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

FORM 3

AMENDED REPORT ☐

APPLICATION FOR PERMIT TO DRILL	**1. WELL NAME and NUMBER** NBU 1022-20M4DS
2. TYPE OF WORK DRILL NEW WELL ■ REENTER P&A WELL ○ DEEPEN WELL ○	**3. FIELD OR WILDCAT** NATURAL BUTTES
4. TYPE OF WELL Gas Well Coalbed Methane Well: NO	**5. UNIT or COMMUNITIZATION AGREEMENT NAME** NATURAL BUTTES
6. NAME OF OPERATOR KERR-MCGEE OIL & GAS ONSHORE, L.P.	**7. OPERATOR PHONE** 720 929-6587
8. ADDRESS OF OPERATOR P.O. Box 173779, Denver, CO, 80217	**9. OPERATOR E-MAIL** mary.mondragon@anadarko.com
10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE) ML 22974 / **11. MINERAL OWNERSHIP** FEDERAL ○ INDIAN ○ STATE ■ FEE ○	**12. SURFACE OWNERSHIP** FEDERAL ○ INDIAN ○ STATE ■ FEE ○
13. NAME OF SURFACE OWNER (if box 12 = 'fee')	**14. SURFACE OWNER PHONE (if box 12 = 'fee')**
15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')	**16. SURFACE OWNER E-MAIL (if box 12 = 'fee')**
17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN') / **18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS** YES ■ (Submit Commingling Application) NO ○	**19. SLANT** VERTICAL ○ DIRECTIONAL ■ HORIZONTAL ○

20. LOCATION OF WELL	**FOOTAGES**	**QTR-QTR**	**SECTION**	**TOWNSHIP**	**RANGE**	**MERIDIAN**
LOCATION AT SURFACE	720 FSL 1213 FWL	SWSW	20	10.0 S	22.0 E	S
Top of Uppermost Producing Zone	195 FSL 1280 FWL	SWSW	20	10.0 S	22.0 E	S
At Total Depth	195 FSL 1280 FWL	SWSW	20	10.0 S	22.0 E	S

21. COUNTY UINTAH	**22. DISTANCE TO NEAREST LEASE LINE (Feet)** 195	**23. NUMBER OF ACRES IN DRILLING UNIT** 203
	25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed) 500	**26. PROPOSED DEPTH** MD: 8765 TVD: 8700
27. ELEVATION - GROUND LEVEL 5310	**28. BOND NUMBER**	**29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE** Permit #43-8496

ATTACHMENTS

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

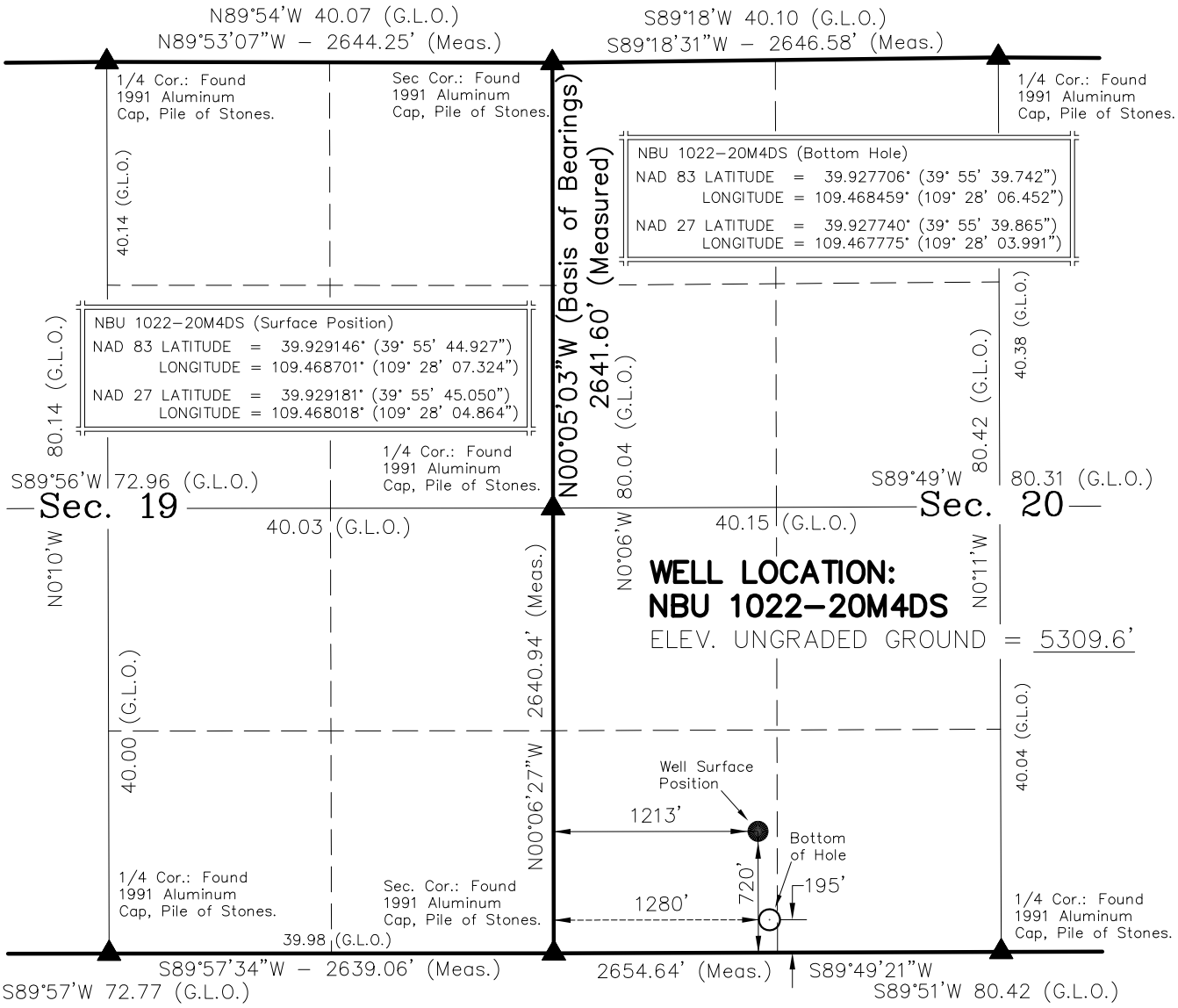
☑ **WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER**	☑ **COMPLETE DRILLING PLAN**
☐ **AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)**	☐ **FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER**
☑ **DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)**	☑ **TOPOGRAPHICAL MAP**

NAME Danielle Piernot	**TITLE** Regulatory Analyst	**PHONE** 720 929-6156
SIGNATURE	**DATE** 08/05/2009	**EMAIL** danielle.piernot@anadarko.com
API NUMBER ASSIGNED 43047504230000	**APPROVAL** Permit Manager	

Proposed Hole, Casing, and Cement						
String	**Hole Size**	**Casing Size**	**Top (MD)**	**Bottom (MD)**		
Prod	7.875	4.5	0	8765		
Pipe	**Grade**	**Length**	**Weight**			
	Grade I-80 LT&C	8765	11.6			

Proposed Hole, Casing, and Cement						
String	**Hole Size**	**Casing Size**	**Top (MD)**	**Bottom (MD)**		
Surf	12.25	9.625	0	1930		
Pipe	**Grade**	**Length**	**Weight**			
	Grade J-55 LT&C	1930	36.0			

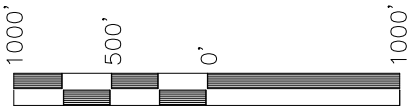
T10S, R22E, S.L.B.&M.



NOTES:

▲ = Section Corners Located

1. Well footages are measured at right angles to the Section Lines.
2. G.L.O. distances are shown in feet or chains. 1 chain = 66 feet.
3. The Bottom of hole bears S07°22'48"E 529.17' 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 $\frac{1}{4}$ of Section 1, T10S, R21E, S.L.B.&M. The elevation of this Tri-Sta is shown on the Big Pack Mtn NE 7.5 Min. Quadrangle as being 5238'.



SCALE

N

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.

REGISTERED LAND SURVEYOR No.362251 KOLBY R. KAY 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 1022-20M4DS
WELL PLAT
195' FSL, 1280' FWL (Bottom Hole)
SW $\frac{1}{4}$ SW $\frac{1}{4}$ OF SECTION 20, 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

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

DATE SURVEYED: 10-20-08	SURVEYED BY: M.S.B.	SHEET
DATE DRAWN: 10-29-08	DRAWN BY: E.M.S.	4
SCALE: 1" = 1000'	Date Last Revised: 01-26-09	OF 13

ANADARKO PETROLEUM CORP.

UINTAH COUNTY, UTAH (nad 27)
NBU 1022-20M PAD
NBU 1022-20M4DS

NBU 1022-20M4DS

Plan: Design #1

Standard Planning Report

07 April, 2009

'API Well No: 43047504230000'

Anadarko E&P Company LP

NBU 1022-20M4DS
UINTAH COUNTY, UTAH (nad 27)
SECTION 20 T10S R22E
720' FSL, 1213' FWL
39° 55' 45.052 N
109° 28' 4.865 W

Weatherford

Azimuths to True North
Magnetic North: 11.36°

Magnetic Field
Strength: 52524.4snT
Dip Angle: 65.90°
Date: 4/7/2009
Model: BGGM2008

WELL DETAILS: NBU 1022-20M4DS

Ground Level: 5308.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	14503942.84	2069912.95	39° 55' 45.052 N	109° 28' 4.865 W	

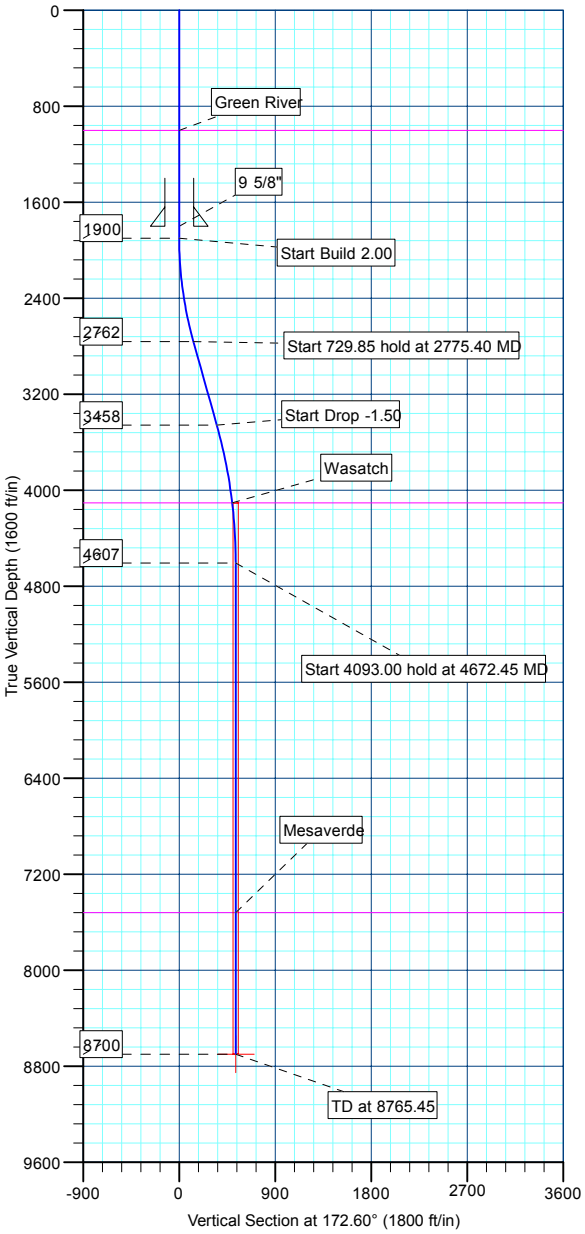
SECTION DETAILS

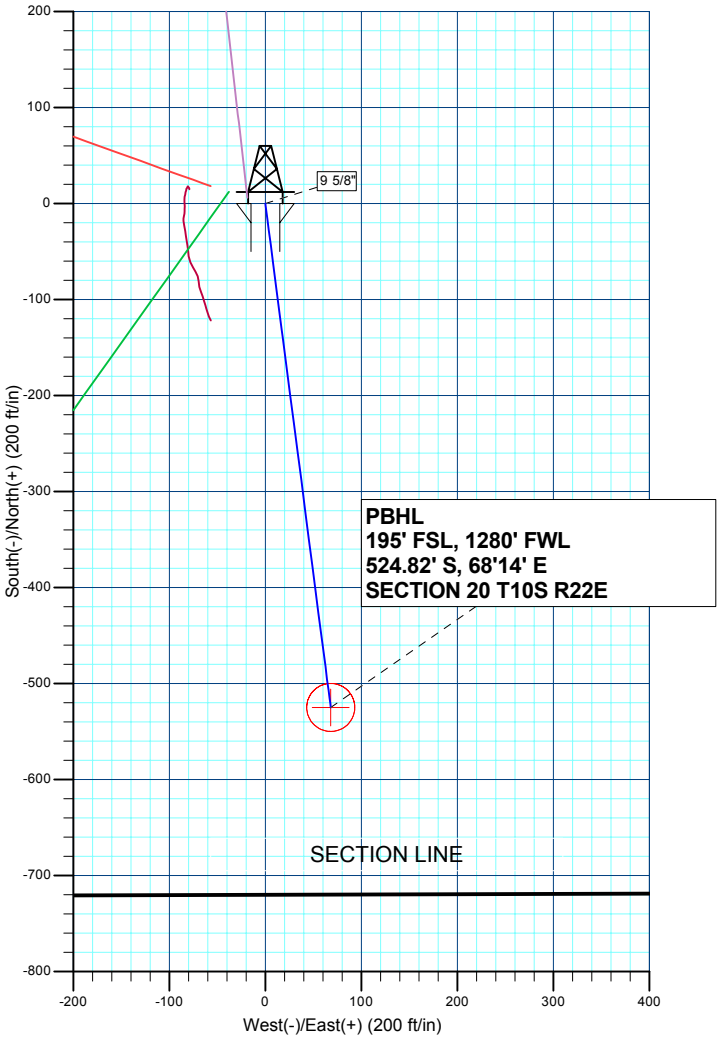
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1900.00	0.00	0.00	1900.00	0.00	0.00	0.00	0.00	0.00	
2775.40	17.51	172.60	2761.84	-131.61	17.09	2.00	172.60	132.71	
3505.25	17.51	172.60	3457.88	-349.35	45.36	0.00	0.00	352.28	
4672.45	0.00	0.00	4607.00	-524.82	68.14	1.50	180.00	529.23	
8765.45	0.00	0.00	8700.00	-524.82	68.14	0.00	0.00	529.23	PBHL_NBU 1022-20M4DS

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1002.00	1002.00	Green River
4107.00	4171.01	Wasatch
7520.00	7585.45	Mesaverde

WELL @ 5326.00ft (Original Well Elev)
GRD ELEV: 5308.00





WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	8700.00	-524.82	68.14	39° 55' 39.864 N	109° 28' 3.990 W	Circle (Radius: 25.00)

Plan: Design #1 (NBU 1022-20M4DS/NBU 1022-20M4DS)

Created By: Robert H. Scott

Weatherford International Ltd.

Planning Report

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Company:	ANADARKO PETROLEUM CORP.	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Project:	UINTAH COUNTY, UTAH (nad 27)	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site:	NBU 1022-20M PAD	**North Reference:**	True
Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	NBU 1022-20M4DS		
Design:	Design #1		

Project UINTAH COUNTY, UTAH (nad 27),

Map System:	Universal Transverse Mercator (US Survey Fee	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 - Western US		
Map Zone:	Zone 12N (114 W to 108 W)		

Site NBU 1022-20M PAD, SECTION 20 T10S R22E

Site Position:		**Northing:**	14,503,942.84 ft	**Latitude:**	39° 55' 45.052 N
From:	Lat/Long	**Easting:**	2,069,912.95 ft	**Longitude:**	109° 28' 4.865 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	in	**Grid Convergence:**	0.98 °

Well NBU 1022-20M4DS

Well Position	**+N/-S**	0.00 ft	**Northing:**	14,503,942.84 ft	**Latitude:**	39° 55' 45.052 N
	+E/-W	0.00 ft	**Easting:**	2,069,912.95 ft	**Longitude:**	109° 28' 4.865 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,308.00 ft

Wellbore NBU 1022-20M4DS

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2008	4/7/2009	11.36	65.90	52,524

Design Design #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	172.60

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,775.40	17.51	172.60	2,761.84	-131.61	17.09	2.00	2.00	0.00	172.60	
3,505.25	17.51	172.60	3,457.88	-349.35	45.36	0.00	0.00	0.00	0.00	
4,672.45	0.00	0.00	4,607.00	-524.82	68.14	1.50	-1.50	0.00	180.00	
8,765.45	0.00	0.00	8,700.00	-524.82	68.14	0.00	0.00	0.00	0.00	PBHL_NBU 1022-2

Weatherford International Ltd.

Planning Report

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Company:	ANADARKO PETROLEUM CORP.	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Project:	UINTAH COUNTY, UTAH (nad 27)	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site:	NBU 1022-20M PAD	**North Reference:**	True
Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	NBU 1022-20M4DS		
Design:	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)
Start Build 2.00									
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	2.00	172.60	1,999.98	-1.73	0.22	1.75	2.00	2.00	0.00
2,100.00	4.00	172.60	2,099.84	-6.92	0.90	6.98	2.00	2.00	0.00
2,200.00	6.00	172.60	2,199.45	-15.56	2.02	15.69	2.00	2.00	0.00
2,300.00	8.00	172.60	2,298.70	-27.65	3.59	27.88	2.00	2.00	0.00
2,400.00	10.00	172.60	2,397.47	-43.16	5.60	43.52	2.00	2.00	0.00
2,500.00	12.00	172.60	2,495.62	-62.08	8.06	62.60	2.00	2.00	0.00
2,600.00	14.00	172.60	2,593.06	-84.39	10.96	85.10	2.00	2.00	0.00
2,700.00	16.00	172.60	2,689.64	-110.05	14.29	110.98	2.00	2.00	0.00
Start 729.85 hold at 2775.40 MD									
2,775.40	17.51	172.60	2,761.84	-131.61	17.09	132.71	2.00	2.00	0.00
2,800.00	17.51	172.60	2,785.30	-138.95	18.04	140.11	0.00	0.00	0.00
2,900.00	17.51	172.60	2,880.67	-168.78	21.91	170.20	0.00	0.00	0.00
3,000.00	17.51	172.60	2,976.04	-198.61	25.79	200.28	0.00	0.00	0.00
3,100.00	17.51	172.60	3,071.40	-228.45	29.66	230.36	0.00	0.00	0.00
3,200.00	17.51	172.60	3,166.77	-258.28	33.53	260.45	0.00	0.00	0.00
3,300.00	17.51	172.60	3,262.14	-288.11	37.41	290.53	0.00	0.00	0.00
3,400.00	17.51	172.60	3,357.51	-317.95	41.28	320.62	0.00	0.00	0.00
3,500.00	17.51	172.60	3,452.87	-347.78	45.15	350.70	0.00	0.00	0.00
Start Drop -1.50									
3,505.25	17.51	172.60	3,457.88	-349.35	45.36	352.28	0.00	0.00	0.00
3,600.00	16.09	172.60	3,548.58	-376.50	48.88	379.66	1.50	-1.50	0.00
3,700.00	14.59	172.60	3,645.02	-402.73	52.29	406.11	1.50	-1.50	0.00
3,800.00	13.09	172.60	3,742.12	-426.44	55.37	430.02	1.50	-1.50	0.00
3,900.00	11.59	172.60	3,839.80	-447.63	58.12	451.39	1.50	-1.50	0.00
4,000.00	10.09	172.60	3,938.02	-466.27	60.54	470.19	1.50	-1.50	0.00
4,100.00	8.59	172.60	4,036.69	-482.36	62.63	486.41	1.50	-1.50	0.00
Wasatch									
4,171.01	7.52	172.60	4,107.00	-492.23	63.91	496.36	1.50	-1.50	0.00
4,200.00	7.09	172.60	4,135.75	-495.88	64.38	500.05	1.50	-1.50	0.00
4,300.00	5.59	172.60	4,235.14	-506.83	65.80	511.08	1.50	-1.50	0.00
4,400.00	4.09	172.60	4,334.78	-515.19	66.89	519.51	1.50	-1.50	0.00
4,500.00	2.59	172.60	4,434.61	-520.96	67.64	525.34	1.50	-1.50	0.00
4,600.00	1.09	172.60	4,534.55	-524.14	68.05	528.54	1.50	-1.50	0.00
Start 4093.00 hold at 4672.45 MD									
4,672.45	0.00	0.00	4,607.00	-524.82	68.14	529.23	1.50	-1.50	0.00
4,700.00	0.00	0.00	4,634.55	-524.82	68.14	529.23	0.00	0.00	0.00
4,800.00	0.00	0.00	4,734.55	-524.82	68.14	529.23	0.00	0.00	0.00
4,900.00	0.00	0.00	4,834.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,000.00	0.00	0.00	4,934.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,100.00	0.00	0.00	5,034.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,200.00	0.00	0.00	5,134.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,300.00	0.00	0.00	5,234.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,400.00	0.00	0.00	5,334.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,500.00	0.00	0.00	5,434.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,600.00	0.00	0.00	5,534.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,700.00	0.00	0.00	5,634.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,800.00	0.00	0.00	5,734.55	-524.82	68.14	529.23	0.00	0.00	0.00
5,900.00	0.00	0.00	5,834.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,000.00	0.00	0.00	5,934.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,100.00	0.00	0.00	6,034.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,200.00	0.00	0.00	6,134.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,300.00	0.00	0.00	6,234.55	-524.82	68.14	529.23	0.00	0.00	0.00

Weatherford International Ltd.

Planning Report

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Company:	ANADARKO PETROLEUM CORP.	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Project:	UINTAH COUNTY, UTAH (nad 27)	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site:	NBU 1022-20M PAD	**North Reference:**	True
Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	NBU 1022-20M4DS		
Design:	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)
6,400.00	0.00	0.00	6,334.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,434.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,534.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,700.00	0.00	0.00	6,634.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,800.00	0.00	0.00	6,734.55	-524.82	68.14	529.23	0.00	0.00	0.00
6,900.00	0.00	0.00	6,834.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,000.00	0.00	0.00	6,934.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,100.00	0.00	0.00	7,034.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,200.00	0.00	0.00	7,134.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,300.00	0.00	0.00	7,234.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,400.00	0.00	0.00	7,334.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,500.00	0.00	0.00	7,434.55	-524.82	68.14	529.23	0.00	0.00	0.00
Mesaverde									
7,585.45	0.00	0.00	7,520.00	-524.82	68.14	529.23	0.00	0.00	0.00
7,600.00	0.00	0.00	7,534.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,700.00	0.00	0.00	7,634.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,800.00	0.00	0.00	7,734.55	-524.82	68.14	529.23	0.00	0.00	0.00
7,900.00	0.00	0.00	7,834.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,000.00	0.00	0.00	7,934.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,100.00	0.00	0.00	8,034.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,200.00	0.00	0.00	8,134.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,300.00	0.00	0.00	8,234.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,400.00	0.00	0.00	8,334.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,500.00	0.00	0.00	8,434.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,600.00	0.00	0.00	8,534.55	-524.82	68.14	529.23	0.00	0.00	0.00
8,700.00	0.00	0.00	8,634.55	-524.82	68.14	529.23	0.00	0.00	0.00
PBHL_NBU 1022-20M4DS									
8,765.45	0.00	0.00	8,700.00	-524.82	68.14	529.23	0.00	0.00	0.00

Design 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
PBHL_NBU 1022-20M - plan hits target center - Circle (radius 25.00)	0.00	0.00	8,700.00	-524.82	68.14	14,503,419.26	2,069,990.09	39° 55' 39.864 N	109° 28' 3.990 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,800.00	1,800.00	9 5/8"	9.62	12.25

Weatherford International Ltd.

