 80202

NBU 1022-10C1BS, NBU 1022-10B2AS,  
NBU 1022-10B4BS & NBU 1022-10A4BS  
LOCATED IN SECTION 10, T10S, R22E,  
S.L.B.&M. UTAH COUNTY, UTAH.

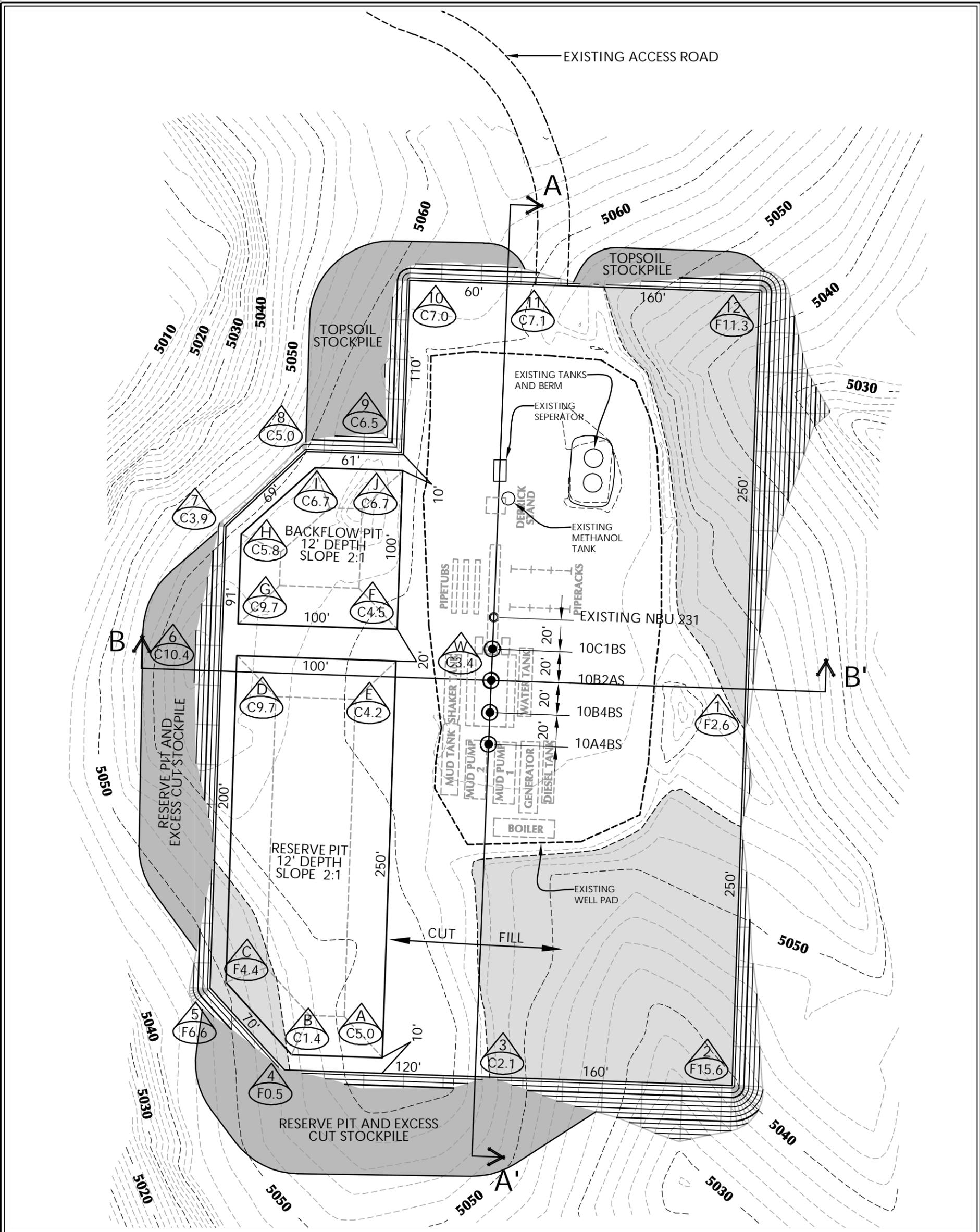


CONSULTING, LLC  
371 Coffeen Avenue  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

DATE SURVEYED: 09-15-08	SURVEYED BY: M.S.B.
DATE DRAWN: 10-06-08	DRAWN BY: E.M.S.
REVISED: 01-22-09	

**Timberline** (435) 789-1365  
Engineering & Land Surveying, Inc.  
209 NORTH 300 WEST VERNAL, UTAH 84078

SHEET  
**5**  
OF 13



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



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

**WELL PAD - LOCATION LAYOUT**  
NBU 1022-10C1BS, NBU 1022-10B2AS,  
NBU 1022-10B4BS, NBU 1022-10A4BS  
LOCATED IN SECTION 10, T.10S., R.22E.  
S.L.B.&M., UINTAH COUNTY, UTAH

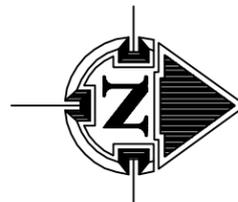
**WELL PAD NBU 231 QUANTITIES**

EXISTING GRADE @ CENTER OF PAD = 5,058.4'  
FINISHED GRADE ELEVATION = 5,055.0'  
CUT SLOPES = 1.5:1  
FILL SLOPES = 1.5:1

TOTAL CUT FOR WELL PAD = 17,680 C.Y.  
TOTAL FILL FOR WELL PAD = 16,635 C.Y.  
TOPSOIL @ 6" DEPTH = 2,372 C.Y.  
EXCESS MATERIAL = 1,045 C.Y.  
TOTAL DISTURBANCE = 3.90 ACRES  
SHRINKAGE FACTOR = 1.10  
SWELL FACTOR = 1.00  
RESERVE PIT CAPACITY (2' OF FREEBOARD)  
+/- 27,160 BARRELS  
RESERVE PIT VOLUME  
+/- 7,310 CY  
BACKFLOW PIT CAPACITY (2' OF FREEBOARD)  
+/- 8,320 BARRELS  
BACKFLOW PIT VOLUME  
+/- 2,350 CY

**WELL PAD LEGEND**

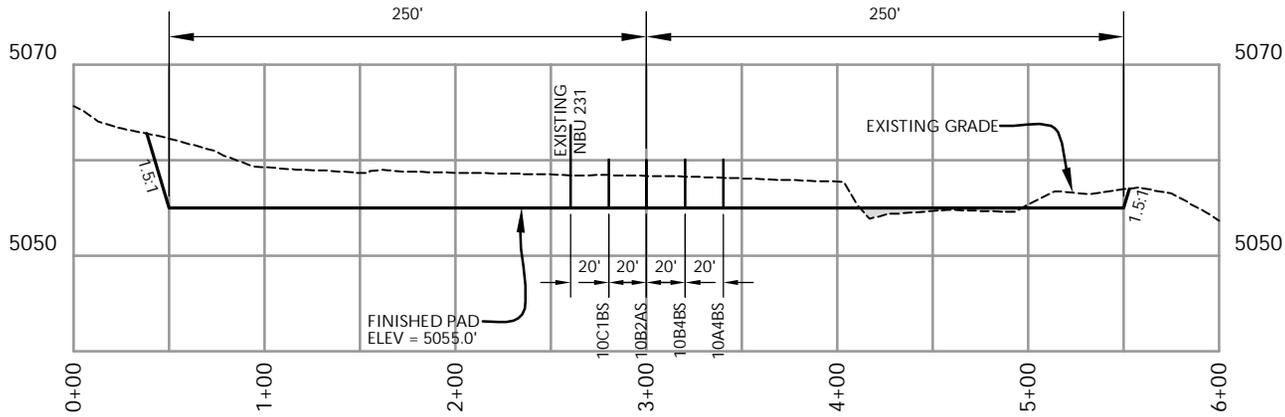
- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)



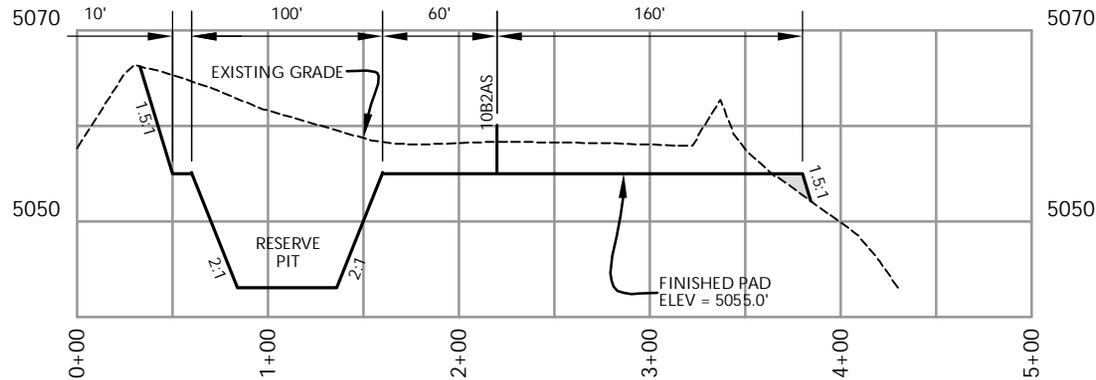
HORIZONTAL 0 30 60 1" = 60'  
2' CONTOURS

Scale: 1"=60'	Date: 2/11/09	SHEET NO:
REVISED:	BY DATE	6 6 OF 13

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38 WEST 100 NORTH VERNAL, UTAH 84078



**CROSS SECTION A-A'**



**CROSS SECTION B-B'**

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

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ONSHORE L.P.**

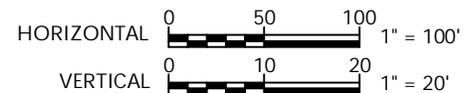
1099 18th Street - Denver, Colorado 80202

**WELL PAD - CROSS SECTIONS**  
 NBU 1022-10C1BS, NBU 1022-10B2AS,  
 NBU 1022-10B4BS, NBU 1022-10A4BS  
 LOCATED IN SECTION 10, T.10S., R.22E.  
 S.L.B.&M., UINTAH COUNTY, UTAH



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

Scale: 1"=100'	Date: 2/11/09	SHEET NO:
REVISED:	BY DATE	<b>7</b> 7 OF 13



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

'APIWellNo:43047503580000'  
 K:\MADARKO\2008\_27\_NBU\_Directional\_Wells\DWGS\NBU\ DIRECTIONAL\JAN\_FEB\_2009\_CESI.dwg, 2/11/2009 1:51:08 PM

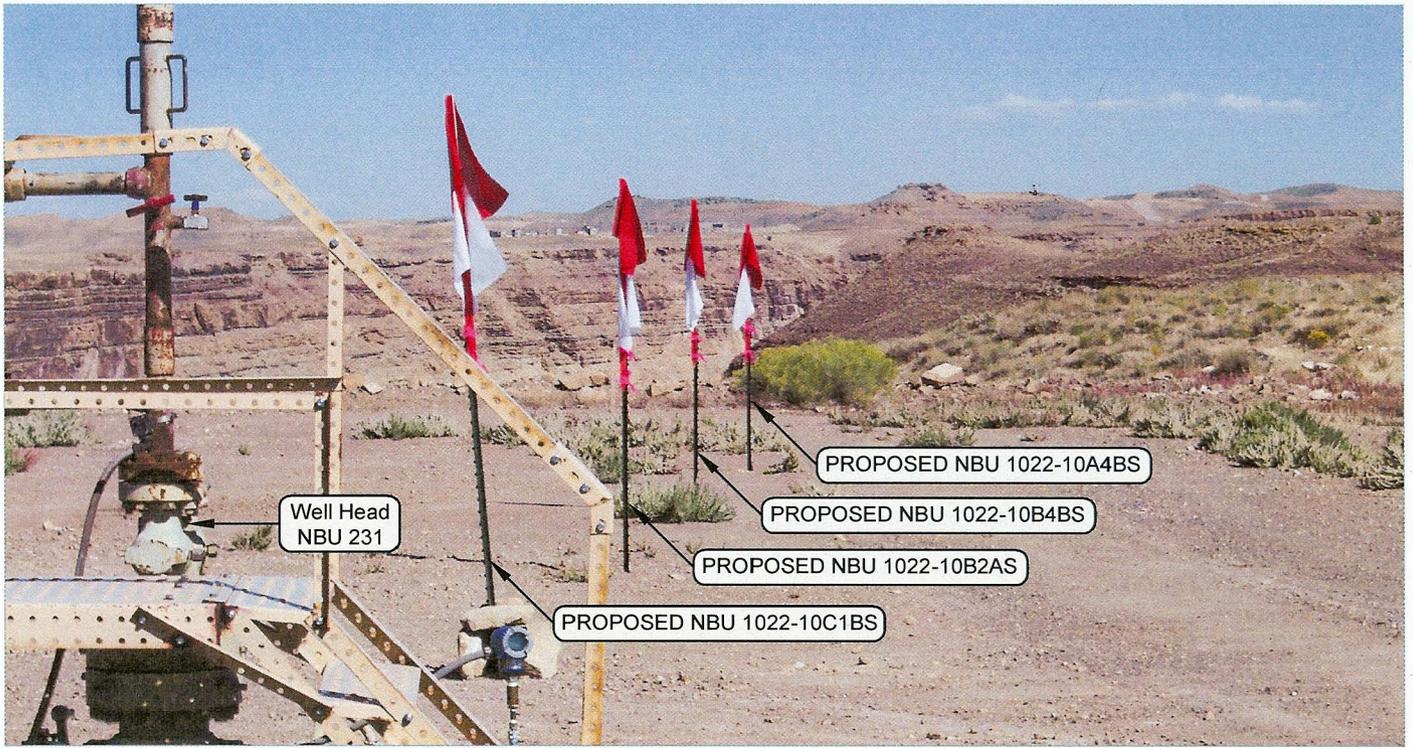


PHOTO VIEW: FROM EXISTING WELL HEAD TO LOCATION STAKES

CAMERA ANGLE: EASTERLY

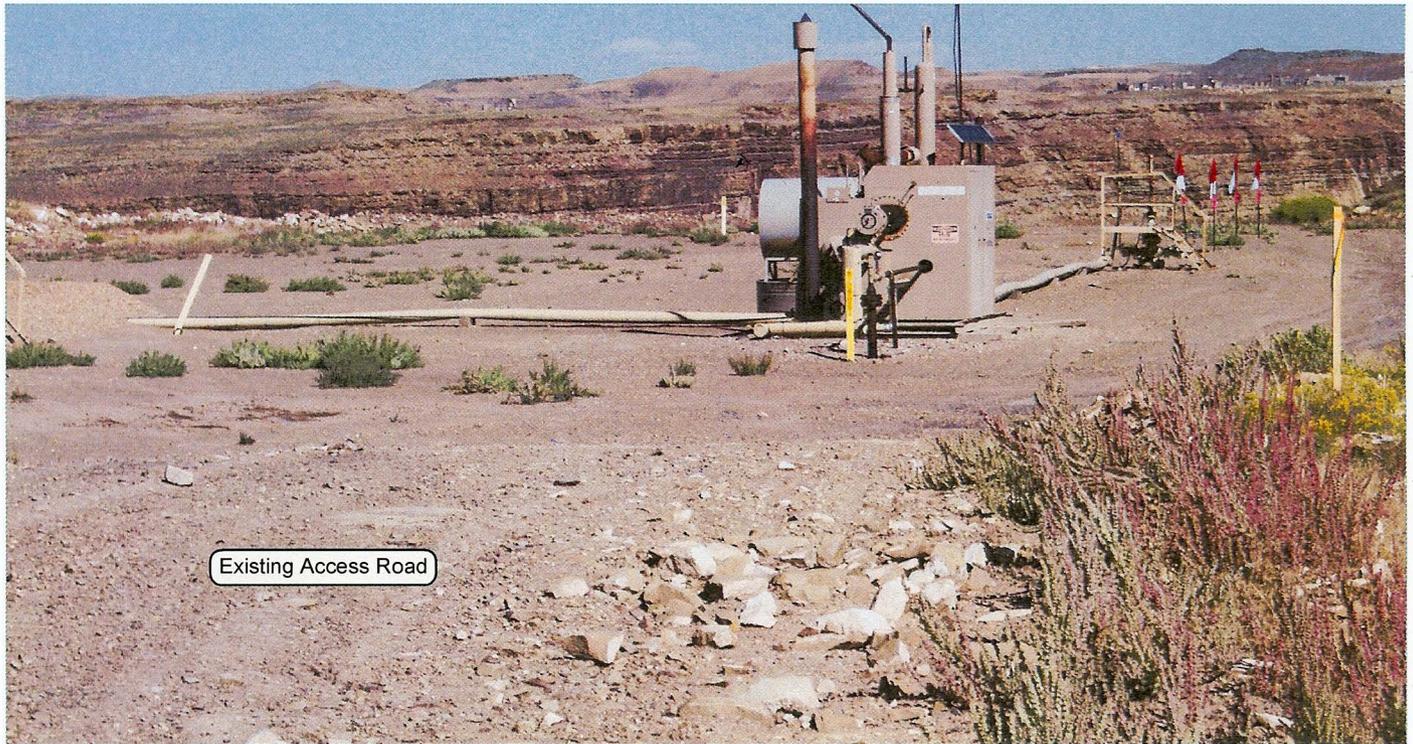


PHOTO VIEW: FROM EXISTING ROAD

CAMERA ANGLE: EASTERLY

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



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

NBU 1022-10C1BS, NBU 1022-10B2AS,  
 NBU 1022-10B4BS & NBU 1022-10A4BS  
 LOCATED IN SECTION 10, T10S, R22E,  
 S.L.B.&M. UINTAH COUNTY, UTAH.

**LOCATION PHOTOS**

TAKEN BY: M.S.B.

DRAWN BY: E.M.S.

DATE TAKEN: 09-15-08

DATE DRAWN: 10-06-08

REVISED: 01-22-09

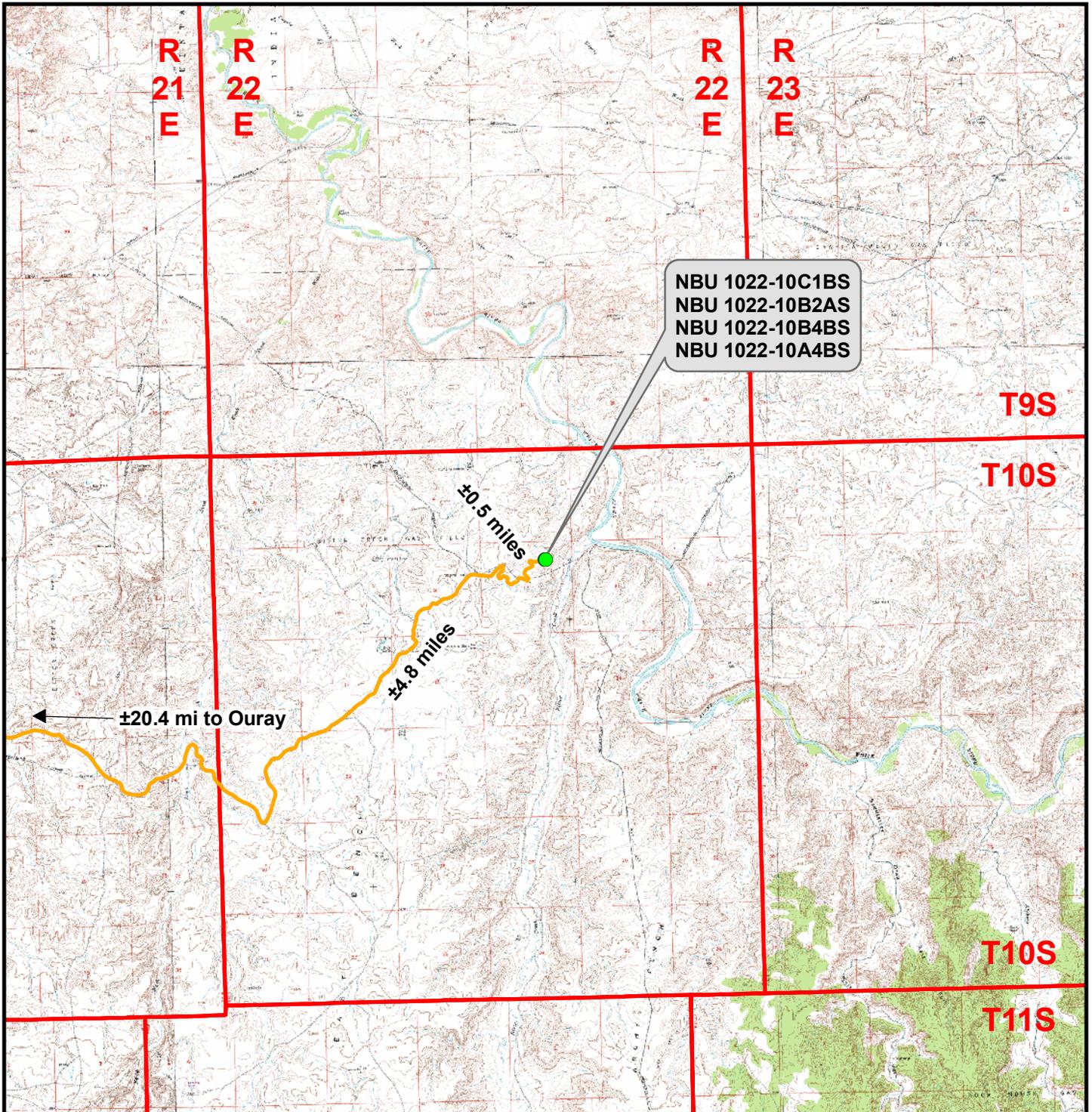
**Timberline**

(435) 789-1365

Engineering & Land Surveying, Inc.

209 NORTH 300 WEST VERNAL, UTAH 84078

**SHEET**  
**8**  
**OF 13**



**Legend**

- Proposed Well Location
- Access Route - Proposed

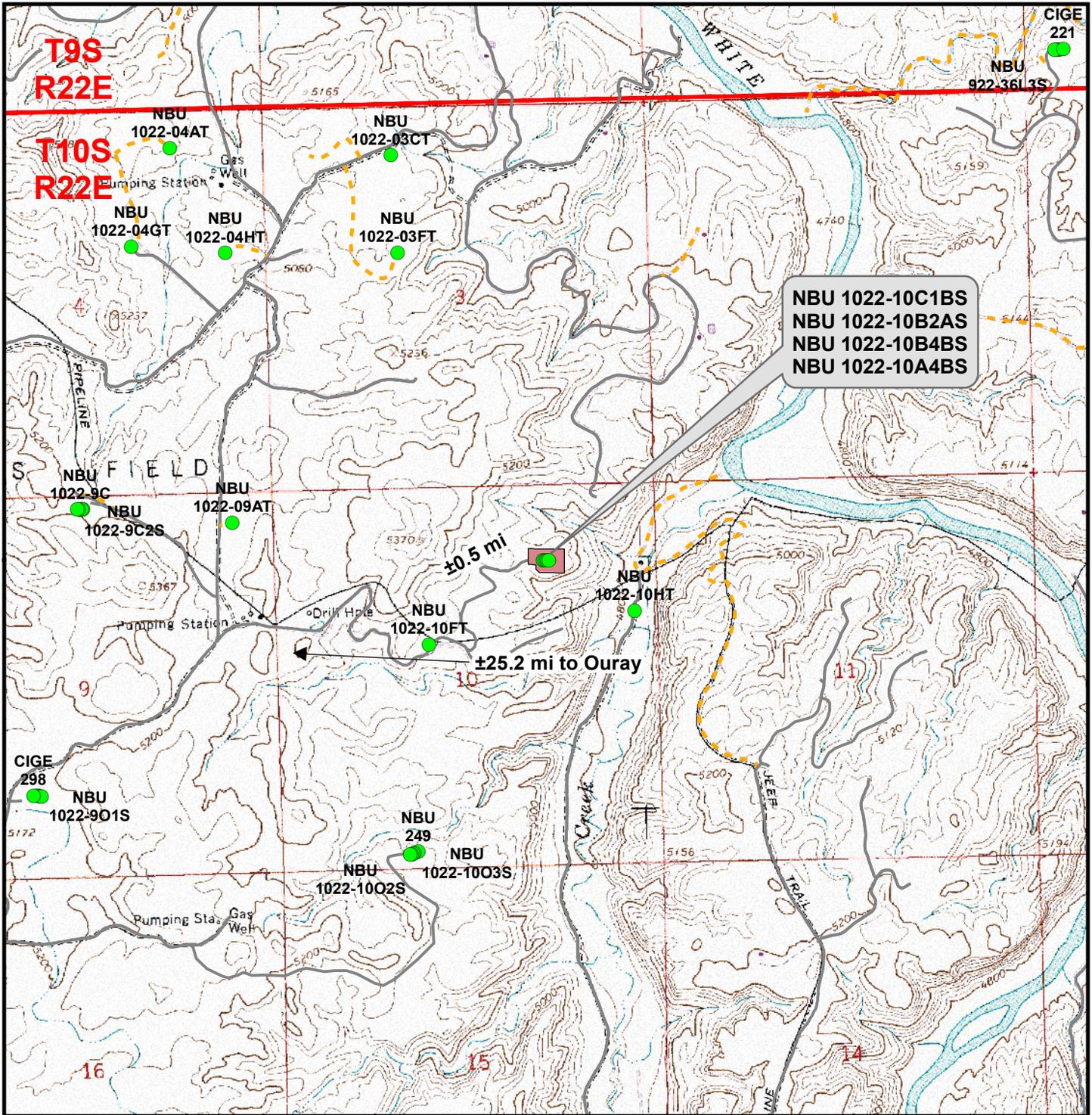
**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202

**NBU 1022-10C1BS, NBU 1022-10B2AS,  
 NBU 1022-10B4BS & NBU 1022-10A4BS**  
**Topo A**  
 Located In Section 10, T10S, R22E  
 S.L.B.&M., Uintah County, Utah

**609**  
**CONSULTING, LLC**  
 371 Coffeen Avenue  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1:100,000	NAD83 USP Central	Sheet No:
Drawn: JELO	Date: 10 Feb 2009	<b>9</b> 9 of 13
Revised:	Date:	



NBU 1022-10C1BS  
 NBU 1022-10B2AS  
 NBU 1022-10B4BS  
 NBU 1022-10A4BS

**Legend**

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

Total Proposed Road Length: ±0ft

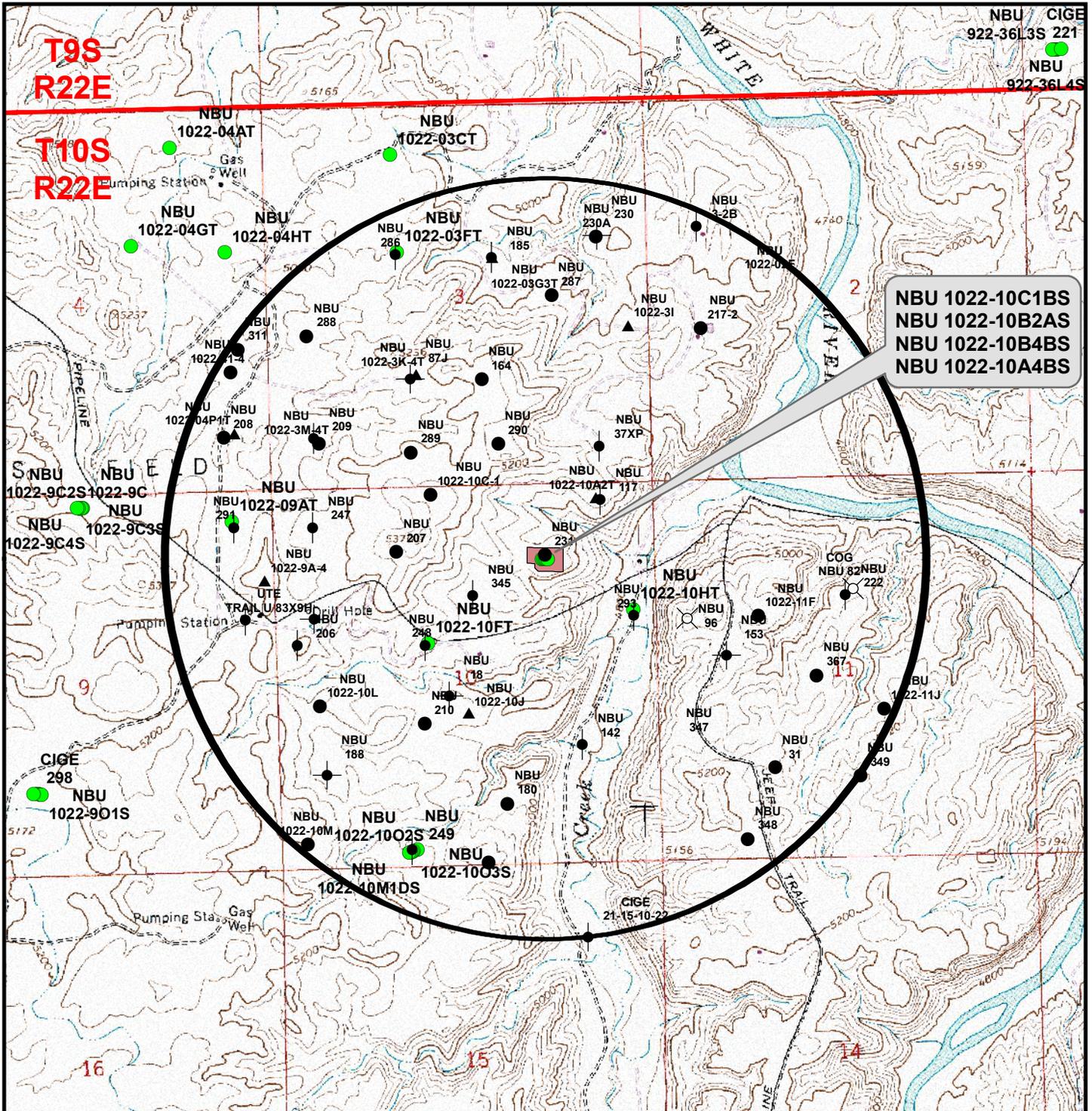
**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202

**NBU 1022-10C1BS, NBU 1022-10B2AS,  
 NBU 1022-10B4BS & NBU 1022-10A4BS**  
**Topo B**  
 Located In Section 10, T10S, R22E  
 S.L.B.&M., Uintah County, Utah

**609**  
 CONSULTING, LLC  
 371 Coffeen Avenue  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:
Drawn: JELo	Date: 10 Feb 2009	10
Revised:	Date:	



NBU 1022-10C1BS  
 NBU 1022-10B2AS  
 NBU 1022-10B4BS  
 NBU 1022-10A4BS

**Legend**

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

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

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

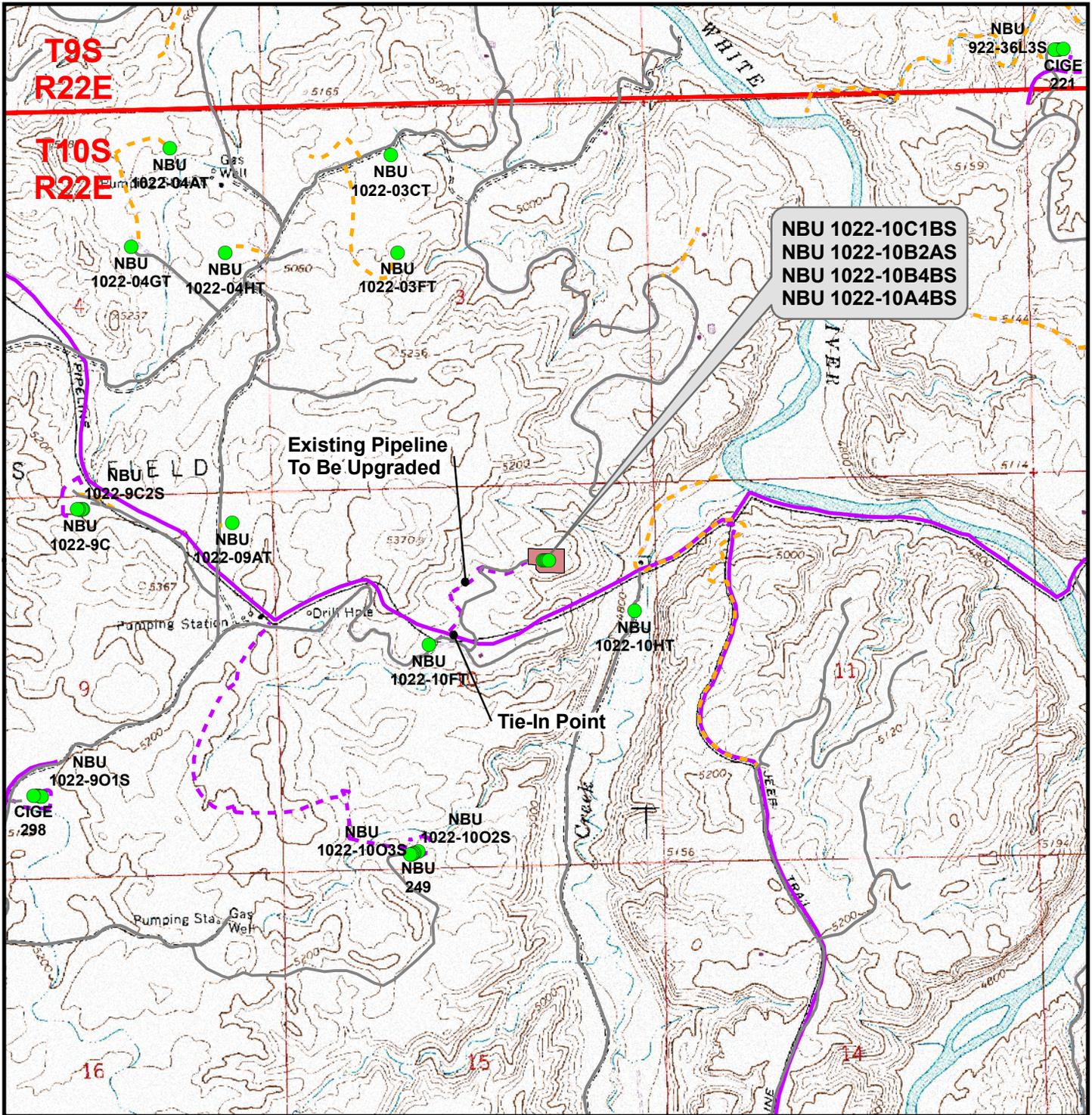
**NBU 1022-10C1BS, NBU 1022-10B2AS,  
 NBU 1022-10B4BS & NBU 1022-10A4BS**  
 Topo C  
 Located In Section 10, T10S, R22E  
 S.L.B.&M., Uintah County, Utah

**609**  
 CONSULTING, LLC  
 371 Coffeen Avenue  
 Sheridan, WY 82801  
 Phone (307) 674-0609  
 Fax (307) 674-0182



Scale: 1" = 2000ft	NAD83 USP Central
Drawn: JELO	Date: 10 Feb 2009
Revised:	Date:

Sheet No:  
11 11 of 13



NBU 1022-10C1BS  
 NBU 1022-10B2AS  
 NBU 1022-10B4BS  
 NBU 1022-10A4BS

Existing Pipeline  
 To Be Upgraded

Tie-In Point

**Legend**

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

Proposed Pipeline Length From Tie-In Point To Edge Of Pad: ±2,125ft  
 Proposed Pipeline Length Around Pad: ±660ft

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

**NBU 1022-10C1BS, NBU 1022-10B2AS,  
 NBU 1022-10B4BS & NBU 1022-10A4BS**  
**Topo D**  
 Located In Section 10, T10S, R22E  
 S.L.B.&M., Uintah County, Utah



**609**

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



Scale: 1" = 2000ft	NAD83 USP Central	Sheet No:
Drawn: JELo	Date: 10 Feb 2009	<b>12</b> 12 of 13
Revised:	Date:	

**Kerr-McGee Oil & Gas Onshore, LP**  
**NBU 1022-10C1BS, NBU 1022-10B2AS, NBU 1022-10B4BS & NBU 1022-10A4BS**  
**Section 10, T10S, R22E, S.L.B.&M.**

PROCEED IN A WESTERLY DIRECTION FROM VERNAL, UTAH ALONG U.S. HIGHWAY 40 APPROXIMATELY 13.9 MILES TO THE JUNCTION OF STATE HIGHWAY 88. EXIT LEFT AND PROCEED IN A SOUTHERLY DIRECTION ALONG STATE HIGHWAY 88 APPROXIMATELY 16.8 MILES TO OURAY, UTAH. FROM OURAY, PROCEED IN A SOUTHERLY DIRECTION ALONG THE SEEP RIDGE ROAD (COUNTY B ROAD 2810) APPROXIMATELY 11.2 MILES TO THE INTERSECTION OF THE GLEN BENCH ROAD (COUNTY B ROAD 3260). EXIT LEFT AND PROCEED IN AN EASTERLY, THEN SOUTHEASTERLY DIRECTION ALONG THE GLEN BENCH ROAD APPROXIMATELY 5.2 MILES TO THE INTERSECTION OF THE BITTER CREEK ROAD (COUNTY B ROAD 4120). EXIT RIGHT AND PROCEED IN A SOUTHEASTERLY DIRECTION ALONG THE BITTER CREEK ROAD APPROXIMATELY 4.0 MILES TO A CLASS D COUNTY ROAD RUNNING NORTHEASTERLY. EXIT LEFT AND PROCEED IN A NORTHEASTERLY DIRECTION ALONG THE CLASS D COUNTY ROAD APPROXIMATELY 4.8 MILES TO THE NBU 248 WELL SITE. PROCEED NORTHEASTERLY ALONG SERVICE ROAD APPROXIMATELY 0.5 MILES TO THE EXISTING WELL PAD.

