API Well Number: 43047533400000

**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 921-20A1CS

**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**
720 929-6515

**8. ADDRESS OF OPERATOR**
P.O. Box 173779, Denver, CO, 80217

**9. OPERATOR E-MAIL**
julie.jacobson@anadarko.com

**10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)**
UTU0575

**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')**
Ute Tribe

**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 | 764 FNL 2253 FEL | NWNE | 20 | 9.0 S | 21.0 E | S |
| Top of Uppermost Producing Zone | 413 FNL 491 FEL | NENE | 20 | 9.0 S | 21.0 E | S |
| At Total Depth | 413 FNL 491 FEL | NENE | 20 | 9.0 S | 21.0 E | S |

**21. COUNTY**
UINTAH

**22. DISTANCE TO NEAREST LEASE LINE (Feet)**
491

**23. NUMBER OF ACRES IN DRILLING UNIT**
1600

**25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)**
545

**26. PROPOSED DEPTH**
MD: 11727 TVD: 11392

**27. ELEVATION - GROUND LEVEL**
4874

**28. BOND NUMBER**
WYB000291

**29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE**
43-8496

### Hole, Casing, and Cement Information

| String | Hole Size | Casing Size | Length | Weight | Grade & Thread | Max Mud Wt. | Cement | Sacks | Yield | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| Surf | 11 | 8.625 | 0 - 2950 | 28.0 | J-55 LT&C | 0.2 | Type V | 180 | 1.15 | 15.8 |
| | | | | | | | Class G | 270 | 1.15 | 15.8 |
| Prod | 7.875 | 4.5 | 0 - 11727 | 11.6 | HCP-110 LT&C | 12.5 | Premium Lite High Strength | 360 | 3.38 | 12.0 |
| | | | | | | | 50/50 Poz | 1690 | 1.31 | 14.3 |

### ATTACHMENTS

**VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE 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** 11/27/2012 | **EMAIL** danielle.piernot@anadarko.com

**API NUMBER ASSIGNED**
43047533400000

**APPROVAL**

Permit Manager

RECEIVED: December 10, 2012

# Kerr-McGee Oil & Gas Onshore. L.P.

**NBU 921-20A1CS**

Surface: 764 FNL / 2253 FEL NWNE
BHL: 413 FNL / 491 FEL NENE

Section 20 T9S R21E

Unitah County, Utah
Mineral Lease: UTU 0575

**ONSHORE ORDER NO. 1**

**DRILLING PROGRAM**

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

| Formation | Depth | Resource |
|---|---|---|
| Uinta | 0 - Surface | |
| Green River | 1,715' | |
| Birds Nest | 2,027' | Water |
| Mahogany | 2,503' | Water |
| Wasatch | 5,078' | Gas |
| Mesaverde | 8,049' | Gas |
| Sego | 10,299' | Gas |
| Castlegate | 10,415' | Gas |
| Blackhawk | 10,792' | Gas |
| TVD = | 11,392' | |
| TD = | 11,727' | |

**2.c** Kerr McGee Oil & Gas Onshore LP (Kerr McGee) may elect to drill to (i) the Blackhawk formation (part of the Mesaverde Group), (ii) to a shallower depth within the Mesaverde Group, or (iii) to the Wasatch Formation. If Kerr McGee drills to the Blackhawk formation, please refer to Blackhawk as the bottom formation. The attached Blackhawk Drilling Program includes Total Vertical Depth, Total Depth, and appropriate casing and cement programs for the deeper formation.

If Kerr-McGee drills to a shallower depth in the Mesaverde Group or to the Wasatch Formation, please refer to the attached Wasatch/Mesaverde Drilling Program which includes Total Vertical Depth, Total Depth, and appropriate casing and cement programs for the shallower formations.

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

Please refer to the attached Blackhawk Drilling Program and the Wasatch/Mesaverde Drilling Program

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

Please refer to the attached Blackhawk Drilling Program and the Wasatch/Mesaverde Drilling Program

**5.** **Drilling Fluids Program:**

Please refer to the attached Blackhawk Drilling Program and the Wasatch/Mesaverde Drilling Program

**6.** **Evaluation Program:**

Please refer to the attached Blackhawk Drilling Program and the Wasatch/Mesaverde Drilling Program

**7.** **Abnormal Conditions:**

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**7.a Blackhawk (Part of Mesaverde Group)**

Maximum anticipated bottom hole pressure calculated at 11392' TVD, approximately equals 7,291 psi (0.64 psi/ft = actual bottomhole gradient)

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

Maximum anticipated surface pressure equals approximately 4,769 psi (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

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

**7.b Wasach Formation/Mesaverde Group**

Maximum anticipated bottom hole pressure calculated at 10299' TVD, approximately equals 6,282 psi (0.61 psi/ft = actual bottomhole gradient)

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

Maximum anticipated surface pressure equals approximately 4,044 psi (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

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

**8. Anticipated Starting Dates:**

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

**9. Variances:**

Please refer to the attached Blackhawk Drilling Program and the Wasatch/Mesaverde 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

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be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.

The air rig is then mobilized to drill the surface casing hole by drilling a 12 1/4 inch hole for the first 200 feet, then will drill a 11inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.

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

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

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

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

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

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

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

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

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**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 Blackhawk Drilling Program and the Wasatch/Mesaverde Drilling Program

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KerrMcGee

# KERR-McGEE OIL & GAS ONSHORE LP

## Blackhawk Drilling Program

| | | | |
|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | DATE | July 13, 2012 |
| WELL NAME | **NBU 921-20A1CS** | TD | 11,392' TVD 11,727' MD |
| FIELD | Natural Buttes | COUNTY Uintah | STATE Utah |
| | | FINISHED ELEVATION | 4,873' |
| SURFACE LOCATION | NWNE 764 FNL 2253 FEL Sec 20 T 9S R 21E | | |
| | Latitude: 40.026738 Longitude: -109.574213 NAD 83 | | |
| BTM HOLE LOCATION | NENE 413 FNL 491 FEL Sec 20 T 9S R 21E | | |
| | Latitude: 40.027698 Longitude: -109.567924 NAD 83 | | |
| OBJECTIVE ZONE(S) | BLACKHAWK (Part of the Mesaverde Group) | | |
| ADDITIONAL INFO | Regulatory Agencies: BLM (Minerals), Ute Indian Tribe (Surface), UDOGM Tri-County Health Dept. | | |

| GEOLOGICAL | | | MECHANICAL | | |
|---|---|---|---|---|---|
| LOGS | FORMATION TOPS | DEPTH | HOLE SIZE | CASING SIZE | MUD WEIGHT |
| | | 40' | | 14" | |
| | | 200' | 12-1/4 | 8-5/8", 28#, IJ-55, LTC | Air mist |
| | | | 11.00' | 8-5/8", 28#, IJ-55, LTC | Air mist |
| | | | 7-7/8" | 4-1/2" 11.6# HCP-110 Ultra DQX/LTC csg | Water / Fresh Water Mud 8.3-12.5 ppg |

**All water flows encountered while drilling will be reported to the appropriate agencies.**

| | |
|---|---|
| **Green River @** | **1,715'** |
| **Top of Birds Nest @** | **2,027'** |
| **Mahogany @** | **2,503'** |
| **Preset f/ GL @** | **2,950' TVD** |

Note: 11" 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 @** | **5,078'** |
| **Mesaverde @** | **8,049' TVD** |
| **Sego @** | **10,299' TVD** |
| **Castlegate @** | **10,415' TVD** |
| **Blackhawk** | **10,792' TVD** |
| **TD @** | **11,392' TVD** / **11,727' MD** |

Mud logging program TBD
Cased hole logging program from TD - surf csg

Max anticipated Mud required 12.5 ppg

KerrMcGee

## KERR-McGEE OIL & GAS ONSHORE LP

# Blackhawk Drilling Program

**CASING PROGRAM**

| | SIZE | INTERVAL | | | WT. | GR. | CPLG. | DESIGN FACTORS BURST | COLLAPSE | TENSION LTC | TENSION DQX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 14" | 0-40' | | | | | | | | | |
| | | | | | | | | 3,390 | 1,880 | 348,000 | N/A |
| SURFACE | 8-5/8" | 0 | to | 2,950 | 28.00 | IJ-55 | LTC | 1.82 | 1.36 | 4.81 | N/A |
| | | | | | | | | 10,690 | 8,650 | 279,000 | 367,174 |
| PRODUCTION | 4-1/2" | 0 | to | 5,000 | 11.60 | HCP-110 | DQX | 1.19 | 1.17 | | 3.34 |
| | 4-1/2" | 5,000 | to | 11,727' | 11.60 | HCP-110 | LTC | 1.19 | 1.17 | 4.42 | |

**Surface Casing:**

(Burst Assumptions: TD = 12.5 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 9000 psi) 0.64 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**CEMENT PROGRAM**

| | | FT. OF FILL | DESCRIPTION | SACKS | EXCESS | WEIGHT | | YIELD |
|---|---|---|---|---|---|---|---|---|
| SURFACE | LEAD | 500' | Premium cmt + 2% CaCl | 180 | 60% | 15.80 | | 1.15 |
| **Option 1** | | | + 0.25 pps flocele | | | | | |
| | TOP OUT CMT (6 jobs) | 1,200' | 20 gals sodium silicate + Premium cmt | 270 | 0% | 15.80 | | 1.15 |
| | | | + 2% CaCl + 0.25 pps flocele | | | | | |
| SURFACE | | | **NOTE: If well will circulate water to surface, option 2 will be utilized** | | | | | |
| **Option 2** | LEAD | 2,450' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 230 | 35% | 11.00 | | 3.82 |
| | | | + 0.25 pps Flocele + 3% salt BWOW | | | | | |
| | TAIL | 500' | Premium cmt + 2% CaCl | 150 | 35% | 15.80 | | 1.15 |
| | | | + 0.25 pps flocele | | | | | |
| | TOP OUT CMT | as required | Premium cmt + 2% CaCl | as req. | | 15.80 | | 1.15 |
| PRODUCTION | LEAD | 4,577' | Premium Lite II +0.25 pps | 360 | 35% | 12.00 | | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | | |
| | | | + 0.5% extender | | | | | |
| | TAIL | 7,150' | 50/50 Poz/G + 10% salt + 2% gel | 1,690 | 35% | 14.30 | | 1.31 |
| | | | + 0.1% 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. 15 centralizers for a Mesaverde and 20 for a Blackhawk well. 1 centralizer on the first 3 joints and one every third joint thereafter. |

**ADDITIONAL INFORMATION**

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

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

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

**DRILLING ENGINEER:** Nick Spence / Danny Showers / Travis Hansell **DATE:**

**DRILLING SUPERINTENDENT:** Kenny Gathings / Lovel Young **DATE:**

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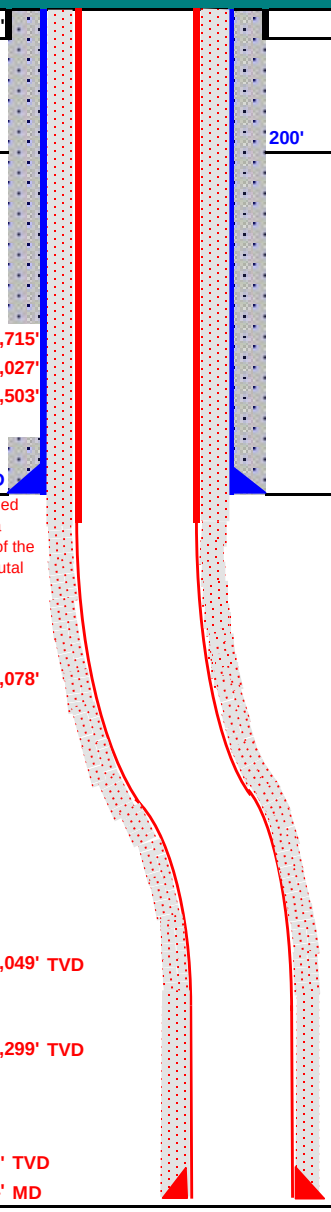
# KERR-McGEE OIL & GAS ONSHORE LP

## Wasatch/Mesaverde Drilling Program

| | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | | DATE | July 13, 2012 | |
| WELL NAME | **NBU 921-20A1CS** | | TD | 10,299' TVD | 10,634' MD |
| FIELD | Natural Buttes | COUNTY Uintah | STATE Utah | FINISHED ELEVATION | 4,873' |
| SURFACE LOCATION | NWNE | 764 FNL | 2253 FEL | Sec 20 T 9S R 21E | |
| | Latitude: 40.026738 | Longitude: -109.574213 | | NAD 83 | |
| BTM HOLE LOCATION | NENE | 413 FNL | 491 FEL | Sec 20 T 9S R 21E | |
| | Latitude: 40.027698 | Longitude: -109.567924 | | NAD 83 | |
| OBJECTIVE ZONE(S) | Wasatch Formation/Mesaverde Group | | | | |
| ADDITIONAL INFO | Regulatory Agencies: BLM (Minerals), Ute Indian Tribe (Surface), UDOGM Tri-County Health Dept. | | | | |

| GEOLOGICAL | | | MECHANICAL | | |
|---|---|---|---|---|---|
| LOGS | FORMATION TOPS | DEPTH | HOLE SIZE | CASING SIZE | MUD WEIGHT |
| | | 40' | | 14" | |
| | | | 12-1/4 | 8-5/8", 28#, IJ-55, LTC | Air mist |
| | | 200' | | | |
| **All water flows encountered while drilling will be reported to the appropriate agencies.** | | | 11.00' | 8-5/8", 28#, IJ-55, LTC | Air mist |
| | **Green River @** | **1,715'** | | | |
| | **Top of Birds Nest @** | **2,027'** | | | |
| | **Mahogany @** | **2,503'** | | | |
| | **Preset f/ GL @** | **2,950' TVD** | | | |
| | Note: 11" 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 @** | **5,078'** | | | |
| Mud logging program TBD<br>Cased hole logging program from TD - surf csg | | | 7-7/8" | 4-1/2" 11.6#<br>I-80/HCP-110<br>Ultra DQX/LTC csg | Water / Fresh<br>Water Mud<br>8.3-12.0 ppg |
| | **Mesaverde @** | **8,049' TVD** | | | |
| | **Sego @** | **10,299' TVD** | | | |
| Max anticipated<br>Mud required<br>12.0 ppg | **TD @** | **10,299' TVD**<br>**10,634' MD** | | | |



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KerrMcGee

## KERR-McGEE OIL & GAS ONSHORE LP

# Wasatch/Mesaverde Drilling Program

**CASING PROGRAM**

| | SIZE | INTERVAL | | | WT. | GR. | CPLG. | DESIGN FACTORS BURST | COLLAPSE | TENSION LTC | TENSION DQX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 14" | 0-40' | | | | | | | | | |
| | | | | | | | | 3,390 | 1,880 | 348,000 | N/A |
| SURFACE | 8-5/8" | 0 | to | 2,950 | 28.00 | IJ-55 | LTC | 1.82 | 1.36 | 4.81 | N/A |
| | | | | | | | | 7,780 | 6,350 | | 267,035 |
| PRODUCTION | 4-1/2" | 0 | to | 5,000 | 11.60 | I-80 | DQX | 1.11 | 0.99 | | 2.65 |
| | | | | | | | | 10,690 | 8,650 | 223,000 | |
| | 4-1/2" | 5,000 | to | 10,634' | 11.60 | HCP-110 | LTC | 1.53 | 1.35 | 4.18 | |

**Surface Casing:**

(Burst Assumptions: TD = 12.0 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.61 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing*Buoy.Fact. of water)

**CEMENT PROGRAM**

| | | FT. OF FILL | DESCRIPTION | SACKS | EXCESS | WEIGHT | | YIELD |
|---|---|---|---|---|---|---|---|---|
| SURFACE | LEAD | 500' | Premium cmt + 2% CaCl | 180 | 60% | 15.80 | | 1.15 |
| **Option 1** | | | + 0.25 pps flocele | | | | | |
| | TOP OUT CMT (6 jobs) | 1,200' | 20 gals sodium silicate + Premium cmt | 270 | 0% | 15.80 | | 1.15 |
| | | | + 2% CaCl + 0.25 pps flocele | | | | | |
| SURFACE | | **NOTE: If well will circulate water to surface, option 2 will be utilized** | | | | | | |
| **Option 2** | LEAD | 2,450' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 230 | 35% | 11.00 | | 3.82 |
| | | | + 0.25 pps Flocele + 3% salt BWOW | | | | | |
| | TAIL | 500' | Premium cmt + 2% CaCl | 150 | 35% | 15.80 | | 1.15 |
| | | | + 0.25 pps flocele | | | | | |
| | TOP OUT CMT | as required | Premium cmt + 2% CaCl | as req. | | 15.80 | | 1.15 |
| PRODUCTION | LEAD | 4,574' | Premium Lite II +0.25 pps | 360 | 35% | 12.00 | | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | | |
| | | | + 0.5% extender | | | | | |
| | TAIL | 6,060' | 50/50 Poz/G + 10% salt + 2% gel | 1,430 | 35% | 14.30 | | 1.31 |
| | | | + 0.1% 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. 15 centralizers for a Mesaverde and 20 for a Blackhawk well. 1 centralizer on the first 3 joints and one every third joint thereafter. |

**ADDITIONAL INFORMATION**

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

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

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

**DRILLING ENGINEER:** _____ **DATE:** _____

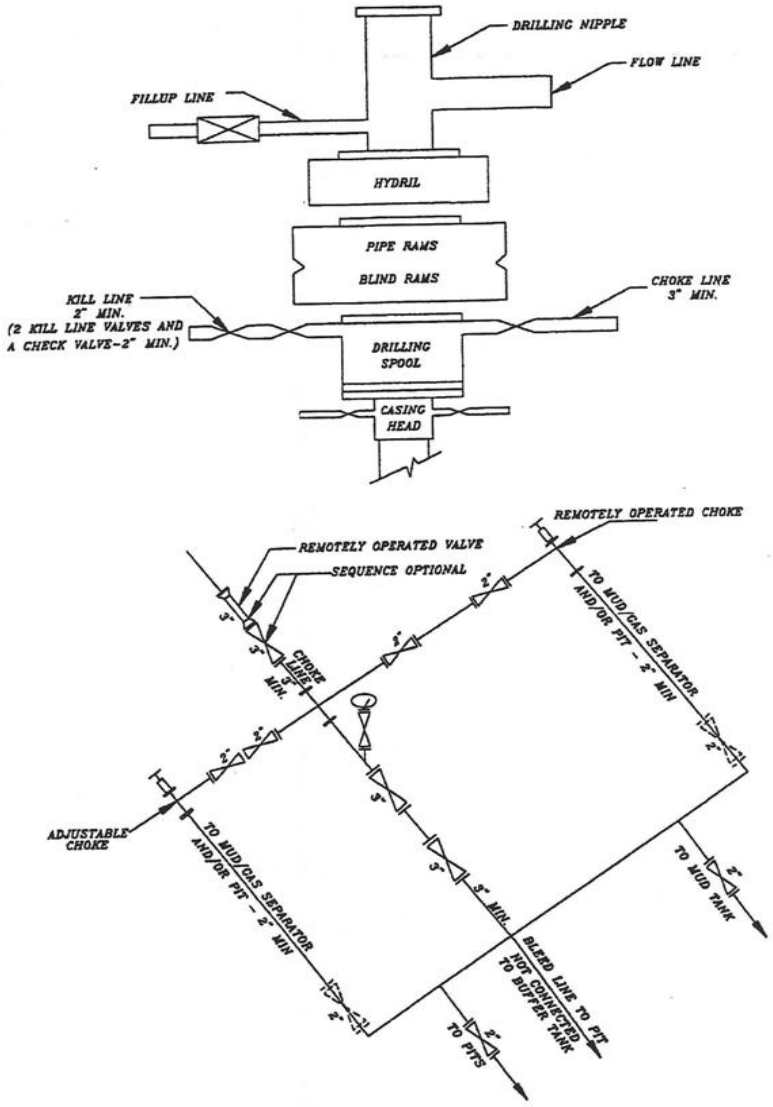
Nick Spence / Danny Showers / Travis Hansell

**DRILLING SUPERINTENDENT:** _____ **DATE:** _____

Kenny Gathings / Lovel Young

RECEIVED: November 27, 2012

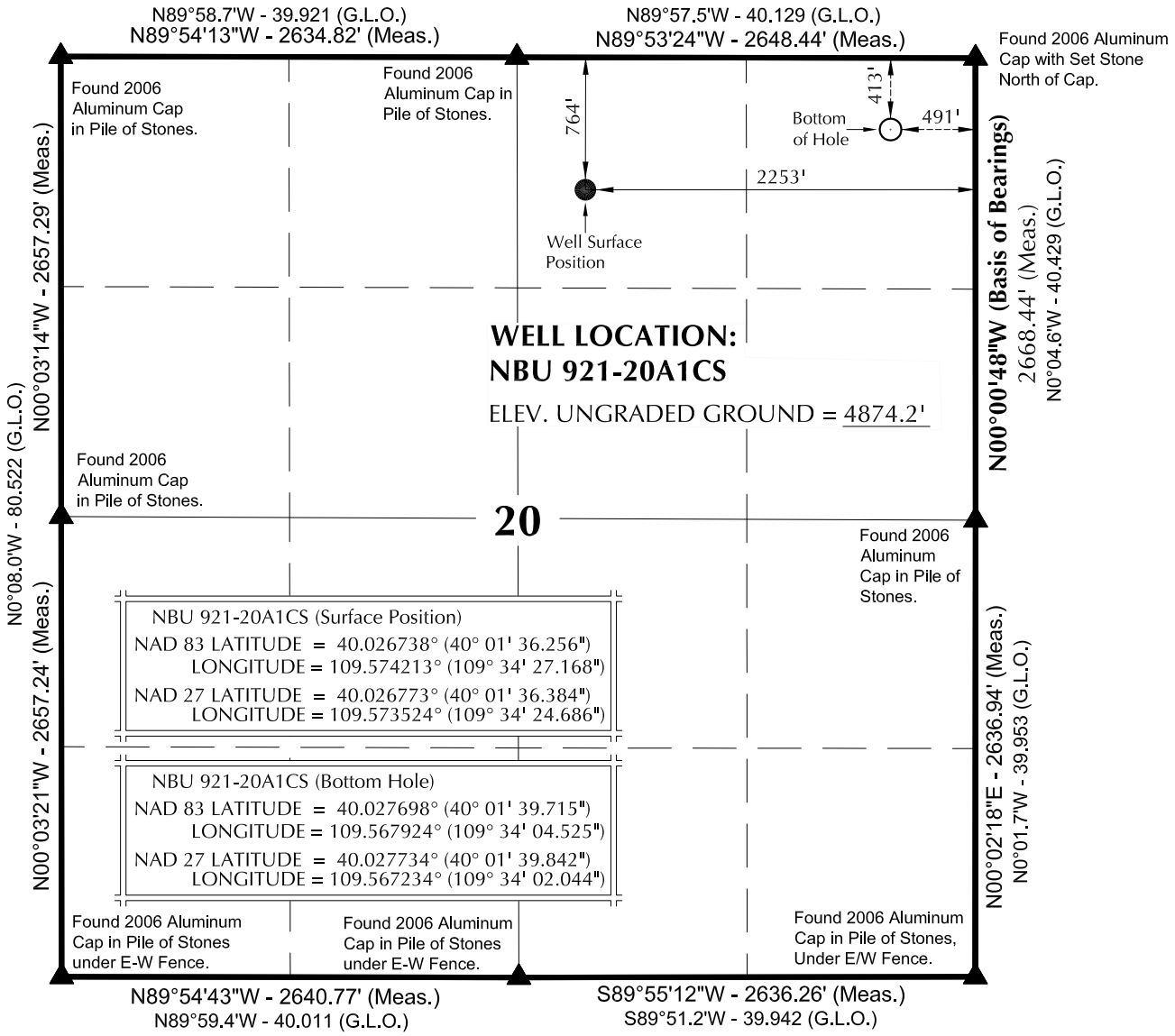
**EXHIBIT A**
**NBU 921-20A1CS**




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

RECEIVED: November 27, 2012

# T9S, R21E, 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 N78°49'58"E 1796.34' 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'.

N

1000' 500' 0' 1000'

SCALE

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.

4-16-12

PROFESSIONAL LAND SURVEYOR No.6028691 JOHN R LAUGHLIN STATE OF UTAH

PROFESSIONAL LAND SURVEYOR
REGISTRATION No. 6028691
STATE OF UTAH

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

**WELL PAD: NBU 921-20B**

**NBU 921-20A1CS**
**WELL PLAT**
**413' FNL, 491' FEL (Bottom Hole)**
**NE $\frac{1}{4}$ NE $\frac{1}{4}$ OF SECTION 20, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH.**

609 CONSULTING, LLC
2155 North Main Street
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Phone 307-674-0609
Fax 307-674-0182

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

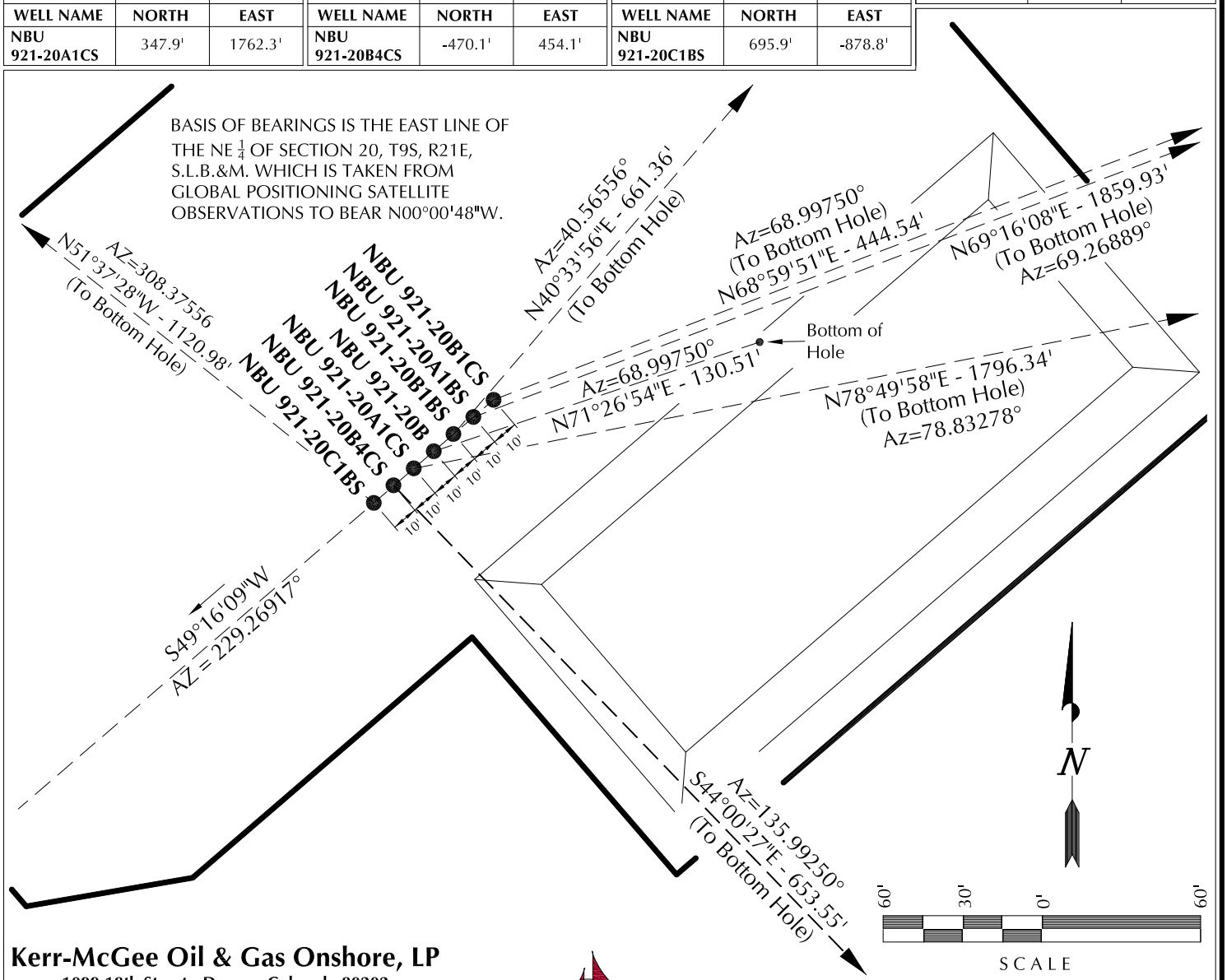
| | | |
|---|---|---|
| DATE SURVEYED: 3-14-12 | SURVEYED BY: A.F. | SHEET NO: |
| DATE DRAWN: 3-21-12 | DRAWN BY: T.J.R. | 5 |
| SCALE: 1" = 1000' | Date Last Revised: | 5 OF 19 |

API Well Number: 43047533400000

| WELL NAME | SURFACE POSITION | | | | | BOTTOM HOLE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | NAD83 | | NAD27 | | | NAD83 | | NAD27 | | |
| | LATITUDE | LONGITUDE | LATITUDE | LONGITUDE | FOOTAGES | LATITUDE | LONGITUDE | LATITUDE | LONGITUDE | FOOTAGES |
| NBU 921-20B1CS | 40°01'36.515"<br>40.026810° | 109°34'26.779"<br>109.574105° | 40°01'36.642"<br>40.026845° | 109°34'24.296"<br>109.573416° | 738' FNL<br>2223' FEL | 40°01'38.094"<br>40.027248° | 109°34'21.448"<br>109.572624° | 40°01'38.221"<br>40.027284° | 109°34'18.965"<br>109.571935° | 578' FNL<br>1808' FEL |
| NBU 921-20A1BS | 40°01'36.449"<br>40.026792° | 109°34'26.876"<br>109.574132° | 40°01'36.577"<br>40.026827° | 109°34'24.394"<br>109.573443° | 745' FNL<br>2231' FEL | 40°01'42.975"<br>40.028604° | 109°34'04.531"<br>109.567925° | 40°01'43.102"<br>40.028640° | 109°34'02.049"<br>109.567236° | 83' FNL<br>491' FEL |
| NBU 921-20B1BS | 40°01'36.385"<br>40.026774° | 109°34'26.973"<br>109.574159° | 40°01'36.513"<br>40.026809° | 109°34'24.491"<br>109.573470° | 751' FNL<br>2238' FEL | 40°01'41.354"<br>40.028154° | 109°34'21.454"<br>109.572626° | 40°01'41.482"<br>40.028189° | 109°34'18.972"<br>109.571937° | 248' FNL<br>1808' FEL |
| NBU 921-20B | 40°01'36.321"<br>40.026756° | 109°34'27.070"<br>109.574186° | 40°01'36.448"<br>40.026791° | 109°34'24.587"<br>109.573497° | 758' FNL<br>2246' FEL | 40°01'36.733"<br>40.026870° | 109°34'25.481"<br>109.573745° | 40°01'36.860"<br>40.026906° | 109°34'22.998"<br>109.573055° | 716' FNL<br>2122' FEL |
| NBU 921-20A1CS | 40°01'36.256"<br>40.026738° | 109°34'27.168"<br>109.574213° | 40°01'36.384"<br>40.026773° | 109°34'24.686"<br>109.573524° | 764' FNL<br>2253' FEL | 40°01'39.715"<br>40.027698° | 109°34'04.525"<br>109.567924° | 40°01'39.842"<br>40.027734° | 109°34'02.044"<br>109.567234° | 413' FNL<br>491' FEL |
| NBU 921-20B4CS | 40°01'36.192"<br>40.026720° | 109°34'27.265"<br>109.574240° | 40°01'36.319"<br>40.026755° | 109°34'24.783"<br>109.573551° | 771' FNL<br>2261' FEL | 40°01'31.553"<br>40.025431° | 109°34'21.423"<br>109.572617° | 40°01'31.681"<br>40.025467° | 109°34'18.940"<br>109.571928° | 1240' FNL<br>1807' FEL |
| NBU 921-20C1BS | 40°01'36.127"<br>40.026702° | 109°34'27.363"<br>109.574267° | 40°01'36.255"<br>40.026737° | 109°34'24.880"<br>109.573578° | 777' FNL<br>2269' FEL | 40°01'42.992"<br>40.028609° | 109°34'38.668"<br>109.577408° | 40°01'43.119"<br>40.028644° | 109°34'36.185"<br>109.576718° | 83' FNL<br>2136' FWL |