Planning Report

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Company:	ANADARKO PETROLEUM CORP.	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Project:	UINTAH COUNTY, UTAH (nad 27)	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site:	NBU 1022-20M PAD	**North Reference:**	True
Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	NBU 1022-20M4DS		
Design:	Design #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,002.00	1,002.00	Green River			
4,171.01	4,107.00	Wasatch			
7,585.45	7,520.00	Mesaverde			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,900.00	1,900.00	0.00	0.00	Start Build 2.00
2,775.40	2,761.84	-131.61	17.09	Start 729.85 hold at 2775.40 MD
3,505.25	3,457.88	-349.35	45.36	Start Drop -1.50
4,672.45	4,607.00	-524.82	68.14	Start 4093.00 hold at 4672.45 MD
8,765.45	8,700.00	-524.82	68.14	TD at 8765.45

’APIWellNo:43047504230000’

ANADARKO PETROLEUM CORP.

UINTAH COUNTY, UTAH (nad 27)
NBU 1022-20M PAD
NBU 1022-20M4DS

NBU 1022-20M4DS
Design #1

Anticollision Report

07 April, 2009

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Design #1

Filter type: NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method: Stations
Depth Range: 0.00 to 20,000.00ft
Results Limited by: Maximum center-center distance of 10,000.00ft
Warning Levels Evaluated at: 2.00 **Sigma**
Error Model: ISCWSA
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic

Survey Tool Program **Date** 4/7/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,765.45	Design #1 (NBU 1022-20M4DS)	MWD	MWD - Standard

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
NBU 1022-20M PAD						
NBU 1022-19P1AS - NBU 1022-19P1AS - Design #1	1,900.00	1,900.00	59.76	51.49	7.222	CC, ES
NBU 1022-19P1AS - NBU 1022-19P1AS - Design #1	2,000.00	1,997.35	62.65	53.97	7.217	SF
NBU 1022-20M EXISTING - NBU 1022-20M - NBU 1022	0.00	0.00	80.47			
NBU 1022-20M EXISTING - NBU 1022-20M - NBU 1022	1,900.00	1,900.00	84.10	76.50	11.060	ES
NBU 1022-20M EXISTING - NBU 1022-20M - NBU 1022	2,200.00	2,200.03	88.13	79.45	10.150	SF
NBU 1022-20M1DS - NBU 1022-20M1DS - Design #1	1,900.00	1,900.00	19.78	11.51	2.390	CC, ES, SF
NBU 1022-20M4CS - NBU 1022-20M4CS - Design #1	1,900.00	1,900.00	39.83	31.55	4.813	CC, ES
NBU 1022-20M4CS - NBU 1022-20M4CS - Design #1	2,000.00	1,999.46	41.23	32.56	4.757	SF

Offset Design NBU 1022-20M PAD - NBU 1022-19P1AS - NBU 1022-19P1AS - Design #1
Offset Site Error: 0.00 ft
Offset Well Error: 0.00 ft
Survey Program: 0-MWD

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-72.26	18.21	-56.92	59.76				
100.00	100.00	100.00	100.00	0.09	0.09	-72.26	18.21	-56.92	59.76	59.58	0.18	324.264	
200.00	200.00	200.00	200.00	0.32	0.32	-72.26	18.21	-56.92	59.76	59.13	0.63	94.290	
300.00	300.00	300.00	300.00	0.54	0.54	-72.26	18.21	-56.92	59.76	58.68	1.08	55.165	
400.00	400.00	400.00	400.00	0.77	0.77	-72.26	18.21	-56.92	59.76	58.23	1.53	38.988	
500.00	500.00	500.00	500.00	0.99	0.99	-72.26	18.21	-56.92	59.76	57.78	1.98	30.147	
600.00	600.00	600.00	600.00	1.22	1.22	-72.26	18.21	-56.92	59.76	57.33	2.43	24.575	
700.00	700.00	700.00	700.00	1.44	1.44	-72.26	18.21	-56.92	59.76	56.88	2.88	20.741	
800.00	800.00	800.00	800.00	1.67	1.67	-72.26	18.21	-56.92	59.76	56.43	3.33	17.942	
900.00	900.00	900.00	900.00	1.89	1.89	-72.26	18.21	-56.92	59.76	55.98	3.78	15.808	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-72.26	18.21	-56.92	59.76	55.53	4.23	14.128	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-72.26	18.21	-56.92	59.76	55.08	4.68	12.771	
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	-72.26	18.21	-56.92	59.76	54.64	5.13	11.652	
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	-72.26	18.21	-56.92	59.76	54.19	5.58	10.713	
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	-72.26	18.21	-56.92	59.76	53.74	6.03	9.914	
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	-72.26	18.21	-56.92	59.76	53.29	6.48	9.226	
1,600.00	1,600.00	1,600.00	1,600.00	3.46	3.46	-72.26	18.21	-56.92	59.76	52.84	6.93	8.627	
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	-72.26	18.21	-56.92	59.76	52.39	7.38	8.102	
1,800.00	1,800.00	1,800.00	1,800.00	3.91	3.91	-72.26	18.21	-56.92	59.76	51.94	7.83	7.636	
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	-72.26	18.21	-56.92	59.76	51.49	8.28	7.222	CC, ES

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

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-19P1AS - NBU 1022-19P1AS - Design #1

Offset Site Error: 0.00 ft

Offset Well Error: 0.00 ft

Survey Program: 0-MWD

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,000.00	1,999.98	1,997.35	1,997.32	4.33	4.35	116.56	18.91	-58.87	62.65	53.97	8.68	7.217 SF	
2,100.00	2,099.84	2,094.03	2,093.80	4.51	4.55	120.11	20.99	-64.65	71.50	62.44	9.05	7.899	
2,200.00	2,199.45	2,189.41	2,188.64	4.69	4.77	124.32	24.38	-74.10	86.64	77.21	9.43	9.191	
2,300.00	2,298.70	2,282.88	2,281.10	4.88	4.99	128.12	29.00	-86.95	108.24	98.44	9.81	11.039	
2,400.00	2,397.47	2,373.90	2,370.53	5.09	5.24	131.11	34.72	-102.87	136.22	126.03	10.19	13.369	
2,500.00	2,495.62	2,461.98	2,456.37	5.33	5.50	133.31	41.39	-121.44	170.35	159.77	10.58	16.100	
2,600.00	2,593.06	2,546.74	2,538.19	5.61	5.80	134.86	48.86	-142.23	210.32	199.33	10.98	19.148	
2,700.00	2,689.64	2,627.86	2,615.68	5.94	6.12	135.89	56.97	-164.78	255.80	244.40	11.40	22.441	
2,775.40	2,761.84	2,686.46	2,671.11	6.22	6.38	136.40	63.39	-182.67	293.53	281.81	11.73	25.034	
2,800.00	2,785.30	2,700.00	2,683.85	6.32	6.44	136.64	64.95	-186.99	306.44	294.61	11.83	25.900	
2,900.00	2,880.67	2,779.34	2,757.92	6.74	6.85	137.67	74.56	-213.74	360.30	347.95	12.35	29.178	
3,000.00	2,976.04	2,850.86	2,823.82	7.19	7.27	138.21	83.96	-239.91	416.67	403.79	12.87	32.368	
3,100.00	3,071.40	2,919.70	2,886.39	7.66	7.71	138.48	93.66	-266.91	475.33	461.91	13.41	35.437	
3,200.00	3,166.77	2,985.89	2,945.72	8.15	8.19	138.59	103.59	-294.53	536.13	522.16	13.97	38.375	
3,300.00	3,262.14	3,049.48	3,001.89	8.66	8.69	138.57	113.66	-322.57	598.94	584.40	14.54	41.181	
3,400.00	3,357.51	3,117.58	3,061.23	9.18	9.27	138.47	124.96	-354.00	663.47	648.32	15.15	43.792	
3,505.25	3,457.88	3,197.73	3,130.93	9.74	9.98	138.37	138.34	-391.25	731.68	715.86	15.82	46.249	
3,600.00	3,548.58	3,270.43	3,194.15	10.19	10.66	139.00	150.48	-425.03	792.42	775.95	16.47	48.107	
3,700.00	3,645.02	3,348.33	3,261.89	10.61	11.39	139.50	163.49	-461.23	855.04	837.89	17.15	49.855	
3,800.00	3,742.12	3,427.37	3,330.62	11.01	12.16	139.87	176.68	-497.96	916.11	898.27	17.84	51.349	
3,900.00	3,839.80	3,507.50	3,400.30	11.39	12.94	140.13	190.06	-535.20	975.62	957.08	18.54	52.627	
4,000.00	3,938.02	3,588.67	3,470.89	11.74	13.75	140.29	203.62	-572.91	1,033.55	1,014.31	19.24	53.720	
4,100.00	4,036.69	3,670.82	3,542.32	12.08	14.57	140.37	217.33	-611.09	1,089.89	1,069.96	19.94	54.663	
4,200.00	4,135.75	3,753.89	3,614.56	12.38	15.42	140.39	231.20	-649.69	1,144.64	1,124.01	20.63	55.486	
4,300.00	4,235.14	3,837.82	3,687.55	12.66	16.28	140.34	245.22	-688.69	1,197.79	1,176.48	21.31	56.209	
4,400.00	4,334.78	3,922.57	3,761.24	12.90	17.15	140.23	259.37	-728.07	1,249.34	1,227.37	21.97	56.854	
4,500.00	4,434.61	4,008.07	3,835.59	13.12	18.04	140.07	273.64	-767.80	1,299.30	1,276.68	22.62	57.435	
4,600.00	4,534.55	4,094.26	3,910.54	13.31	18.94	139.86	288.04	-807.86	1,347.68	1,324.43	23.25	57.966	
4,672.45	4,607.00	4,157.10	3,965.19	13.43	19.59	-47.71	298.53	-837.06	1,381.74	1,358.06	23.69	58.338	
4,700.00	4,634.55	4,181.06	3,986.02	13.47	19.84	-47.92	302.53	-848.19	1,394.55	1,370.72	23.83	58.525	
4,800.00	4,734.55	4,268.02	4,061.64	13.62	20.76	-48.65	317.05	-888.60	1,441.15	1,416.80	24.35	59.181	
4,900.00	4,834.55	4,354.97	4,137.25	13.78	21.68	-49.34	331.57	-929.01	1,487.93	1,463.06	24.87	59.828	
5,000.00	4,934.55	4,441.93	4,212.87	13.94	22.60	-49.99	346.09	-969.42	1,534.87	1,509.49	25.38	60.466	
5,100.00	5,034.55	4,528.89	4,288.49	14.10	23.52	-50.60	360.61	-1,009.83	1,581.96	1,556.07	25.90	61.091	
5,200.00	5,134.55	4,615.85	4,364.11	14.26	24.44	-51.18	375.13	-1,050.24	1,629.19	1,602.78	26.40	61.705	
5,300.00	5,234.55	4,782.77	4,510.96	14.42	25.96	-52.16	401.95	-1,124.88	1,675.05	1,647.93	27.12	61.765	
5,400.00	5,334.55	4,993.54	4,702.50	14.59	27.55	-53.14	431.65	-1,207.54	1,715.13	1,687.23	27.90	61.478	
5,500.00	5,434.55	5,217.97	4,912.97	14.75	28.95	-53.92	457.95	-1,280.73	1,748.52	1,719.86	28.67	60.989	
5,600.00	5,534.55	5,454.45	5,140.59	14.92	30.10	-54.52	479.54	-1,340.83	1,774.59	1,745.17	29.41	60.334	
5,700.00	5,634.55	5,700.51	5,382.17	15.09	30.96	-54.92	495.20	-1,384.39	1,792.76	1,762.65	30.11	59.541	
5,800.00	5,734.55	5,952.94	5,633.21	15.26	31.50	-55.14	503.91	-1,408.65	1,802.63	1,771.90	30.73	58.655	
5,900.00	5,834.55	6,154.38	5,834.55	15.44	31.73	-55.18	505.56	-1,413.22	1,804.47	1,773.26	31.21	57.809	
6,000.00	5,934.55	6,254.38	5,934.55	15.61	31.81	-55.18	505.56	-1,413.22	1,804.47	1,772.92	31.55	57.193	
6,100.00	6,034.55	6,354.38	6,034.55	15.79	31.90	-55.18	505.56	-1,413.22	1,804.47	1,772.58	31.89	56.578	
6,200.00	6,134.55	6,454.38	6,134.55	15.96	31.99	-55.18	505.56	-1,413.22	1,804.47	1,772.23	32.24	55.971	
6,300.00	6,234.55	6,554.38	6,234.55	16.14	32.08	-55.18	505.56	-1,413.22	1,804.47	1,771.88	32.59	55.373	
6,400.00	6,334.55	6,654.38	6,334.55	16.32	32.18	-55.18	505.56	-1,413.22	1,804.47	1,771.53	32.94	54.784	
6,500.00	6,434.55	6,754.38	6,434.55	16.50	32.27	-55.18	505.56	-1,413.22	1,804.47	1,771.18	33.29	54.203	
6,600.00	6,534.55	6,854.38	6,534.55	16.68	32.37	-55.18	505.56	-1,413.22	1,804.47	1,770.83	33.65	53.631	
6,700.00	6,634.55	6,954.38	6,634.55	16.86	32.46	-55.18	505.56	-1,413.22	1,804.47	1,770.47	34.00	53.068	
6,800.00	6,734.55	7,054.38	6,734.55	17.05	32.56	-55.18	505.56	-1,413.22	1,804.47	1,770.11	34.36	52.513	
6,900.00	6,834.55	7,154.38	6,834.55	17.23	32.66	-55.18	505.56	-1,413.22	1,804.47	1,769.75	34.72	51.967	

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

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-19P1AS - NBU 1022-19P1AS - Design #1

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,000.00	6,934.55	7,254.38	6,934.55	17.42	32.76	-55.18	505.56	-1,413.22	1,804.47	1,769.38	35.09	51.429	
7,100.00	7,034.55	7,354.38	7,034.55	17.60	32.86	-55.18	505.56	-1,413.22	1,804.47	1,769.02	35.45	50.899	
7,200.00	7,134.55	7,454.38	7,134.55	17.79	32.97	-55.18	505.56	-1,413.22	1,804.47	1,768.65	35.82	50.377	
7,300.00	7,234.55	7,554.38	7,234.55	17.98	33.07	-55.18	505.56	-1,413.22	1,804.47	1,768.28	36.19	49.864	
7,400.00	7,334.55	7,654.38	7,334.55	18.17	33.18	-55.18	505.56	-1,413.22	1,804.47	1,767.91	36.56	49.358	
7,500.00	7,434.55	7,754.38	7,434.55	18.36	33.28	-55.18	505.56	-1,413.22	1,804.47	1,767.54	36.93	48.860	
7,600.00	7,534.55	7,854.38	7,534.55	18.55	33.39	-55.18	505.56	-1,413.22	1,804.47	1,767.17	37.31	48.370	
7,700.00	7,634.55	7,954.38	7,634.55	18.74	33.50	-55.18	505.56	-1,413.22	1,804.47	1,766.79	37.68	47.888	
7,800.00	7,734.55	8,054.38	7,734.55	18.93	33.61	-55.18	505.56	-1,413.22	1,804.47	1,766.41	38.06	47.414	
7,900.00	7,834.55	8,154.38	7,834.55	19.12	33.72	-55.18	505.56	-1,413.22	1,804.47	1,766.03	38.44	46.946	
8,000.00	7,934.55	8,254.38	7,934.55	19.31	33.83	-55.18	505.56	-1,413.22	1,804.47	1,765.65	38.82	46.487	
8,100.00	8,034.55	8,354.38	8,034.55	19.51	33.95	-55.18	505.56	-1,413.22	1,804.47	1,765.27	39.20	46.034	
8,200.00	8,134.55	8,454.38	8,134.55	19.70	34.06	-55.18	505.56	-1,413.22	1,804.47	1,764.89	39.58	45.589	
8,300.00	8,234.55	8,554.38	8,234.55	19.90	34.18	-55.18	505.56	-1,413.22	1,804.47	1,764.51	39.97	45.150	
8,400.00	8,334.55	8,654.38	8,334.55	20.09	34.29	-55.18	505.56	-1,413.22	1,804.47	1,764.12	40.35	44.719	
8,500.00	8,434.55	8,754.38	8,434.55	20.29	34.41	-55.18	505.56	-1,413.22	1,804.47	1,763.73	40.74	44.294	
8,600.00	8,534.55	8,854.38	8,534.55	20.49	34.53	-55.18	505.56	-1,413.22	1,804.47	1,763.34	41.13	43.876	
8,700.00	8,634.55	8,954.38	8,634.55	20.68	34.65	-55.18	505.56	-1,413.22	1,804.47	1,762.96	41.52	43.464	
8,765.45	8,700.00	9,019.83	8,700.00	20.81	34.73	-55.18	505.56	-1,413.22	1,804.47	1,762.70	41.77	43.199	

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-20M EXISTING - NBU 1022-20M - NBU 1022-20M

Offset Site Error: 0.00 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-79.31	14.93	-79.07	80.47				
100.00	100.00	99.89	99.89	0.09	0.11	-79.16	15.15	-79.10	80.54	80.34	0.20	400.889	
200.00	200.00	199.63	199.63	0.32	0.37	-78.75	15.77	-79.28	80.84	80.15	0.69	117.319	
300.00	300.00	299.71	299.71	0.54	0.63	-78.40	16.34	-79.59	81.25	80.08	1.17	69.370	
400.00	400.00	399.69	399.68	0.77	0.88	-78.24	16.63	-79.91	81.62	79.97	1.65	49.494	
500.00	500.00	499.67	499.67	0.99	1.14	-78.12	16.89	-80.26	82.02	79.89	2.13	38.551	
600.00	600.00	600.00	599.99	1.22	1.36	-77.92	17.19	-80.33	82.15	79.58	2.57	31.947	
700.00	700.00	699.74	699.74	1.44	1.58	-77.67	17.56	-80.35	82.24	79.22	3.02	27.192	
800.00	800.00	799.68	799.67	1.67	1.84	-77.51	17.86	-80.65	82.60	79.10	3.51	23.558	
900.00	900.00	900.01	900.00	1.89	2.09	-77.45	17.99	-80.83	82.81	78.82	3.98	20.799	
1,000.00	1,000.00	1,000.19	1,000.18	2.12	2.21	-77.58	17.78	-80.76	82.69	78.37	4.33	19.120	
1,100.00	1,100.00	1,100.01	1,100.00	2.34	2.34	-77.71	17.58	-80.69	82.58	77.91	4.68	17.661	
1,159.03	1,159.03	1,159.04	1,159.03	2.47	2.42	-77.76	17.50	-80.70	82.58	77.69	4.89	16.873	
1,200.00	1,200.00	1,200.00	1,199.99	2.56	2.48	-77.86	17.37	-80.74	82.58	77.54	5.05	16.366	
1,300.00	1,300.00	1,299.80	1,299.79	2.79	2.57	-78.14	17.00	-80.94	82.71	77.35	5.36	15.428	
1,400.00	1,400.00	1,399.83	1,399.82	3.01	2.71	-78.39	16.69	-81.25	82.94	77.22	5.72	14.496	
1,500.00	1,500.00	1,499.71	1,499.69	3.24	2.85	-78.79	16.18	-81.65	83.24	77.15	6.09	13.664	
1,600.00	1,600.00	1,599.70	1,599.68	3.46	3.00	-79.49	15.25	-82.21	83.61	77.14	6.47	12.929	
1,700.00	1,700.00	1,700.00	1,699.97	3.69	3.15	-80.52	13.79	-82.59	83.73	76.90	6.84	12.250	
1,800.00	1,800.00	1,799.71	1,799.66	3.91	3.30	-81.84	11.90	-83.02	83.87	76.66	7.21	11.629	
1,900.00	1,900.00	1,900.00	1,899.92	4.14	3.47	-83.47	9.57	-83.56	84.10	76.50	7.60	11.060	ES
2,000.00	1,999.98	1,999.75	1,999.64	4.33	3.64	103.30	7.01	-84.07	84.75	76.77	7.98	10.626	
2,100.00	2,099.84	2,100.33	2,100.19	4.51	3.83	104.95	4.42	-84.38	86.03	77.70	8.33	10.332	
2,200.00	2,199.45	2,200.03	2,199.84	4.69	4.01	108.70	1.81	-84.38	88.13	79.45	8.68	10.150	SF
2,300.00	2,298.70	2,299.90	2,299.69	4.88	4.19	114.42	-0.56	-84.18	91.86	82.81	9.05	10.151	
2,400.00	2,397.47	2,398.71	2,398.47	5.09	4.38	121.30	-2.90	-83.98	98.22	88.79	9.43	10.420	
2,500.00	2,495.62	2,497.33	2,497.05	5.33	4.59	128.48	-5.48	-84.03	108.11	98.30	9.81	11.017	
2,600.00	2,593.06	2,595.23	2,594.92	5.61	4.80	135.45	-8.04	-84.13	121.96	111.76	10.20	11.962	
2,700.00	2,689.64	2,691.88	2,691.55	5.94	5.01	141.74	-10.37	-84.33	140.24	129.67	10.57	13.268	
2,775.40	2,761.84	2,764.62	2,764.27	6.22	5.18	145.92	-12.03	-84.60	156.99	146.14	10.85	14.474	
2,800.00	2,785.30	2,788.31	2,787.95	6.32	5.24	147.20	-12.62	-84.72	162.87	151.92	10.95	14.872	
2,900.00	2,880.67	2,884.68	2,884.29	6.74	5.46	151.57	-15.10	-85.15	187.34	175.95	11.38	16.455	
3,000.00	2,976.04	2,981.30	2,980.87	7.19	5.68	155.00	-17.61	-85.29	212.42	200.60	11.83	17.964	
3,100.00	3,071.40	3,077.65	3,077.19	7.66	5.90	157.78	-20.12	-85.05	237.89	225.63	12.27	19.392	
3,200.00	3,166.77	3,173.92	3,173.42	8.15	6.12	160.06	-22.60	-84.64	263.73	251.02	12.71	20.742	
3,300.00	3,262.14	3,270.03	3,269.51	8.66	6.34	161.95	-25.06	-84.12	289.87	276.70	13.17	22.009	
3,400.00	3,357.51	3,366.09	3,365.53	9.18	6.56	163.52	-27.53	-83.68	316.26	302.63	13.63	23.200	
3,505.25	3,457.88	3,467.24	3,466.65	9.74	6.79	164.89	-30.15	-83.28	344.26	330.13	14.13	24.368	
3,600.00	3,548.58	3,558.63	3,558.01	10.19	7.01	166.00	-32.51	-82.92	368.49	353.85	14.64	25.166	
3,700.00	3,645.02	3,655.74	3,655.08	10.61	7.24	166.94	-35.03	-82.54	391.77	376.59	15.18	25.802	
3,800.00	3,742.12	3,753.44	3,752.74	11.01	7.48	167.69	-37.55	-82.13	412.62	396.90	15.72	26.247	
3,900.00	3,839.80	3,851.65	3,850.92	11.39	7.71	168.29	-40.09	-81.72	431.01	414.76	16.25	26.522	
4,000.00	3,938.02	3,950.30	3,949.55	11.74	7.95	168.77	-42.64	-81.32	446.90	430.13	16.77	26.645	
4,100.00	4,036.69	4,049.34	4,048.55	12.08	8.20	169.14	-45.21	-80.94	460.28	443.00	17.28	26.630	
4,200.00	4,135.75	4,148.69	4,147.87	12.38	8.44	169.42	-47.78	-80.60	471.13	453.34	17.78	26.492	
4,300.00	4,235.14	4,248.80	4,247.94	12.66	8.69	169.63	-50.41	-80.29	479.40	461.13	18.27	26.237	
4,400.00	4,334.78	4,349.66	4,348.76	12.90	8.94	169.75	-53.25	-79.98	484.93	466.18	18.75	25.867	
4,500.00	4,434.61	4,450.73	4,449.79	13.12	9.19	169.82	-56.31	-79.61	487.66	468.46	19.20	25.395	
4,600.00	4,534.55	4,551.93	4,550.93	13.31	9.44	169.87	-59.47	-78.76	487.58	467.94	19.64	24.827	
4,672.45	4,607.00	4,624.36	4,623.32	13.43	9.62	-17.50	-61.78	-77.84	485.78	465.85	19.93	24.372	
4,700.00	4,634.55	4,651.28	4,650.22	13.47	9.68	-17.49	-62.59	-77.47	484.88	464.83	20.05	24.187	
4,800.00	4,734.55	4,748.98	4,747.88	13.62	9.91	-17.43	-65.24	-76.12	481.88	461.40	20.47	23.535	