TOTAL DISTANCE FROM VERNAL, UTAH TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 56.4 MILES IN A SOUTHERLY DIRECTION.

**NBU 1022-10C1BS**

Pad: NBU 1022-10B (NBU 231)

Surface: 1,065' FNL, 1,523' FEL (NW/4NE/4)

BHL: 163' FNL 2,252' FWL (NE/4NW/4)

Sec. 10 T10S R22E

Uintah, Utah

Mineral Lease: UO 01197A

**ONSHORE ORDER NO. 1**

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

**Directional Drilling:**

In accordance with Oil & Gas Conservation Rule R649-3-11 pertaining to Directional Drilling, this well will be directionally drilled in order to access portions of our lease which are otherwise inaccessible due to topography.

**1. Existing Roads:**

Refer to Topo Map A for directions to the location.

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

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

All existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.

**2. Planned Access Roads:**

Approximately  $\pm 0.0$  mi. ( $\pm 0'$ ) of new access road is proposed. Please refer to the attached Topo Map B.

The upgraded and new portions of the access road will be crowned and ditched with a running surface of 18 feet and a maximum disturbed width of 30 feet. Appropriate water control will be installed to control erosion.

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

The access road was centerline flagged during time of staking.

Surfacing material may be necessary, depending upon weather conditions.

Surface disturbance and vehicular traffic will be limited to the approved location and approved access route. Any additional area needed will be approved in advance.

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

Please refer to Topo Map C.

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

*The following guidelines will apply if the well is productive.*

All production facilities will be located on the disturbed portion of the well pad and at a minimum of 25 feet from the toe of the back slope or the top of the fill slope.

A dike will be constructed completely around those production facilities which contain fluids (i.e., production tanks, produced water tanks, and/or heater/treater). These dikes will be constructed of compacted subsoil, be impervious, hold 100% of the capacity of the largest tank, and be independent of the back cut.

All permanent (on-site six months or longer) above the ground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earthtone color to match one of the standard environmental colors, as determined by the five state Rocky Mountain Inter-Agency Committee.

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

Any necessary pits will be properly fenced to protect livestock and prevent wildlife entry.

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

Water for drilling purposes will be obtained from Dalbo Inc.'s underground well located in Ouray, Utah, Sec. 32 T4S R3E, Water User Claim #43-8496, Application #53617.

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.

**6. Source of Construction Materials:**

Surface and subsoil materials in the immediate area will be utilized.

Any gravel will be obtained from a commercial source.

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

Drill cuttings will be contained and buried in the reserve pit.

Drilling fluids, including salts and chemicals, will be contained in the reserve pit. Upon termination of drilling and completion operations, the liquid contents of the reserve pit will be removed and disposed of at an approved waste disposal facility within 120 days after drilling is terminated.

The reserve pit will be constructed on the location and will not be located within natural drainage, where a flood hazard exists or surface runoff will destroy or damage the pit walls. The reserve pit will be constructed so that it will not leak, break, or allow discharge of liquids.

A plastic reinforced liner and felt will be used; it will be a minimum of 20 mil thick, with sufficient bedding used to cover any rocks. The liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash or scrap that could puncture the liner will be disposed of in the pit. Any spills of oil, gas, salt water, or other noxious fluids will be immediately cleaned up and removed to an approved disposal site.

A chemical porta-toilet will be furnished with the drilling rig.

Garbage, trash, and other waste materials will be collected in a portable, self-contained, fully enclosed trash cage during operations. No trash will be burned on location.

All debris and other waste material not contained in the trash cage will be cleaned up and removed from the location immediately after removal of the drilling rig.

Any open pits will be fenced during the operations. The fencing will be maintained until such time as the pits are backfilled.

No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling of this well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling of this well.

Any produced water from the proposed well will be contained in a water tank and will then be hauled by truck to one of the pre-approved disposal sites: RNI in Sec. 5 T9S R22E, NBU #159 in Sec. 35 T9S R21E, 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.

**8. Ancillary Facilities:**

None are anticipated.

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

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

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

The reserve pit will be lined, and when the reserve pit is closed, the pit liner will be buried below plow depth.

All pits will be fenced according to the following minimum standards:

39 inch net wire will be used with at least one strand of barbed wire on top of the net wire. Barbed wire is not necessary if pipe or some type of reinforcement rod is attached to the top of the entire fence.

The net wire shall be no more than two inches above the ground. The barbed wire shall be three inches over the net wire. Total height of the fence shall be at least 42 inches.

Corner posts shall be cemented and/or braced in such a manner 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.

All wire shall be stretched, by using a stretching device, before it is attached to corner posts.

The reserve pit fencing will be on three sides during drilling operations, and on the fourth side when the rig moves off location. Pits will be fenced and maintained until cleanup.

Location size may change prior to the drilling of the well due to current rig availability. If the proposed location is not large enough to accommodate the drilling rig the location will be re-surveyed and a Form 9 shall be submitted.

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

*Producing Location:*

Immediately upon well completion, the location and surrounding area will be cleared of all unused tubing, materials, trash, and debris not required for production.

Immediately upon well completion, any hydrocarbons in the pit shall be removed in accordance with 43 CFR 3162.7-1.

A plastic, nylon reinforced liner will be used, it shall be torn and perforated before backfilling of the reserve pit.

Before any dirt work associated with location restoration takes place, the reserve pit shall be as dry as possible. All debris in it will be removed. Other waste and spoil materials will be disposed of immediately upon completion of operations.

The reserve pit and that portion of the location not needed for production facilities/operations will be recontoured to the approximate natural contours. The reserve pit will be reclaimed within 90 days from the date of well completion, weather permitting.

To prevent surface water(s) from standing (ponding) on the reclaimed reserve pit area, final reclamation of the reserve pit will consist of "mounding" the surface three feet above surrounding ground surface to allow the reclaimed pit area to drain effectively.

Upon completion of backfilling, leveling, and recontouring, the stockpiled topsoil will be spread evenly over the reclaimed area(s).

*Dry Hole/Abandoned Location:*

Abandoned well sites, roads, and other disturbed areas will be restored as near as practical to their original condition. Where applicable, these conditions include the re-establishment of irrigation systems, the re-establishment of appropriate soil conditions, and re-establishment of vegetation as specified.

All disturbed surfaces will be recontoured to the approximate natural contours, with reclamation of the well pad and access road to be performed as soon as practical after final abandonment. Reseeding operations will be performed after completion of other reclamation operations.

**11. Surface/Mineral Ownership:**

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

**12. Other Information:**

All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, the approved Plan of Operations, and any applicable Notice of Lessees. The Operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished to the field representative to ensure compliance.

The Operator will control noxious weeds along Rights-Of-Way for roads, pipelines, well sites, or other applicable facilities.

A Class III archaeological survey report and paleontological survey report is attached.

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

Kathy Schneebeck Dulnoan  
Staff Regulatory Analyst  
Kerr-McGee Oil & Gas Onshore LP  
PO Box 173779  
Denver, CO 80217-3779  
(720) 929-6226

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 pursuant to 43 CFR 3104 for lease activities is being provided by State Surety Bond 22013542.

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

Kathy Schneebeck Dulnoan  
Kathy Schneebeck Dulnoan

April 2, 2009  
Date



Kerr-McGee Oil & Gas Onshore LP  
1999 Broadway, Suite 3700  
Denver, CO 80205

March 27, 2009

Mrs. 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 1022-10C1BS  
T10S R22E  
Section 10: NENW  
NWNE 1065' FNL, 1523' FEL (surface)  
NENW 163' FNL, 2252' FWL (bottom hole)  
Uintah County, Utah

Dear Mrs. 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 1022-10C1BS 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

Jason K. Rayburn  
Landman

CLASS I REVIEW OF KERR-MCGEE OIL AND GAS  
ONSHORE LP'S 55 PROPOSED WELL LOCATIONS  
IN TOWNSHIP 10S, RANGE 22E,  
SECTIONS 4, 7, 8, 9, 10, 18 AND 20,  
UINTAH COUNTY, UTAH

CLASS I REVIEW OF KERR-MCGEE OIL AND GAS  
ONSHORE LP'S 55 PROPOSED WELL LOCATIONS  
IN TOWNSHIP 10S, RANGE 22E,  
SECTIONS 4, 7, 8, 9, 10, 18 AND 20,  
UINTAH COUNTY, UTAH

By:

Patricia Stavish

Prepared For:  
Bureau of Land Management  
Vernal Field Office  
and  
State of Utah  
School & Institutional Trust Lands Administration

Prepared Under Contract With:

Kerr-McGee Oil and Gas Onshore LP  
1368 South 1200 East  
Vernal, Utah 84078

Prepared By:

Montgomery Archaeological Consultants, Inc.  
P.O. Box 219  
Moab, Utah 84532

MOAC Report No. 08-321

February 20, 2009

United States Department of Interior (FLPMA)  
Permit No. 08-UT-60122

Public Lands Policy Coordination Office  
Archaeological Survey Permit No. 117

## INTRODUCTION

A Class I literature review was completed Montgomery Archaeological Consultants, Inc. (MOAC) in February 2009 of Kerr-McGee Onshore's 55 proposed well locations with associated access and pipeline corridors in Township 10S, Range 22E, Sections 4, 5, 7, 8, 9, 10, 17, 18, 19, and 20. The project area is situated in the Bitter Creek Gas Field, west of the White River, south of the town of Vernal, Uintah County, Utah. The well pads are designated NBU 1022-4E Directional Pad, NBU 1022-04E2S, NBU 1022-04E3S, NBU 1022-05H4S, NBU 1022-05I2S, NBU 470 (1022-7O) Directional Pad, NBU 1022-07O4AS, NBU 1022-07O4DS, NBU 1022-07N1S, NBU 1022-07N4S, NBU 343 (1022-8B) Directional Pad, NBU 1022-08C1AS, NBU 1022-08C1CS, NBU 1022-08B1DS, NBU 1022-08B4AS, NBU 1022-8L Directional Pad, NBU 1022-08L3CS, NBU 1022-08M3DS, NBU 1022-08N1DS, NBU 1022-08N2DS, NBU 1022-9C Directional Pad, NBU 1022-09C2DS, NBU 1022-09C3CS, NBU 1022-09C4DS, NBU 1022-09B4CS, NBU 1022-9N-2T Directional Pad, NBU 1022-09L4AS, NBU 1022-09M1AS, NBU 1022-09M1DS, NBU 1022-09O1BS, NBU 231 (1022-10B) Directional Pad, NBU 1022-10C1BS, NBU 1022-10B2AS, NBU 1022-10B4BS, NBU 1022-10A4BS, NBU 249 (1022-10N) Directional Pad, NBU 1022-10O2CS, NBU 1022-10O3BS, NBU 1022-10M1AS, NBU 1022-10M1DS, NBU 1022-18P Directional Pad, NBU 1022-18I4BS, NBU 1022-18O1AS, NBU 1022-18P1DS, NBU 1022-48P4AS, NBU 1022-20D Directional Pad, NBU 1022-19A1CS, NBU 1022-19A3BS, NBU 1022-19H1AS, NBU 1022-19H2BS, NBU 1022-20M Directional Pad, NBU 1022-19P1AS, NBU 1022-20M1DS, NBU 1022-20M4CS, and NBU 1022-20M4DS. This document was implemented at the request of Ms. Raleen White, Kerr-McGee Onshore LP, Denver, Colorado. Land status is public land administered by the Bureau of Land Management (BLM) Vernal Field Office and state lands administered by the State of Utah School & Institutional Trust Lands Administration (SITLA).

The purpose of this Class I review is to identify, classify, and evaluate the previously conducted cultural resource inventories and archaeological sites in the project area in order to comply with Section 106 of 36 CFR 800, the National Historic Preservation Act of 1966 (as amended). Also, the inventory was implemented to attain compliance with a number of federal and state mandates, including the National Environmental Policy Act of 1969, the Archaeological and Historic Conservation Act of 1972, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1978, and the Utah State Antiquities Act of 1973 (amended 1990).

The project area, in which Kerr-McGee Onshore's 55 proposed well locations occur, was previously inventoried by MOAC in 2007 for the Class III inventory of Township 10 South, Range 22 East (Montgomery 2008). A file search was completed by consulting MOAC's Class I existing data review of 459 square miles (293,805 acres) covering the Greater NBU study area between Bonanza and Ouray in Uintah County, northeastern Utah (Patterson et al. 2008). Kerr-McGee Oil & Gas Onshore LP proposes to explore and develop oil and natural gas resources throughout the area. Record searches were performed for this Class I project by Marty Thomas at the Utah State Historic Preservation Office (SHPO) on various dates between June 14, 2006 and January 27, 2007. The results of this Class I data review and Class III inventory indicated that three previous archaeological sites (42Un664, 42Un6472, and 42Un6499) occur in the current project area.

## DESCRIPTION OF THE PROJECT AREA

The project area is situated in the Bitter Creek Gas Field, west of the White River in the Uinta Basin. The legal description is Township 10 South, Range 22 East, Sections 4, 5, 7, 8, 9, 10, 17, 18, 19, and 20 (Table 1; Figures 1 and 2).

Table 1. Kerr-McGee Onshore's 55 Proposed Well Locations.

Well Designation	Legal Description	Access and Pipeline Corridor	Cultural Resources
NBU 1022-4E Directional Pad NBU 1022-04E2S NBU 1022-04E3S NBU 1022-05H4S NBU 1022-05I2S	SW/NW of Sec. 4, T10S, R22E	Access: 1251 ft Pipeline: 2456 ft	None
NBU 470 (1022-7O) Directional Pad NBU 1022-07O4AS NBU 1022-07O4DS NBU 1022-07N1S NBU 1022-07N4S	SW/SE of Sec. 7, T10S, R22E	Pipeline: 7796 ft	None
NBU 343 (1022-8B) Directional Pad NBU 1022-08C1AS NBU 1022-08C1CS NBU 1022-08B1DS NBU 1022-08B4AS	NW/NE of Sec. 8, T10S, R22E	Pipeline: 719 ft	None
NBU 1022-8L Directional Pad NBU 1022-08L3CS NBU 1022-08M3DS NBU 1022-08N1DS NBU 1022-08N2DS	NW/SW of Sec. 8, T10S, R22E	Access: 560 ft Pipeline: 3848 ft	42Un6472
NBU 1022-9C Directional Pad NBU 1022-09C2DS NBU 1022-09C3CS NBU 1022-09C4DS NBU 1022-09B4CS	NE/NW of Sec. 9, T10S, R22E	Access: 570 ft Pipeline: 661 ft	None
NBU 1022-9N-2T Directional Pad NBU 1022-09L4AS NBU 1022-09M1AS NBU 1022-09M1DS NBU 1022-09O1BS	SE/SW of Sec. 9, T10S, R22E	Pipeline: 643 ft	None
NBU 231 (1022-10B) Directional Pad NBU 1022-10C1BS NBU 1022-10B2AS NBU 1022-10B4BS NBU 1022-10A4BS	NW/NE of Sec. 10, T10S, R22E	Pipeline: 2122 ft	None
NBU 249 (1022-10N) Directional Pad NBU 1022-10O2CS NBU 1022-10O3BS NBU 1022-10M1AS NBU 1022-10M1DS	SE/SW of Sec. 10, T10S, R22E	Pipeline: 6598 ft	42Un664

Well Designation	Legal Description	Access and Pipeline Corridor	Cultural Resources
NBU 1022-18P Directional Pad NBU 1022-18I4BS NBU 1022-18O1AS NBU 1022-18P1DS NBU 1022-18P4AS	SE/SE of Sec. 18, T10S, R22E	Pipeline: 1355 ft	42Un6499
NBU 1022-20D Directional Pad NBU 1022-19A1CS NBU 1022-19A3BS NBU 1022-19H1AS NBU 1022-19H2BS	NW/NW of Sec. 20, T10S, R22E	Pipeline: 942 ft	None
NBU 1022-20M Directional Pad NBU 1022-19P1AS NBU 1022-20M1DS NBU 1022-20M4CS NBU 1022-20M4DS	SW/SW of Sec. 20, T10S, R22E	Access: 266 ft Pipeline: 4861 ft	None

Environmental Setting

The study area lies within the Uinta Basin physiographic unit, a distinctly bowl-shaped geologic structure (Stokes 1986:231). The Uinta Basin ecosystem is within the Green River drainage, considered to be the northernmost extension of the Colorado Plateau. The geology is comprised of Tertiary age deposits, which include Paleocene age deposits and Eocene age fluvial and lacustrine sedimentary rocks. The Uinta Formation, which is predominate in the project area, occurs as eroded outcrops (formed by fluvial deposited, stream laid interbedded sandstone and mudstone), and is known for its prolific paleontological localities. Specifically, the inventory area is situated adjacent to the White River and Bitter Creek. Elevation averages approximately 5200 ft asl. The project occurs within the Upper Sonoran Desert Shrub Association which includes; sagebrush, shadscale, greasewood, mat saltbush, snakeweed, rabbitbrush, and prickly pear cactus. Modern disturbances include livestock grazing, roads, and oil/gas development.

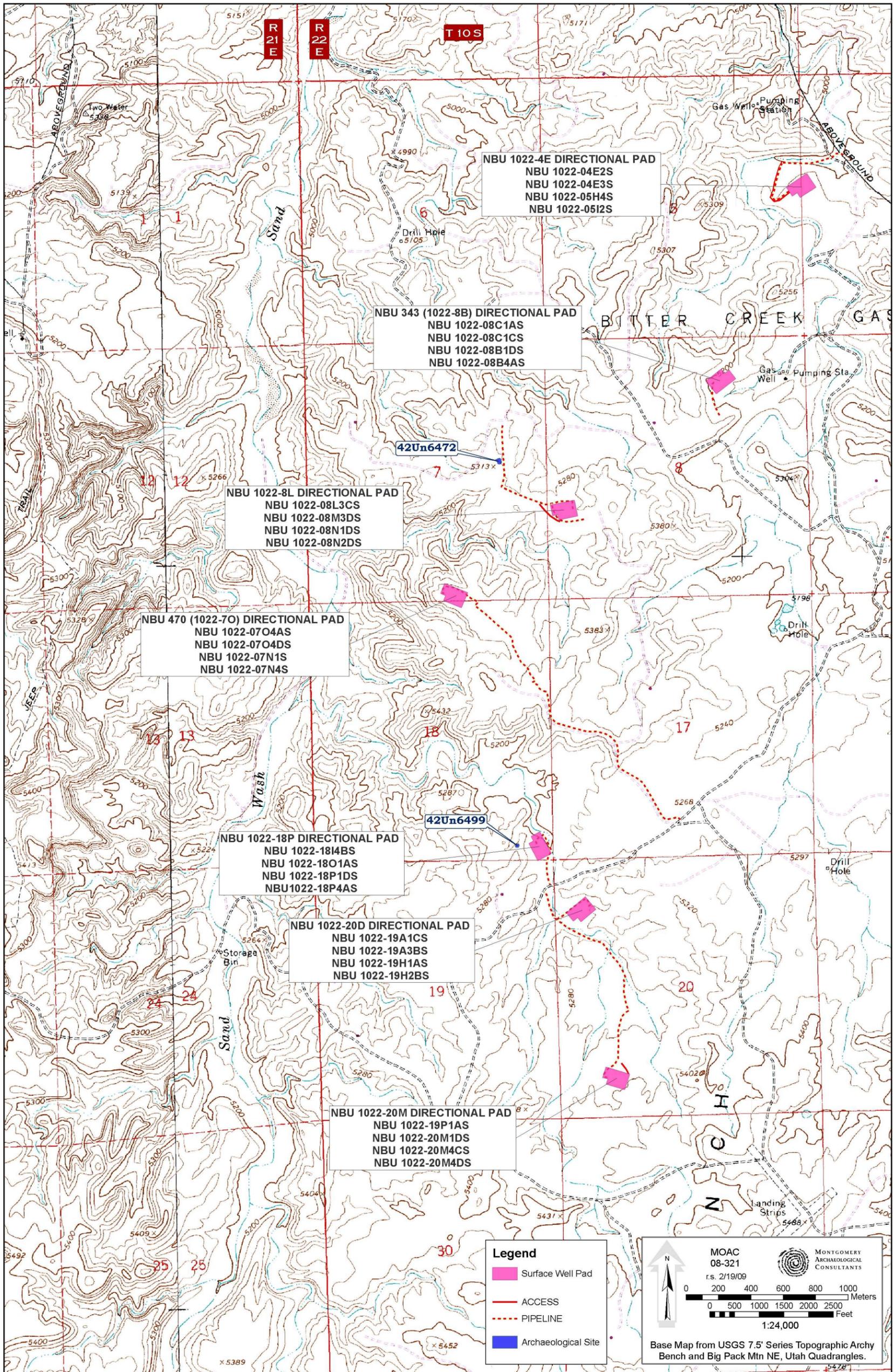


Figure 1. Kerr-McGee Oil & Gas Onshore LP's 55 Proposed Well Locations with Access and Pipeline Corridors, Uintah County, Utah.

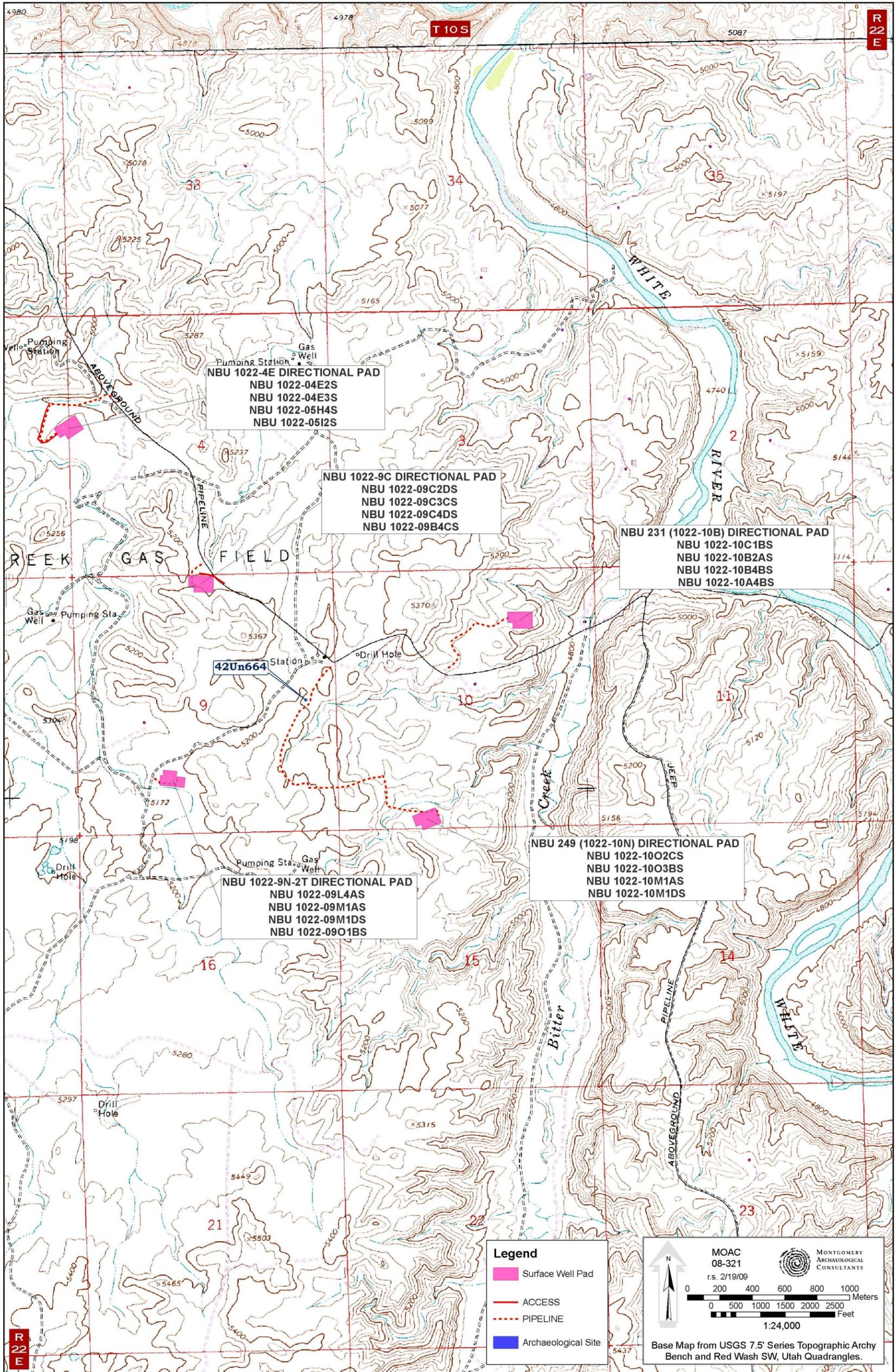


Figure 2. Kerr-McGee Oil & Gas Onshore LP's 55 Proposed Well Locations with Access and Pipeline Corridors, Uintah County, Utah.

## CLASS I RESULTS AND RECOMMENDATIONS

The Class I literature review resulted in the location of three previously documented sites (42Un664, 42Un6472, and 42Un6499). Site 42Un664 is a prehistoric temporary camp with firecracked and oxidized rocks, slab metates, and lithic debitage. Site 42Un664 is recommended as eligible to the NRHP under Criterion D. Site 42Un6472 is a historic trash scatter that is recommended as not eligible to the NRHP. Site 42Un6499 was a prehistoric burial situated in a rockshelter, at which an emergency recovery of the human remains was conducted on November 7, 2007 by Keith R. Montgomery and Jody Patterson. Site 42Un6499 is recommended as eligible to the NRHP under Criterion D.

The Class I literature review of 55 proposed well locations with associated pipeline and access corridors in Township 10 South, Range 22 East, Sections 4, 5, 7, 8, 9, 10, 17, 18, 19, and 20 resulted in the location of three previously documented archaeological sites (42Un664, 42Un6472, and 42Un6499). Sites 42Un664 and 42Un6499 are recommended as eligible to the NRHP under Criterion D and site 42Un6472 is recommended as not eligible to the NRHP. Site 42Un664 will be avoided by the undertaking, as it is located 100 ft from the proposed pipeline. Site 42Un6499 is avoided by at least 300 ft, which should be sufficient as the human remains have been removed from the site. Based on the avoidance of the eligible sites, a determination of "no adverse impact" is proposed pursuant to Section 106, CFR 800.

## REFERENCES CITED

Montgomery, J. A.

2008 Cultural Resource Management Report for Kerr-McGee Oil and Gas Onshore LP's Greater NBU Blocks in Township 10 South, Range 22 East, Uintah County, Utah. Montgomery Archaeological Consultants, Moab, Utah. Report No. U-07-MQ-1438b,s,p.

Patterson, J. J., J. Fritz, K. Lower-Eskelson, R. Stash and A. Thomas

2008 NBU Class I Existing Data Review for Kerr-McGee Oil & Gas Onshore LP, Uintah County, Utah. Montgomery Archaeological Consultants, Moab, Utah.

Stokes, W. L.

1986 *Geology of Utah*. Utah Museum of Natural History and Utah Geological and Mineral Survey, Salt Lake City.

## **Paleontological Reconnaissance Survey Report**

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**Survey of Kerr McGee's Proposed Multi-Well Pads and Pipeline Upgrades for "NBU #922-29M2DS, M4DS & M3CS, #1022-9O1S, L4S, M1S & M4S, #1022-10C1BS, B2AS, B4BS & A4BS, #1022-18O1AS, I4BS, P1DS & P4AS, and #1022-19H1AS, H2BS, A3BS & A1CS" (Sec. 19, T 9 S, R 21 E), (Sec. 29 & 32, T 9 S, R 22 E), (Sec. 13, T 10 S, R 21 E), & (Sec. 9, 10, & 18-20, T 10 S, R 22 E)**

Archy Bench & Red Wash SW  
Topographic Quadrangles  
Uintah County, Utah

March 25, 2009

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

## INTRODUCTION

At the request of Raleen White of Kerr McGee Onshore LP and authorized by the BLM Vernal Field Office and James Kirkland of the Office of the State Paleontologist, a paleontological reconnaissance survey of Kerr McGee's proposed multi-well pads and pipeline upgrades for "NBU #922-29M2DS, M4DS & M3CS, #1022-9O1S, L4S, M1S & M4S, #1022-10C1BS, B2AS, B4BS & A4BS, #1022-18O1AS, I4BS, P1DS & P4AS, and #1022-19H1AS, H2BS, A3BS & A1CS" (Sec. 19, T 9 S, R 21 E), (Sec. 29 & 32, T 9 S, R 22 E), (Sec. 13, T 10 S, R 21 E), & (Sec. 9, 10, & 18-20, T 10 S, R 22 E) was conducted by Stephen Sandau and Thomas Temme on March 20, 2009. The reconnaissance survey was conducted under the Utah BLM Paleontological Resources Use Permit #UT08-006C and Utah Paleontological Investigations Permit #07-356. This survey to locate, identify and evaluate paleontological resources was done to meet requirements of the National Environmental Policy Act of 1969 and other State and Federal laws and regulations that protect paleontological resources.

## FEDERAL AND STATE REQUIREMENTS

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

- 1) The National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et. Seq., P.L. 91-190);
- 2) The Federal Land Policy and Management Act (FLPMA) of 1976 (90 Stat. 2743, 43 U.S.C. § 1701-1785, et. Seq., P.L. 94-579);
- 3) The National Historic Preservation Act. 16 U.S.C. § 470-1, P.L. 102-575 in conjunction with 42 U.S.C. § 5320; and
- 4) The Utah Geological Survey. S. C. A.: 63-73-1. (1-21) and U.C.A.: 53B-17-603

BLM, 2008: BLM IM 2009-011 Assessment and Mitigation of Potential Impacts to Paleontological Resources. USDI – BLM Washington Office directive, October 29, 2008 replaces the Condition Classification System from Handbook H-8270-1. The following section outlines the new Potential Fossil Yield Classification (PFYC) System. Geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential.

- **Class 1 – Very Low.** Geologic units (igneous, metamorphic, or Precambrian) not likely to contain recognizable fossil remains.
- **Class 2 – Low.** Sedimentary geologic units not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils. (Including modern eolian, fluvial, and colluvial deposits etc...)
- **Class 3 – Moderate or Unknown.** Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.

- **Class 3a – Moderate Potential.** The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.
- **Class 3b – Unknown Potential.** Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known.
- **Class 4 – High.** Geologic units containing a high occurrence of vertebrate fossils or scientifically significant invertebrate or plant fossils, but may vary in abundance and predictability.
  - **Class 4a** – Outcrop areas with high potential are extensive (greater than two acres) and paleontological resources may be susceptible to adverse impacts from surface disturbing actions.
  - **Class 4b** – Areas underlain by geologic units with high potential but have lowered risks of disturbance due to moderating circumstances such as a protective layer of soil or alluvial material; or outcrop areas are smaller than two contiguous acres.
- **Class 5 – Very High.** Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils.
  - **Class 5a** - Outcrop areas with very high potential are extensive (greater than two acres) and paleontological resources may be susceptible to adverse impacts from surface disturbing actions.
  - **Class 5b** - Areas underlain by geologic units with very high potential but have lowered risks of disturbance due to moderating circumstances such as a protective layer of soil or alluvial material; or outcrop areas are smaller than two contiguous acres.

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

## LOCATION

Kerr McGee's proposed multi-well pads, and pipeline upgrades for "NBU #922-29M2DS, M4DS & M3CS, #1022-9O1S, L4S, M1S & M4S, #1022-10C1BS, B2AS, B4BS & A4BS, #1022-18O1AS, I4BS, P1DS & P4AS, and #1022-19H1AS, H2BS, A3BS & A1CS" (Sec. 19, T 9 S, R 21 E), (Sec. 29 & 32, T 9 S, R 22 E), (Sec. 13, T 10 S, R 21 E), & (Sec. 9, 10, & 18-20, T 10 S, R 22 E) are on lands managed by the BLM and the State of Utah Trust Lands Administration (SITLA), in the Sand Wash area, 0.5-5 miles west of the White River on East Bench, and some 19-26 miles southeast of Ouray, UT. The project area can be found on the Arch Bench and Red Wash SW 7.5 minute U. S. Geological Survey Quadrangle Maps, Uintah County, Utah.

## PREVIOUS WORK

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

## GEOLOGICAL AND PALEONTOLOGICAL OVERVIEW

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

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

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

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

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

## **FIELD METHODS**

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

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

## **PROJECT AREA**

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

### **NBU #922-29M2DS, M4DS & M3CS**

The proposed pipeline upgrade begins in the NW/NW quarter-quarter section of Sec. 32, T 9 S, R 22 E, and heads north for about 2500 feet before joining the proposed multi-well pad located on the existing pad "NBU #922-29M" in the SW/SW quarter-quarter section of Sec. 29 (Figure 1). The project area is situated in hilly terrain of ridges, ravines and valleys cut by modern drainages. Ground cover consists of previously disturbed mudstones and siltstones, tan silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of tan sandstone, green and purplish brown siltstone, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including arid steppe grasses and shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of gray, green, and purplish brown mudstones and

siltstones inter-bedded with purplish brown, fine-grained, sub-lithic sandstone and tan, fine-grained, sub-quartzitic sandstone; cut by several paleo-channels of tan, medium to coarse-grained, cross-bedded, lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides and valleys throughout the project area.

Numerous isolated turtle shell fragments were observed in the colluvium along the proposed pipeline upgrade. Most fragments were moderately to well preserved, and moderately to highly weathered. At least one individual turtle, represented as a small fragmentary scatter, was observed in the colluvium in the middle portion of the proposed pipeline upgrade. A few ichnofossil burrows and burrow casts, presumably of *Planolites*, were observed in the purplish brown sandstones and in the colluvium throughout the project area.

#### **NBU #1022-901S, L4S, M1S & M4S**

The proposed pipeline upgrade and multi-well pad is located on the existing pad "CIGE #298" in the SE/SW quarter-quarter section of Sec. 9, T 10 S, R 22 E (Figure 1). The project area is situated in hilly terrain cut by modern drainages. Ground cover consists of previously disturbed mudstones and siltstones, tan silty soil, small mudflats, and alluvium/colluvium consisting of locally derived and transported clasts of green and tan sandstone, green, purplish brown, and tan siltstone, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including cheat grass, shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of green, tan, and orangish tan mudstones and siltstones inter-bedded with purplish brown, fine-grained, sub-lithic sandstone and cut by several paleo-channels of greenish tan and greenish gray, medium to coarse-grained, cross-bedded, lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides capped by thick beds of channel sandstone throughout the project area.