**RELATIVE COORDINATES** - From Surface Position to Bottom Hole

| WELL NAME | NORTH | EAST | WELL NAME | NORTH | EAST | WELL NAME | NORTH | EAST | WELL NAME | NORTH | EAST |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NBU 921-20B1CS | 159.3' | 415.0' | NBU 921-20A1BS | 658.4' | 1739.5' | NBU 921-20B1BS | 502.4' | 430.1' | NBU 921-20B | 41.5' | 123.7' |
| **WELL NAME** | **NORTH** | **EAST** | **WELL NAME** | **NORTH** | **EAST** | **WELL NAME** | **NORTH** | **EAST** | | | |
| NBU 921-20A1CS | 347.9' | 1762.3' | NBU 921-20B4CS | -470.1' | 454.1' | NBU 921-20C1BS | 695.9' | -878.8' | | | |




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

## WELL PAD - NBU 921-20B

**WELL PAD INTERFERENCE PLAT**
**WELLS - NBU 921-20B1CS, NBU 921-20A1BS, NBU 921-20B1BS, NBU 921-20B, NBU 921-20A1CS, NBU 921-20B4CS & NBU 921-20C1BS LOCATED IN SECTION 20, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH.**

609 CONSULTING, LLC
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Sheridan WY 82801
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Fax 307-674-0182

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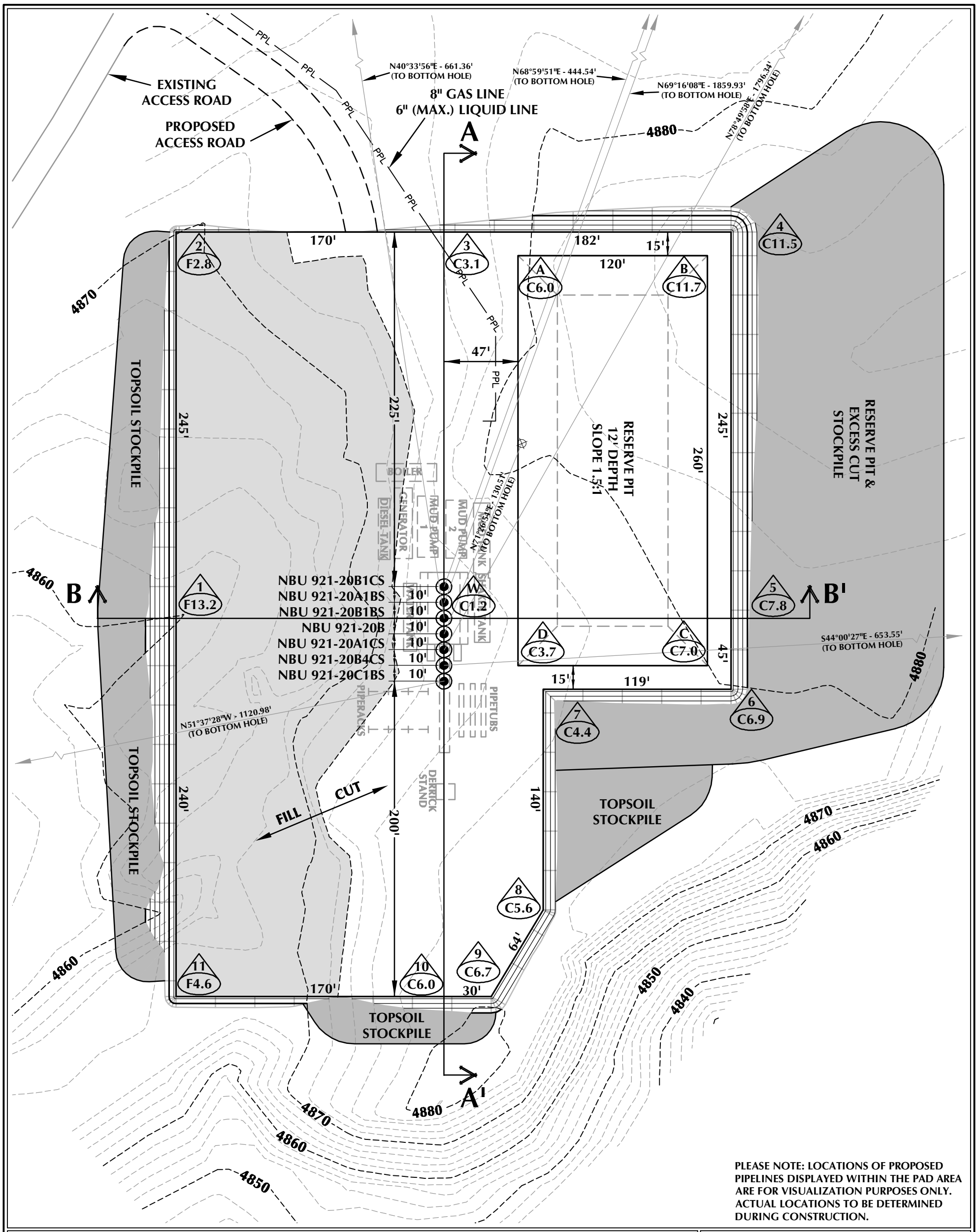
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

| | | |
|---|---|---|
| DATE SURVEYED: 3-14-12 | SURVEYED BY: A.F. | SHEET NO: |
| DATE DRAWN: 3-21-12 | DRAWN BY: T.J.R. | 8 |
| SCALE: 1" = 60' | Date Last Revised: | 8 OF 19 |

RECEIVED: November 27, 2012




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

## WELL PAD - NBU 921-20B DESIGN SUMMARY

EXISTING GRADE @ CENTER OF WELL PAD = 4874.2'
FINISHED GRADE ELEVATION = 4873.0'
CUT SLOPES = 1.5:1
FILL SLOPES = 1.5:1
TOTAL WELL PAD AREA = 3.77 ACRES
TOTAL DISTURBANCE AREA = 5.42 ACRES
SHRINKAGE FACTOR = 1.10
SWELL FACTOR = 1.00

**WELL PAD QUANTITIES**

TOTAL CUT FOR WELL PAD = 17,592 C.Y.
TOTAL FILL FOR WELL PAD = 14,969 C.Y.
TOPSOIL @ 6" DEPTH = 3,039 C.Y.
EXCESS MATERIAL = 2,623 C.Y.

**RESERVE PIT QUANTITIES**

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

**WELL PAD LEGEND**

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

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

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

WELL PAD - NBU 921-20B

WELL PAD - LOCATION LAYOUT
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

609 CONSULTING, LLC
2155 North Main Street
Sheridan, WY 82801
Phone 307-674-0609
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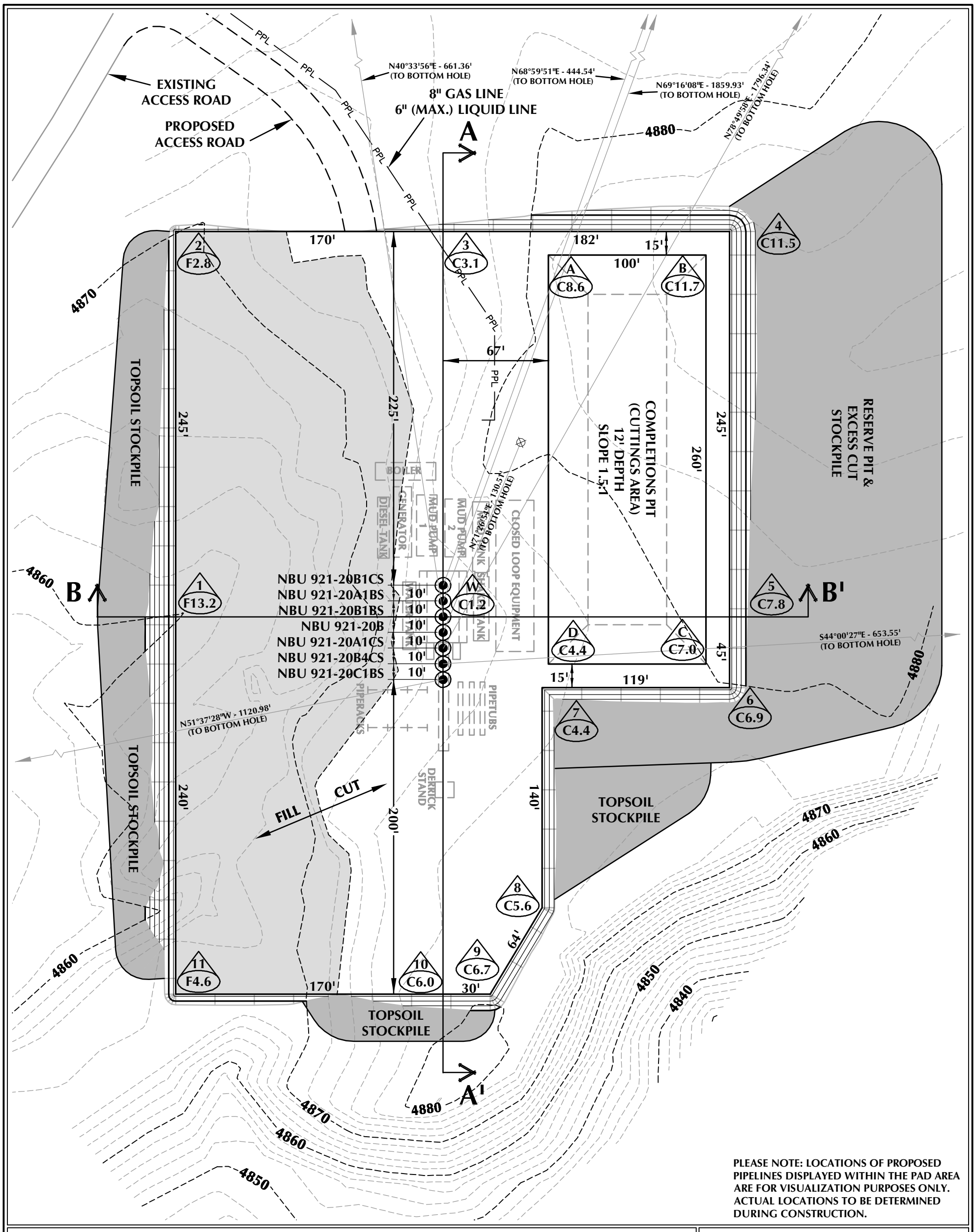
TIMBERLINE (435) 789-1365
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

SCALE: 1"=60' | DATE: 4/17/12 | SHEET NO: 9
REVISED:
9 OF 19

K:\ANADARKO\2011\2011_69_NBU_FOCUS_921-20\DWGS\NBU 921-20B\NBU 921-20B.dwg, jacob

RECEIVED: November 27, 2012




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

## WELL PAD - NBU 921-20B (CLOSED LOOP) DESIGN SUMMARY

EXISTING GRADE @ CENTER OF WELL PAD = 4874.2'
FINISHED GRADE ELEVATION = 4873.0'
CUT SLOPES = 1.5:1
FILL SLOPES = 1.5:1
TOTAL WELL PAD AREA = 3.77 ACRES
TOTAL DISTURBANCE AREA = 5.42 ACRES
SHRINKAGE FACTOR = 1.10
SWELL FACTOR = 1.00

**WELL PAD QUANTITIES**

TOTAL CUT FOR WELL PAD = 17,592 C.Y.
TOTAL FILL FOR WELL PAD = 14,969 C.Y.
TOPSOIL @ 6" DEPTH = 3,039 C.Y.
EXCESS MATERIAL = 2,623 C.Y.

**COMPLETIONS PIT QUANTITIES**

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

**WELL PAD LEGEND**

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

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

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

WELL PAD - NBU 921-20B

WELL PAD - LOCATION LAYOUT
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

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

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

SCALE: 1"=60' | DATE: 4/17/12 | SHEET NO: 9B 9B OF 19
REVISED:

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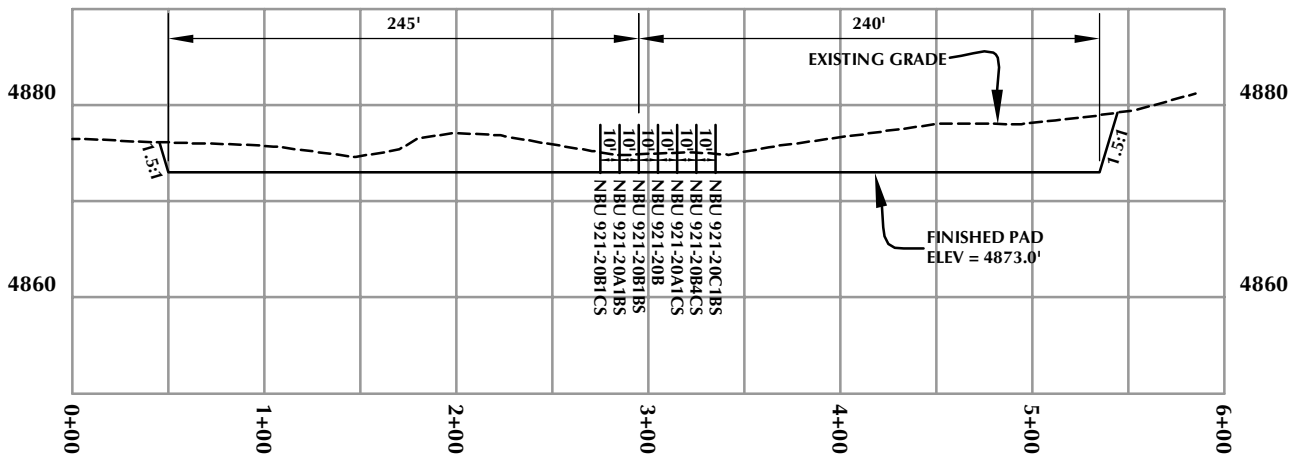
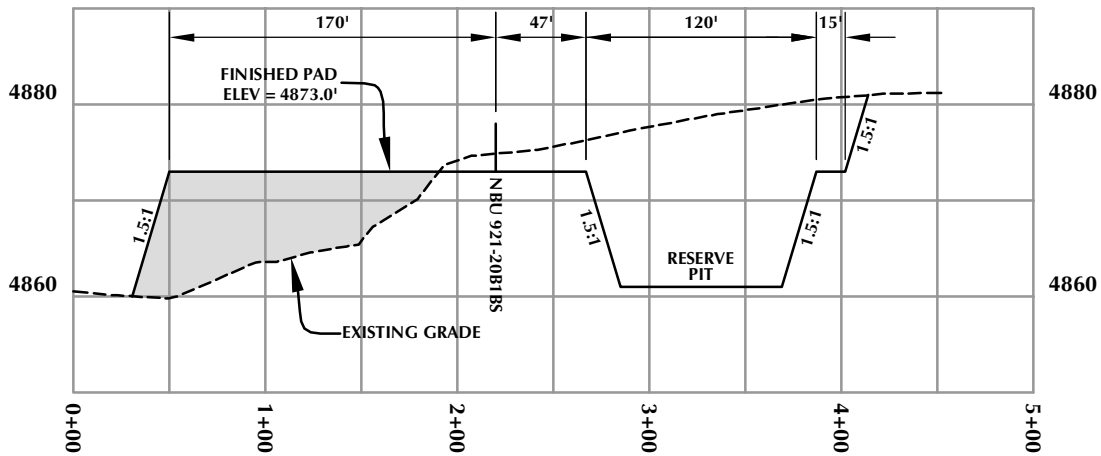
RECEIVED: November 27, 2012




## CROSS SECTION A-A'




## CROSS SECTION B-B'

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

**WELL PAD - NBU 921-20B**

WELL PAD - CROSS SECTIONS
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

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

Scale: 1"=100' | Date: 4/17/12 | SHEET NO: 10
REVISED:
10 OF 19

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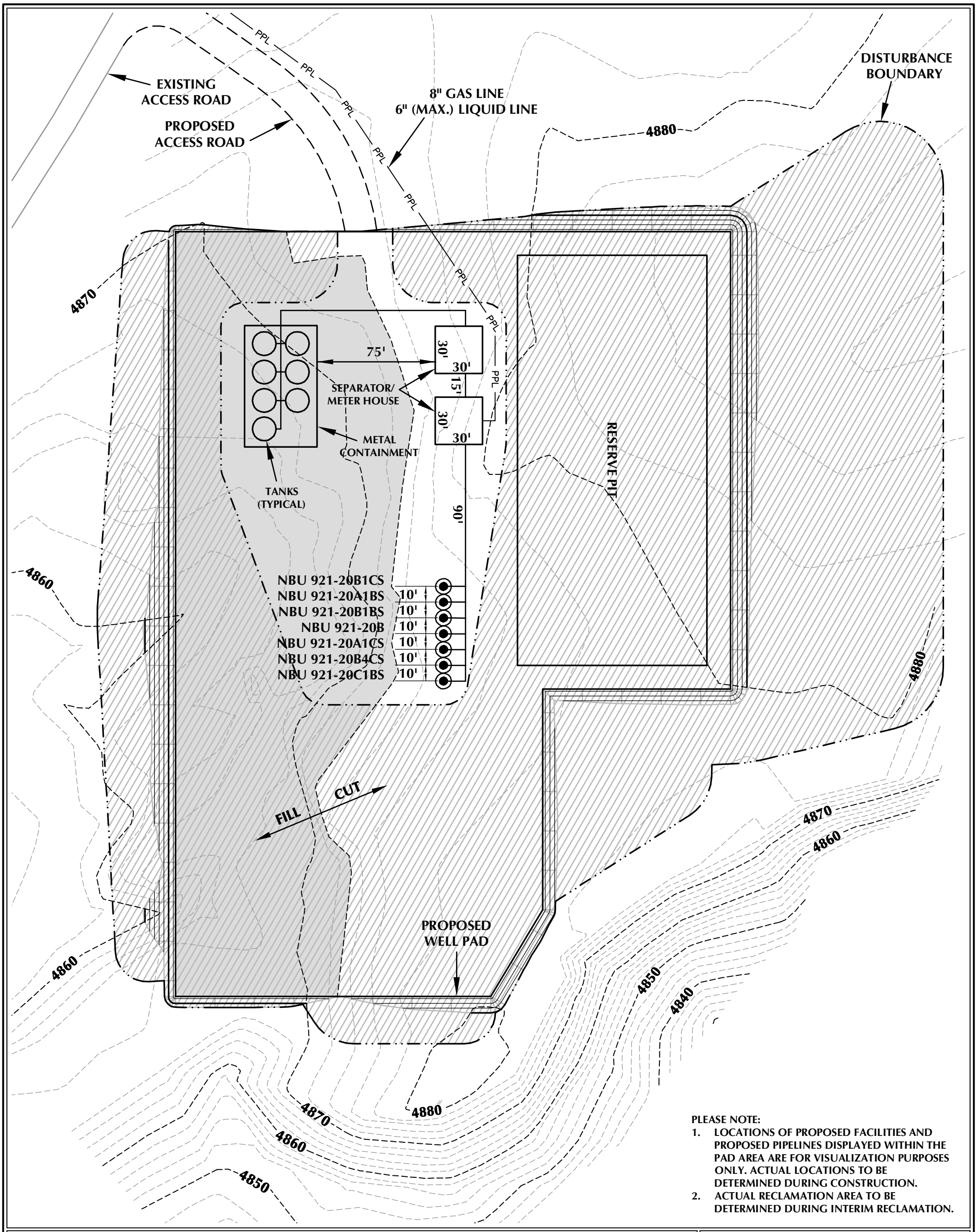


PLEASE NOTE:
1. LOCATIONS OF PROPOSED FACILITIES AND PROPOSED PIPELINES DISPLAYED WITHIN THE PAD AREA ARE FOR VISUALIZATION PURPOSES ONLY. ACTUAL LOCATIONS TO BE DETERMINED DURING CONSTRUCTION.
2. ACTUAL RECLAMATION AREA TO BE DETERMINED DURING INTERIM RECLAMATION.

## WELL PAD - NBU 921-20B DESIGN SUMMARY

TOTAL DISTURBANCE AREA = 5.42 ACRES
RECLAMATION AREA = 4.46 ACRES
TOTAL WELL PAD AREA AFTER RECLAMATION = 0.96 ACRES

**WELL PAD LEGEND**

- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PROPOSED BOTTOM HOLE LOCATION
- EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)
- PPL — PROPOSED PIPELINE
- EPL — EXISTING PIPELINE
- RECLAMATION AREA

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

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

WELL PAD - NBU 921-20B

WELL PAD - RECLAMATION LAYOUT
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

609 CONSULTING, LLC
2155 North Main Street
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209 NORTH 300 WEST - VERNAL, UTAH 84078

SCALE: 1"=60' | DATE: 4/17/12 | SHEET NO: 11
REVISED:
11 OF 19

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RECEIVED: November 27, 2012

API Well Number: 43047533400000

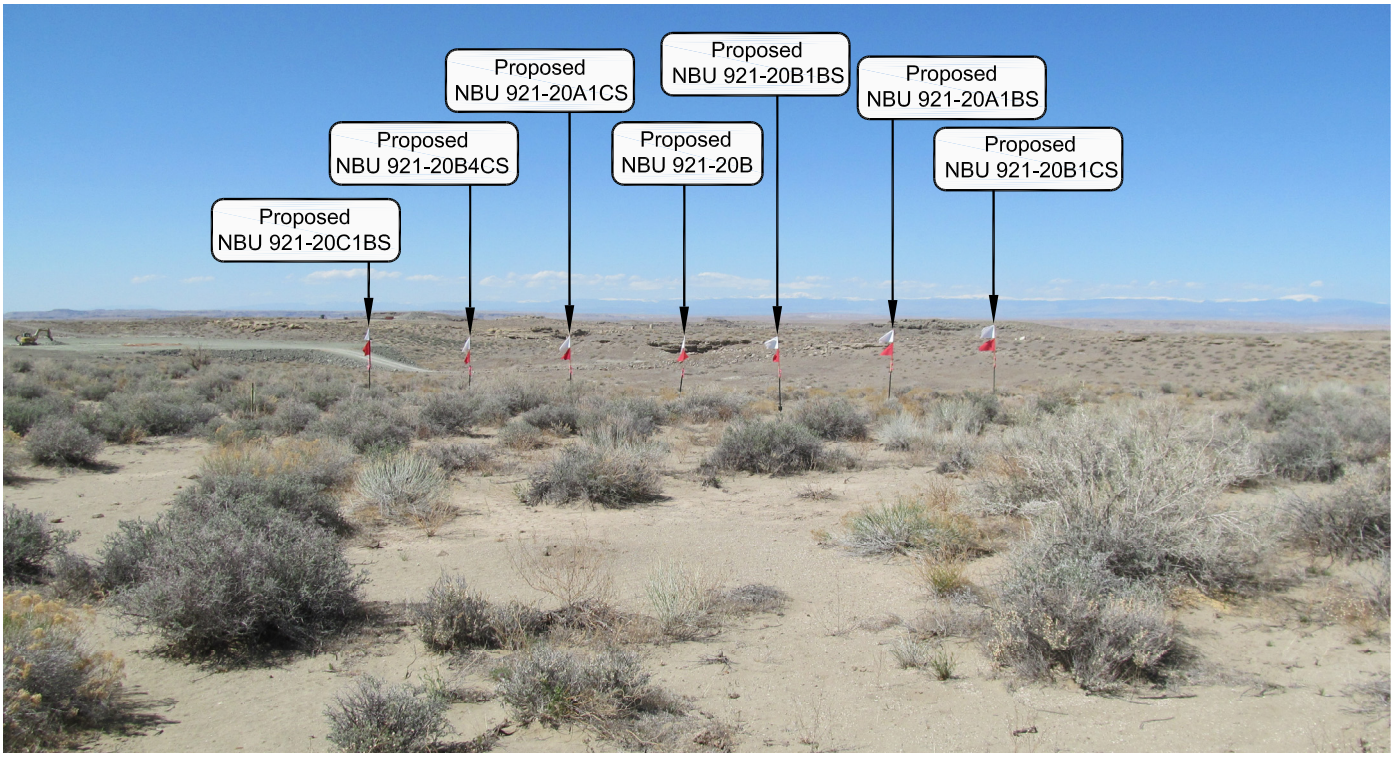


**PHOTO VIEW: FROM CORNER #5 TO LOCATION STAKE** **CAMERA ANGLE: NORTHWESTERLY**

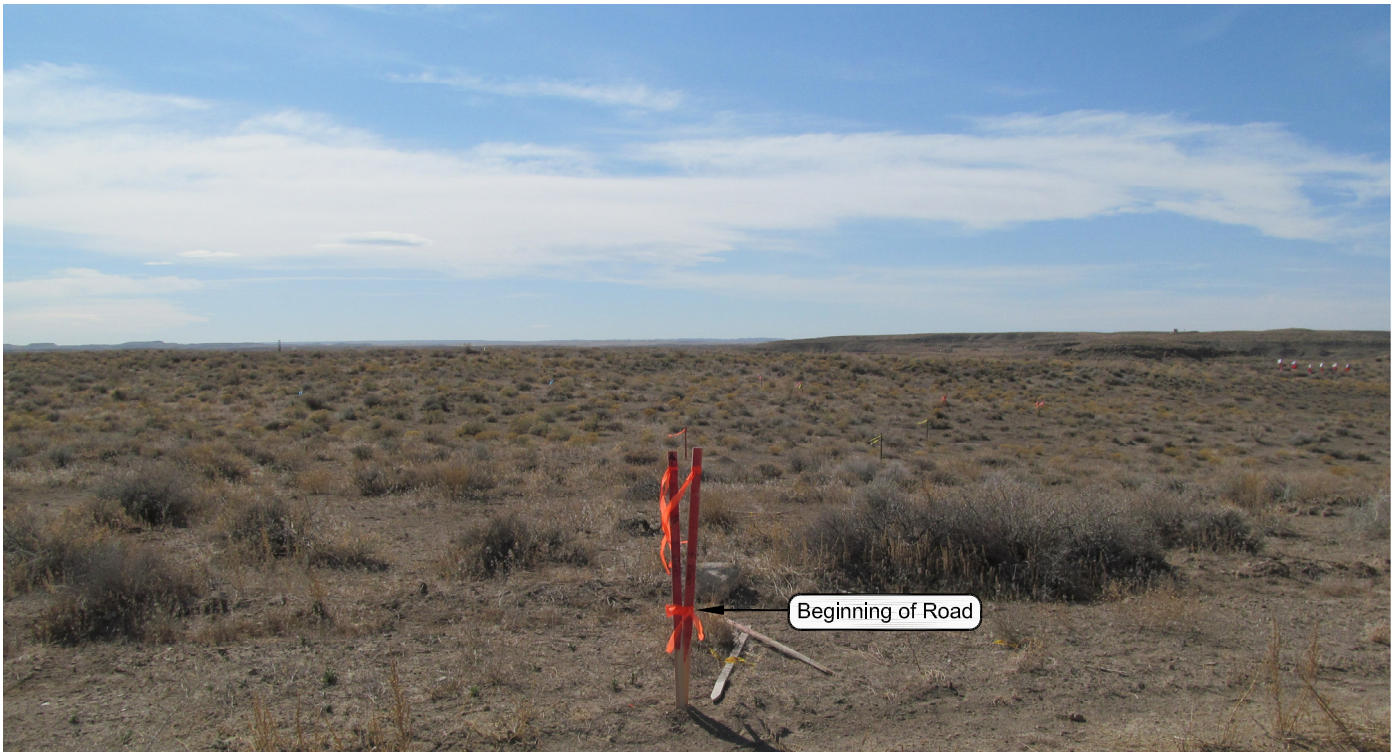


**PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD** **CAMERA ANGLE: SOUTHERLY**

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

**WELL PAD - NBU 921-20B**

**LOCATION PHOTOS**
**NBU 921-20B1CS,**
**NBU 921-20A1BS, NBU 921-20B1BS,**
**NBU 921-20B, NBU 921-20A1CS,**
**NBU 921-20B4CS & NBU 921-20C1BS**
**LOCATED IN SECTION 20, T9S, R21E,**
**S.L.B.&M., UINTAH COUNTY, UTAH.**

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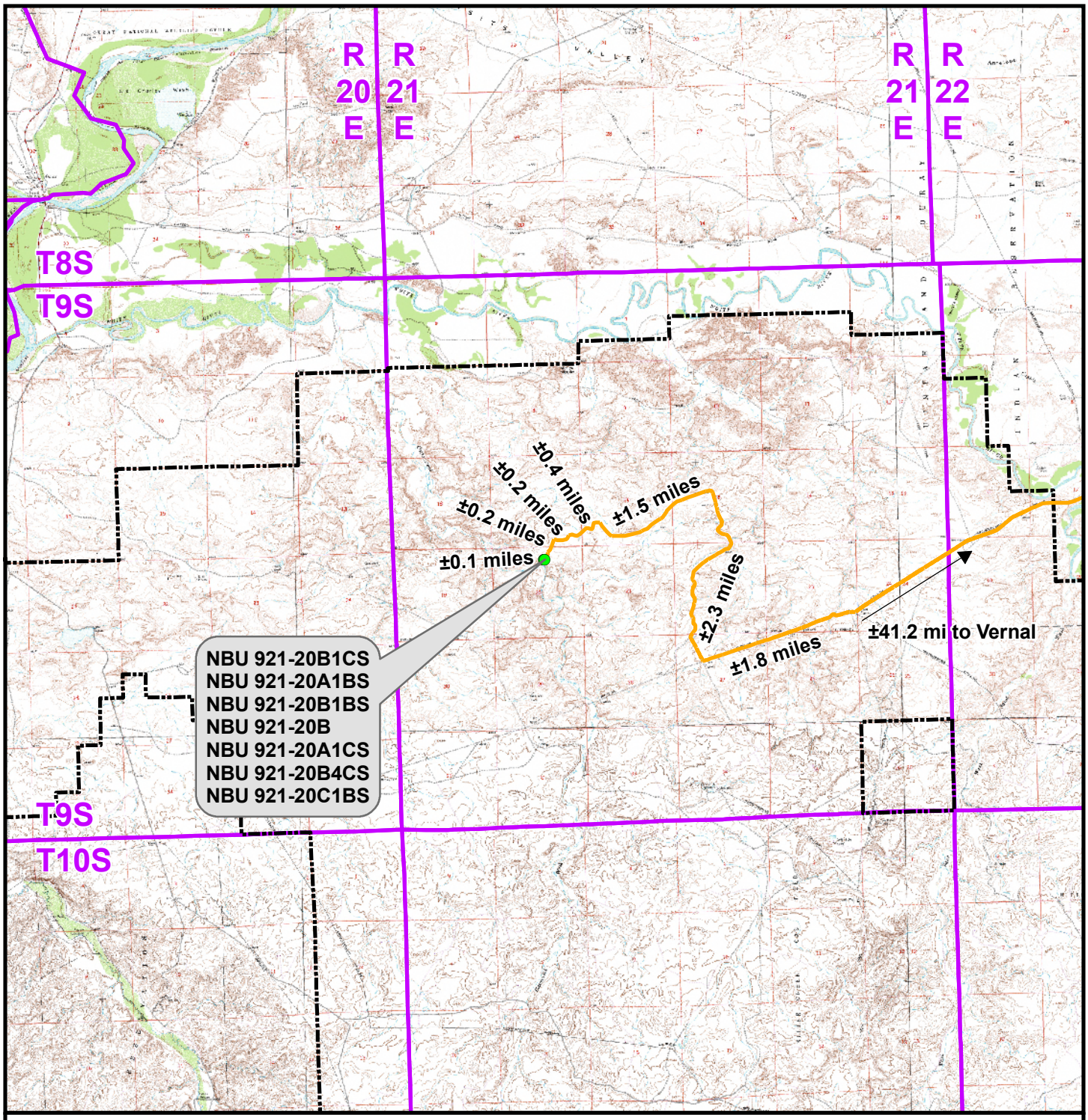
**TIMBERLINE** (435) 789-1365
ENGINEERING & LAND SURVEYING, INC.
209 NORTH 300 WEST - VERNAL, UTAH 84078

| | | |
|---|---|---|
| DATE PHOTOS TAKEN: 3-14-12 | PHOTOS TAKEN BY: A.F. | SHEET NO: |
| DATE DRAWN: 3-21-12 | DRAWN BY: T.J.R. | 12 |
| Date Last Revised: | | 12 OF 19 |