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

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-20M EXISTING - NBU 1022-20M - NBU 1022-20M

Offset Site Error: 0.00 ft

Offset Well Error: 0.00 ft

Survey Program: 100-NS-GYRO-MS

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,834.55	4,847.81	4,846.67	13.78	10.14	-17.35	-67.48	-74.72	479.29	458.39	20.90	22.927	
5,000.00	4,934.55	4,947.86	4,946.68	13.94	10.38	-17.27	-69.71	-73.35	476.75	455.42	21.34	22.342	
5,100.00	5,034.55	5,047.93	5,046.72	14.10	10.62	-17.20	-71.98	-72.06	474.20	452.42	21.78	21.774	
5,200.00	5,134.55	5,148.05	5,146.81	14.26	10.86	-17.16	-74.35	-70.97	471.62	449.39	22.22	21.221	
5,300.00	5,234.55	5,248.49	5,247.22	14.42	11.11	-17.15	-76.86	-70.11	468.98	446.31	22.68	20.681	
5,400.00	5,334.55	5,349.28	5,347.96	14.59	11.37	-17.19	-79.64	-69.59	466.20	443.06	23.14	20.148	
5,500.00	5,434.55	5,449.24	5,447.88	14.75	11.62	-17.27	-82.62	-69.34	463.28	439.67	23.60	19.629	
5,600.00	5,534.55	5,548.40	5,547.00	14.92	11.88	-17.32	-85.39	-68.93	460.49	436.42	24.06	19.137	
5,700.00	5,634.55	5,647.96	5,646.52	15.09	12.13	-17.34	-87.94	-68.30	457.85	433.32	24.52	18.670	
5,800.00	5,734.55	5,747.93	5,746.46	15.26	12.38	-17.35	-90.44	-67.54	455.23	430.25	24.98	18.221	
5,900.00	5,834.55	5,847.90	5,846.39	15.44	12.64	-17.34	-92.92	-66.69	452.62	427.17	25.45	17.788	
6,000.00	5,934.55	5,947.87	5,946.33	15.61	12.89	-17.33	-95.39	-65.83	450.00	424.09	25.91	17.370	
6,100.00	6,034.55	6,047.83	6,046.26	15.79	13.15	-17.32	-97.87	-65.00	447.38	421.01	26.37	16.966	
6,200.00	6,134.55	6,147.79	6,146.19	15.96	13.40	-17.31	-100.34	-64.14	444.77	417.93	26.83	16.576	
6,300.00	6,234.55	6,246.84	6,245.20	16.14	13.65	-17.30	-102.75	-63.31	442.20	414.90	27.30	16.200	
6,400.00	6,334.55	6,344.90	6,343.23	16.32	13.91	-17.31	-104.81	-62.73	440.01	412.25	27.76	15.852	
6,500.00	6,434.55	6,444.24	6,442.56	16.50	14.16	-17.33	-106.60	-62.37	438.19	409.97	28.22	15.525	
6,600.00	6,534.55	6,545.21	6,543.51	16.68	14.42	-17.34	-108.48	-61.83	436.25	407.55	28.70	15.203	
6,700.00	6,634.55	6,645.71	6,643.99	16.86	14.68	-17.32	-110.50	-61.08	434.11	404.94	29.17	14.884	
6,800.00	6,734.55	6,745.68	6,743.93	17.05	14.94	-17.32	-112.58	-60.46	431.93	402.30	29.63	14.575	
6,900.00	6,834.55	6,845.62	6,843.85	17.23	15.19	-17.35	-114.70	-59.96	429.77	399.66	30.10	14.276	
7,000.00	6,934.55	6,945.53	6,943.73	17.42	15.45	-17.33	-116.73	-59.23	427.61	397.04	30.57	13.988	
7,100.00	7,034.55	7,045.49	7,043.67	17.60	15.70	-17.28	-118.66	-58.24	425.47	394.43	31.04	13.709	
7,200.00	7,134.55	7,145.50	7,143.66	17.79	15.95	-17.23	-120.60	-57.24	423.32	391.82	31.50	13.438	
7,263.59	7,198.14	7,200.00	7,198.15	17.91	16.09	-17.21	-121.67	-56.72	422.05	390.27	31.77	13.283	
7,300.00	7,234.55	7,200.00	7,198.15	17.98	16.09	-17.21	-121.67	-56.72	423.61	391.76	31.85	13.300	
7,400.00	7,334.55	7,200.00	7,198.15	18.17	16.09	-17.21	-121.67	-56.72	443.54	411.48	32.07	13.832	
7,500.00	7,434.55	7,200.00	7,198.15	18.36	16.09	-17.21	-121.67	-56.72	483.75	451.46	32.28	14.986	
7,600.00	7,534.55	7,200.00	7,198.15	18.55	16.09	-17.21	-121.67	-56.72	539.71	507.22	32.50	16.609	
7,700.00	7,634.55	7,200.00	7,198.15	18.74	16.09	-17.21	-121.67	-56.72	607.10	574.39	32.71	18.560	
7,800.00	7,734.55	7,200.00	7,198.15	18.93	16.09	-17.21	-121.67	-56.72	682.53	649.61	32.93	20.729	
7,900.00	7,834.55	7,200.00	7,198.15	19.12	16.09	-17.21	-121.67	-56.72	763.63	730.49	33.14	23.041	
8,000.00	7,934.55	7,200.00	7,198.15	19.31	16.09	-17.21	-121.67	-56.72	848.77	815.41	33.36	25.444	
8,100.00	8,034.55	7,200.00	7,198.15	19.51	16.09	-17.21	-121.67	-56.72	936.85	903.28	33.57	27.904	
8,200.00	8,134.55	7,200.00	7,198.15	19.70	16.09	-17.21	-121.67	-56.72	1,027.12	993.33	33.79	30.397	
8,300.00	8,234.55	7,200.00	7,198.15	19.90	16.09	-17.21	-121.67	-56.72	1,119.04	1,085.04	34.01	32.906	
8,400.00	8,334.55	7,200.00	7,198.15	20.09	16.09	-17.21	-121.67	-56.72	1,212.24	1,178.02	34.22	35.421	
8,500.00	8,434.55	7,200.00	7,198.15	20.29	16.09	-17.21	-121.67	-56.72	1,306.45	1,272.01	34.44	37.934	
8,600.00	8,534.55	7,200.00	7,198.15	20.49	16.09	-17.21	-121.67	-56.72	1,401.46	1,366.81	34.66	40.437	
8,700.00	8,634.55	7,200.00	7,198.15	20.68	16.09	-17.21	-121.67	-56.72	1,497.12	1,462.25	34.87	42.928	
8,765.45	8,700.00	7,200.00	7,198.15	20.81	16.09	-17.21	-121.67	-56.72	1,560.03	1,525.01	35.02	44.550	

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-20M1DS - NBU 1022-20M1DS - Design #1

Offset Site Error: 0.00 ft

Offset Well Error: 0.00 ft

Survey Program: 0-MWD

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-71.76	6.19	-18.79	19.78				
100.00	100.00	100.00	100.00	0.09	0.09	-71.76	6.19	-18.79	19.78	19.60	0.18	107.327	
200.00	200.00	200.00	200.00	0.32	0.32	-71.76	6.19	-18.79	19.78	19.15	0.63	31.209	
300.00	300.00	300.00	300.00	0.54	0.54	-71.76	6.19	-18.79	19.78	18.70	1.08	18.259	
400.00	400.00	400.00	400.00	0.77	0.77	-71.76	6.19	-18.79	19.78	18.25	1.53	12.904	
500.00	500.00	500.00	500.00	0.99	0.99	-71.76	6.19	-18.79	19.78	17.80	1.98	9.978	
600.00	600.00	600.00	600.00	1.22	1.22	-71.76	6.19	-18.79	19.78	17.35	2.43	8.134	
700.00	700.00	700.00	700.00	1.44	1.44	-71.76	6.19	-18.79	19.78	16.90	2.88	6.865	
800.00	800.00	800.00	800.00	1.67	1.67	-71.76	6.19	-18.79	19.78	16.45	3.33	5.938	
900.00	900.00	900.00	900.00	1.89	1.89	-71.76	6.19	-18.79	19.78	16.00	3.78	5.232	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-71.76	6.19	-18.79	19.78	15.55	4.23	4.676	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-71.76	6.19	-18.79	19.78	15.10	4.68	4.227	
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	-71.76	6.19	-18.79	19.78	14.65	5.13	3.857	
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	-71.76	6.19	-18.79	19.78	14.20	5.58	3.546	
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	-71.76	6.19	-18.79	19.78	13.75	6.03	3.281	
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	-71.76	6.19	-18.79	19.78	13.30	6.48	3.054	
1,600.00	1,600.00	1,600.00	1,600.00	3.46	3.46	-71.76	6.19	-18.79	19.78	12.85	6.93	2.856	
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	-71.76	6.19	-18.79	19.78	12.40	7.38	2.682	
1,800.00	1,800.00	1,800.00	1,800.00	3.91	3.91	-71.76	6.19	-18.79	19.78	11.95	7.83	2.528	
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	-71.76	6.19	-18.79	19.78	11.51	8.28	2.390	CC, ES, SF
2,000.00	1,999.98	1,999.59	1,999.57	4.33	4.36	124.01	7.91	-18.98	21.49	12.80	8.69	2.473	
2,100.00	2,099.84	2,098.46	2,098.30	4.51	4.59	141.46	13.02	-19.56	28.61	19.53	9.08	3.151	
2,200.00	2,199.45	2,196.43	2,195.92	4.69	4.81	155.59	21.17	-20.48	43.22	33.76	9.46	4.569	
2,300.00	2,298.70	2,294.17	2,293.27	4.88	5.03	163.53	29.92	-21.47	63.02	53.20	9.83	6.414	
2,400.00	2,397.47	2,391.13	2,389.83	5.09	5.26	168.11	38.61	-22.45	86.78	76.60	10.18	8.522	
2,500.00	2,495.62	2,487.16	2,485.48	5.33	5.48	170.97	47.21	-23.42	114.18	103.65	10.53	10.842	
2,600.00	2,593.06	2,582.17	2,580.10	5.61	5.71	172.88	55.71	-24.38	145.07	134.20	10.87	13.345	
2,700.00	2,689.64	2,676.04	2,673.58	5.94	5.94	174.22	64.12	-25.33	179.34	168.14	11.20	16.013	
2,775.40	2,761.84	2,745.98	2,743.24	6.22	6.12	174.98	70.38	-26.04	207.38	195.94	11.44	18.124	
2,800.00	2,785.30	2,768.68	2,765.84	6.32	6.17	175.21	72.42	-26.27	216.83	205.29	11.54	18.782	
2,900.00	2,880.67	2,860.95	2,857.74	6.74	6.40	175.96	80.68	-27.20	255.28	243.31	11.97	21.334	
3,000.00	2,976.04	2,953.22	2,949.63	7.19	6.63	176.52	88.94	-28.13	293.76	281.36	12.40	23.698	
3,100.00	3,071.40	3,045.48	3,041.52	7.66	6.87	176.95	97.21	-29.06	332.25	319.42	12.83	25.892	
3,200.00	3,166.77	3,137.75	3,133.42	8.15	7.10	177.29	105.47	-30.00	370.76	357.48	13.28	27.929	
3,300.00	3,262.14	3,230.02	3,225.31	8.66	7.34	177.57	113.73	-30.93	409.28	395.55	13.72	29.823	
3,400.00	3,357.51	3,322.29	3,317.20	9.18	7.57	177.80	122.00	-31.86	447.80	433.62	14.18	31.587	
3,505.25	3,457.88	3,419.40	3,413.92	9.74	7.82	178.00	130.69	-32.85	488.35	473.69	14.66	33.315	
3,600.00	3,548.58	3,507.27	3,501.43	10.19	8.05	178.17	138.56	-33.73	523.77	508.60	15.18	34.513	
3,700.00	3,645.02	3,600.93	3,594.71	10.61	8.30	178.31	146.95	-34.68	558.79	543.07	15.72	35.548	
3,800.00	3,742.12	3,695.48	3,688.87	11.01	8.54	178.44	155.42	-35.64	591.34	575.08	16.25	36.379	
3,900.00	3,839.80	3,790.84	3,783.85	11.39	8.79	178.54	163.96	-36.60	621.40	604.62	16.78	37.030	
4,000.00	3,938.02	3,886.96	3,879.58	11.74	9.05	178.62	172.57	-37.57	648.97	631.67	17.30	37.519	
4,100.00	4,036.69	3,983.77	3,975.99	12.08	9.30	178.70	181.24	-38.55	674.01	656.21	17.80	37.864	
4,200.00	4,135.75	4,081.20	4,073.03	12.38	9.56	178.76	189.96	-39.54	696.50	678.21	18.29	38.076	
4,300.00	4,235.14	4,179.19	4,170.61	12.66	9.82	178.81	198.74	-40.53	716.45	697.68	18.77	38.170	
4,400.00	4,334.78	4,277.66	4,268.69	12.90	10.08	178.86	207.56	-41.52	733.81	714.58	19.23	38.154	
4,500.00	4,434.61	4,395.97	4,386.61	13.12	10.33	178.90	216.88	-42.58	747.57	727.90	19.67	38.008	
4,600.00	4,534.55	4,520.04	4,510.54	13.31	10.57	178.92	222.80	-43.25	755.57	735.48	20.09	37.618	
4,672.45	4,607.00	4,610.34	4,600.82	13.43	10.73	-8.47	224.59	-43.45	757.70	737.33	20.37	37.196	
4,700.00	4,634.55	4,644.07	4,634.55	13.47	10.78	-8.47	224.72	-43.46	757.80	737.32	20.48	36.999	
4,800.00	4,734.55	4,744.07	4,734.55	13.62	10.98	-8.47	224.72	-43.46	757.80	736.91	20.89	36.273	
4,900.00	4,834.55	4,844.07	4,834.55	13.78	11.19	-8.47	224.72	-43.46	757.80	736.49	21.32	35.551	

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

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-20M1DS - NBU 1022-20M1DS - Design #1

Offset Site Error: 0.00 ft

Offset Well Error: 0.00 ft

Survey Program: 0-MWD

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,934.55	4,944.07	4,934.55	13.94	11.40	-8.47	224.72	-43.46	757.80	736.06	21.74	34.855	
5,100.00	5,034.55	5,044.07	5,034.55	14.10	11.61	-8.47	224.72	-43.46	757.80	735.63	22.17	34.184	
5,200.00	5,134.55	5,144.07	5,134.55	14.26	11.82	-8.47	224.72	-43.46	757.80	735.21	22.60	33.538	
5,300.00	5,234.55	5,244.07	5,234.55	14.42	12.03	-8.47	224.72	-43.46	757.80	734.78	23.02	32.914	
5,400.00	5,334.55	5,344.07	5,334.55	14.59	12.24	-8.47	224.72	-43.46	757.80	734.35	23.45	32.312	
5,500.00	5,434.55	5,444.07	5,434.55	14.75	12.45	-8.47	224.72	-43.46	757.80	733.92	23.88	31.730	
5,600.00	5,534.55	5,544.07	5,534.55	14.92	12.66	-8.47	224.72	-43.46	757.80	733.49	24.31	31.168	
5,700.00	5,634.55	5,644.07	5,634.55	15.09	12.88	-8.47	224.72	-43.46	757.80	733.06	24.74	30.625	
5,800.00	5,734.55	5,744.07	5,734.55	15.26	13.09	-8.47	224.72	-43.46	757.80	732.62	25.18	30.100	
5,900.00	5,834.55	5,844.07	5,834.55	15.44	13.30	-8.47	224.72	-43.46	757.80	732.19	25.61	29.592	
6,000.00	5,934.55	5,944.07	5,934.55	15.61	13.52	-8.47	224.72	-43.46	757.80	731.76	26.04	29.100	
6,100.00	6,034.55	6,044.07	6,034.55	15.79	13.73	-8.47	224.72	-43.46	757.80	731.33	26.48	28.623	
6,200.00	6,134.55	6,144.07	6,134.55	15.96	13.95	-8.47	224.72	-43.46	757.80	730.89	26.91	28.161	
6,300.00	6,234.55	6,244.07	6,234.55	16.14	14.16	-8.47	224.72	-43.46	757.80	730.46	27.34	27.714	
6,400.00	6,334.55	6,344.07	6,334.55	16.32	14.38	-8.47	224.72	-43.46	757.80	730.02	27.78	27.280	
6,500.00	6,434.55	6,444.07	6,434.55	16.50	14.59	-8.47	224.72	-43.46	757.80	729.59	28.21	26.859	
6,600.00	6,534.55	6,544.07	6,534.55	16.68	14.81	-8.47	224.72	-43.46	757.80	729.15	28.65	26.450	
6,700.00	6,634.55	6,644.07	6,634.55	16.86	15.02	-8.47	224.72	-43.46	757.80	728.71	29.09	26.053	
6,800.00	6,734.55	6,744.07	6,734.55	17.05	15.24	-8.47	224.72	-43.46	757.80	728.28	29.52	25.668	
6,900.00	6,834.55	6,844.07	6,834.55	17.23	15.46	-8.47	224.72	-43.46	757.80	727.84	29.96	25.294	
7,000.00	6,934.55	6,944.07	6,934.55	17.42	15.67	-8.47	224.72	-43.46	757.80	727.40	30.40	24.930	
7,100.00	7,034.55	7,044.07	7,034.55	17.60	15.89	-8.47	224.72	-43.46	757.80	726.97	30.84	24.576	
7,200.00	7,134.55	7,144.07	7,134.55	17.79	16.11	-8.47	224.72	-43.46	757.80	726.53	31.27	24.231	
7,300.00	7,234.55	7,244.07	7,234.55	17.98	16.32	-8.47	224.72	-43.46	757.80	726.09	31.71	23.896	
7,400.00	7,334.55	7,344.07	7,334.55	18.17	16.54	-8.47	224.72	-43.46	757.80	725.65	32.15	23.570	
7,500.00	7,434.55	7,444.07	7,434.55	18.36	16.76	-8.47	224.72	-43.46	757.80	725.21	32.59	23.253	
7,600.00	7,534.55	7,544.07	7,534.55	18.55	16.98	-8.47	224.72	-43.46	757.80	724.77	33.03	22.943	
7,700.00	7,634.55	7,644.07	7,634.55	18.74	17.20	-8.47	224.72	-43.46	757.80	724.33	33.47	22.642	
7,800.00	7,734.55	7,744.07	7,734.55	18.93	17.41	-8.47	224.72	-43.46	757.80	723.89	33.91	22.348	
7,900.00	7,834.55	7,844.07	7,834.55	19.12	17.63	-8.47	224.72	-43.46	757.80	723.45	34.35	22.062	
8,000.00	7,934.55	7,944.07	7,934.55	19.31	17.85	-8.47	224.72	-43.46	757.80	723.01	34.79	21.783	
8,100.00	8,034.55	8,044.07	8,034.55	19.51	18.07	-8.47	224.72	-43.46	757.80	722.57	35.23	21.510	
8,200.00	8,134.55	8,144.07	8,134.55	19.70	18.29	-8.47	224.72	-43.46	757.80	722.13	35.67	21.244	
8,300.00	8,234.55	8,244.07	8,234.55	19.90	18.51	-8.47	224.72	-43.46	757.80	721.69	36.11	20.985	
8,400.00	8,334.55	8,344.07	8,334.55	20.09	18.73	-8.47	224.72	-43.46	757.80	721.25	36.55	20.732	
8,500.00	8,434.55	8,444.07	8,434.55	20.29	18.95	-8.47	224.72	-43.46	757.80	720.81	36.99	20.484	
8,600.00	8,534.55	8,544.07	8,534.55	20.49	19.17	-8.47	224.72	-43.46	757.80	720.37	37.44	20.243	
8,700.00	8,634.55	8,644.07	8,634.55	20.68	19.38	-8.47	224.72	-43.46	757.80	719.92	37.88	20.007	
8,765.45	8,700.00	8,709.52	8,700.00	20.81	19.53	-8.47	224.72	-43.46	757.80	719.63	38.17	19.855	

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-20M4CS - NBU 1022-20M4CS - Design #1