Numerous isolated bone and turtle shell fragments were observed in the colluvium and *in situ* in medium to coarse-grained sandstones throughout the project area. Most fragments were moderately preserved and highly weathered. At least one individual turtle, represented as a small fragmentary scatter, was observed in colluvium in the northeastern portion of the proposed multi-well pad. Two individual concentrations of large mammal limb bone fragments were observed in the southern portion of the proposed multi-well pad, one sourcing from gray mudstone and one sourcing from orangish tan mudstone. Identifiable mammalian bone fragments include a sesamoid, humeral head, proximal tibia, distal tibia, distal calcaneum, and distal femur. A small concentration of mammal mandible fragments was observed in gray/green disaggregated mudstone, next to the southeastern corner of the existing pad. A few ichnofossil burrow casts, presumably of *Planolites*, were observed in colluvium throughout the project area. The area where the fossils were discovered is designated as the new vertebrate fossil locality "42Un2536V."

#### **NBU #1022-10C1BS, B2AS, B4BS & A4BS**

The proposed pipeline upgrade begins in the SE/NW quarter-quarter section of Sec. 10, T 10 S, R 22 E, and heads northeast for about 2500 feet before joining the proposed multi-well pad on the existing pad "NBU #231" located in the NW/NE and NE/NE quarter-quarter sections of Sec. 10 (Figure 1). The project area is situated in hilly terrain of ridges and ravines cut by modern

drainages, next to a deep river cut canyon of the White River. Ground cover consists of previously disturbed mudstones and siltstones, tan silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of tan sandstone, green and purplish brown siltstone, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including arid steppe grasses and shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of gray, green, purplish brown, and tan mudstones and siltstones inter-bedded with tan, green, and purplish brown fine-grained, sub-quartzitic sandstone cut by numerous large paleo-channels of tan, medium to coarse-grained, cross-bedded, sub-lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides throughout the project area. Three isolated, moderately to well preserved, and moderately to highly weathered turtle shell fragments were observed in the colluvium along the proposed pipeline upgrade. A few ichnofossil burrows and burrow casts, presumably of *Planolites*, were observed in the purplish brown sandstones and in the colluvium throughout the project area.

#### **NBU #1022-18O1AS, I4BS, P1DS & P4AS**

The proposed pipeline upgrade begins in the NE/NE quarter-quarter section of Sec. 19, T 10 S, R 22 E, and heads south-southeast for about 1100 feet before joining the proposed multi-well pad on the existing pad "NBU #1022-18D" located in the NW/NW quarter-quarter section of Sec. 18 (Figure 2). The project area is situated in hilly terrain cut by modern drainages and an ephemeral stream. Ground cover consists primarily of previously disturbed mudstones and siltstones, small amounts of tannish brown silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of tan, medium-grained, sub-lithic sandstones; green and purplish brown siltstones; and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including cheat grass, shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of green, purplish brown, and tan mudstones and siltstones inter-bedded with green and purplish brown, fine-grained, sub-lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides throughout the project area.

A few isolated bone and turtle shell fragments were observed in the colluvium throughout the project area. Most fragments were moderately preserved and highly weathered. Abundant ichnofossil burrows and burrow casts, presumably of *Planolites*, were observed in the purplish brown siltstones and in the colluvium throughout the project area.

#### **NBU #1022-19H1AS, H2BS, A3BS & A1CS**

The proposed pipeline upgrade begins in the NE/NE quarter-quarter section of Sec. 19, T 10 S, R 22 E, and heads south-southeast for about 700 feet before joining the proposed multi-well pad on the existing pad "NBU #1022-20D" located in the NW/NW quarter-quarter section of Sec. 20 (Figure 2). The project area is situated in hilly terrain cut by modern drainages and an ephemeral stream. Ground cover consists primarily of previously disturbed mudstones and siltstones, small amounts of tan to orangish tan silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of green and purplish brown, fine-grained, sub-lithic sandstones; purplish brown and tan siltstones, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including cheat grass, shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of

green, purplish brown, and tan mudstones and siltstones inter-bedded with green and purplish brown, fine-grained, sub-lithic sandstone cut by paleo-channels of tan, medium to coarse-grained, cross-bedded, lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides throughout the project area.

Infrequent isolated bone (? mammal rib fragment) and turtle shell fragments were observed in the colluvium at the base of the surrounding hills. Most fragments were moderately to well preserved and highly weathered. Abundant ichnofossil burrows and burrow casts, presumably of *Planolites*, were observed in the purplish brown and green sandstones and in the colluvium throughout the project area.

**SURVEY RESULTS**

<b>PROJECT</b>	<b>GEOLOGY</b>	<b>PALEONTOLOGY</b>
<p>“NBU #922-29M2DS, M4DS &amp; M3CS” (Sec. 29 &amp; 32, T 9 S, R 22 E)</p>	<p>The project area is situated in hilly terrain of ridges, ravines and valleys cut by modern drainages. Ground cover consists of previously disturbed mudstones and siltstones, tan silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of tan sandstone, green and purplish brown siltstone, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including arid steppe grasses and shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of gray, green, and purplish brown mudstones and siltstones inter-bedded with purplish brown, fine-grained, sub-lithic sandstone and tan, fine-grained, sub-quartzic sandstone; cut by several paleo-channels of tan, medium to coarse-grained, cross-bedded, lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides and valleys throughout the project area.</p>	<p>Numerous isolated turtle shell fragments were observed in the colluvium along the proposed pipeline upgrade. Most fragments were moderately to well preserved and moderately to highly weathered. At least one individual turtle, represented as a small fragmentary scatter, was observed in the colluvium in the middle portion of the proposed pipeline upgrade. A few ichnofossil burrows and burrow casts, presumably of <i>Planolites</i>, were observed in the purplish brown sandstones and in the colluvium throughout the project area.</p> <p><b>Class 3a</b></p>

<p><b>“NBU #1022-901S, L4S, M1S &amp; M4S”</b> (Sec. 9, T 10 S, R 22 E)</p>	<p>The project area is situated in hilly terrain cut by modern drainages. Ground cover consists of previously disturbed mudstones and siltstones, tan silty soil, small mudflats, and alluvium/colluvium consisting of locally derived and transported clasts of green and tan sandstone, green, purplish brown, and tan siltstone, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including cheat grass, shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of green, tan, and orangish tan mudstones and siltstones inter-bedded with purplish brown, fine-grained, sub-lithic sandstone and cut by several paleo-channels of greenish tan and greenish gray, medium to coarse-grained, cross-bedded, lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides capped by thick beds of channel sandstone throughout the project area.</p>	<p><b>Numerous isolated bone and turtle shell fragments were observed in the colluvium and <i>in situ</i> in medium to coarse-grained sandstones throughout the project area. Most fragments were moderately preserved and highly weathered. At least one individual turtle, represented as a small fragmentary scatter, was observed in colluvium in the northeastern portion of the proposed multi-well pad. Two individual concentrations of large mammal limb bone fragments were observed in the southern portion of the proposed multi-well pad, one sourcing from gray mudstone and one sourcing from orangish tan mudstone. Identifiable mammalian bone fragments include a sesamoid, humeral head, proximal tibia, distal tibia, distal calcaneum, and distal femur. A small concentration of mammal mandible fragments was observed in gray/green disaggregated mudstone, next to the southeastern corner of the existing pad. A few ichnofossil burrow casts, presumably of <i>Planolites</i>, were observed in colluvium throughout the project area. The area where the fossils were discovered is designated as the new vertebrate fossil locality “42Un2536V.”</b> Class 5a</p>
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<p><b>“NBU #1022-10C1BS, B2AS, B4BS &amp; A4BS”</b> (Sec. 10, T 10 S, R 22 E)</p>	<p>The project area is situated in hilly terrain of ridges and ravines cut by modern drainages, next to a deep river cut canyon of the White River. Ground cover consists of previously disturbed mudstones and siltstones, tan silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of tan sandstone, green and purplish brown siltstone, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including arid steppe grasses and shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of gray, green, purplish brown, and tan mudstones and siltstones inter-bedded with tan, green, and purplish brown fine-grained, sub-quartzic sandstone cut by numerous large paleo-channels of tan, medium to coarse-grained, cross-bedded, sub-lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides throughout the project area.</p>	<p>Three isolated, moderately to well preserved, and moderately to highly weathered turtle shell fragments were observed in the colluvium along the proposed pipeline upgrade. A few ichnofossil burrows and burrow casts, presumably of <i>Planolites</i>, were observed in the purplish brown sandstones and in the colluvium throughout the project area. <b>Class 3b</b></p>
<p><b>“NBU #1022-18O1AS, I4BS, P1DS &amp; P4AS”</b> (Sec. 18 &amp; 19, T 10 S, R22 E)</p>	<p>The project area is situated in hilly terrain cut by modern drainages and an ephemeral stream. Ground cover consists primarily of previously disturbed mudstones and siltstones, small amounts of tannish brown silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of tan, medium-grained, sub-lithic sandstones; green and purplish brown siltstones; and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including cheat grass, shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of green, purplish brown, and tan mudstones and siltstones inter-bedded with green and purplish brown, fine-grained, sub-lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides throughout the project area.</p>	<p>A few isolated bone and turtle shell fragments were observed in the colluvium throughout the project area. Most fragments were moderately preserved and highly weathered. Abundant ichnofossil burrows and burrow casts, presumably of <i>Planolites</i>, were observed in the purplish brown siltstones and in the colluvium throughout the project area. <b>Class 3a</b></p>

<p><b>“NBU #1022-19H1AS, H2BS, A3BS &amp; A1CS”</b> (Sec. 19 &amp; 20, T 10 S, R22 E)</p>	<p>The project area is situated in hilly terrain cut by modern drainages and an ephemeral stream. Ground cover consists primarily of previously disturbed mudstones and siltstones, small amounts of tan to orangish tan silty soil, and alluvium/colluvium consisting of locally derived and transported clasts of green and purplish brown, fine-grained, sub-lithic sandstones; purplish brown and tan siltstones, and disaggregated mudstones and siltstones. Sediments in the project area support vegetation including cheat grass, shrubs, cactus, and sagebrush. The stratigraphy of the project area is typical of the Wagonhound Member (Uinta B) and includes variegated beds of green, purplish brown, and tan mudstones and siltstones interbedded with green and purplish brown, fine-grained, sub-lithic sandstone cut by paleo-channels of tan, medium to coarse-grained, cross-bedded, lithic sandstone. Stratigraphy outcrops as resistant beds exposed in colluvium covered hillsides throughout the project area.</p>	<p>Infrequent isolated bone (? mammal rib fragment) and turtle shell fragments were observed in the colluvium at the base of the surrounding hills. Most fragments were moderately to well preserved and highly weathered. Abundant ichnofossil burrows and burrow casts, presumably of <i>Planolites</i>, were observed in the purplish brown and green sandstones and in the colluvium throughout the project area. <b>Class 3a</b></p>
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## RECOMMENDATIONS

A reconnaissance survey was conducted for Kerr McGee's proposed multi-well pads, and pipeline upgrades for "NBU #922-29M2DS, M4DS & M3CS, #1022-9O1S, L4S, M1S & M4S, #1022-10C1BS, B2AS, B4BS & A4BS, #1022-18O1AS, I4BS, P1DS & P4AS, and #1022-19H1AS, H2BS, A3BS & A1CS" (Sec. 19, T 9 S, R 21 E), (Sec. 29 & 32, T 9 S, R 22 E), (Sec. 13, T 10 S, R 21 E), & (Sec. 9, 10, & 18-20, T 10 S, R 22 E). The well pads and the associated pipeline upgrades covered in this report showed some signs of vertebrate fossils, therefore, we advise the following recommendations.

**Due to a number of vertebrate fossils found in and around the proposed location for "NBU #1022-9O1S, L4S, M1S & M4S" we recommend that a permitted paleontologist be present to monitor the construction process of the access road, pipeline and well pad.**

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

Nevertheless, if any vertebrate fossil(s) are found during construction within the project area, Operator (Lease Holder) will report all occurrences of paleontological resources discovered to a geologist with the Vernal Field Office of the BLM and the Office of the State Paleontologist. The operator is responsible for informing all persons in the areas who are associated with this project of the requirements for protecting paleontological resources. Paleontological resources found on the public lands are recognized by the BLM and State as constituting a fragile and nonrenewable scientific record of the history of life on earth, and so represent an important and critical component of America's natural heritage. These resources are afforded protection under 43 CFR 3802 and 3809, and penalties possible for the collection of vertebrate fossils are under 43 CFR 8365.1-5.

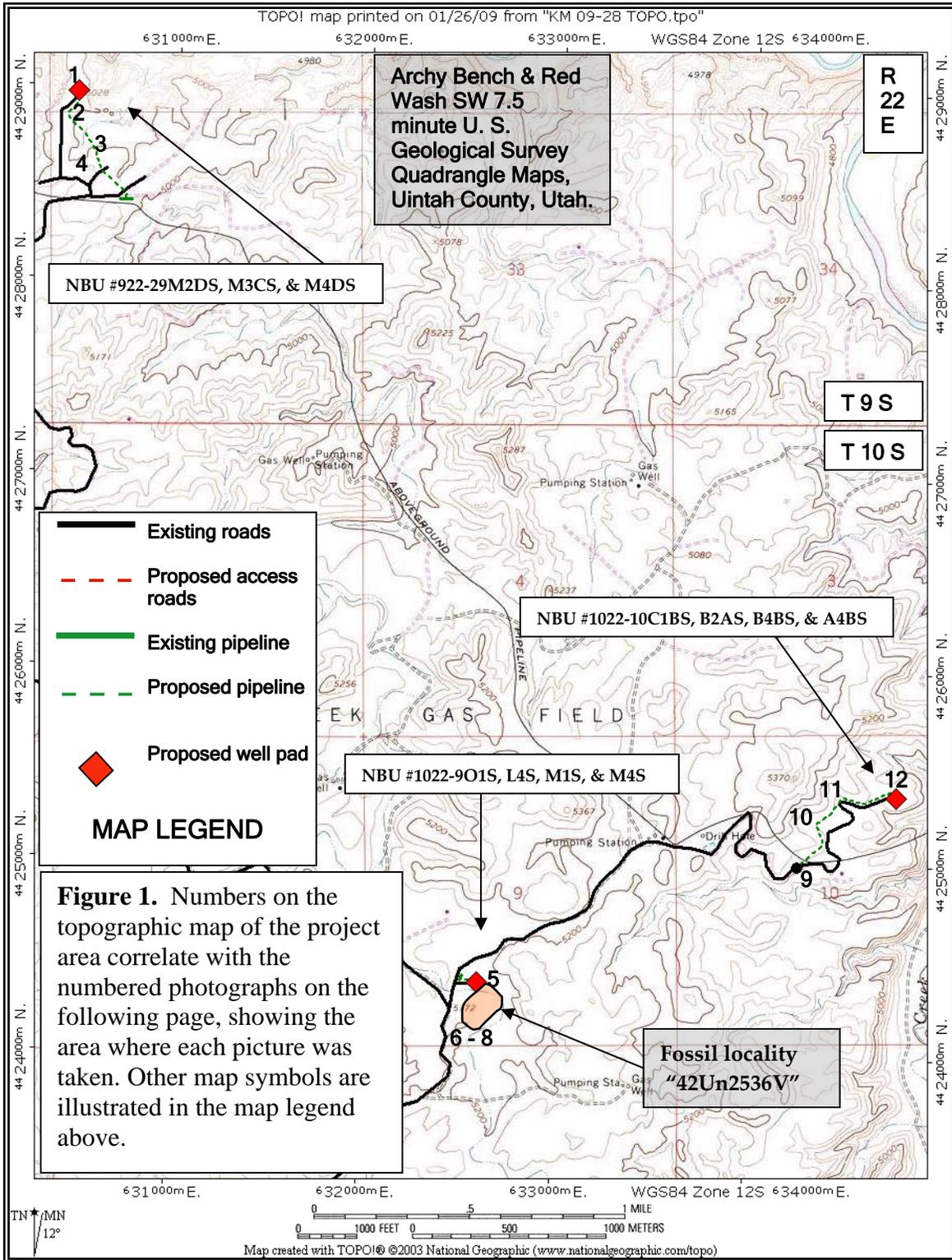


Figure 1. *continued...*

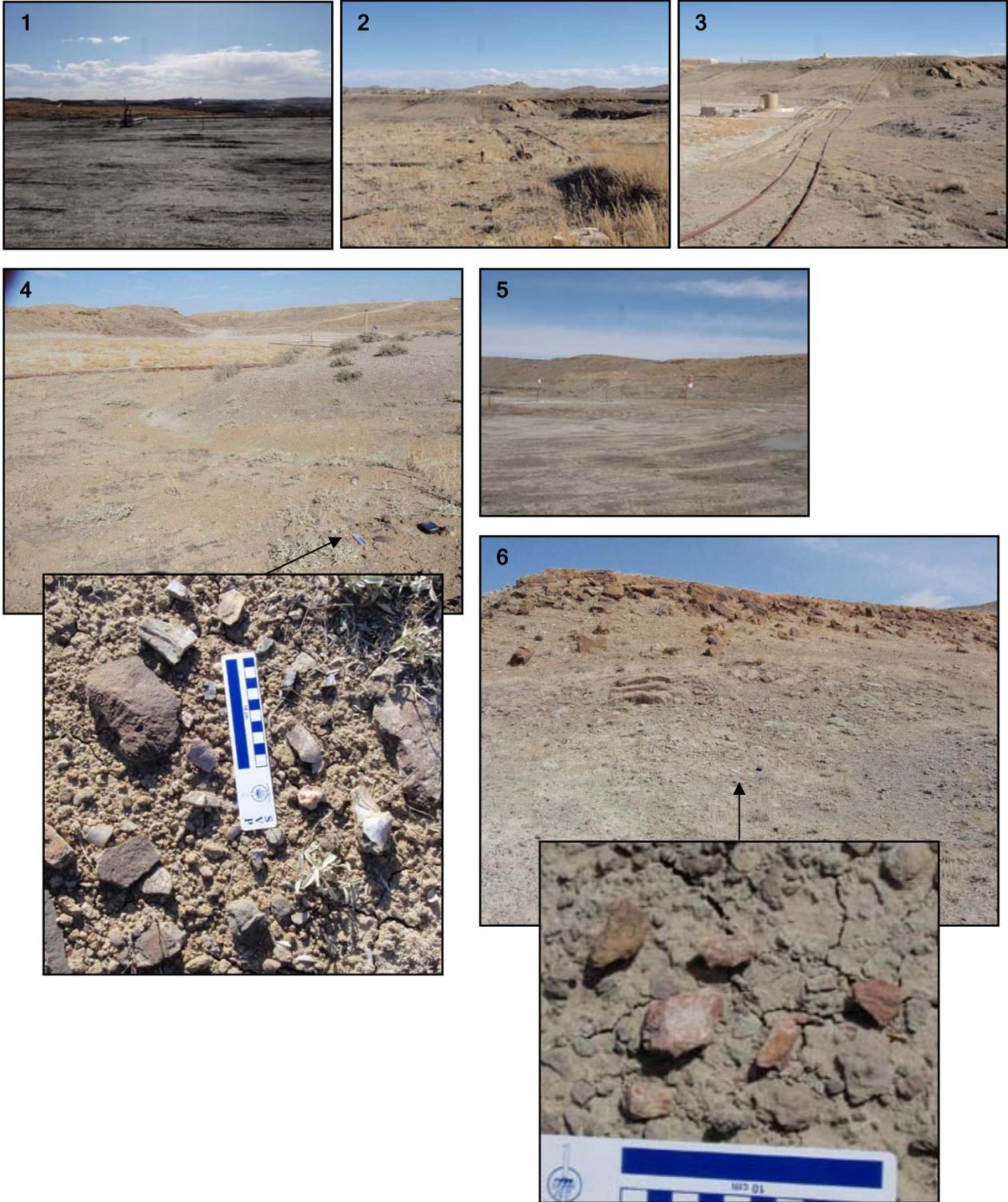
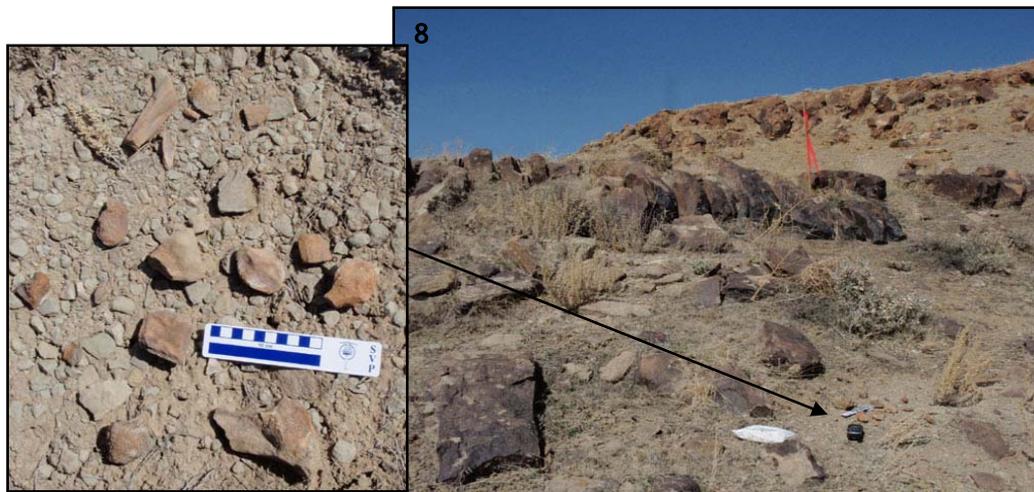
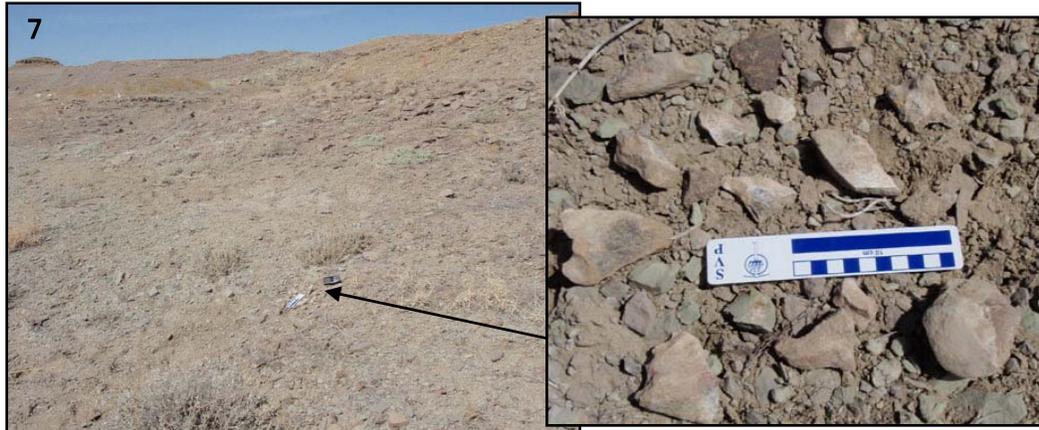
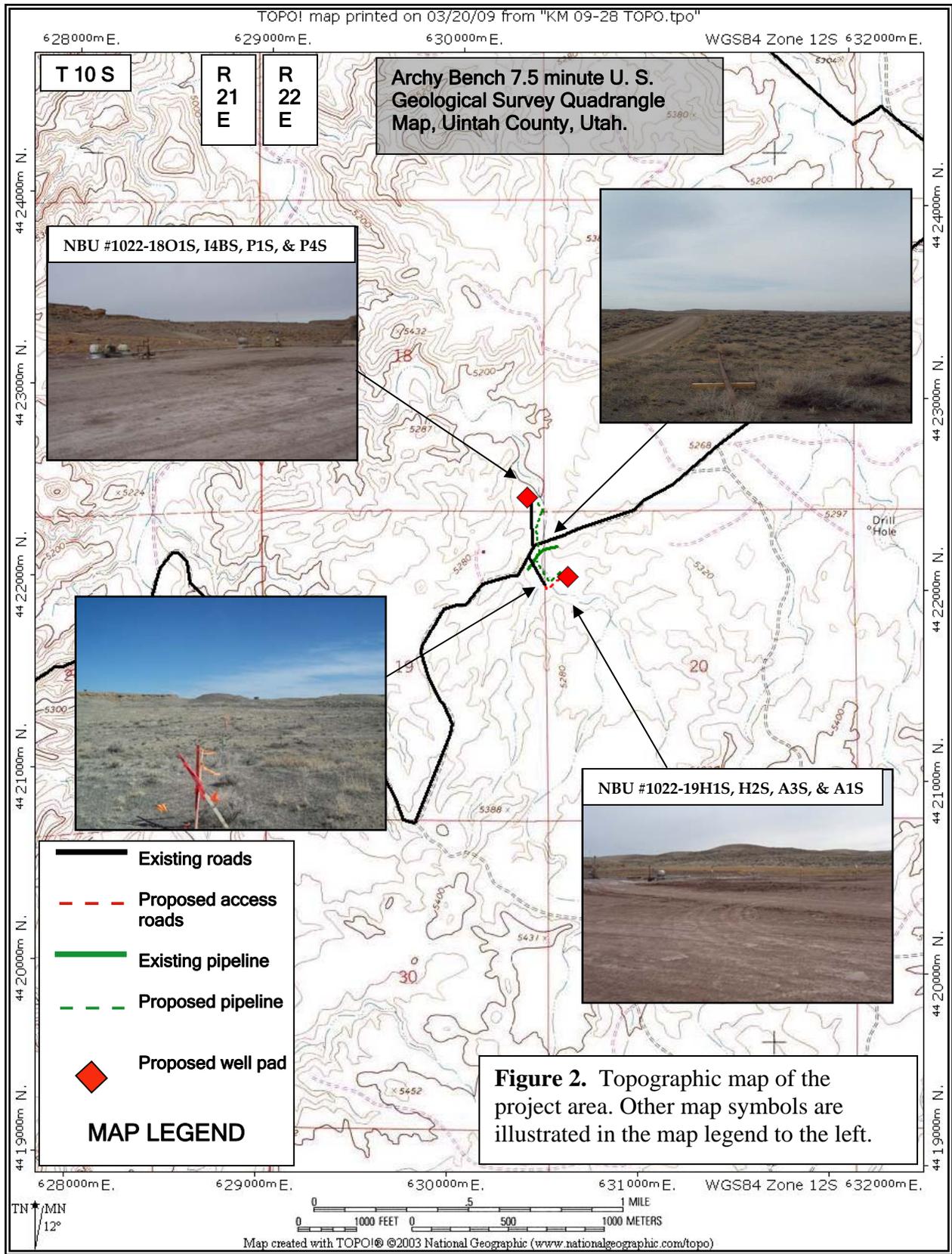


Figure 1. *continued...*





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# 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)

April 27, 2009

Memorandum

To: Assistant District Manager Minerals, Vernal District  
From: Michael Coulthard, Petroleum Engineer  
Subject: 2009 Plan of Development Natural Buttes Unit Uintah  
County, Utah.

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

API #	WELL NAME	LOCATION
(Proposed PZ WASATCH-MESA VERDE)		
43-047-50358	NBU 1022-10C1BS Sec 10 T10S R22E 1065 FNL 1523 FEL	BHL Sec 10 T10S R22E 0163 FNL 2252 FWL

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

/s/ Michael L. Coulthard

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

MCoulthard:mc:4-27-09

**From:** Jim Davis  
**To:** Bonner, Ed; Mason, Diana  
**Date:** 5/5/2009 4:42 PM  
**Subject:** Well approvals 5/5/09

**CC:** Garrison, LaVonne

The following wells have been approved by SITLA including arch and paleo clearance.

EC 98-16 (4304750251)  
NBU 922-29M3CS (4304750342)  
NBU 922-29M2DS (4304750343)

NBU 921-26B3S (4304750364)  
NBU 921-26D1BS (4304750363)  
NBU 921-26D1CS (4304750362)

NBU 922-29M4DS (4304750357)  
NBU 922-29M3CS (4304750342)  
NBU 922-29M2DS (4304750343)

NBU 1022-10C1BS (4304750358)  
NBU 1022-10B2AS (4304750360)  
NBU 1022-10A4BS (4304750361)  
NBU 1022-10B4BS (4304750359)

-Jim

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

Well Name	KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 1022-10C1BS 43047503580000		
String	Surf	Prod	
Casing Size(")	9.625	4.500	
Setting Depth (TVD)	2050	9109	
Previous Shoe Setting Depth (TVD)	40	2050	
Max Mud Weight (ppg)	8.3	11.6	
BOPE Proposed (psi)	500	5000	
Casing Internal Yield (psi)	3520	7780	
Operators Max Anticipated Pressure (psi)	5202	11.0	

Calculations	Surf String	9.625	"
Max BPH (psi)	$.052 * \text{Setting Depth} * \text{MW} =$	885	
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>
MASP (Gas) (psi)	$\text{Max BHP} - (0.12 * \text{Setting Depth}) =$	639	NO OK
MASP (Gas/Mud) (psi)	$\text{Max BHP} - (0.22 * \text{Setting Depth}) =$	434	YES
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>
Pressure At Previous Shoe	$\text{Max BHP} - .22 * (\text{Setting Depth} - \text{Previous Shoe Depth}) =$	443	NO Reasonable depth in area
Required Casing/BOPE Test Pressure=		2050	psi
*Max Pressure Allowed @ Previous Casing Shoe=		40	psi *Assumes 1psi/ft frac gradient

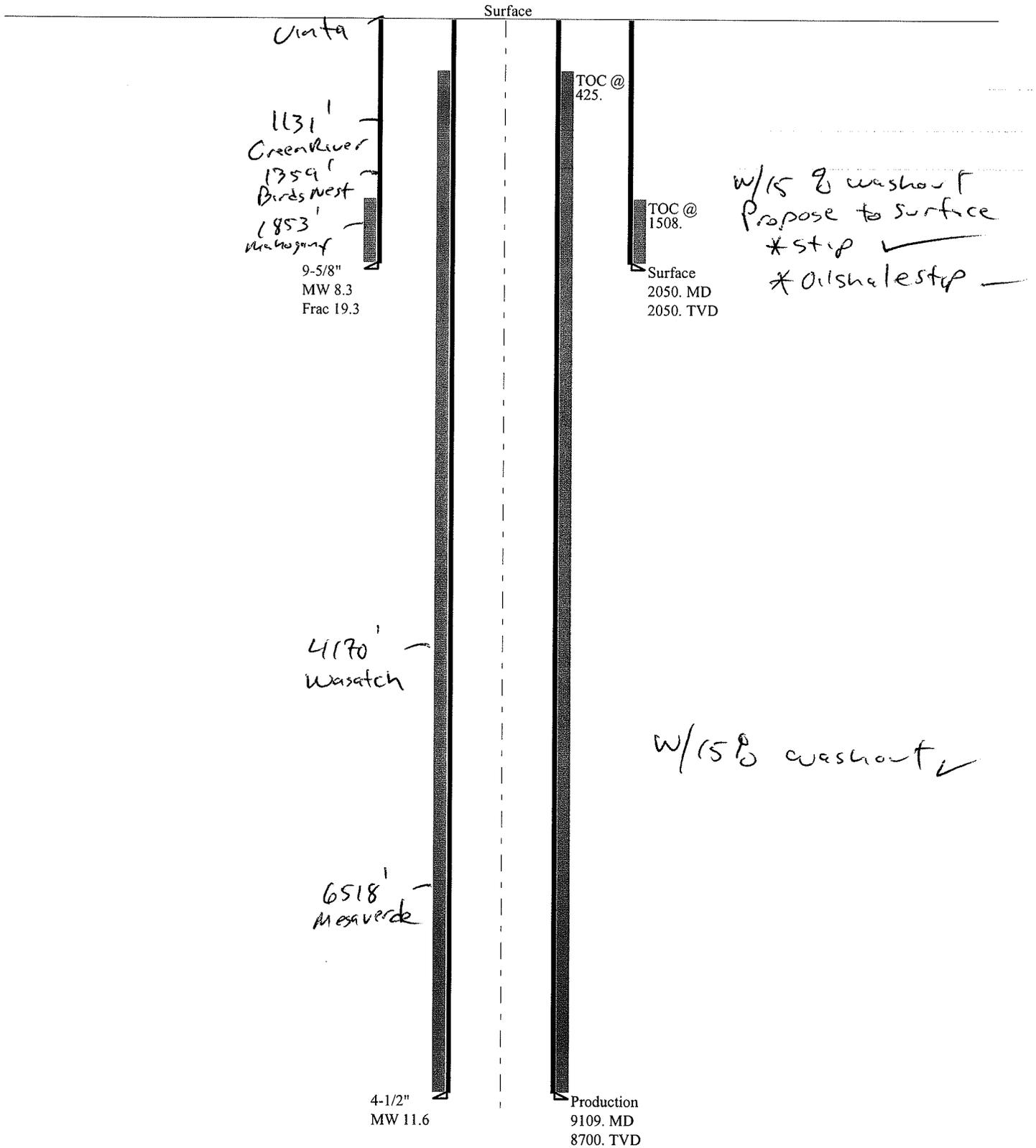
Calculations	Prod String	4.500	"
Max BPH (psi)	$.052 * \text{Setting Depth} * \text{MW} =$	5495	
			<b>BOPE Adequate For Drilling And Setting Casing at Depth?</b>
MASP (Gas) (psi)	$\text{Max BHP} - (0.12 * \text{Setting Depth}) =$	4402	YES
MASP (Gas/Mud) (psi)	$\text{Max BHP} - (0.22 * \text{Setting Depth}) =$	3491	YES OK
			<b>*Can Full Expected Pressure Be Held At Previous Shoe?</b>
Pressure At Previous Shoe	$\text{Max BHP} - .22 * (\text{Setting Depth} - \text{Previous Shoe Depth}) =$	3942	NO Reasonable
Required Casing/BOPE Test Pressure=		5000	psi
*Max Pressure Allowed @ Previous Casing Shoe=		2050	psi *Assumes 1psi/ft frac gradient

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

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

# 43047503580000 NBU 1022-10C1BS

## Casing Schematic



Well name:	<b>43047503580000 NBU 1022-10C1BS</b>		
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>		
String type:	Surface	Project ID:	43-047-50358
Location:	UINTAH COUNTY		

**Design parameters:**

**Collapse**

Mud weight: 8.330 ppg  
 Design is based on evacuated pipe.

**Minimum design factors:**

**Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
 Surface temperature: 74 °F  
 Bottom hole temperature: 103 °F  
 Temperature gradient: 1.40 °F/100ft  
 Minimum section length: 100 ft  
 Cement top: 1,508 ft

**Burst**

Max anticipated surface pressure: 989 psi  
 Internal gradient: 0.120 psi/ft  
 Calculated BHP 1,235 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: 1,797 ft

**Directional Info - Build & Hold**

Kick-off point 1960 ft  
 Departure at shoe: 2 ft  
 Maximum dogleg: 3 °/100ft  
 Inclination at shoe: 2.7 °

**Re subsequent strings:**

Next setting depth: 2,050 ft  
 Next mud weight: 11.600 ppg  
 Next setting BHP: 1,235 psi  
 Fracture mud wt: 19.250 ppg  
 Fracture depth: 2,050 ft  
 Injection pressure: 2,050 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	2050	9.625	36.00	J-55	LT&C	2050	2050	8.796	16764
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	887	1948	2.195 ✓	1235	3520	2.85 ✓	73.8	453	6.14 J ✓

Prepared by: Dustin Doucet  
 Div of Oil, Gas & Mining

Phone: 801 538-5281  
 FAX: 801-359-3940

Date: May 26, 2009  
 Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 2050 ft, a mud weight of 8.33 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

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

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

Well name:	<b>43047503580000 NBU 1022-10C1BS</b>		
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>		
String type:	Production	Project ID:	43-047-50358
Location:	UINTAH COUNTY		

**Design parameters:**

**Collapse**

Mud weight: 11.600 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: 196 °F  
 Temperature gradient: 1.40 °F/100ft  
 Minimum section length: 100 ft

Cement top: 425 ft

**Burst**

Max anticipated surface pressure: 4,199 psi  
 Internal gradient: 0.120 psi/ft  
 Calculated BHP 5,243 psi

No backup mud specified.