RECEIVED: November 27, 2012

API Well Number: 43047533400000




**Legend**

Distance From Well Pad - NBU 921-20B To Unit Boundary: ±11,312ft

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

## WELL PAD - NBU 921-20B

TOPO A
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

**Kerr-McGee Oil & Gas Onshore L.P.**

1099 18th Street
Denver, Colorado 80202

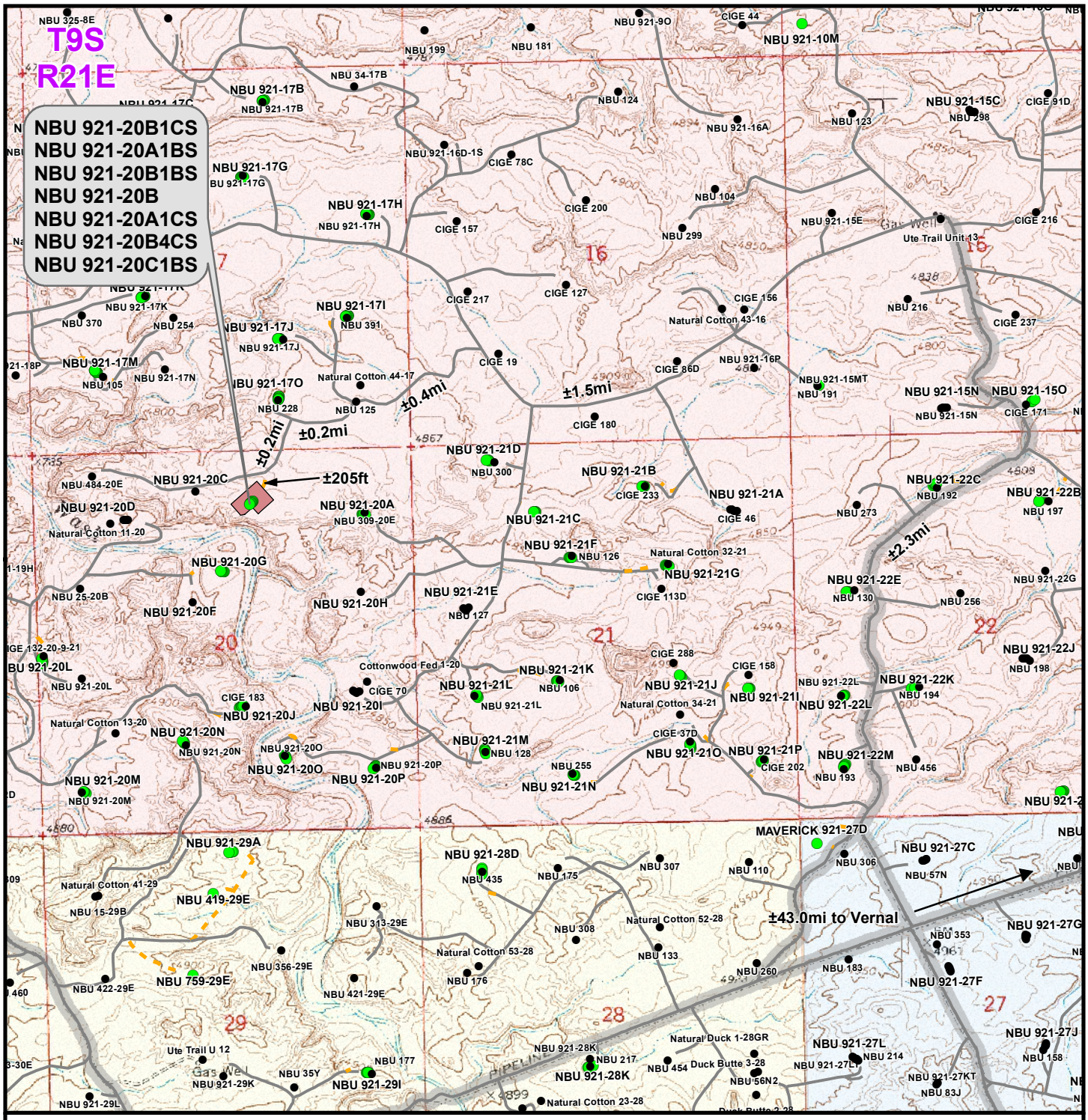
609 CONSULTING, LLC
2155 North Main Street
Sheridan, Wyoming 82801
Phone 307-674-0609
Fax 307-674-0182

N

| | | | |
|---|---|---|---|
| SCALE: 1:100,000 | NAD83 USP Central | SHEET NO: | |
| DRAWN: TL | DATE: 17 Apr 2012 | 13 | |
| REVISED: | DATE: | 13 OF 19 | |

RECEIVED: November 27, 2012

API Well Number: 43047533400000




**Legend**

Total Proposed Road Length: ±205ft

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

## WELL PAD - NBU 921-20B

TOPO B
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

**Kerr-McGee Oil & Gas Onshore L.P.**

1099 18th Street
Denver, Colorado 80202


609 CONSULTING, LLC
2155 North Main Street
Sheridan, Wyoming 82801
Phone 307-674-0609
Fax 307-674-0182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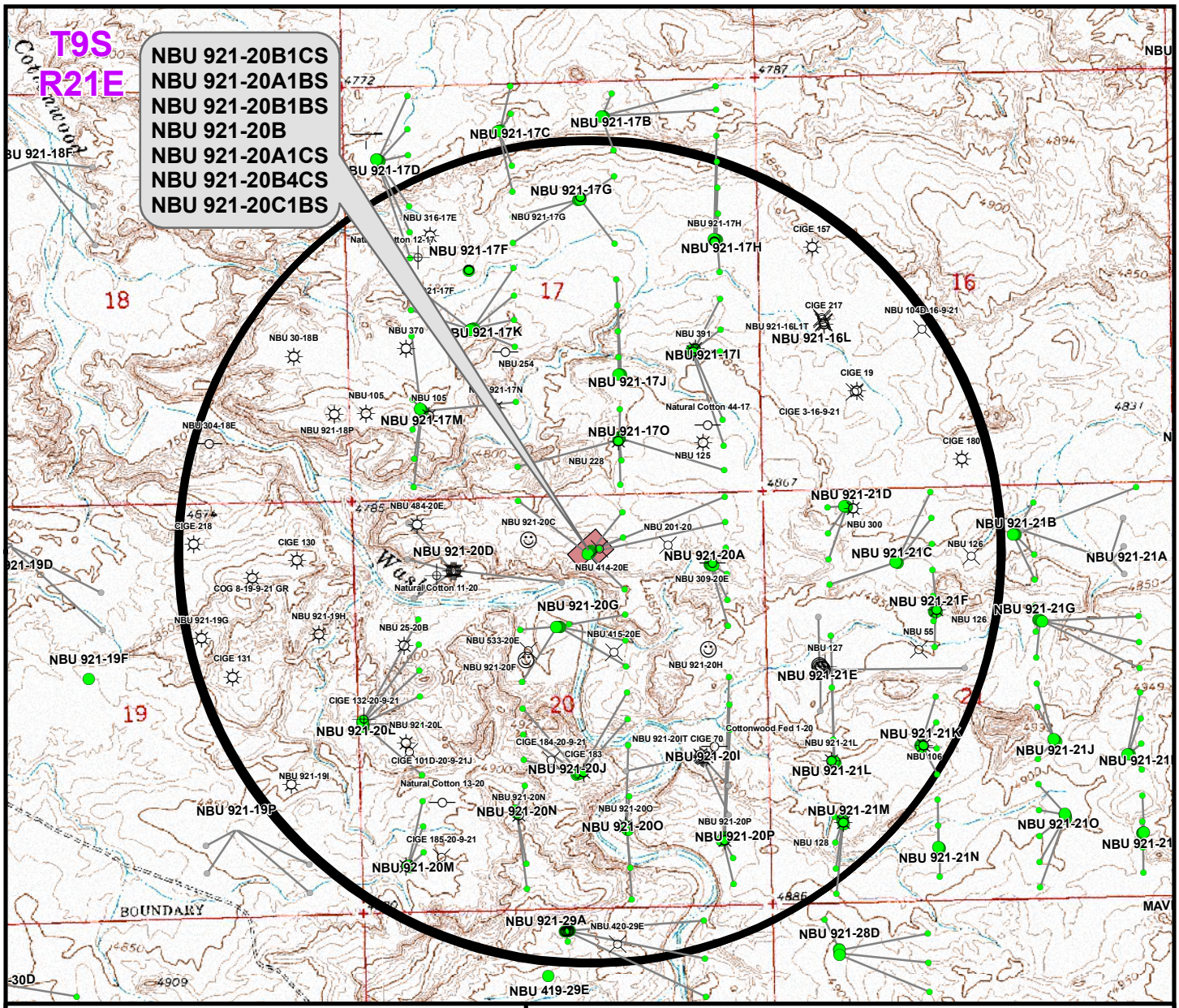
| | | |
|---|---|---|
| SCALE: 1" = 2,000ft | NAD83 USP Central | SHEET NO: 14 |
| DRAWN: TL | DATE: 17 Apr 2012 | 14 OF 19 |
| REVISED: | DATE: | |

RECEIVED: November 27, 2012




Well locations derived from Utah Division of Oil, Gas and Mining (UDOGM) (oilgas.ogm.utah.gov). The estimated distances from proposed bore locations to the nearest existing bore locations are based on UDOGM data.

| Proposed Well | Nearest Well Bore | Footage |
|---|---|---|
| NBU 921-20B1CS | NBU 921-20B3CS BH | 982ft |
| NBU 921-20A1BS | NBU 125 | 750ft |
| NBU 921-20B1BS | NBU 228 | 908ft |
| NBU 921-20B | NBU 921-20B3CS BH | 655ft |
| NBU 921-20A1CS | NBU 309-20E | 545ft |
| NBU 921-20B4CS | NBU 921-20B3CS BH | 811ft |
| NBU 921-20C1BS | NBU 921-20C | 520ft |

**Legend**

- Well - Proposed
- Bottom Hole - Proposed
- Bottom Hole - Existing
- Well Path
- Well Pad
- Well - 1 Mile Radius
- Producing
- Spudded
- APD Approved
- Preliminary Location
- Deferred
- Cancelled
- Temporarily Abandoned
- Active Injector
- Location Abandoned
- Plugged & Abandoned
- Shut-In

## WELL PAD - NBU 921-20B

TOPO C
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

**Kerr-McGee Oil & Gas Onshore L.P.**

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Denver, Colorado 80202

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Sheridan, Wyoming 82801
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Fax 307-674-0182

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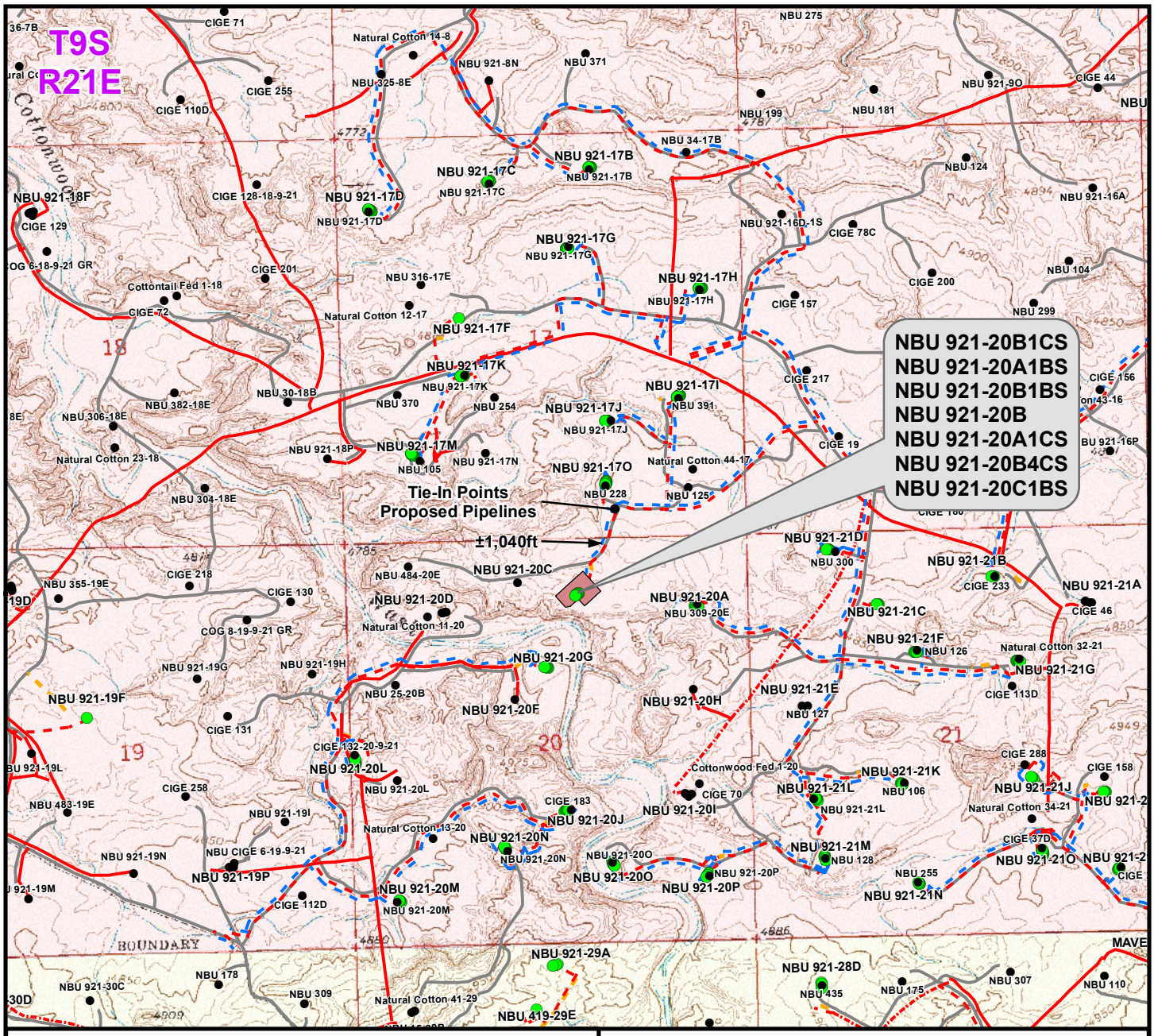
|---|---|---|
| SCALE: 1" = 2,000ft | NAD83 USP Central | SHEET NO: 15 |
| DRAWN: TL | DATE: 17 Apr 2012 | 15 OF 19 |
| REVISED: | DATE: | |

RECEIVED: November 27, 2012




| Proposed Liquid Pipeline | Length |
|---|---|
| Buried 6"(Max.) (Meter House to Edge of Pad) | ±140ft |
| Buried 6"(Max.) (Edge of Pad to 921-17O Intersection) | ±1,040ft |
| TOTAL PROPOSED BURIED LIQUID PIPELINE = | ±1,180ft |

| Proposed Gas Pipeline | Length |
|---|---|
| Buried 8" (Meter House to Edge of Pad) | ±140ft |
| Buried 8" (Edge of Pad to 921-17O Intersection) | ±1,040ft |
| TOTAL PROPOSED BURIED GAS PIPELINE = | ±1,180ft |

**Legend**

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

# WELL PAD - NBU 921-20B

TOPO D
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

**Kerr-McGee Oil & Gas Onshore L.P.**

1099 18th Street
Denver, Colorado 80202

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2155 North Main Street
Sheridan, Wyoming 82801
Phone 307-674-0609
Fax 307-674-0182

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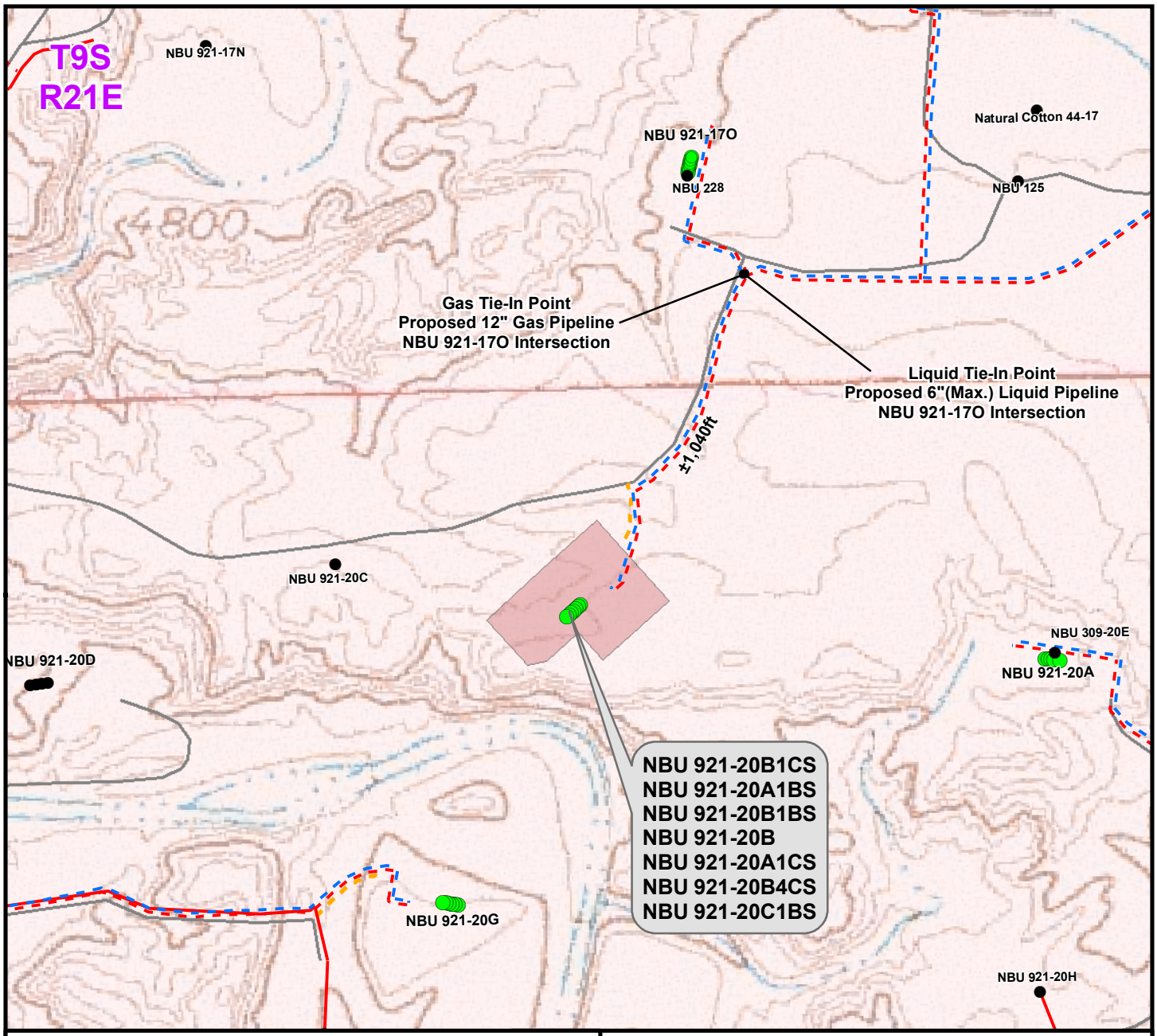
|---|---|---|
| SCALE: 1" = 2,000ft | NAD83 USP Central | SHEET NO: 16 |
| DRAWN: TL | DATE: 17 Apr 2012 | 16 OF 19 |
| REVISED: | DATE: | |

RECEIVED: November 27, 2012

API Well Number: 43047533400000




| Proposed Liquid Pipeline | Length |
|---|---|
| Buried 6"(Max.) (Meter House to Edge of Pad) | ±140ft |
| Buried 6"(Max.) (Edge of Pad to 921-17O Intersection) | ±1,040ft |
| TOTAL PROPOSED BURIED LIQUID PIPELINE = | ±1,180ft |

| Proposed Gas Pipeline | Length |
|---|---|
| Buried 8" (Meter House to Edge of Pad) | ±140ft |
| Buried 8" (Edge of Pad to 921-17O Intersection) | ±1,040ft |
| TOTAL PROPOSED BURIED GAS PIPELINE = | ±1,180ft |

**Legend**

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

## WELL PAD - NBU 921-20B

TOPO D2 (PAD & PIPELINE DETAIL)
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

**Kerr-McGee Oil & Gas Onshore L.P.**

1099 18th Street
Denver, Colorado 80202

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

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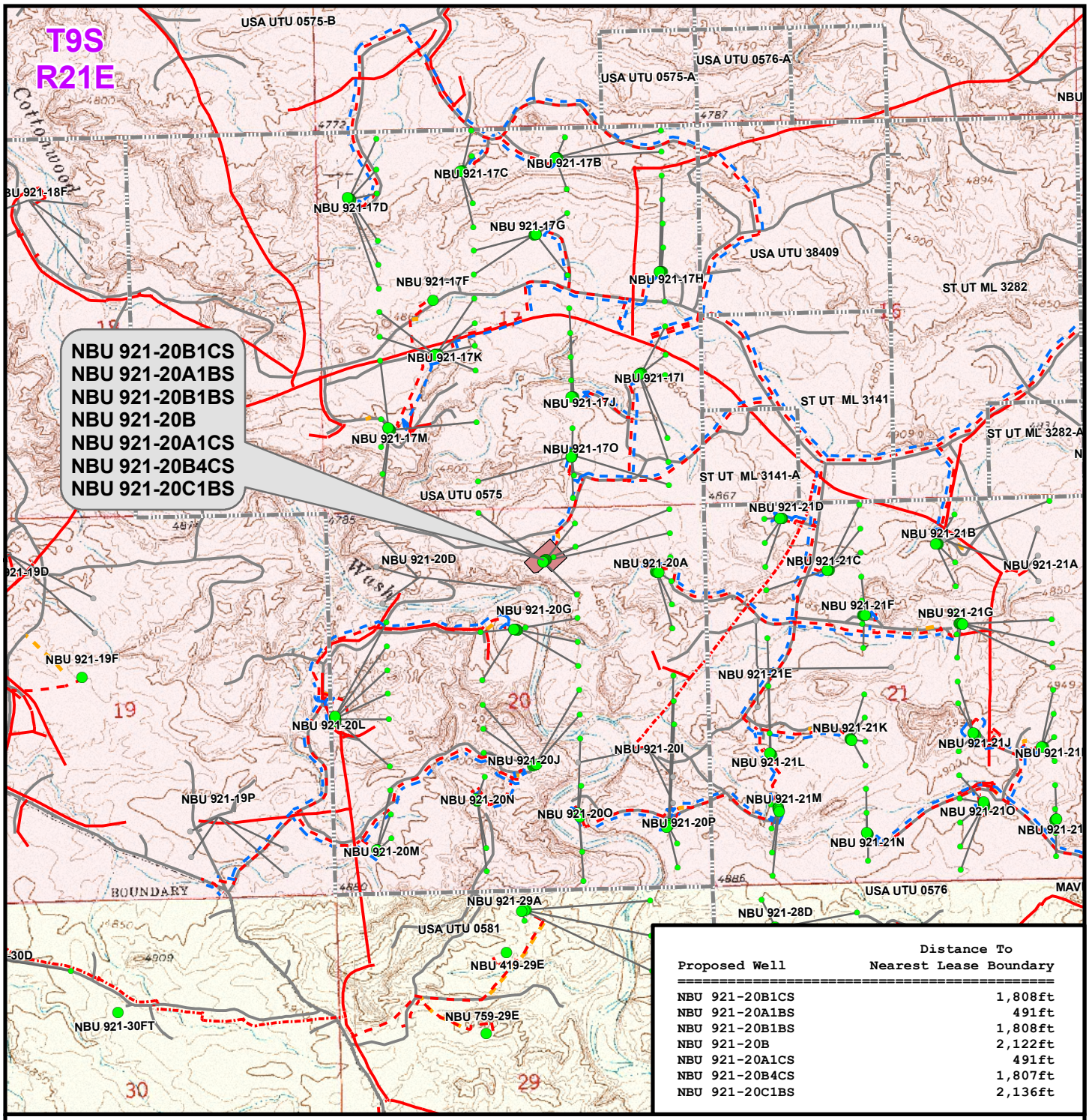
|---|---|---|
| SCALE: 1" = 500ft | NAD83 USP Central | SHEET NO: 17 |
| DRAWN: TL | DATE: 17 Apr 2012 | 17 OF 19 |
| REVISED: | DATE: | |

RECEIVED: November 27, 2012

API Well Number: 43047533400000




| Proposed Well | Distance To Nearest Lease Boundary |
|---|---|
| NBU 921-20B1CS | 1,808ft |
| NBU 921-20A1BS | 491ft |
| NBU 921-20B1BS | 1,808ft |
| NBU 921-20B | 2,122ft |
| NBU 921-20A1CS | 491ft |
| NBU 921-20B4CS | 1,807ft |
| NBU 921-20C1BS | 2,136ft |

**Legend**

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

## WELL PAD - NBU 921-20B

TOPO E
NBU 921-20B1CS,
NBU 921-20A1BS, NBU 921-20B1BS,
NBU 921-20B, NBU 921-20A1CS,
NBU 921-20B4CS & NBU 921-20C1BS
LOCATED IN SECTION 20, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

**Kerr-McGee Oil & Gas Onshore L.P.**

1099 18th Street
Denver, Colorado 80202

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

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| | | |
|---|---|---|
| SCALE: 1" = 2,000ft | NAD83 USP Central | SHEET NO: 18 |
| DRAWN: TL | DATE: 17 Apr 2012 | 18 OF 19 |
| REVISED: | DATE: | |

RECEIVED: November 27, 2012

**Kerr-McGee Oil & Gas Onshore, LP**
**WELL PAD - NBU 921-20B**
**WELLS - NBU 921-20B1CS,**
**NBU 921-20A1BS, NBU 921-20B1BS,**
**NBU 921-20B, NBU 921-20A1CS,**
**NBU 921-20B4CS & NBU 921-20C1BS**
**Section 20, T9S, R21E, S.L.B.&M.**

From the intersection of U.S. Highway 40 and 500 East Street in Vernal, Utah, proceed in an easterly, then southerly direction along U.S. Highway 40 approximately 3.3 miles to the junction of State Highway 45. Exit right and proceed in a southerly direction along State Highway 45 approximately 20.2 miles to the junction of the Glen Bench Road (County B Road 3260). Exit right and proceed in a southwesterly direction along the Glen Bench Road approximately 17.7 miles to a Class D County Road to the southwest. Exit right and proceed in a southwesterly direction along the Class D County Road approximately 1.8 miles to a second Class D County Road to the north. Exit right and proceed in a northerly direction along the second Class D County Road approximately 2.3 miles to a Tribal Road to the southwest. Continue in a southwesterly, then northwesterly direction along the Tribal Road approximately 1.5 miles to a service road to the west. Exit left and proceed in a westerly, then southwesterly direction along the service road approximately 0.4 miles to a second service road to the south. Exit left and proceed in a southerly, then westerly direction along the second service road approximately 0.2 miles to a third service road to the southwest. Exit left and proceed in a southwesterly direction along the third service road approximately 0.2 miles to the proposed access road to the south. Follow road flags in a southerly direction approximately 205 feet to the proposed well location.

Total distance from Vernal, Utah to the proposed well location is approximately 47.6 miles in a southerly direction.