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-71.89	12.38	-37.85	39.83				
100.00	100.00	100.00	100.00	0.09	0.09	-71.89	12.38	-37.85	39.83	39.64	0.18	216.099	
200.00	200.00	200.00	200.00	0.32	0.32	-71.89	12.38	-37.85	39.83	39.19	0.63	62.837	
300.00	300.00	300.00	300.00	0.54	0.54	-71.89	12.38	-37.85	39.83	38.75	1.08	36.764	
400.00	400.00	400.00	400.00	0.77	0.77	-71.89	12.38	-37.85	39.83	38.30	1.53	25.983	
500.00	500.00	500.00	500.00	0.99	0.99	-71.89	12.38	-37.85	39.83	37.85	1.98	20.091	
600.00	600.00	600.00	600.00	1.22	1.22	-71.89	12.38	-37.85	39.83	37.40	2.43	16.377	
700.00	700.00	700.00	700.00	1.44	1.44	-71.89	12.38	-37.85	39.83	36.95	2.88	13.822	
800.00	800.00	800.00	800.00	1.67	1.67	-71.89	12.38	-37.85	39.83	36.50	3.33	11.957	
900.00	900.00	900.00	900.00	1.89	1.89	-71.89	12.38	-37.85	39.83	36.05	3.78	10.535	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-71.89	12.38	-37.85	39.83	35.60	4.23	9.416	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-71.89	12.38	-37.85	39.83	35.15	4.68	8.511	
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	-71.89	12.38	-37.85	39.83	34.70	5.13	7.765	
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	-71.89	12.38	-37.85	39.83	34.25	5.58	7.139	
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	-71.89	12.38	-37.85	39.83	33.80	6.03	6.607	
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	-71.89	12.38	-37.85	39.83	33.35	6.48	6.149	
1,600.00	1,600.00	1,600.00	1,600.00	3.46	3.46	-71.89	12.38	-37.85	39.83	32.90	6.93	5.750	
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	-71.89	12.38	-37.85	39.83	32.45	7.38	5.399	
1,800.00	1,800.00	1,800.00	1,800.00	3.91	3.91	-71.89	12.38	-37.85	39.83	32.00	7.83	5.089	
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	-71.89	12.38	-37.85	39.83	31.55	8.28	4.813	CC, ES
2,000.00	1,999.98	1,999.46	1,999.43	4.33	4.34	114.80	10.63	-39.11	41.23	32.56	8.67	4.757	SF
2,100.00	2,099.84	2,098.75	2,098.50	4.51	4.51	112.93	5.37	-42.85	45.46	36.45	9.01	5.046	
2,200.00	2,199.45	2,197.72	2,196.88	4.69	4.70	110.47	-3.35	-49.06	52.58	43.21	9.37	5.612	
2,300.00	2,298.70	2,296.20	2,294.23	4.88	4.90	107.95	-15.44	-57.67	62.62	52.87	9.76	6.418	
2,400.00	2,397.47	2,394.05	2,390.24	5.09	5.14	105.67	-30.83	-68.63	75.59	65.40	10.19	7.419	
2,500.00	2,495.62	2,491.13	2,484.60	5.33	5.41	103.72	-49.37	-81.83	91.45	80.77	10.68	8.564	
2,600.00	2,593.06	2,587.30	2,577.05	5.61	5.73	102.08	-70.94	-97.19	110.15	98.91	11.24	9.800	
2,700.00	2,689.64	2,682.45	2,667.33	5.94	6.11	100.71	-95.36	-114.58	131.61	119.72	11.89	11.073	
2,775.40	2,761.84	2,753.44	2,733.85	6.22	6.44	99.81	-115.57	-128.97	149.58	137.14	12.44	12.027	
2,800.00	2,785.30	2,776.46	2,755.25	6.32	6.55	99.63	-122.48	-133.89	155.75	143.12	12.63	12.335	
2,900.00	2,880.67	2,869.24	2,840.61	6.74	7.06	98.36	-152.09	-154.98	182.14	168.69	13.45	13.541	
3,000.00	2,976.04	2,961.68	2,924.16	7.19	7.62	96.54	-184.29	-177.91	210.68	196.35	14.33	14.699	
3,100.00	3,071.40	3,057.07	3,009.92	7.66	8.27	94.89	-218.32	-202.14	240.03	224.75	15.28	15.709	
3,200.00	3,166.77	3,152.46	3,095.68	8.15	8.94	93.59	-252.35	-226.37	269.52	253.26	16.26	16.578	
3,300.00	3,262.14	3,247.86	3,181.44	8.66	9.64	92.55	-286.38	-250.61	299.11	281.85	17.27	17.324	
3,400.00	3,357.51	3,343.25	3,267.19	9.18	10.36	91.70	-320.41	-274.84	328.78	310.48	18.30	17.967	
3,505.25	3,457.88	3,443.65	3,357.46	9.74	11.14	90.95	-356.23	-300.35	360.06	340.65	19.41	18.551	
3,600.00	3,548.58	3,533.99	3,438.67	10.19	11.85	90.65	-388.46	-323.30	388.26	367.88	20.38	19.049	
3,700.00	3,645.02	3,629.18	3,524.24	10.61	12.60	90.07	-422.42	-347.48	418.08	396.75	21.33	19.599	
3,800.00	3,742.12	3,732.56	3,617.66	11.01	13.32	89.28	-458.48	-373.16	447.38	425.16	22.23	20.128	
3,900.00	3,839.80	3,840.28	3,716.59	11.39	13.96	88.56	-493.18	-397.87	474.54	451.48	23.05	20.583	
4,000.00	3,938.02	3,949.75	3,818.69	11.74	14.58	87.93	-525.32	-420.76	499.37	475.52	23.85	20.941	
4,100.00	4,036.69	4,060.87	3,923.80	12.08	15.18	87.35	-554.67	-441.66	521.80	497.21	24.59	21.217	
4,200.00	4,135.75	4,173.52	4,031.71	12.38	15.73	86.82	-581.01	-460.42	541.74	516.46	25.29	21.424	
4,300.00	4,235.14	4,287.58	4,142.17	12.66	16.25	86.31	-604.14	-476.89	559.13	533.21	25.92	21.571	
4,400.00	4,334.78	4,402.90	4,254.91	12.90	16.71	85.81	-623.86	-490.93	573.89	547.40	26.49	21.665	
4,500.00	4,434.61	4,519.33	4,369.63	13.12	17.11	85.32	-640.01	-502.43	585.98	559.00	26.98	21.715	
4,600.00	4,534.55	4,636.67	4,485.97	13.31	17.45	84.82	-652.43	-511.28	595.35	567.94	27.41	21.720	
4,672.45	4,607.00	4,722.16	4,571.07	13.43	17.65	-102.94	-659.03	-515.98	600.41	572.74	27.67	21.698	
4,700.00	4,634.55	4,754.77	4,603.59	13.47	17.72	-103.09	-661.00	-517.38	601.94	574.19	27.76	21.685	
4,800.00	4,734.55	4,873.47	4,722.15	13.62	17.94	-103.45	-665.63	-520.68	605.55	577.46	28.09	21.558	
4,900.00	4,834.55	4,985.89	4,834.55	13.78	18.09	-103.51	-666.49	-521.29	606.22	577.81	28.41	21.340	

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

Weatherford International Ltd.

Anticollision Report

Company:	ANADARKO PETROLEUM CORP.	**Local Co-ordinate Reference:**	Well NBU 1022-20M4DS
Project:	UINTAH COUNTY, UTAH (nad 27)	**TVD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Reference Site:	NBU 1022-20M PAD	**MD Reference:**	WELL @ 5326.00ft (Original Well Elev)
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design NBU 1022-20M PAD - NBU 1022-20M4CS - NBU 1022-20M4CS - Design #1

Offset Site Error: 0.00 ft

Offset Well Error: 0.00 ft

Survey Program: 0-MWD

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,934.55	5,085.89	4,934.55	13.94	18.21	-103.51	-666.49	-521.29	606.22	577.50	28.71	21.113	
5,100.00	5,034.55	5,185.89	5,034.55	14.10	18.33	-103.51	-666.49	-521.29	606.22	577.19	29.02	20.888	
5,200.00	5,134.55	5,285.89	5,134.55	14.26	18.46	-103.51	-666.49	-521.29	606.22	576.88	29.34	20.665	
5,300.00	5,234.55	5,385.89	5,234.55	14.42	18.58	-103.51	-666.49	-521.29	606.22	576.56	29.65	20.445	
5,400.00	5,334.55	5,485.89	5,334.55	14.59	18.71	-103.51	-666.49	-521.29	606.22	576.24	29.97	20.226	
5,500.00	5,434.55	5,585.89	5,434.55	14.75	18.84	-103.51	-666.49	-521.29	606.22	575.92	30.29	20.010	
5,600.00	5,534.55	5,685.89	5,534.55	14.92	18.97	-103.51	-666.49	-521.29	606.22	575.60	30.62	19.797	
5,700.00	5,634.55	5,785.89	5,634.55	15.09	19.11	-103.51	-666.49	-521.29	606.22	575.27	30.95	19.586	
5,800.00	5,734.55	5,885.89	5,734.55	15.26	19.24	-103.51	-666.49	-521.29	606.22	574.93	31.28	19.378	
5,900.00	5,834.55	5,985.89	5,834.55	15.44	19.38	-103.51	-666.49	-521.29	606.22	574.60	31.62	19.173	
6,000.00	5,934.55	6,085.89	5,934.55	15.61	19.52	-103.51	-666.49	-521.29	606.22	574.26	31.96	18.970	
6,100.00	6,034.55	6,185.89	6,034.55	15.79	19.66	-103.51	-666.49	-521.29	606.22	573.92	32.30	18.770	
6,200.00	6,134.55	6,285.89	6,134.55	15.96	19.80	-103.51	-666.49	-521.29	606.22	573.58	32.64	18.572	
6,300.00	6,234.55	6,385.89	6,234.55	16.14	19.95	-103.51	-666.49	-521.29	606.22	573.23	32.99	18.377	
6,400.00	6,334.55	6,485.89	6,334.55	16.32	20.09	-103.51	-666.49	-521.29	606.22	572.88	33.34	18.185	
6,500.00	6,434.55	6,585.89	6,434.55	16.50	20.24	-103.51	-666.49	-521.29	606.22	572.53	33.69	17.996	
6,600.00	6,534.55	6,685.89	6,534.55	16.68	20.39	-103.51	-666.49	-521.29	606.22	572.18	34.04	17.809	
6,700.00	6,634.55	6,785.89	6,634.55	16.86	20.54	-103.51	-666.49	-521.29	606.22	571.82	34.39	17.625	
6,800.00	6,734.55	6,885.89	6,734.55	17.05	20.69	-103.51	-666.49	-521.29	606.22	571.46	34.75	17.444	
6,900.00	6,834.55	6,985.89	6,834.55	17.23	20.84	-103.51	-666.49	-521.29	606.22	571.10	35.11	17.265	
7,000.00	6,934.55	7,085.89	6,934.55	17.42	20.99	-103.51	-666.49	-521.29	606.22	570.74	35.47	17.089	
7,100.00	7,034.55	7,185.89	7,034.55	17.60	21.15	-103.51	-666.49	-521.29	606.22	570.38	35.84	16.916	
7,200.00	7,134.55	7,285.89	7,134.55	17.79	21.30	-103.51	-666.49	-521.29	606.22	570.01	36.20	16.745	
7,300.00	7,234.55	7,385.89	7,234.55	17.98	21.46	-103.51	-666.49	-521.29	606.22	569.65	36.57	16.577	
7,400.00	7,334.55	7,485.89	7,334.55	18.17	21.62	-103.51	-666.49	-521.29	606.22	569.28	36.94	16.411	
7,500.00	7,434.55	7,585.89	7,434.55	18.36	21.78	-103.51	-666.49	-521.29	606.22	568.91	37.31	16.248	
7,600.00	7,534.55	7,685.89	7,534.55	18.55	21.94	-103.51	-666.49	-521.29	606.22	568.53	37.68	16.087	
7,700.00	7,634.55	7,785.89	7,634.55	18.74	22.10	-103.51	-666.49	-521.29	606.22	568.16	38.06	15.929	
7,800.00	7,734.55	7,885.89	7,734.55	18.93	22.26	-103.51	-666.49	-521.29	606.22	567.78	38.43	15.773	
7,900.00	7,834.55	7,985.89	7,834.55	19.12	22.43	-103.51	-666.49	-521.29	606.22	567.40	38.81	15.619	
8,000.00	7,934.55	8,085.89	7,934.55	19.31	22.59	-103.51	-666.49	-521.29	606.22	567.03	39.19	15.468	
8,100.00	8,034.55	8,185.89	8,034.55	19.51	22.76	-103.51	-666.49	-521.29	606.22	566.64	39.57	15.319	
8,200.00	8,134.55	8,285.89	8,134.55	19.70	22.93	-103.51	-666.49	-521.29	606.22	566.26	39.95	15.173	
8,300.00	8,234.55	8,385.89	8,234.55	19.90	23.09	-103.51	-666.49	-521.29	606.22	565.88	40.34	15.029	
8,400.00	8,334.55	8,485.89	8,334.55	20.09	23.26	-103.51	-666.49	-521.29	606.22	565.49	40.72	14.887	
8,500.00	8,434.55	8,585.89	8,434.55	20.29	23.43	-103.51	-666.49	-521.29	606.22	565.11	41.11	14.747	
8,600.00	8,534.55	8,685.89	8,534.55	20.49	23.60	-103.51	-666.49	-521.29	606.22	564.72	41.50	14.609	
8,700.00	8,634.55	8,785.89	8,634.55	20.68	23.78	-103.51	-666.49	-521.29	606.22	564.33	41.88	14.474	
8,765.45	8,700.00	8,851.34	8,700.00	20.81	23.89	-103.51	-666.49	-521.29	606.22	564.08	42.14	14.386	

Weatherford International Ltd.

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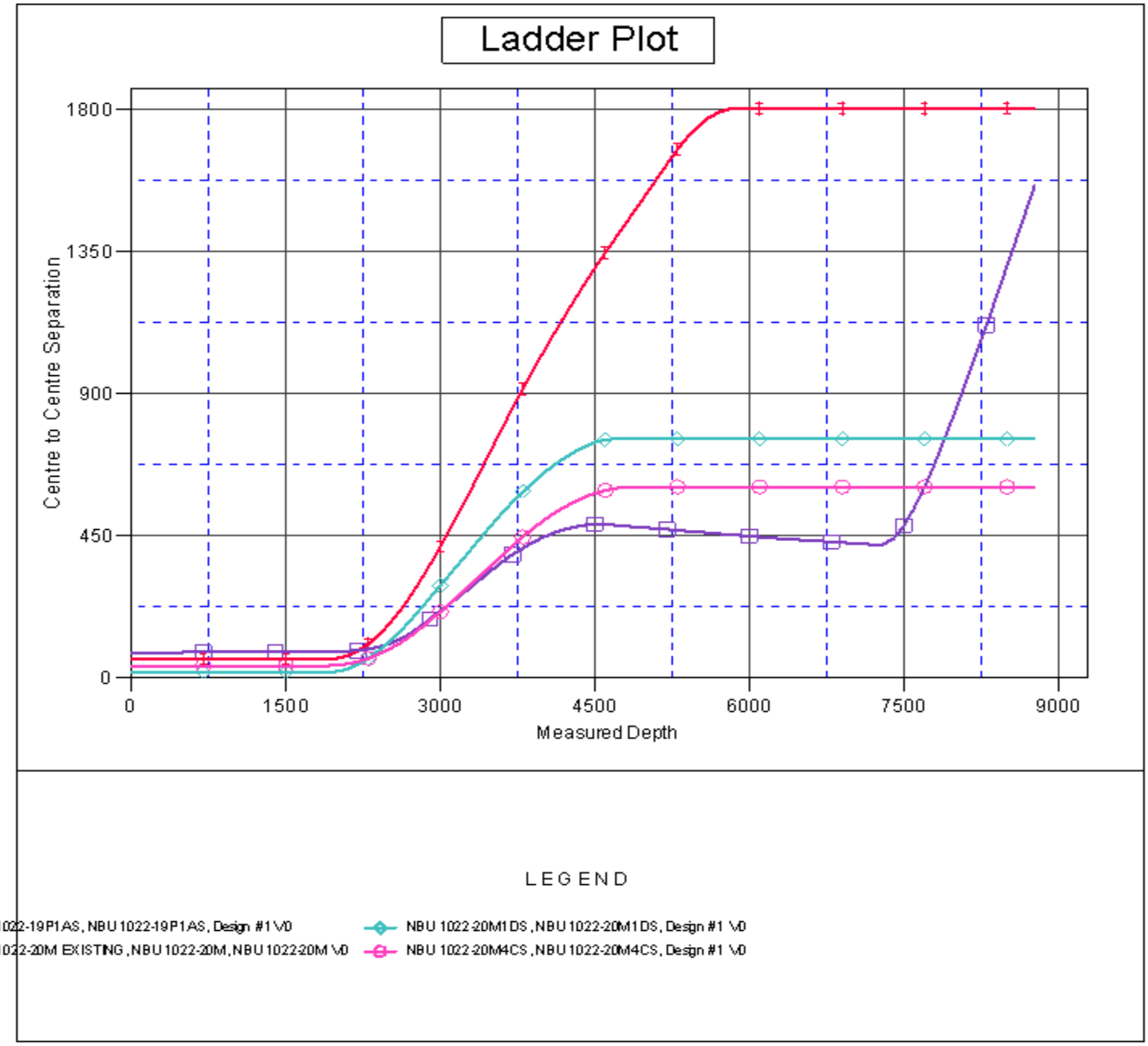
Site Error:	0.00ft	**North Reference:**	True
Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5326.00ft (Original Well Ele\Coordinates are relative to: NBU 1022-20M4DS
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: 0.98°



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Anticollision Report

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Reference Well:	NBU 1022-20M4DS	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	NBU 1022-20M4DS	**Database:**	EDM 2003.21 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5326.00ft (Original Well Ele\Coordinates are relative to: NBU 1022-20M4DS
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Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 12N
Central Meridian is 111° 0' 0.000 W °
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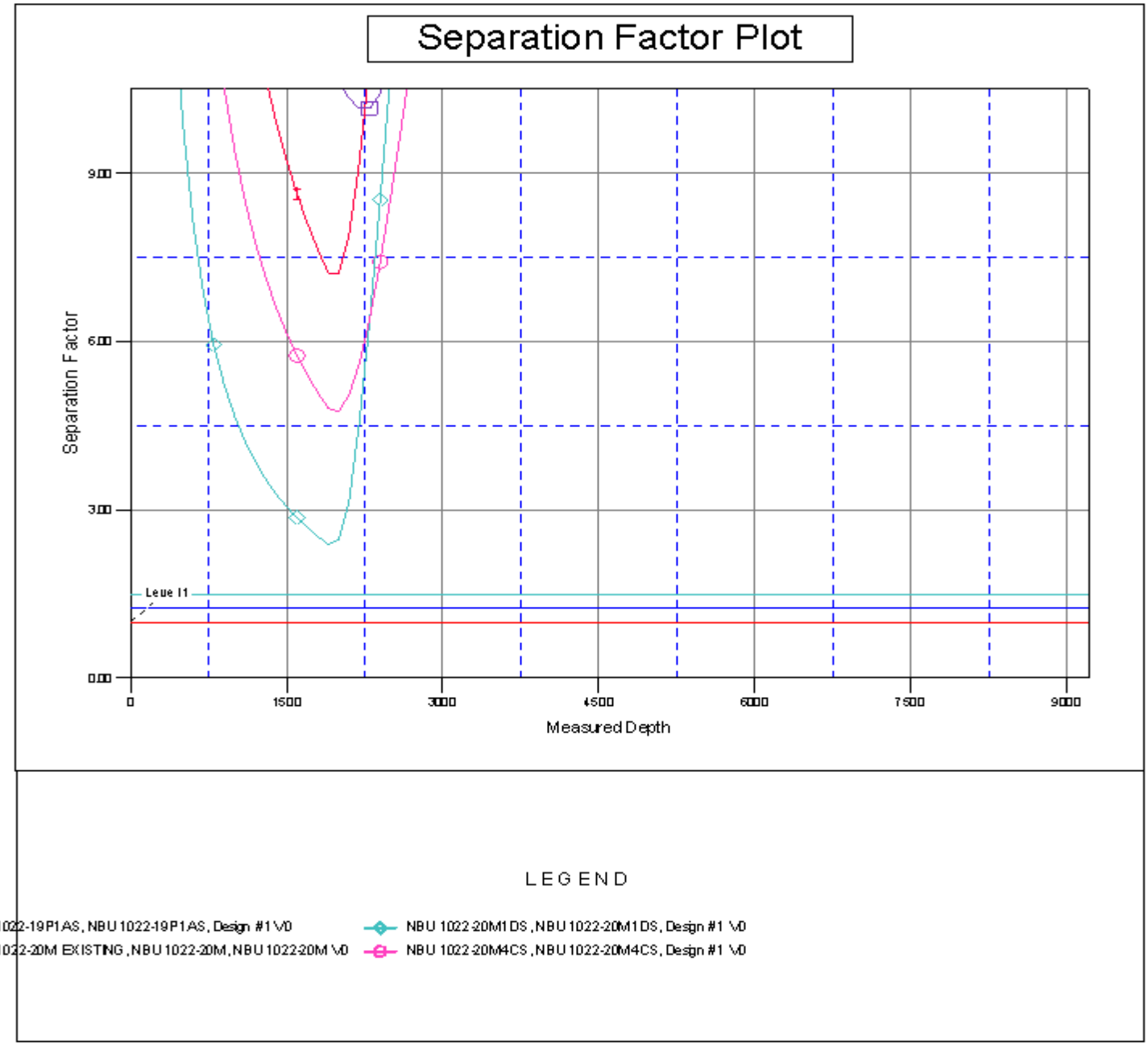

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NBU 1022-20M4DS

Pad: NBU 1022-20M
Surface: 720’ FSL, 1,213’ FWL (SW/4SW/4)
BHL: 195’ FSL 1,280’ FWL (SW/4SW/4)
Sec. 20 T10S R22E

Uintah, Utah
Mineral Lease: ML22974

ONSHORE ORDER NO. 1

DRILLING PROGRAM

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

Formation	Depth	Resource
Uinta	0 – Surface	
Green River	1,002’	
Birds Nest	1,317’	Water
Mahogany	1,727’	Water
Wasatch	4,107’	Gas
Mesaverde	6,574’	Gas
MVU2	7,520’	Gas
MVL1	8,162’	Gas
TVD	8,700’	
TD	8,765’	

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 8,765’ TD, approximately equals 5,149 psi (calculated at 0.59 psi/foot).

Maximum anticipated surface pressure equals approximately 3,235 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.

’APIWellNo:43047504230000’

KERR-McGEE OIL & GAS ONSHORE LP

DRILLING PROGRAM

COMPANY NAME	KERR-McGEE OIL & GAS ONSHORE LP	DATE	May 11, 2009
WELL NAME	**NBU 1022-20M4DS**	TD	8,700' TVD 8,765' MD
FIELD	Natural Buttes	COUNTY Uintah	STATE Utah ELEVATION 5,310' GL KB 5,325'
SURFACE LOCATION	SW/4 SW/4 720' FSL 1,213' FWL Sec 20 T 10S R 22E		
	Latitude: 39.929181 Longitude: -109.468018 NAD 27		
BTM HOLE LOCATION	SW/4 SW/4 195' FSL 1,280' FWL Sec 20 T 10S R 22E		
	Latitude: 39.927740 Longitude: -109.467775 NAD 27		
OBJECTIVE ZONE(S)	Wasatch/Mesaverde		
ADDITIONAL INFO	Regulatory Agencies: SITLA (Minerals), UDOGM (Surface), Tri-County Health Dept.		