**Tension:**

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

Tension is based on air weight.  
 Neutral point: 7,600 ft

**Directional Info - Build & Hold**

Kick-off point 1960 ft  
 Departure at shoe: 1729 ft  
 Maximum dogleg: 3 °/100ft  
 Inclination at shoe: 0 °

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	9109	4.5	11.60	N-80	LT&C	8700	9109	3.875	37515
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	5243	6350	1.211 ✓	5243	7780	1.48 ✓	100.9	223	2.21 J ✓

Prepared by: Dustin Doucet  
 Div of Oil, Gas & Mining

Phone: 801 538-5281  
 FAX: 801-359-3940

Date: May 26, 2009  
 Salt Lake City, Utah

Remarks:

Collapse is based on a vertical depth of 8700 ft, a mud weight of 11.6 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

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

# ON-SITE PREDRILL EVALUATION

## Utah Division of Oil, Gas and Mining

**Operator** KERR-MCGEE OIL & GAS ONSHORE, L.P.  
**Well Name** NBU 1022-10C1BS  
**API Number** 43047503580000      **APD No** 1433      **Field/Unit** NATURAL BUTTES  
**Location: 1/4,1/4** NWNE      **Sec** 10      **Tw** 10.0S      **Rng** 22.0E      1065 FNL 1523 FEL  
**GPS Coord (UTM)** 634817 4425172      **Surface Owner**

**Participants**

Floyd Bartlett (DOGM), Ed Bonner (SITLA), Ramie Hoopes, Clay Einerson, Griz Oleen, Tony Kzneck, Charles Chase (Kerr McGee), Ben Williams (UDWR) and Kolby Kay (Timberline Engineering and Land Surveying).

**Regional/Local Setting & Topography**

The general area is in the southeast portion of the Natural Buttes Unit, which contains the White River and rugged drainages that drain into the White River. 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 45 air miles to the northwest. Access from Vernal is approximately 56.4 road miles following Utah State, Uintah County and oilfield development roads to the location.

The pad of the existing NBU 231 producing gas well is proposed to be enlarged for an additional 4 wells. They are the NBU 1022-10B4BS, 1022-10C1BS, 10B2AS and the 10A4BS. Due to topography constraints it will be difficult to enlarge the pad as planned. It is to be extended on all sides. It is on a rocky ridge that leads away from a higher ridge to the west. Terrain is especially limiting where the reserve pit and proposed second pit join the steep break-off to the south. It was determined that the flow-back pit will be eliminated at least at this time. Some of the reserve pit spoils can be stored in this area. Also, some of the reserve pit and excess cut stockpile at Corners 5 and 6, will be moved to the northeast as needed. Reserve pit corner C and Location Corner 5 are both in fills. Additional rounding in this area or moving the pit to the west should be done if feasible. If no changes are made, good compaction including the 10' bench must be obtained on this corner. No diversions are needed around the location. Bitter Creek, which is an ephemeral drainage, is about ¼ mile to the east. It joins the White River about ¼ mile to the north. The existing pad shows no stability problems. It is expected with the above adjustments that the location including the reserve pit should be stable and it is the only suitable site in the area.

Both the surface and minerals are owned by SITLA.

**Surface Use Plan**

**Current Surface Use**

- Grazing
- Wildlife Habitat
- Existing Well Pad

<b>New Road Miles</b>	<b>Well Pad</b>	<b>Src Const Material</b>	<b>Surface Formation</b>
0	<b>Width 330    Length 500</b>	Onsite	UNTA

**Ancillary Facilities** N

**Waste Management Plan Adequate?**

**Environmental Parameters**

**Affected Floodplains and/or Wetlands N**

**Flora / Fauna**

Area beyond the existing pad is poorly vegetated with greasewood, cheatgrass, black sagebrush, broom snakeweed, Sitanion hystrix , shadscale, pepper weed, halogeton and annuals.

Sheep, deer, antelope, coyote, and other small mammals and birds.

**Soil Type and Characteristics**

Shallow rocky sandy loam.

**Erosion Issues N**

**Sedimentation Issues N**

**Site Stability Issues Y**

Reserve pit is only area of concern.

**Drainage Diversion 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>	>200	0	
<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>	High permeability	20	
<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>		45	1 Sensitivity Level

**Characteristics / Requirements**

The reserve pit is planned primarily in an area of cut in the southeast corner of the location. Dimensions are 100' x 250' x 10' deep with 2' of freeboard. Reserve pit corner C and Location Corner 5 are both in fills. Additional rounding in this area or moving the pit to the west should be done if feasible. If no changes are made, good compaction including the 10' bench must be obtained on this corner. Because the length of time the reserve pit will be used and the roughness of the terrain, Kerr McGee committed to line it with a 30-mil. liner and an appropriate thickness of felt sub-liner to cushion the rock. The second pit shown is not approved with this permit. Kerr McGee was informed they would have to submit a separate application and plan for this pit.

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

**Other Observations / Comments**

On 5/13/2009 the following met and discussed the changes incorporated in the above description. Floyd Bartlett (DOGM), Clay Einerson, Lovell Young (Kerr McGee), and Kolby Kay (Timberline Engineering and Land Surveying).

Floyd Bartlett

**Evaluator**

4/28/2009

**Date / Time**

# Application for Permit to Drill Statement of Basis

5/26/2009

**Utah Division of Oil, Gas and Mining**

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<b>APD No</b>	<b>API WellNo</b>	<b>Status</b>	<b>Well Type</b>	<b>Surf Owner</b>	<b>CBM</b>
1433	43047503580000	LOCKED	GW	S	No
<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>Surface Owner-APD</b>		
<b>Well Name</b>	NBU 1022-10C1BS		<b>Unit</b>	NATURAL BUTTES	
<b>Field</b>	NATURAL BUTTES		<b>Type of Work</b>	DRILL	
<b>Location</b>	NWNE 10 10S 22E S 1065 FNL 1523 FEL GPS Coord (UTM)			634821E	4425159N

**Geologic Statement of Basis**

Kerr McGee proposes to set 2,050' of surface casing at this location. The depth to the base of the moderately saline water at this location is estimated to be at a depth of 4,700'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the proposed location. 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**

5/18/2009  
**Date / Time**

**Surface Statement of Basis**

The general area is in the southeast portion of the Natural Buttes Unit, which contains the White River and rugged drainages that drain into the White River. 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 45 air miles to the northwest. Access from Vernal is approximately 56.4 road miles following Utah State, Uintah County and oilfield development roads to the location.

The pad of the existing NBU 231 producing gas well is proposed to be enlarged for an additional 4 wells. They are the NBU 1022-10B4BS, 1022-10C1BS, 10B2AS and the 10A4BS. Due to topography constraints it will be difficult to enlarged the pad as planned. It is to be extended on all sides. It is on a rocky ridge that leads away from a higher ridge to the west. Terrain is especially limiting where the reserve pit and proposed second pit join the steep break-off to the south. It was determined that the flow-back pit will be eliminated at least at this time. Some of the reserve pit spoils can be stored in this area. Also, some of the reserve pit and excess cut stockpile at Corners 5 and 6, will be moved to the northeast as needed. Reserve pit corner C and Location Corner 5 are both in fills. Additional rounding in this area or moving the pit to the west should be done if feasible. If no changes are made, good compaction including the 10' bench must be obtained on this corner. No diversions are needed around the location. Bitter Creek, which is an ephemeral drainage, is about ¼ mile to the east. It joins the White River about ¼ mile to the north. The existing pad shows no stability problems. It is expected with the above adjustments that the location including the reserve pit should be stable and it is the only suitable site in the area.

Both the surface and minerals are owned by SITLA. Ed Bonner of SITLA attended the pre-site and was agreeable to the modifications. He had no additional concerns regarding the proposal.

Ben Williams of the Utah Division of Wildlife Resources also attended the pre-site. Mr. Williams stated no wildlife values would be significantly affected by drilling and operating the wells at this location. He provided Ed Bonner of SITLA and Ramie Hoopes of Kerr McGee a written wildlife evaluation and a copy of a

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# Application for Permit to Drill Statement of Basis

5/26/2009

Utah Division of Oil, Gas and Mining

Page 2

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recommended seed mix to be used for re-vegetating the disturbed area.

Floyd Bartlett  
**Onsite Evaluator**

4/28/2009  
**Date / Time**

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

<b>Category</b>	<b>Condition</b>
Pits	A synthetic liner with a minimum thickness of 30mils with a felt subliner shall be properly installed and maintained in the reserve pit.
Surface	The reserve pit shall be fenced upon completion of drilling operations.

**WORKSHEET  
APPLICATION FOR PERMIT TO DRILL**

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**APD RECEIVED:** 4/22/2009

**API NO. ASSIGNED:** 43047503580000

**WELL NAME:** NBU 1022-10C1BS

**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995)

**PHONE NUMBER:** 720 929-6007

**CONTACT:** Kathy Schneebeck-Dulnoan

**PROPOSED LOCATION:** NWNE 10 100S 220E

**Permit Tech Review:**

**SURFACE:** 1065 FNL 1523 FEL

**Engineering Review:**

**BOTTOM:** 0163 FNL 2252 FWL

**Geology Review:**

**COUNTY:** UINTAH

**LATITUDE:** 39.96773

**LONGITUDE:** -109.42138

**UTM SURF EASTINGS:** 634821.00

**NORTHINGS:** 4425159.00

**FIELD NAME:** NATURAL BUTTES

**LEASE TYPE:** 3 - State

**LEASE NUMBER:** UO 01197A

**PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE

**SURFACE OWNER:** 3 - State

**COALBED METHANE:** NO

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**RECEIVED AND/OR REVIEWED:**

- PLAT
- Bond: STATE/FEE - 22013542
- Potash
- Oil Shale 190-5
- Oil Shale 190-3
- Oil Shale 190-13
- Water Permit: 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 & uncomm. tract
  - R649-3-11. Directional Drill
- 

**Comments:** Presite Completed

**Stipulations:** 5 - Statement of Basis - bhill  
15 - Directional - dmason  
17 - Oil Shale 190-5(b) - dmason  
25 - Surface Casing - ddoucet



JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

## State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

### Permit To Drill

\*\*\*\*\*

**Well Name:** NBU 1022-10C1BS  
**API Well Number:** 43047503580000  
**Lease Number:** UO 01197A  
**Surface Owner:** STATE  
**Approval Date:** 5/27/2009

**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

**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.

**Notification Requirements:**

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

- 24 hours prior to cementing or testing casing - contact Dan Jarvis
- 24 hours prior to testing blowout prevention equipment - contact Dan Jarvis
- 24 hours prior to spudding the well - contact Carol Daniels
- Within 24 hours of any emergency changes made to the approved drilling program - contact

Dustin Doucet

- Prior to commencing operations to plug and abandon the well - contact Dan Jarvis

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

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

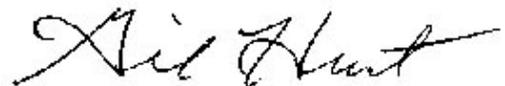
The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voice mail message if the person is not available to take the call):

- Dan Jarvis at: (801) 538-5338 office  
(801) 942-0871 home
- Carol Daniels at: (801) 538-5284 office
- Dustin Doucet at: (801) 538-5281 office  
(801) 733-0983 home

**Reporting Requirements:**

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

**Approved By:**



Gil Hunt  
Associate Director, Oil & Gas

<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> UO 01197A
<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 1022-10C1BS
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6007 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 Township: 10.0S Range: 22.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES  <b>COUNTY:</b> UINTAH  <b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 8/4/2009	<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: _____

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

MIRU PETE MARTIN BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'.  
 RAN 14" 36.7# CONCUCTOR PIPE. CMT W/28 SX READY MIX. SPUD WELL LOCATION ON 08/04/2009 AT 8:30 HRS.

Accepted by the  
 Utah Division of  
 Oil, Gas and Mining  
**FOR RECORD ONLY**  
 August 05, 2009

<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A		<b>DATE</b> 8/5/2009

<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> UO 01197A
<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 1022-10C1BS
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6007 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 Township: 10.0S Range: 22.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES  <b>COUNTY:</b> UINTAH  <b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 8/15/2009	<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: _____

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

MIRU PROPETRO AIR RIG ON 08/13/2009. DRILLED 12-1/4" SURFACE HOLE TO 2110'. RAN 9-5/8" 36# J-55 SURFACE CSG. CMT TAIL W/350 SX CLASS PREM LITE @ 15.8 PPG, 1.15 YIELD. DISPLACE W/157 BBLS H2O, BUMP PLUG & FLOAT HELD. TOP OUT W/300 SX CLASS G PREM LITE @ 15.8 PPG, 1.15 YIELD, 5/GAL MIX, STAYED FULL. WORT.

Accepted by the  
 Utah Division of  
 Oil, Gas and Mining  
**FOR RECORD ONLY**  
 August 17, 2009

<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A		<b>DATE</b> 8/17/2009

<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> UO 01197A
<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 1022-10C1BS
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6007 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 Township: 10.0S Range: 22.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES  <b>COUNTY:</b> UINTAH  <b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 9/28/2009	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input checked="" type="checkbox"/> OTHER	OTHER: Side track arr

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

Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) respectfully submits the following information regarding a sidetrack around a lost fish downhole, per a phone conversation with Dustin Doucet on 09/29/09. After 3 unsuccessful fishing attempts over 72 hours to retrieve a bit, mud motor, non-magnetic drill collar, pony NMDC, and 1 joint of heavy weight drill pipe, Kerr-McGee will plugback above the fish and side-track around it. Prior to the fishing attempts, a total depth of 8055' was reached. The steps to be followed are: 1. RIH, condition hole to set cement plug; 2. Pump a 400' balanced plug ~4400-4800'; 3. WOC; 4. RIH with kick-off assembly; 5. Directionally drill to TD at 8750'. Attached is the revised directional drilling plan. Please contact the undersigned with any questions. Thank you.

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

**Date:** September 30, 2009

<b>NAME (PLEASE PRINT)</b> Kathy Schneebeck-Dulnoan	<b>PHONE NUMBER</b> 720 929-6007	<b>TITLE</b> Staff Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 9/29/2009	



**The Utah Division of Oil, Gas, and Mining**

- State of Utah
- Department of Natural Resources

**Electronic Permitting System - Sundry Notices**

**Sundry Conditions of Approval Well Number 43047503580000**

**Verbal approval given 9/29/2009 @ 2:48 p.m. Drilling to same BHL.**

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

**Date:** September 30, 2009  
**By:** *Dark Quif*

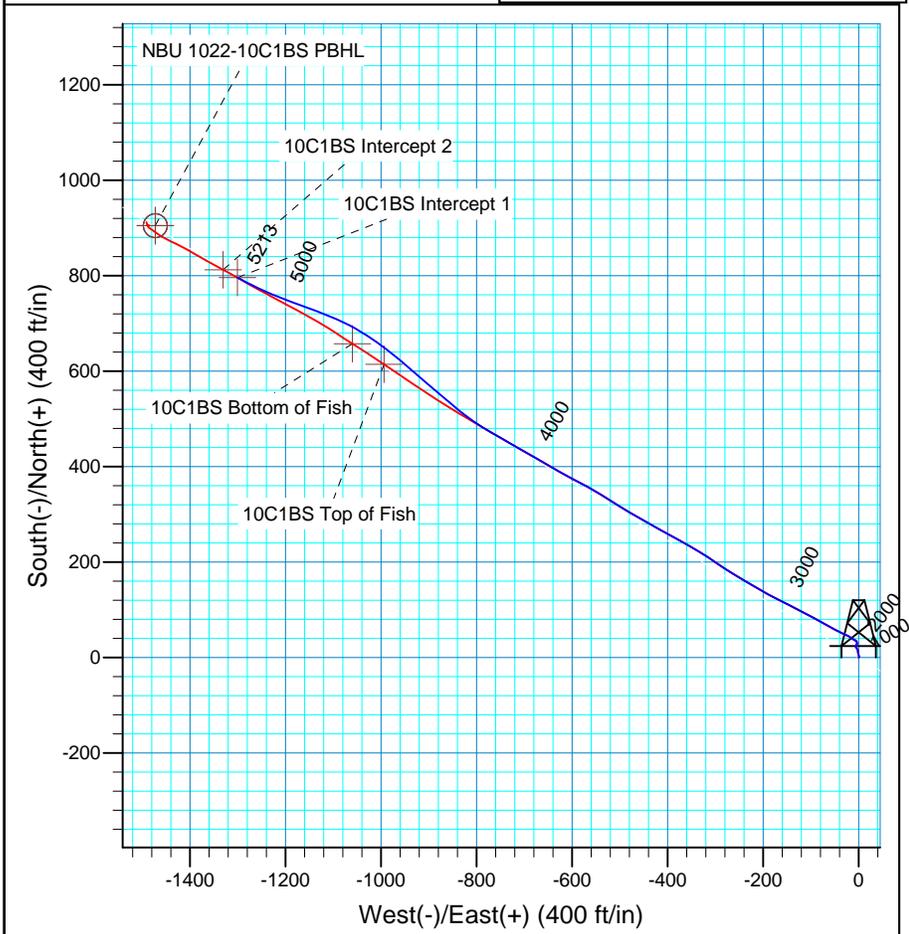
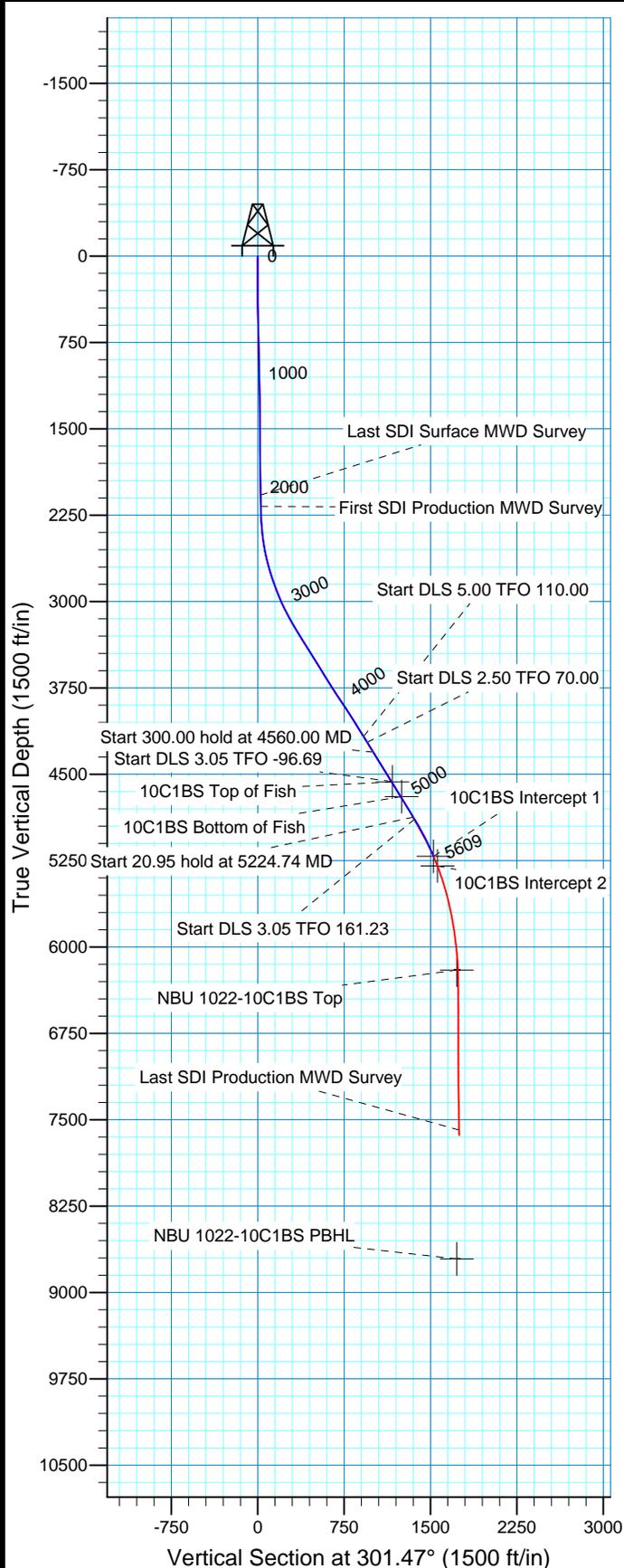
WELL DETAILS: NBU 1022-10C1BS

GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)		5055.00		Slot	
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14518240.99	2082733.52	39° 58' 4.150 N	09° 25' 17.047 W



Azimuths to True North  
 Magnetic North: 11.24°

Magnetic Field  
 Strength: 52521.7snT  
 Dip Angle: 65.91°  
 Date: 9/28/2009  
 Model: IGRF2005-10



FORMATION TOP DETAILS	Plan: Plan #1 (NBU 1022-10C1BS/ST 1)
Formation data is available	Created By: Rex Hall Date: 2009-09-28
PROJECT DETAILS: Uintah County, UT UTM12	
Geodetic System: Universal Transverse Mercator (US Survey Feet) Datum: NAD 1927 - Western US Ellipsoid: Clarke 1866 Zone: Zone 12N (114 W to 108 W)	
System Datum: Mean Sea Level Local North: No north reference data is available	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	4400.00	31.97	300.39	4172.18	479.47	-782.47	0.00	0.00	917.69	
2	4460.00	31.06	305.86	4223.34	496.58	-808.73	5.00	110.00	949.01	
3	4560.00	32.00	310.30	4308.59	528.83	-849.85	2.50	70.00	1000.92	
4	44860.00	32.00	310.30	4563.02	631.64	-971.07	0.00	0.00	1157.99	
5	5224.74	32.43	289.36	4872.58	726.86	-1137.56	3.05	-96.69	1349.70	
6	5245.69	32.43	289.36	4890.27	730.59	-1148.16	0.00	0.00	1360.68	
7	5609.07	22.19	298.79	5212.86	796.14	-1300.70	3.05	161.23	1525.01	10C1BS Intercept 1

RECEIVED September 29, 2009

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

**Uintah County, UT UTM12  
NBU 1022-10B Pad  
NBU 1022-10C1BS  
ST 1**

**Plan: Plan #1**

## **Standard Planning Report**

**28 September, 2009**

# Scientific Drilling International

## Planning Report

<b>Database:</b> EDM 2003.16 Multi-User Db	<b>Local Co-ordinate Reference:</b> Well NBU 1022-10C1BS
<b>Company:</b> Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b> GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Project:</b> Uintah County, UT UTM12	<b>MD Reference:</b> GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Site:</b> NBU 1022-10B Pad	<b>North Reference:</b> True
<b>Well:</b> NBU 1022-10C1BS	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> ST 1	
<b>Design:</b> Plan #1	

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

<b>Site</b> NBU 1022-10B Pad, Sec 10 T10S R22E		
<b>Site Position:</b>	<b>Northing:</b> 14,518,241.45 ft	<b>Latitude:</b> 39° 58' 4.158 N
<b>From:</b> Lat/Long	<b>Easting:</b> 2,082,713.50 ft	<b>Longitude:</b> 109° 25' 17.304 W
<b>Position Uncertainty:</b> 0.00 ft	<b>Slot Radius:</b> in	<b>Grid Convergence:</b> 1.01 °

<b>Well</b> NBU 1022-10C1BS, 1065' FNL & 1523' FEL			
<b>Well Position</b>	<b>+N/-S</b> 0.00 ft	<b>Northing:</b> 14,518,240.99 ft	<b>Latitude:</b> 39° 58' 4.150 N
	<b>+E/-W</b> 0.00 ft	<b>Easting:</b> 2,082,733.52 ft	<b>Longitude:</b> 109° 25' 17.047 W
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 5,055.00 ft

<b>Wellbore</b> ST 1					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
	IGRF2005-10	9/28/2009	(°) 11.24	(°) 65.91	(nT) 52,522

<b>Design</b> Plan #1				
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b> PLAN	<b>Tie On Depth:</b> 4,400.00		
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	301.47

<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
4,400.00	31.97	300.39	4,172.18	479.47	-782.47	0.00	0.00	0.00	0.00	
4,460.00	31.06	305.86	4,223.34	496.58	-808.73	5.00	-1.52	9.12	110.00	
4,560.00	32.00	310.30	4,308.59	528.83	-849.85	2.50	0.93	4.44	70.00	
4,860.00	32.00	310.30	4,563.02	631.64	-971.07	0.00	0.00	0.00	0.00	
5,224.74	32.43	289.36	4,872.58	726.86	-1,137.56	3.05	0.12	-5.74	-96.69	
5,245.69	32.43	289.36	4,890.27	730.59	-1,148.16	0.00	0.00	0.00	0.00	
5,609.07	22.19	298.79	5,212.86	796.14	-1,300.70	3.05	-2.82	2.59	161.23	10C1BS Intercept 1

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM 2003.16 Multi-User Db	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-10C1BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Site:</b>	NBU 1022-10B Pad	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ST 1		
<b>Design:</b>	Plan #1		

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
100.00	0.32	59.75	100.00	0.14	0.24	-0.13	0.32	0.32	0.00
200.00	0.36	34.42	200.00	0.53	0.77	-0.38	0.15	0.04	-25.33
300.00	0.43	0.76	299.99	1.16	0.90	-0.16	0.24	0.07	-33.66
400.00	0.64	354.41	399.99	2.08	0.84	0.37	0.22	0.21	-6.35
500.00	1.35	341.66	499.98	3.70	0.46	1.54	0.74	0.71	-12.75
600.00	1.70	345.19	599.94	6.27	-0.31	3.54	0.36	0.35	3.53
700.00	1.79	345.87	699.89	9.25	-1.12	5.79	0.09	0.09	0.67
800.00	1.62	354.95	799.85	12.11	-1.54	7.64	0.31	-0.16	9.08
900.00	1.61	347.00	899.81	15.03	-1.92	9.48	0.22	-0.02	-7.95
1,000.00	1.49	330.08	999.77	17.41	-2.90	11.57	0.47	-0.12	-16.91
1,100.00	1.52	325.25	1,099.74	19.64	-4.39	14.00	0.13	0.03	-4.83
1,200.00	1.23	339.57	1,199.71	21.74	-5.64	16.16	0.44	-0.28	14.32
1,300.00	0.99	352.18	1,299.69	23.62	-6.05	17.49	0.34	-0.24	12.60
1,400.00	0.79	2.60	1,399.68	25.17	-6.14	18.38	0.26	-0.20	10.42
1,500.00	1.38	53.01	1,499.66	26.57	-5.13	18.25	1.07	0.59	50.41
1,600.00	1.10	27.33	1,599.64	28.15	-3.74	17.88	0.62	-0.28	-25.67
1,700.00	1.12	359.60	1,699.62	29.97	-3.32	18.48	0.53	0.02	-27.73
1,800.00	1.27	341.95	1,799.60	32.05	-3.70	19.88	0.40	0.16	-17.65
1,900.00	1.08	330.19	1,899.57	34.03	-4.59	21.68	0.31	-0.19	-11.76
2,000.00	0.68	307.92	1,999.56	35.21	-5.50	23.07	0.52	-0.40	-22.27
2,100.00	0.58	303.53	2,099.56	35.78	-6.39	24.13	0.11	-0.10	-4.39
2,200.00	1.56	294.51	2,199.55	36.34	-7.55	25.42	0.99	0.97	-9.02
2,300.00	3.72	301.48	2,299.42	38.57	-11.94	30.32	2.18	2.16	6.97
2,400.00	5.81	299.84	2,399.09	42.95	-18.65	38.33	2.10	2.09	-1.65
2,500.00	8.73	296.75	2,498.28	48.75	-29.84	50.90	2.95	2.92	-3.08
2,600.00	12.41	296.73	2,596.60	56.92	-46.10	69.03	3.68	3.68	-0.02
2,700.00	15.20	298.54	2,693.66	68.04	-67.40	93.00	2.82	2.79	1.81
2,800.00	17.77	298.82	2,789.54	81.68	-92.27	121.34	2.57	2.57	0.27
2,900.00	21.48	298.13	2,883.62	97.89	-121.96	155.12	3.72	3.71	-0.69
3,000.00	22.94	296.09	2,976.32	114.59	-155.54	192.48	1.65	1.46	-2.04
3,100.00	26.29	299.40	3,067.25	134.13	-192.24	233.98	3.63	3.35	3.31
3,200.00	28.96	300.44	3,155.60	157.62	-232.73	280.78	2.71	2.67	1.04
3,300.00	30.97	302.74	3,242.42	183.19	-275.24	330.39	2.32	2.01	2.31
3,400.00	31.98	302.51	3,327.33	212.43	-319.24	383.18	1.01	1.01	-0.23
3,500.00	31.87	299.33	3,412.25	239.51	-364.56	435.98	1.69	-0.11	-3.19
3,600.00	31.90	299.18	3,497.16	265.06	-410.79	488.75	0.08	0.03	-0.15
3,700.00	31.81	299.52	3,582.09	290.95	-456.80	541.50	0.20	-0.08	0.34
3,800.00	31.94	302.29	3,667.01	318.11	-502.08	594.30	1.47	0.12	2.77
3,900.00	32.05	300.65	3,751.96	345.80	-546.98	647.05	0.88	0.11	-1.64
4,000.00	33.93	298.14	3,835.73	372.10	-594.83	701.60	2.33	1.88	-2.50
4,100.00	33.96	299.73	3,918.38	399.51	-643.99	757.83	0.89	0.03	1.58
4,200.00	32.39	299.75	4,002.15	426.69	-691.35	812.42	1.58	-1.58	0.02
4,300.00	31.61	300.13	4,087.06	452.88	-737.23	865.22	0.80	-0.78	0.37
4,400.00	31.97	300.39	4,172.18	479.47	-782.47	917.69	0.39	0.37	0.27
<b>Start DLS 5.00 TFO 110.00</b>									
4,460.00	31.06	305.86	4,223.34	496.58	-808.73	949.01	5.00	-1.52	9.12
<b>Start DLS 2.50 TFO 70.00</b>									
4,500.00	31.42	307.67	4,257.54	508.99	-825.34	969.67	2.50	0.89	4.51
4,560.00	32.00	310.30	4,308.59	528.83	-849.85	1,000.92	2.50	0.96	4.39
<b>Start 300.00 hold at 4560.00 MD</b>									
4,600.00	32.00	310.30	4,342.51	542.54	-866.01	1,021.87	0.00	0.00	0.00
4,700.00	32.00	310.30	4,427.32	576.81	-906.42	1,074.22	0.00	0.00	0.00

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM 2003.16 Multi-User Db	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-10C1BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Site:</b>	NBU 1022-10B Pad	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ST 1		
<b>Design:</b>	Plan #1		

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)	
4,800.00	32.00	310.30	4,512.13	611.08	-946.83	1,126.58	0.00	0.00	0.00	
4,860.00	32.00	310.30	4,563.02	631.64	-971.07	1,157.99	0.00	0.00	0.00	
<b>Start DLS 3.05 TFO -96.69</b>										
4,866.58	31.97	309.92	4,568.59	633.89	-973.74	1,161.44	3.05	-0.35	-5.72	
<b>10C1BS Top of Fish</b>										
4,900.00	31.87	308.01	4,596.96	645.00	-987.48	1,178.96	3.05	-0.30	-5.74	
5,000.00	31.75	302.22	4,681.96	675.30	-1,030.55	1,231.51	3.05	-0.12	-5.78	
5,019.22	31.76	301.11	4,698.31	680.61	-1,039.16	1,241.63	3.05	0.03	-5.80	
<b>10C1BS Bottom of Fish</b>										
5,100.00	31.89	296.44	4,766.95	701.09	-1,076.48	1,284.15	3.05	0.17	-5.78	
5,200.00	32.29	290.75	4,851.69	722.32	-1,125.12	1,336.72	3.05	0.40	-5.69	
5,224.74	32.43	289.36	4,872.58	726.86	-1,137.56	1,349.70	3.05	0.56	-5.60	
<b>Start 20.95 hold at 5224.74 MD</b>										
5,245.69	32.43	289.36	4,890.27	730.59	-1,148.16	1,360.68	0.00	0.00	0.00	
<b>Start DLS 3.05 TFO 161.23</b>										
5,300.00	30.86	290.40	4,936.50	740.27	-1,174.96	1,388.60	3.05	-2.88	1.91	
5,400.00	28.01	292.58	5,023.59	758.24	-1,220.69	1,436.98	3.05	-2.86	2.18	
5,500.00	25.19	295.22	5,112.99	776.33	-1,261.64	1,481.35	3.05	-2.81	2.63	
5,600.00	22.44	298.46	5,204.47	794.49	-1,297.68	1,521.57	3.05	-2.76	3.24	
5,609.07	22.19	298.79	5,212.86	796.14	-1,300.70	1,525.01	3.05	-2.72	3.65	
<b>10C1BS Intercept 1 - 10C1BS Intercept 2 - NBU 1022-10C1BS PBHL - NBU 1022-10C1BS Top</b>										

Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
NBU 1022-10C1BS PBI- - plan misses target center by 3502.05ft at 5609.07ft MD (5212.86 TVD, 796.14 N, -1300.70 E) - Circle (radius 25.00)	0.00	0.00	8,709.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W	
10C1BS Top of Fish - plan misses target center by 27.72ft at 4866.34ft MD (4568.39 TVD, 633.81 N, -973.64 E) - Circle (radius 0.33)	0.00	0.00	4,566.65	614.55	-993.51	14,518,837.86	2,081,729.29	39° 58' 10.224 N	109° 25' 29.809 W	
10C1BS Intercept 1 - plan hits target center - Circle (radius 0.33)	0.00	0.00	5,212.86	796.14	-1,300.70	14,519,013.98	2,081,418.94	39° 58' 12.019 N	109° 25' 33.756 W	
10C1BS Intercept 2 - plan misses target center by 90.99ft at 5609.07ft MD (5212.86 TVD, 796.14 N, -1300.70 E) - Circle (radius 0.33)	0.00	0.00	5,297.11	812.69	-1,330.82	14,519,030.00	2,081,388.53	39° 58' 12.183 N	109° 25' 34.143 W	
10C1BS Bottom of Fish - plan misses target center by 31.53ft at 5018.56ft MD (4697.74 TVD, 680.43 N, -1038.87 E) - Circle (radius 0.33)	0.00	0.00	4,694.13	657.30	-1,059.99	14,518,879.42	2,081,662.06	39° 58' 10.647 N	109° 25' 30.664 W	
NBU 1022-10C1BS Top - plan misses target center by 1007.88ft at 5609.07ft MD (5212.86 TVD, 796.14 N, -1300.70 E) - Circle (radius 25.00)	0.00	0.00	6,200.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W	

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM 2003.16 Multi-User Db	<b>Local Co-ordinate Reference:</b>	Well NBU 1022-10C1BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)
<b>Site:</b>	NBU 1022-10B Pad	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1022-10C1BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ST 1		
<b>Design:</b>	Plan #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,400.00	4,172.18	479.47	-782.47	Start DLS 5.00 TFO 110.00
4,460.00	4,223.34	496.58	-808.73	Start DLS 2.50 TFO 70.00
4,560.00	4,308.59	528.83	-849.85	Start 300.00 hold at 4560.00 MD
4,860.00	4,563.02	631.64	-971.07	Start DLS 3.05 TFO -96.69
5,224.74	4,872.58	726.86	-1,137.56	Start 20.95 hold at 5224.74 MD
5,245.69	4,890.27	730.59	-1,148.16	Start DLS 3.05 TFO 161.23

<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> UO 01197A
<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 1022-10C1BS
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6007 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 Township: 10.0S Range: 22.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES  <b>COUNTY:</b> UINTAH  <b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 10/10/2009	<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: _____

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

BEGAN SIDETRACK ON 09/30/2009 AT 06:00 A.M. AT 4,535'. TD'D WELL AT 9,027' ON 10/8/2009. RAN 4-1/2" 11.6# I-80 PRODUCTION CSG. PUMP 20 BBL SPACER FLUSH H2O. LEAD CMT W/580 SX ECONO LEAD @ 12.2 PPG, 2.13 YIELD. TAILED CMT W/1320 SX @ 14.3 PPG, 1.26 YIELD. DISPLACE 100 FINAL LIFT PSI 2400. BUMPED PLUG 2900, FLOATS HELD, 5 BBL CMT BACK TO PIT. N/D BOP, CLEAN PITS. RELEASE ENSIGN 139 RIG ON 10/10/2009 AT 23:59 HRS.