RECEIVED: November 27, 2012

API Well Number: 43047533400000

Scientific Drilling

Project: Uintah County, UT UTM12
Site: NBU 921-20B PAD
Well: NBU 921-20A1CS
Wellbore: OH
Design: PLAN #1 PRELIMINARY

Anadarko Petroleum Corporation

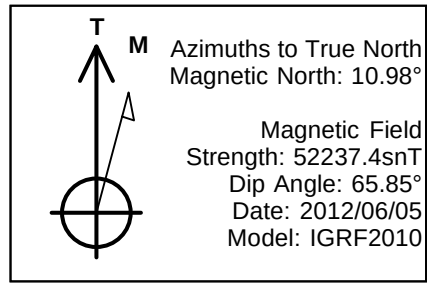
**WELL DETAILS: NBU 921-20A1CS**

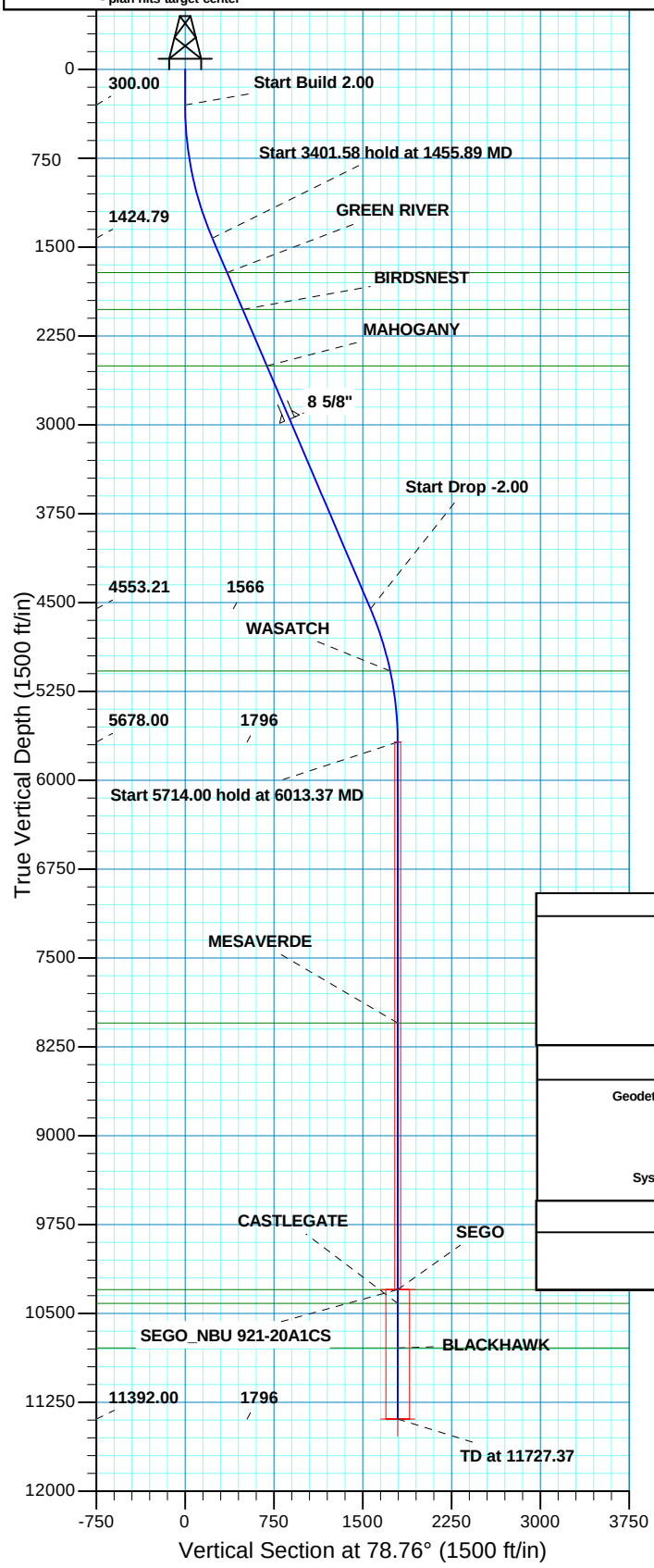
GL 4873 & KB 4 @ 4877.00ft (ASSUMED)

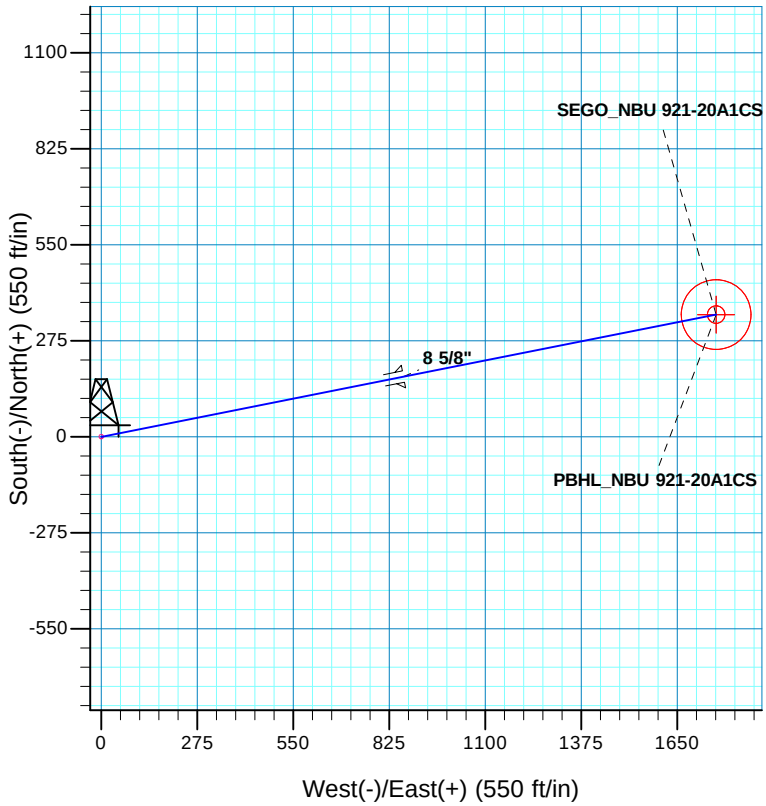
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 14538990.93 | 2039764.28 | 40.026773 | -109.573524 |

**DESIGN TARGET DETAILS**

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|---|---|---|---|---|---|---|---|---|
| SEGO | 10299.00 | 350.06 | 1761.18 | 14539369.15 | 2041519.62 | 40.027734 | -109.567234 | Circle (Radius: 25.00) |
| - plan hits target center | | | | | | | | |
| PBHL | 11392.00 | 350.06 | 1761.18 | 14539369.15 | 2041519.62 | 40.027734 | -109.567234 | Circle (Radius: 100.00) |
| - plan hits target center | | | | | | | | |




**SECTION DETAILS**

| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1455.89 | 23.12 | 78.76 | 1424.79 | 44.85 | 225.63 | 2.00 | 78.76 | 230.05 | |
| 4857.47 | 23.12 | 78.76 | 4553.21 | 305.21 | 1535.55 | 0.00 | 0.00 | 1565.59 | |
| 6013.37 | 0.00 | 0.00 | 5678.00 | 350.06 | 1761.18 | 2.00 | 180.00 | 1795.63 | |
| 11727.37 | 0.00 | 0.00 | 11392.00 | 350.06 | 1761.18 | 0.00 | 0.00 | 1795.63 | PBHL_NBU 921-20A1CS |

**PROJECT DETAILS: Uintah County, UT UTM12**

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 - Western US
Ellipsoid: Clarke 1866
Zone: Zone 12N (114 W to 108 W)
Location: SECTION 20 T9S R21E
System Datum: Mean Sea Level

| TVDPath | MDPath | Formation |
|---|---|---|
| 1715.00 | 1771.45 | GREEN RIVER |
| 2027.00 | 2110.69 | BIRDSNEST |
| 2503.00 | 2628.25 | MAHOGANY |
| 5078.00 | 5408.89 | WASATCH |
| 8049.00 | 8384.37 | MESAVERDE |
| 10299.00 | 10634.37 | SEGO |
| 10415.00 | 10750.37 | CASTLEGATE |
| 10792.00 | 11127.37 | BLACKHAWK |

**CASING DETAILS**

| TVD | MD | Name | Size |
|---|---|---|---|
| 2953.00 | 3117.54 | 8 5/8" | 8.625 |

RECEIVED:

Plan: PLAN #1 PRELIMINARY (NBU 921-20A1CS/OH)

Created By: RobertScott Date: 15:17, June 06 2012

API Well Number: 43047533400000

Scientific Drilling

# Kerr McGee Oil and Gas Onshore LP

**Uintah County, UT UTM12**
**NBU 921-20B PAD**
**NBU 921-20A1CS**

**OH**

**Plan: PLAN #1 PRELIMINARY**

# Standard Planning Report

**06 June, 2012**

Anadarko Petroleum Corporation

RECEIVED: November 27, 2012

Scientific Drilling

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Project:** | Uintah County, UT UTM12 | **MD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Site:** | NBU 921-20B PAD | **North Reference:** | True |
| **Well:** | NBU 921-20A1CS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Project** Uintah County, UT UTM12

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

**Site** NBU 921-20B PAD, SECTION 20 T9S R21E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 14,539,017.64 usft | **Latitude:** | 40.026845 |
| **From:** | Lat/Long | **Easting:** | 2,039,794.09 usft | **Longitude:** | -109.573416 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 0.92 ° |

**Well** NBU 921-20A1CS, 764 FNL 2253 FEL

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | -26.22 ft | **Northing:** | 14,538,990.94 usft | **Latitude:** | 40.026773 |
| | **+E/-W** | -30.24 ft | **Easting:** | 2,039,764.27 usft | **Longitude:** | -109.573524 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | | **Ground Level:** | 4,873.00 ft |

**Wellbore** OH

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2010 | 2012/06/05 | 10.98 | 65.85 | 52,237 |

**Design** PLAN #1 PRELIMINARY

**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 | 78.76 |

**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 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,455.89 | 23.12 | 78.76 | 1,424.79 | 44.85 | 225.63 | 2.00 | 2.00 | 0.00 | 78.76 | |
| 4,857.47 | 23.12 | 78.76 | 4,553.21 | 305.21 | 1,535.55 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,013.37 | 0.00 | 0.00 | 5,678.00 | 350.06 | 1,761.18 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 11,727.37 | 0.00 | 0.00 | 11,392.00 | 350.06 | 1,761.18 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL_NBU 921-20A |



RECEIVED: November 27, 2012

Scientific Drilling

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Project:** | Uintah County, UT UTM12 | **MD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Site:** | NBU 921-20B PAD | **North Reference:** | True |
| **Well:** | NBU 921-20A1CS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Start Build 2.00** | | | | | | | | | |
| 400.00 | 2.00 | 78.76 | 399.98 | 0.34 | 1.71 | 1.75 | 2.00 | 2.00 | 0.00 |
| 500.00 | 4.00 | 78.76 | 499.84 | 1.36 | 6.84 | 6.98 | 2.00 | 2.00 | 0.00 |
| 600.00 | 6.00 | 78.76 | 599.45 | 3.06 | 15.39 | 15.69 | 2.00 | 2.00 | 0.00 |
| 700.00 | 8.00 | 78.76 | 698.70 | 5.44 | 27.34 | 27.88 | 2.00 | 2.00 | 0.00 |
| 800.00 | 10.00 | 78.76 | 797.47 | 8.48 | 42.69 | 43.52 | 2.00 | 2.00 | 0.00 |
| 900.00 | 12.00 | 78.76 | 895.62 | 12.20 | 61.40 | 62.60 | 2.00 | 2.00 | 0.00 |
| 1,000.00 | 14.00 | 78.76 | 993.06 | 16.59 | 83.46 | 85.10 | 2.00 | 2.00 | 0.00 |
| 1,100.00 | 16.00 | 78.76 | 1,089.64 | 21.64 | 108.85 | 110.98 | 2.00 | 2.00 | 0.00 |
| 1,200.00 | 18.00 | 78.76 | 1,185.27 | 27.33 | 137.52 | 140.21 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 20.00 | 78.76 | 1,279.82 | 33.68 | 169.45 | 172.77 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 22.00 | 78.76 | 1,373.17 | 40.67 | 204.60 | 208.60 | 2.00 | 2.00 | 0.00 |
| 1,455.89 | 23.12 | 78.76 | 1,424.79 | 44.85 | 225.63 | 230.05 | 2.00 | 2.00 | 0.00 |
| **Start 3401.58 hold at 1455.89 MD** | | | | | | | | | |
| 1,500.00 | 23.12 | 78.76 | 1,465.35 | 48.22 | 242.62 | 247.36 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 23.12 | 78.76 | 1,557.32 | 55.88 | 281.13 | 286.62 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 23.12 | 78.76 | 1,649.29 | 63.53 | 319.63 | 325.89 | 0.00 | 0.00 | 0.00 |
| 1,771.45 | 23.12 | 78.76 | 1,715.00 | 69.00 | 347.15 | 353.94 | 0.00 | 0.00 | 0.00 |
| **GREEN RIVER** | | | | | | | | | |
| 1,800.00 | 23.12 | 78.76 | 1,741.26 | 71.19 | 358.14 | 365.15 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 23.12 | 78.76 | 1,833.23 | 78.84 | 396.65 | 404.41 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 23.12 | 78.76 | 1,925.20 | 86.49 | 435.16 | 443.67 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 23.12 | 78.76 | 2,017.17 | 94.15 | 473.67 | 482.94 | 0.00 | 0.00 | 0.00 |
| 2,110.69 | 23.12 | 78.76 | 2,027.00 | 94.97 | 477.79 | 487.13 | 0.00 | 0.00 | 0.00 |
| **BIRDSNEST** | | | | | | | | | |
| 2,200.00 | 23.12 | 78.76 | 2,109.14 | 101.80 | 512.18 | 522.20 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 23.12 | 78.76 | 2,201.11 | 109.46 | 550.69 | 561.46 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 23.12 | 78.76 | 2,293.08 | 117.11 | 589.20 | 600.72 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 23.12 | 78.76 | 2,385.05 | 124.77 | 627.71 | 639.99 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 23.12 | 78.76 | 2,477.02 | 132.42 | 666.22 | 679.25 | 0.00 | 0.00 | 0.00 |
| 2,628.25 | 23.12 | 78.76 | 2,503.00 | 134.58 | 677.10 | 690.34 | 0.00 | 0.00 | 0.00 |
| **MAHOGANY** | | | | | | | | | |
| 2,700.00 | 23.12 | 78.76 | 2,568.99 | 140.07 | 704.73 | 718.51 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 23.12 | 78.76 | 2,660.96 | 147.73 | 743.23 | 757.77 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 23.12 | 78.76 | 2,752.93 | 155.38 | 781.74 | 797.04 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 23.12 | 78.76 | 2,844.90 | 163.04 | 820.25 | 836.30 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 23.12 | 78.76 | 2,936.87 | 170.69 | 858.76 | 875.56 | 0.00 | 0.00 | 0.00 |
| 3,117.54 | 23.12 | 78.76 | 2,953.00 | 172.03 | 865.52 | 882.45 | 0.00 | 0.00 | 0.00 |
| **8 5/8"** | | | | | | | | | |
| 3,200.00 | 23.12 | 78.76 | 3,028.84 | 178.35 | 897.27 | 914.82 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 23.12 | 78.76 | 3,120.81 | 186.00 | 935.78 | 954.09 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 23.12 | 78.76 | 3,212.78 | 193.65 | 974.29 | 993.35 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 23.12 | 78.76 | 3,304.75 | 201.31 | 1,012.80 | 1,032.61 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 23.12 | 78.76 | 3,396.72 | 208.96 | 1,051.31 | 1,071.87 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 23.12 | 78.76 | 3,488.69 | 216.62 | 1,089.82 | 1,111.14 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 23.12 | 78.76 | 3,580.66 | 224.27 | 1,128.33 | 1,150.40 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 23.12 | 78.76 | 3,672.63 | 231.93 | 1,166.83 | 1,189.66 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 23.12 | 78.76 | 3,764.60 | 239.58 | 1,205.34 | 1,228.92 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 23.12 | 78.76 | 3,856.57 | 247.23 | 1,243.85 | 1,268.19 | 0.00 | 0.00 | 0.00 |



RECEIVED: November 27, 2012

Scientific Drilling

**SDI**
Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Project:** | Uintah County, UT UTM12 | **MD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Site:** | NBU 921-20B PAD | **North Reference:** | True |
| **Well:** | NBU 921-20A1CS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 4,200.00 | 23.12 | 78.76 | 3,948.54 | 254.89 | 1,282.36 | 1,307.45 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 23.12 | 78.76 | 4,040.51 | 262.54 | 1,320.87 | 1,346.71 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 23.12 | 78.76 | 4,132.48 | 270.20 | 1,359.38 | 1,385.97 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 23.12 | 78.76 | 4,224.45 | 277.85 | 1,397.89 | 1,425.24 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 23.12 | 78.76 | 4,316.42 | 285.50 | 1,436.40 | 1,464.50 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 23.12 | 78.76 | 4,408.39 | 293.16 | 1,474.91 | 1,503.76 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 23.12 | 78.76 | 4,500.36 | 300.81 | 1,513.42 | 1,543.02 | 0.00 | 0.00 | 0.00 |
| 4,857.47 | 23.12 | 78.76 | 4,553.21 | 305.21 | 1,535.55 | 1,565.59 | 0.00 | 0.00 | 0.00 |
| **Start Drop -2.00** | | | | | | | | | |
| 4,900.00 | 22.27 | 78.76 | 4,592.45 | 308.41 | 1,551.64 | 1,581.99 | 2.00 | -2.00 | 0.00 |
| 5,000.00 | 20.27 | 78.76 | 4,685.63 | 315.48 | 1,587.21 | 1,618.26 | 2.00 | -2.00 | 0.00 |
| 5,100.00 | 18.27 | 78.76 | 4,780.03 | 321.91 | 1,619.58 | 1,651.26 | 2.00 | -2.00 | 0.00 |
| 5,200.00 | 16.27 | 78.76 | 4,875.52 | 327.70 | 1,648.69 | 1,680.94 | 2.00 | -2.00 | 0.00 |
| 5,300.00 | 14.27 | 78.76 | 4,971.98 | 332.83 | 1,674.52 | 1,707.27 | 2.00 | -2.00 | 0.00 |
| 5,400.00 | 12.27 | 78.76 | 5,069.31 | 337.31 | 1,697.02 | 1,730.22 | 2.00 | -2.00 | 0.00 |
| 5,408.89 | 12.09 | 78.76 | 5,078.00 | 337.67 | 1,698.86 | 1,732.10 | 2.00 | -2.00 | 0.00 |
| **WASATCH** | | | | | | | | | |
| 5,500.00 | 10.27 | 78.76 | 5,167.38 | 341.12 | 1,716.19 | 1,749.76 | 2.00 | -2.00 | 0.00 |
| 5,600.00 | 8.27 | 78.76 | 5,266.07 | 344.26 | 1,731.98 | 1,765.86 | 2.00 | -2.00 | 0.00 |
| 5,700.00 | 6.27 | 78.76 | 5,365.26 | 346.72 | 1,744.39 | 1,778.51 | 2.00 | -2.00 | 0.00 |
| 5,800.00 | 4.27 | 78.76 | 5,464.83 | 348.51 | 1,753.39 | 1,787.69 | 2.00 | -2.00 | 0.00 |
| 5,900.00 | 2.27 | 78.76 | 5,564.66 | 349.62 | 1,758.98 | 1,793.39 | 2.00 | -2.00 | 0.00 |
| 6,000.00 | 0.27 | 78.76 | 5,664.63 | 350.05 | 1,761.15 | 1,795.60 | 2.00 | -2.00 | 0.00 |
| 6,013.37 | 0.00 | 0.00 | 5,678.00 | 350.06 | 1,761.18 | 1,795.63 | 2.00 | -2.00 | -589.17 |
| **Start 5714.00 hold at 6013.37 MD** | | | | | | | | | |
| 6,100.00 | 0.00 | 0.00 | 5,764.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 5,864.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 5,964.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,064.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,164.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,264.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,364.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,464.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 0.00 | 0.00 | 6,564.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 0.00 | 0.00 | 6,664.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 0.00 | 0.00 | 6,764.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 0.00 | 0.00 | 6,864.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 0.00 | 0.00 | 6,964.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 0.00 | 0.00 | 7,064.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 0.00 | 0.00 | 7,164.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 0.00 | 0.00 | 7,264.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 0.00 | 0.00 | 7,364.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 0.00 | 0.00 | 7,464.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 0.00 | 0.00 | 7,564.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 0.00 | 0.00 | 7,664.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 0.00 | 0.00 | 7,764.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 0.00 | 0.00 | 7,864.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 0.00 | 0.00 | 7,964.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,384.37 | 0.00 | 0.00 | 8,049.00 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| **MESAVERDE** | | | | | | | | | |
| 8,400.00 | 0.00 | 0.00 | 8,064.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 0.00 | 0.00 | 8,164.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 0.00 | 0.00 | 8,264.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |



RECEIVED: November 27, 2012

Scientific Drilling

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Project:** | Uintah County, UT UTM12 | **MD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Site:** | NBU 921-20B PAD | **North Reference:** | True |
| **Well:** | NBU 921-20A1CS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 8,700.00 | 0.00 | 0.00 | 8,364.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 0.00 | 0.00 | 8,464.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 0.00 | 0.00 | 8,564.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 0.00 | 0.00 | 8,664.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 0.00 | 0.00 | 8,764.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 0.00 | 0.00 | 8,864.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 0.00 | 0.00 | 8,964.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 0.00 | 0.00 | 9,064.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 0.00 | 0.00 | 9,164.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 0.00 | 0.00 | 9,264.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 0.00 | 0.00 | 9,364.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 0.00 | 0.00 | 9,464.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 0.00 | 0.00 | 9,564.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 0.00 | 0.00 | 9,664.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 0.00 | 0.00 | 9,764.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 0.00 | 0.00 | 9,864.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 0.00 | 0.00 | 9,964.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 0.00 | 0.00 | 10,064.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 0.00 | 0.00 | 10,164.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 0.00 | 0.00 | 10,264.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,634.37 | 0.00 | 0.00 | 10,299.00 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| **SEGO - SEGO_NBU 921-20A1CS** | | | | | | | | | |
| 10,700.00 | 0.00 | 0.00 | 10,364.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,750.37 | 0.00 | 0.00 | 10,415.00 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| **CASTLEGATE** | | | | | | | | | |
| 10,800.00 | 0.00 | 0.00 | 10,464.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 0.00 | 0.00 | 10,564.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 0.00 | 0.00 | 10,664.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 0.00 | 0.00 | 10,764.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,127.37 | 0.00 | 0.00 | 10,792.00 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| **BLACKHAWK** | | | | | | | | | |
| 11,200.00 | 0.00 | 0.00 | 10,864.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 0.00 | 0.00 | 10,964.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 0.00 | 0.00 | 11,064.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 0.00 | 0.00 | 11,164.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 0.00 | 0.00 | 11,264.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 0.00 | 0.00 | 11,364.63 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| 11,727.37 | 0.00 | 0.00 | 11,392.00 | 350.06 | 1,761.18 | 1,795.63 | 0.00 | 0.00 | 0.00 |
| **PBHL_NBU 921-20A1CS** | | | | | | | | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| SEGO_NBU 921-20A1C - plan hits target center - Circle (radius 25.00) | 0.00 | 0.00 | 10,299.00 | 350.06 | 1,761.18 | 14,539,369.16 | 2,041,519.62 | 40.027734 | -109.567234 |
| PBHL_NBU 921-20A1C - plan hits target center - Circle (radius 100.00) | 0.00 | 0.00 | 11,392.00 | 350.06 | 1,761.18 | 14,539,369.16 | 2,041,519.62 | 40.027734 | -109.567234 |



RECEIVED: November 27, 2012

Scientific Drilling

**SDI**
Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Company:** | Kerr McGee Oil and Gas Onshore LP | **TVD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Project:** | Uintah County, UT UTM12 | **MD Reference:** | GL 4873 & KB 4 @ 4877.00ft (ASSUMED) |
| **Site:** | NBU 921-20B PAD | **North Reference:** | True |
| **Well:** | NBU 921-20A1CS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) |
|---|---|---|---|---|
| 3,117.54 | 2,953.00 | 8 5/8" | 8.625 | 11.000 |

**Formations**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 1,771.45 | 1,715.00 | GREEN RIVER | | | |
| 2,110.69 | 2,027.00 | BIRDSNEST | | | |
| 2,628.25 | 2,503.00 | MAHOGANY | | | |
| 5,408.89 | 5,078.00 | WASATCH | | | |
| 8,384.37 | 8,049.00 | MESAVERDE | | | |
| 10,634.37 | 10,299.00 | SEGO | | | |
| 10,750.37 | 10,415.00 | CASTLEGATE | | | |
| 11,127.37 | 10,792.00 | BLACKHAWK | | | |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 300.00 | 300.00 | 0.00 | 0.00 | Start Build 2.00 |
| 1,455.89 | 1,424.79 | 44.85 | 225.63 | Start 3401.58 hold at 1455.89 MD |
| 4,857.47 | 4,553.21 | 305.21 | 1,535.55 | Start Drop -2.00 |
| 6,013.37 | 5,678.00 | 350.06 | 1,761.18 | Start 5714.00 hold at 6013.37 MD |
| 11,727.37 | 11,392.00 | 350.06 | 1,761.18 | TD at 11727.37 |



RECEIVED: November 27, 2012

# Kerr-McGee Oil & Gas Onshore. L.P.

## NBU 921-20B Pad

| | | | | |
|---|---|---|---|---|
| **API #** | | **NBU 921-20A1BS** | | |
| | Surface: | 745 FNL / 2231 FEL | NWNE | Lot |
| | BHL: | 83 FNL / 491 FEL | NENE | Lot |
| **API #** | | **NBU 921-20A1CS** | | |
| | Surface: | 764 FNL / 2253 FEL | NWNE | Lot |
| | BHL: | 413 FNL / 491 FEL | NENE | Lot |
| **API #4304750715** | | **NBU 921-20B** | | |
| | Surface: | 758 FNL / 2246 FEL | NWNE | Lot |
| | BHL: | 716 FNL / 2122 FEL | NWNE | Lot |
| **API #** | | **NBU 921-20B1BS** | | |
| | Surface: | 751 FNL / 2238 FEL | NWNE | Lot |
| | BHL: | 248 FNL / 1808 FEL | NWNE | Lot |
| **API #** | | **NBU 921-20B1CS** | | |
| | Surface: | 738 FNL / 2223 FEL | NWNE | Lot |
| | BHL: | 578 FNL / 1808 FEL | NWNE | Lot |
| **API #** | | **NBU 921-20B4CS** | | |
| | Surface: | 771 FNL / 2261 FEL | NWNE | Lot |
| | BHL: | 1240 FNL / 1807 FEL | NWNE | Lot |
| **API #** | | **NBU 921-20C1BS** | | |
| | Surface: | 777 FNL / 2269 FEL | NWNE | Lot |
| | BHL: | 83 FNL / 2136 FWL | NENW | Lot |

This Surface Use Plan of Operations (SUPO) or 13-point plan provides site-specific information for the above-referenced wells.

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

An on-site meeting was held on May 8, 2012. Present were:

- David Gordon, Melissa Wardle, Tyler Cox - BLM;
- Bucky Secakuku - BIA;
- Brad Pinecoose - Ute Indian Tribe;
- Amy Ackman - Montgomery Archeological Consultants Inc.;
- Scott Carson - Smiling Lake Consulting;
- John Slaugh, Mitch Batty - Timberline Engineering & Land Surveying, Inc.;
- Danielle Piernot, Raleen White, Doyle Holmes, Rod Anderson, Charles Chase - Kerr-McGee
- Tim Horgan-Kobelski - Grasslands Consulting, Inc.
- Justin Strauss - SWCA Environmental Consultants

**A. Existing Roads:**

Existing roads consist of county and improved/unimproved access roads (two-tracks). In accordance with Onshore Order #1, Kerr-McGee will, in accordance with BMPs, improve or maintain existing roads in a condition

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that is the same as or better than before operations began. New or reconstructed proposed access roads are discussed in Section B.

The existing roads will be maintained in a safe and usable condition. Maintenance for existing roads will continue until final abandonment and reclamation of well pads and/or other facilities, as applicable. Road maintenance will include, but is not limited to, blading, ditching, and/or culvert installation and cleanout. To ensure safe operating conditions, gravel surfacing will be performed where excessive rutting or erosion may occur. Dust control will be performed as necessary to ensure safe operating conditions.

Roads, gathering lines and electrical distribution lines will occupy common disturbance corridors where possible. Where available, roadways will be used as the staging area and working space for installation of gathering lines. All disturbances located in the same corridor will overlap each other to the maximum extent possible, while maintaining safe and sound construction and installation practices. Unless otherwise approved or requested in site specific documents, in no case will the maximum disturbance widths of the access road and utility corridors exceed the widths specified in Part D of this document.

Please refer to Topo B, for existing roads.

**B. New or Reconstructed Access Roads:**

All new or reconstructed roads will be located, designed, and maintained to meet the standards of the BIA.

Each new well pad or pad expansion may require construction of a new access road and/or de-commissioning of an older road. Plans, routes, and distances for new roads and road improvements are provided in design packages, exhibits and maps for a project. Project-specific maps are submitted to depict the locations of existing, proposed, and/or decommissioned and include the locations for supporting structures, including, but not limited to, culverts, bridges, low water crossings, range infrastructure, and haul routes, as per OSO 1. Designs for cuts and fills, including spoils source and storage areas, are provided with the road designs, as necessary.

Where safety objectives can be met. As applicable, Kerr-McGee may use unimproved and/or two-track roads for lease operations, to lessen total disturbance.

Road designs will be based on the road safety requirements, traffic characteristics, environmental conditions, and the vehicles the road is intended to carry. Generally, newly constructed unpaved lease roads will be crowned and ditched with the running surfaces of the roads approximately 12-18 feet wide and a total road corridor width not to exceed 45 feet, except where noted in the road design for a specific project. Maximum grade will generally not exceed 8%. Borrow ditches will be back sloped 3:1 or less. Construction BMPs will be employed to control onsite and offsite erosion.

Where topography would direct storm water runoff to an access road or well pad, drainage ditches or other common drainage control facilities, such as V- or wing-ditches, will be constructed to divert surface water runoff. Drainage features, including culverts, will be constructed or installed prior to commencing other operations, including drilling or facilities placement. Riprap will be placed at the inlet and outlet at the culvert(s), as necessary.

Prior to construction, new access road(s) will be staked according to the requirements of OSO 1. Construction activity will not be conducted using frozen or saturated materials or during periods when significant watershed damage (e.g. rutting, extensive sheet soil erosion, formation of rills/gullies, etc.) is likely to occur. Vegetative debris will not be placed in or under fill embankments.

New road maintenance will include, but is not limited to, blading, ditching, culvert installation and cleanout, gravel surfacing where excessive rutting or erosion may occur and dust control, as necessary to ensure safe operating conditions. All vehicular traffic, personnel movement, construction/restoration operations will be confined to the approved area and to existing roadways and/or access routes.

Snow removal will be conducted on an as-needed basis to accommodate safe travel. Snow removal will occur as necessary throughout the year, as will necessary drainage ditch construction. Removed snow may be stored on permitted well pads to reduce hauling distances and/or at the aerial extent of approved disturbance boundaries to facilitate snow removal for the remainder of the season.

If a county road crossing or encroachment permit is needed, it will be obtained prior to construction.

**The following segments will require a ROW to be submitted under a different cover to the Ute Indian Tribe.**

±205' (0.04 miles) – Section 20 (NW/4 NE/4) T9S R21E – On lease UTU0575 Ute Indian Tribe surface, new road from the edge of the pad to the existing road to the north. Please refer to Topo B.

**C. Location of Existing Wells:**

A) Refer to Topo Map C.

**D. Location of Existing and/or Proposed Facilities:**

This is a new pad; therefore does not have any existing facilities. Gathering (pipeline) infrastructure will be utlized to collect and transport gas and fluids from the wells which are owned and operated by Kerr McGee Oil and Gas Onshore (Kerr-McGee).

Should the well(s) prove productive, production facilities will be installed on the disturbed portion of each well pad. A berm will be constructed completely around production components (typically excluding dehy's and/or separators) that contain fluids (i.e. production tanks, produced liquids tanks). The berms will generally be constructed of compacted subsoil or corrugated metal, and will hold the capacity of the largest tank and have sufficient freeboard to accommodate a 25 year rainfall event. This includes pumping units. Aboveground structures constructed or installed onsite for 6 months or longer, will be painted a flat, non-reflective, earth-tone color chosen at the onsite (typically Shadow Gray). A production facility layout is provided as part of a project-specific APD, ROW or NOS submission.

**GAS GATHERING**

*Please refer to Topo D2- Pad and Pipeline Detail.*

The gas gathering pipeline material: Steel line pipe. Surface = Bare pipe. Buried = Coated with fusion bonded epoxy coating (or equivalent). The total gas gathering pipeline distance from the meter to the tie in point is ±1,180' and the individual segments are broken up as follows:

**The following segments will require a ROW to be submitted under a different cover to the Ute Indian Tribe.**

±1,180' (0.1 miles) – Section 20 and Section 17 T9S R21E– On-lease UTU0575 Ute Indian Tribe Surface, New 8" buried gas gathering pipeline from the meter to the NBU 921-17O Pad intersection. Please refer to Topo D2 - Pad and Pipeline Detail.

**LIQUID GATHERING**

*Please refer to Topo D2- Pad and Pipeline Detail.*

The total liquid gathering pipeline distance from the separator to the tie in point is ±1,180' and the individual segments are broken up as follows:

**The following segments will require a ROW to be submitted under a different cover to the Ute Indian Tribe.**

±1,180' (0.1 miles) – Section 20 and Section 17 T9S R21E– On-lease UTU0575 Ute Indian Tribe Surface, New 6" buried liquid gathering pipeline from the separator to the NBU 921-17O Pad intersection. Please refer to Topo D2 - Pad and Pipeline Detail.

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**Pipeline Gathering Construction**

Gathering (pipeline) infrastructure will be utilized to collect and transport gas and fluids from the wells which are owned and operated by Kerr McGee. Gas gathering pipeline(s,) gas lift, or liquids pipelines may be constructed to lie on the surface or be buried. Where the pipeline is adjacent to the road or well pad, the road and/or well pad will be utilized for construction activities and staging. The area of disturbance during construction from the edge of road or well pad will typically be 30' in width. Where pipelines run cross country, the width of disturbance will typically be 45 ft for buried lines and 30 ft for surface lines. In addition, Kerr-McGee requests for a permanent 30' disturbance width that will be maintained for the portion adjacent to the road. The need for the 30' permanent disturbance width is for maintenance and repairs. Cross country permanent disturbance width also are required to be 30ft.

Above-ground installation will generally not require clearing of vegetation or blading of the surface, except where safety considerations necessitate earthwork. In some surface pipeline installation instances pipe cannot be constructed where it will lay. In these cases where an above-ground pipeline is constructed parallel and adjacent to a road, it will be welded/fused on the road and then lifted from the road to the pipeline route. In other cases where a pipeline route is not parallel and adjacent to a road (cross-country between sites), it will be welded/fused in place at a well pad, access road, or designated work area and pulled between connection locations with a suitable piece of equipment.

Buried pipelines will generally be installed parallel and adjacent to existing and/or newly constructed roads and within the permitted disturbance corridor. Buried pipelines may vary from 2 inches (typically fuel gas lines) to 24 inches (typically transportation lines) in diameter, but 6 to 16 inches is typical for a buried gas line. The diameter of liquids pipelines may vary from 2 inches to 12 inches, but 6 inches is the typical diameter. Gas lift lines may vary from 2 to 12 inches in diameter, but 6-inch diameter pipes are generally used for gas lift. If two or more pipelines are present (gas gathering, gas lift, and fluids), they will share a common trench where possible.