GEOLOGICAL			MECHANICAL		
LOGS	FORMATION TOPS	DEPTH	HOLE SIZE	CASING SIZE	MUD WEIGHT
		20'		14"	
			12-1/4"	9-5/8", 36#, J-55, LTC	Air mist
All water flows encountered while drilling will be reported to the appropriate agencies.					
	Green River @	**1,002'**			
	Top of Birds Nest @	**1,317**			
	Mahogany @	**1,727**			
	Preset f/ GL @	**1,930' MD**			
	Note: 12.25" surface hole will usually be drilled ±400' below the lost circulation zone (aka bird's nest). Drilled depth may be ±200' of the estimated set depth depending on the acutal depth of the loss zone.				
	Wasatch @	**4,107'**			
Mud logging program TBD Cased hole logging program from TD - surf csg			7-7/8"	4-1/2" 11.6# I-80 or equivalent LTC csg	Water / Fresh Water Mud 8.3-11.6 ppg
	Mverde @	**6,574' TVD**			
	MVU2 @	**7,520' TVD**			
	MVU1 @	**8,162' TVD**			
	Max anticipated Mud required 11.6 ppg	**8,700' TVD**			
	TD @	**8,765' MD**			

'APIWellNo:43047504230000'

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	1,930	36.00	J-55	LTC	1.05	2.24	8.30
								7,780	6,350	201,000
PRODUCTION	4-1/2"	0	to	8,765	11.60	I-80	LTC	2.33	1.21	2.27

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 5,149 psi

CEMENT PROGRAM

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE	LEAD	500	Premium cmt + 2% CaCl	215	60%	15.60	1.18
Option 1			+ 0.25 pps flocele				
	TOP OUT CMT (1)	200	20 gals sodium silicate + Premium cmt	50		15.60	1.18
			+ 2% CaCl + 0.25 pps flocele				
	TOP OUT CMT (2)	as required	Premium cmt + 2% CaCl	as req.		15.60	1.18
SURFACE			**NOTE: If well will circulate water to surface, option 2 will be utilized**				
Option 2	LEAD	1500	65/35 Poz + 6% Gel + 10 pps gilsonite	360	35%	12.60	1.81
			+.25 pps Flocele + 3% salt BWOW				
	TAIL	500	Premium cmt + 2% CaCl	180	35%	15.60	1.18
			+ 0.25 pps flocele				
	TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.60	1.18
PRODUCTION	LEAD	3,605'	Premium Lite II + 3% KCl + 0.25 pps	340	40%	11.00	3.38
			celloflake + 5 pps gilsonite + 10% gel				
			+ 0.5% extender				
	TAIL	5,160'	50/50 Poz/G + 10% salt + 2% gel	1260	40%	14.30	1.31
			+.1% R-3				

*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.

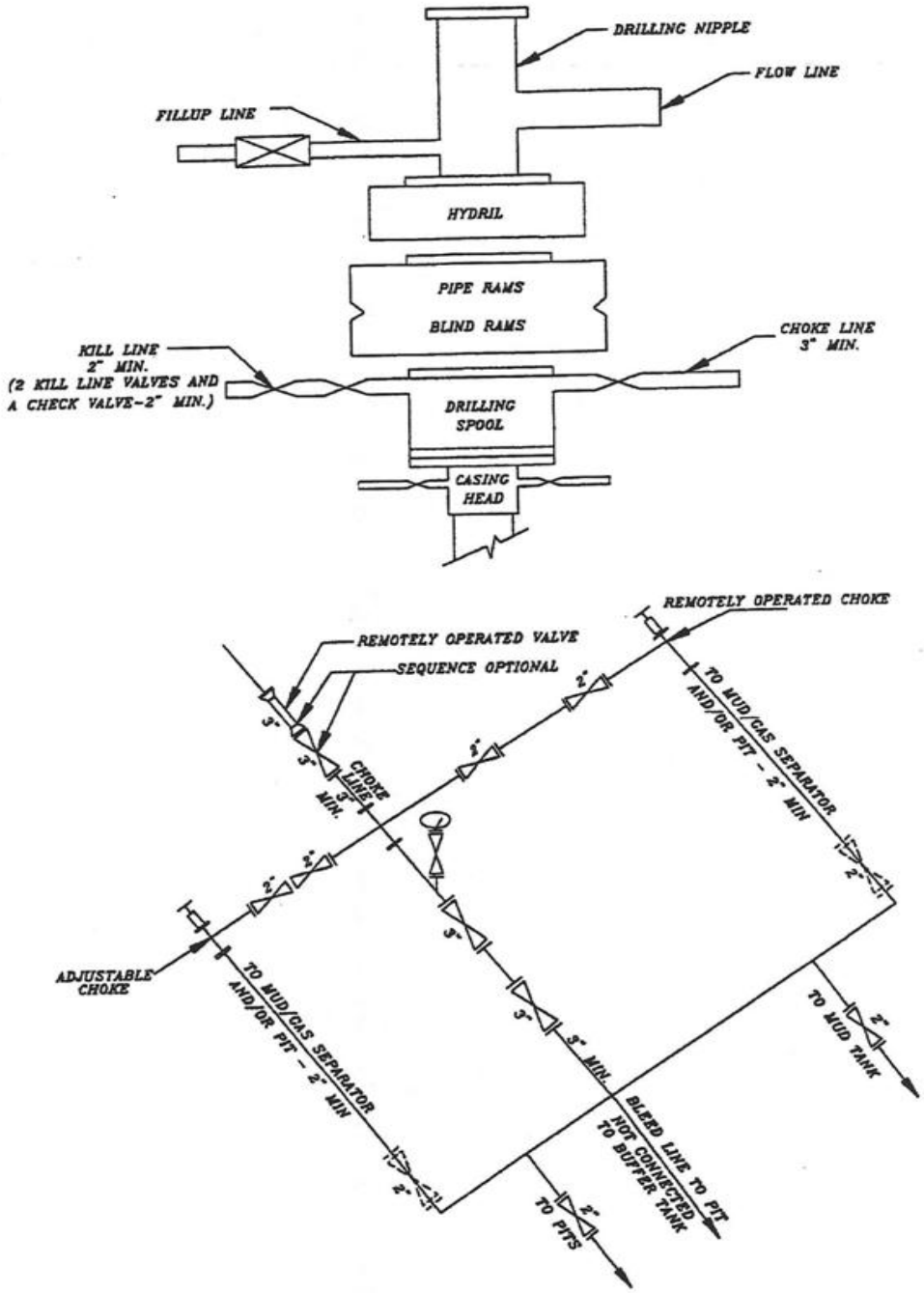
Surveys will be taken at 1,000' minimum intervals.

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

DRILLING ENGINEER: _____ **DATE:** _____
John Huycke / Grant Schluender

DRILLING SUPERINTENDENT: _____ **DATE:** _____
John Merkel / Lovel Young

EXHIBIT A
NBU 1022-20M4DS



SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK

WELL PAD INTERFERENCE PLAT

DIRECTIONAL PAD – NBU 1022–20M

N

BASIS OF BEARINGS IS THE WEST LINE OF THE NW 1/4 OF SECTION 20, T10S, R22E, S.L.B.&M. WHICH IS TAKEN FROM GLOBAL POSITIONING SATELLITE OBSERVATIONS TO BEAR N00°05'03"W.

BOTTOM HOLE FOOTAGES

NBU 1022–19P1AS
1230' FSL, 200' FEL

NBU 1022–20M4CS
55' FSL, 690' FWL

NBU 1022–20M1DS
945' FSL, 1170' FWL

NBU 1022–20M4DS
195' FSL, 1280' FWL

SURFACE POSITION FOOTAGES:

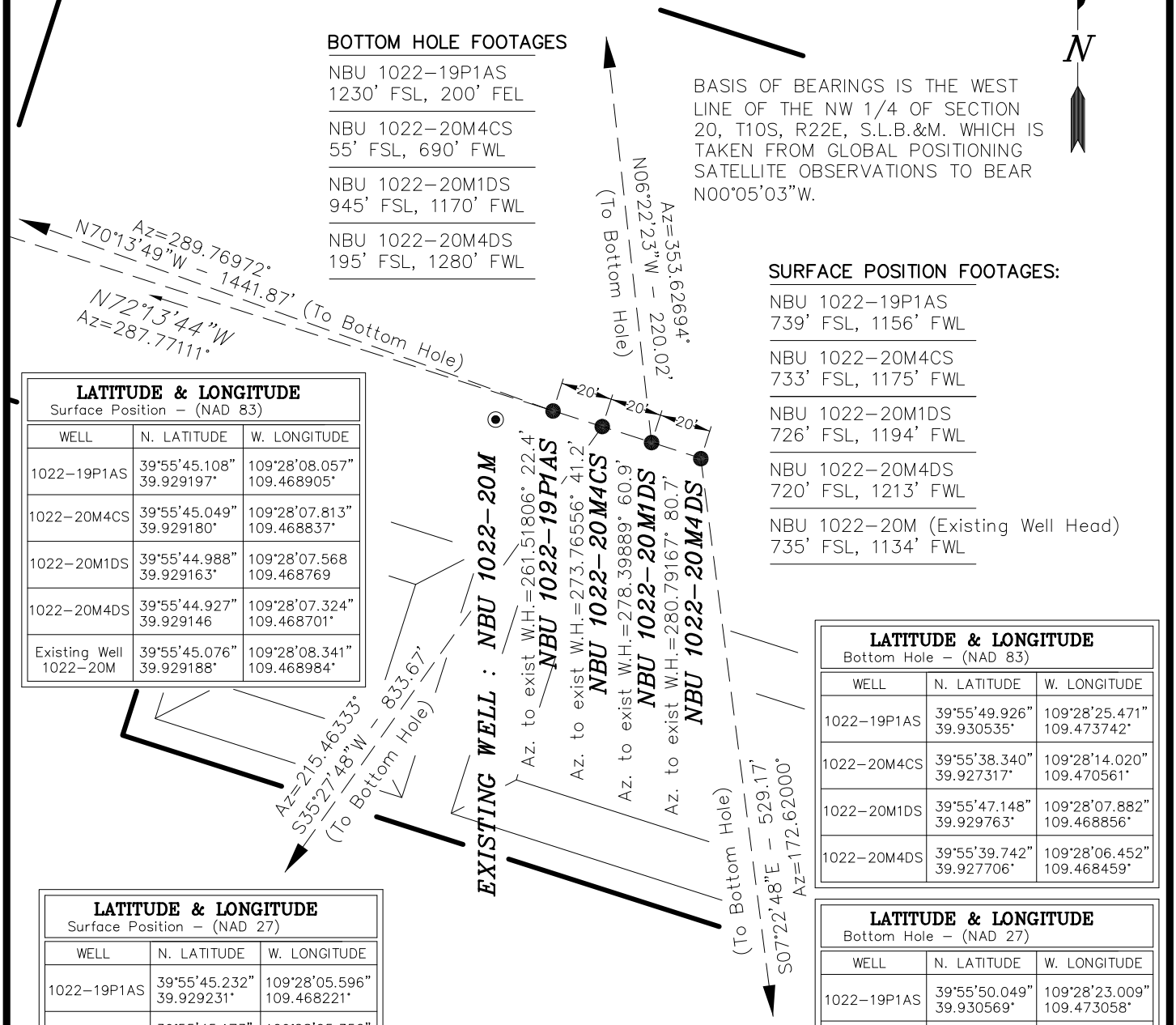
NBU 1022–19P1AS
739' FSL, 1156' FWL

NBU 1022–20M4CS
733' FSL, 1175' FWL

NBU 1022–20M1DS
726' FSL, 1194' FWL

NBU 1022–20M4DS
720' FSL, 1213' FWL

NBU 1022–20M (Existing Well Head)
735' FSL, 1134' FWL



LATITUDE & LONGITUDE
Surface Position – (NAD 83)

WELL	N. LATITUDE	W. LONGITUDE
1022–19P1AS	39°55'45.108" 39.929197°	109°28'08.057" 109.468905°
1022–20M4CS	39°55'45.049" 39.929180°	109°28'07.813" 109.468837°
1022–20M1DS	39°55'44.988" 39.929163°	109°28'07.568 109.468769
1022–20M4DS	39°55'44.927" 39.929146	109°28'07.324" 109.468701°
Existing Well 1022–20M	39°55'45.076" 39.929188°	109°28'08.341" 109.468984°

LATITUDE & LONGITUDE
Bottom Hole – (NAD 83)

WELL	N. LATITUDE	W. LONGITUDE
1022–19P1AS	39°55'49.926" 39.930535°	109°28'25.471" 109.473742°
1022–20M4CS	39°55'38.340" 39.927317°	109°28'14.020" 109.470561°
1022–20M1DS	39°55'47.148" 39.929763°	109°28'07.882" 109.468856°
1022–20M4DS	39°55'39.742" 39.927706°	109°28'06.452" 109.468459°

LATITUDE & LONGITUDE
Surface Position – (NAD 27)

WELL	N. LATITUDE	W. LONGITUDE
1022–19P1AS	39°55'45.232" 39.929231°	109°28'05.596" 109.468221°
1022–20M4CS	39°55'45.173" 39.929215°	109°28'05.352" 109.468153°
1022–20M1DS	39°55'45.112" 39.929198°	109°28'05.108" 109.468085°
1022–20M4DS	39°55'45.050" 39.929181°	109°28'04.864" 109.468018°
Existing Well 1022–20MI	39°55'45.199" 39.929222°	109°28'05.880" 109.468300°

LATITUDE & LONGITUDE
Bottom Hole – (NAD 27)

WELL	N. LATITUDE	W. LONGITUDE
1022–19P1AS	39°55'50.049" 39.930569°	109°28'23.009" 109.473058°
1022–20M4CS	39°55'38.464" 39.927351°	109°28'11.559" 109.469877°
1022–20M1DS	39°55'47.272" 39.929798°	109°28'05.421" 109.468173°
1022–20M4DS	39°55'39.865" 39.927740°	109°28'03.991" 109.467775°

RELATIVE COORDINATES
From Surface Position to Bottom Hole

WELL	NORTH	EAST
1022–19P1AS	488'	–1357'
1022–20M4CS	–679'	–484'
1022–20M1DS	219'	–24'
1022–20M4DS	–525'	–68'

60' 30' 0' 60'
SCALE

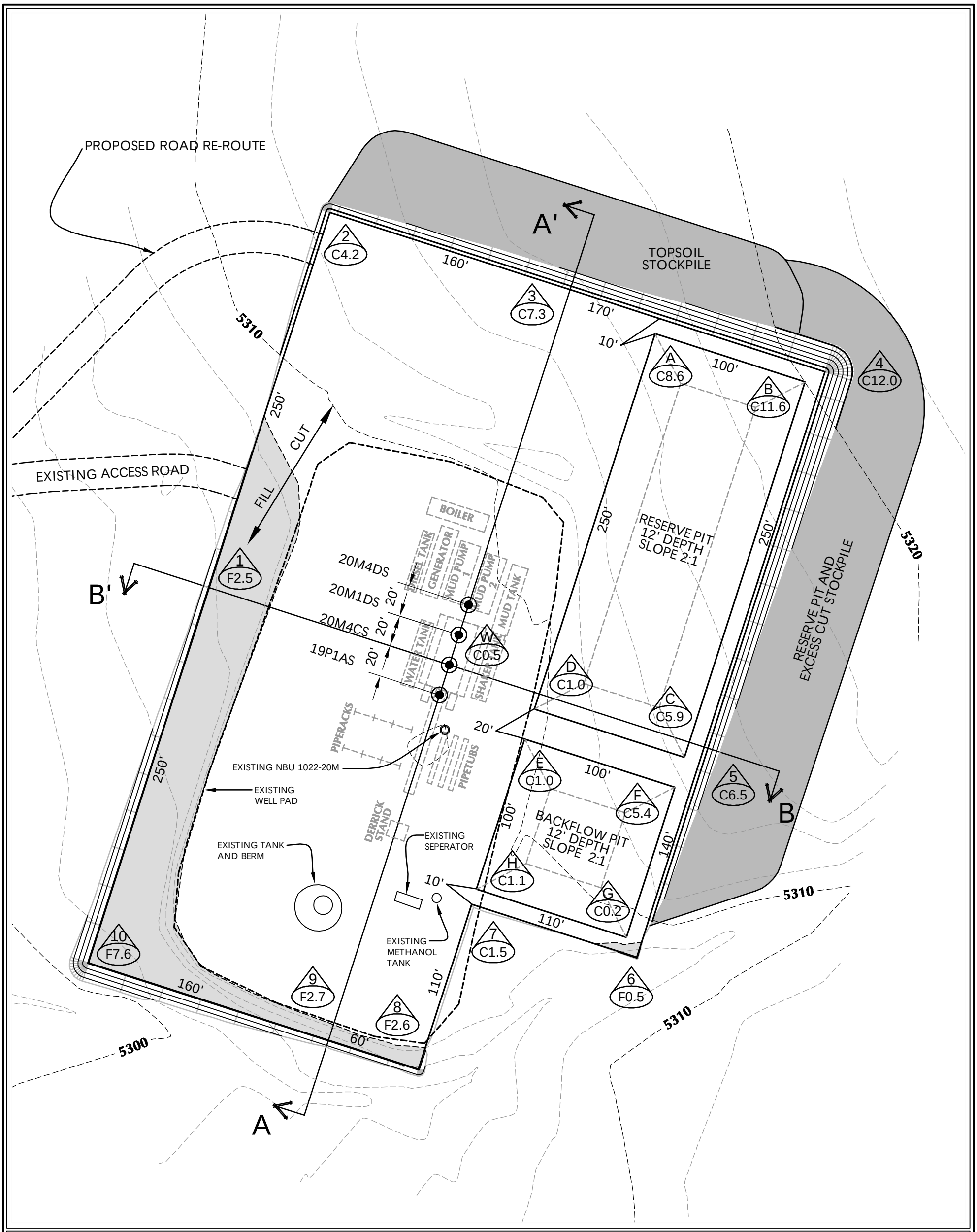
Kerr–McGee
Oil & Gas Onshore, LP
1099 18th Street – Denver, Colorado 80202

NBU 1022-19P1AS, NBU 1022-20M4CS, NBU 1022-20M1DS & NBU 1022-20M4DS, LOCATED IN SECTION 20, 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

DATE SURVEYED: 10-20-08	SURVEYED BY: M.S.B.
DATE DRAWN: 10-29-08	DRAWN BY: E.M.S.
	REVISED: 02-07-09

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



WELL PAD NBU 1022-20M QUANTITIES

EXISTING GRADE @ CENTER OF WELL PAD = 5,308.9'
FINISHED GRADE ELEVATION = 5,308.4'
CUT SLOPES = 1.5:1
FILL SLOPES = 1.5:1

TOTAL CUT FOR WELL PAD = 16,175 C.Y.
TOTAL FILL FOR WELL PAD = 2,774 C.Y.
TOPSOIL @ 6" DEPTH = 1,924 C.Y.
EXCESS MATERIAL = 13,401 C.Y.
TOTAL DISTURBANCE = 3.82 ACRES
SHRINKAGE FACTOR = 1.10
SWELL FACTOR = 1.00
RESERVE PIT CAPACITY (2' OF FREEBOARD)
+/- 28,730 BARRELS
RESERVE PIT VOLUME
+/- 7,720 CY
BACKFLOW PIT CAPACITY (2' OF FREEBOARD)
+/- 9,490 BARRELS
BACKFLOW PIT VOLUME
+/- 2,660 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

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

WELL PAD - LOCATION LAYOUT
NBU 1022-19P1AS, NBU 1022-20M4CS,
NBU 1022-20M1DS, NBU 1022-20M4DS
LOCATED IN SECTION 20, T.10S., R.22E.
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"=60'	Date: 2/20/09	SHEET NO:
REVISED:	BY DATE	6 6 OF 13

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

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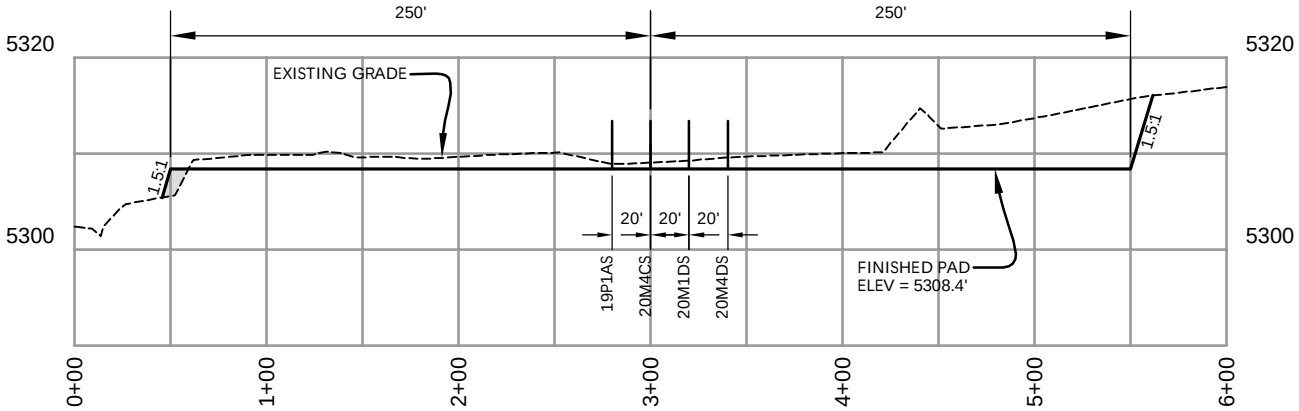
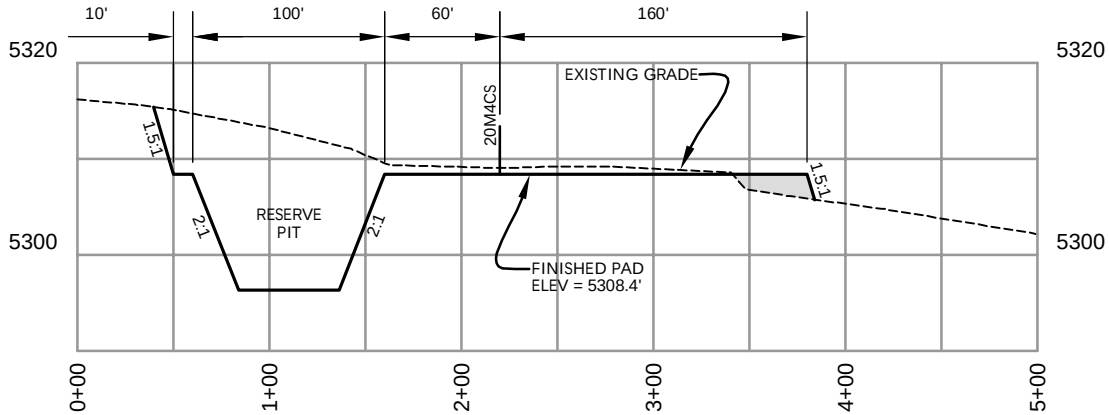


CROSS SECTION A-A'



CROSS SECTION B-B'

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

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

WELL PAD - CROSS SECTIONS
NBU 1022-19P1AS, NBU 1022-20M4CS,
NBU 1022-20M1DS, NBU 1022-20M4DS
LOCATED IN SECTION 20, T.10S., R.22E.
S.L.B.&M., UINTAH COUNTY, UTAH

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

HORIZONTAL 0 50 100 1" = 100'
VERTICAL 0 10 20 1" = 20'