**Accepted by the**  
**Utah Division of**  
**Oil, Gas and Mining**  
**FOR RECORD ONLY**  
 October 12, 2009

<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A		<b>DATE</b> 10/12/2009

<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> UO 01197A
	<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 1022-10C1BS
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6007 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 Township: 10.0S Range: 22.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
	<b>COUNTY:</b> UINTAH
	<b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 11/24/2009	<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"/> <b>PRODUCTION START OR RESUME</b>	<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: _____

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.  
 THE SUBJECT WELL WAS PLACED ON PRODUCTION ON 11/24/2009 AT 02:00 P.M. PLEASE REFER TO THE ATTACHED CHRONOLOGICAL WELL HISTORY.

**Accepted by the**  
**Utah Division of**  
**Oil, Gas and Mining**  
**FOR RECORD ONLY**  
 November 30, 2009

<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 11/30/2009	

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-10C1BS [RED] Spud Conductor: 8/4/2009 Spud Date: 8/13/2009  
 Project: UTAH-UINTAH Site: NBU 1022-10B PAD Rig Name No: ENSIGN 139/139, PROPETRO/  
 Event: DRILLING Start Date: 6/10/2009 End Date: 10/10/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level) UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
8/13/2009	12:00 - 12:30	0.50	DRLSUR	01	B	P		MOVE
	12:30 - 18:30	6.00	DRLSUR	08	A	Z		RIG SER, WORK ON FLOOR MOTOR
	18:30 - 19:00	0.50	DRLSUR	01	B	P		RIG UP
	19:00 - 20:30	1.50	DRLSUR	02	A	P		P/U AIR HAMMER DRILL F/40 TO 180'
	20:30 - 23:30	3.00	DRLSUR	06	A	P		TOH TO P/U MWD TOOLS, TIH
	23:30 - 0:00	0.50	DRLSUR	02	D	P		DRILL F/ 180 TO 200'
8/14/2009	0:00 - 22:30	22.50	DRLSUR	02	D	P		DRILL F/ 200' TO 2110, SURVEY EVERY 90
	22:30 - 23:00	0.50	DRLSUR	05	C	P		CIRC HOLE CLEAN, TO LDDP
	23:00 - 0:00	1.00	DRLSUR	06	A	P		LDDP
8/15/2009	0:00 - 3:00	3.00	DRLSUR	06	A	P		LDDP & BHA & DIR TOOLS, RELEASE SCIENTIFIC TO YARD
	3:00 - 6:00	3.00	CSG	12	C	P		RUN 47 JTS #36 9.625 TO 2076', RELEASE RIG 11, F, MOVE TO 31 I PAD
	6:00 - 12:00	6.00	CSG	12	E	P		PUMP 350 SX PREM LT 15.8 LB, 1.15 YLD, 5GAL/MIX, DISPLACE 157 BBL H2O, BUMPPLUG & FLOAT HELD, TOP OUT 300 SX, 15.8 LB, 1.15 YLD, 5GAL MIX, STAYED FULL WORT
9/20/2009	12:00 - 0:00	12.00	SUSPEN	21	D	P		RDRT - SKID RIG - RURT
	0:00 - 2:30	2.50	DRLPRO	01	C	P		NIPPLE UP B.O.P'S
	2:30 - 4:30	2.00	DRLPRO	14	A	P		TEST B.O.P'S - BLINDS-PIPE RAMS - 2" - 4" VALVES - HCR - CHOKE MAINFOLD - 250 LOW - 5000 HIGH - HYDRIL 250 LOW 2500 HIGH - CASING 1500 PSI.
	8:30 - 11:00	2.50	DRLPRO	14	B	P		SET WEAR BUSHING & C/O SAVER SUB & DIES IN GRABBER.
	11:00 - 14:00	3.00	DRLPRO	06	A	P		P/U MOTOR - BIT - DIR TOOLS & SCRIBE & T.I.H @ TAG CEMENT @ 1988
	14:00 - 14:30	0.50	DRLPRO	07	B	P		LEVEL DERRICK & INSTALL ROTHEAD
	14:30 - 15:30	1.00	DRLPRO	02	F	P		DRILL OUT CEMENT & F.E
	15:30 - 0:00	8.50	DRLPRO	02	D	P		DRILL/SLIDE F/ 2120 TO 2945 - 825' @ 97.0 FPH W/ 8.5 PPG MUD VIS 28 - RPM 45 - MRPM 112 - WOB 14/16 - TQ 5/3 - GPM 486
9/21/2009	0:00 - 12:30	12.50	DRLPRO	02	D	P		DRILL/SLIDE F/ 2945 TO 3938 - 1443" @ 115.4 - W/ 8.5 PPG VIS 28 - RPM 45 - MRPM 112 - WOB 14/16 - TQ 8/5 - GPM 486
	12:30 - 13:00	0.50	DRLPRO	07	A	P		SER RIG
	13:00 - 0:00	11.00	DRLPRO	02	D	P		DRILL/SLIDE F/ 3938 TO 4843 - 905" @ 82.2 FPH W/ 8.5 PPG MUD WT VIS 28 - RPM 45 - MRPM 112 - WOB 14/16 TQ 9/6 GPM 486
9/22/2009	0:00 - 14:00	14.00	DRLPRO	02	D	P		DRILL/SLIDE F/ 4843 TO 6021 - 1178' @ 84.1 FPH W/ 9.0 - 28 VIS - RPM 45 - MRPM 112 - WOB 16/19 - TQ 13/9 - GPM 486
	14:00 - 14:30	0.50	DRLPRO	07	A	P		SER RIG
	14:30 - 0:00	9.50	DRLPRO	02	D	P		DRILL/SLIDE F/ 6021 TO 6480 - 459' @ 48.3 FPH W/ 9.6 PPG VIS 31 - RPM 45 - MRPM 112 - WOB 16/20 - DIFF 250/350 - TQ 13/9 - GPM 486 HAVE HARD TIME TRYING TO SLIDE THIS DEEP IN WASATCH.
9/23/2009	0:00 - 12:00	12.00	DRLPRO	02	D	P		DRILL/SLIDE F/ 6480 TO 6926 - 446' @ 37.1 FPH W/ 10.0 PPG MUD WT VIS 38 - RPM 45 - MRPM 112 - WOB 18/24 - TQ 13/10 - GPM 486
	12:00 - 12:30	0.50	DRLPRO	07	A	P		SER RIG

**RECEIVED** November 30, 2009

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-10C1BS [RED] Spud Conductor: 8/4/2009 Spud Date: 8/13/2009  
 Project: UTAH-UINTAH Site: NBU 1022-10B PAD Rig Name No: ENSIGN 139/139, PROPETRO/  
 Event: DRILLING Start Date: 6/10/2009 End Date: 10/10/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level) UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
9/24/2009	12:30 - 0:00	11.50	DRLPRO	02	D	P		DRILL/SLIDE F/ 6926 TO 7380 - 454' @ 39.4 FPH W/ 10.5 PPG VIS 39 - RPM 45 - MRPM 112 - WOB 18/24 - TQ 13/10 - GPM 486
	0:00 - 11:30	11.50	DRLPRO	02	D	P		DRILL/SLIDE F/ 7380 TO 7741 - 361' @ 31.3 FPH W/ 10.5 PPG MUD WT VIS 40 - RPM 45 - MRPM 112 - WOB 20/24 - TQ 14/10 - GPM 486
	11:30 - 12:00	0.50	DRLPRO	07	A	P		SER RIG
	12:00 - 22:30	10.50	DRLPRO	02	D	P		DRILL/SLIDE F/ 7741 TO 8055 314' @ 29.9 FPH W/ 11.1 PPG MUD WT VIS 40 - RPM 45 - MRPM 112 - WOB 20/24 - TQ 14/10 - GPM 486
9/25/2009	22:30 - 0:00	1.50	DRLPRO	06	A	P		T.F.N.B & PUMPED OUT 10 STANDS PUMPED DRY JOB & ROT OUT 10 STANDS & PULL 95K OVER STRING WT 185K.
	0:00 - 2:30	2.50	DRLPRO	06	A	P		T.F.N.B & TIGHT SPOT @ 5016
	2:30 - 7:00	4.50	DRLPRO	22	A	P		WORK STUCK PIPE @ 5016
	7:00 - 10:00	3.00	DRLPRO	22	A	P		R/U SURFACE JARS & JAR DOWN ON PIPE
	10:00 - 13:00	3.00	DRLPRO	22	L	Z		REPAIR TOP DRIVE HYD LEAKS DUE TO JARRING ON STUCK PIPE
	13:00 - 21:00	8.00	DRLPRO	22	A	P		R/U D.C.T WIRE LINE & RETREIVE MWD TOOL & RUN FREE POINT. & RUN SHOT @ BACK FISH 1 JT HWDP ABOVE DIR TOOLS - TOTAL FISH LENGTH IN HOLE 149.89 & TOP FISH @ 4866
9/26/2009	21:00 - 22:00	1.00	DRLPRO	05	A	P		CIRC BTM UP
	22:00 - 0:00	2.00	DRLPRO	19	A	P		T.O.H W/ D.P & H.W.D.P
	0:00 - 1:30	1.50	DRLPRO	19	A	P		T.O.H L/D - 2 JTS H.W.D.P & ONE WAS SHOT JT & THE OTHER WASH OUT IN THE FACE & THREADS.
	1:30 - 5:00	3.50	DRLPRO	19	A	P		P/U FISHING TOOLS & T.I.H
	5:00 - 6:00	1.00	DRLPRO	19	A	P		CIRC BTM UP
9/27/2009	6:00 - 0:00	18.00	DRLPRO	19	A	P		WASH DOWN & SCREW INTO FISH @ 4866 & JAR ON FISH & SPOT 20 BBL DIESEL PIPE LAX PILL AROUND FISH & 10 BBL ON OUTSIDE & 10 ON INSIDE & CONT. JARRING FISH & THEN SPOT WATER BACK TO SURFACE W/ PIPE LAX PILL AROUND FISH PUMPED 267 BBL WATER & 20 BBL PIPE LAX PILL & DISP W/ 80 BBL WATER & 10 BBL OUTSIDE & 10 BBL INSIDE OF PIPE LAX PILL. & WATER @ SURFACE. CONT. JARRING ON FISH. DROPPED HYD. PSI IN WELL BORE 777 PSI.
	0:00 - 4:30	4.50	DRLPRO	19	A	P		JAR ON FISH & DISP. WATER OUT OF HOLE & INSPECT TOP DRIVE.
	4:30 - 9:30	5.00	DRLPRO	19	A	P		R/U DCT WIRELINE TRUCK & RUN FREE POINT & BACK SHOT & BACK OFF @ SCREW IN SUB WAS WASH OUT & L/D 4 BENT H.W.D.P
	9:30 - 13:30	4.00	DRLPRO	19	A	P		T.O.H TO P/U WASH PIPE
	13:30 - 14:00	0.50	DRLPRO	19	A	P		REPLACE SMART SYSTEM TOOLS DAMAGED FROM JARRING & HYD LEAKS ON TOP DRIVE
	14:00 - 18:30	4.50	DRLPRO	19	A	P		P/U WASH PIPE & 4 H.W.D.P & T.I.H & SET DOWN @ 2183
	18:30 - 19:00	0.50	DRLPRO	19	A	P		WASH F/ 2183 TO 2200 TRY TO GET WASH PIPE STARTED IN THE BUILD ANGLE OF HOLE. LOST COMPLETE RETURNS LOST 219 BBL MUD @ 10.3 PPG VIS 38 -
	19:00 - 20:30	1.50	DRLPRO	19	A	P		SPOT 46 BBL LCM PILL 15% @ 10.3 PPG VIS 43 & PULL BACK TO SHOE
	20:30 - 0:00	3.50	DRLPRO	19	A	P		BUILD VOLUME IN MUD TANKS & TRANS MUD FROM RIG 69 10.9 PPG W/ 38 VIS 10% LCM
	9/28/2009	0:00 - 2:00	2.00	DRLPRO	19	A	P	

**RECEIVED** November 30, 2009

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

Well: NBU 1022-10C1BS [RED]      Spud Conductor: 8/4/2009      Spud Date: 8/13/2009  
 Project: UTAH-UINTAH      Site: NBU 1022-10B PAD      Rig Name No: ENSIGN 139/139, PROPETRO/  
 Event: DRILLING      Start Date: 6/10/2009      End Date: 10/10/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level)      UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
9/29/2009	2:00 - 3:30	1.50	DRLPRO	19	A	P		TRY WORKING WASH PIPE IN THE BUILD ANGLE OF HOLE & WASH F/ 2183 TO 2383
	3:30 - 6:30	3.00	DRLPRO	19	A	P		T.O.H STAND BACK WASH PIPE IN DERRICK
	6:30 - 10:00	3.50	DRLPRO	19	A	P		P/U BIT - BIT SUB & KEE C WIPER & JARS & T.I.H TO SHOE COULDN'T CIRC DOWN PIPE
	10:00 - 15:30	5.50	DRLPRO	19	A	P		T.O.H & FLOAT & BIT SUB PACK OFF W/ LCM - L/D FISHING TOOLS & WASH PIPE OUT OF DERRICK.
	15:30 - 17:00	1.50	DRLPRO	06	C	P		T.I.H W/ D.P FOR CEMENT PLUG
	17:00 - 19:30	2.50	DRLPRO	09	A	P		CUT DRILL LINE @ CASING SHOE CUT 195' LINE FOUND BAD SPOT.
	19:30 - 23:00	3.50	DRLPRO	06	C	P		T.I.H TO SET CEMENT PLUG @ 4845
	23:00 - 0:00	1.00	DRLPRO	05	A	P		CIRC BTM UP
	0:00 - 0:30	0.50	DRLPRO	17	A	P		HELD S/M - R/U HALLIBURTON TESTLINES 2100 PSI & SET CEMENT PLU W/ 30 BBLs WATER AHEAD & 188 SKS @ 31.5 BBLs - 17.5 PPG W/ .94 YIELD & 10.5 BBLs WATER BEHIND & DISPLACED W/ 50.2 BBLs 10.7PPG MUD & BALANCE PLUG & TOP PLUG @ 4325
	0:30 - 1:00	0.50	DRLPRO	17	A	P		T.O.H 10 STANDS D.P
	1:00 - 3:00	2.00	DRLPRO	17	A	P		CIRC COND MUD
	3:00 - 6:00	3.00	DRLPRO	17	A	P		CONT. T.O.H
	6:00 - 17:30	11.50	DRLPRO	17	A	P		DONE LEVEL 3 TOP DRIVE INSPECTION & MAXFLUX - BAILS- BECKET-ELEVATOR-ALL LOAD BEARING POINTS - FOUND ONE CRACK IN BAIL BACKET WHERE CYL HOOKS TO BAILS - REPLACED WITH NEW.
9/30/2009	17:30 - 0:00	6.50	DRLPRO	06	A	P		P/U DIR TOOLS & INSPECT H.W.D.P & T.I.H
	0:00 - 2:30	2.50	DRLPRO	06	A	P		T.I.H TO @ 3400
	2:30 - 6:00	3.50	DRLPRO	03	E	P		WASH F/ 3400 TO 4535 GOT GOOD FIRM CEMENT
	6:00 - 19:30	13.50	DRLPRO	02	G	P		STARTED SIDETRACK @ 90 EAST F/ 4535 TO 4643,WILL NOT SIDE TRACK ON TIME DRILL ,25% SHALE 75% CEMENT
10/1/2009	19:30 - 0:00	4.50	DRLPRO	06	A	X		POOH TO CHANGE MTR & BIT,,PUMP OUT OF TIGHT HOLE F/4643 UP TO 3100',,RAISING VIS TO 40 IN PITS AS PUMPING OUT
	0:00 - 3:00	3.00	DRLPRO	06	A	P		POOH W/1.75 MTR & PDC
	3:00 - 4:00	1.00	DRLPRO	06	A	P		PULL MWD TOOL ,STND BACK MONEL DC,L/D MUD MTR & PDC
	4:00 - 6:00	2.00	DRLPRO	06	A	P		P/U 2.12 MUD MTR,ADJUST BEND, SCRIBE,MAKE UP BIT,START TIH
	6:00 - 8:00	2.00	DRLPRO	06	A	P		TIH TO SHOE,BREAK CIRCULATION,TIH TO 3328',, TIGHT HOLE
	8:00 - 8:30	0.50	DRLPRO	03	A	P		WASH & REAM F/3328' TO 3508'
	8:30 - 9:00	0.50	DRLPRO	07	A	P		RIG SERVICE ,PUT O-RING IN IRON DERRICKMAN
	9:00 - 14:00	5.00	DRLPRO	03	A	P		WASH & REAM F/3508' TO 4643'
	14:00 - 20:30	6.50	DRLPRO	02	G	P		TIME DRILL F/4643' TO 4653'
	20:30 - 0:00	3.50	DRLPRO	02	H	P		SLIDE F/4653 TO 4685',CATCHING SAMPLES EVERY 5',
10/2/2009	0:00 - 1:30	1.50	DRLPRO	02	E	P		SLIDE F/4685 TO 4710
	1:30 - 2:30	1.00	DRLPRO	05	F	P		CLEAN HOLE SURVEY ,
	2:30 - 11:30	9.00	DRLPRO	02	E	P		SLIDE DRILL F/4710 TO 4756
	11:30 - 12:00	0.50	DRLPRO	07	A	P		RIG SERVICE
	12:00 - 21:30	9.50	DRLPRO	02	E	P		SLIDE DRILL ,SURVEY F/4756 TO 4810,HARD TO SLIDE

**RECEIVED** November 30, 2009

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

Well: NBU 1022-10C1BS [RED]      Spud Conductor: 8/4/2009      Spud Date: 8/13/2009  
 Project: UTAH-UINTAH      Site: NBU 1022-10B PAD      Rig Name No: ENSIGN 139/139, PROPETRO/  
 Event: DRILLING      Start Date: 6/10/2009      End Date: 10/10/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level)      UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
10/3/2009	21:30 - 0:00	2.50	DRLPRO	06	A	P		BACK REAM 9 STNDS OUT, POOH F/BIT CHANGE
	0:00 - 2:00	2.00	DRLPRO	06	A	P		POOH W/TRICONE TO 1960', INSIDE CASING
	2:00 - 6:30	4.50	DRLPRO	08	A	Z		REPAIR DERRICKHAND, ENCODER & SHOE
	6:30 - 9:00	2.50	DRLPRO	06	A	P		FINISH POOH, L/D ANTENNA, MTR & TRICONE
	9:00 - 13:30	4.50	DRLPRO	06	A	P		TIH W/BIT #2, MUD MTR 1.75 BEND, .14RPG TO 4103', HIT TIGHT HOLE
10/4/2009	13:30 - 17:00	3.50	DRLPRO	03	E	X		WASH & REAM F/4103 TO 4810'
	17:00 - 0:00	7.00	DRLPRO	02	D	P		DRILL & SLIDE F/4810 TO 4980'
	0:00 - 12:30	12.50	DRLPRO	02	D	P		DIR DRILL F/4980' TO 5477'=497', ROP AVG 39, SLIDING 50%, BIT WT 18K, RPM 30, BHRPM 98, 488 GPM, STPP 1900, DIFF 250-350, TORQ 10/12K RIG SERVICE, GREASE CROWN & BLOCKS
10/5/2009	12:30 - 13:00	0.50	DRLPRO	07	A	P		DIR DRILL F/ 5477 TO 6115 =638", ROP AVG 58, SURVEY EVERY 90'SLIDING 25%, BIT WT 18K, RPM 30, BHRPM 98, 488 GPM, STPP 2000, DIFF 200-300, TORQ 11/13K
	13:00 - 0:00	11.00	DRLPRO	02	D	P		DIR DRILL F/ 6115 TO 6566' =451", ROP AVG 41, SURVEY EVERY 90'SLIDING 15%, BIT WT 18-20K, RPM 30-40, BHRPM 105, 488 GPM, STPP 2200, DIFF 150-250, TORQ 12-15K
	0:00 - 11:30	11.50	DRLPRO	02	D	P		DIR DRILL F/ 6115 TO 6566' =451", ROP AVG 41, SURVEY EVERY 90'SLIDING 15%, BIT WT 18-20K, RPM 30-40, BHRPM 105, 488 GPM, STPP 2200, DIFF 150-250, TORQ 12-15K
10/6/2009	11:30 - 12:00	0.50	DRLPRO	07	A	P		DAILY RIG SERVICE NO ISSUES
	12:00 - 0:00	12.00	DRLPRO	02	D	P		DIR DRILL F/ 6566 TO 6960=394", ROP AVG 33, SURVEY EVERY 90'SLIDING 30%, BIT WT 18-20K, RPM 30-40, BHRPM 105, 488 GPM, STPP 2200, DIFF 150-250, TORQ 13-16K
	0:00 - 12:30	12.50	DRLPRO	02	D	P		DIR DRILL F/ 6960 TO 7474, ROP AVG 41, SURVEY EVERY 90', BIT WT 18-20K, RPM 30-40, BHRPM 105, 488 GPM, STPP 2300, DIFF 150-250, TORQ 15-18K
10/7/2009	12:30 - 13:00	0.50	DRLPRO	07	A	P		DAILY RIG SERVICE
	13:00 - 0:00	11.00	DRLPRO	02	D	P		DIR DRILL F/ 7474 TO 8020, ROP AVG 49, SURVEY EVERY 90', BIT WT 18-20K, RPM 30-40, BHRPM 105, 488 GPM, STPP 2300, DIFF 150-250, TORQ 16-20
	0:00 - 12:30	12.50	DRLPRO	02	D	P		DIR DRILL F/ 8020 TO 8420, ROP AVG 32, SURVEY EVERY 90', BIT WT 18-20K, RPM 30-40, BHRPM 105, 488 GPM, STPP 2400, DIFF 150-250, TORQ 20-25K, PUMP 30 BBL TORQ BUSTER SWEEP, \
10/8/2009	12:30 - 23:00	10.50	DRLPRO	06	A	X		POOH, PUMP & ROT UP TO 7700', ROT OUT UP TO 6270, STRAIGHT PULL OUT 80-90k over, W/TIGHT SPOT@4960'-4930',, ABOVE WINDOW 20-30K NORMAL DRAG,, LD MWD, MTR, BIT #2, RELEASE SCIENTIFIC 23:00
	23:00 - 0:00	1.00	DRLPRO	06	A	P		P/U #3 SEC 555,, HUNTING STR MTR .16RPG, MONEL, TIH
	0:00 - 7:00	7.00	DRLPRO	06	A	P		TIH, TIGHT SPOT 6950, TIH TO 8350'
	7:00 - 8:00	1.00	DRLPRO	03	E	P		WASH & REAM 90' TO BTM, 10' FLARE, 3500 UNITS,, BTMS UP
	8:00 - 17:30	9.50	DRLPRO	02	D	P		DRILL F/8428 TO 8772, 344' AVG 36 WOB 20K, DIFF 150-250, STPP 2600, TORQ 19-22K, MUD WT 11.7/44
	17:30 - 18:00	0.50	DRLPRO	07	A	P		RIG SERVICE, CHECK TOP DRIVE BEARING
	18:00 - 20:30	2.50	DRLPRO	02	D	P		DRILL F/8772 TO TD 9027', TVD 8608' 255' AVG 98, 104STKS, 2600
	20:30 - 21:00	0.50	DRLPRO	05	C	P		PSI, TORQ 20-23K, BHRPM 104, MUD WT 11.9/43
	21:00 - 23:30	2.50	DRLPRO	06	E	P		CIRC BTMS UP, F/SHORTTRIP
	23:30 - 0:00	0.50	DRLPRO	05	C	P		SHORTTRIP BACK TO 8300', PUMP & ROTATE OUT, 120 OVERPULL,, 45-60 SLACK
							CIRC & COND TO TOOH AND LDDP	

**RECEIVED** November 30, 2009

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

Well: NBU 1022-10C1BS [RED] Spud Conductor: 8/4/2009 Spud Date: 8/13/2009  
 Project: UTAH-UINTAH Site: NBU 1022-10B PAD Rig Name No: ENSIGN 139/139, PROPETRO/  
 Event: DRILLING Start Date: 6/10/2009 End Date: 10/10/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level) UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
10/9/2009	0:00 - 1:00	1.00	DRLPRO	05	C	P		FINISH CIRC F/LDDP
	1:00 - 7:00	6.00	DRLPRO	06	A	P		PUMP & ROTATE OOH TO 6300
	7:00 - 15:00	8.00	DRLPRO	06	A	P		SRAIGHT PULL OUT LAYING DOWN DP & BHA,65K OVER
	15:00 - 22:00	7.00	DRLPRO	06	A	P		TIH W/STNDS,LDDP,HAD TROUBLE GETTING DP TO BRAKE F/EXCESSIVE TORQUE,PULL WEARRING
	22:00 - 0:00	2.00	CSG	12	C	P		SAFETY MEET//RUN 176 JTS & 1 MARKER TO 7479',4.5 BTC I-80,11.6#
10/10/2009	0:00 - 4:00	4.00	CSG	12	C	P		RUN 4.5 11.6# I-80 BTC TO 7480',CSG GOT STUCK
	4:00 - 9:00	5.00	CSG	22	A	X		WORK STUCK PIPE PULL 130K OVER,SPOT 200 BBLs/FRESH WATER,DISPLACE W/2160 STS MUD F/ACTIVE,UNSTICK CSG
	9:00 - 11:00	2.00	CSG	12	C	P		RUN CSG F/7480 TO 9007' SHOE DEPTH ,FC @8965', 212 JTS & 1 MARKER,
	11:00 - 13:00	2.00	CSG	05	A	P		CIRC BTMS UP,5300UNITS W/25' FLARE,DISPLACE FRESH WATER F/HOLE
	13:00 - 15:00	2.00	CSG	12	E	P		PUMP 20BBL SPACER FRESH H2O,580SX LEAD@12.1#,YLD2.2,,40% EXCESS,,TAIL =1320SX 14.3#,,FINALLIFT PSI 2400,BUMPPLUG 2900,FLOATSHELD,5 BBL CEMENT BACK TO PIT
	15:00 - 16:00	1.00	CSG	12	A	P		FLUSH BOP,LAND CSG W/85K,REMOVE HANGER,CHECK HANGER POSITION
	16:00 - 19:00	3.00	CSG	14	A	P		NDBOP,CLEANPITS,,RIG RELEASE@ 23:59 10/10/09
19:00 - 0:00	5.00	RDMO	01	E	P		RDRT,PREP F/MOVE TO NBU1022-14 PAD	

**RECEIVED** November 30, 2009

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-10C1BS [RED]		Spud Conductor: 8/4/2009	Spud Date: 8/13/2009
Project: UTAH-UINTAH		Site: NBU 1022-10B PAD	Rig Name No: SWABBCO 1/1
Event: COMPLETION		Start Date: 11/16/2009	End Date: 11/23/2009
Active Datum: RKB @5,072.00ft (above Mean Sea Level)		UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
10/30/2009	-							
11/13/2009	7:00 - 7:15	0.25	COMP	48		P		HSM, R/U
	7:15 - 15:30	8.25	COMP	33	G	P		B&C TESTERS P/T CSG & FRAC VALVES [GOOD TEST] MIRU SCHLUM. WIRELINE & SUPERIOR PUMP TRUCK, [WIRE LINE 1 HR LATE GOT LOST, 1-1/2 HRS TO RIG UP] P/U RIH W/ 3-1/8 EXPEND, 23 GRM, 0.36" HOLE, 3 SPF, 6 HOLES, 8742'-8744' BRK DN PERFS 3390# @3.2 BPM, ISIP=2500#, FG=.70, PUMP'D 1000 GALS @ 4.1 BPM @ 3180#, ISIP=2850# 5 MIN. 2500# 10 MIN. 2425# 15 MIN. 2385# SWIFN. W/ HALIBURTON SURFACE GAUGES.
11/16/2009	7:00 - 7:15	0.25	COMP	48		P		HSM, COLD WEATHER
	7:15 - 8:30	1.25	COMP	33	G	P		DEFIT FRIDAY DID NOT WORK, GAUGES READING WRONG, PUMP'D 1000 GALS, ISIP=2730# 5 MIN. 2505# 10 MIN. 2470# 15 MIN. 2435# FG=.75 WAIT UNTILL 15:00 HRS TO FRAC. SWI.
	8:30 - 16:30	8.00	COMP	47	A	P		MIRU SUPERIOR FRAC, SCHLUM, WIRE LINE. FINISH R/U WIRE LINE @ 13:30 HR, SUPERIOR CAZ BROKE DN HAD TO REPLACE STARTER.
11/17/2009	5:30 - 6:30	1.00	COMP	48		P		HSM, P/T LINES TO 8500#

**RECEIVED** November 30, 2009

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-10C1BS [RED] Spud Conductor: 8/4/2009 Spud Date: 8/13/2009  
 Project: UTAH-UINTAH Site: NBU 1022-10B PAD Rig Name No: SWABBCO 1/1  
 Event: COMPLETION Start Date: 11/16/2009 End Date: 11/23/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level) UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	6:30 - 18:30	12.00	COMP	36	E	P		<p>PULL HALIBURTON SURFACE GAUGES, P/U RIH W/ 3-3/8 EXPEND, 23 GRM, 0.36" HOLE, PERF MESAVERDE.            8884'-8886' 3 SPF, 120* PH, 6 HOLES            8742'-8744' 3 SPF, 120* PH, 6 HOLES. [SHOT PRIOR FOR DEFIT]            8701'-8704' 3 SPF, 120* PH, 9 HOLES. [21 HOLES]</p> <p>STG #1WHP=1908#, BRK DN PERFS @ 2757#, INJ PSI=5200#, INJT RT=42, ISIP=2398#, FG=71, PUMP'D 1640 BBLS SLK WTR W/ 61731# 30/50 MESH W/ 5000# RESIN COAT IN TAIL, ISIP=2598#, FG=.73, AR=46.1, AP=4898#, MR=49.9, MP=6847#, NPI=200#, 21/21 CALC PERFS OPEN 100%.</p> <p>STG #2] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @ 8676', PERF MESAVERDE USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE, 8644'-8646' 3 SPF, 120* PH, 6 HOLES.            8622'-8623' 4 SPF, 90* PH, 4 HOLES.            8582'-8583' 3 SPF, 120* PH, 3 HOLES.            8500'-8502' 3 SPF, 120* PH, 6 HOLES.            8476'-8477' 3 SPF, 120* PH, 3 HOLES. [22 HOLES]</p> <p>STG #2]WHP=2298#, BRK DN PERFS @ 3291#, INJ PSI=5400#, INJT RT=44, ISIP=2578#, FG=.73, PUMP'D 1055 BBLS SLK WTR W/ 39822# 30/50 MESH W/ 5000# RESIN COAT IN TAIL, ISIP=2667, FG=.75, AR=48.5, AP=5628#, MR=50.5, MP=6100#, NPI=89#, 22/22 CALC PERFS OPEN 100%.</p> <p>STG #3] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @8404', PERF MESAVERDE USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE, 8370'-8374' [DEFIT]            WHP=1580#, BRK DN PERFS @ 2307#, INJT PSI=#, INJT RT=4.7, ISIP=1940#, FG=66. PUMP 24 BBLS, ISIP=2078#, 5 MIN=1757#, 10 MIN=1676#, 15 MIN=1636#, SET HALI BURTON SURFACE GAUGES OVER NIGHT.</p> <p>STG #3]WHP=#, BRK DN PERFS @ #, INJ PSI=#, INJT RT=#, ISIP=#, FG=#, PUMP'D BBLS SLK WTR W/ # 30/50 MESH W/ 5000# RESIN COAT IN TAIL, ISIP=#, FG=#, AR=#, AP=#, MR=#, MP=#, NPI=#,</p> <p>STG #4] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @', PERF MESAVERDE USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE, HSM, PREP TO FRAC</p>
11/18/2009	6:30 - 7:00	0.50	COMP	40		P		

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**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-10C1BS [RED]      Spud Conductor: 8/4/2009      Spud Date: 8/13/2009  
 Project: UTAH-UINTAH      Site: NBU 1022-10B PAD      Rig Name No: SWABBCO 1/1  
 Event: COMPLETION      Start Date: 11/16/2009      End Date: 11/23/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level)      UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	7:00 - 18:30	11.50	COMP	36	E	P		<p>PULL HALIBURTON SURFACE GAUGES. P/U RIH W/ 3-3/8 EXP RND, 23 GRM, 0.36" HOLE, PERF MESAVERDE            8370'-8374' 3 SPF, 120* PH, 12 HOLES [DEFIT SHOT PREVIOUS]            8314'-8316' 3 SPF, 120* PH, 6 HOLES.            8291'-8292' 3 SPF, 120* PH, 3 HOLES.            8272'-8273' 3 SPF, 120* PH, 3 HOLES. [24 HOLES]</p> <p>STG #3]WHP=1330#, BRK DN PERFS @ 2116#, INJ PSI=#, INJT RT=, ISIP=1975#, FG=67, PUMP'D BBLs 2696 SLK WTR W/ 95547# 30/50 MESH W/ NO RESIN COAT IN TAIL, ISIP=2764#, FG=77, AR=50.2, AP=5371#, MR=53.8, MP=6714#, NPI=789#, 18/24 CALC PERFS OPEN 75%. [ NOTE DID NOT GET RESIN COAT IN TAIL BECAUSE PRESSURE SPIKE CUT SAND 32800# SHORT 74% PUM'D AWAY]</p> <p>STG #4] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @ 8206', PERF MESAVERDE USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE, 8173'-8176' 3 SPF, 120* PH, 9 HOLES. 8090'-8092' 3 SPF, 120* PH, 6 HOLES. 7986'-7988' 3 SPF, 120* PH, 6 HOLES. [21 HOLES]</p> <p>STG #4]WHP=1396#, BRK DN PERFS @ 2407#, INJ PSI=5400#, INJT RT=47, ISIP=1786#, FG=65, PUMP'D 1048 BBLs SLK WTR W/ 40393# 30/50 MESH W/ 5000# RESIN COAT IN TAIL, ISIP=2408#, FG=73, AR=48.4, AP=5285#, MR=49.6, MP=6285#, NPI=622#, 21/21 CALC PERFS OPEN 100%.</p> <p>[DEFIT]            STG #5] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @ 7918', PERF MESAVERDE USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE, 7885'-7888' 3 SPF, 120* PH, 9 HOLES [ DEFIT ]</p> <p>WHP=544# BRK DN PERFS @=2404#, @ 4.7 BPM, ISIP=1508#, FG=62, PUMP 24 BBLs @ 4.8 BPM, @=1910#, ISIP=1803#, FG=66, 5 MIN.=1591#, 10 MIN.=1533#, 15 MIN.=1513#, SWIFN. HSM.</p>
11/19/2009	6:30 - 6:45	0.25	ALL	48		P		