Typically, to install a buried pipeline, topsoil will be removed, windrowed and placed on the non-working side of the route for later reclamation. Because working room is limited, the spoil may be spread out across the working side and construction will take place on the spoil. The working side of the corridor will be used for pipe stringing, bending, welding and equipment travel. Small areas on the working side displaying ruts or uneven ground will be groomed to facilitate the safe passage of equipment. After the pipelines are installed, spoil will be placed back into the trench, and the topsoil will be redistributed over the disturbed corridor prior to final reclamation. Typical depth of the trench will be 6 feet, but depths may vary according to site-specific conditions (presence of bedrock, etc.). The proposed trench width for the pipeline would range from 18-48 inches.

The pipeline will be welded along the proposed route and lowered into place. Trenching equipment will cut through the soil or into the bedrock and create good backfill, eliminating the need to remove large rocks. The proposed buried pipeline will be visually and radiographically inspected and the entire pipeline will be pneumatically or hydrostatically tested before being placed into service. Routine vehicle traffic will be prevented from using pipeline routes as travel ways by posting signs at the route's intersection with an access road.

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

If pipelines or roads encounter a drainage that could be subject to flooding or surface water during extreme precipitation events, Kerr-McGee will apply all applicable Army Corps mandates as well as the BLM's Hydraulic Considerations for Pipeline Crossings of Stream Channels (BLM Technical Note 423, April 2007). In addition, all stream and drainage crossings will be evaluated to determine the need for stream alteration permits from the State of Utah Division of Water Rights and if necessary, required permits will be secured. Similarly, where a road or pipeline crossing exists the pipe will be butt welded and buried to a depth between 24 and 48 inches or more. Dirt roads will be cut and restored to a condition equivalent to the existing condition. All Uintah County road encroachment and crossing permits, where applicable, will be obtained prior to crossing construction. In no case will pressure testing of pipelines result in discharge of liquids to the surface.

Pipeline signs will be installed along the route to indicate the pipeline proximity, ownership, and to provide emergency contact phone numbers. Above ground valves and lateral T's will be installed at various locations for production integrity and safety purposes.

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Upon completion of the proposed buried pipeline, the entire area of disturbance will be reclaimed to the standards proposed in the Green River District Reclamation Guidelines. Please refer to section J for more details regarding final reclamation.
When no longer deemed necessary by the operator, Kerr-McGee or it's successor will consult with the Vernal BIA Office before terminating of the use of the pipeline(s).

**The Anadarko Completions Transportation System (ACTS) information:**

Kerr-McGee will use either a closed loop drilling system that will require one pit and one storage area to be constructed on the drilling pad or a traditional drilling operation with one pit. The storage area will be used to contain only the de-watered drill cuttings and will be lined and reclaimed according to traditional pit closure standards. The pit will be constructed to allow for completion operations. The completion operations pit is lined and will be used for the wells drilled on the pad or used as part of our Anadarko Completions Transportation (ACTS) system which is discussed in more detail below. Using the closed loop drilling system will allow Kerr-McGee to decrease the amount of disturbance/footprint on location compared to a single large drilling/completion pit.

If Kerr-McGee does not use a closed loop system, it will construct a drilling reserve pit to contain drill cuttings and for use in completion operations. Depending on the location of the pit, its relation to future drilling locations, the reserve/completion pit will be utilized for the completion of the wells on that pad and/or be used as part of our ACTS system.

Kerr-McGee will use ACTS to optimize the completion processes for multiple pads across the project area which may include up to a section of development. ACTS will facilitate management of frac fluids by utilizing existing reserve pits and temporary, surface-laid aluminum liquids transfer lines between frac locations. The pit will be refurbished as follows when a traditional drill pit is used: mix and pile up drill cuttings with dry dirt, bury the original liner in the pit, walk bottom of pit with cat. Kerr-McGee will reline the pit with a 30 mil liner and double felt padding. The refurbished pit will be the same size or smaller as specified in the originally approved ROW/APD. The pit refurb will be done in a normal procedure and there will be no modification to the pit.

All four sides of the completions pit will be fenced in according to standard pit fencing procedures. Netting will be installed over all pits.

The collected hydrocarbons will be treated and sold at approved sales facilities. A loading rack with drip containment will also be installed where water trucks would unload and load to prevent damage caused from pulling hoses in and out of the pit .

ACTS will require temporarily laying multiple 6” aluminum water transfer lines on the surface between either existing or refurbished reserve pits. The temporary aluminum transfer lines will be utilized to transport frac fluid being injected and/or recovered during the completion process and will be laid adjacent to existing access roads or pipeline corridors. Upon completion of the frac operation, the liquids transfer lines will be flushed with fresh water and purged with compressed air. The contents of the transfer lines will be flushed into a water truck for delivery to another ACTS location or a reserve pit.

The temporary ACTS lines will be permitted under a separate cover to the Ute Indian Tribe.

The volume of frac fluid transported through a water transfer line will vary, but volume is projected to be approximately 1.75 bbls per 50-foot joint. Although the maximum working pressure is 125 psig, the liquids transfer lines will be operated at a pressure of approximately 30 to 40 psig. Kerr-McGee requests to keep the netted pit open for one year from first production of the first produced well on the pad. During this time the surrounding well location completion fluids may be recycled in this pit and utilized for other frac jobs in the area. After one year Kerr-McGee will backfill the pit and reclaim. If the pit is not needed for an entire year it will be backfilled and reclaimed earlier. Kerr-McGee understands that due to the temporary nature of this system, BIA considers this a casual use situation; therefore, no permanent ROW or temporary use plan will need to be issued by the BIA.

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**E. Location and Types of Water Supply:**

Water for drilling and completion operations will be obtained from the following sources:

| | | |
|---|---|---|
| Permit # 49-2307 | JD Field Services | Green River- Section 15, T2N, R22E |
| Permit # 49-2321 | R.N. Industries | White River- Section 2, T10S, R24E |
| Permit # 49-2319 | R.N. Industries | White River- Various Sources |
| Permit # 49-2320 | R.N. Industries | Green River- Section 33, T8S, R23E |

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.

**F. Construction Materials:**

Construction operations will typically be completed with native materials found on location. Construction materials that must be imported to the site (mineral material aggregate, soils or materials suitable for fill/surfacing) will be obtained from a nearby permitted source (described in site-specific documents). No construction materials will be removed from Tribal lands without prior approval from the BIA. A source location other than an on-location construction site will be designated either via a map or narrative within the project specific materials provided to the BIA.

**G. Methods for Handling Waste:**

All wastes subject to regulation will be handled in compliance with applicable laws to minimize the potential for leaks or spills to the environment. Kerr-McGee also maintains a Spill Control and Countermeasure Plan, which includes notification requirements, including the BIA, for all reportable spills of oil, produced liquids, and hazardous materials.

Any accidental release, such as a leak or spill in excess of the reportable quantity, as established by 40 CFR Part 117.3, will be reported as per the requirements of CERCLA, Section 102 B. If a release involves petroleum hydrocarbons or produced liquids, Kerr-McGee will comply with the notification requirements of NTL-3A. Drill cuttings and/or drilling fluids will be contained in the reserve/frac pit whether a closed loop system is used or not. Cuttings will be buried in pit(s) upon closure. Unless specifically approved by the BIA, no oil or other oil-based drilling additives, chromium/metals-based, or saline muds will be used during drilling. Only fresh water (as specified above), biodegradable polymer soap, bentonite clay, and/or non-toxic additives will be used in the mud system.

Pits will be constructed to minimize the accumulation of surface precipitation runoff into the pit (via appropriate placement of subsoil storage areas and/or construction of berms, ditches, etc.). Should unexpected liquid petroleum hydrocarbons (crude oil or condensate) be encountered during drilling, completions or well testing, liquid petroleum hydrocarbons will either be contained in test tanks on the well site or evacuated by vacuum trucks and transported to an approved disposal/ sales facility. Should petroleum hydrocarbons unexpectedly be released into a pit, they will be removed as soon as practical but in no case will they remain longer than 72 hours unless an alternate is approved by the BIA. Should timely removal not be feasible, the pit will be netted as soon as practical. Similarly, hydrocarbon removal will take place prior to the closure of the pit, unless authorization is provided for disposal via alternate pit closure methods (e.g. solidification).

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The reserve and/or fracture stimulation pit will be lined with an impermeable liner. The liner will be a synthetic material 30 mil or thicker. The bottom and side walls of the pit will be void of any sharp rocks that could puncture the liner. The liner will be installed over smooth fill subgrade that is free of pockets, loose rocks, or other materials (i.e. sand, sifted dirt, bentonite, straw, etc.) that could damage the liner. After evaporation and when dry, the reserve pit liners will be cut off, ripped and/or folded back (as safety considerations allow) as near to the mud surface as possible and buried on location or hauled to a landfill prior to backfilling the pit with a minimum of five feet of soil material.

Where necessary and if conditions (freeboard, etc.) allow, produced liquids from newly completed wells may be temporarily disposed of into pits for a period not to exceed 90 days as per Onshore Order Number 7 (OSO 7). Subsequently, permanent approved produced water disposal methods will be employed in accordance with OSO 7 and/or as described in a Water Management Plan (WMP). Otherwise, fluids disposal locations and associated haul routes, for ROW consideration, are typically depicted on Topo A of individual projects. Revisions to the water source or method of transportation will be subject to written approval from the BIA.

Any additional pits necessary for subsequent operations, such as temporary flare or workover pits, will be contained within the originally approved well pad and disturbance boundaries. Such temporary pits will be backfilled and reclaimed within 180 days of completion of work at a well location.

Pits containing drilling cuttings, mud, and/or completions fluids will be allowed to dry. Any free fluids remaining after one year from reaching total depth, date of completion, and/or determination of inactivity will be removed (as weather conditions allow) to an approved site and the pit reclaimed. Installation and operation of any sprinklers, pumps, and equipment will ensure that water spray or mist does not drift.

No garbage or non-exempt substances as defined by Resource Conservation and Recovery Act (RCRA) subtitle C will be placed in the reserve pit. All refuse (trash and other solid waste including cans, paper, cable, etc.) generated during construction, drilling, completion, and well testing activities will be contained in an enclosed receptacle, removed from the drill locations promptly, and transported to an approved disposal facility. Immediately after removal of the drilling rig, all debris and other waste materials not contained within trash receptacles will be collected and removed from the well location.

For the protection of livestock and wildlife, all open pits (excluding flare pits) will be fenced to prevent wildlife or livestock entry. Total height of pit fencing will be at least 42 inches and corner posts will be cemented and/or braced in such a manner as to keep the fence tight at all times. Standard steel, wood, or pipe posts shall be used between the corner braces. Maximum distance between any 2 fence posts shall be no greater than 16 feet. Siphons, catchments, and absorbent pads will be installed to keep hydrocarbons produced by the drilling rig or other equipment on location from entering the reserve pit. Hydrocarbons, contaminated pads, and/or soils will be disposed of in accordance with state and federal requirements.

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

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**Materials Management**

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

Hazardous materials may be contained in some grease or lubricants, solvents, acids, paint, and herbicides, among others as defined above. Kerr-McGee maintains a file, per 29 CFR 1910.1200 (g) containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances that are used during the course of construction, drilling, completion, and production operations for this project. The transport, use, storage and handling of hazardous materials will follow procedures specified by federal and state regulations. Transportation of hazardous materials to the well location is regulated by the Department of Transportation (DOT) under 49 CFR, Parts 171-180. DOT regulations pertain to the packing, container handling, labeling, vehicle placarding, and other safety aspects.

Potentially hazardous materials used in the development or operation of wells will be kept in limited quantities on well sites and at the production facilities for short periods of time. Chemicals meeting the criteria for being an acutely hazardous material/substance or meet the quantities criteria per BLM Instruction Memorandum No. 93-344 will not be used.

Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act (SARA) in quantities of 10,000 pounds or more may be produced and/or stored at production facilities (crude oil/condensate, produced water). They may also be kept in limited quantities on drilling sites (barite, diesel fuel, cement, cottonseed hulls etc.) for short periods of time during drilling or completion activities.

Fluids disposal and pipeline/haul routes are depicted on Topo Map A.

Any produced water separated from recoverable condensate from the proposed well will be contained in a water tank and will then be transported by pipeline and/or 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

Or to one of the following Kerr-McGee active Salt Water Disposal (SWD) wells:

NBU 159 SWD in Sec. 35 T9S R21E
CIGE 112D SWD in Sec. 19 T9S R21E
CIGE 114 SWD in Sec. 34 T9S R21E
NBU 921-34K SWD in Sec. 34 T9S R21E
NBU 921-33F SWD in Sec. 34 T9S R21E

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**H. Ancillary Facilities:**

No additional ancillary facilities are planned for this location.

**I. Well Site Layout:**

The location, orientation and aerial extent of each drill pad, reserve/completion/flare pit (for closed loop or non-closed loop operations), access road ingress/egress points, drilling rig, dikes/ditches, existing wells/infrastructure, proposed cuts and fills, and topsoil and spoil material stockpile locations are depicted on the exhibits for each project, where applicable. Site-specific conditions may require slight deviation in actual equipment depending on whether a closed loop system is used. Surface distance may be less if using closed loop. But in either case, the area of disturbance will not exceed the maximum disturbance outlined in the attached exhibits.

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

Each well will utilize either a centralized tank battery, centralized fluids management system, or have tanks installed on its pad. Production/ Produced Liquid tanks will be constructed, maintained, and operated to prevent unauthorized surface or subsurface discharges of liquids and to prevent livestock or wildlife entry. The tanks will be kept reasonably free from surface accumulations of liquid hydrocarbons. The tanks are not to be used for disposal of liquids from additional sources without prior approval of BIA.

**J. Plans for Surface Reclamation:**

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

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

**Interim Reclamation**

Interim reclamation may include pit evaporation, fluid removal, pit solidification, re-contouring, ripping, spreading top soil, seeding, and/or weed control. Interim reclamation will be performed in accordance with OSO 1, or written notification will be provided to the BIA for approval. Where feasible, drilling locations, reserve pits, or access routes not utilized for production operations will be re-contoured to a natural appearance.

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

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

**Final Reclamation**

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

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

Reclamation of roads will be performed at the discretion of the BIA/Tribe. All unnecessary surface equipment and structures (e.g. cattle guards) and water control structures (e.g. culverts, drainage pipes) not needed to facilitate successful reclamation will be removed during final reclamation. Roads that will be reclaimed will be ripped to a depth of 18 inches where practical, re-contoured to approximate the original contour of the ground and seeded in accordance with the seeding specifications as proposed below in "Measures Common to Interim and Final Reclamation".

Upon successfully completing reclamation of a P&A location, a Final Abandonment Notice will be submitted to the BIA/Tribe.

**Measures Common to Interim and Final Reclamation**

Soil preparation will be conducted using a disk for areas in need of more soil preparation following site preparation. This will provide primary soil tillage to a depth no greater than 6 inches. Prior to reseeding, compacted areas will be scarified by ripping or chiseling to loosen compacted soils, promote water infiltration, and improve soil aeration and root penetration.

Seeding will occur year-round as conditions allow and will typically be accomplished through the use of a no-till rangeland style seed drill with a “picker box” in order to seed “fluffy” seed. Where drill seeding is not the preferred method, seed will be broadcast and then raked into the ground at double the rate of drill seeding. Seed mixes appropriate to the native plant community as determined and specified for each project location based on the site specific soils will be used for

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re-vegetation. The seed mixes will be selected from a list provided by or approved by the BIA/Tribe or a specific seed mix will be proposed by Kerr-McGee to the BIA/Tribe and used after its approval. The selected specific seed mix for each well location and road segment will be utilized while performing interim and final reclamation for each project. All seed will be certified and tags will be maintained by Kerr-McGee. Every effort will be made to obtain "cheat grass free seed".

Seed Mix to be used for Well Site, Access Road, and Pipeline (as applicable):

| | |
|---|---|
| Indian Ricegrass (Nezpar) | 3 |
| Sandberg Bluegrass | 0.75 |
| Bottlebrush Squirreltail | 1 |
| Great Basin Wildrye | 0.5 |
| Crested Wheatgrass | 1.5 |
| Winterfat | 0.25 |
| Shadscale | 1.5 |
| Four-wing Saltbrush | 0.75 |
| Forage Kochia | 0.25 |
| **Total** | 9.5 |

Additional soil amendments and/or stabilization may be required on sites with poor soils and/or excessive erosion potential. Where severe erosion can become a problem and/or the use of machinery is not practical, seed will be hand broadcast and raked with twice the specified amount of seed. Slopes will be stabilized using materials specifically designed to prevent erosion on steep slopes and hold seed in place so vegetation can become permanently established. These materials will include, but are not limited to: erosion control blankets, hydro-mulch, and/or bonded fiber matrix at a rate to achieve a minimum of 80 percent soil coverage.

**Weed Control**

Noxious weeds will be controlled in akk orihect areas un accordance with all applicable rules and regulations.

**K. Surface/Mineral Ownership:**

| | |
|---|---|
| Ute Indian Tribe | United States of America |
| P.O. Box 70 | Bureau of Land Management |
| 988 South 7500 East Annex Building | 170 South 500 East |
| Fort Duschesne, UT 84026 | Vernal, UT 84078 |
| (435) 722-4307 | (435)781-4400 |

**L. Other Information:**

**Onsite Specifics:**

- No changes

**Cultural and Paleontological Resources**

All personnel are strictly prohibited from collecting artifacts, any paleontological specimens or fossils, and from disturbing any significant cultural resources in the area. If artifacts, fossils, or any culturally sensitive materials are exposed or identified in the area of construction, all construction operations that would affect the newly discovered resource will cease, and Kerr-McGee will provide immediate notification to the BIA.

RECEIVED: November 27, 2012

**Resource Reports:**

A Class I literature survey report was completed on May 21, 2012 by Montgomery Archaeological Consultants, Inc (MOAC). For additional details please refer to report MOAC 12-152.

A paleontological reconnaissance survey was completed on April 10-16, 2012 by SWCA Environmental Consultants. For additional details please refer to report UT12-14314-98 and UT12-14314-122.

Biological field survey was completed on April 10-13, 2012 by Grasslands Consulting, Inc (GCI). For additional details please refer to report GCI-768 and GCI-776.

**Proposed Action Annual Emissions Tables:**

**Table 1: Proposed Action Annual Emissions (tons/year)[1]**

| Pollutant | Development | Production | Total |
|---|---|---|---|
| NOx | 3.8 | 0.12 | 3.92 |
| CO | 2.2 | 0.11 | 2.31 |
| VOC | 0.1 | 4.9 | 5 |
| $SO_2$ | 0.005 | 0.0043 | 0.0093 |
| $PM_{10}$ | 1.7 | 0.11 | 1.81 |
| $PM_{2.5}$ | 0.4 | 0.025 | 0.425 |
| Benzene | 2.2E-03 | 0.044 | 0.046 |
| Toluene | 1.6E-03 | 0.103 | 0.105 |
| Ethylbenzene | 3.4E-04 | 0.005 | 0.005 |
| Xylene | 1.1E-03 | 0.076 | 0.077 |
| n-Hexane | 1.7E-04 | 0.145 | 0.145 |
| Formaldehyde | 1.3E-02 | 8.64E-05 | 1.31E-02 |

[1] Emissions include 1 producing well and associated operations traffic during the year in which the project is developed

**Table 2: Proposed Action versus 2012 WRAP Phase III Emissions Inventory Comparison**

| Species | Proposed Action Production Emissions (ton/yr) | WRAP Phase III 2012 Uintah Basin Emission Inventory[a] (ton/yr) | Percentage of Proposed Action to WRAP Phase III |
|---|---|---|---|
| NOx | 27.44 | 16,547 | 0.17% |
| VOC | 35 | 127,495 | 0.03% |

[a] http://www.wrapair.org/forums/ogwg/PhaseIII_Inventory.html

Uintah Basin Data

RECEIVED: November 27, 2012

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

Danielle Piernot
Regulatory Analyst II
Kerr-McGee Oil & Gas Onshore LP
PO Box 173779
Denver, CO 80217-3779
(720) 929-6156

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 Bureau of Land Management Nationwide Bond WYB000291.

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

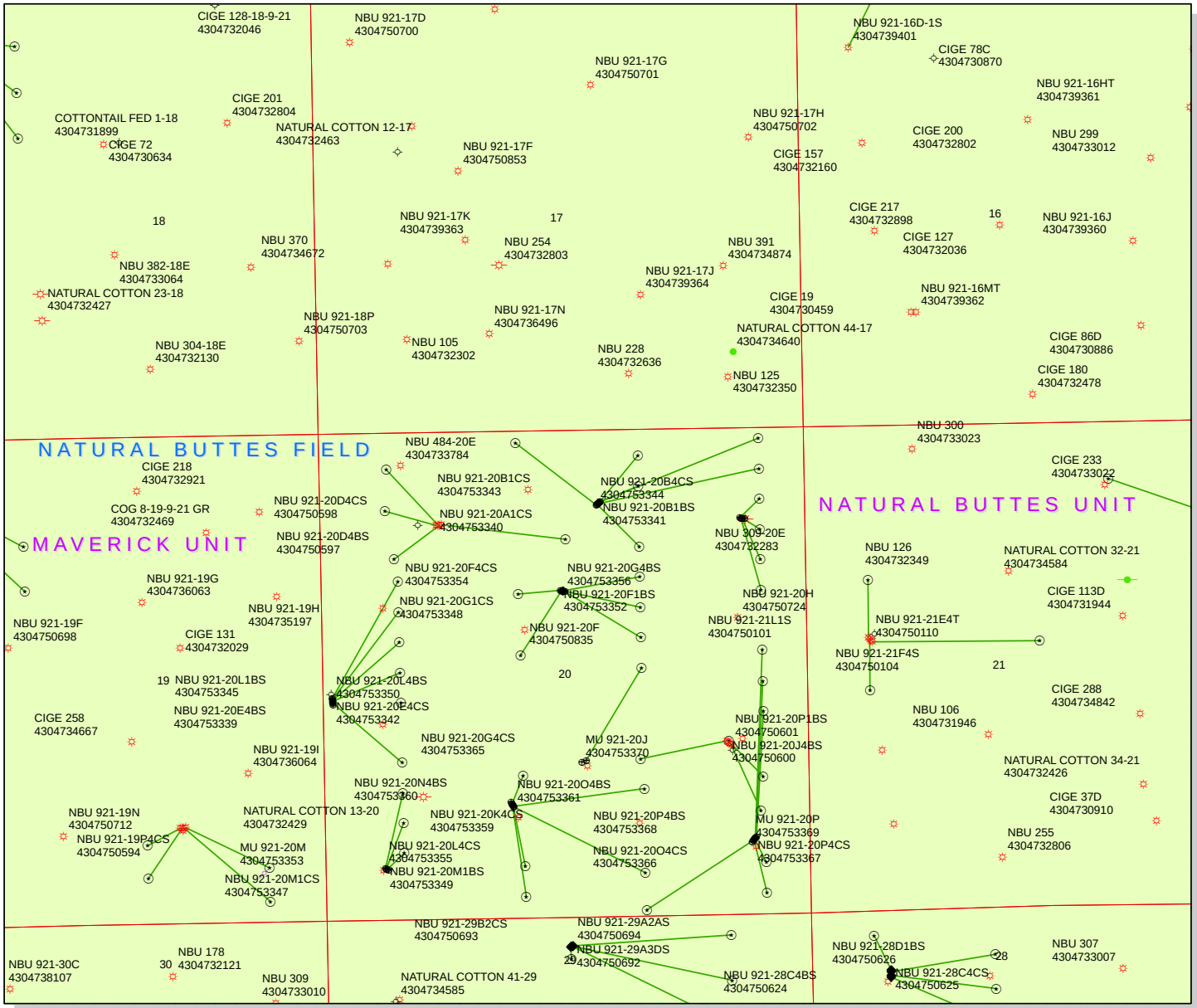
Danielle Piernot

Danielle Piernot

June 22, 2012

Date

API Well Number: 43047533400000




**API Number: 4304753340**

**Well Name: NBU 921-20A1CS**

**Township T09.0S Range R21.0E 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**
- Unknown
- ABANDONED
- ACTIVE
- COMBINED
- INACTIVE
- STORAGE
- TERMINATED

**Wells Query**
**Status**
- APD - Aproved Permit
- DRL - Spuded (Drilling Commenced)
- GIW - Gas Injection
- GS - Gas Storage
- LOC - New Location
- OPS - Operation Suspended
- PA - Plugged Abandoned
- PGW - Producing Gas Well
- POW - Producing Oil Well
- SGW - Shut-in Gas Well
- SOW - Shut-in Oil Well
- TA - Temp. Abandoned
- TW - Test Well
- WDW - Water Disposal
- WIW - Water Injection Well
- WSW - Water Supply Well
- Bottom Hole Location - OilGasDb

1,400 700 0 1,400 Feet

1:13,484

RECEIVED: November 28, 2012

# 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)**

December 6, 2012

Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

Subject: 2012 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 2012 within the Natural Buttes Unit, Uintah County, Utah.

| API # | WELL NAME | LOCATION |
|---|---|---|
| (Proposed PZ WASATCH-MESA VERDE) | | |
| **NBU 921-20A PAD** | | |
| 43-047-53330 | NBU 921-20A4BS | Sec 20 T09S R21E 0947 FNL 0708 FEL |
| | | BHL Sec 20 T09S R21E 0744 FNL 0491 FEL |
| 43-047-53331 | NBU 921-20A4CS | Sec 20 T09S R21E 0951 FNL 0678 FEL |
| | | BHL Sec 20 T09S R21E 1075 FNL 0491 FEL |
| 43-047-53334 | NBU 921-20H1BS | Sec 20 T09S R21E 0950 FNL 0688 FEL |
| | | BHL Sec 20 T09S R21E 1405 FNL 0491 FEL |
| 43-047-53335 | NBU 921-20H1CS | Sec 20 T09S R21E 0948 FNL 0698 FEL |
| | | BHL Sec 20 T09S R21E 1736 FNL 0491 FEL |
| **NBU 921-20L PAD** | | |
| 43-047-53333 | NBU 921-20E1BS | Sec 20 T09S R21E 2450 FSL 0075 FWL |
| | | BHL Sec 20 T09S R21E 1571 FNL 0819 FWL |
| 43-047-53336 | NBU 921-20E1CS | Sec 20 T09S R21E 2440 FSL 0076 FWL |
| | | BHL Sec 20 T09S R21E 1902 FNL 0819 FWL |
| 43-047-53339 | NBU 921-20E4BS | Sec 20 T09S R21E 2430 FSL 0077 FWL |
| | | BHL Sec 20 T09S R21E 2233 FNL 0819 FWL |
| 43-047-53342 | NBU 921-20E4CS | Sec 20 T09S R21E 2420 FSL 0078 FWL |
| | | BHL Sec 20 T09S R21E 2564 FNL 0819 FWL |
| 43-047-53345 | NBU 921-20L1BS | Sec 20 T09S R21E 2410 FSL 0079 FWL |
| | | BHL Sec 20 T09S R21E 2396 FSL 0819 FWL |
| 43-047-53350 | NBU 921-20L4BS | Sec 20 T09S R21E 2401 FSL 0080 FWL |
| | | BHL Sec 20 T09S R21E 1736 FSL 0818 FWL |

RECEIVED: December 06, 2012

| API # | WELL NAME | LOCATION |
|---|---|---|

(Proposed PZ WASATCH-MESA VERDE)

**NBU 921-20B PAD**

| | | |
|---|---|---|
| 43-047-53337 | NBU 921-20C1BS | Sec 20 T09S R21E 0777 FNL 2269 FEL |
| | | BHL Sec 20 T09S R21E 0083 FNL 2136 FWL |
| 43-047-53338 | NBU 921-20A1BS | Sec 20 T09S R21E 0745 FNL 2231 FEL |
| | | BHL Sec 20 T09S R21E 0083 FNL 0491 FEL |
| 43-047-53340 | NBU 921-20A1CS | Sec 20 T09S R21E 0764 FNL 2253 FEL |
| | | BHL Sec 20 T09S R21E 0413 FNL 0491 FEL |
| 43-047-53341 | NBU 921-20B1BS | Sec 20 T09S R21E 0751 FNL 2238 FEL |
| | | BHL Sec 20 T09S R21E 0248 FNL 1808 FEL |
| 43-047-53343 | NBU 921-20B1CS | Sec 20 T09S R21E 0738 FNL 2223 FEL |
| | | BHL Sec 20 T09S R21E 0578 FNL 1808 FEL |
| 43-047-53344 | NBU 921-20B4CS | Sec 20 T09S R21E 0771 FNL 2261 FEL |
| | | BHL Sec 20 T09S R21E 1240 FNL 1807 FEL |

**NBU 921-20G PAD**

| | | |
|---|---|---|
| 43-047-53346 | NBU 921-20G1BS | Sec 20 T09S R21E 1706 FNL 2606 FWL |
| | | BHL Sec 20 T09S R21E 1570 FNL 1807 FEL |
| 43-047-53348 | NBU 921-20G1CS | Sec 20 T09S R21E 1712 FNL 2636 FWL |
| | | BHL Sec 20 T09S R21E 1901 FNL 1807 FEL |
| 43-047-53352 | NBU 921-20F1BS | Sec 20 T09S R21E 1702 FNL 2587 FWL |
| | | BHL Sec 20 T09S R21E 1732 FNL 2126 FWL |
| 43-047-53354 | NBU 921-20F4CS | Sec 20 T09S R21E 1704 FNL 2597 FWL |
| | | BHL Sec 20 T09S R21E 2399 FNL 2134 FWL |
| 43-047-53356 | NBU 921-20G4BS | Sec 20 T09S R21E 1710 FNL 2626 FWL |
| | | BHL Sec 20 T09S R21E 2232 FNL 1806 FEL |

**NBU 921-20M PAD**

| | | |
|---|---|---|
| 43-047-53347 | NBU 921-20M1CS | Sec 20 T09S R21E 0575 FSL 0625 FWL |
| | | BHL Sec 20 T09S R21E 0746 FSL 0818 FWL |
| 43-047-53349 | NBU 921-20M1BS | Sec 20 T09S R21E 0581 FSL 0617 FWL |
| | | BHL Sec 20 T09S R21E 1076 FSL 0818 FWL |
| 43-047-53355 | NBU 921-20L4CS | Sec 20 T09S R21E 0587 FSL 0609 FWL |
| | | BHL Sec 20 T09S R21E 1406 FSL 0818 FWL |

**NBU 921-20N PAD**

| | | |
|---|---|---|
| 43-047-53351 | NBU 921-20N4CS | Sec 20 T09S R21E 1256 FSL 2008 FWL |
| | | BHL Sec 20 T09S R21E 0249 FSL 2132 FWL |
| 43-047-53358 | NBU 921-20J4CS | Sec 20 T09S R21E 1239 FSL 2019 FWL |
| | | BHL Sec 20 T09S R21E 1407 FSL 1805 FEL |
| 43-047-53359 | NBU 921-20K4CS | Sec 20 T09S R21E 1265 FSL 2003 FWL |
| | | BHL Sec 20 T09S R21E 1572 FSL 2133 FWL |
| 43-047-53360 | NBU 921-20N4BS | Sec 20 T09S R21E 1248 FSL 2014 FWL |
| | | BHL Sec 20 T09S R21E 0579 FSL 2132 FWL |
| 43-047-53361 | NBU 921-20O4BS | Sec 20 T09S R21E 1231 FSL 2024 FWL |
| | | BHL Sec 20 T09S R21E 0492 FSL 1810 FEL |

RECEIVED: December 06, 2012

| API # | WELL NAME | LOCATION |
|---|---|---|
| (Proposed PZ WASATCH-MESA VERDE) | | |
| **NBU 921-20P PAD** | | |
| 43-047-53362 | NBU 921-20H4CS | Sec 20 T09S R21E 0842 FSL 0606 FEL |
| | | BHL Sec 20 T09S R21E 2397 FNL 0491 FEL |
| 43-047-53363 | NBU 921-20I1BS | Sec 20 T09S R21E 0850 FSL 0599 FEL |
| | | BHL Sec 20 T09S R21E 2559 FSL 0491 FEL |
| 43-047-53364 | NBU 921-20I1CS | Sec 20 T09S R21E 0857 FSL 0593 FEL |
| | | BHL Sec 20 T09S R21E 2229 FSL 0491 FEL |
| 43-047-53366 | NBU 921-20O4CS | Sec 20 T09S R21E 0819 FSL 0625 FEL |
| | | BHL Sec 20 T09S R21E 0084 FSL 1804 FEL |
| 43-047-53367 | NBU 921-20P4CS | Sec 20 T09S R21E 0827 FSL 0618 FEL |
| | | BHL Sec 20 T09S R21E 0249 FSL 0490 FEL |
| 43-047-53368 | NBU 921-20P4BS | Sec 20 T09S R21E 0834 FSL 0612 FEL |
| | | BHL Sec 20 T09S R21E 0579 FSL 0490 FEL |
| **NBU 921-20J PAD** | | |
| 43-047-53365 | NBU 921-20G4CS | Sec 20 T09S R21E 1726 FSL 2431 FEL |
| | | BHL Sec 20 T09S R21E 2563 FNL 1806 FEL |