Scale: 1"=100'	Date: 2/20/09	SHEET NO:
REVISED:	BY DATE	7 — 7 OF 13

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

'API WellNo:43047504230000'
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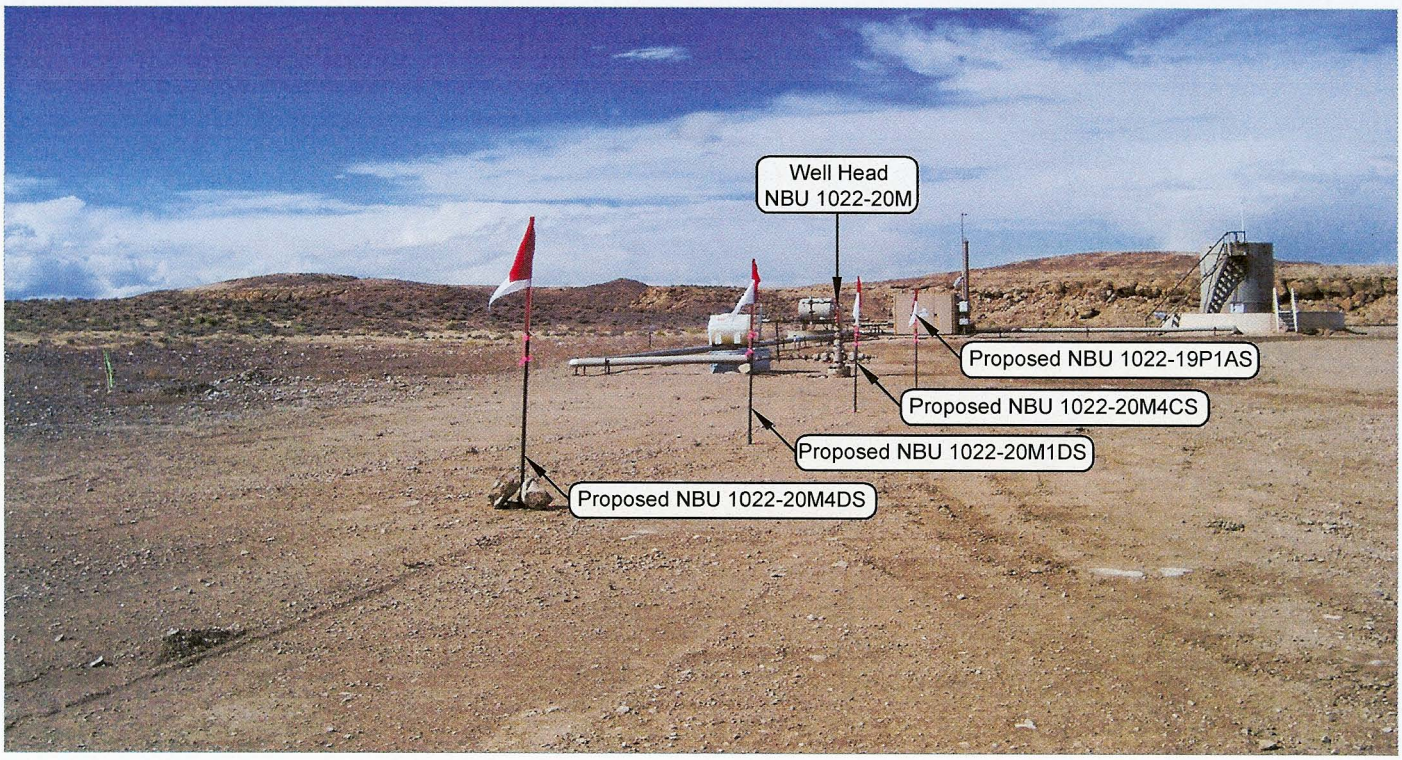


PHOTO VIEW: FROM LOCATION STAKES TO EXISTING WELL HEAD CAMERA ANGLE: WESTERLY

PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD CAMERA ANGLE: SOUTHEASTERLY

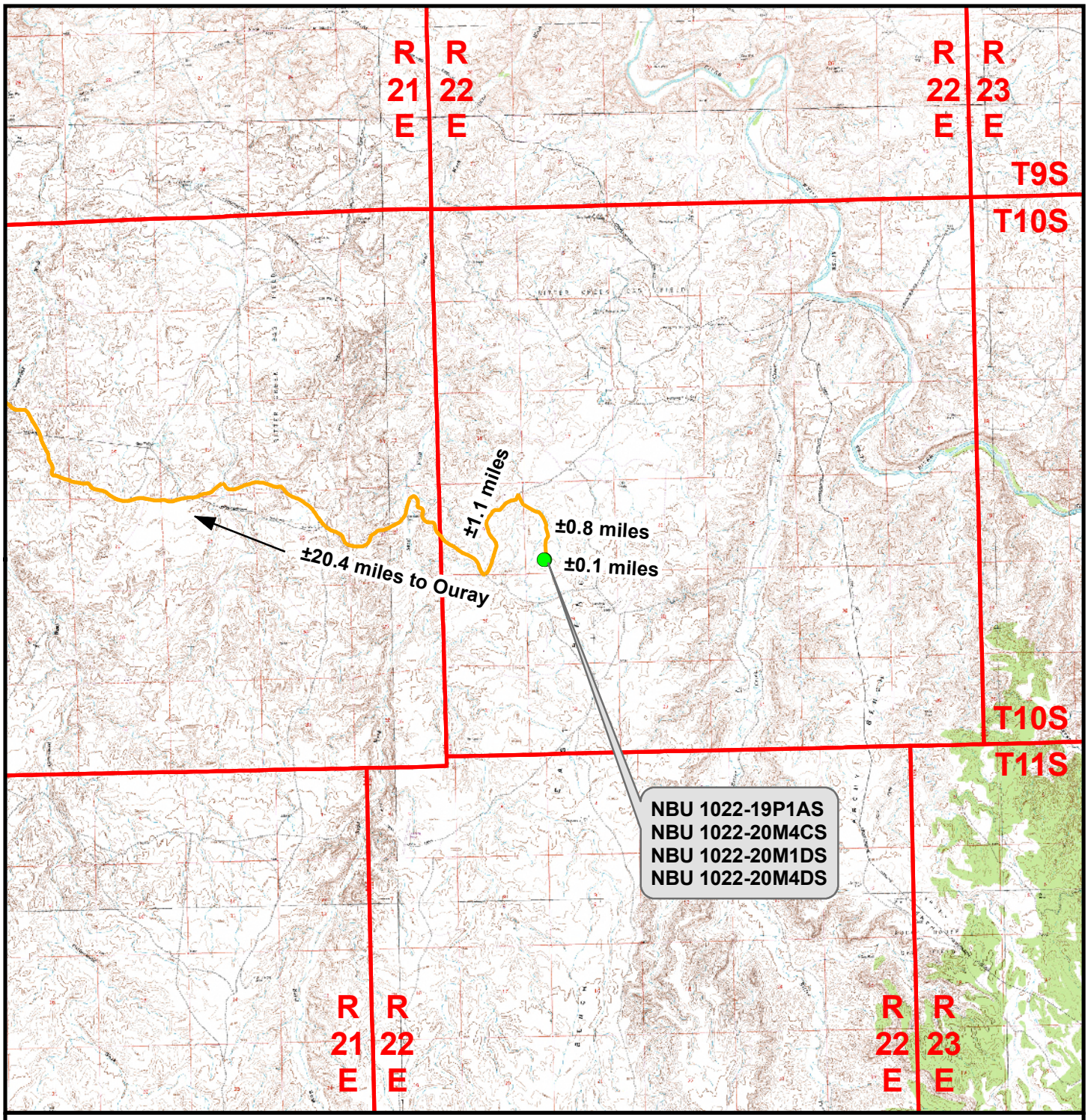
Kerr-McGee
Oil & Gas Onshore, LP
1099 18th Street – Denver, Colorado 80202

NBU 1022-19P1AS, NBU 1022-20M4CS, NBU 1022-20M1DS & NBU 1022-20M4DS LOCATED IN SECTION 20, 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

LOCATION PHOTOS		DATE TAKEN: 10-20-08
		DATE DRAWN: 10-30-08
TAKEN BY: M.S.B.	DRAWN BY: E.M.S.	REVISED: 02-07-09

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



Legend

- Proposed Well Location
- Access Route - Proposed

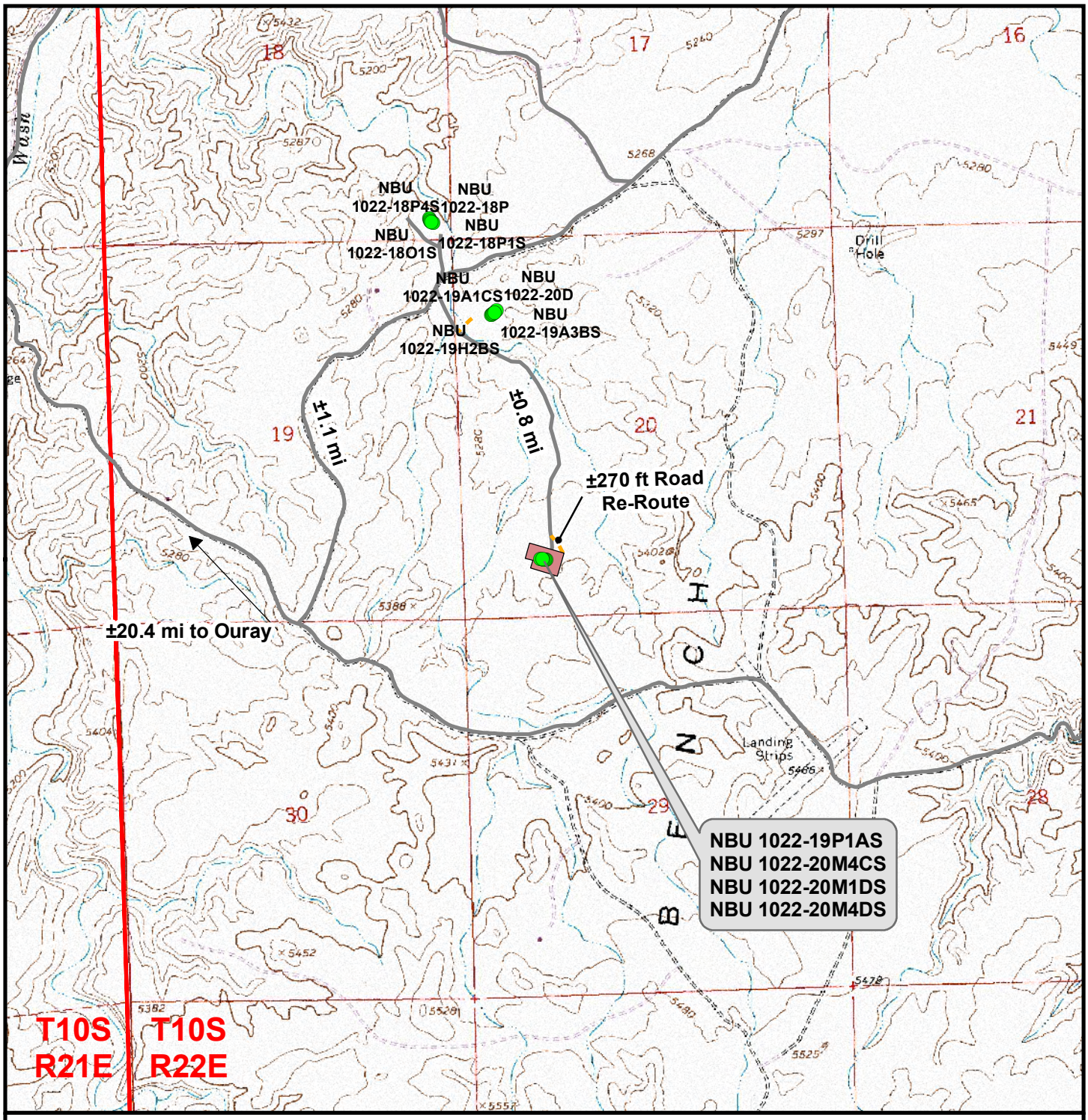
Kerr-McGee Oil & Gas Onshore, LP
1099 18th Street, Denver, Colorado 80202

NBU 1022-19P1AS, NBU 1022-20M4CS, NBU 1022-20M1DS & NBU 1022-20M4DS
Topo A
Located In Section 20, 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

N

Scale: 1:100,000	NAD83 USP Central		Sheet No: 9
Drawn: JELo	Date: 10 Feb 2009		9 of 13
Revised:	Date:		



Legend

Total Proposed Road Length: ±270ft

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

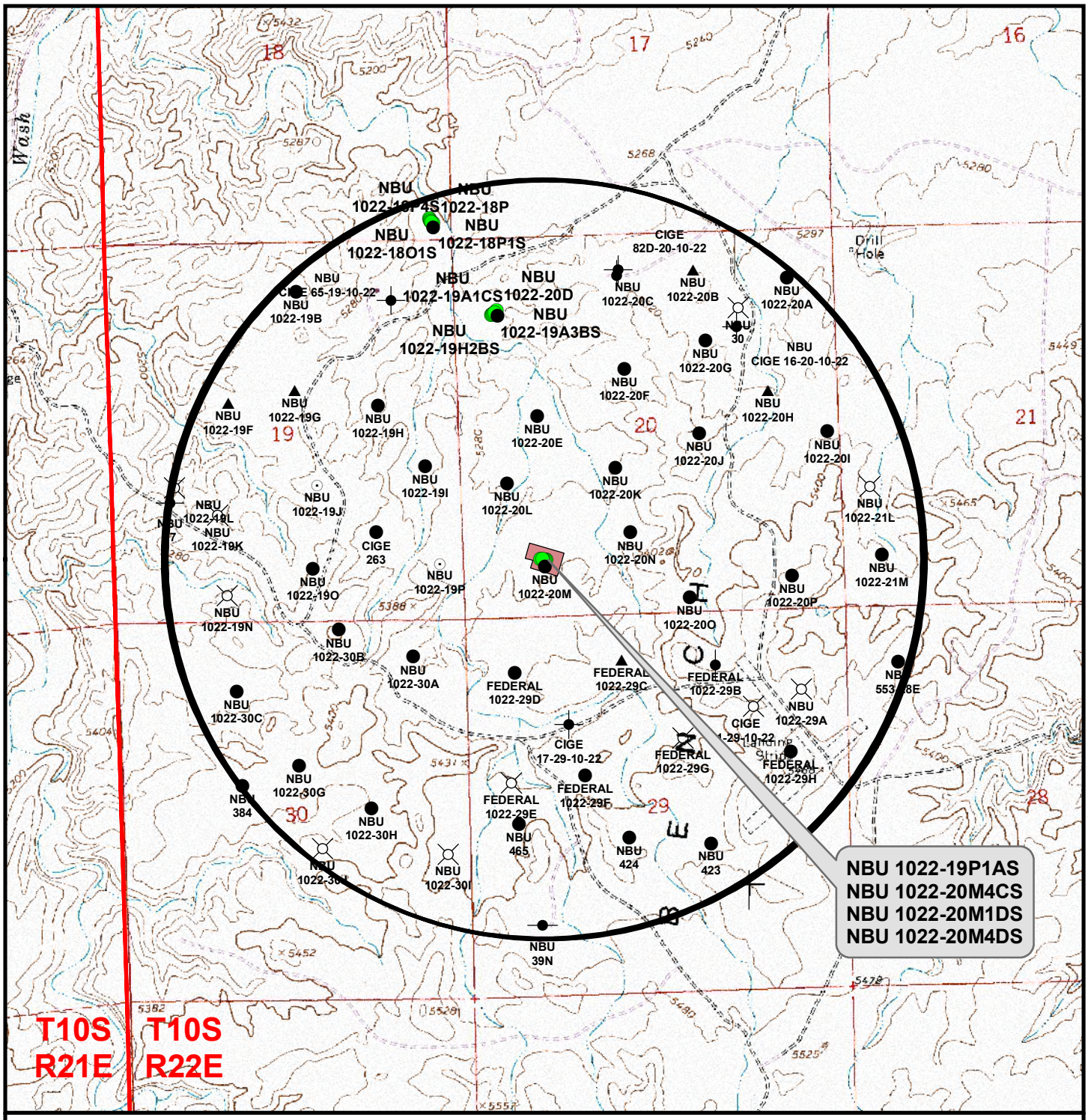
Kerr-McGee Oil & Gas Onshore, LP
1099 18th Street, Denver, Colorado 80202

NBU 1022-19P1AS, NBU 1022-20M4CS, NBU 1022-20M1DS & NBU 1022-20M4DS
Topo B
Located In Section 20, 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

N

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



Legend

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

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

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

NBU 1022-19P1AS, NBU 1022-20M4CS, NBU 1022-20M1DS & NBU 1022-20M4DS
Topo C
Located In Section 20, 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

N

Scale: 1" = 2000ft	NAD83 USP Central	Sheet No: 11	
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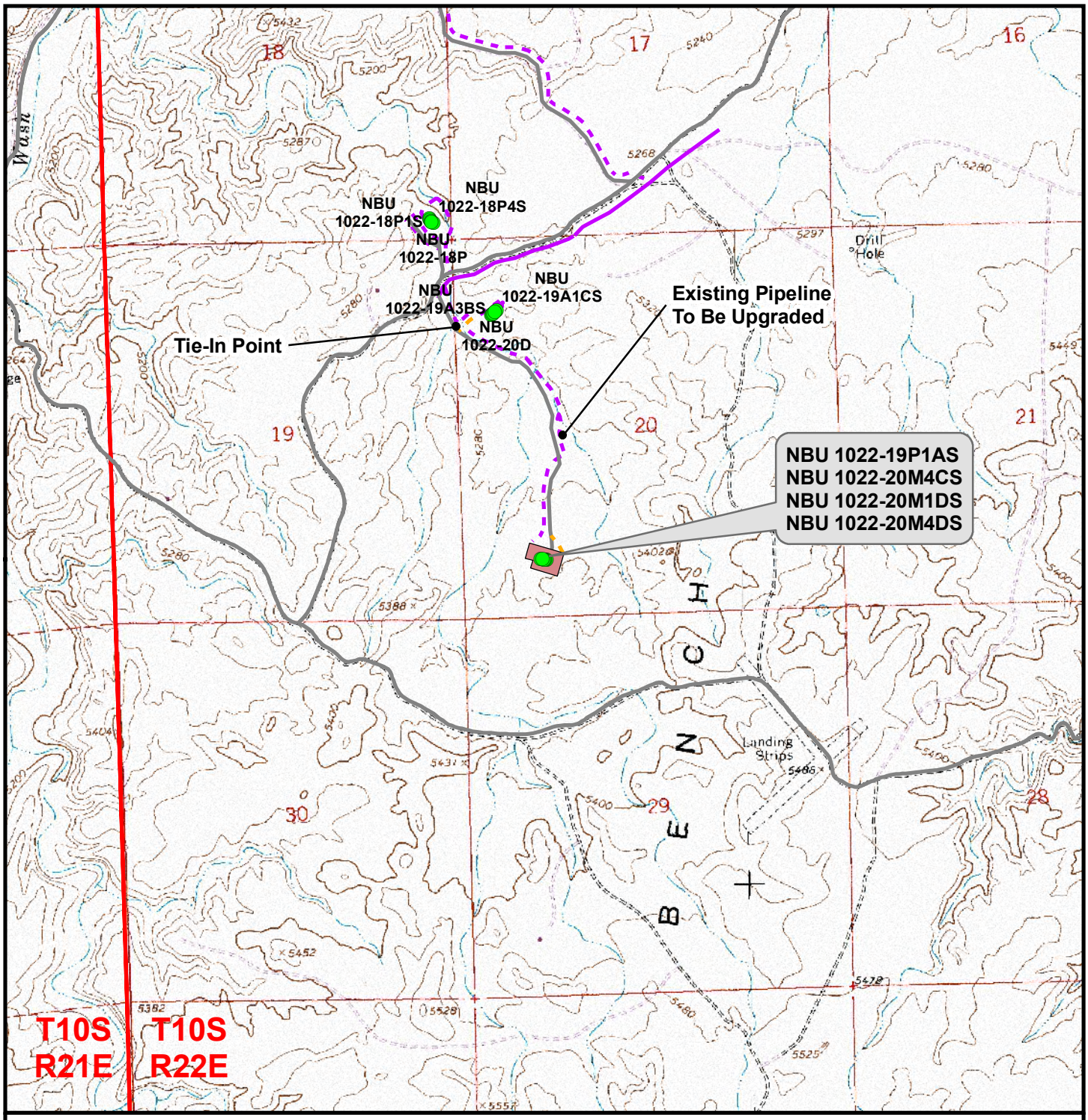
Revised:	Date:		



Legend

Proposed Pipeline Length From Tie-In Point To Edge Of Pad: ±3,895ft
Proposed Pipeline Length Around Pad: ±660ft

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

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

NBU 1022-19P1AS, NBU 1022-20M4CS, NBU 1022-20M1DS & NBU 1022-20M4DS
Topo D
Located In Section 20, 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

N

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

Kerr-McGee Oil & Gas Onshore, LP
NBU 1022-19P1AS, NBU 1022-20M4CS, NBU 1022-20M1DS
& NBU 1022-20M4DS
Section 20, 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 1.1 MILES TO A SERVICE ROAD RUNNING SOUTHEASTERLY. EXIT RIGHT AND PROCEED IN A SOUTHEASTERLY, THEN SOUTHERLY DIRECTION ALONG THE SERVICE ROAD APPROXIMATELY 0.8 MILES TO THE PROPOSED ACCESS ROAD. FOLLOW ROAD FLAGS IN A SOUTHEASTERLY DIRECTION APPROXIMATELY 270 FEET TO THE WELL PAD.

TOTAL DISTANCE FROM VERNAL, UTAH TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 53.1 MILES IN A SOUTHERLY DIRECTION.

Kerr-McGee Oil & Gas Onshore LP

NBU 1022-19P1AS
Surface: 739’ FSL, 1,156’ FWL (SW/4SW/4) Sec. 20
BHL: 1,230’ FSL 200’ FEL (SE/4SE/4) Sec. 19
Mineral Lease: State – ML20714

NBU 1022-20M1DS
Surface: 726’ FSL, 1,194’ FWL (SW/4SW/4) Sec. 20
BHL: 945’ FSL 1,170’ FWL (SW/4SW/4) Sec. 20
Mineral Lease: State – ML22974

NBU 1022-20M4CS
Surface: 733’ FSL, 1,175’ FWL (SW/4SW/4) Sec. 20
BHL: 55’ FSL 690’ FWL (SW/4SW/4) Sec. 20
Mineral Lease: State – ML22974

NBU 1022-20M4DS
Surface: 720’ FSL, 1,213’ FWL (SW/4SW/4) Sec. 20
BHL: 195’ FSL 1,280’ FWL (SW/4SW/4) Sec. 20
Mineral Lease: State – ML22974

Township 10 South Range 22 East
Pad: NBU 1022-20M
Uintah, Utah
Surface: State

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 ±0.05 mi. (±270') 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. <u>Plans for Reclamation of the Surface</u>:

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. <u>Lessee's or Operators' Representative & Certification</u>:

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

May 12, 2009
Date

'APIWellNo:43047504230000'

Kerr-McGee Oil & Gas Onshore LP

1099 18th Street, Suite 1800
Denver, CO 80202-1918
P.O. Box 173779
Denver, CO 80217-3779
720-929-6000

April 22, 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 1022-20M4DS
T10S-R22E
Section 20: SWSW
Surface: 720' FSL, 1213' FWL
Bottom Hole: 195' FSL, 1280' FWL
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 1022-20M4DS 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

'APIWellNo:43047504230000'

’APIWellNo:43047504230000’

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

’APIWellNo:43047504230000’

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.