**RECEIVED** November 30, 2009

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-10C1BS [RED] Spud Conductor: 8/4/2009 Spud Date: 8/13/2009  
 Project: UTAH-UINTAH Site: NBU 1022-10B PAD Rig Name No: SWABBCO 1/1  
 Event: COMPLETION Start Date: 11/16/2009 End Date: 11/23/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level) UWI: 0/10/S/22/E/10/O/NWNE/26/PM/N/1,065.00/E/0/1,523.00/O/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	6:45 - 18:00	11.25	ALL	36	E	P		FINISH DEFIT ON STG #5, PERF MESAVERDE, USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE. 7885'-7888' 3 SPF, 120* PH, 9 HOLES. [ DEFIT ] SHOT PREVIOUS 7820'-7822' 3 SPF, 120* PH, 6 HOLES. 7745'-7747' 3 SPF, 120* PH, 6 HOLES. [21 HOLES]  [ DEFIT 2nd DAY ] STG #5]WHP=1165#, BRK DN PERFS @ 1800#, INJ PSI=#, INJT RT=5, ISIP=1533#, FG=63, PUMP'D 770 BBLS SLK WTR W/ 26899# 30/50 MESH W/ 5000# RESIN COAT IN TAIL, ISIP=2200, FG=71, AR=49.1, AP=5142#, MR=49.6, MP=6285#, NPI=667#, 21/21 CALC PERFS OPEN 100%  STG #6] P/U RIH W/ HALIBURTON 8K CBP & PERF GUN, SET CBP @ 7678', PERF WASATCH USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE. 7647'-7648' 3 SPF, 120* PH, 3 HOLES. 7584'-7585' 3 SPF, 120* PH, 3 HOLES. 7488'-7490' 3 SPF, 120* PH, 6 HOLES. 7457'-7469' 3 SPF, 120* PH, 9 HOLES. [21 HOLES]  STG #6]WHP=295#, BRK DN PERFS @ 2251#, INJ PSI=5100#, INJT RT=50, ISIP=1300#, FG=60, PUMP'D 663 BBLS SLK WTR W/ 23707# 30/50 MESH W/ 5000# RESIN COAT IN TAIL, ISIP=2708#, FG=79, AR=49.8, AP=4971#, MR=50.6, MP=5454#, NPI=1408#, 21/21 CALC PERFS OPEN 100%.  [ DEFIT ] START @ 16:00 HRS STG #7] P/U RIH W/ HALIBURTON 8K CBP & PERF GUN, SET CBP @ 7346, PERF WASATCH USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE. 7177'-7180' 3 SPF, 102* PH, 9 HOLES. [9 HOLES]  WHP=195#, BRK DN PERFS @ 4293#, @ 4.6 BPM, ISIP=1489#, FG=63, PUMP 24 BBLS @ 4.7 BPM, INJT RT=2580#, ISIP=1447#, FG=63, 5 MIN.=1130#, 10 MIN.=1051#, 15 MIN=991#. SWIFN. HSM. POOH W/ HLIBURTON DN HOLE GAUGES, R/D DELSCO,
11/20/2009	6:30 - 6:45	0.25	COMP	48		P		
	6:45 - 7:30	0.75	COMP	36	E	P		

**RECEIVED** November 30, 2009

**US ROCKIES REGION  
Operation Summary Report**

Well: NBU 1022-10C1BS [RED] Spud Conductor: 8/4/2009 Spud Date: 8/13/2009  
 Project: UTAH-UINTAH Site: NBU 1022-10B PAD Rig Name No: SWABBCO 1/1  
 Event: COMPLETION Start Date: 11/16/2009 End Date: 11/23/2009  
 Active Datum: RKB @5,072.00ft (above Mean Sea Level) UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	7:30 - 9:15	1.75	COMP	34	H	P		<p>P/U 3-3/8 EXPEND, WIRE LINE HAVING ELETRICAL PROBLEMS, GOT THAT SOLVED, STARTED IN HOLE COULD NOT READ SWITCHES, POOH, FIXED GUN RIH PERF MESA VERDE USING 3-3/8 EXPEND, 23 GRM, 0.36" HOLE.</p> <p>7315'-7316' 3 SPF, 120* PH, 3 HOLES.            7246'-7248' 3 SPF, 120* PH, 6 HOLES.            7177'-7180' 3 SPF, 120* PH, 9 HOLES. [ SHOT PREVIUOS FOR DEFIT]            7114'-7115' 3 SPF, 120* PH, 3 HOLES. [21 HOLES]</p> <p>STG #7] WHP=418# BRK DN PERFS @=1702#, ISIP=910#, FG=56, PUMP'D 1108 BBLs SLK WTR W/ 40771# 30/50 MESH W/ 5000# RESIN COAT IN TAIL, ISIP=1933#, FG=70, AR=51.3, AP=4628#, MR=51.9, MP=6688#, NPI=1023#, 21/21 CALC PERFS OPEN 100%.</p> <p>P/U RIH W/ HALIBURTON 8K CBP &amp; SET @ 7064' FOR TOP KILL. SWI.</p>
11/22/2009	11:30 - 17:30	6.00	COMP	30		P		<p>RRTL &amp; ALL EQUIPMENT SPOT IN RIG UP GUY OUT SDFN</p>
11/23/2009	7:00 -		COMP	30		P		<p>HSM NDFV NUBOP TIH 3 7/8 MILL, POBS, XN-NIPPLE TAG KILL PLUG @ 7064' SWIVEL UP WITH JNT 223 BREAK CIRC DRILL PLUGS AS FOLLOWS :</p> <p>#1 @ 7064' JNT 223 DRILL IN 10 MIN 0# KICK CSG @ 50#            #2 @ 7346' JNT 232 DRILL IN 15 MIN 200# KICK CSG @ 300#            #3 @ 7678' JNT 242 DRILL IN 15 MIN 250# KICK CSG @ 300#            #4 @ 7918' JNT 250 DRILL IN 25 MIN 100# KICK CSG @ 500#            #5 @ 8206' JNT 259 DRILL IN 15 MIN 650# KICK CSG @ 350#            #6 @ 8404' JNT 265 DRILL IN 35 MIN 850# KICK CSG @ 400#            #7 @ 8676' JNT 274 DRILL IN 25 MIN 1250# KICK CSG @ 500#</p> <p>CLEAN OUT TO PBTD @ 8961' WITH JNT 281 HUNG SWIVEL LD 16 JNTS LTBG @ WITH 266 JNTS NDBOP NUWH DROP BALL PUMP OFF BIT @ 1650# SWI HOOK UP FLOW LINE TURN WELL OVER TO FLOWBACK CREW @7:30 P.M. SDFN</p>
11/24/2009	7:00 -			33	A			<p>7 AM FLBK REPORT: CP 2800#, TP 1950#, 20/64" CK, 45 BWPH, HEAVY SAND, LIGHT GAS            TTL BBLs RECOVERED: 2725            BBLs LEFT TO RECOVER: 6255</p>
	14:00 -		PROD	50				<p>WELL TURNED TO SALE @ 1400 HR ON 11/24/09 -- FTP 1850#, CP 3200#, 18.8 MCFD, 45 BWPD, 20/64 CK</p>
11/25/2009	7:00 -			33	A			<p>7 AM FLBK REPORT: CP 2925#, TP 2025#, 20/64" CK, 35 BWPH, MEDIUM SAND, - GAS            TTL BBLs RECOVERED: 3685            BBLs LEFT TO RECOVER: 5295</p>

**RECEIVED** November 30, 2009

<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> UO 01197A
<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 1022-10C1BS
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6007 Ext
<b>4. LOCATION OF WELL FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 Township: 10.0S Range: 22.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES  <b>COUNTY:</b> UINTAH  <b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input checked="" type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion: 5/27/2010	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input checked="" type="checkbox"/> OTHER	OTHER: WORKOVER

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

ROAD RIG TO LOC, SPOT EQUIP ON LOC, WIND BLOWING TO HARD TO RIG UP, SDFN. R/U SERVICE UNIT, N/D WH, N/U BOPS, R/U TBG EQUIPT, WORKED TBG FROM 25,000# TO 75,000#, PULLED TBG FREE, TBG DRAG OVER @ 10,000# FOR 7 JTS, R/U SLICKLINE RIH PULLED BUMPER SPRING, TOOHO SCAN TBG OUT BAD TBG FROM 7177' TO 7316' TIH TAG SCALE @ 7268' C/O FROM 7268' TO 7348', RIH TAG 7510', C/O OUT TO 7540', FELL FREE, RIH TAG @ 8448' C/O TO 8531', RIH TAG 8876', C/O OUT SAND TO 8937' HIT OLD POBS, CIRC WELL CLEAN, NEW PBSD 8937', R/D POWER SWIVEL, TOOHO TO 7000', TOOHO W/ TBG, LY DN MILL, P/U XN-NIPPLE TIH W/ TBG, BROACH TBG, LANDED TBG @ 8442', N/D BOPS, N/U WH, BLOWED WELL AROUND W/ N2, BLOWED N2 OUT OF WELL BORE, SHUT WELL IN TURN OVER TO PRODUCTION.

**Accepted by the**  
**Utah Division of**  
**Oil, Gas and Mining**  
**FOR RECORD ONLY**  
 June 01, 2010

<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A		<b>DATE</b> 6/1/2010

<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> UO 01197A
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<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6515 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 Township: 10.0S Range: 22.0E Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES  <b>COUNTY:</b> UINTAH  <b>STATE:</b> UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 3/9/2011  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input checked="" type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION  OTHER: <input style="width: 100px;" type="text"/>

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

The operator requests approval to conduct wellhead/casing repair operations on the subject well location. Please find the attached procedures for the proposed repair work on the subject well location.

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

**Date:** 03/10/2011

**By:** *Derek Quist*

<b>NAME (PLEASE PRINT)</b> Gina Becker	<b>PHONE NUMBER</b> 720 929-6086	<b>TITLE</b> Regulatory Analyst II
<b>SIGNATURE</b> N/A		<b>DATE</b> 3/9/2011

**WORKORDER #:** 88122681

3/1/11

**Name:** NBU 1022-10C1BS - 1022-10B PAD  
**Surface Location:** NWNE SEC.10, T10S, R22E  
Uintah County, UT

**API:** 4304750358      **LEASE#:** UO 01197 A

**ELEVATIONS:** 5058' GL      5072' KB

**TOTAL DEPTH:** 9027'      **PBTD:** 8962'

**SURFACE CASING:** 9 5/8", 36# J-55 @ 2087'

**PRODUCTION CASING:** 4 1/2", 11.6#, I-80 @ 9007'  
TOC @ ~600' per CBL

**PERFORATIONS:** Mesaverde 7114' - 8886'

Tubular/Borehole	Drift inches	Collapse psi	Burst psi	Capacities		
				Gal./ft.	Cuft/ft.	Bbl./ft.
2.375" 4.7# J-55 tbg.	1.901	8100	7700	0.1624	0.02173	0.00387
4.5" 11.6# I-80	3.875	6350	7780	0.6528	0.0872	0.01554
9.625" 36# J-55	8.921	2020	3520	3.247	0.434	0.0773
<b>Annular Capacities</b>						
2.375" tbg. X 4 1/2" 11.6# csg				0.4227	0.0565	0.01006

**GEOLOGICAL MARKERS, TOPS:**

1028' Green River  
1674' Mahogany  
4438' Wasatch  
6959' Mesaverde

## **NBU 1022-10C1BS – WELLHEAD REPLACEMENT PROCEDURE**

### **PREP-WORK PRIOR TO MIRU:**

1. Dig out down to the 2” surface casing valve or to the valve on the riser off the surface casing.
2. Install a tee with 2 valves, with a pressure gauge and sensor on one valve.
3. Open casing valve and record pressures.
4. Install nipple and steel hose on the other valve, the relief valve,. Do not use hammer unions. No impact equipment or tools to be used for any of this installation. Extend hose and hard piping to a downwind location at least 100’ from the wellhead. Consider installing a manifold so that vent area could be in two locations approx. 90 degrees apart from the wellhead.
5. Open the relief valve and blow well down to the atmosphere.
6. Make a determination of amount of gas flow, either by installation of a choke nipple, bucket test or other.
7. Shut well in. Observe for rate of build-up by utilizing sensor data. Do not build-up for more than 24 hours. Vent gas through the vent line and leave open to the atmosphere.

### **WORKOVER PROCEDURE:**

1. MIRU workover rig.
2. Kill well with 10# brine / KCL (dictated by well pressure ).
3. Remove tree, install double BOP with blind and 2 3/8” pipe rams, with accumulator closing unit and manual back-ups. Function test BOP system.
4. POOH w/ tubing laying down extra tubing.
5. Rig up wireline service. RIH and set CBP @ ~7064’. Dump bail 4 sx cement on top of plug. POOH and RD wireline service. TIH w/ tubing and seating nipple. Land tubing ±60’ above cement. RDMO.
6. Monitor well pressures. If surface casing is dead. MIRU. ND WH and NU BOP. POOH w/ tubing.
7. Depending on conditions at wellsite, continue with either CUT/PATCH Procedure or BACK-OFF Procedure.

### **CUT/PATCH PROCEDURE:**

1. PU internal casing cutters and RIH. Cut casing at +/- 30' from surface.
2. POOH, LD cutters and casing.
3. PU 7 3/8" overshoot with 4 1/2" right hand standard wicker grapple, 1 - 4 3/4" drill collar with 3 1/2" IF threads, pup joint, manual bumper sub, and crossovers. If casing cut is deeper than ±30' utilize >7000 ft-lb torque pipe as needed. Pull a minimum of 10,000# to keep grapple engaged if cement top is high (<~900'). If cement top is low (>~900'), more weight will be required to put casing in neutral. Torque casing string to ±7000 ft-lbs, count number of turns to make-up, and document in the daily report. Ensure that tongs are safely anchored to rig and that all personnel are at a safe working distance from the tongs during torque-up and torque release. After initial make-up, place pipe torque to neutral and mark pipe. Place ±7000 ft-lbs on casing a second time, count turns, then return pipe torque to neutral and count turns. Repeat if torque-up turns do not equal torque release turns. Once torque-in equals torque-out, release overshoot, POOH, and lay down.
4. TIH w/ skirted mill and dress off the fish top for approximately 1/2 hour. TOO H.
5. PU & RIH w/ 4 1/2" 10k external casing patch on 4 1/2" P-110 casing. Ensure that sliding sleeve assembly shifts ±3' and casing tags no-go portion of patch. NOTE: Shear pins will shear at 3500 to 4500 lbs.
6. Latch fish, PU to 100,000# tension. RU B&C. Cycle pressure test to 7,000# / 9,000# psi.
7. Install slips. Land casing w/ 80,000# tension.
8. Cut-off and dress 4 1/2" casing stub.
9. NUWH. PU 3 7/8" bit, POBS and RIH. D/O cement and plug ~7014'. Clean out to PBTD (8965').
10. POOH, land tbg and pump off POBS.
11. NUWH, RDMO. Turn well over to production ops.

### **BACK-OFF PROCEDURE:**

1. PU internal casing cutters and RIH. Cut casing at +/- 6' from surface.
2. POOH, LD cutters and casing.
3. PU 4 1/2" overshoot. RIH, latch fish. Pick string weight to neutral.
4. MIRU casing crew and wireline services. RIH and shoot string shot at casing collar @ ± 46'.
5. Back-off casing, POOH.

6. PU new casing joint with buttress threads and entry guide and RIH. Tag casing top. Thread into casing and torque up to  $\pm 7000$  ft-lbs, count number of additional turns to make-up, and document in the daily report. Ensure that tongs are safely anchored to rig and that all personnel are at a safe working distance from the tongs during torque-up and torque release. After initial make-up, place pipe torque to neutral and mark pipe. Place  $\pm 7000$  ft-lbs on casing a second time, count turns, then return pipe torque to neutral and count turns. Repeat if torque-up turns do not equal torque release turns. Once torque-in equals torque-out go to step 7.
7. PU 100,000# tension string weight. RU B&C. Cycle pressure test to 7,000# / 9,000# psi.
8. Install slips. Land casing w/ 80,000# tension.
9. Cut-off and dress 4 1/2" casing stub.
10. NUWH. PU 3 7/8" bit, POBS and RIH. D/O cement and plug ~7014'. Clean out to PBTD (8965').
11. POOH, land tbg and pump off POBS.
12. NUWH, RDMO. Turn well over to production ops.



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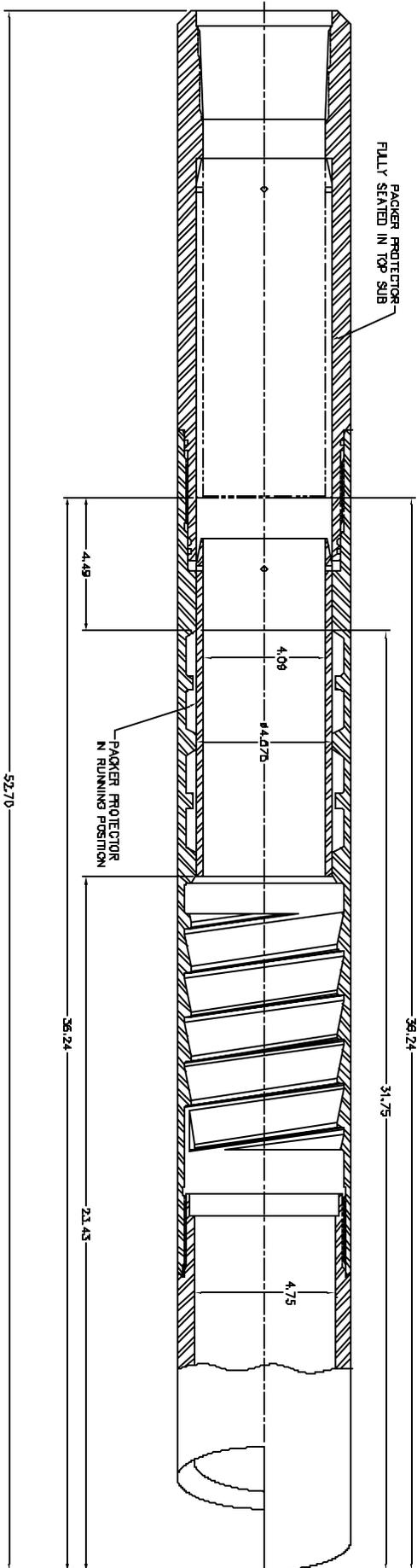
## **Logan High Pressure Casing Patches Assembly Procedure**

All parts should be thoroughly greased before being assembled.

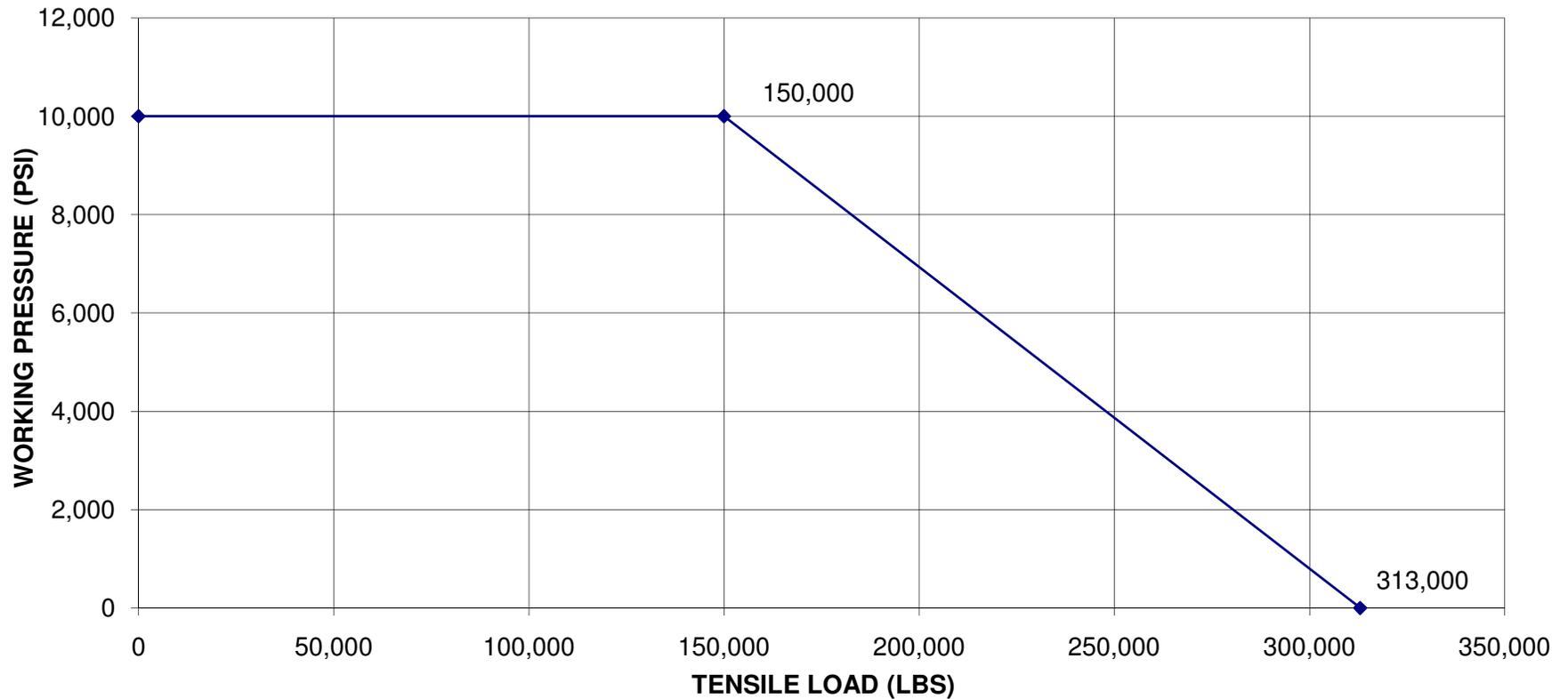
1. Install all four Logan Type "L" Packers in the spaces provided in the Casing Patch Bowl. Refer to diagram provided for proper installation.
2. Install Packer Protector from the Basket Grapple end of the Bowl. The beveled end of the Packer Protector goes in first. Carefully push the Packer Protector through the four Type "L" Packers.
3. Align Shear Pin Holes in Packer Protector so that the holes have just passed into the counter bore at the Top Sub end, refer to diagram. The Packer Protector is provided with four Shear Pin Holes. Use only two holes, 180 degrees apart and install the pins.
4. Screw the Basket Grapple in from the lower end of the Bowl, using left-hand rotation. The Tang Slot in the Basket Grapple must land in line with the slot in the Bowl.
5. Insert the Basket Grapple Control into the end of the Bowl. Align Tang on the Basket Grapple Control with the Tang Slot of the Bowl and Basket Grapple. This secures the Bowl and the Basket Grapple together.
6. Install the Cutlipped Guide into the lower end of the Bowl.
7. Install O-Rings on the two five-foot long Extensions. Screw the first Extension into the top end of the Bowl. Screw the second Extension into the top end of the first Extension.
8. Install O-Ring on Top Sub. Screw Top Sub into top end of second Extension.

Follow recommended Make-Up Torque as provided in chart.

510L-005-001 4-1/2" LOGAN HP CASING PATCH



**STRENGTH DATA FOR LOGAN 5.88" OD "L" TYPE CSG PATCH  
4-1/2 CASING, 10K PSI MAX WP 125K YIELD MAT'L  
LOGAN ASSEMBLY NO. 510L-005 -000**



COLLAPSE PRESSURE:  
11,222 PSI @ 0 TENSILE  
8,634 PSI @ 220K TENSILE

Tensile Strength @ Yield:  
Tensile Strength w/ 0 Int. Press.= 472,791lbs.  
Tensile Strength w/ 10K Int. Press.= 313,748lbs.

DATA BY SLS 11/16/2009

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UO 01197A
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<b>1. TYPE OF WELL</b> Gas Well	<b>8. WELL NAME and NUMBER:</b> NBU 1022-10C1BS	
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.	<b>9. API NUMBER:</b> 43047503580000	
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779	<b>PHONE NUMBER:</b> 720 929-6515 Ext	<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>4. LOCATION OF WELL FOOTAGES AT SURFACE:</b> 1065 FNL 1523 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NWNE Section: 10 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 checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 4/1/2011  <input type="checkbox"/> SPUD REPORT Date of Spud:  <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 checked="" type="checkbox"/> OTHER	
	<input checked="" 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 type="text" value="Wellhead"/>	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.		
The operator has concluded wellhead/casing repair operations on the subject well. Please see the attached chronological well history.		
<b>Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 4/5/2011	

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

Well: NBU 1022-10C1BS [RED]	Spud Conductor: 8/4/2009	Spud Date: 8/13/2009
Project: UTAH-UINTAH	Site: NBU 1022-10B PAD	Rig Name No: SWABBCO 6/6, SWABBCO 6/6
Event: WELL WORK EXPENSE	Start Date: 3/28/2011	End Date: 4/1/2011
Active Datum: RKB @5,072.00ft (above Mean Sea Level) UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0		

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
3/28/2011	7:00 - 7:15	0.25	WO/REP	48		P		JSA= RD/ RD SAFETY
	7:15 - 18:30	11.25	WO/REP	30		P		RD RI FROM 10A4BS, MOVE TO 10C1BS RU RIG FWP= 200 PSI NU & PMP 20 BBLs TMAC DWN TUB TO CONTROL WELL ND WELLHEAD NU BOPS RU FLOOR & TUBING EQUIP, PMP 30 BBLs TMAC DWN CAS TO CONTROL UNLAND TUBING LD HNGR POOH W/ 266 JNTS 2-3/8" L-80 TUBING LD BHA MIRU W/L PU GAUGE RNG RIH TO 7110' PUH 100' CHANGED GEARS BRAKES FAILED RELEASED 800' LINE UNABLE TO STOP STACKED OUT @ 7960' MESSED LINE UP ON DRUM CLAMP W/L @ PACKOFF. REPAIR LINE ON DRUM POOH W/ GUAGE RNG CHANGE LINE ON DRUM ( START IN HOLE W/ GAUGE RNG @ 13:00 PU CBP @ 16:00) PU 10K CBP RIH TO 7050' SET CBP POOH W/ W/L PU DUMP BAILER LOAD W/ 2 SKS CEM RIH DUMP CEM, MAKE ANOTHER RUN EST TOC @ 7000' RD W/L SIW SDFN.
3/29/2011	7:00 - 7:15	0.25	WO/REP	48		P		JSA= WELLHEAD REPAIR
	7:15 - 16:00	8.75	WO/REP	30		P		RD FLOOR & TUBING EQUIP ND BOPS ND WELLHEAD RU PWR SWVL PU INT CUTTER RIH CUT 4-1/2" @ 12' BELOW SURFACE LD CUTTER POOH W/ HANGER & CUT CSG, RU CASING TONG MAKE REPAIRS, PU OVERSHOT RIH WORK OVER FISH TOP PULL10000# TRY TO TORQUE UP PIPE JUST RELEASE OVERSHOT LD OVERSHOT PU RIGHT HAND OVERSHOT RIH WORK OVER FIST APPLY RH TORQUE TO 5000# ATTEMPT TO B/O OVERSHOT TURN TO LEFT COME LOOSE 6000# STRING WT ESTIMATE B/O @ 517' RUN DWN THREAD CASING BACK TOGETHER TORQUE STRING TO 7000# PU RIH W/ STRING SHOT SET OFF @ 1ST COLLAR W/ 4000# LH TORQUE CASING B/O AT COLLAR POOH W/ TOOLS & JNT PIN DOWN, PU SKIRTED JNT & PUP RIH MAKE UP TO 4800# TORQUE RU TESTERS PRESS UP TO 1000# GOOD TEST PRESS UP TO 3500# GOOD TEST PRESS UP TP 7000# LOOSE 200# IN 10 MIN 500# IN 30 MON SDFN
3/30/2011	7:00 - 7:15	0.25	WO/REP	48		P		JSA= TESTING
	7:15 - 17:30	10.25	WO/REP					CALL OUT CASING HANDS & TESTERS PU CASING TONGS PULL ON CSG 10000# APPLY 7000# TORQUE MOVE CSG UP & DWN TO WORK TORQUE DWN GET 5 ROUNDS IN STRING MIRU TESTERS TEST 4-1/2" TO 1000# GOOD TEST 3500# LEAK 100# 30 MIN, 7000# 100# 6 MIN 500# 30 MIN, RD TESTERS PULL ON CSG 90K SET SLIPS NU WELLHEAD & BOPS RU FLOOR & TUB EQUIP PU 32A PKR TALLEY IN HOLE W/ 132 JNTS EOT @3496' SET PKR TEST DOWN TUBING 7000# LOST 300# 5 MIN CONTINUE TO RIH TO 5143' TEST DWN TUB 7000# LOST 600# 5 MIN RELEASE PKR SDFN
3/31/2011	7:00 - 7:15	0.25	WO/REP	48		P		JSA= PRESS TEST

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

Well: NBU 1022-10C1BS [RED]		Spud Conductor: 8/4/2009		Spud Date: 8/13/2009				
Project: UTAH-UINTAH		Site: NBU 1022-10B PAD		Rig Name No: SWABBCO 6/6, SWABBCO 6/6				
Event: WELL WORK EXPENSE		Start Date: 3/28/2011		End Date: 4/1/2011				
Active Datum: RKB @5,072.00ft (above Mean Sea Leve		UWI: 0/10/S/22/E/10/0/NWNE/26/PM/N/1,065.00/E/0/1,523.00/0/0						
Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (ft)	Operation
	7:15 - 18:00	10.75	WO/REP	30		P		0 PSI ON WELL EOT @ 5143' RIH W/ 12 STANDS SET PKR TEST EOT @ 5900' TEST 7000# NO TEST LEAK 600# 5 MIN, RIH 17 STANDS SET PKR @ 6979' PRESS UP TO 6800# COMPLETE FAILURE PKR OR TUBING FAILED RIH TAG @ 7048' TOC SHOULD HAVE BEEN @ 7010' NO TEST INSTANT COMM W/ ANNULUS, POOH TO CHECK PKR & TUBING, ELEMENTS MISSING OFF PKR PU NEW PKR RIH TO 7040' SET PKR TEST DWN TUB NO TEST NU TO ANNULAR APPLY 4000# HELD 15 MIN GOOD TEST RELEASE POOH LD PKR PU POBS PKG RIH
4/1/2011	7:00 - 7:15	0.25	WO/REP	48		P		JSA= FOAMING
	7:15 - 17:00	9.75	WO/REP	30		P		0 PSI ON WELL TAG @ 7042' EST CIRC W/ FOAMER D/O CEM & CBP FELL FREE @ 7057 CIRC CLEAN RIH TAG @ 8690' PU SWVL NU FOAMER EST CIRC C/O TO 8880' CIRC CLEAN LD 14 JNTS LAND TUBING ON HANGER W/ 266 JNTS EOT @ 8452.89' RD FLOOR & TUBING EQUIP ND BOPS NU WELLHEAD DROP BALL PUMP OFF BIT @ 0 PSI PMP 40 BBLs TMAC SWI RD RIG MOVE & SPOT IN ON 10B2AS

**DIVISION OF OIL, GAS AND MINING**

***SPUDDING INFORMATION***

Name of Company: KERR-McGEE OIL & GAS ONSHORE, L.P.

Well Name: NBU 1022-10C1BS

Api No: 43-047-50358 Lease Type: STATE

Section 10 Township 10S Range 22E County UINTAH

Drilling Contractor PETE MARTIN DRLG RIG # BUCKET

**SPUDDED:**

Date 08/04/2009

Time 8:30 AM

How DRY

***Drilling will Commence:*** \_\_\_\_\_

Reported by JAMES GOBER

Telephone # (435) 828-7024

Date 08/04/2009 Signed CHD

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

FORM 6

ENTITY ACTION FORM

Operator: KERR MCGEE OIL & GAS ONSHORE LP  
Address: P.O. Box 173779  
city DENVER  
state CO zip 80217

Operator Account Number: N 2995  
Phone Number: (720) 929-6100

Well 1

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304750358	NBU 1022-10C1BS		NWNE	10	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	8/4/2009		<u>8/13/09</u>		
Comments: MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL LOCATION ON 08/04/2009 AT 8:30 HRS. <u>BHL = NENW</u>							

Well 2

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304750360	NBU 1022-10B2AS		NWNE	10	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	8/4/2009		<u>8/13/09</u>		
Comments: MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL LOCATION ON 08/04/2009 AT 10:30 HRS. <u>BHL = NWNE</u>							

Well 3

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304750359	NBU 1022-10B4BS		NWNE	10	10S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	8/4/2009		<u>8/13/09</u>		
Comments: MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL LOCATION ON 08/04/2009 AT 12:30 HRS. <u>BHL = NWNE</u>							

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)

ANDY LYTLE

Name (Please Print)

Signature

REGULATORY ANALYST

Title

8/5/2009

Date

RECEIVED

AUG 05 2009

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

AMENDED REPORT  FORM 8  
(highlight changes)

5. LEASE DESIGNATION AND SERIAL NUMBER:  
**UO-01197A**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT or CA AGREEMENT NAME

8. WELL NAME and NUMBER:  
**NBU 1022-10C1BS**

9. API NUMBER:  
**4304750358**

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

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

12. COUNTY **UINTAH** 13. STATE **UTAH**

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG**

1a. TYPE OF WELL: OIL WELL  GAS WELL  DRY  OTHER \_\_\_\_\_

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

2. NAME OF OPERATOR:  
**KERR MCGEE OIL & GAS ONSHORE LP**

3. ADDRESS OF OPERATOR: P.O. BOX 173779 CITY **DENVER** STATE **CO** ZIP **80217** PHONE NUMBER: **(720) 929-6100**

4. LOCATION OF WELL (FOOTAGES)  
AT SURFACE: **NWNE 1065 FNL & 1523 FEL**  
AT TOP PRODUCING INTERVAL REPORTED BELOW: **NENW 159 FNL & 2254 FWL SEC.10-10S-22E**  
AT TOTAL DEPTH: **NENW 214 FNL & 2287 FWL SEC.10-10S-22E**

14. DATE SPUDDED: **8/4/2009** 15. DATE T.D. REACHED: **10/8/2009** 16. DATE COMPLETED: **11/24/2009** ABANDONED  READY TO PRODUCE

17. ELEVATIONS (DF, RKB, RT, GL):  
**5058' GL**

18. TOTAL DEPTH: MD **9,027** 19. PLUG BACK T.D.: MD **8,962** 20. IF MULTIPLE COMPLETIONS, HOW MANY? \*  
TVD **8,609** TVD **8544**

21. DEPTH BRIDGE MD  
PLUG SET: TVD

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)

*✓ CBL-CCL-GR, RMTE*

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

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

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
20"	14" STL	36.7#		40		28			
12 1/4"	9 5/8 J-55	36#		2,087		650			
7 7/8"	4 1/2 I-80	11.6#		9,007		1900			

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"	8,453							

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)	INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
(A) MESAVERDE	7,114	8,886			7,114 8,886	0.36	151	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
7114'-8886'	PMP 8,980 BBLs SLICK H2O & 328,880 LBS 30/50 SD.

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**

**JAN 05 2010**

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

31. INITIAL PRODUCTION

INTERVAL A (As shown in item #26)

DATE FIRST PRODUCED: 11/24/2009		TEST DATE: 11/27/2009		HOURS TESTED: 24		TEST PRODUCTION RATES: →	OIL - BBL: 0	GAS - MCF: 2,634	WATER - BBL: 480	PROD. METHOD: FLOWING
CHOKE SIZE: 20/64	TBG. PRESS. 1,525	CSG. PRESS. 2,300	API GRAVITY	BTU - GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL - BBL: 0	GAS - MCF: 2,634	WATER - BBL: 480	INTERVAL STATUS: PROD

INTERVAL B (As shown in item #26)

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

INTERVAL C (As shown in item #26)

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

INTERVAL D (As shown in item #26)

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

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

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	1,028				
MAHOGAN Y	1,674				
WASATCH	4,438	6,928			
MESAVERDE	6,959	8,896			

35. ADDITIONAL REMARKS (Include plugging procedure)

ATTACHED TO THIS REPORT IS THE CHRONOLOGICAL WELL HISTORY AND EOWR. WELL WAS SIDETRACKED.