Michael L. Coulthard

Digitally signed by Michael L. Coulthard
DN: cn=Michael L. Coulthard, o=Bureau of Land Management, ou=Branch of Minerals, email=Michael_Coulthard@blm.gov, c=US
Date: 2012.12.06 09:34:53 -07'00'

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

MCoulthard:mc:12-6-12

RECEIVED: December 06, 2012

| API Number | Well Name | Surface Location | | |
|---|---|---|---|---|
| 43-047-53330 | NBU 921-20A4BS | Sec 20 | T09S R21E | 0947 FNL 0708 FEL |
| 43-047-53331 | NBU 921-20A4CS | Sec 20 | T09S R21E | 0951 FNL 0678 FEL |
| 43-047-53333 | NBU 921-20E1BS | Sec 20 | T09S R21E | 2450 FSL 0075 FWL |
| 43-047-53334 | NBU 921-20H1BS | Sec 20 | T09S R21E | 0950 FNL 0688 FEL |
| 43-047-53335 | NBU 921-20H1CS | Sec 20 | T09S R21E | 0948 FNL 0698 FEL |
| 43-047-53336 | NBU 921-20E1CS | Sec 20 | T09S R21E | 2440 FSL 0076 FWL |
| 43-047-53337 | NBU 921-20C1BS | Sec 20 | T09S R21E | 0777 FNL 2269 FEL |
| 43-047-53338 | NBU 921-20A1BS | Sec 20 | T09S R21E | 0745 FNL 2231 FEL |
| 43-047-53339 | NBU 921-20E4BS | Sec 20 | T09S R21E | 2430 FSL 0077 FWL |
| 43-047-53340 | NBU 921-20A1CS | Sec 20 | T09S R21E | 0764 FNL 2253 FEL |
| 43-047-53341 | NBU 921-20B1BS | Sec 20 | T09S R21E | 0751 FNL 2238 FEL |
| 43-047-53342 | NBU 921-20E4CS | Sec 20 | T09S R21E | 2420 FSL 0078 FWL |
| 43-047-53343 | NBU 921-20B1CS | Sec 20 | T09S R21E | 0738 FNL 2223 FEL |
| 43-047-53344 | NBU 921-20B4CS | Sec 20 | T09S R21E | 0771 FNL 2261 FEL |
| 43-047-53345 | NBU 921-20L1BS | Sec 20 | T09S R21E | 2410 FSL 0079 FWL |
| 43-047-53346 | NBU 921-20G1BS | Sec 20 | T09S R21E | 1706 FNL 2606 FWL |
| 43-047-53347 | NBU 921-20M1CS | Sec 20 | T09S R21E | 0575 FSL 0625 FWL |
| 43-047-53348 | NBU 921-20G1CS | Sec 20 | T09S R21E | 1712 FNL 2636 FWL |
| 43-047-53349 | NBU 921-20M1BS | Sec 20 | T09S R21E | 0581 FSL 0617 FWL |
| 43-047-53350 | NBU 921-20L4BS | Sec 20 | T09S R21E | 2401 FSL 0080 FWL |
| 43-047-53351 | NBU 921-20N4CS | Sec 20 | T09S R21E | 1256 FSL 2008 FWL |
| 43-047-53352 | NBU 921-20F1BS | Sec 20 | T09S R21E | 1702 FNL 2587 FWL |
| 43-047-53354 | NBU 921-20F4CS | Sec 20 | T09S R21E | 1704 FNL 2597 FWL |
| 43-047-53355 | NBU 921-20L4CS | Sec 20 | T09S R21E | 0587 FSL 0609 FWL |
| 43-047-53356 | NBU 921-20G4BS | Sec 20 | T09S R21E | 1710 FNL 2626 FWL |
| 43-047-53358 | NBU 921-20J4CS | Sec 20 | T09S R21E | 1239 FSL 2019 FWL |
| 43-047-53359 | NBU 921-20K4CS | Sec 20 | T09S R21E | 1265 FSL 2003 FWL |
| 43-047-53360 | NBU 921-20N4BS | Sec 20 | T09S R21E | 1248 FSL 2014 FWL |
| 43-047-53361 | NBU 921-20O4BS | Sec 20 | T09S R21E | 1231 FSL 2024 FWL |
| 43-047-53362 | NBU 921-20H4CS | Sec 20 | T09S R21E | 0842 FSL 0606 FEL |
| 43-047-53363 | NBU 921-20I1BS | Sec 20 | T09S R21E | 0850 FSL 0599 FEL |
| 43-047-53364 | NBU 921-20I1CS | Sec 20 | T09S R21E | 0857 FSL 0593 FEL |
| 43-047-53365 | NBU 921-20G4CS | Sec 20 | T09S R21E | 1726 FSL 2431 FEL |
| 43-047-53366 | NBU 921-20O4CS | Sec 20 | T09S R21E | 0819 FSL 0625 FEL |
| 43-047-53367 | NBU 921-20P4CS | Sec 20 | T09S R21E | 0827 FSL 0618 FEL |
| 43-047-53368 | NBU 921-20P4BS | Sec 20 | T09S R21E | 0834 FSL 0612 FEL |

RECEIVED: December 06, 2012

# WORKSHEET
# APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 11/27/2012 **API NO. ASSIGNED:** 43047533400000
**WELL NAME:** NBU 921-20A1CS
**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995) **PHONE NUMBER:** 720 929-6156
**CONTACT:** Danielle Piernot

**PROPOSED LOCATION:** NWNE 20 090S 210E **Permit Tech Review:** ✔

**SURFACE:** 0764 FNL 2253 FEL **Engineering Review:** ✔

**BOTTOM:** 0413 FNL 0491 FEL **Geology Review:** ✔

**COUNTY:** UINTAH
**LATITUDE:** 40.02662 **LONGITUDE:** -109.57421
**UTM SURF EASTINGS:** 621660.00 **NORTHINGS:** 4431686.00
**FIELD NAME:** NATURAL BUTTES
**LEASE TYPE:** 1 - Federal
**LEASE NUMBER:** UTU0575 **PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE
**SURFACE OWNER:** 2 - Indian **COALBED METHANE:** NO

**RECEIVED AND/OR REVIEWED:**

- ✔ **PLAT**
- ✔ **Bond:** FEDERAL - WYB000291
- ☐ **Potash**
- ✔ **Oil Shale 190-5**
- ☐ **Oil Shale 190-3**
- ☐ **Oil Shale 190-13**
- ✔ **Water Permit:** 43-8496
- ☐ **RDCC Review:**
- ☐ **Fee Surface Agreement**
- ✔ **Intent to Commingle**

**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:** Suspends General Siting

- ✔ **R649-3-11. Directional Drill**

**Comments:** Presite Completed

**Stipulations:**
3 - Commingling - ddoucet
4 - Federal Approval - dmason
15 - Directional - dmason
17 - Oil Shale 190-5(b) - dmason

RECEIVED: December 10, 2012

GARY R. HERBERT
*Governor*

GREGORY S. BELL
*Lieutenant Governor*

# State of Utah

**DEPARTMENT OF NATURAL RESOURCES**

MICHAEL R. STYLER
*Executive Director*

**Division of Oil, Gas and Mining**

JOHN R. BAZA
*Division Director*

# Permit To Drill

**********

**Well Name:** NBU 921-20A1CS
**API Well Number:** 43047533400000
**Lease Number:** UTU0575
**Surface Owner:** INDIAN
**Approval Date:** 12/10/2012

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

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

**Duration:**
This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date

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

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

**Conditions of Approval:**
State approval of this well does not supercede the required federal approval, which must be obtained prior to drilling.

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.

**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 at 801-538-5284
  (please leave a voicemail message if not available)
  OR
  submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website
  at http://oilgas.ogm.utah.gov

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

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

**Approved By:**

For John Rogers
Associate Director, Oil & Gas

Form 3160-3
(August 2007)

RECEIVED
AUG 23 2012
BLM VERNAL, UTAH

FORM APPROVED
OMB No. 1004-0136
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

# APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
UTU0575

6. If Indian, Allottee or Tribe Name

1a. Type of Work: ☒ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
UTU63047A

8. Lease Name and Well No.
NBU 921-20A1CS

1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator
KERR MCGEE OIL&GAS ONSHORE LP
Contact: DANIELLE PIERNOT
EMail: Danielle.Piernot@anadarko.com

9. API Well No.
43-047-53340

3a. Address
PO BOX 173779
DENVER, CO 80202-3779

3b. Phone No. (include area code)
Ph: 720-929-6156
Fx: 720-929-7156

10. Field and Pool, or Exploratory
NATURAL BUTTES

4. Location of Well (*Report location clearly and in accordance with any State requirements.**)

At surface NWNE 764FNL 2253FEL 40.026738 N Lat, 109.574213 W Lon

At proposed prod. zone NENE 413FNL 491FEL 40.027698 N Lat, 109.567924 W Lon

11. Sec., T., R., M., or Blk. and Survey or Area
Sec 20 T9S R21E Mer SLB

14. Distance in miles and direction from nearest town or post office*
APPROXIMATELY 48 MILES SOUTH OF VERNAL, UT

12. County or Parish
UINTAH COUNTY

13. State
UT

15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any)
491'

16. No. of Acres in Lease
1600.00

17. Spacing Unit dedicated to this well

18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft.
545'

19. Proposed Depth
11727 MD
11392 TVD

20. BLM/BIA Bond No. on file
WYB000291

21. Elevations (Show whether DF, KB, RT, GL, etc.
4873 GL

22. Approximate date work will start
02/01/2013

23. Estimated duration
60-90 DAYS

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature
(Electronic Submission)

Name (Printed/Typed)
DANIELLE PIERNOT Ph: 720-929-6156

Date
07/13/2012

Title
REGULATORY ANALYST II

Approved by (Signature)

Name (Printed/Typed)
Jerry Kenczka

Date
JUN 05 2013

Title
Assistant Field Manager
Lands & Mineral Resources

Office
VERNAL FIELD OFFICE

Application approval does not warrant or certify the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

CONDITIONS OF APPROVAL ATTACHED

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

RECEIVED
JUN 11 2013
DIV. OF OIL, GAS & MINING

**Additional Operator Remarks (see next page)**

**Electronic Submission #142857 verified by the BLM Well Information System**
**For KERR MCGEE OIL&GAS ONSHORE, LP, sent to the Vernal**

NOTICE OF APPROVAL

UDOGM

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

12PP H2704AE

NOS-4/25/12

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VERNAL FIELD OFFICE
170 South 500 East VERNAL, UT 84078 (435) 781-4400

## CONDITIONS OF APPROVAL FOR APPLICATION FOR PERMIT TO DRILL

| | | | |
|---|---|---|---|
| **Company:** | **Kerr McGee Oil & Gas Onshore, LP** | **Location:** | **NWNE, Sec. 20, T9S, R21E** |
| **Well No:** | **NBU 921-20A1CS** | **Lease No:** | **UTU-0575** |
| **API No:** | **43-047-53340** | **Agreement:** | **Natural Butte** |

# OFFICE NUMBER: (435) 781-4400

# OFFICE FAX NUMBER: (435) 781-3420

## A COPY OF THESE CONDITIONS SHALL BE FURNISHED TO YOUR FIELD REPRESENTATIVE TO INSURE COMPLIANCE

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (43 CFR Part 3160), and this approved Application for Permit to Drill including Surface and Downhole Conditions of Approval. The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling, and completion operations. **This permit is approved for a two (2) year period, or until lease expiration, whichever occurs first. An additional extension, up to two (2) years, may be applied for by sundry notice prior to expiration.**

## NOTIFICATION REQUIREMENTS

| | | |
|---|---|---|
| Location Construction<br>(Notify Environmental Scientist) | - | Forty-Eight (48) hours prior to construction of location and access roads. |
| Location Completion<br>(Notify Environmental Scientist) | - | Prior to moving on the drilling rig. |
| Spud Notice<br>(Notify Petroleum Engineer) | - | Twenty-Four (24) hours prior to spudding the well. |
| Casing String & Cementing<br>(Notify Supv. Petroleum Tech.) | - | Twenty-Four (24) hours prior to running casing and cementing all casing strings to: blm_ut_vn_opreport@blm.gov |
| BOP & Related Equipment Tests<br>(Notify Supv. Petroleum Tech.) | - | Twenty-Four (24) hours prior to initiating pressure tests. |
| First Production Notice<br>(Notify Petroleum Engineer) | - | Within Five (5) business days after new well begins or production resumes after well has been off production for more than ninety (90) days. |

## *SURFACE USE PROGRAM CONDITIONS OF APPROVAL (COAs)*

- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 gms of $NO_x$ per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.

- All and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gms of $NO_x$ per horsepower-hour.

- If there is an active Gilsonite mining operation within 2 miles of the well location, operator shall notify the Gilsonite operator at least 48 hours prior to any blasting during construction.

- If paleontological materials are uncovered during construction, the operator is to immediately stop work and contact the Authorized Officer (AO). A determination will be made by the AO as to what mitigation may be necessary for the discovered paleontologic material before construction can continue.

- Paint facilities "Shadow Gray."

- Conduct a raptor survey prior to construction operations if such activities would take place during raptor nesting season (January 1 through September 30). If active raptor nests are identified during the survey, operations should be conducted according to the seasonal restrictions detailed in the Uinta Basin-specific RMP guidelines and spatial offsets specified by the USFWS Utah Raptor Guidelines.

- If construction operations are not initiated prior to April 16, 2013, an additional biological survey for Uinta Basin hookless cactus should be conducted prior to construction according to current USFWS protocol.

- Monitor construction with a permitted archaeologist.

## *DOWNHOLE PROGRAM*
## *CONDITIONS OF APPROVAL (COAs)*

**SITE SPECIFIC DOWNHOLE COAs:**

- Surface casing cement shall be brought to surface.
- Production casing cement shall be brought 200' up and into the surface casing.

**All provisions outlined in Onshore Oil & Gas Order #2 Drilling Operations shall be strictly adhered to.** The following items are emphasized:

**DRILLING/COMPLETION/PRODUCING OPERATING STANDARDS**

- The spud date and time shall be reported orally to Vernal Field Office within 24 hours of spudding.
- Notify Vernal Field Office Supervisory Petroleum Engineering Technician at least 24 hours in advance of casing cementing operations and BOPE & casing pressure tests.
- All requirements listed in Onshore Order #2 III. E. Special Drilling Operations are applicable for air drilling of surface hole.
- Blowout prevention equipment (BOPE) shall remain in use until the well is completed or abandoned. Closing unit controls shall remain unobstructed and readily accessible at all times. Choke manifolds shall be located outside of the rig substructure.
- All BOPE components shall be inspected daily and those inspections shall be recorded in the daily drilling report. Components shall be operated and tested as required by Onshore Oil & Gas Order No. 2 to insure good mechanical working order. All BOPE pressure tests shall be performed by a test pump with a chart recorder and **NOT** by the rig pumps. Test shall be reported in the driller's log.
- BOP drills shall be initially conducted by each drilling crew within 24 hours of drilling out from under the surface casing and weekly thereafter as specified in Onshore Oil & Gas Order No. 2.
- Casing pressure tests are required before drilling out from under all casing strings set and cemented in place.
- No aggressive/fresh hard-banded drill pipe shall be used within casing.
- **Cement baskets shall not be run on surface casing.**
- The operator must report all shows of water or water-bearing sands to the BLM. If flowing water is encountered it must be sampled, analyzed, and a copy of the analyses submitted to the BLM Vernal Field Office.
- The operator must report encounters of all non oil & gas mineral resources (such as Gilsonite, tar sands, oil shale, trona, etc.) to the Vernal Field Office, in writing, within 5 working days of each encounter. Each report shall include the well name/number, well location, date and depth (from KB

or GL) of encounter, vertical footage of the encounter and, the name of the person making the report (along with a telephone number) should the BLM need to obtain additional information.

- A complete set of angular deviation and directional surveys of a directional well will be submitted to the Vernal BLM office engineer within 30 days of the completion of the well.

- While actively drilling, chronologic drilling progress reports shall be filed directly with the BLM, Vernal Field Office on a weekly basis in sundry, letter format or e-mail to the Petroleum Engineers until the well is completed.

- A cement bond log (CBL) will be run from the production casing shoe to the top of cement and shall be utilized to determine the bond quality for the production casing. Submit a field copy of the CBL to this office.

- **Please submit an electronic copy of all other logs run on this well in CD (compact disc) format to the Vernal BLM Field Office. This submission will supersede the requirement for submittal of paper logs to the BLM.**

- There shall be no deviation from the proposed drilling, completion, and/or workover program as approved. Safe drilling and operating practices must be observed. Any changes in operation must have prior approval from the BLM Vernal Field Office.

**OPERATING REQUIREMENT REMINDERS:**

- All wells, whether drilling, producing, suspended, or abandoned, shall be identified in accordance with 43 CFR 3162.6. There shall be a sign or marker with the name of the operator, lease serial number, well number, and surveyed description of the well.

- For information regarding production reporting, contact the Office of Natural Resources Revenue (ONRR) at www.ONRR.gov.

- Should the well be successfully completed for production, the BLM Vernal Field office must be notified when it is placed in a producing status. Such notification will be by written communication and must be received in this office by not later than the fifth business day following the date on which the well is placed on production. The notification shall provide, as a minimum, the following informational items:

    - Operator name, address, and telephone number.

    - Well name and number.

    - Well location (¼¼, Sec., Twn, Rng, and P.M.).

    - Date well was placed in a producing status (date of first production for which royalty will be paid).

    - The nature of the well's production, (i.e., crude oil, or crude oil and casing head gas, or natural gas and entrained liquid hydrocarbons).

    - The Federal or Indian lease prefix and number on which the well is located; otherwise the non-Federal or non-Indian land category, i.e., State or private.

    - Unit agreement and/or participating area name and number, if applicable.

    - Communitization agreement number, if applicable.

- Any venting or flaring of gas shall be done in accordance with Notice to Lessees (NTL) 4A and needs prior approval from the BLM Vernal Field Office.

- All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in NTL 3A will be reported to the BLM, Vernal Field Office. Major events, as defined in NTL3A, shall be reported verbally within 24 hours, followed by a written report within 15 days. "Other than Major Events" will be reported in writing within 15 days. "Minor Events" will be reported on the Monthly Report of Operations and Production.

- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (BLM Form 3160-4) shall be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs run, core descriptions, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, shall be filed on BLM Form 3160-4. Submit with the well completion report a geologic report including, at a minimum, formation tops, and a summary and conclusions. Also include deviation surveys, sample descriptions, strip logs,

core data, drill stem test data, and results of production tests if performed. Samples (cuttings, fluid, and/or gas) shall be submitted only when requested by the BLM, Vernal Field Office.

- All off-lease storage, off-lease measurement, or commingling on-lease or off-lease, shall have prior written approval from the BLM Vernal Field Office.

- Oil and gas meters shall be calibrated in place prior to any deliveries. The BLM Vernal Field Office Petroleum Engineers will be provided with a date and time for the initial meter calibration and all future meter proving schedules. A copy of the meter calibration reports shall be submitted to the BLM Vernal Field Office. All measurement facilities will conform to the API standards for liquid hydrocarbons and the AGA standards for natural gas measurement. All measurement points shall be identified as the point of sale or allocation for royalty purposes.

- A schematic facilities diagram as required by Onshore Oil & Gas Order No. 3 shall be submitted to the BLM Vernal Field Office within 30 days of installation or first production, whichever occurs first. All site security regulations as specified in Onshore Oil & Gas Order No. 3 shall be adhered to. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed in accordance with Onshore Oil & Gas Order No. 3.

- Any additional construction, reconstruction, or alterations of facilities, including roads, gathering lines, batteries, etc., which will result in the disturbance of new ground, shall require the filing of a suitable plan and need prior approval of the BLM Vernal Field Office. Emergency approval may be obtained orally, but such approval does not waive the written report requirement.

- No location shall be constructed or moved, no well shall be plugged, and no drilling or workover equipment shall be removed from a well to be placed in a suspended status without prior approval of the BLM Vernal Field Office. If operations are to be suspended for more than 30 days, prior approval of the BLM Vernal Field Office shall be obtained and notification given before resumption of operations.

- Pursuant to Onshore Oil & Gas Order No. 7, this is authorization for pit disposal of water produced from this well for a period of 90 days from the date of initial production. A permanent disposal method must be approved by this office and in operation prior to the end of this 90-day period. In order to meet this deadline, an application for the proposed permanent disposal method shall be submitted along with any necessary water analyses, as soon as possible, but no later than 45 days after the date of first production. Any method of disposal which has not been approved prior to the end of the authorized 90-day period will be considered as an Incident of Noncompliance and will be grounds for issuing a shut-in order until an acceptable manner for disposing of said water is provided and approved by this office.

- Unless the plugging is to take place immediately upon receipt of oral approval, the Field Office Petroleum Engineers must be notified at least 24 hours in advance of the plugging of the well, in order that a representative may witness plugging operations. If a well is suspended or abandoned, all pits must be fenced immediately until they are backfilled. The "Subsequent Report of Abandonment" (Form BLM 3160-5) must be submitted within 30 days after the actual plugging of the well bore, showing location of plugs, amount of cement in each, and amount of casing left in hole, and the current status of the surface restoration.

FORM 9

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

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU0575

## 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:** Ute Tr

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-20A1CS

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

**9. API NUMBER:** 43047533400000

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

**PHONE NUMBER:** 720 929-6582

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0764 FNL 2253 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: NWNE Section: 20 Township: 09.0S Range: 21.0E 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<br>Approximate date work will start: 12/10/2013 | ☐ 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<br>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<br>Date of Spud: | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| ☐ DRILLING REPORT<br>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:** October 17, 2013

**By:**

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Kay E. Kelly | 720 929 6582 | Regulatory Analyst |

| SIGNATURE | DATE |
|---|---|
| N/A | 10/16/2013 |

RECEIVED: Oct. 16, 2013

## 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 43047533400000

**API:** 43047533400000
**Well Name:** NBU 921-20A1CS
**Location:** 0764 FNL 2253 FEL QTR NWNE SEC 20 TWNP 090S RNG 210E MER S
**Company Permit Issued to:** KERR-MCGEE OIL & GAS ONSHORE, L.P.
**Date Original Permit Issued:** 12/10/2012

**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**

**Signature:** Kay E. Kelly **Date:** 10/16/2013
**Title:** Regulatory Analyst **Representing:** KERR-MCGEE OIL & GAS ONSHORE, L.P.

RECEIVED: Oct. 16, 2013

FORM 9

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

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU0575

## 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:** Ute Tr

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-20A1CS

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

**9. API NUMBER:** 43047533400000

**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:** 0764 FNL 2253 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: NWNE Section: 20 Township: 09.0S Range: 21.0E 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<br>Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ SUBSEQUENT REPORT<br>Date of Work Completion: | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ✓ SPUD REPORT<br>Date of Spud:<br>11/8/2013 | ☐ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| ☐ DRILLING REPORT<br>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.**

Spud well 11/08/2013 @ 08:30. Drill 24" conductor hole to 40', run 14" X .250 wall conductor pipe, cement with 81 sacks ready mix. Anticipated surface spud date and surface casing cement 11/24/2013.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
November 12, 2013

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Doreen Green | 435 781-9758 | Regulatory Analyst II |

| SIGNATURE | DATE |
|---|---|
| N/A | 11/11/2013 |

RECEIVED: Nov. 11, 2013

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

FORM 9

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU0575

## SUNDRY NOTICES AND REPORTS ON WELLS

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**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:** UTE

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-20A1CS

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

**9. API NUMBER:** 43047533400000

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

**PHONE NUMBER:** 720 929-6100

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0764 FNL 2253 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: NWNE Section: 20 Township: 09.0S Range: 21.0E Meridian: S

**COUNTY:** UINTAH

**STATE:** UTAH

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| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☐ NOTICE OF INTENT<br>Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
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| | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
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| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| ✓ DRILLING REPORT<br>Report Date:<br>4/2/2014 | ☐ 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.**

Started completing the well. Well TD at 10,647 ft.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
April 02, 2014

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Kay E. Kelly | 720 929 6582 | Regulatory Analyst |

| SIGNATURE | DATE |
|---|---|
| N/A | 4/2/2014 |

RECEIVED: Apr. 02, 2014

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

FORM 9

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU0575

## 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:** UTE

**7.UNIT or CA AGREEMENT NAME:** NATURAL BUTTES

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-20A1CS

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

**9. API NUMBER:** 43047533400000

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

**PHONE NUMBER:** 720 929-6100

**9. FIELD and POOL or WILDCAT:** NATURAL BUTTES

**4. LOCATION OF WELL**
**FOOTAGES AT SURFACE:** 0764 FNL 2253 FEL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: NWNE Section: 20 Township: 09.0S Range: 21.0E 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<br>Approximate date work will start: | ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| | ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ✓ SUBSEQUENT REPORT<br>Date of Work Completion:<br>5/20/2014 | ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| | ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| | ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ☐ SPUD REPORT<br>Date of Spud: | ✓ PRODUCTION START OR RESUME | ☐ RECLAMATION OF WELL SITE | ☐ RECOMPLETE DIFFERENT FORMATION |
| | ☐ REPERFORATE CURRENT FORMATION | ☐ SIDETRACK TO REPAIR WELL | ☐ TEMPORARY ABANDON |
| | ☐ TUBING REPAIR | ☐ VENT OR FLARE | ☐ WATER DISPOSAL |
| ☐ DRILLING REPORT<br>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.**

The NBU 921-20A1CS was placed on production 05/20/2014 after a new well completion. Producing from the MESAVERDE.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
May 22, 2014

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Doreen Green | 435 781-9758 | Regulatory Analyst II |
| **SIGNATURE** N/A | | **DATE** 5/21/2014 |

RECEIVED: May. 21, 2014

Form 3160-4
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

# WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No. UTU0575

1a. Type of Well ☐ Oil Well ☒ Gas Well ☐ Dry ☐ Other
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other _____

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No. UTU63047A

2. Name of Operator KERR-MCGEE OIL AND GAS ONSHORE LP
Contact: KAY KELLY
E-Mail: kay.kelly@anadarko.com

8. Lease Name and Well No. NBU 921 20A1CS

3. Address P.O. BOX 173779 DENVER, CO 82017

3a. Phone No. (include area code) Ph: 720-929-6000

9. API Well No. 43-047-53340

4. Location of Well (Report location clearly and in accordance with Federal requirements)*
At surface NWNE 764FNL 2253FEL 40.026738 N Lat, 109.574213 W Lon
At top prod interval reported below NENE 399FNL 496FEL
At total depth NENE 418FNL 418FEL

10. Field and Pool, or Exploratory NATURAL BUTTES

11. Sec., T., R., M., or Block and Survey or Area Sec 20 T9S R21E Mer SLB

12. County or Parish UINTAH

13. State UT

14. Date Spudded 11/08/2013

15. Date T.D. Reached 02/09/2014

16. Date Completed ☐ D & A ☒ Ready to Prod. 05/20/2014

17. Elevations (DF, KB, RT, GL)* 4897 KB

18. Total Depth: MD 10647 TVD 10302

19. Plug Back T.D.: MD 10575 TVD 10230

20. Depth Bridge Plug Set: MD TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
RADIAL CEMENT BOND GAMMA RAY CCL TEMP LOG

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23. Casing and Liner Record *(Report all strings set in well)*

| Hole Size | Size/Grade | Wt. (#/ft.) | Top (MD) | Bottom (MD) | Stage Cementer Depth | No. of Sks. & Type of Cement | Slurry Vol. (BBL) | Cement Top* | Amount Pulled |
|---|---|---|---|---|---|---|---|---|---|
| 24.000 | 14.000 STL | 36.7 | 0 | 40 | | 81 | | | |
| 11.000 | 8.625 J55 | 28.0 | 24 | 3164 | | 650 | | 0 | |
| 7.875 | 4.500 I80 | 11.6 | 24 | 5185 | | 2193 | | 0 | |
| 7.875 | 4.500 P110 | 11.6 | 5185 | 10621 | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

24. Tubing Record

| Size | Depth Set (MD) | Packer Depth (MD) | Size | Depth Set (MD) | Packer Depth (MD) | Size | Depth Set (MD) | Packer Depth (MD) |
|---|---|---|---|---|---|---|---|---|
| 2.375 | 10084 | | | | | | | |

25. Producing Intervals

| Formation | Top | Bottom |
|---|---|---|
| A) MESAVERDE | 8454 | 10586 |
| B) | | |
| C) | | |
| D) | | |

26. Perforation Record

| Perforated Interval | Size | No. Holes | Perf. Status |
|---|---|---|---|
| 8454 TO 10586 | 0.400 | 216 | OPEN |
| | | | |
| | | | |
| | | | |

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

| Depth Interval | Amount and Type of Material |
|---|---|
| 8454 TO 10586 | PUMP 12,341 BBLS SLICKWATER, 54 BBLS 15% HCL ACID, AND 251,240 BBLS 30/50 MESH SAND |
| | |
| | |
| | |

28. Production - Interval A

| Date First Produced | Test Date | Hours Tested | Test Production | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method |
|---|---|---|---|---|---|---|---|---|---|
| 05/20/2014 | 05/30/2014 | 24 | → | 51.0 | 2198.0 | 146.0 | | | FLOWS FROM WELL |

| Choke Size | Tbg. Press. Flwg. SI | Csg. Press. | 24 Hr. Rate | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio | Well Status |
|---|---|---|---|---|---|---|---|---|
| 20/64 | 1073 | 1752.0 | → | 51 | 2198 | 146 | | PGW |

28a. Production - Interval B

| Date First Produced | Test Date | Hours Tested | Test Production | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method |
|---|---|---|---|---|---|---|---|---|---|
| | | | → | | | | | | |

| Choke Size | Tbg. Press. Flwg. SI | Csg. Press. | 24 Hr. Rate | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio | Well Status |
|---|---|---|---|---|---|---|---|---|
| | | | → | | | | | |

*(See Instructions and spaces for additional data on reverse side)*

**ELECTRONIC SUBMISSION #249812 VERIFIED BY THE BLM WELL INFORMATION SYSTEM**

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

RECEIVED: Jun. 16, 2014

28b. Production - Interval C

| Date First Produced | Test Date | Hours Tested | Test Production | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method |
|---|---|---|---|---|---|---|---|---|---|
| Choke Size | Tbg. Press. Flwg. SI | Csg. Press. | 24 Hr. Rate | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio | Well Status | |

28c. Production - Interval D

| Date First Produced | Test Date | Hours Tested | Test Production | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method |
|---|---|---|---|---|---|---|---|---|---|
| Choke Size | Tbg. Press. Flwg. SI | Csg. Press. | 24 Hr. Rate | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio | Well Status | |

29. Disposition of Gas*(Sold, used for fuel, vented, etc.)*
SOLD

30. Summary of Porous Zones (Include Aquifers):

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

31. Formation (Log) Markers

| Formation | Top | Bottom | Descriptions, Contents, etc. | Name | Top Meas. Depth |
|---|---|---|---|---|---|
| | | | | GREEN RIVER | 1826 |
| | | | | BIRD'S NEST | 2142 |
| | | | | MAHOGANY | 2642 |
| | | | | WASATCH | 5454 |
| | | | | MESAVERDE | 8450 |

32. Additional remarks (include plugging procedure):
The first 210 ft. of the surface hole was drilled with a 12 1/4 in. bit. The remainder of the surface hole was drilled with an 11 in. bit. DQX csg was run from surface to 5206 ft.; LTC csg was run from 5206 ft. to 10621 ft. A cement stage tool was run from 5606 ft. to 5609 ft. Attached is the chronological well history, perforation report and final survey.