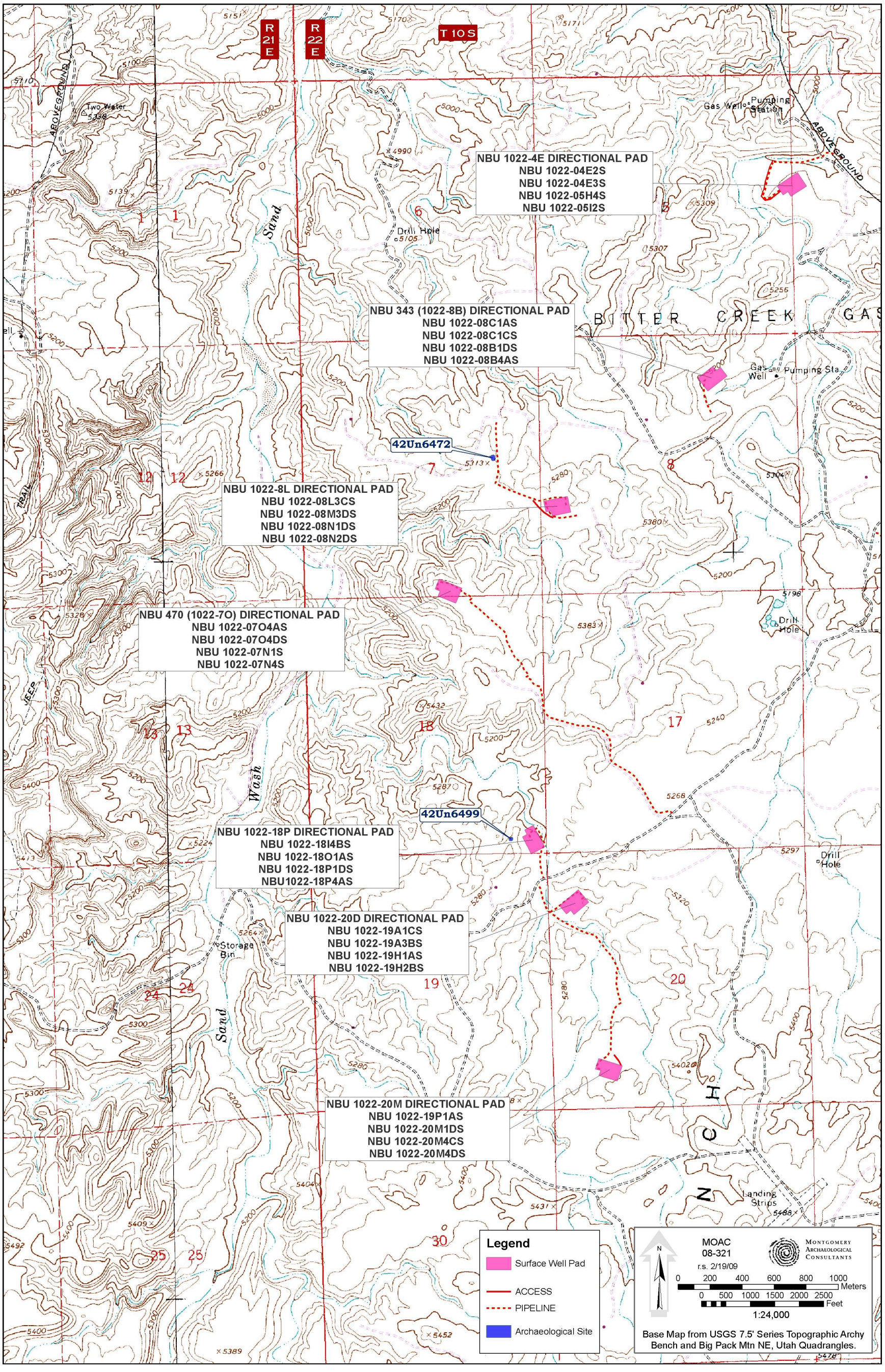


Figure 1. Kerr-McGee Oil & Gas Onshore LP’s 55 Proposed Well Locations with Access and Pipeline Corridors, Uintah County, Utah.

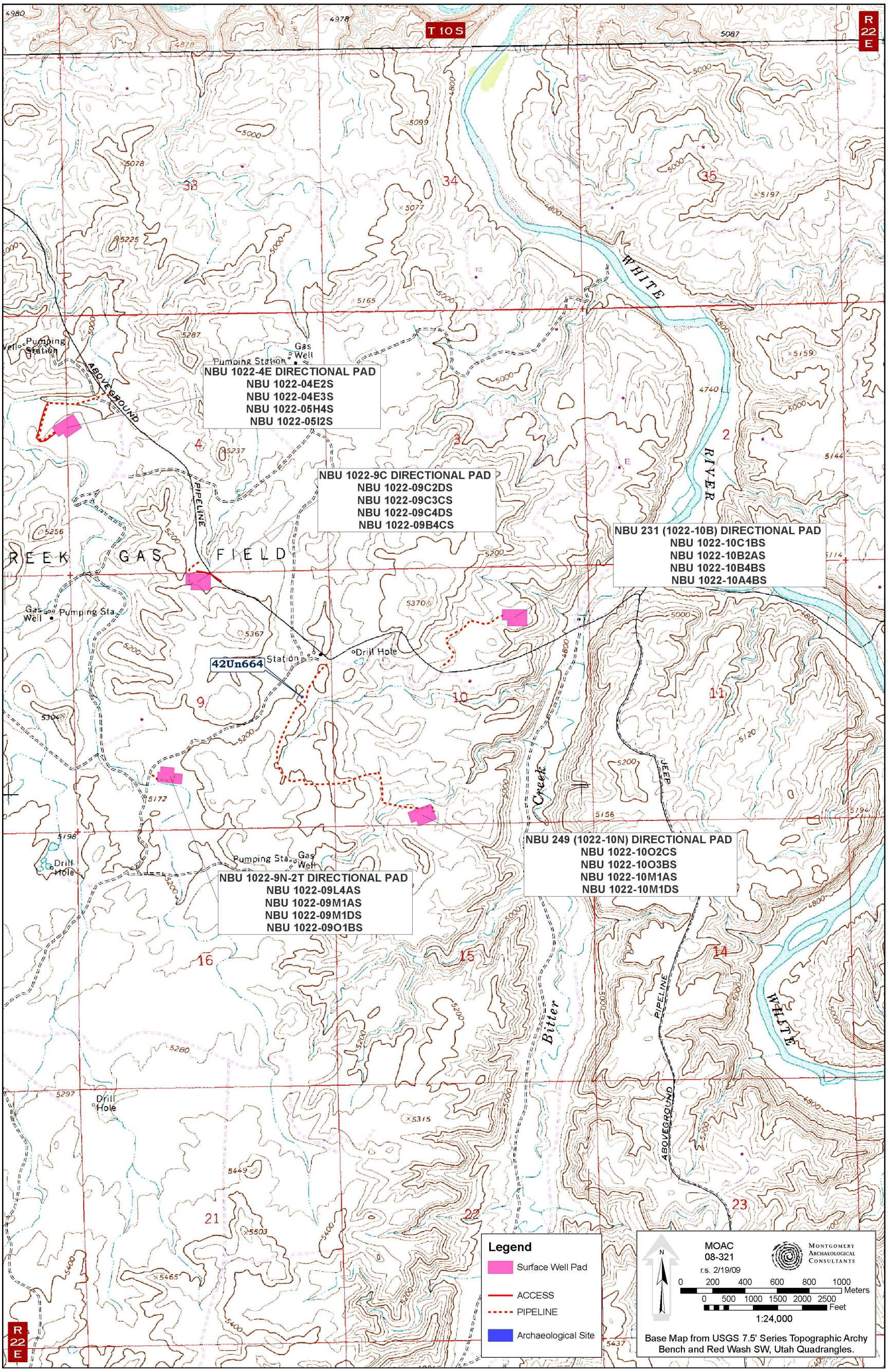


Figure 2. Kerr-McGee Oil & Gas Onshore LP's 55 Proposed Well Locations with Access and Pipeline Corridors, Uintah County, Utah.

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.

’APIWellNo:43047504230000’

IPC #09-22

Paleontological Reconnaissance Survey Report

Survey of Kerr McGee’s Proposed Multi Well Pad, Access Road, and Pipeline Upgrade for “NBU #1022-19P1AS, 20M4CS, 20M1DS, & 20M4DS” (Sec. 19 & 20, T 10 S, R 22 E)

Archy Bench
Topographic Quadrangle
Uintah County, Utah

March 6, 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 Oil & Gas Onshore LP and authorized by James Kirkland of the Office of the State Paleontologist, a paleontological reconnaissance survey of Kerr McGee's proposed multi well pad, access road, and pipeline upgrade for "NBU #1022-19P1AS, 20M4CS, 20M1DS, & 20M4DS" (Sec. 19 & 20, T 10 S, R 22 E) was conducted by Stephen Sandau and Dan Burk on March 3, 2009. The survey was conducted under Utah Paleontological Investigations Permit #07-356. This survey to collect any paleontological materials discovered during the construction processes in danger of damage or destruction 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 State of Utah, paleontologically-sensitive geologic formations on State lands that 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 pad, access road, and pipeline upgrade for “NBU #1022-19P1AS, 20M4CS, 20M1DS, & 20M4DS” (Sec. 19 & 20, T 10 S, R 22 E) is located on lands managed by the State of Utah Trust Lands Administration (SITLA) 7 miles south of the White River on East Bench, 3 miles west of Bitter Creek, and some 23 miles southeast of Ouray, Utah. The project area can be found on the Archy Bench 7.5 minute U. S. Geological Survey Quadrangle Map, Uintah County, Utah.

PREVIOUS WORK

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

GEOLOGICAL AND PALEONTOLOGICAL OVERVIEW

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

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

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

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

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

FIELD METHODS

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

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

PROJECT AREA

The project area is situated in the Wagonhound Member (Uinta A & B) of the Uinta Formation. The proposed pipeline upgrade begins in the NW/NW quarter-quarter section of Sec. 19, T 10 S, R 22 E and travels south-southwest for approximately 1 mile along an existing road where it enters the proposed multi-well pad “NBU #1022-19P1AS, 20M4CS, 20M1DS, & 20M4DS” in the SW/SW quarter-quarter section of Sec. 20 (Figure 1). The proposed access road re-route begins at the existing access road and travels southwest for approximately 200 feet where it enters the proposed multi-well pad. The proposed multi-well pad, pipeline upgrade, and access road re-route are located among low rolling hills with outcrops of interbedded tan, medium-grained, sandstone beds(1-3 m thick); maroon siltstone beds (0.5-1 m thick); and green and purple mudstone beds (2-3 m thick). No fossils were found.

SURVEY RESULTS

PROJECT	GEOLOGY	PALEONTOLOGY
“NBU #1022-19P1AS, 20M4CS, 20M1DS, & 20M4DS” (Sec. 19 & 20, T 10 S, R22 E)	The proposed multi-well pad, pipeline upgrade, and access road re-route are located among low rolling hills with outcrops of interbedded tan, medium-grained, sandstone beds(1-3 m thick); maroon siltstone beds (0.5-1 m thick); and green and purple mudstone beds (2-3 m thick).	No fossils were found. **Class 3a**

RECOMMENDATIONS

A reconnaissance survey was conducted for Kerr McGee’s proposed multi well pad, access road, and pipeline upgrade for “NBU #1022-19P1AS, 20M4CS, 20M1DS, & 20M4DS” (Sec. 19 & 20, T 10 S, R 22 E). The well pad and the associated access road and pipeline covered in this report showed no signs of vertebrate fossils. Therefore, we recommend that no paleontological restrictions should be placed on the development of the projects included in this report.

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

Nevertheless, if any vertebrate fossil(s) are found during construction within the project area, Operator (Lease Holder) will report all occurrences of paleontological resources discovered to a geologist with 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 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.

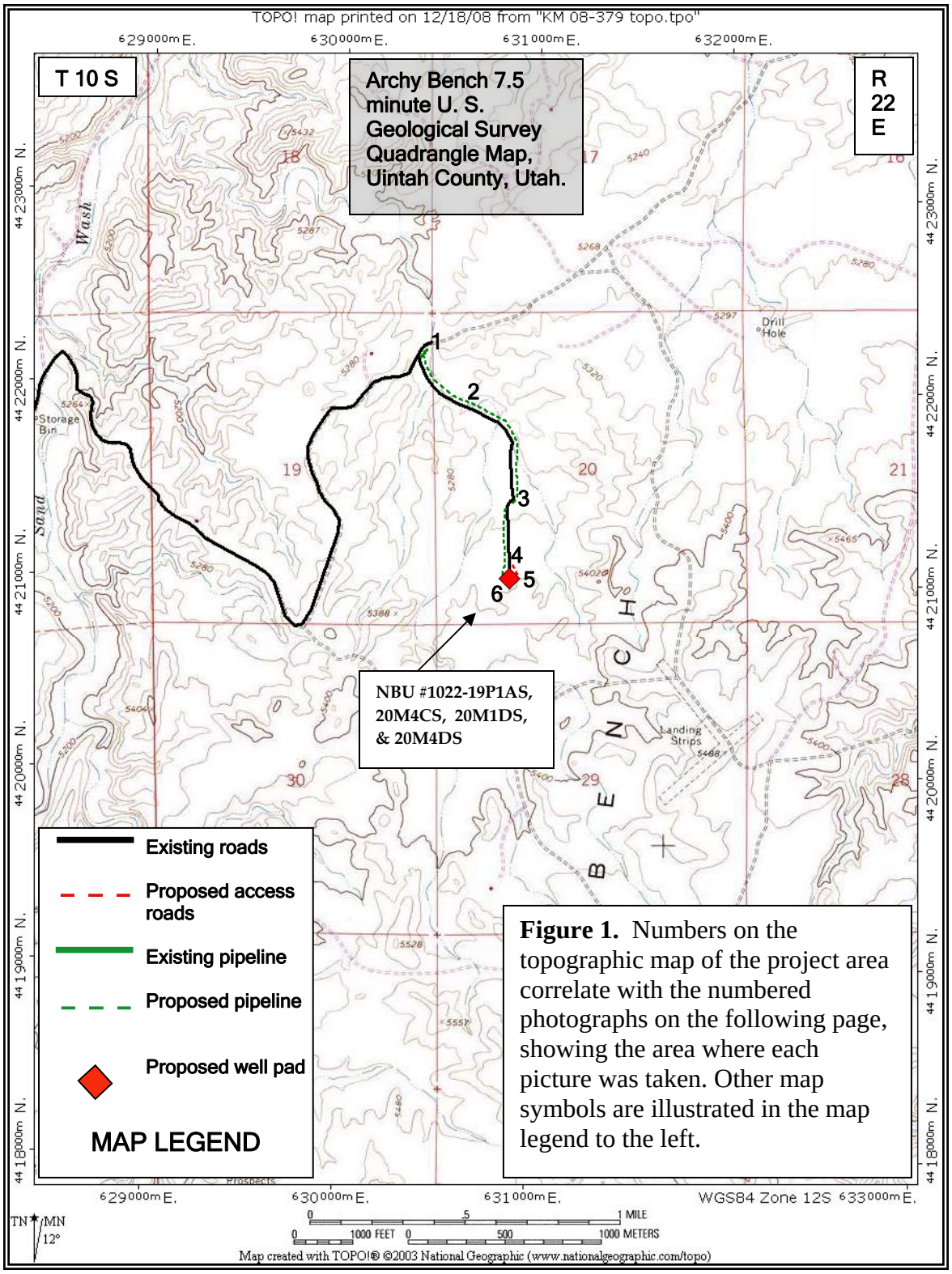
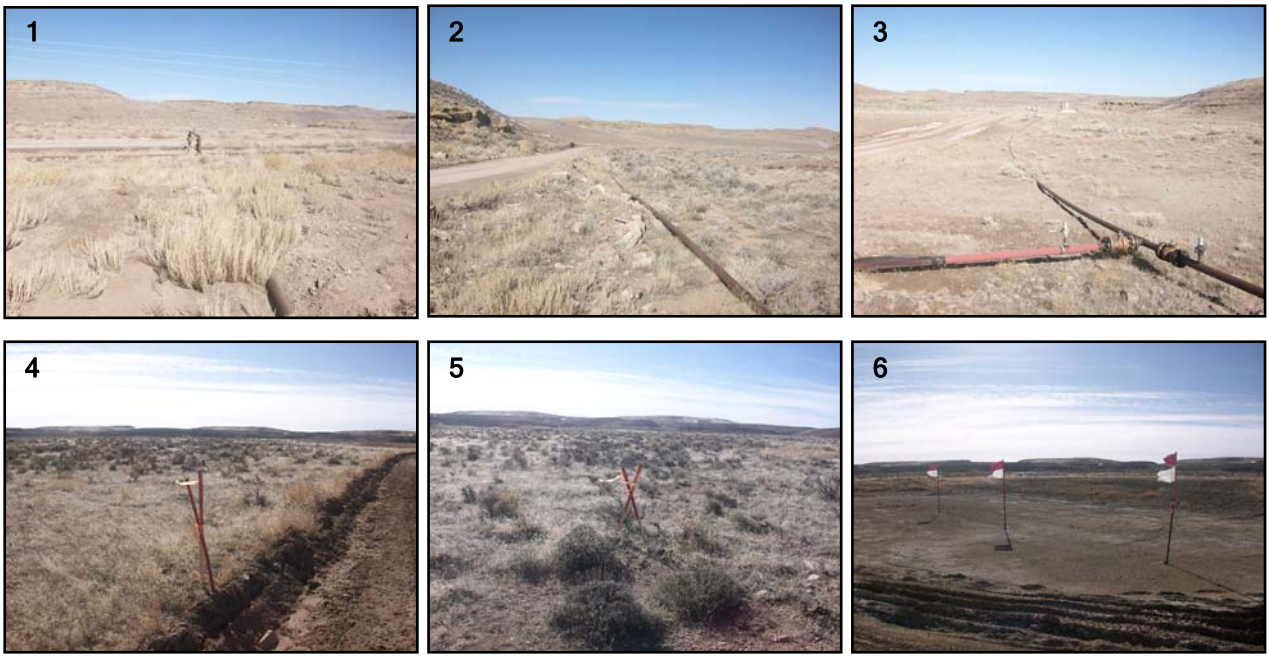


Figure 1. Numbers on the topographic map of the project area correlate with the numbered photographs on the following page, showing the area where each picture was taken. Other map symbols are illustrated in the map legend to the left.

Figure 1. *continued…*



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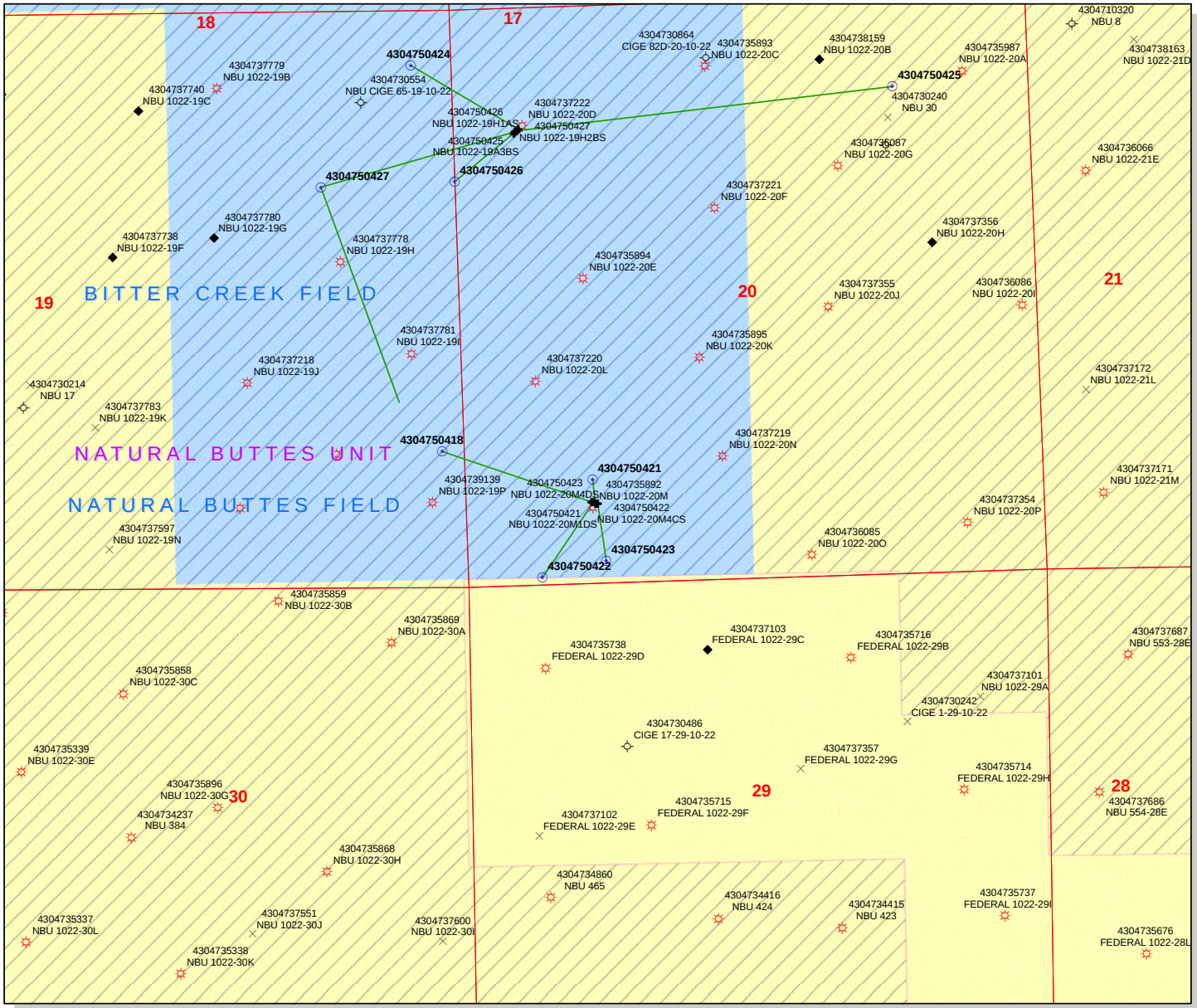


API Number: 4304750423

Well Name: NBU 1022-20M4DS

Township 10.0 S Range 22.0 E Section 20

Meridian: SLBM

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

Map Prepared:
Map Produced by Diana Mason

Units
STATUS
- ACTIVE
- EXPLORATORY
- GAS STORAGE
- NF PP OIL
- NF SECONDARY
- PI OIL
- PP GAS
- PP GEOTHERML
- PP OIL
- SECONDARY
- TERMINATED

Fields
STATUS
- ACTIVE
- COMBINED
- Sections

Wells Query Events
- <all other values>

GIS_STAT_TYPE
- <Null>
- APD
- DRL
- GI
- GS
- LA
- NEW
- OPS
- PA
- PGW
- POW
- RET
- SGW
- SOW
- TA
- TW
- WD
- WI
- WS