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

NAME (PLEASE PRINT) ANDY LYTLE

TITLE REGULATORY ANALYST

SIGNATURE 

DATE 12/30/2009

This report must be submitted within 30 days of

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

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

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

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

Phone: 801-538-5340

Fax: 801-359-3940



**Scientific Drilling**  
Rocky Mountain Operations

## **END OF WELL REPORT**

**Prepared For:**

**Kerr McGee Oil & Gas Onshore LP**

**NBU 1022-10C1BS**

**NBU 1022-10B Pad**

**Ensign 139**

**Uintah County, UT**

*Prepared By:*

*Rex Hall, Grand Junction D.E.*

*Scientific Drilling*

*Rocky Mountain Region*

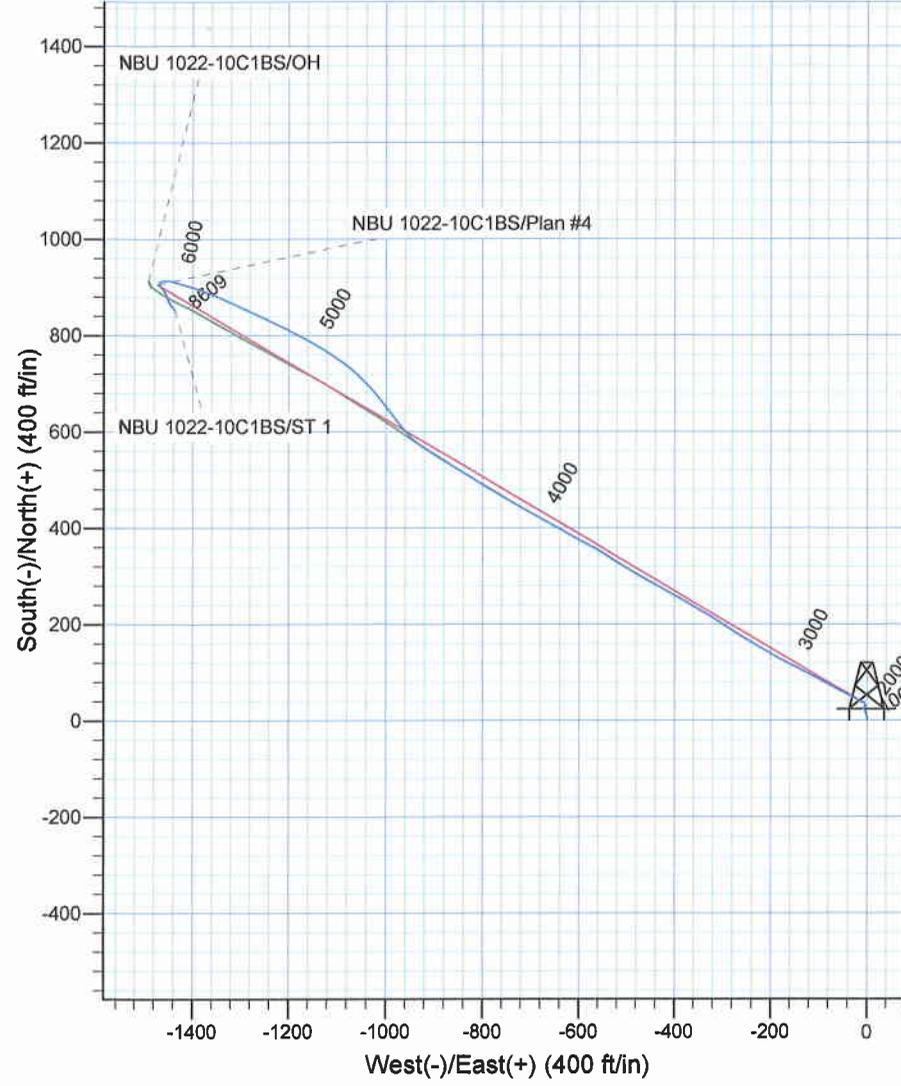
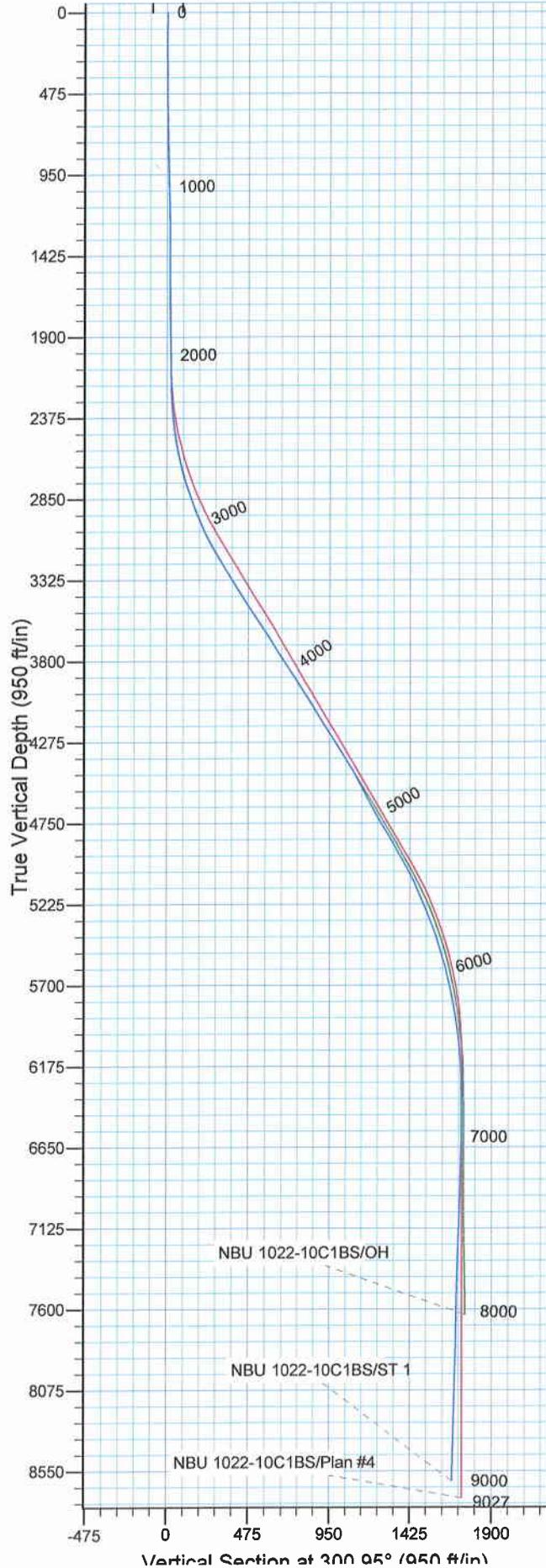
Scientific Drilling International  
7237 W. Barton Rd., Casper, WY 82604  
P.O. Box 1600, Mills, WY 82644  
(307) 472-6621  
[rex.hall@scientificdrilling.com](mailto:rex.hall@scientificdrilling.com)



**Scientific Drilling**  
Rocky Mountain Operations

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- 1. Directional Plot and Surveys**
- 2. Daily Drilling Reports**
- 3. BHA Summary Reports and Slide Sheets**
- 4. Graphical Job History**
- 5. Support Staff**



**WELL DETAILS: NBU 1022-10C1BS**

Ground Level: GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14518240.99	2082733.52	39° 58' 4.150 N	109° 25' 17.047 W

**REFERENCE INFORMATION**

Co-ordinate (N/E) Reference: Well NBU 1022-10C1BS, True North  
 Vertical (TVD) Reference: GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
 Section (VS) Reference: Slot - (0.00N, 0.00E)  
 Measured Depth Reference: GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
 Calculation Method: Minimum Curvature  
 Local North: True  
 Location: Sec 10 T10S R22E

PROJECT DETAILS: Uintah County, UT UTM12

Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1927 - Western US  
 Ellipsoid: Clarke 1866  
 Zone: Zone 12N (114 W to 108 W)

Design: ST 1 (NBU 1022-10C1BS/ST 1)

Created By: Rex Hall Date: 2009-10-21

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

**Uintah County, UT UTM12  
NBU 1022-10B Pad  
NBU 1022-10C1BS  
ST 1**

**Design: ST 1**

## **Standard Survey Report**

**21 October, 2009**

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

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

<b>Site</b>	NBU 1022-10B Pad, Sec 10 T10S R22E				
<b>Site Position:</b>		<b>Northing:</b>	14,518,241.45 ft	<b>Latitude:</b>	39° 58' 4.158 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,082,713.50 ft	<b>Longitude:</b>	109° 25' 17.304 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b>	1.01 °

<b>Well</b>	NBU 1022-10C1BS, 1065' FNL & 1523' FEL					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,518,240.99 ft	<b>Latitude:</b>	39° 58' 4.150 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	2,082,733.52 ft	<b>Longitude:</b>	109° 25' 17.047 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	5,055.00 ft

<b>Wellbore</b>	ST 1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2005-10	9/28/2009	11.24	65.91	52,522

<b>Design</b>	ST 1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	2,066.00
<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	300.95	

<b>Survey Program</b>	<b>Date</b>	10/21/2009			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
146.00	2,066.00	Survey #1 (OH)	MWD SDI	MWD - Standard ver 1.0.1	
2,165.00	9,027.00	Temp Surveys (ST 1)	MWD SDI	MWD - Standard ver 1.0.1	

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
146.00	0.47	59.75	146.00	0.30	0.52	-0.29	0.32	0.32	0.00
236.00	0.34	11.19	236.00	0.75	0.89	-0.38	0.39	-0.14	-53.96
326.00	0.47	357.71	325.99	1.38	0.93	-0.08	0.18	0.14	-14.98
416.00	0.68	353.92	415.99	2.28	0.85	0.44	0.24	0.23	-4.21
506.00	1.40	341.24	505.97	3.85	0.44	1.60	0.84	0.80	-14.09
596.00	1.69	345.24	595.94	6.18	-0.25	3.39	0.34	0.32	4.44
686.00	1.83	344.29	685.90	8.84	-0.98	5.38	0.16	0.16	-1.06
776.00	1.58	355.82	775.86	11.46	-1.45	7.14	0.47	-0.28	12.81
866.00	1.75	352.78	865.82	14.07	-1.72	8.71	0.21	0.19	-3.38
956.00	1.42	335.19	955.79	16.44	-2.36	10.48	0.65	-0.37	-19.54
1,046.00	1.57	325.25	1,045.76	18.47	-3.53	12.52	0.33	0.17	-11.04

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

### 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)
1,136.00	1.48	325.25	1,135.72	20.43	-4.89	14.71	0.10	-0.10	0.00
1,226.00	1.16	346.94	1,225.70	22.28	-5.76	16.40	0.65	-0.36	24.10
1,406.00	0.78	3.39	1,405.68	25.27	-6.10	18.23	0.26	-0.21	9.14
1,496.00	1.40	53.80	1,495.66	26.54	-5.18	18.09	1.21	0.69	56.01
1,586.00	1.12	31.19	1,585.64	27.94	-3.84	17.66	0.63	-0.31	-25.12
1,676.00	1.08	5.09	1,675.62	29.53	-3.31	18.02	0.55	-0.04	-29.00
1,766.00	1.26	346.58	1,765.60	31.34	-3.46	19.09	0.46	0.20	-20.57
1,856.00	1.31	334.61	1,855.58	33.23	-4.13	20.63	0.30	0.06	-13.30
1,946.00	0.86	323.14	1,945.57	34.70	-4.98	22.12	0.55	-0.50	-12.74
2,036.00	0.60	293.39	2,035.56	35.43	-5.81	23.21	0.50	-0.29	-33.06
2,066.00	0.60	309.05	2,065.56	35.59	-6.08	23.52	0.54	0.00	52.20
<b>Last SDI Surface MWD Survey</b>									
2,165.00	0.56	292.17	2,164.55	36.10	-6.93	24.51	0.18	-0.04	-17.05
<b>First SDI ST MWD Survey</b>									
2,255.00	3.12	295.17	2,254.50	37.31	-9.56	27.38	2.85	2.84	3.33
2,346.00	4.36	306.10	2,345.30	40.40	-14.59	33.29	1.57	1.36	12.01
2,436.00	6.80	297.16	2,434.87	44.85	-22.10	42.02	2.87	2.71	-9.93
2,527.00	9.55	296.63	2,524.94	50.69	-33.64	54.92	3.02	3.02	-0.58
2,617.00	13.08	296.75	2,613.18	58.63	-49.41	72.53	3.92	3.92	0.13
2,708.00	15.41	298.69	2,701.37	69.07	-69.22	94.88	2.61	2.56	2.13
2,799.00	17.73	298.82	2,788.59	81.55	-91.97	120.81	2.55	2.55	0.14
2,889.00	21.37	298.55	2,873.38	96.00	-118.39	150.90	4.05	4.04	-0.30
2,980.00	22.30	295.20	2,957.86	111.28	-148.57	184.65	1.71	1.02	-3.68
3,070.00	25.21	298.85	3,040.23	127.80	-180.82	220.80	3.62	3.23	4.06
3,161.00	28.50	300.40	3,121.40	148.14	-216.53	261.89	3.70	3.62	1.70
3,252.00	29.57	300.49	3,200.97	170.52	-254.61	306.05	1.18	1.18	0.10
3,342.00	32.23	304.57	3,278.19	195.41	-293.52	352.22	3.76	2.96	4.53
3,433.00	31.85	301.33	3,355.34	221.67	-334.01	400.46	1.93	-0.42	-3.56
3,523.00	31.88	298.64	3,431.78	245.41	-375.16	447.95	1.58	0.03	-2.99
3,614.00	31.90	299.28	3,509.04	268.69	-417.22	496.00	0.37	0.02	0.70
3,704.00	31.81	299.53	3,585.49	292.01	-458.60	543.48	0.18	-0.10	0.28
3,795.00	31.95	302.35	3,662.77	316.71	-499.81	591.53	1.64	0.15	3.10
3,885.00	31.73	301.28	3,739.22	341.74	-540.15	639.00	0.67	-0.24	-1.19
3,976.00	33.71	297.61	3,815.79	365.88	-582.99	688.15	3.08	2.18	-4.03
4,067.00	34.57	299.60	3,891.11	390.33	-627.82	739.17	1.55	0.95	2.19
4,157.00	32.91	299.96	3,965.95	415.16	-671.20	789.15	1.86	-1.84	0.40
4,248.00	31.80	299.51	4,042.82	439.31	-713.49	837.83	1.25	-1.22	-0.49
4,338.00	31.47	300.58	4,119.44	462.95	-754.35	885.03	0.72	-0.37	1.19
4,429.00	32.21	300.31	4,196.75	487.27	-795.74	933.04	0.83	0.81	-0.30
4,520.00	32.08	301.26	4,273.80	512.05	-837.33	981.45	0.57	-0.14	1.04
4,610.00	32.54	303.13	4,349.87	537.68	-878.03	1,029.54	1.22	0.51	2.08
4,703.00	31.65	302.32	4,428.65	564.40	-919.60	1,078.93	1.06	-0.96	-0.87
4,794.00	27.16	318.03	4,508.03	592.66	-953.73	1,122.74	9.77	-4.93	17.26
4,884.00	29.90	323.74	4,587.11	626.03	-980.75	1,163.07	4.29	3.04	6.34
4,974.00	31.44	321.23	4,664.52	662.43	-1,008.72	1,205.77	2.22	1.71	-2.79
5,065.00	31.30	317.82	4,742.22	698.45	-1,039.45	1,250.66	1.96	-0.15	-3.75
5,156.00	31.39	309.80	4,819.98	731.15	-1,073.55	1,296.71	4.58	0.10	-8.81
5,246.00	29.15	303.44	4,897.72	758.24	-1,109.86	1,341.79	4.34	-2.49	-7.07
5,337.00	29.35	300.55	4,977.12	781.79	-1,147.56	1,386.24	1.57	0.22	-3.18
5,427.00	27.30	297.08	5,056.35	802.40	-1,184.94	1,428.89	2.92	-2.28	-3.86
5,518.00	23.84	296.88	5,138.42	820.23	-1,219.94	1,468.07	3.80	-3.80	-0.22
5,609.00	21.73	294.97	5,222.32	835.65	-1,251.61	1,503.17	2.46	-2.32	-2.10
5,699.00	20.91	295.20	5,306.16	849.52	-1,281.25	1,535.72	0.92	-0.91	0.26
5,790.00	18.97	294.20	5,391.70	862.50	-1,309.44	1,566.57	2.16	-2.13	-1.10

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

### 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)
5,880.00	17.31	294.55	5,477.22	874.06	-1,334.96	1,594.40	1.85	-1.84	0.39
5,971.00	16.01	291.58	5,564.40	884.30	-1,358.95	1,620.24	1.71	-1.43	-3.26
6,061.00	13.96	289.40	5,651.34	892.48	-1,380.73	1,643.13	2.36	-2.28	-2.42
6,152.00	12.38	287.14	5,739.94	899.00	-1,400.41	1,663.35	1.83	-1.74	-2.48
6,242.00	10.98	285.76	5,828.08	904.17	-1,417.87	1,681.00	1.59	-1.56	-1.53
6,332.00	8.71	287.26	5,916.75	908.52	-1,432.63	1,695.89	2.54	-2.52	1.67
6,423.00	6.88	281.02	6,006.90	911.61	-1,444.56	1,707.71	2.21	-2.01	-6.86
6,513.00	5.55	271.91	6,096.37	912.78	-1,454.21	1,716.58	1.84	-1.48	-10.12
6,604.00	3.40	260.86	6,187.09	912.50	-1,461.27	1,722.50	2.53	-2.36	-12.14
6,695.00	1.62	254.98	6,278.00	911.74	-1,465.18	1,725.46	1.97	-1.96	-6.46
6,785.00	1.68	237.46	6,367.97	910.70	-1,467.52	1,726.93	0.56	0.07	-19.47
6,875.00	1.59	206.15	6,457.93	908.87	-1,469.18	1,727.41	0.99	-0.10	-34.79
6,966.00	1.45	178.57	6,548.90	906.58	-1,469.71	1,726.69	0.81	-0.15	-30.31
7,056.00	1.06	153.02	6,638.88	904.70	-1,469.30	1,725.38	0.75	-0.43	-28.39
7,147.00	1.58	147.21	6,729.85	902.90	-1,468.24	1,723.54	0.59	0.57	-6.38
7,238.00	1.83	137.10	6,820.81	900.78	-1,466.57	1,721.02	0.43	0.27	-11.11
7,328.00	2.13	140.53	6,910.76	898.44	-1,464.53	1,718.06	0.36	0.33	3.81
7,418.00	2.08	146.74	7,000.70	895.78	-1,462.57	1,715.01	0.26	-0.06	6.90
7,509.00	2.55	144.08	7,091.63	892.76	-1,460.48	1,711.67	0.53	0.52	-2.92
7,599.00	2.09	148.68	7,181.55	889.74	-1,458.45	1,708.37	0.55	-0.51	5.11
7,690.00	2.06	154.29	7,272.49	886.84	-1,456.88	1,705.54	0.23	-0.03	6.16
7,781.00	1.75	148.86	7,363.44	884.18	-1,455.45	1,702.94	0.39	-0.34	-5.97
7,871.00	1.92	155.19	7,453.40	881.64	-1,454.11	1,700.48	0.29	0.19	7.03
7,962.00	1.83	163.90	7,544.35	878.86	-1,453.06	1,698.16	0.33	-0.10	9.57
8,052.00	1.62	168.90	7,634.31	876.23	-1,452.42	1,696.25	0.29	-0.23	5.56
8,143.00	1.70	162.56	7,725.27	873.68	-1,451.77	1,694.38	0.22	0.09	-6.97
8,233.00	1.87	148.98	7,815.22	871.15	-1,450.61	1,692.09	0.51	0.19	-15.09
8,324.00	1.82	153.32	7,906.18	868.58	-1,449.20	1,689.56	0.16	-0.05	4.77
8,374.00	1.70	142.35	7,956.15	867.29	-1,448.39	1,688.20	0.71	-0.24	-21.94
<b>Last SDI ST MWD Survey</b>									
9,027.00	1.70	142.35	8,608.87	851.95	-1,436.55	1,670.16	0.00	0.00	0.00
<b>Projection To TD</b>									

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
NBU 1022-10C1BS PBF	0.00	0.00	8,709.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W
- actual wellpath misses target center by 118.87ft at 9027.00ft MD (8608.87 TVD, 851.95 N, -1436.55 E)									
- Circle (radius 25.00)									
10C1BS Top of Fish	0.00	0.00	4,566.65	614.55	-993.51	14,518,837.86	2,081,729.29	39° 58' 10.224 N	109° 25' 29.809 W
- actual wellpath misses target center by 19.21ft at 4865.59ft MD (4571.10 TVD, 618.75 N, -975.30 E)									
- Circle (radius 0.33)									
10C1BS Intercept 1	0.00	0.00	5,212.86	796.14	-1,300.70	14,519,013.98	2,081,418.94	39° 58' 12.019 N	109° 25' 33.756 W
- actual wellpath misses target center by 63.70ft at 5610.26ft MD (5223.49 TVD, 835.85 N, -1252.04 E)									
- Circle (radius 0.33)									
10C1BS Intercept 2	0.00	0.00	5,297.11	812.69	-1,330.82	14,519,030.00	2,081,388.53	39° 58' 12.183 N	109° 25' 34.143 W
- actual wellpath misses target center by 62.39ft at 5700.60ft MD (5307.65 TVD, 849.77 N, -1281.76 E)									
- Circle (radius 0.33)									
10C1BS Bottom of Fish	0.00	0.00	4,694.13	657.30	-1,059.99	14,518,879.42	2,081,662.06	39° 58' 10.647 N	109° 25' 30.664 W
- actual wellpath misses target center by 43.76ft at 5014.58ft MD (4699.15 TVD, 678.73 N, -1022.17 E)									
- Circle (radius 0.33)									
NBU 1022-10C1BS Top	0.00	0.00	6,200.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W
- actual wellpath misses target center by 12.95ft at 6617.45ft MD (6200.52 TVD, 912.38 N, -1462.02 E)									
- Circle (radius 25.00)									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
		+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
2,066.00	2,065.56	35.59	-6.08	Last SDI Surface MWD Survey
2,165.00	2,164.55	36.10	-6.93	First SDI ST MWD Survey
8,374.00	7,956.15	867.29	-1,448.39	Last SDI ST MWD Survey
9,027.00	8,608.87	851.95	-1,436.55	Projection To TD

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

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

**Uintah County, UT UTM12**

**NBU 1022-10B Pad**

**NBU 1022-10C1BS**

**ST 1**

**Design: ST 1**

## **Survey Report - Geographic**

**21 October, 2009**

**Scientific Drilling International**  
Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

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

<b>Site</b>	NBU 1022-10B Pad, Sec 10 T10S R22E				
<b>Site Position:</b>		<b>Northing:</b>	14,518,241.45 ft	<b>Latitude:</b>	39° 58' 4.158 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,082,713.50 ft	<b>Longitude:</b>	109° 25' 17.304 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b>	1.01 °

<b>Well</b>	NBU 1022-10C1BS, 1065' FNL & 1523' FEL					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,518,240.99 ft	<b>Latitude:</b>	39° 58' 4.150 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	2,082,733.52 ft	<b>Longitude:</b>	109° 25' 17.047 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	5,055.00 ft

<b>Wellbore</b>	ST 1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2005-10	9/28/2009	11.24	65.91	52,522

<b>Design</b>	ST 1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	2,066.00
<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	300.95

<b>Survey Program</b>	<b>Date</b>	10/21/2009			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
146.00	2,066.00	Survey #1 (OH)	MWD SDI	MWD - Standard ver 1.0.1	
2,165.00	9,027.00	Temp Surveys (ST 1)	MWD SDI	MWD - Standard ver 1.0.1	

# Scientific Drilling International

## Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,518,240.99	2,082,733.52	39° 58' 4.150 N	109° 25' 17.047 W	
146.00	0.47	59.75	146.00	0.30	0.52	14,518,241.30	2,082,734.03	39° 58' 4.153 N	109° 25' 17.040 W	
236.00	0.34	11.19	236.00	0.75	0.89	14,518,241.76	2,082,734.40	39° 58' 4.157 N	109° 25' 17.036 W	
326.00	0.47	357.71	325.99	1.38	0.93	14,518,242.39	2,082,734.42	39° 58' 4.164 N	109° 25' 17.035 W	
416.00	0.68	353.92	415.99	2.28	0.85	14,518,243.29	2,082,734.33	39° 58' 4.173 N	109° 25' 17.036 W	
506.00	1.40	341.24	505.97	3.85	0.44	14,518,244.85	2,082,733.90	39° 58' 4.188 N	109° 25' 17.041 W	
596.00	1.69	345.24	595.94	6.18	-0.25	14,518,247.16	2,082,733.16	39° 58' 4.211 N	109° 25' 17.050 W	
686.00	1.83	344.29	685.90	8.84	-0.98	14,518,249.82	2,082,732.39	39° 58' 4.237 N	109° 25' 17.060 W	
776.00	1.58	355.82	775.86	11.46	-1.45	14,518,252.43	2,082,731.86	39° 58' 4.263 N	109° 25' 17.066 W	
866.00	1.75	352.78	865.82	14.07	-1.72	14,518,255.02	2,082,731.55	39° 58' 4.289 N	109° 25' 17.069 W	
956.00	1.42	335.19	955.79	16.44	-2.36	14,518,257.39	2,082,730.87	39° 58' 4.313 N	109° 25' 17.077 W	
1,046.00	1.57	325.25	1,045.76	18.47	-3.53	14,518,259.39	2,082,729.67	39° 58' 4.333 N	109° 25' 17.092 W	
1,136.00	1.48	325.25	1,135.72	20.43	-4.89	14,518,261.34	2,082,728.27	39° 58' 4.352 N	109° 25' 17.110 W	
1,226.00	1.16	346.94	1,225.70	22.28	-5.76	14,518,263.16	2,082,727.36	39° 58' 4.370 N	109° 25' 17.121 W	
1,406.00	0.78	3.39	1,405.68	25.27	-6.10	14,518,266.15	2,082,726.97	39° 58' 4.400 N	109° 25' 17.125 W	
1,496.00	1.40	53.80	1,495.66	26.54	-5.18	14,518,267.43	2,082,727.87	39° 58' 4.412 N	109° 25' 17.114 W	
1,586.00	1.12	31.19	1,585.64	27.94	-3.84	14,518,268.86	2,082,729.19	39° 58' 4.426 N	109° 25' 17.096 W	
1,676.00	1.08	5.09	1,675.62	29.53	-3.31	14,518,270.46	2,082,729.69	39° 58' 4.442 N	109° 25' 17.089 W	
1,766.00	1.26	346.58	1,765.60	31.34	-3.46	14,518,272.27	2,082,729.51	39° 58' 4.460 N	109° 25' 17.091 W	
1,856.00	1.31	334.61	1,855.58	33.23	-4.13	14,518,274.15	2,082,728.80	39° 58' 4.478 N	109° 25' 17.100 W	
1,946.00	0.86	323.14	1,945.57	34.70	-4.98	14,518,275.60	2,082,727.93	39° 58' 4.493 N	109° 25' 17.111 W	
2,036.00	0.60	293.39	2,035.56	35.43	-5.81	14,518,276.31	2,082,727.08	39° 58' 4.500 N	109° 25' 17.122 W	
2,066.00	0.60	309.05	2,065.56	35.59	-6.08	14,518,276.47	2,082,726.81	39° 58' 4.502 N	109° 25' 17.125 W	
<b>Last SDI Surface MWD Survey</b>										
2,165.00	0.56	292.17	2,164.55	36.10	-6.93	14,518,276.96	2,082,725.95	39° 58' 4.507 N	109° 25' 17.136 W	
<b>First SDI ST MWD Survey</b>										
2,255.00	3.12	295.17	2,254.50	37.31	-9.56	14,518,278.13	2,082,723.31	39° 58' 4.519 N	109° 25' 17.170 W	
2,346.00	4.36	306.10	2,345.30	40.40	-14.59	14,518,281.13	2,082,718.22	39° 58' 4.549 N	109° 25' 17.234 W	
2,436.00	6.80	297.16	2,434.87	44.85	-22.10	14,518,285.44	2,082,710.63	39° 58' 4.593 N	109° 25' 17.331 W	
2,527.00	9.55	296.63	2,524.94	50.69	-33.64	14,518,291.08	2,082,698.99	39° 58' 4.651 N	109° 25' 17.479 W	
2,617.00	13.08	296.75	2,613.18	58.63	-49.41	14,518,298.73	2,082,683.08	39° 58' 4.729 N	109° 25' 17.682 W	
2,708.00	15.41	298.69	2,701.37	69.07	-69.22	14,518,308.82	2,082,663.09	39° 58' 4.833 N	109° 25' 17.936 W	
2,799.00	17.73	298.82	2,788.59	81.55	-91.97	14,518,320.90	2,082,640.12	39° 58' 4.956 N	109° 25' 18.228 W	
2,889.00	21.37	298.55	2,873.38	96.00	-118.39	14,518,334.88	2,082,613.45	39° 58' 5.099 N	109° 25' 18.568 W	
2,980.00	22.30	295.20	2,957.86	111.28	-148.57	14,518,349.62	2,082,583.00	39° 58' 5.250 N	109° 25' 18.956 W	
3,070.00	25.21	298.85	3,040.23	127.80	-180.82	14,518,365.57	2,082,550.47	39° 58' 5.413 N	109° 25' 19.370 W	
3,161.00	28.50	300.40	3,121.40	148.14	-216.53	14,518,385.28	2,082,514.40	39° 58' 5.614 N	109° 25' 19.828 W	
3,252.00	29.57	300.49	3,200.97	170.52	-254.61	14,518,406.98	2,082,475.93	39° 58' 5.835 N	109° 25' 20.318 W	
3,342.00	32.23	304.57	3,278.19	195.41	-293.52	14,518,431.18	2,082,436.59	39° 58' 6.082 N	109° 25' 20.817 W	
3,433.00	31.85	301.33	3,355.34	221.67	-334.01	14,518,456.71	2,082,395.64	39° 58' 6.341 N	109° 25' 21.338 W	
3,523.00	31.88	298.64	3,431.78	245.41	-375.16	14,518,479.72	2,082,354.08	39° 58' 6.576 N	109° 25' 21.866 W	
3,614.00	31.90	299.28	3,509.04	268.69	-417.22	14,518,502.25	2,082,311.61	39° 58' 6.806 N	109° 25' 22.406 W	
3,704.00	31.81	299.53	3,585.49	292.01	-458.60	14,518,524.84	2,082,269.83	39° 58' 7.036 N	109° 25' 22.938 W	
3,795.00	31.95	302.35	3,662.77	316.71	-499.81	14,518,548.81	2,082,228.18	39° 58' 7.280 N	109° 25' 23.467 W	
3,885.00	31.73	301.28	3,739.22	341.74	-540.15	14,518,573.12	2,082,187.40	39° 58' 7.528 N	109° 25' 23.986 W	
3,976.00	33.71	297.61	3,815.79	365.88	-582.99	14,518,596.49	2,082,144.15	39° 58' 7.766 N	109° 25' 24.536 W	
4,067.00	34.57	299.60	3,891.11	390.33	-627.82	14,518,620.15	2,082,098.90	39° 58' 8.008 N	109° 25' 25.112 W	
4,157.00	32.91	299.96	3,965.95	415.16	-671.20	14,518,644.20	2,082,055.08	39° 58' 8.253 N	109° 25' 25.669 W	
4,248.00	31.80	299.51	4,042.82	439.31	-713.49	14,518,667.61	2,082,012.37	39° 58' 8.492 N	109° 25' 26.212 W	
4,338.00	31.47	300.58	4,119.44	462.95	-754.35	14,518,690.51	2,081,971.10	39° 58' 8.726 N	109° 25' 26.737 W	
4,429.00	32.21	300.31	4,196.75	487.27	-795.74	14,518,714.10	2,081,929.28	39° 58' 8.966 N	109° 25' 27.269 W	
4,520.00	32.08	301.26	4,273.80	512.05	-837.33	14,518,738.14	2,081,887.26	39° 58' 9.211 N	109° 25' 27.803 W	
4,610.00	32.54	303.13	4,349.87	537.68	-878.03	14,518,763.05	2,081,846.11	39° 58' 9.464 N	109° 25' 28.326 W	
4,703.00	31.65	302.32	4,428.65	564.40	-919.60	14,518,789.02	2,081,804.08	39° 58' 9.729 N	109° 25' 28.860 W	
4,794.00	27.16	318.03	4,508.03	592.66	-953.73	14,518,816.68	2,081,769.45	39° 58' 10.008 N	109° 25' 29.299 W	

# Scientific Drilling International

## Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
4,884.00	29.90	323.74	4,587.11	626.03	-980.75	14,518,849.57	2,081,741.85	39° 58' 10.338 N	109° 25' 29.646 W
4,974.00	31.44	321.23	4,664.52	662.43	-1,008.72	14,518,885.46	2,081,713.24	39° 58' 10.697 N	109° 25' 30.005 W
5,065.00	31.30	317.82	4,742.22	698.45	-1,039.45	14,518,920.93	2,081,681.87	39° 58' 11.053 N	109° 25' 30.400 W
5,156.00	31.39	309.80	4,819.98	731.15	-1,073.55	14,518,953.02	2,081,647.20	39° 58' 11.377 N	109° 25' 30.838 W
5,246.00	29.15	303.44	4,897.72	758.24	-1,109.86	14,518,979.47	2,081,610.42	39° 58' 11.644 N	109° 25' 31.304 W
5,337.00	29.35	300.55	4,977.12	781.79	-1,147.56	14,519,002.35	2,081,572.30	39° 58' 11.877 N	109° 25' 31.789 W
5,427.00	27.30	297.08	5,056.35	802.40	-1,184.94	14,519,022.29	2,081,534.57	39° 58' 12.081 N	109° 25' 32.269 W
5,518.00	23.84	296.88	5,138.42	820.23	-1,219.94	14,519,039.49	2,081,499.26	39° 58' 12.257 N	109° 25' 32.718 W
5,609.00	21.73	294.97	5,222.32	835.65	-1,251.61	14,519,054.36	2,081,467.31	39° 58' 12.410 N	109° 25' 33.125 W
5,699.00	20.91	295.20	5,306.16	849.52	-1,281.25	14,519,067.70	2,081,437.44	39° 58' 12.547 N	109° 25' 33.506 W
5,790.00	18.97	294.20	5,391.70	862.50	-1,309.44	14,519,080.18	2,081,409.03	39° 58' 12.675 N	109° 25' 33.868 W
5,880.00	17.31	294.55	5,477.22	874.06	-1,334.96	14,519,091.29	2,081,383.30	39° 58' 12.789 N	109° 25' 34.196 W
5,971.00	16.01	291.58	5,564.40	884.30	-1,358.95	14,519,101.10	2,081,359.14	39° 58' 12.890 N	109° 25' 34.504 W
6,061.00	13.96	289.40	5,651.34	892.48	-1,380.73	14,519,108.89	2,081,337.21	39° 58' 12.971 N	109° 25' 34.784 W
6,152.00	12.38	287.14	5,739.94	899.00	-1,400.41	14,519,115.06	2,081,317.43	39° 58' 13.036 N	109° 25' 35.037 W
6,242.00	10.98	285.76	5,828.08	904.17	-1,417.87	14,519,119.92	2,081,299.87	39° 58' 13.087 N	109° 25' 35.261 W
6,332.00	8.71	287.26	5,916.75	908.52	-1,432.63	14,519,124.01	2,081,285.03	39° 58' 13.130 N	109° 25' 35.451 W
6,423.00	6.88	281.02	6,006.90	911.61	-1,444.56	14,519,126.88	2,081,273.05	39° 58' 13.160 N	109° 25' 35.604 W
6,513.00	5.55	271.91	6,096.37	912.78	-1,454.21	14,519,127.89	2,081,263.39	39° 58' 13.172 N	109° 25' 35.728 W
6,604.00	3.40	260.86	6,187.09	912.50	-1,461.27	14,519,127.48	2,081,256.33	39° 58' 13.169 N	109° 25' 35.818 W
6,695.00	1.62	254.98	6,278.00	911.74	-1,465.18	14,519,126.65	2,081,252.44	39° 58' 13.161 N	109° 25' 35.869 W
6,785.00	1.68	237.46	6,367.97	910.70	-1,467.52	14,519,125.57	2,081,250.12	39° 58' 13.151 N	109° 25' 35.899 W
6,875.00	1.59	206.15	6,457.93	908.87	-1,469.18	14,519,123.71	2,081,248.49	39° 58' 13.133 N	109° 25' 35.920 W
6,966.00	1.45	178.57	6,548.90	906.58	-1,469.71	14,519,121.42	2,081,248.00	39° 58' 13.111 N	109° 25' 35.927 W
7,056.00	1.06	153.02	6,638.88	904.70	-1,469.30	14,519,119.54	2,081,248.44	39° 58' 13.092 N	109° 25' 35.922 W
7,147.00	1.58	147.21	6,729.85	902.90	-1,468.24	14,519,117.76	2,081,249.53	39° 58' 13.074 N	109° 25' 35.908 W
7,238.00	1.83	137.10	6,820.81	900.78	-1,466.57	14,519,115.67	2,081,251.24	39° 58' 13.053 N	109° 25' 35.887 W
7,328.00	2.13	140.53	6,910.76	898.44	-1,464.53	14,519,113.36	2,081,253.32	39° 58' 13.030 N	109° 25' 35.860 W
7,418.00	2.08	146.74	7,000.70	895.78	-1,462.57	14,519,110.74	2,081,255.33	39° 58' 13.004 N	109° 25' 35.835 W
7,509.00	2.55	144.08	7,091.63	892.76	-1,460.48	14,519,107.76	2,081,257.47	39° 58' 12.974 N	109° 25' 35.808 W
7,599.00	2.09	148.68	7,181.55	889.74	-1,458.45	14,519,104.77	2,081,259.55	39° 58' 12.944 N	109° 25' 35.782 W
7,690.00	2.06	154.29	7,272.49	886.84	-1,456.88	14,519,101.91	2,081,261.18	39° 58' 12.915 N	109° 25' 35.762 W
7,781.00	1.75	148.86	7,363.44	884.18	-1,455.45	14,519,099.27	2,081,262.65	39° 58' 12.889 N	109° 25' 35.744 W
7,871.00	1.92	155.19	7,453.40	881.64	-1,454.11	14,519,096.75	2,081,264.04	39° 58' 12.864 N	109° 25' 35.726 W
7,962.00	1.83	163.90	7,544.35	878.86	-1,453.06	14,519,093.99	2,081,265.13	39° 58' 12.836 N	109° 25' 35.713 W
8,052.00	1.62	168.90	7,634.31	876.23	-1,452.42	14,519,091.37	2,081,265.82	39° 58' 12.810 N	109° 25' 35.705 W
8,143.00	1.70	162.56	7,725.27	873.68	-1,451.77	14,519,088.83	2,081,266.52	39° 58' 12.785 N	109° 25' 35.696 W
8,233.00	1.87	148.98	7,815.22	871.15	-1,450.61	14,519,086.32	2,081,267.72	39° 58' 12.760 N	109° 25' 35.682 W
8,324.00	1.82	153.32	7,906.18	868.58	-1,449.20	14,519,083.78	2,081,269.18	39° 58' 12.735 N	109° 25' 35.663 W
8,374.00	1.70	142.35	7,956.15	867.29	-1,448.39	14,519,082.50	2,081,270.01	39° 58' 12.722 N	109° 25' 35.653 W
<b>Last SDI ST MWD Survey</b>									
9,027.00	1.70	142.35	8,608.87	851.95	-1,436.55	14,519,067.38	2,081,282.12	39° 58' 12.570 N	109° 25' 35.501 W
<b>Projection To TD</b>									