33. Circle enclosed attachments:

1. Electrical/Mechanical Logs (1 full set req'd.)
2. Geologic Report
3. DST Report
4. Directional Survey
5. Sundry Notice for plugging and cement verification
6. Core Analysis
7 Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

**Electronic Submission #249812 Verified by the BLM Well Information System.**
**For KERR-MCGEE OIL AND GAS ONSHORE, sent to the Vernal**

Name *(please print)* KAY KELLY Title SR STAFF REGULATORY SPECIALIST

Signature (Electronic Submission) Date 06/16/2014

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fradulent statements or representations as to any matter within its jurisdiction.

**** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ****

RECEIVED: Jun. 16, 2014

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 11/22/2013 | 20:00 - 20:30 | 0.50 | MIRU | 01 | C | P | 60 | REVIEW DIRECTIONAL PLANS AND PLATS AND VERIFY LAT/LONGS AND WELL ORDER VERIFY DIRECTIONAL DRILLERS PLAN IS THE MOST RECENT AND APPROVED VERSION REFERENCE WELLBORE DIAGRAMS FOR EXACT CASING DESIGN AND GENERAL OVERVIEW OF WELLBORE, PRIOR TO SPUD. |
| | 20:30 - 22:30 | 2.00 | MIRU | 01 | C | P | 60 | PRE SPUD JOB SAFETY MEETING<br>SKID RIG 20' TO NBU 921-20A1CS,<br>RIG UP SET MATTING BOARD,<br>SET RIG IN PLACE, CATWALK, PIPE RACKS,<br>PLACE BOTTOM HOLE ASSEMBLY. |
| | 22:30 - 23:00 | 0.50 | MIRU | 01 | B | P | 60 | PICK UP NOV 1.83 DEGREE BENT MOTOR (RUN # 1) .17 REV/GAL PICK UP 12 1/4 DRILL BIT. |
| | 23:00 - 0:00 | 1.00 | DRLSUR | 02 | B | P | 60 | SPUD @ 11/22/2013 23:00.<br>DRILL 12.25" HOLE 40' TO 140' (100' @ 100 FPH).<br>WEIGHT ON BIT 5-15 K.<br>STROKES PER MINUTE=120, GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF (BOTTOM) 600/400.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROTATE 25/25/25 K. DRAG 0 K.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS. |
| 11/23/2013 | 0:00 - 0:30 | 0.50 | DRLSUR | 02 | B | P | 160 | DRILL 12.25" HOLE 140' TO 210' (70' @ 140 FPH).<br>WEIGHT ON BIT 5-15 K.<br>STROKES PER MINUTE=120, GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF (BOTTOM) 600/400.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROTATE 25/25/25 K. DRAG 0 K.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS. |
| | 0:30 - 1:00 | 0.50 | DRLSUR | 06 | A | P | 230 | CIRC 15 MINUTES AND, TRIP OUT TO CHANGE ASSEMBLY. |
| | 1:00 - 2:00 | 1.00 | DRLSUR | 06 | A | P | 230 | BREAK 12 1/4" BIT.<br>MAKE UP NOV 11" BIT.<br>PICK UP 8" DIRECTIONAL ASSEMBLY SCIBE MOTOR.<br>INSTALL EM TOOL. |
| | 2:00 - 2:30 | 0.50 | DRLSUR | 06 | A | P | 230 | TRIP IN HOLE. |



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US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 2:30 - 6:00 | 3.50 | DRLSUR | 02 | B | P | 230 | DRILL 11" SURFACE HOLE FROM 210' TO 600' (390' @ 111 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 870/600.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 48/47/48 K. DRAG 12 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 3.0' HIGH / 1.9' RIGHT OF THE LINE WITH 35' OF SLIDE @ 7.34%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |
| | 6:00 - 12:00 | 6.00 | DRLSUR | 02 | B | P | 620 | DRILL 11" SURFACE HOLE FROM 600' TO 1,180' (580' @ 96 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,070/870.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 58/48/55 K. DRAG 3 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 2.7' HIGH / 3.2' RIGHT OF THE LINE WITH 181' OF SLIDE @ 29.00%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |
| | 12:00 - 17:30 | 5.50 | DRLSUR | 02 | A | P | 1200 | DRILL 11" SURFACE HOLE FROM 1,180' TO 1,540' (360' @ 65 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,140/910.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 60/48/55 K. DRAG 5 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 1.7' HIGH / 1.0' RIGHT OF THE LINE WITH 155' OF SLIDE @ 35.0%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |
| | 17:30 - 18:00 | 0.50 | DRLSUR | 07 | A | P | 1560 | SERVICE RIG AND CREW CHANGE SAFETY MEETING |



RECEIVED: Jun. 16, 2014

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 18:00 - 20:30 | 2.50 | DRLSUR | 02 | B | P | 1560 | DRILL 11" SURFACE HOLE FROM 1,540' TO 1,660' (120' @ 48 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,200/1,000.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 65/48/58 K. DRAG 7 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 1.7' HIGH / 1.0' RIGHT OF THE LINE WITH 155' OF SLIDE @ 35.0%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |
| | 20:30 - 0:00 | 3.50 | DRLSUR | 19 | A | S | 1680 | ***TWISTED OFF 4 1/2" DRILL PIPE 2 JOINTS DOWN FROM SURFACE. TWISTED OFF WHILE SLIDING. CALLED FISHING HAND (COWEE) FOR 4 1/2" OVERSHOT HOOKED RIGHT ON TO FISH WITHOUT ANY PROBLEMS ACTUAL FISHING JOB WAS ABOUT 30 MIN. |
| 11/24/2013 | 0:00 - 2:00 | 2.00 | DRLSUR | 19 | A | S | 1680 | ***TWISTED OFF 4 1/2" DRILL PIPE 2 JOINTS DOWN FROM SURFACE. TWISTED OFF WHILE SLIDING. CALLED FISHING HAND (COWEE) FOR 4 1/2" OVERSHOT HOOKED RIGHT ON TO FISH WITHOUT ANY PROBLEMS ACTUAL FISHING JOB WAS ABOUT 30 MIN. |
| | 2:00 - 6:00 | 4.00 | DRLSUR | 02 | B | P | 1680 | DRILL 11" SURFACE HOLE FROM 1,660' TO 1,930' (330' @ 82 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,240/1,000.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 71/51/61 K. DRAG 7 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 3.2' LOW / 0.5' LEFT OF THE LINE WITH 70' OF SLIDE @ 31.0%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |



RECEIVED: Jun. 16, 2014

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:00 - 12:00 | 6.00 | DRLSUR | 02 | B | P | 1950 | DRILL 11" SURFACE HOLE FROM 1,930' TO 2,260' (330' @ 55 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,310/1,080.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 85/52/68 K. DRAG 17 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 6.5' HIGH / 3.4' LEFT OF THE LINE WITH 85' OF SLIDE @ 26.0%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |
| | 12:00 - 17:30 | 5.50 | DRLSUR | 02 | B | P | 2280 | DRILL 11" SURFACE HOLE FROM 2,260' TO 2,530' (270' @ 49 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,390/1,140.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 86/58/70 K. DRAG 16 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 9.0' HIGH / 1.0' LEFT OF THE LINE WITH 55' OF SLIDE @ 18.0%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |
| | 17:30 - 18:00 | 0.50 | DRLSUR | 07 | A | P | 2550 | RIG SERVICE AND CREW CHANGE. |
| | 18:00 - 0:00 | 6.00 | DRLSUR | 02 | B | P | 2550 | DRILL 11" SURFACE HOLE FROM 2,530' TO 2,830' (300' @ 50 FPH).<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,425/1,280.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 92/62/72 K. DRAG 20 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 3.8' HIGH / 0.5' RIGHT OF THE LINE WITH 110' OF SLIDE @ 39.29%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |



RECEIVED: Jun. 16, 2014

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 11/25/2013 | 0:00 - 7:30 | 7.50 | DRLSUR | 02 | B | P | 2850 | DRILL 11" SURFACE HOLE FROM 2,830' TO 3,170' (340' @ 45 FPH).<br>TD WELL AT 3,170'.<br>WEIGHT ON BIT 18-21 K.<br>STROKES PER MINUTE=120.<br>GALLONS PER MINUTE=491.<br>PRESSURE ON/OFF(BOTTOM) 1,565/1,365.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 100/65/80 K. DRAG 20 K.<br>FROM DIRECTIONAL PLAN WE ARE CURRENTLY 3.7' HIGH / 3.3' RIGHT OF THE LINE WITH 200' OF SLIDE @ 58.0%.<br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.5# WATER.<br>RUNNING VOLUME THROUGH 2 CENTRIFUGE DE WATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br>NO HOLE ISSUES. |
| | 7:30 - 9:30 | 2.00 | DRLSUR | 05 | C | P | 3190 | CIRCULATE AND CONDITION HOLE,<br>VOLUME IS CLEAN COMING OVER SHAKERS,<br>3-400 BBL UPRIGHT'S FULL AND 1-400 BBL UPRIGHTS EMPTY,<br>1,000 BBLS OF FRESH WATER ON LOCATION FOR CEMENT JOB. |
| | 9:30 - 16:30 | 7.00 | CSGSUR | 06 | A | P | 3190 | PRE JOB SAFETY MEETING,<br>TRIP OUT OF HOLE,<br>LAY DOWN DRILL STRING, BOTTOM HOLE ASSEMBLY,<br>LAY DOWN DIRECTIONAL TOOLS, MOTOR AND, BIT.<br>CLEAR TOOL AREA. SPOT SURFACE CASING FOR 8 5/8" CASING RUN. |
| | 16:30 - 21:00 | 4.50 | CSGSUR | 12 | C | P | 3190 | RUN 71 JOINTS OF 8-5/8". 28# J-55 LTC CASING.<br>RAN 1 CENTRALIZER ON FIRST THREE JOINTS, AND EVERY OTHER JOINT FOR 2 JOINTS FOR A TOTAL OF 5 CENTRALIZERS.<br>RUN A TOTAL OF 71 JOINTS.<br>RUN CASING TO BOTTOM WITH NO PROBLEMS.<br>SET FLOAT SHOE @ 3,139' KB.<br>SET TOP OF BAFFLE PLATE @ 3,093' |



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# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 21:00 - 0:00 | 3.00 | CSGSUR | 12 | E | P | 3190 | PRE JOB SAFETY MEETING WITH PRO PETRO CEMENTERS.<br>RIG UP CEMENTERS PLACE SPILL PROTECTION, RAN 200' OF 1". PIPE DOWN BACK-SIDE OF CASING.<br>PRESSURE TEST LINES TO 2,000 PSI.<br>PUMP 120 BBLS OF WATER AHEAD CLEARING SHOE.<br>MIX AND PUMP 20 BBLS OF GEL WATER FLUSH AHEAD OF CEMENT.<br>MIX AND PUMP 300 SX OF PREMIUM LEAD CEMENT WITH 16% GEL, 10 LB/SX GILSONITE, 2 LB/SX GR-3, 3% SALT, & 0.25 LB/SX FLOCELE. 152.8 BBLS OF SLURRY MIXED @ 12.0 PPG WITH YIELD OF 2.86 CF/SX.<br>MIX & PUMP 200 SX OF PREMIUM TAIL CEMENT WITH 2% CACL2 & 0.25 LB/SX FLOCELE. 35.8 BBL OF SLURRY MIXED @ 15.8 PPG WITH YIELD OF 1.15 CF/SX.<br>DROP PLUG ON FLY.<br>DISPLACE WITH 192 BBLS OF FRESH WATER.<br>FULL RETURNS THROUGH OUT JOB. FINAL LIFT OF 900 PSI AT 3.5 BBL/MINUTE.<br>BUMPED PLUG @ 1,200 PSI. HELD @ 1,200 PSI FOR 5 MINUTES WITHOUT BLEED OFF.<br>TESTED FLOAT AND FLOAT HELD.<br><br>RELEASE RIG @ 11/25/2013 23:59<br><br>SHUT DOWN AND WASH UP<br>TOP JOB # 1: PUMP CEMENT DOWN ONE INCH PIPE WITH 150 SX PREMIUM CEMENT WITH 4% CACL2 & .25 LB/SX FLOCELE. 30.7 BBLS OF SLURRY MIXED AT 15.8 PPG WITH YIELD OF 1.15 CF/SX. CEMENT RETURNS TO SURFACE 3 BBLS.<br>RIG DOWN CEMENTERS.<br>(CEMENT JOB FINISHED @ 11/25/2013 23:59) |
| 2/1/2014 | 10:30 - 12:00 | 1.50 | MIRU3 | 01 | E | P | 3190 | RIG DOWN TO SKID RIG |
| | 12:00 - 14:00 | 2.00 | MIRU3 | 01 | C | P | 3190 | SKID RIG TO NBU 921-20A1CS , HAD TO SID TOP SUB OVER WELL TOOL PUSHER & CO MAN VERIFY WELL CENTER |
| | 14:00 - 16:30 | 2.50 | PRPSPD | 14 | A | P | 3190 | NIPPLE UP BOPS, CHOKE LINES/FLOW LINE/MUD LINESINSTALL TRUN BUCKLES/ MOVE PIPE WRANGLER INTO POSITION, SET BEAVER SLIDE |
| | 16:30 - 23:00 | 6.50 | PRPSPD | 15 | A | P | 3190 | HELD SAFETY MEETING WITH A-1 TESTING , TESTED 8 5/8 CASING TO 1500 PSI FOR 30 MINS, TEST BOPS 250 LOW FOR 5 MINS. & 5,000 PSI HIGH FOR 10 MINS SUPPER CHOKE ,IBOP, FLOOR VAVLES, BLIND, PIPE RAMS, HY-DRILL 250 LOW |
| | 23:00 - 0:00 | 1.00 | PRPSPD | 15 | A | P | 3190 | TEST SWACO CHOKE & LINES , RIG DOWN TESTER |
| 2/2/2014 | 0:00 - 0:30 | 0.50 | PRPSPD | 15 | A | P | 3190 | INSTALL WEAR BUSHING |
| | 0:30 - 1:30 | 1.00 | PRPSPD | 09 | A | P | 3190 | SLIP & CUT DRILLING LINE |



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|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 1:30 - 3:30 | 2.00 | PRPSPD | 06 | A | P | 3190 | PICK UP MWD TOOLS, MUD MOTOR BIT, SCRIBE IN HOLE MAGNETIC SHOWED HIGH , SO LAID BACK DOWN CHECKED ON GROUND FINE , PICKED BACK UP RUN IN HOLE |
| | 3:30 - 5:30 | 2.00 | PRPSPD | 06 | A | P | 3190 | TRIP IN HOLE WITH MWD TOOLS TAGED TOP CMT @ 3050' |
| | 5:30 - 7:00 | 1.50 | DRLPRC | 02 | F | P | 3190 | DRILL SHOE TRACK 3050 TO 3190 |
| | 7:00 - 11:00 | 4.00 | DRLPRC | 02 | D | P | 3190 | DRILL ( ROTATE/SLIDE) F/ 3190' - T/ 3573'<br>RATE OF PENATRATION= 383' @ 95.75' /HR<br>WEIGHT ON BIT = 19 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 1960 / 1600<br>TORQUE~ ON/OFF = 6000 / 5000<br>PICKUP/SLACK OFF/ROTATE= 115K / 104K / 110K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 105' 1 HRS. 55 MINS<br>BIT POSITION= 1.86 ' RIGHT & 5.01' LOW OF THE TARGET LINE<br>LAST SURVEY @ 3520' = 26.12 DEG., 82.39 AZ., 3323.95' TVD<br>0 MUD LOST TO SEEPAGE |
| | 11:00 - 11:30 | 0.50 | DRLPRC | 22 | D | X | 3573 | BACK REAM DOG LEG @ 3481 TO 3573 |
| | 11:30 - 16:30 | 5.00 | DRLPRC | 02 | D | P | 3573 | DRILL ( ROTATE/SLIDE) F/ 3573' - T/ 4140'<br>RATE OF PENATRATION= 567' @ 113.4' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 1900 / 1450<br>TORQUE~ ON/OFF = 10000 / 6000<br>PICKUP/SLACK OFF/ROTATE= 120K / 85K / 101K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 76' 2 HRS. 10 MINS<br>BIT POSITION= 13.62 ' RIGHT &.1 ' LOW OF THE TARGET LINE<br>LAST SURVEY @ 4086 ' = 21.81 DEG., 76.03 AZ., 3834.71' TVD<br>30 MUD LOST TO SEEPAGE |
| | 16:30 - 17:00 | 0.50 | DRLPRC | 07 | A | P | 4140 | RIG SER. |



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|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 17:00 - 21:00 | 4.00 | DRLPRC | 02 | D | P | 4140 | DRILL ( ROTATE/SLIDE) F/ 4140' - T/ 4423'<br>RATE OF PENATRATION= 293' @ 70.75' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 1900 / 1450<br>TORQUE~ ON/OFF = 10000 / 6000<br>PICKUP/SLACK OFF/ROTATE= 120K / 85K / 101K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 87' 2 HRS. 15 MINS<br>BIT POSITION=11.8 ' RIGHT &. 13.36 ' LEFT OF THE TARGET LINE<br>LAST SURVEY @ 4367 ' = 23.15 DEG., 78.46 AZ., 4097.83' TVD<br>MUD LOST TO SEEPAGE |
| | 21:00 - 21:30 | 0.50 | DRLPRC | 22 | D | X | 4423 | REAM OUT DOG LEG @ 4367 TO 4423 |
| | 21:30 - 0:00 | 2.50 | DRLPRC | 02 | D | P | 4423 | DRILL ( ROTATE/SLIDE) F/ 4423' - T/ 4580'<br>RATE OF PENATRATION= 157' @ 62.8' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2000 / 1570<br>TORQUE~ ON/OFF = 11,000 / 6,000<br>PICKUP/SLACK OFF/ROTATE= 148K / 92K / 110 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 117' 3 HRS. 30 MINS<br>BIT POSITION=12.47 ' RIGHT &. 16.34 ' LOW OF THE TARGET LINE<br>LAST SURVEY @4558 ' = 23.32 DEG., 77.05 AZ., 4270.96' TVD<br>MUD LOST TO SEEPAGE |



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|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 2/3/2014 | 0:00 - 5:00 | 5.00 | DRLPRC | 02 | D | P | 4580 | DRILL ( ROTATE/SLIDE) F/ 4580' - T/ 4989'<br>RATE OF PENATRATION= 409' @ 81.8' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2000 / 1570<br>TORQUE~ ON/OFF = 11,000 / 6,000<br>PICKUP/SLACK OFF/ROTATE= 148K / 92K / 110 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 103' 2 HRS. 5 MINS<br>BIT POSITION= 13.14 ' RIGHT &. 23 ' LOW OF THE TARGET LINE<br>LAST SURVEY @ 4935 ' = 18.97 DEG., 76.08AZ., 4618.00' TVD<br>MUD LOST TO SEEPAGE |
| | 5:00 - 6:00 | 1.00 | DRLPRC | 22 | D | X | 4989 | REAM OUT 3.44 DOG LEG BACK TO 3.3 @ 4896 TO 4989 |
| | 6:00 - 10:00 | 4.00 | DRLPRC | 02 | D | P | 4989 | DRILL ( ROTATE/SLIDE) F/ 4989' - T/ 5271'<br>RATE OF PENATRATION= 282 ' @ 70.5 ' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2000 / 1570<br>TORQUE~ ON/OFF = 11,000 / 6,000<br>PICKUP/SLACK OFF/ROTATE= 148K / 92K / 110 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 50' 1 HRS. 45 MINS<br>BIT POSITION= 15.32' RIGHT &. 20.12 ' LOW OF THE TARGET LINE<br>LAST SURVEY @ 5219 ' = 17.02 DEG., 77.21 AZ., ' TVD<br>MUD LOST TO SEEPAGE |
| | 10:00 - 10:30 | 0.50 | DRLPRC | 22 | D | X | 5271 | REAM 2.87DOG LEG BACK TO 2.70 OUT 5178 TO 5271 |



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| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 10:30 - 15:00 | 4.50 | DRLPRC | 02 | D | P | 5271 | DRILL ( ROTATE/SLIDE) F/ 5271' - T/ 5554'<br>RATE OF PENATRATION=283 ' @ 62.88 ' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2000 / 1570<br>TORQUE~ ON/OFF = 11,000 / 6,000<br>PICKUP/SLACK OFF/ROTATE= 175K / 110K / 125 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 33 1 HRS. 45 MINS<br>BIT POSITION= 12.0' RIGHT &. 8.5 ' LOW OF THE TARGET LINE<br>LAST SURVEY @ 5502 ' = 11.17 DEG., 76.53 AZ., 5161.17 ' TVD<br>MUD LOST TO SEEPAGE |
| | 15:00 - 15:30 | 0.50 | DRLPRC | 22 | D | P | 5554 | BACK REAM DOG LEG 2.95 BACK TO 2.55 @ 5502T 5408 |
| | 15:30 - 0:00 | 8.50 | DRLPRC | 02 | D | P | 5554 | DRILL ( ROTATE/SLIDE) F/ 5554' - T/6100 '<br>RATE OF PENATRATION= 546 ' @ 64.23 ' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2050 / 1570<br>TORQUE~ ON/OFF = 11,000 / 5,000<br>PICKUP/SLACK OFF/ROTATE= 180K / 145K / 137 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 0 0 HRS. 0 MINS<br>BIT POSITION= 5.63' WEST &. 9.73 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 6068 ' = .61 DEG., 277.95 AZ., 5723.38 ' TVD<br>180 BBLS MUD LOST TO SEEPAGE |



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| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 2/4/2014 | 0:00 - 4:30 | 4.50 | DRLPRV | 02 | B | P | 6100 | DRILL ( ROTATE/SLIDE) F/ 6100' - T/ 6689 '<br>RATE OF PENATRATION= 589 ' @ 130.88 ' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2050 / 1570<br>TORQUE~ ON/OFF = 11,000 / 5,000<br>PICKUP/SLACK OFF/ROTATE= 180K / 145K / 137 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 66 3 HRS. 15 MINS<br>BIT POSITION= 8.53 ' WEST &. 6.70 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 6539 ' = .0.81 DEG., 211.84 AZ., 6194.35' TVD<br>180 BBLS MUD LOST TO SEEPAGE |
| | 4:30 - 5:00 | 0.50 | DRLPRV | 22 | G | X | 6689 | LOST CIRC @ 6689 PICK UP OFF BOTTOM PUMP 15 % LCM SWEEP AROUND LOST 180 BBLS 8.9 MUD |
| | 5:00 - 6:00 | 1.00 | DRLPRV | 02 | B | P | 6689 | DRILL ( ROTATE/SLIDE) F/ 6689' - T/ 6783 '<br>RATE OF PENATRATION= 94 ' @ 94.0 ' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2050 / 1570<br>TORQUE~ ON/OFF = 11,000 / 5,000<br>PICKUP/SLACK OFF/ROTATE= 180K / 145K / 137 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 0 0 HRS. 0 MINS<br>BIT POSITION= 8.56 ' WEST &. 6.68 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 6539 ' = 0.81 DEG., 211.84 AZ., 6194.35' TVD<br>0 BBLS MUD LOST TO SEEPAGE |



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| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:00 - 12:00 | 6.00 | DRLPRV | 02 | B | P | 6783 | DRILL ( ROTATE/SLIDE) F/ 6783' - T/ 7300 '<br>RATE OF PENATRATION= 517 ' @ 86.16' /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2300 / 2000<br>TORQUE~ ON/OFF = 14,000 / 10,000<br>PICKUP/SLACK OFF/ROTATE= 225K / 125K / 153 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 18 0 HRS. 55 MINS<br>BIT POSITION= 9.43 ' WEST &. 2.88 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 7199 ' = 1.31 DEG., 172.51AZ., 6854.28' TVD<br>0 BBLS MUD LOST TO SEEPAGE |
| | 12:00 - 15:30 | 3.50 | DRLPRV | 02 | B | P | 7300 | DRILL ( ROTATE/SLIDE) F/ 7300' - T/ 7536 '<br>RATE OF PENATRATION= 236 ' @ 67.42 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2300 / 2000<br>TORQUE~ ON/OFF = 14,000 / 10,000<br>PICKUP/SLACK OFF/ROTATE= 225K / 125K / 153 K<br>MUD WEIGHT= 8.7 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 36 1 HRS. 30 MINS<br>BIT POSITION= 8.35 ' WEST &. 2.61 ' SOUTH OF THE TARGET LINE<br>LAST SURVEY @ 7482 ' = 1.14 DEG., 59.73 AZ., 7137.24' TVD<br>0 BBLS MUD LOST TO SEEPAGE |
| | 15:30 - 16:00 | 0.50 | DRLPRV | 07 | A | P | 7536 | RIG SER. |



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| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 16:00 - 0:00 | 8.00 | DRLPRV | 02 | B | P | 7536 | DRILL ( ROTATE/SLIDE) F/ 7536' - T/ 7958 '<br>RATE OF PENATRATION= 422 ' @ 52.75 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2300 / 2000<br>TORQUE~ ON/OFF = 14,000 / 10,000<br>PICKUP/SLACK OFF/ROTATE= 240K / 115K / 165 K<br>MUD WEIGHT= 8.9 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 15 0 HRS. 45 MINS<br>BIT POSITION= 3.25 ' WEST &. 5.67 ' SOUTH OF THE TARGET LINE<br>LAST SURVEY @ 7860 ' = 1.41 DEG., 24.98 AZ., 7515.11' TVD<br>0 BBLS MUD LOST TO SEEPAGE |
| 2/5/2014 | 0:00 - 6:00 | 6.00 | DRLPRV | 02 | B | P | 7958 | DRILL ( ROTATE/SLIDE) F/ 7958' - T/ 8261'<br>RATE OF PENATRATION= 303 ' @ 50.5 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2300 / 2000<br>TORQUE~ ON/OFF = 14,000 / 10,000<br>PICKUP/SLACK OFF/ROTATE= 240K / 115K / 165 K<br>MUD WEIGHT= 8.9 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 0 0 HRS. 0 MINS<br>BIT POSITION= 1.74 ' WEST &. 11.13 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 8143 ' = 1.15 DEG., 336.83 AZ., 7798.5' TVD<br>0 BBLS MUD LOST TO SEEPAGE |



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US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:00 - 12:00 | 6.00 | DRLPRV | 02 | B | P | 8261 | DRILL ( ROTATE/SLIDE) F/ 8261' - T/ 8490'<br>RATE OF PENATRATION= 229 ' @ 38.16 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2300 / 2000<br>TORQUE~ ON/OFF = 18,000 / 15,000<br>PICKUP/SLACK OFF/ROTATE= 290K / 130K / 175 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 0 0 HRS. 0 MINS<br>BIT POSITION= 4.22 ' WEST &. 14.95 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 8426 ' = .76 DEG., 326.6 AZ., 8081.01' TVD<br>0 BBLS MUD LOST TO SEEPAGE |
| | 12:00 - 13:30 | 1.50 | DRLPRV | 02 | B | P | 8490 | DRILL ( ROTATE/SLIDE) F/ 8490' - T/8576'<br>RATE OF PENATRATION= 86 ' @ 57.33 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2300 / 2000<br>TORQUE~ ON/OFF = 18,000 / 15,000<br>PICKUP/SLACK OFF/ROTATE= 290K / 130K / 175 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO OFF LINE<br>SLIDE= 0 0 HRS. 0 MINS<br>BIT POSITION= 4.23 ' WEST &. 15.0 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 8426 ' = .76 DEG., 326.6 AZ., 8081.01' TVD<br>0 BBLS MUD LOST TO SEEPAGE |
| | 13:30 - 14:00 | 0.50 | DRLPRV | 07 | A | P | 8576 | RIG SER. |



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# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 14:00 - 0:00 | 10.00 | DRLPRV | 02 | B | P | 8576 | DRILL ( ROTATE/SLIDE) F/ 8576' - T/ 9065<br>RATE OF PENATRATION= 489 ' @ 48.9 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2650 / 2400<br>TORQUE~ ON/OFF = 19,000 / 17,000<br>PICKUP/SLACK OFF/ROTATE= 280K / 135K / 180 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO ON LINE @ 9065 2/6/2014 100 PSI = 9.3 EMW<br>SLIDE= 0 0 HRS. 0 MINS<br>BIT POSITION= 6.7 ' WEST &. 16.4 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 8991 ' = 0.31 DEG., 164.16 AZ., 8645.99' TVD<br>0 BBLS MUD LOST TO SEEPAGE |
| 2/6/2014 | 0:00 - 6:00 | 6.00 | DRLPRV | 02 | B | P | 9065 | DRILL ( ROTATE/SLIDE) F/ 9065' - T/ 9299<br>RATE OF PENETRATION= 234 ' @ 39.0 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2650 / 2400<br>TORQUE~ ON/OFF = 19,000 / 17,000<br>PICKUP/SLACK OFF/ROTATE= 280K / 135K / 180 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO ON LINE @ 9065 2/6/2014 100 PSI = 9.3 EMW<br>SLIDE= 0 0 HRS. 0 MINS<br>BIT POSITION=6.04 ' WEST &. 15.48 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 9180 ' = 0.90 DEG., 136.20 AZ., 8834.98' TVD<br>TOTAL SLID 536' FOR 23.75 HRS.<br>65 BBLS MUD LOST TO SEEPAGE |



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# Operation Summary Report

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|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:00 - 8:30 | 2.50 | DRLPRV | 02 | B | P | 9299 | DRILL ( ROTATE/SLIDE) F/ 9299' - T/ 9424<br>RATE OF PENETRATION= 125 ' @ 50 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2650 / 2400<br>TORQUE~ ON/OFF = 19,000 / 17,000<br>PICKUP/SLACK OFF/ROTATE= 280K / 135K / 180 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO ON LINE @ 9065 2/6/2014 100 PSI = 9.3 EMW<br>SLIDE= 12' 1 HRS. 0 MINS<br>BIT POSITION= 6.50 ' WEST &. 13.02 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 9369 ' = .67 DEG., 226.15 AZ., 9023.96' TVD<br>TOTAL SLID 548' FOR 24.75 HRS.<br>0 BBLS MUD LOST TO SEEPAGE |
| | 8:30 - 9:00 | 0.50 | DRLPRV | 07 | A | P | 9424 | RIG SER. |
| | 9:00 - 12:30 | 3.50 | DRLPRV | 02 | B | P | 9424 | DRILL ( ROTATE/SLIDE) F/ 9424' - T/9536<br>RATE OF PENETRATION= 112 ' @ 32 /HR<br>WEIGHT ON BIT = 22 / 24 K<br>RPM ~ MUD MOTOR =117<br>TOP DRIVE= 75 ~ TOTAL= 192<br>GALLONS PER MINUTE = 585<br>STROKES PER MINUTE = 130<br>STAND PIPE PSI~0N/OFF = 2650 / 2400<br>TORQUE~ ON/OFF = 19,000 / 17,000<br>PICKUP/SLACK OFF/ROTATE= 280K / 135K / 180 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO ON LINE @ 9065 2/6/2014 100 PSI = 9.3 EMW<br>SLIDE= 10' 0 HRS. 45 MINS<br>BIT POSITION= 7.25 ' WEST &. 12.70 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 9180 ' = 0.9DEG., 136.2 AZ., 8834.98' TVD<br>TOTAL SLID 548' FOR 24.75 HRS.<br>0 BBLS MUD LOST TO SEEPAGE |
| | 12:30 - 15:00 | 2.50 | DRLPRV | 22 | M | X | 9536 | WORK TIGHT HOLE @ 9536 AFTER SLIDING 10' |
| | 15:00 - 16:30 | 1.50 | DRLPRV | 22 | L | X | 9536 | CHANGED OUT ROTATING HEAD LEAKING |