1,100 550 0 1,100 Feet

1:11,342

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)

May 15, 2009

Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

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

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

API #	WELL NAME	LOCATION
(Proposed PZ WASATCH-MESA VERDE)		
43-047-50418	NBU 1022-19P1AS	Sec 20 T10S R22E 0739 FSL 1156 FWL BHL Sec 19 T10S R22E 1230 FSL 0200 FEL
43-047-50421	NBU 1022-20M1DS	Sec 20 T10S R22E 0726 FSL 1194 FWL BHL Sec 20 T10S R22E 0945 FSL 1170 FWL
43-047-50422	NBU 1022-20M4CS	Sec 20 T10S R22E 0733 FSL 1175 FWL BHL Sec 20 T10S R22E 0055 FSL 0690 FWL
43-047-50423	NBU 1022-20M4DS	Sec 20 T10S R22E 0720 FSL 1213 FWL BHL Sec 20 T10S R22E 0195 FSL 1280 FWL
43-047-50424	NBU 1022-19A1CS	Sec 20 T10S R22E 1102 FNL 0573 FWL BHL Sec 19 T10S R22E 0500 FNL 0400 FEL
43-047-50425	NBU 1022-19A3BS	Sec 20 T10S R22E 1115 FNL 0558 FWL BHL Sec 19 T10S R22E 0790 FNL 1300 FEL
43-047-50426	NBU 1022-19H1AS	Sec 20 T10S R22E 1140 FNL 0527 FWL BHL Sec 19 T10S R22E 1570 FNL 0025 FEL
43-047-50427	NBU 1022-19H2BS	Sec 20 T10S R22E 1127 FNL 0542 FWL BHL Sec 19 T10S R22E 1610 FNL 1250 FEL

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

/s/ Michael L. Coulthard

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

MCoulthard:mc:5-15-09

API Well No: 43047504250000

From: Jim Davis
To: Bonner, Ed; Mason, Diana
Date: 6/1/2009 2:12 PM
Subject: Kerr McGee Approvals (16)

CC: Garrison, LaVonne

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

NBU 922-36A4BS (4304750394)
NBU 922-36G1T (4304750393)
NBU 922-36H2AS (4304750392)
NBU 922-36H2DS (4304750391)

NBU 921-25M3DS (4304750383)
NBU 921-25M2DS (4304750384)
NBU 921-25M2AS (4304750385)
NBU 921-25L4BS (4304750386)

NBU 922-31O1AS (4304750395)
NBU 922-31J3AS (4304750396)
NBU 922-31I3CS (4304750398)
NBU 922-31I4AS (4304750397)

NBU 1022-19P1AS (4304750418)
NBU 1022-20M4CS (4304750422)
NBU 1022-20M1DS (4304750421)
NBU 1022-20M4DS (4304750423)

-Jim

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

BOPE REVIEW KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 1022-20M4DS 43047504230000

Well Name	KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 1022-20M4DS 43047504			
String	Surf	Prod		
Casing Size(")	9.625	4.500		
Setting Depth (TVD)	1930	8700		
Previous Shoe Setting Depth (TVD)	20	1930		
Max Mud Weight (ppg)	8.3	11.6		
BOPE Proposed (psi)	500	5000		
Casing Internal Yield (psi)	3520	7780		
Operators Max Anticipated Pressure (psi)	5149	11.4		

Calculations	Surf String	9.625	"
Max BPH (psi)	.052*Setting Depth*MW=	833	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	601	NO
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	408	YES OK
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	413	NO Reasonable depth for area
Required Casing/BOPE Test Pressure=		1930	psi
*Max Pressure Allowed @ Previous Casing Shoe=		20	psi *Assumes 1psi/ft frac gradient

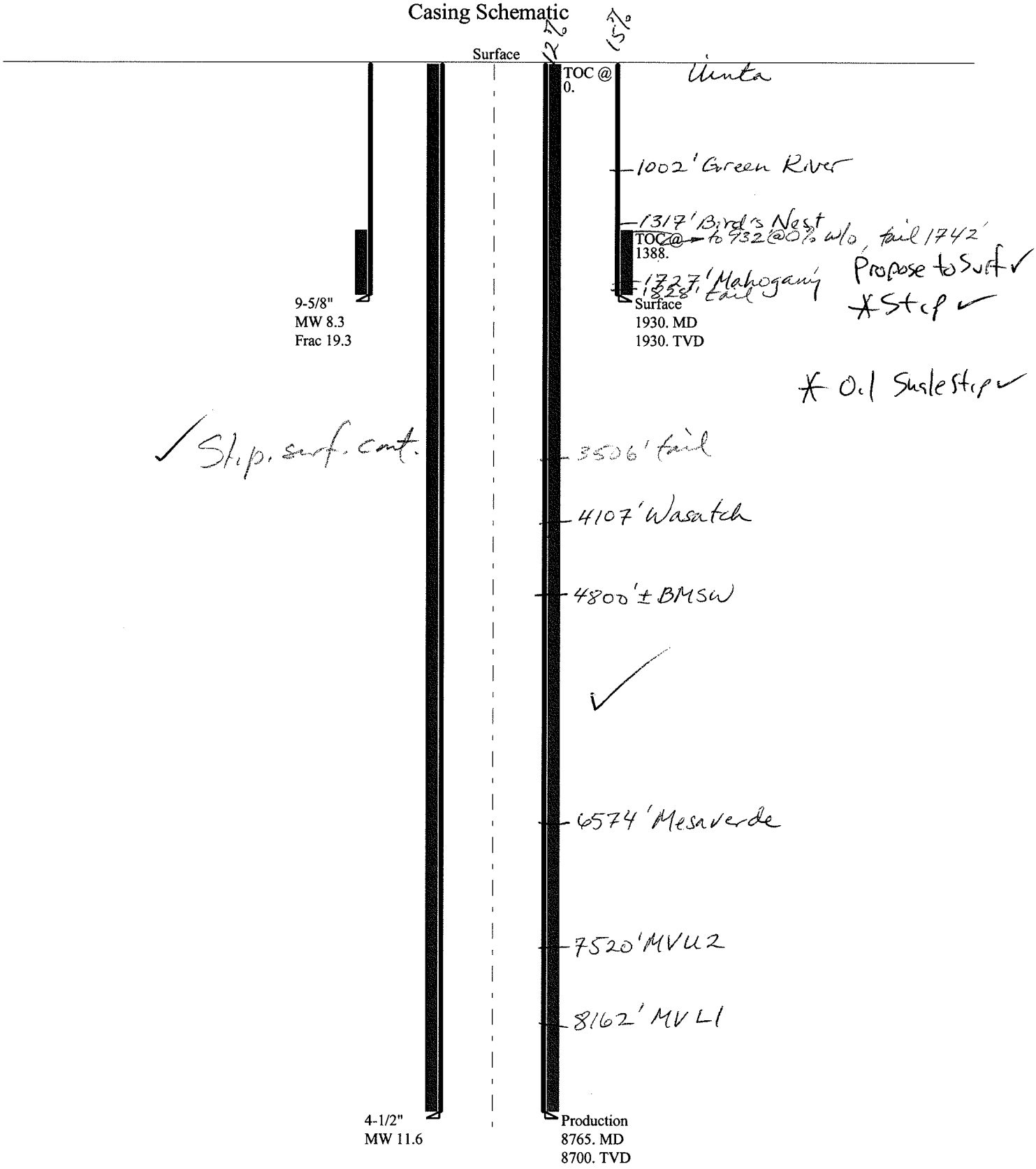
Calculations	Prod String	4.500	"
Max BPH (psi)	.052*Setting Depth*MW=	5248	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	4204	YES
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	3334	YES OK
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	3759	NO Reasonable
Required Casing/BOPE Test Pressure=		5000	psi
*Max Pressure Allowed @ Previous Casing Shoe=		1930	psi *Assumes 1psi/ft frac gradient

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

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

43047504230000 NBU 1022-20M4DS

Casing Schematic



Well name:	**43047504230000 NBU 1022-20M4DS**
Operator:	**KERR-MCGEE OIL & GAS ONSHORE, L.P.**
String type:	Surface
Project ID:	43-047-50423
Location:	UINTAH COUNTY

Design parameters:

Collapse

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

Burst

Max anticipated surface pressure: 1,698 psi
Internal gradient: 0.120 psi/ft
Calculated BHP 1,930 psi

No backup mud specified.

Minimum design factors:

Collapse:

Design factor 1.125

Burst:

Design factor 1.00

Tension:

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

Tension is based on air weight.
Neutral point: 1,692 ft

Environment:

H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 101 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 100 ft

Cement top: 1,388 ft

Directional Info - Build & Hold

Kick-off point 1900 ft
Departure at shoe: 0 ft
Maximum dogleg: 2 °/100ft
Inclination at shoe: .6 °

Re subsequent strings:

Next setting depth: 8,700 ft
Next mud weight: 11.600 ppg
Next setting BHP: 5,242 psi
Fracture mud wt: 19.250 ppg
Fracture depth: 1,930 ft
Injection pressure: 1,930 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	1930	9.625	36.00	J-55	LT&C	1930	1930	8.796	15782

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	835	1974	2.364	1930	3520	1.82	69.5	453	6.52 J

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: June 22,2009
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 1930 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:	**43047504230000 NBU 1022-20M4DS**
Operator:	**KERR-MCGEE OIL & GAS ONSHORE, L.P.**
String type:	Production
Project ID:	43-047-50423
Location:	UINTAH COUNTY

Design parameters:

Collapse

Mud weight: 11.600 ppg

Design is based on evacuated pipe.

Burst

Max anticipated surface pressure: 3,328 psi

Internal gradient: 0.220 psi/ft

Calculated BHP 5,242 psi

No backup mud specified.

Minimum design factors:

Collapse:

Design factor 1.125

Burst:

Design factor 1.00

Tension:

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

Tension is based on air weight.

Neutral point: 7,257 ft

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: Surface

Directional Info - Build & Hold

Kick-off point	1900 ft
Departure at shoe:	529 ft
Maximum dogleg:	2 °/100ft
Inclination at shoe:	0 °

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost ($)
1	8765	4.5	11.60	I-80	LT&C	8700	8765	3.875	115698

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	5242	6360	1.213	5242	7780	1.48	100.9	212	2.10 J

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940

Date: June 22,2009
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 1022-20M4DS				
API Number	43047504230000	**APD No**	1546	**Field/Unit**	NATURAL BUTTES
Location: 1/4,1/4	SWSW **Sec** 20 **Tw** 10.0S **Rng** 22.0E 720 FSL 1213 FWL				
GPS Coord (UTM)	630890 4420823	**Surface Owner**			

Participants

Floyd Bartlett (DOGM), Jim Davis (SITLA), Raleen White, Griz Oleen, Clay Einerson, Charles Chase and Tony Kzneck (Kerr McGee), Ben Williams (UDWR) and Kolby Kay (Timberline Engineering and Land Surveying).

Regional/Local Setting & Topography

The general area is the Natural Buttes Unit in the Sand Wash drainage of Uintah, County, approximately 36 air miles and 53 road miles south of Vernal, Utah. Access is by State of Utah Highways, Uintah County and existing oilfield development roads to within 270 feet of the site where the road will be re-routed. Topography of the Sand Wash area is characterized by broad open flats dissected by numerous sub-drainages, which often become steep with ridges and draws with exposed sandstone layers. No perennial streams occur in the drainage. Individual draws or washes are ephemeral with spring runoff or flows from sometimes-intense summer rainstorms. No springs exist in the area. An occasional constructed pond occurs furnishing water for antelope or livestock.

The existing pad of the producing NBU 1022-20M will be enlarged to add four wells that will be directionally drilled. They are the NBU 1022-19P1AS, 20M1DS, 20M4DS and 20M4CD. The pad will be significantly enlarged in all directions except to the southwest. It is in a wide gently north sloping basin, which is surrounded by moderately high hills. A small drainage is to the west of the pad and will not be affected. The basin extends to the south. The White River is approximately 8 miles down drainage. A Backflow Pit is included on the Location Layout Sheet. If it is to be constructed Kerr McGee will request it under a separate application.

Both the surface and minerals are owned by SITLA. Jim Davis represented SITLA at the pre-site investigation. Mr. Davis had no concerns pertaining to this location. The selected location appears to be a suitable site for drilling and operating additional wells.

Surface Use Plan

Current Surface Use
Grazing
Wildlfe Habitat
Existing Well Pad

New Road Miles	Well Pad	Src Const Material	Surface Formation
0.05	**Width** 320 **Length** 500	Onsite	UNTA

Ancillary Facilities N

Waste Management Plan Adequate?

Environmental Parameters

Affected Floodplains and/or Wetlands N

Flora / Fauna

Vegetation is a poor desert shrub type which includes sage brush, greasewood, cheatgrass, halogeton and spring annuals.

Antelope, sheep during the winter, rabbits, coyotes, and small mammals, birds and raptors.

Soil Type and Characteristics

Moderately deep sandy loam.

Erosion Issues N

Sedimentation Issues N

Site Stability Issues N

Drainage Diverson Required? N

Berm Required? N

Erosion Sedimentation Control Required? N

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

Reserve Pit

Site-Specific Factors		Site Ranking	
Distance to Groundwater (feet)	>200	0	
Distance to Surface Water (feet)	>1000	0	
Dist. Nearest Municipal Well (ft)	>5280	0	
Distance to Other Wells (feet)		20	
Native Soil Type	Mod permeability	10	
Fluid Type	Fresh Water	5	
Drill Cuttings	Normal Rock	0	
Annual Precipitation (inches)		0	
Affected Populations			
Presence Nearby Utility Conduits	Not Present	0	
	Final Score	35	1 Sensitivity Level

Characteristics / Requirements

The proposed reserve pit is 100' x 250' x 12' deep located in a cut on the southeast corner of the location. Kerr McGee plans a 30-mil liner with a double felt sub-liner. A Backflow Pit is included on the Location Layout Sheet. If it is to be constructed Kerr McGee will request it under a separate application.

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

Other Observations / Comments

Floyd Bartlett	5/20/2009
Evaluator	**Date / Time**

Application for Permit to Drill
Statement of Basis

Utah Division of Oil, Gas and Mining

APD No	API WellNo	Status	Well Type	Surf Owner	CBM
1546	43047504230000	SITLA	GW	S	No

Operator	KERR-MCGEE OIL & GAS ONSHORE, L.P.	**Surface Owner-APD**	
Well Name	NBU 1022-20M4DS	**Unit**	NATURAL BUTTES
Field	NATURAL BUTTES	**Type of Work**	DRILL

Location SWSW 20 10S 22E S 720 FSL 1213 FWL GPS Coord (UTM) 630919E 4420794N

Geologic Statement of Basis

Kerr McGee proposes to set 1,960’ 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 4,800'. A search of Division of Water Rights records shows one water well within a 10,000 foot radius of the center of Section 20. The well is listed as 1,850 feet deep and is used for stock watering. 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	5/26/2009
APD Evaluator	**Date / Time**

Surface Statement of Basis

The general area is the Natural Buttes Unit in the Sand Wash drainage of Uintah, County, approximately 36 air miles and 53 road miles south of Vernal, Utah. Access is by State of Utah Highways, Uintah County and existing oilfield development roads to within 270 feet of the site where the road will be re-routed. Topography of the Sand Wash area is characterized by broad open flats dissected by numerous sub-drainages, which often become steep with ridges and draws with exposed sandstone layers. No perennial streams occur in the drainage. Individual draws or washes are ephemeral with spring runoff or flows from sometimes-intense summer rainstorms. No springs exist in the area. An occasional constructed pond occurs furnishing water for antelope or livestock.

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Both the surface and minerals are owned by SITLA. Jim Davis represented SITLA at the pre-site investigation. Mr. Davis had no concerns pertaining to this location. The selected location appears to be a suitable site for drilling and operating additional wells.

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.

Floyd Bartlett	5/20/2009
Onsite Evaluator	**Date / Time**

Conditions of Approval / Application for Permit to Drill

Category	Condition

Application for Permit to Drill
Statement of Basis

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

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 5/13/2009 **API NO. ASSIGNED:** 43047504230000
WELL NAME: NBU 1022-20M4DS
OPERATOR: KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995) **PHONE NUMBER:** 720 929-6156
CONTACT: Danielle Piernot

PROPOSED LOCATION: SWSW 20 100S 220E **Permit Tech Review:** ✔

SURFACE: 0720 FSL 1213 FWL **Engineering Review:** ✔

BOTTOM: 0195 FSL 1280 FWL **Geology Review:** ✔

COUNTY: UINTAH
LATITUDE: 39.92903 **LONGITUDE:** -109.46792
UTM SURF EASTINGS: 630919.00 **NORTHINGS:** 4420794.00
FIELD NAME: NATURAL BUTTES
LEASE TYPE: 3 - State
LEASE NUMBER: ML 22974 **PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE
SURFACE OWNER: 3 - State **COALBED METHANE:** NO

RECEIVED AND/OR REVIEWED:

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

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

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 1022-20M4DS
API Well Number: 43047504230000
Lease Number: ML 22974
Surface Owner: STATE
Approval Date: 8/5/2009

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

Commingle:
In accordance with Board Cause No. 173-14, completion into and commingling of production from the Wasatch and Mesaverde formations is allowed.

General:
Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

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

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

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

Surface casing shall be cemented to the surface.

Additional Approvals:
The operator is required to obtain approval from the Division of Oil, Gas and mining before performing any of the following actions during the drilling of this well:
- Any changes to the approved drilling plan – contact Dustin Doucet
- Significant plug back of the well – contact Dustin Doucet
- Plug and abandonment of the well – contact Dustin Doucet

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

Contact Information:
The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voicemail message if the person is not available to take the call):
- Carol Daniels 801-538-5284 - office
- Dustin Doucet 801-538-5281 - office
  801-733-0983 - after office hours
- Dan Jarvis 801-538-5338 - office
  801-942-0871 - after office hours

Reporting Requirements:
All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:
- Entity Action Form (Form 6) – due within 5 days of spudding the well
- Monthly Status Report (Form 9) – due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) – due prior to implementation
- Written Notice of Emergency Changes (Form 9) – due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) – due prior to implementation
- Report of Water Encountered (Form 7) – due within 30 days after completion
- Well Completion Report (Form 8) – due within 30 days after completion or plugging

Approved By:

Gil Hunt
Associate Director, Oil & Gas

API Well No: 43047504230000

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

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER: ML 22974

SUNDRY NOTICES AND REPORTS ON WELLS

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

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME: NATURAL BUTTES

1. TYPE OF WELL: Gas Well

8. WELL NAME and NUMBER: NBU 1022-20M4DS

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

9. API NUMBER: 43047504230000

3. ADDRESS OF OPERATOR: P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779

PHONE NUMBER: 720 929-6007 Ext

9. FIELD and POOL or WILDCAT: NATURAL BUTTES

4. LOCATION OF WELL
FOOTAGES AT SURFACE: 0720 FSL 1213 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SWSW Section: 20 Township: 10.0S Range: 22.0E Meridian: S

COUNTY: UINTAH

STATE: UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
✓ NOTICE OF INTENT Approximate date work will start: 7/8/2010	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ SUBSEQUENT REPORT Date of Work Completion:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
☐ SPUD REPORT Date of Spud:	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	✓ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

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

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

Approved by the Utah Division of Oil, Gas and Mining

Date: July 13, 2010

By:

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Danielle Piernot	720 929-6156	Regulatory Analyst
SIGNATURE		**DATE**
N/A		7/7/2010

RECEIVED July 07, 2010

The Utah Division of Oil, Gas, and Mining

- State of Utah
- Department of Natural Resources

Electronic Permitting System - Sundry Notices

Request for Permit Extension Validation Well Number 43047504230000

API: 43047504230000
Well Name: NBU 1022-20M4DS
Location: 0720 FSL 1213 FWL QTR SWSW SEC 20 TWNP 100S RNG 220E MER S
Company Permit Issued to: KERR-MCGEE OIL & GAS ONSHORE, L.P.
Date Original Permit Issued: 7/8/2009

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision. Following is a checklist of some items related to the application, which should be verified.

- **If located on private land, has the ownership changed, if so, has the surface agreement been updated?** ○ **Yes** ◉ **No**
- **Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?** ○ **Yes** ◉ **No**
- **Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?** ○ **Yes** ◉ **No**
- **Have there been any changes to the access route including ownership, or rightof- way, which could affect the proposed location?** ○ **Yes** ◉ **No**
- **Has the approved source of water for drilling changed?** ○ **Yes** ◉ **No**
- **Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?** ○ **Yes** ◉ **No**
- **Is bonding still in place, which covers this proposed well?** ◉ **Yes** ○ **No**

Approved by the Utah Division of Oil, Gas and Mining

Signature: Danielle Piernot **Date:** 7/7/2010
Title: Regulatory Analyst **Representing:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

Date: July 13, 2010

By:

RECEIVED July 07, 2010

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

FORM 9

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7.UNIT or CA AGREEMENT NAME: NATURAL BUTTES

1. TYPE OF WELL Gas Well

8. WELL NAME and NUMBER: NBU 1022-20M4DS

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

9. API NUMBER: 43047504230000

3. ADDRESS OF OPERATOR: P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779
PHONE NUMBER: 720 929-6515 Ext

9. FIELD and POOL or WILDCAT: NATURAL BUTTES

4. LOCATION OF WELL
FOOTAGES AT SURFACE: 0720 FSL 1213 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SWSW Section: 20 Township: 10.0S Range: 22.0E Meridian: S

COUNTY: UINTAH

STATE: UTAH

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

TYPE OF SUBMISSION	TYPE OF ACTION		
✓ NOTICE OF INTENT Approximate date work will start: 7/8/2011	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
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☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	✓ APD EXTENSION
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Approved by the Utah Division of Oil, Gas and Mining

Date: 06/20/2011

By: [signature]

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Andy Lytle	720 929-6100	Regulatory Analyst

SIGNATURE	DATE
N/A	6/13/2011

RECEIVED Jun. 13, 2011

The Utah Division of Oil, Gas, and Mining

- State of Utah
- Department of Natural Resources

Electronic Permitting System - Sundry Notices

Request for Permit Extension Validation Well Number 43047504230000

API: 43047504230000
Well Name: NBU 1022-20M4DS
Location: 0720 FSL 1213 FWL QTR SWSW SEC 20 TWNP 100S RNG 220E MER S
Company Permit Issued to: KERR-MCGEE OIL & GAS ONSHORE, L.P.
Date Original Permit Issued: 7/8/2009

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

Signature: Andy Lytle **Date:** 6/13/2011
Title: Regulatory Analyst **Representing:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

RECEIVED Jun. 13, 2011

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

July 27, 2012

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

Re: APD Rescinded – NBU 1022-20M4DS, Sec. 20, T. 10S, R. 22E
Uintah County, Utah API No. 43-047-50423

Ladies and Gentlemen:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on July 8, 2009. On July 13, 2010 and June 20, 2011 the Division granted a one-year APD extension. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective July 27, 2012.

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

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

Sincerely,

Diana Mason
Environmental Scientist

cc: Well File
SITLA, Ed Bonner

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 • facsimile (801) 359-3940 • TTY (801) 538-7458 • *www.ogm.utah.gov*

UTAH DNR OIL, GAS & MINING