# Scientific Drilling International

## Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** ST 1  
**Design:** ST 1

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
NBU 1022-10C1BS PBI	0.00	0.00	8,709.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W
- actual wellpath misses target center by 118.87ft at 9027.00ft MD (8608.87 TVD, 851.95 N, -1436.55 E)									
- Circle (radius 25.00)									
10C1BS Top of Fish	0.00	0.00	4,566.65	614.55	-993.51	14,518,837.86	2,081,729.29	39° 58' 10.224 N	109° 25' 29.809 W
- actual wellpath misses target center by 19.21ft at 4865.59ft MD (4571.10 TVD, 618.75 N, -975.30 E)									
- Circle (radius 0.33)									
10C1BS Intercept 1	0.00	0.00	5,212.86	796.14	-1,300.70	14,519,013.98	2,081,418.94	39° 58' 12.019 N	109° 25' 33.756 W
- actual wellpath misses target center by 63.70ft at 5610.26ft MD (5223.49 TVD, 835.85 N, -1252.04 E)									
- Circle (radius 0.33)									
10C1BS Intercept 2	0.00	0.00	5,297.11	812.69	-1,330.82	14,519,030.00	2,081,388.53	39° 58' 12.183 N	109° 25' 34.143 W
- actual wellpath misses target center by 62.39ft at 5700.60ft MD (5307.65 TVD, 849.77 N, -1281.76 E)									
- Circle (radius 0.33)									
10C1BS Bottom of Fish	0.00	0.00	4,694.13	657.30	-1,059.99	14,518,879.42	2,081,662.06	39° 58' 10.647 N	109° 25' 30.664 W
- actual wellpath misses target center by 43.76ft at 5014.58ft MD (4699.15 TVD, 678.73 N, -1022.17 E)									
- Circle (radius 0.33)									
NBU 1022-10C1BS Top	0.00	0.00	6,200.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W
- actual wellpath misses target center by 12.95ft at 6617.45ft MD (6200.52 TVD, 912.38 N, -1462.02 E)									
- Circle (radius 25.00)									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,066.00	2,065.56	35.59	-6.08	Last SDI Surface MWD Survey
2,165.00	2,164.55	36.10	-6.93	First SDI ST MWD Survey
8,374.00	7,956.15	867.29	-1,448.39	Last SDI ST MWD Survey
9,027.00	8,608.87	851.95	-1,436.55	Projection To TD

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

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

**Uintah County, UT UTM12**

**NBU 1022-10B Pad**

**NBU 1022-10C1BS**

**OH**

**Design: OH**

## **Standard Survey Report**

**21 October, 2009**

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

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

<b>Site</b>	NBU 1022-10B Pad, Sec 10 T10S R22E				
<b>Site Position:</b>		<b>Northing:</b>	14,518,241.45 ft	<b>Latitude:</b>	39° 58' 4.158 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,082,713.50 ft	<b>Longitude:</b>	109° 25' 17.304 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b>	1.01 °

<b>Well</b>	NBU 1022-10C1BS, 1065' FNL & 1523' FEL					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,518,240.99 ft	<b>Latitude:</b>	39° 58' 4.150 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	2,082,733.52 ft	<b>Longitude:</b>	109° 25' 17.047 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	5,055.00 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>
	IGRF2005-10	7/21/2009	11.26	65.91	52,540

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	9.00
<b>Vertical Section:</b>		<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
		9.00	0.00	0.00	301.57

<b>Survey Program</b>	<b>Date</b>	9/28/2009			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
146.00	2,066.00	Survey #1 (OH)	MWD SDI	MWD - Standard ver 1.0.1	
2,165.00	8,055.00	Survey #2 (OH)	MWD SDI	MWD - Standard ver 1.0.1	

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)
9.00	0.00	0.00	9.00	0.00	0.00	0.00	0.00	0.00	0.00
146.00	0.47	59.75	146.00	0.28	0.49	-0.27	0.34	0.34	0.00
236.00	0.34	11.19	236.00	0.73	0.86	-0.35	0.39	-0.14	-53.96
326.00	0.47	357.71	325.99	1.36	0.89	-0.05	0.18	0.14	-14.98
416.00	0.68	353.92	415.99	2.26	0.82	0.48	0.24	0.23	-4.21
506.00	1.40	341.24	505.97	3.83	0.41	1.66	0.84	0.80	-14.09
596.00	1.69	345.24	595.94	6.16	-0.28	3.46	0.34	0.32	4.44
686.00	1.83	344.29	685.90	8.82	-1.01	5.48	0.16	0.16	-1.06
776.00	1.58	355.82	775.86	11.45	-1.49	7.26	0.47	-0.28	12.81
866.00	1.75	352.78	865.82	14.05	-1.75	8.85	0.21	0.19	-3.38
956.00	1.42	335.19	955.79	16.42	-2.39	10.63	0.65	-0.37	-19.54
1,046.00	1.57	325.25	1,045.76	18.45	-3.56	12.69	0.33	0.17	-11.04

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

### 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)
1,136.00	1.48	325.25	1,135.72	20.42	-4.93	14.89	0.10	-0.10	0.00
1,226.00	1.16	346.94	1,225.70	22.26	-5.79	16.59	0.65	-0.36	24.10
1,406.00	0.78	3.39	1,405.68	25.26	-6.13	18.45	0.26	-0.21	9.14
1,496.00	1.40	53.80	1,495.66	26.52	-5.21	18.32	1.21	0.69	56.01
1,586.00	1.12	31.19	1,585.64	27.92	-3.87	17.91	0.63	-0.31	-25.12
1,676.00	1.08	5.09	1,675.62	29.52	-3.34	18.30	0.55	-0.04	-29.00
1,766.00	1.26	346.58	1,765.60	31.32	-3.49	19.37	0.46	0.20	-20.57
1,856.00	1.31	334.61	1,855.58	33.21	-4.16	20.94	0.30	0.06	-13.30
1,946.00	0.86	323.14	1,945.57	34.68	-5.01	22.43	0.55	-0.50	-12.74
2,036.00	0.60	293.39	2,035.56	35.41	-5.85	23.52	0.50	-0.29	-33.06
2,066.00	0.60	309.05	2,065.56	35.57	-6.11	23.83	0.54	0.00	52.20
<b>Last SDI Surface MWD Survey</b>									
2,165.00	0.56	292.17	2,164.55	36.08	-6.96	24.82	0.18	-0.04	-17.05
<b>First SDI Production MWD Survey</b>									
2,255.00	3.12	295.17	2,254.50	37.29	-9.59	27.69	2.85	2.84	3.33
2,346.00	4.36	306.10	2,345.30	40.38	-14.62	33.60	1.57	1.36	12.01
2,436.00	6.80	297.16	2,434.87	44.83	-22.13	42.33	2.87	2.71	-9.93
2,527.00	9.55	296.63	2,524.94	50.67	-33.67	55.22	3.02	3.02	-0.58
2,617.00	13.08	296.75	2,613.18	58.61	-49.45	72.81	3.92	3.92	0.13
2,708.00	15.41	298.69	2,701.37	69.05	-69.25	95.15	2.61	2.56	2.13
2,799.00	17.73	298.82	2,788.59	81.53	-92.00	121.07	2.55	2.55	0.14
2,889.00	21.37	298.55	2,873.38	95.98	-118.42	151.14	4.05	4.04	-0.30
2,980.00	22.30	295.20	2,957.86	111.26	-148.61	184.86	1.71	1.02	-3.68
3,070.00	25.21	298.85	3,040.23	127.78	-180.85	220.99	3.62	3.23	4.06
3,161.00	28.50	300.40	3,121.40	148.12	-216.56	262.06	3.70	3.62	1.70
3,252.00	29.57	300.49	3,200.97	170.50	-254.64	306.22	1.18	1.18	0.10
3,342.00	32.23	304.57	3,278.19	195.40	-293.55	352.40	3.76	2.96	4.53
3,433.00	31.85	301.33	3,355.34	221.65	-334.04	400.65	1.93	-0.42	-3.56
3,523.00	31.88	298.64	3,431.78	245.39	-375.19	448.13	1.58	0.03	-2.99
3,614.00	31.90	299.28	3,509.04	268.67	-417.25	496.16	0.37	0.02	0.70
3,704.00	31.81	299.53	3,585.49	291.99	-458.63	543.62	0.18	-0.10	0.28
3,795.00	31.95	302.35	3,662.77	316.70	-499.84	591.67	1.64	0.15	3.10
3,885.00	31.73	301.28	3,739.22	341.73	-540.18	639.15	0.67	-0.24	-1.19
3,976.00	33.71	297.61	3,815.79	365.86	-583.02	688.28	3.08	2.18	-4.03
4,067.00	34.57	299.60	3,891.11	390.31	-627.85	739.27	1.55	0.95	2.19
4,157.00	32.91	299.96	3,965.95	415.14	-671.23	789.23	1.86	-1.84	0.40
4,248.00	31.80	299.51	4,042.82	439.30	-713.52	837.91	1.25	-1.22	-0.49
4,338.00	31.47	300.58	4,119.44	462.93	-754.38	885.09	0.72	-0.37	1.19
4,429.00	32.21	300.31	4,196.75	487.25	-795.77	933.09	0.83	0.81	-0.30
4,520.00	32.08	301.26	4,273.80	512.03	-837.36	981.50	0.57	-0.14	1.04
4,610.00	32.38	303.13	4,349.94	537.61	-877.98	1,029.49	1.16	0.33	2.08
4,701.00	31.80	302.57	4,427.03	563.83	-918.59	1,077.83	0.72	-0.64	-0.62
4,791.00	31.03	304.89	4,503.84	589.87	-957.60	1,124.70	1.59	-0.86	2.58
4,875.00	31.47	304.12	4,575.65	614.55	-993.51	1,168.22	0.71	0.53	-0.91
<b>Top of Fish</b>									
4,882.00	31.51	304.06	4,581.62	616.60	-996.54	1,171.87	0.71	0.53	-0.90
4,972.00	32.06	301.72	4,658.13	642.33	-1,036.35	1,219.25	1.50	0.61	-2.60
5,025.00	31.69	302.96	4,703.13	657.30	-1,059.99	1,247.24	1.41	-0.69	2.33
<b>Bottom of Fish</b>									
5,063.00	31.44	303.86	4,735.51	668.26	-1,076.60	1,267.12	1.41	-0.67	2.38
5,153.00	30.27	301.84	4,812.77	693.30	-1,115.36	1,313.26	1.74	-1.30	-2.24
5,244.00	28.67	297.93	4,892.01	715.63	-1,154.14	1,357.99	2.75	-1.76	-4.30
5,335.00	29.65	298.47	4,971.47	736.58	-1,193.21	1,402.25	1.12	1.08	0.59
5,425.00	28.20	299.01	5,050.24	757.51	-1,231.38	1,445.73	1.64	-1.61	0.60

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

### 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)
5,516.00	26.25	299.03	5,131.16	777.70	-1,267.79	1,487.31	2.14	-2.14	0.02
5,606.00	23.32	299.52	5,212.86	796.14	-1,300.70	1,525.01	3.26	-3.26	0.54
5,697.00	21.07	297.95	5,297.11	812.69	-1,330.82	1,559.34	2.56	-2.47	-1.73
5,787.00	18.81	298.75	5,381.71	827.25	-1,357.84	1,589.98	2.53	-2.51	0.89
5,878.00	16.70	301.07	5,468.37	841.06	-1,381.90	1,617.71	2.45	-2.32	2.55
5,968.00	14.86	298.32	5,554.98	853.21	-1,403.14	1,642.17	2.21	-2.04	-3.06
6,059.00	13.05	296.27	5,643.29	863.29	-1,422.63	1,664.05	2.06	-1.99	-2.25
6,149.00	10.94	296.53	5,731.32	871.60	-1,439.38	1,682.68	2.35	-2.34	0.29
6,240.00	9.07	299.05	5,820.93	878.94	-1,453.38	1,698.44	2.11	-2.05	2.77
6,330.00	7.59	302.33	5,909.98	885.57	-1,464.60	1,711.47	1.73	-1.64	3.64
6,420.00	6.15	308.49	5,999.33	891.75	-1,473.40	1,722.20	1.80	-1.60	6.84
6,511.00	4.76	305.62	6,089.92	896.98	-1,480.29	1,730.81	1.56	-1.53	-3.15
6,601.00	2.48	299.50	6,179.73	900.12	-1,485.02	1,736.48	2.57	-2.53	-6.80
6,692.00	0.86	328.92	6,270.69	901.67	-1,487.08	1,739.06	1.96	-1.78	32.33
6,782.00	0.73	340.67	6,360.68	902.79	-1,487.62	1,740.10	0.23	-0.14	13.06
6,873.00	0.24	342.19	6,451.68	903.52	-1,487.87	1,740.70	0.54	-0.54	1.67
6,963.00	0.31	73.96	6,541.68	903.76	-1,487.70	1,740.67	0.44	0.08	101.97
7,054.00	0.24	72.05	6,632.68	903.89	-1,487.28	1,740.38	0.08	-0.08	-2.10
7,144.00	0.69	18.93	6,722.68	904.46	-1,486.92	1,740.38	0.64	0.50	-59.02
7,235.00	0.69	30.47	6,813.67	905.45	-1,486.47	1,740.51	0.15	0.00	12.68
7,326.00	0.24	335.75	6,904.67	906.10	-1,486.27	1,740.68	0.64	-0.49	-60.13
7,416.00	0.50	245.77	6,994.66	906.11	-1,486.70	1,741.06	0.62	0.29	-99.98
7,507.00	0.75	225.37	7,085.66	905.53	-1,487.49	1,741.42	0.36	0.27	-22.42
7,597.00	0.41	288.18	7,175.66	905.21	-1,488.21	1,741.88	0.75	-0.38	69.79
7,688.00	1.25	329.69	7,266.65	906.17	-1,489.02	1,743.07	1.08	0.92	45.62
7,778.00	0.99	334.77	7,356.63	907.72	-1,489.85	1,744.58	0.31	-0.29	5.64
7,869.00	1.21	340.61	7,447.61	909.34	-1,490.50	1,745.99	0.27	0.24	6.42
7,960.00	0.88	357.54	7,538.60	910.95	-1,490.85	1,747.13	0.49	-0.36	18.60
8,002.00	0.78	339.53	7,580.59	911.54	-1,490.97	1,747.53	0.66	-0.24	-42.88
<b>Last SDI Production MWD Survey</b>									
8,055.00	0.78	339.53	7,633.59	912.21	-1,491.22	1,748.10	0.00	0.00	0.00
<b>Projection To TD</b>									

# Scientific Drilling International

## Survey Report

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
NBU 1022-10C1BS PBI-	0.00	0.00	8,709.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W
- actual wellpath misses target center by 1075.60ft at 8055.00ft MD (7633.59 TVD, 912.21 N, -1491.22 E)									
- Circle (radius 25.00)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
2,066.00	2,065.56	35.57	-6.11	Last SDI Surface MWD Survey	
2,165.00	2,164.55	36.08	-6.96	First SDI Production MWD Survey	
4,875.00	4,575.65	614.55	-993.51	Top of Fish	
5,025.00	4,703.13	657.30	-1,059.99	Bottom of Fish	
8,002.00	7,580.59	911.54	-1,490.97	Last SDI Production MWD Survey	
8,055.00	7,633.59	912.21	-1,491.22	Projection To TD	

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

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

**Uintah County, UT UTM12**

**NBU 1022-10B Pad**

**NBU 1022-10C1BS**

**OH**

**Design: OH**

## **Survey Report - Geographic**

**21 October, 2009**

# Scientific Drilling International

## Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

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

<b>Site</b>	NBU 1022-10B Pad, Sec 10 T10S R22E				
<b>Site Position:</b>		<b>Northing:</b>	14,518,241.45 ft	<b>Latitude:</b>	39° 58' 4.158 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,082,713.50 ft	<b>Longitude:</b>	109° 25' 17.304 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b>	1.01 °

<b>Well</b>	NBU 1022-10C1BS, 1065' FNL & 1523' FEL					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,518,240.99 ft	<b>Latitude:</b>	39° 58' 4.150 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	2,082,733.52 ft	<b>Longitude:</b>	109° 25' 17.047 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	5,055.00 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>
	IGRF2005-10	7/21/2009	11.26	65.91	52,540

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	9.00
<b>Vertical Section:</b>		<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
		9.00	0.00	0.00	301.57

<b>Survey Program</b>	<b>Date</b>	9/28/2009			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
146.00	2,066.00	Survey #1 (OH)	MWD SDI	MWD - Standard ver 1.0.1	
2,165.00	8,055.00	Survey #2 (OH)	MWD SDI	MWD - Standard ver 1.0.1	

# Scientific Drilling International

## Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
9.00	0.00	0.00	9.00	0.00	0.00	14,518,240.99	2,082,733.52	39° 58' 4.150 N	109° 25' 17.047 W
146.00	0.47	59.75	146.00	0.28	0.49	14,518,241.28	2,082,734.00	39° 58' 4.153 N	109° 25' 17.041 W
236.00	0.34	11.19	236.00	0.73	0.86	14,518,241.74	2,082,734.36	39° 58' 4.157 N	109° 25' 17.036 W
326.00	0.47	357.71	325.99	1.36	0.89	14,518,242.37	2,082,734.39	39° 58' 4.163 N	109° 25' 17.036 W
416.00	0.68	353.92	415.99	2.26	0.82	14,518,243.27	2,082,734.30	39° 58' 4.172 N	109° 25' 17.036 W
506.00	1.40	341.24	505.97	3.83	0.41	14,518,244.83	2,082,733.86	39° 58' 4.188 N	109° 25' 17.042 W
596.00	1.69	345.24	595.94	6.16	-0.28	14,518,247.14	2,082,733.13	39° 58' 4.211 N	109° 25' 17.051 W
686.00	1.83	344.29	685.90	8.82	-1.01	14,518,249.80	2,082,732.36	39° 58' 4.237 N	109° 25' 17.060 W
776.00	1.58	355.82	775.86	11.45	-1.49	14,518,252.41	2,082,731.83	39° 58' 4.263 N	109° 25' 17.066 W
866.00	1.75	352.78	865.82	14.05	-1.75	14,518,255.00	2,082,731.52	39° 58' 4.289 N	109° 25' 17.069 W
956.00	1.42	335.19	955.79	16.42	-2.39	14,518,257.37	2,082,730.84	39° 58' 4.312 N	109° 25' 17.078 W
1,046.00	1.57	325.25	1,045.76	18.45	-3.56	14,518,259.37	2,082,729.63	39° 58' 4.332 N	109° 25' 17.093 W
1,136.00	1.48	325.25	1,135.72	20.42	-4.93	14,518,261.32	2,082,728.23	39° 58' 4.352 N	109° 25' 17.110 W
1,226.00	1.16	346.94	1,225.70	22.26	-5.79	14,518,263.14	2,082,727.33	39° 58' 4.370 N	109° 25' 17.121 W
1,406.00	0.78	3.39	1,405.68	25.26	-6.13	14,518,266.13	2,082,726.94	39° 58' 4.400 N	109° 25' 17.126 W
1,496.00	1.40	53.80	1,495.66	26.52	-5.21	14,518,267.41	2,082,727.84	39° 58' 4.412 N	109° 25' 17.114 W
1,586.00	1.12	31.19	1,585.64	27.92	-3.87	14,518,268.84	2,082,729.16	39° 58' 4.426 N	109° 25' 17.097 W
1,676.00	1.08	5.09	1,675.62	29.52	-3.34	14,518,270.44	2,082,729.66	39° 58' 4.442 N	109° 25' 17.090 W
1,766.00	1.26	346.58	1,765.60	31.32	-3.49	14,518,272.25	2,082,729.48	39° 58' 4.460 N	109° 25' 17.092 W
1,856.00	1.31	334.61	1,855.58	33.21	-4.16	14,518,274.13	2,082,728.77	39° 58' 4.478 N	109° 25' 17.100 W
1,946.00	0.86	323.14	1,945.57	34.68	-5.01	14,518,275.58	2,082,727.90	39° 58' 4.493 N	109° 25' 17.111 W
2,036.00	0.60	293.39	2,035.56	35.41	-5.85	14,518,276.29	2,082,727.05	39° 58' 4.500 N	109° 25' 17.122 W
2,066.00	0.60	309.05	2,065.56	35.57	-6.11	14,518,276.45	2,082,726.78	39° 58' 4.502 N	109° 25' 17.126 W
<b>Last SDI Surface MWD Survey</b>									
2,165.00	0.56	292.17	2,164.55	36.08	-6.96	14,518,276.95	2,082,725.92	39° 58' 4.507 N	109° 25' 17.136 W
<b>First SDI Production MWD Survey</b>									
2,255.00	3.12	295.17	2,254.50	37.29	-9.59	14,518,278.11	2,082,723.28	39° 58' 4.519 N	109° 25' 17.170 W
2,346.00	4.36	306.10	2,345.30	40.38	-14.62	14,518,281.11	2,082,718.18	39° 58' 4.549 N	109° 25' 17.235 W
2,436.00	6.80	297.16	2,434.87	44.83	-22.13	14,518,285.42	2,082,710.60	39° 58' 4.593 N	109° 25' 17.331 W
2,527.00	9.55	296.63	2,524.94	50.67	-33.67	14,518,291.06	2,082,698.96	39° 58' 4.651 N	109° 25' 17.480 W
2,617.00	13.08	296.75	2,613.18	58.61	-49.45	14,518,298.71	2,082,683.04	39° 58' 4.729 N	109° 25' 17.682 W
2,708.00	15.41	298.69	2,701.37	69.05	-69.25	14,518,308.80	2,082,663.06	39° 58' 4.832 N	109° 25' 17.937 W
2,799.00	17.73	298.82	2,788.59	81.53	-92.00	14,518,320.88	2,082,640.09	39° 58' 4.956 N	109° 25' 18.229 W
2,889.00	21.37	298.55	2,873.38	95.98	-118.42	14,518,334.86	2,082,613.42	39° 58' 5.099 N	109° 25' 18.568 W
2,980.00	22.30	295.20	2,957.86	111.26	-148.61	14,518,349.60	2,082,582.97	39° 58' 5.250 N	109° 25' 18.956 W
3,070.00	25.21	298.85	3,040.23	127.78	-180.85	14,518,365.55	2,082,550.43	39° 58' 5.413 N	109° 25' 19.370 W
3,161.00	28.50	300.40	3,121.40	148.12	-216.56	14,518,385.26	2,082,514.37	39° 58' 5.614 N	109° 25' 19.829 W
3,252.00	29.57	300.49	3,200.97	170.50	-254.64	14,518,406.96	2,082,475.90	39° 58' 5.835 N	109° 25' 20.318 W
3,342.00	32.23	304.57	3,278.19	195.40	-293.55	14,518,431.16	2,082,436.56	39° 58' 6.081 N	109° 25' 20.818 W
3,433.00	31.85	301.33	3,355.34	221.65	-334.04	14,518,456.69	2,082,395.61	39° 58' 6.341 N	109° 25' 21.338 W
3,523.00	31.88	298.64	3,431.78	245.39	-375.19	14,518,479.70	2,082,354.05	39° 58' 6.575 N	109° 25' 21.867 W
3,614.00	31.90	299.28	3,509.04	268.67	-417.25	14,518,502.23	2,082,311.58	39° 58' 6.806 N	109° 25' 22.407 W
3,704.00	31.81	299.53	3,585.49	291.99	-458.63	14,518,524.82	2,082,269.79	39° 58' 7.036 N	109° 25' 22.938 W
3,795.00	31.95	302.35	3,662.77	316.70	-499.84	14,518,548.79	2,082,228.15	39° 58' 7.280 N	109° 25' 23.468 W
3,885.00	31.73	301.28	3,739.22	341.73	-540.18	14,518,573.10	2,082,187.37	39° 58' 7.528 N	109° 25' 23.986 W
3,976.00	33.71	297.61	3,815.79	365.86	-583.02	14,518,596.47	2,082,144.12	39° 58' 7.766 N	109° 25' 24.536 W
4,067.00	34.57	299.60	3,891.11	390.31	-627.85	14,518,620.13	2,082,098.86	39° 58' 8.008 N	109° 25' 25.112 W
4,157.00	32.91	299.96	3,965.95	415.14	-671.23	14,518,644.18	2,082,055.05	39° 58' 8.253 N	109° 25' 25.670 W
4,248.00	31.80	299.51	4,042.82	439.30	-713.52	14,518,667.59	2,082,012.34	39° 58' 8.492 N	109° 25' 26.213 W
4,338.00	31.47	300.58	4,119.44	462.93	-754.38	14,518,690.49	2,081,971.07	39° 58' 8.726 N	109° 25' 26.738 W
4,429.00	32.21	300.31	4,196.75	487.25	-795.77	14,518,714.08	2,081,929.25	39° 58' 8.966 N	109° 25' 27.269 W
4,520.00	32.08	301.26	4,273.80	512.03	-837.36	14,518,738.12	2,081,887.23	39° 58' 9.211 N	109° 25' 27.804 W
4,610.00	32.38	303.13	4,349.94	537.61	-877.98	14,518,762.97	2,081,846.17	39° 58' 9.464 N	109° 25' 28.325 W
4,701.00	31.80	302.57	4,427.03	563.83	-918.59	14,518,788.47	2,081,805.10	39° 58' 9.723 N	109° 25' 28.847 W
4,791.00	31.03	304.89	4,503.84	589.87	-957.60	14,518,813.81	2,081,765.63	39° 58' 9.980 N	109° 25' 29.348 W

# Scientific Drilling International

## Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
4,875.00	31.47	304.12	4,575.65	614.55	-993.51	14,518,837.86	2,081,729.29	39° 58' 10.224 N	109° 25' 29.810 W
<b>Top of Fish</b>									
4,882.00	31.51	304.06	4,581.62	616.60	-996.54	14,518,839.85	2,081,726.22	39° 58' 10.244 N	109° 25' 29.848 W
4,972.00	32.06	301.72	4,658.13	642.33	-1,036.35	14,518,864.88	2,081,685.97	39° 58' 10.499 N	109° 25' 30.360 W
5,025.00	31.69	302.96	4,703.13	657.30	-1,059.99	14,518,879.43	2,081,662.06	39° 58' 10.647 N	109° 25' 30.664 W
<b>Bottom of Fish</b>									
5,063.00	31.44	303.86	4,735.51	668.26	-1,076.60	14,518,890.08	2,081,645.26	39° 58' 10.755 N	109° 25' 30.877 W
5,153.00	30.27	301.84	4,812.77	693.30	-1,115.36	14,518,914.44	2,081,606.06	39° 58' 11.003 N	109° 25' 31.375 W
5,244.00	28.67	297.93	4,892.01	715.63	-1,154.14	14,518,936.08	2,081,566.90	39° 58' 11.223 N	109° 25' 31.873 W
5,335.00	29.65	298.47	4,971.47	736.58	-1,193.21	14,518,956.34	2,081,527.46	39° 58' 11.430 N	109° 25' 32.375 W
5,425.00	28.20	299.01	5,050.24	757.51	-1,231.38	14,518,976.58	2,081,488.92	39° 58' 11.637 N	109° 25' 32.865 W
5,516.00	26.25	299.03	5,131.16	777.70	-1,267.79	14,518,996.13	2,081,452.17	39° 58' 11.837 N	109° 25' 33.333 W
5,606.00	23.32	299.52	5,212.86	796.14	-1,300.70	14,519,013.99	2,081,418.94	39° 58' 12.019 N	109° 25' 33.756 W
5,697.00	21.07	297.95	5,297.11	812.69	-1,330.82	14,519,029.99	2,081,388.52	39° 58' 12.183 N	109° 25' 34.143 W
5,787.00	18.81	298.75	5,381.71	827.25	-1,357.84	14,519,044.08	2,081,361.25	39° 58' 12.326 N	109° 25' 34.490 W
5,878.00	16.70	301.07	5,468.37	841.06	-1,381.90	14,519,057.46	2,081,336.95	39° 58' 12.463 N	109° 25' 34.799 W
5,968.00	14.86	298.32	5,554.98	853.21	-1,403.14	14,519,069.23	2,081,315.50	39° 58' 12.583 N	109° 25' 35.072 W
6,059.00	13.05	296.27	5,643.29	863.29	-1,422.63	14,519,078.96	2,081,295.84	39° 58' 12.683 N	109° 25' 35.322 W
6,149.00	10.94	296.53	5,731.32	871.60	-1,439.38	14,519,086.98	2,081,278.94	39° 58' 12.765 N	109° 25' 35.537 W
6,240.00	9.07	299.05	5,820.93	878.94	-1,453.38	14,519,094.07	2,081,264.81	39° 58' 12.837 N	109° 25' 35.717 W
6,330.00	7.59	302.33	5,909.98	885.57	-1,464.60	14,519,100.49	2,081,253.47	39° 58' 12.903 N	109° 25' 35.861 W
6,420.00	6.15	308.49	5,999.33	891.75	-1,473.40	14,519,106.52	2,081,244.57	39° 58' 12.964 N	109° 25' 35.974 W
6,511.00	4.76	305.62	6,089.92	896.98	-1,480.29	14,519,111.63	2,081,237.59	39° 58' 13.016 N	109° 25' 36.063 W
6,601.00	2.48	299.50	6,179.73	900.12	-1,485.02	14,519,114.68	2,081,232.81	39° 58' 13.047 N	109° 25' 36.124 W
6,692.00	0.86	328.92	6,270.69	901.67	-1,487.08	14,519,116.20	2,081,230.71	39° 58' 13.062 N	109° 25' 36.150 W
6,782.00	0.73	340.67	6,360.68	902.79	-1,487.62	14,519,117.31	2,081,230.16	39° 58' 13.073 N	109° 25' 36.157 W
6,873.00	0.24	342.19	6,451.68	903.52	-1,487.87	14,519,118.03	2,081,229.89	39° 58' 13.080 N	109° 25' 36.160 W
6,963.00	0.31	73.96	6,541.68	903.76	-1,487.70	14,519,118.28	2,081,230.06	39° 58' 13.083 N	109° 25' 36.158 W
7,054.00	0.24	72.05	6,632.68	903.89	-1,487.28	14,519,118.41	2,081,230.48	39° 58' 13.084 N	109° 25' 36.153 W
7,144.00	0.69	18.93	6,722.68	904.46	-1,486.92	14,519,118.99	2,081,230.83	39° 58' 13.090 N	109° 25' 36.148 W
7,235.00	0.69	30.47	6,813.67	905.45	-1,486.47	14,519,119.99	2,081,231.26	39° 58' 13.099 N	109° 25' 36.142 W
7,326.00	0.24	335.75	6,904.67	906.10	-1,486.27	14,519,120.64	2,081,231.45	39° 58' 13.106 N	109° 25' 36.140 W
7,416.00	0.50	245.77	6,994.66	906.11	-1,486.70	14,519,120.64	2,081,231.02	39° 58' 13.106 N	109° 25' 36.145 W
7,507.00	0.75	225.37	7,085.66	905.53	-1,487.49	14,519,120.05	2,081,230.24	39° 58' 13.100 N	109° 25' 36.155 W
7,597.00	0.41	288.18	7,175.66	905.21	-1,488.21	14,519,119.72	2,081,229.52	39° 58' 13.097 N	109° 25' 36.165 W
7,688.00	1.25	329.69	7,266.65	906.17	-1,489.02	14,519,120.66	2,081,228.69	39° 58' 13.106 N	109° 25' 36.175 W
7,778.00	0.99	334.77	7,356.63	907.72	-1,489.85	14,519,122.20	2,081,227.84	39° 58' 13.122 N	109° 25' 36.186 W
7,869.00	1.21	340.61	7,447.61	909.34	-1,490.50	14,519,123.81	2,081,227.16	39° 58' 13.138 N	109° 25' 36.194 W
7,960.00	0.88	357.54	7,538.60	910.95	-1,490.85	14,519,125.40	2,081,226.78	39° 58' 13.154 N	109° 25' 36.199 W
8,002.00	0.78	339.53	7,580.59	911.54	-1,490.97	14,519,125.99	2,081,226.66	39° 58' 13.159 N	109° 25' 36.200 W
<b>Last SDI Production MWD Survey</b>									
8,055.00	0.78	339.53	7,633.59	912.21	-1,491.22	14,519,126.66	2,081,226.39	39° 58' 13.166 N	109° 25' 36.203 W
<b>Projection To TD</b>									

# Scientific Drilling International

## Survey Report - Geographic

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 1022-10B Pad  
**Well:** NBU 1022-10C1BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1022-10C1BS  
**TVD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**MD Reference:** GL 5055' & RKB 13' @ 5068.00ft (Ensign 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Multi-User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
NBU 1022-10C1BS PB+	0.00	0.00	8,709.00	904.91	-1,472.60	14,519,119.70	2,081,245.14	39° 58' 13.094 N	109° 25' 35.964 W
- actual wellpath misses target center by 1075.60ft at 8055.00ft MD (7633.59 TVD, 912.21 N, -1491.22 E)									
- Circle (radius 25.00)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
2,066.00	2,065.56	35.57	-6.11	Last SDI Surface MWD Survey	
2,165.00	2,164.55	36.08	-6.96	First SDI Production MWD Survey	
4,875.00	4,575.65	614.55	-993.51	Top of Fish	
5,025.00	4,703.13	657.30	-1,059.99	Bottom of Fish	
8,002.00	7,580.59	911.54	-1,490.97	Last SDI Production MWD Survey	
8,055.00	7,633.59	912.21	-1,491.22	Projection To TD	

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