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# Operation Summary Report

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|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 16:30 - 0:00 | 7.50 | DRLPRV | 02 | B | P | 9536 | DRILL ( ROTATE/SLIDE) F/ 9536' - T/ 9805<br>RATE OF PENETRATION= 269 ' @ 35.86 /HR<br>WEIGHT ON BIT = 24 / 26 K<br>RPM ~ MUD MOTOR =99<br>TOP DRIVE= 75 ~ TOTAL= 174<br>GALLONS PER MINUTE = 495<br>STROKES PER MINUTE = 110<br>STAND PIPE PSI~0N/OFF = 2300 / 2150<br>TORQUE~ ON/OFF = 19,000 / 19,000<br>PICKUP/SLACK OFF/ROTATE= 315K / 135K / 190 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO ON LINE @ 9065 2/6/2014 200 PSI = 9.8 EMW<br>SLIDE= 0' 0 HRS. 0 MINS<br>BIT POSITION= 6.73 ' WEST &. 10.93 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 9777 ' = 0.37 DEG., 179.19 AZ., 9431.95' TVD<br>TOTAL SLID 548' FOR 24.75 HRS.<br>0 BBLS MUD LOST TO SEEPAGE |
| 2/7/2014 | 0:00 - 5:30 | 5.50 | DRLPRV | 02 | B | P | 9805 | TALK TO LOVEL ABOUT TRIPING IN HWDP & USE TONG BACK UP & TOP DRIVE TO TORQUE PIPE TO GET US TO CASING SHOE FOR WELL CONTROL |
| | 5:30 - 7:30 | 2.00 | DRLPRV | 08 | B | Z | 10,007 | HAVE BOTH PUMP DOWN , LOST SUCTION MODULE ON # 1 PUMP LAST NIGHT @ 18:00 WORKING ON REPLACING IT LOST VALVE GUIDE ON SUCTION ON # 2 PUMP PULL 2 STAND OFF BOTTOM TO REPAIR PUMP |
| | 7:30 - 10:00 | 2.50 | DRLPRV | 02 | B | P | 10,007 | DRILL ( ROTATE/SLIDE) F/ 10,007' - T/ 10038<br>RATE OF PENETRATION= 31' @ 12.4 /HR<br>WEIGHT ON BIT = 24 / 26 K<br>RPM ~ MUD MOTOR =99<br>TOP DRIVE= 75 ~ TOTAL= 174<br>GALLONS PER MINUTE = 495<br>STROKES PER MINUTE = 110<br>STAND PIPE PSI~0N/OFF = 2300 / 2150<br>TORQUE~ ON/OFF = 19,000 / 19,000<br>PICKUP/SLACK OFF/ROTATE= 315K / 135K / 194 K<br>MUD WEIGHT= 9.0 / VISCOSITY= 32<br>NOV DEWATERING.<br>SWACO ON LINE @ 9065 2/6/2014 280 PSI = 9.8 EMW<br>SLIDE= 0' 0 HRS. 0 MINS<br>BIT POSITION= 6.8 ' WEST &. 8.5 ' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 9966 ' = .78 DEG., 192.78 AZ., 9620.94' TVD<br>TOTAL SLID 548' FOR 24.25 HRS.<br>125 BBLS MUD LOST TO SEEPAGE |
| | 10:00 - 10:30 | 0.50 | DRLPRV | 07 | A | P | 10,038 | RIG SER. |
| | 10:30 - 11:30 | 1.00 | DRLPRV | 05 | M | X | 10,038 | ***CIRC COND MUD. SPOTED 150 BBLS 12.5 MUD ON BOTTOM OF HOLE 10.038 TO 7915 |
| | 11:30 - 13:30 | 2.00 | DRLPRV | 06 | E | X | 10,038 | *** TRIP OUT HOLE ABOVE 12.5 MUD SPOTED ON BOTTOM 7840' |



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# Operation Summary Report

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|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 13:30 - 15:30 | 2.00 | DRLPRV | 05 | C | X | 10,038 | **** CIRC BOTTOMS UP & FLOW CHECK WELL FLOWING 5 GPM TALKED TO LOVEL SAID TO SET SEC. SLUG 12.5 MUD |
| | 15:30 - 16:30 | 1.00 | DRLPRV | 05 | C | X | 10,038 | **** CIRC BOTTOMS UP SPOT SEC. 150 BARRLES 12.5 SLUG F/ 7840 TO 5740' |
| | 16:30 - 17:00 | 0.50 | DRLPRV | 05 | C | X | 10,038 | *** FLOW CHECK WELL NO FLOW |
| | 17:00 - 23:00 | 6.00 | DRLPRV | 06 | E | X | 10,038 | ***TRIP OUT HOLE FOR HIGH TORQUE STALLING OUT TOP DRIVE 21,000 ON 22,000 OFF BOTTOM |
| | 23:00 - 0:00 | 1.00 | DRLPRV | 06 | E | X | 10,038 | *** LAY DOWN MUD JMOTOR. BIT / PICK UP SAME |
| 2/8/2014 | 0:00 - 0:30 | 0.50 | DRLPRV | 06 | A | P | 10,038 | PICK UP NEW MOTOR, BIT AND FIRST HWDP ( LEFT OUT 4 STANDS HWDP ) |
| | 0:30 - 3:00 | 2.50 | DRLPRV | 08 | A | Z | 10,038 | *** TROUBLE SHOOTING TORQUE GAUGE ON ST80 ONLY SHOWING 500 PSI CALLED OUT MECHANIC TALKED TO LOVEL ABOUT TRIPPING IN HWDP & USE TONG BACK UP & TOP DRIVE TO TORQUE PIPE TO GET US TO CASING SHOE FOR WELL CONTROL HAD MECHANIC FIX ST-80 |
| | 3:00 - 11:30 | 8.50 | DRLPRV | 06 | A | P | 10,038 | TRIP IN HOLE WITH BIT # 4SEC. FX65D |
| | 11:30 - 18:00 | 6.50 | DRLPRV | 02 | B | P | 10,038 | DRILL ( ROTATE/SLIDE) F/ 10,038' - T/10,382 RATE OF PENETRATION= 344' @ 52.92 /HR<br>WEIGHT ON BIT = 24 / 26 K<br>RPM ~ MUD MOTOR =99<br>TOP DRIVE= 75 ~ TOTAL= 174<br>GALLONS PER MINUTE = 495<br>STROKES PER MINUTE = 110<br>STAND PIPE PSI~0N/OFF = 2130 / 22080<br>TORQUE~ ON/OFF = 18,000 / 16,000<br>PICKUP/SLACK OFF/ROTATE= 298K / 140K / 196 K<br>MUD WEIGHT= 10 / VISCOSITY= 32<br>NOV OFF LINE.<br>SWACO ON LINE @ 9065 2/6/2014 280 PSI = 9.8 EMW<br>SLIDE= 0' 0 HRS. 0 MINS<br>BIT POSITION= 7.33 WEST &. 2.83' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 10327 / 1.29 DEG.,171.12 AZ., 9981.88' TVD<br>TOTAL SLID 548' FOR 24.25 HRS.<br>XXX BBLS MUD LOST TO SEEPAGE |



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# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 18:00 - 20:00 | 2.00 | DRLPRV | 02 | B | P | 10,382 | DRILL ROTATE/SLIDE) F/ 10,382' T 10,465 RATE OF PENETRATION= 83' @ 41.5 /HR<br>WEIGHT ON BIT = 24 / 26 K<br>RPM ~ MUD MOTOR =99<br>TOP DRIVE= 75 ~ TOTAL= 174<br>GALLONS PER MINUTE = 495<br>STROKES PER MINUTE = 110<br>STAND PIPE PSI~0N/OFF = 2130 / 22080<br>TORQUE~ ON/OFF = 18,000 / 16,000<br>PICKUP/SLACK OFF/ROTATE= 298K / 140K / 196 K<br>MUD WEIGHT= 10 / VISCOSITY= 32<br>NOV OFF LINE.<br>SWACO ON LINE @ 9065 2/6/2014 280 PSI = 9.8 EMW<br>SLIDE= 0' 0 HRS. 0 MINS<br>BIT POSITION= 6.74 WEST &. .28' NORTH OF THE TARGET LINE<br>LAST SURVEY @ 10421 / 1.32 DEG.,159.49 AZ., 10075.86' TVD<br>TOTAL SLID 548' FOR 24.25 HRS.<br>XXX BBLS MUD LOST TO SEEPAGE |
| | 20:00 - 21:00 | 1.00 | DRLPRV | 22 | M | X | 10,465 | WORK TIGHT HOLE WELL PACK OFF WORK TIGHT SPOT @ 10,382 TO 10465 |
| | 21:00 - 0:00 | 3.00 | DRLPRV | 02 | B | P | 10,465 | DRILL ROTATE/SLIDE) F/ 10,465' T 10580 RATE OF PENETRATION= 115 @ 38.33 /HR<br>WEIGHT ON BIT = 24 / 26 K<br>RPM ~ MUD MOTOR =81<br>TOP DRIVE= 75 ~ TOTAL= 156<br>GALLONS PER MINUTE = 405<br>STROKES PER MINUTE = 90<br>STAND PIPE PSI~0N/OFF = 2056 / 1980<br>TORQUE~ ON/OFF = 18,000 / 16,000<br>PICKUP/SLACK OFF/ROTATE= 298K / 140K / 196 K<br>MUD WEIGHT= 12.5 / VISCOSITY= 36<br>NOV OFF LINE.<br>SWACO OFF LINE @ 10038 2/6/2014<br>SLIDE= 0' 0 HRS. 0 MINS<br>BIT POSITION= 4.86 WEST &. 3.54' SOUTH OF THE TARGET LINE<br>LAST SURVEY @ 10515 / 1.11 DEG.,154.08 AZ., 10169.84' TVD<br>TOTAL SLID 548' FOR 24.25 HRS.<br>XXX BBLS MUD LOST TO SEEPAGE |



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# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 2/9/2014 | 0:00 - 2:00 | 2.00 | DRLPRV | 02 | B | P | 10,580 | DRILL ROTATE/SLIDE) F/ 10,580 T 10647 RATE OF PENETRATION= 67 @ 33.5 /HR<br>WEIGHT ON BIT = 24 / 26 K<br>RPM ~ MUD MOTOR =81<br>TOP DRIVE= 75 ~ TOTAL= 156<br>GALLONS PER MINUTE = 405<br>STROKES PER MINUTE = 90<br>STAND PIPE PSI~0N/OFF = 2056 / 1980<br>TORQUE~ ON/OFF = 18,000 / 16,000<br>PICKUP/SLACK OFF/ROTATE= 298K / 140K / 196 K<br>MUD WEIGHT= 12.5 / VISCOSITY= 36<br>NOV OFF LINE.<br>SWACO OFF LINE @ 10038 2/6/2014<br>SLIDE= 0' 0 HRS. 0 MINS<br>BIT POSITION= 4.86 WEST &. 3.54' SOUTH OF THE TARGET LINE<br>LAST SURVEY @ 10647 / 1.23 DEG.,154.04 AZ., 10301.81' TVD<br>TOTAL SLID 548' FOR 24.25 HRS.<br>XXX BBLS MUD LOST TO SEEPAGE |
| | 2:00 - 10:30 | 8.50 | DRLPRV | 05 | C | P | 10,647 | CIRC RAISING MUD WT. TO 12.8 40 VIS LCM 18% ( LOST 755 BARRELS MUD ) |
| | 10:30 - 11:30 | 1.00 | DRLPRV | 05 | B | P | 10,647 | CIRC DISPLACE 175 BBLS 14.5 MUD 2500 ' 10647 TO 8147 |
| | 11:30 - 13:30 | 2.00 | DRLPRV | 06 | K | P | 10,647 | TRIP OUT HOLE TO 8147 |
| | 13:30 - 15:00 | 1.50 | DRLPRV | 05 | C | P | 10,647 | CIRC BOTTOMS UP CHECK FOR FLOW NO FLOW |
| | 15:00 - 21:30 | 6.50 | DRLPRV | 06 | A | P | 10,647 | TRIP OUT HOLE TO RUN 4.5 CASING |
| | 21:30 - 23:00 | 1.50 | DRLPRV | 06 | A | P | 10,647 | LAY DOWN MWD TOOLS , BIT MUD MOTOR |
| | 23:00 - 23:30 | 0.50 | DRLPRV | 06 | A | P | 10,647 | PULLED WEAR BUSHING |
| | 23:30 - 0:00 | 0.50 | DRLPRV | 12 | A | P | 10,647 | RIG UP CASING CREW, PJSM |
| 2/10/2014 | 0:00 - 12:00 | 12.00 | CSGPRO | 12 | C | P | 10,647 | RUN 4.5 CASING SHOE @ 10,621, FLOAT COLLAR @ 10,575/ MARKER JT. 8402 DV TOOL @ 5608, CROSS OVER @ 5206 |
| | 12:00 - 14:00 | 2.00 | CSGPRO | 12 | B | P | 10,647 | CIRC 4.5 CASING CIRC OUT 14.5 MUD OUT HOLE & GAS HAD NOFLAR RIG UP HELD PJSM WITH BJ CEMENT CREW |
| | 14:00 - 17:00 | 3.00 | CSGPRO | 12 | E | P | 10,647 | TEST LINES 5000 PSI CEMENT FIRST STAGE 14.30 YIELD 1.35 1190 SACKS CEMENT CLASS G CEMENT +0.05%BWOC STATIC FREE+10% BWOW SODIUM CHLORIDE+0.55% BWOCR-3+0.5%BWOC EC-1+0.25LBS/SACK CELLO FLAKE+0.002 GPS FP-6L+0.7% BWOC SODIUM METASILICATE+2%BWOC BENTONITEII +5 LBS/SACK KOL-SEAL, 50LB BAG DISPLACE WITH 80 BARRLES WATER & 84. BARRLES 12.6 MUD LIFT PRESURE 1540 BUMP PRESURE 2059 DROP BOMB LET FREE FALL 30 MINS TOOK 1540 PRESURE TO OPEN D V TOOL<br>PLUG DOWN @ 15:56 |
| | 17:00 - 19:30 | 2.50 | CSGPRO | 05 | A | P | 10,647 | CIRC WITH RIG BETWEEN STAGE HAD 30 BBLS CMT TO SURFACE |



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US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 11/3/2013 | End Date: 2/10/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 19:30 - 21:30 | 2.00 | CSGPRO | 12 | E | P | 10,647 | CEMENT SECOND STAGE LEAD 13.5 YIELD 1.58 943 SACKS CEMENT PREMIUM LITEII =0.05%BWOC STATIC FREE+0.5% BWOC CALCIUM CHLORIDE + 0.25LBS/SACK CELLO FLAKE+0.4%BWOC FL-52+0.25% BWOC SODIUM METASILICATE +4%BWOC BENTONITE II+5 LBS/SACK KOL-SEAL 50LB BAG+0.35%BWOC CD-32 TAIL 60 SACK CLASS G CEMENT +1% BWOC CALCIUM CHLORIDE +0.4% BWOC SODIUM METASILICATE DISPLACE WITH 87.4 BBLS CALY FIX WATER LIFT PRESURE 1513 BUMP PRESURE 3028 HAD 30 BARRLES CMT TO SURFACE |
| | 21:30 - 22:30 | 1.00 | CSGPRO | 12 | B | P | 10,647 | RIG DOWN CEMENT EQUIPMENT , BLOW DOWN BOPS SWACO LINES MUD LINES |
| | 22:30 - 0:00 | 1.50 | CSGPRO | 12 | B | P | 10,647 | NIPPLE DOWN SET PACK OFF TEST CLEAN PITS ( RIG RELEASED @ 00:00 2/11/2014 ) |



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# 1 General

## 1.1 Customer Information

| | |
|---|---|
| **Company** | US ROCKIES REGION |
| **Representative** | |
| **Address** | |

## 1.2 Well/Wellbore Information

| | | | |
|---|---|---|---|
| **Well** | NBU 921-20A1CS ORANGE | **Wellbore No.** | OH |
| **Well Name** | NBU 921-20A1CS | **Wellbore Name** | NBU 921-20A1CS |
| **Report No.** | 1 | **Report Date** | 4/28/2014 |
| **Project** | UTAH-UINTAH | **Site** | NBU 921-20B PAD |
| **Rig Name/No.** | | **Event** | COMPLETION |
| **Start Date** | 3/26/2014 | **End Date** | 5/21/2014 |
| **Spud Date** | 11/22/2013 | **Active Datum** | RKB @4,897.00usft (above Mean Sea Level) |
| **UWI** | NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | | |

## 1.3 General

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | | **Job Method** | | **Supervisor** | |
| **Perforated Assembly** | | **Conveyed Method** | | | |

## 1.4 Initial Conditions

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

## 1.5 Summary

| | | | |
|---|---|---|---|
| **Gross Interval** | 8,454.0 (usft)-10,586.0 (us | **Start Date/Time** | 4/28/2014 12:00AM |
| **No. of Intervals** | 59 | **End Date/Time** | 4/28/2014 12:00AM |
| **Total Shots** | 216 | **Net Perforation Interval** | 72.00 (usft) |
| **Avg Shot Density** | 3.00 (shot/ft) | **Final Surface Pressure** | |
| | | **Final Press Date** | |

# 2 Intervals

## 2.1 Perforated Interval

| Date | Formation/ Reservoir | CCL@ (usft) | CCL-TS (usft) | MD Top (usft) | MD Base (usft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,454.0 | 8,455.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |



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## 2.1 Perforated Interval (Continued)

| Date | Formation/ Reservoir | CCL@ (usft) | CCL-TS (usft) | MD Top (usft) | MD Base (usft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,463.0 | 8,464.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,510.0 | 8,513.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,602.0 | 8,605.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,691.0 | 8,692.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,719.0 | 8,720.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,734.0 | 8,735.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,794.0 | 8,795.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,814.0 | 8,815.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,833.0 | 8,834.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,870.0 | 8,872.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,902.0 | 8,903.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,929.0 | 8,930.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,977.0 | 8,978.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 8,997.0 | 8,998.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,019.0 | 9,020.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,044.0 | 9,045.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,058.0 | 9,060.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,191.0 | 9,192.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,225.0 | 9,226.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,278.0 | 9,280.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,290.0 | 9,292.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |



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## 2.1 Perforated Interval (Continued)

| Date | Formation/ Reservoir | CCL@ (usft) | CCL-TS (usft) | MD Top (usft) | MD Base (usft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,307.0 | 9,309.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,428.0 | 9,429.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,486.0 | 9,487.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,506.0 | 9,507.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,531.0 | 9,532.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,556.0 | 9,558.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,568.0 | 9,570.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,620.0 | 9,621.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,638.0 | 9,639.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,664.0 | 9,665.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,690.0 | 9,691.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,707.0 | 9,708.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,827.0 | 9,828.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,835.0 | 9,836.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,842.0 | 9,843.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,870.0 | 9,871.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,885.0 | 9,886.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,920.0 | 9,921.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,950.0 | 9,951.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,974.0 | 9,975.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 9,984.0 | 9,985.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |



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### 2.1 Perforated Interval (Continued)

| Date | Formation/ Reservoir | CCL@ (usft) | CCL-TS (usft) | MD Top (usft) | MD Base (usft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,032.0 | 10,033.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,067.0 | 10,068.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,115.0 | 10,116.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,136.0 | 10,137.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,150.0 | 10,151.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,165.0 | 10,166.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,219.0 | 10,220.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,243.0 | 10,244.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,269.0 | 10,270.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,302.0 | 10,303.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,387.0 | 10,388.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,438.0 | 10,439.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,478.0 | 10,479.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,507.0 | 10,508.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,558.0 | 10,560.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |
| 4/28/2014 12:00AM | MESAVERDE/ | | | 10,584.0 | 10,586.0 | 3.00 | | 0.410 | EXP/ | 3.125 | 120.00 | | 19.00 | PRODUCTION | |

## 3 Plots



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US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: |
| Event: COMPLETION | Start Date: 3/26/2014 | End Date: 5/21/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 3/26/2014 | 7:00 - 7:30 | 0.50 | SUBSPR | 48 | | P | | HSM, RIGGING DOWN & RIGGING UP. |
| | 7:30 - 9:00 | 1.50 | SUBSPR | 30 | A | P | | ND BOPS NU WH ON GREEN WELL, RIGGED DOWN MOVED OVER & RIGGED UP ON 5 OF 7, ND WH NU BOPS RU FLOOR. |
| | 9:00 - 12:00 | 3.00 | SUBSPR | 31 | I | P | | PU 37/8 BIT & 174 JTS 23/8 P-110 TAG CMT @ 5505' |
| | 12:00 - 15:00 | 3.00 | SUBSPR | 44 | D | P | | RU DRLG EQUIP, BROKE CIRC REV D/O 100' CMT & DV @ 5605' CIRC WELL CLN, TEST CSG TO 3,000 PSI OK SWI WIND BLOWING TO HARD TO PICK UP TBG. SDFN |
| 3/27/2014 | 7:00 - 7:30 | 0.50 | SUBSPR | 48 | | P | | HSM, PPE |
| | 7:30 - 10:30 | 3.00 | SUBSPR | 31 | I | P | | 5 OF 7, PU 157 JTS 23/8 TAG UP @ 10576 ', S.L.M, TOTAL 334 JTS IN PBTD @ 10578' DISPLACE CMT WTR TO PIT W/ 148 BBLS T-MAC. |
| | 10:30 - 15:00 | 4.50 | SUBSPR | 31 | I | P | | L/D 333 JTS 23/8 & BIT, ND BOPS NU SWI WIND BLOWING TO HARD TO RIG DOWN. SDFN |
| 4/3/2014 | - | | | | | | | |
| 4/15/2014 | 12:00 - 13:00 | 1.00 | SUBSPR | 52 | B | P | | FILL SURFACE CSG. MIRU CAMERON QUICK TEST. PRESSURE TEST CSG & FRAC VALVES<br>1ST PSI TEST T/ 7000 PSI. HELD FOR 15 MIN LOST -64 PSI.<br>NO COMMUNICATION OR MIGRATION WITH SURFACE CSG<br>BLEED OFF PSI.<br>FILL SURFACE CSG. MIRU CAMERON QUICK TEST.<br><br>PRESSURE TEST 8 5/8 X 4 1/2 TO 547 PSI HELD FOR 5 MIN<br>LOST -239 PSI, BLED PSI OFF, REINSTALLED POP OFF SWIFN<br>NO PRESSURE ON SURFACE CASING<br>FILLED SURFACE WITH 1 BBL H2O |
| 4/25/2014 | 8:00 - 9:00 | 1.00 | SUBSPR | 37 | | P | | PERF STG 1)PU 3 1/8 EXP GUN, 19 GM, .40 HOLE SIZE. RIH PERFWELL, AS PER PERF DESIGN. POOH. SWIFW |
| 4/28/2014 | 6:30 - 6:45 | 0.25 | FRAC | 48 | | P | | HSM-JSA |
| | 6:45 - 18:00 | 11.25 | FRAC | 36 | H | P | | FRAC STG #1) WHP 1910 PSI, BRK 3851 PSI @ 4.3 BPM. ISIP 2975 PSI, FG. 0.72 ISIP 3114 PSI, FG. 0.74, NPI 139 PSI, X/O TO WL.<br><br>SET CBP & PERF STG #2 AS DESIGNED, SWI, SDFN. |
| 4/29/2014 | 6:15 - 6:30 | 0.25 | FRAC | 48 | | P | | HSM-JSA |



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US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: |
| Event: COMPLETION | Start Date: 3/26/2014 | End Date: 5/21/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:30 - 17:30 | 11.00 | FRAC | 36 | H | P | | FRAC STG #2) WHP 2265 PSI, BRK 5140 PSI @ 7.1 BPM. ISIP 3054 PSI, FG. 0.74 ISIP 3265 PSI, FG. 0.76, NPI 211 PSI, X/O TO WL.<br><br>SET CBP & PERF STG #3 AS DESIGNED, X/O TO FRAC.<br><br>FRAC STG #3) WHP 2107 PSI, BRK 3828 PSI @ 5.5 BPM. ISIP 2512 PSI, FG. 0.69 ISIP 3161 PSI, FG. 0.76, NPI 649 PSI, X/O TO WL.<br><br>SET CBP & PERF STG #4 AS DESIGNED, SWI, SDFN. |
| 4/30/2014 | 6:30 - 6:45 | 0.25 | FRAC | 48 | | P | | HSM-JSA |
| | 6:45 - 13:05 | 6.33 | FRAC | 36 | H | P | | FRAC STG #4) WHP 2336 PSI, BRK 3237 PSI @ 3.7 BPM. ISIP 2458 PSI, FG. 0.69 ISIP 2876 PSI, FG. 0.73, NPI 418 PSI, X/O TO WL.<br><br>SET CBP & PERF STG #5 AS DESIGNED, X/O TO FRAC.<br><br>FRAC STG #5) CHICKSAN BROKE MID STAGE, SHUT DOWN FOR 10 MIN TO ISOLATE PUMP, WHP 2596 PSI, BRK 3975 PSI @ 4 BPM. ISIP 2893 PSI, FG. 0.74 ISIP 3014 PSI, FG. 0.76, NPI 121 PSI, X/O TO WL. |
| | 13:05 - 14:30 | 1.42 | FRAC | 46 | E | Z | | REPLACE CHISKSAN AND GO THROUGH VALVES IN PUMP |
| | 14:30 - 17:00 | 2.50 | FRAC | 36 | H | P | | SET CBP & PERF STG #6 AS DESIGNED, SWI, SDFN. |
| 5/5/2014 | 6:30 - 6:45 | 0.25 | FRAC | 48 | | P | | HSM-JSA |
| | 6:45 - 18:00 | 11.25 | FRAC | 36 | H | P | | FRAC STG #6) WHP 2040 PSI, BRK 3820 PSI @ 4 BPM. ISIP 2622 PSI, FG. 0.72 ISIP 3168 PSI, FG. 0.78, NPI 546 PSI, X/O TO WL.<br><br>SET CBP & PERF STG #7 AS DESIGNED, X/O TO FRAC.<br><br>FRAC STG #7) WHP 1780 PSI, BRK 2722 PSI @ 5.4 BPM. ISIP 2393 PSI, FG. 0.71 ISIP 2604 PSI, FG. 0.73, NPI 211 PSI, X/O TO WL.<br><br>SET CBP & PERF STG #8 AS DESIGNED, SWI, SDFN. |
| 5/6/2014 | 6:15 - 6:30 | 0.25 | FRAC | 48 | | P | | HSM-JSA |



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US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: |
| Event: COMPLETION | Start Date: 3/26/2014 | End Date: 5/21/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:30 - 17:30 | 11.00 | FRAC | 36 | H | P | | FRAC STG #8) WHP 1709 PSI, BRK 2698 PSI @ 3.8 BPM. ISIP 2018 PSI, FG. 0.67 ISIP 2680 PSI, FG. 0.74, NPI 662 PSI, X/O TO WL.<br><br>SET CBP & PERF STG #9 AS DESIGNED, X/O TO FRAC.<br><br>FRAC STG #9) WHP 2055 PSI, BRK 3020 PSI @ 3.8 BPM. ISIP 2436 PSI, FG. 0.72 ISIP 3015 PSI, FG. 0.79, NPI 579 PSI, X/O TO WL.<br><br>SET KILL PLUG, RDMO WL & FRAC EQUIP.<br><br>TOTAL FLUID= 12395 BBLS<br>TOTAL SAND= 251240 LBS |
| 5/20/2014 | 7:00 - 7:15 | 0.25 | DRLOUT | 48 | | P | | HSM, SLIPS, TRIPS & FALLS, RIGGING UP, PU TBG, P/S, P/T, D/O CBP'S |
| | 7:15 - 13:30 | 6.25 | DRLOUT | 31 | I | P | | 5 OF 7, MIRU, ND WH, NU BOP, RU FLOOR & TBG EQUIP, SPOT TBG TRAILER, PU 3 7/8" BIT, POBS, 1.875" XN S/N, TALLY & PU TBG TO KILL PLUG, RU P/S, INSTAL W/R FILL TBG & BREAK CIRC, PT BOP TO 3000 PSI |
| | 13:30 - 17:00 | 3.50 | DRLOUT | 44 | C | P | | SURFACE CSG VALVE OPEN & LOCKED, D/O 6 CBP'S THRU BJD & HAL 9000<br><br>C/O 15' SAND, TAG 1ST PLUG @ 8404', KICK 400 PSI, CSG PRESS 0 PSI, RIH<br><br>C/O 25' SAND, TAG 2ND PLUG @ 8635', KICK 700 PSI, CSG PRESS 50 PSI, RIH<br><br>C/O 50' SAND, TAG 3RD PLUG @ 8888', KICK 400 PSI, CSG PRESS 100 PSI, RIH<br><br>C/O 30' SAND, TAG 4TH PLUG @ 9090', KICK 500 PSI, CSG PRESS 200 PSI, RIH<br><br>C/O 25' SAND, TAG 5TH PLUG @ 9339', KICK 500 PSI, CSG PRESS 200 PSI, RIH<br><br>C/O 15' SAND, TAG 6TH PLUG @ 9590', KICK 600 PSI, CSG PRESS 300 PSI,<br><br>LET WELL CLEAN UP, SWI & LOCK RAMS, SDFN, D/O REMAINING CBP'S IN AM |
| 5/21/2014 | 7:00 - 7:15 | 0.25 | DRLOUT | 48 | | P | | HSM, SLIPS, TRIPS & FALLS, PRESS, D/O CBP'S, LAND TBG, RD |



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US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-20A1CS ORANGE | Spud Date: 11/22/2013 | |
| Project: UTAH-UINTAH | Site: NBU 921-20B PAD | Rig Name No: |
| Event: COMPLETION | Start Date: 3/26/2014 | End Date: 5/21/2014 |
| Active Datum: RKB @4,897.00usft (above Mean Sea Level) | UWI: NW/NE/0/9/S/21/E/20/0/0/26/PM/N/764/E/0/2253/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 7:15 - 12:00 | 4.75 | DRLOUT | 44 | C | P | | 5 OF 7, SICP 2300 PSI, BLEED OF THRU BJD & HAL 9000, SURFACE CSG VALVE OPEN & LOCKED, D/O 3 CBP'S THRU BJD & HAL 9000<br><br>C/O 115' SAND, TAG 7TH PLUG @ 9858', KICK 500 PSI, CSG PRESS 300 PSI, RIH<br><br>C/O 110' SAND, TAG 8TH PLUG @ 10,098', KICK 600 PSI, CSG PRESS 400 PSI, RIH<br><br>C/O 50' SAND, TAG 9TH PLUG @ 10,333', KICK 400 PSI, CSG PRESS 550 PSI,<br><br>PBTD @ 10590', BTM PERF @ 10586', RIH TAGGED @ 10560', C/O TO 10590' PBTD, 4' PAST BTM PERF W/ 334 JTS 2 3/8" J-55 & L-80 TBG, LD 16 JTS (WET), PU & STRIP IN TBG HANGER & LAND TBG W/ 318 JTS 2 3/8" TBG, EOT 10,083.57'.<br><br>NOTE: D/O THRU BJD & (2) HAL 9000, SOLD THRU 2 SEPERATORS<br>NBU 921-20A1CS SOLD 133 MCF<br>NBU 921-20C1BS SOLD 138 MCF, TOTAL GAS SOLD 321 MCF.<br>NBU 921-20C1BS SOLD 50 MCF (5/20/14)<br><br>RD P/S, FLOOR & TBG EQUIP, ND BOPS, NU WH, DROP BALL & SHEAR OFF BIT, P/T LINE FROM WH TO HAL 9000 TO 3,000 PSI, NO VISIBLE LEAKS.<br><br>TURN OVER TO FLOW BACK CREW & SALES, RD TO MOVE TO NEXT WELL ON PAD.<br><br>KB= 24'<br>APC TBG 4 JTS L-80<br>4 1/16" CAMERON HANGER= .83' TBG DELIVERED 165 JTS L-80<br>169 JTS 2 3/8" L-80= 5354.60' TBG DELIVERED 150 JTS J-55 (1JT HAD DING IN TUBE)<br>1 - 6' PUP JT L-80= 6.28'<br>TOTAL TBG= 319 JTS L-80 & J-55<br>149 JTS 2 3/8" J-55 = 4,695.66'<br>TBG USED 318 JTS<br>POBS= 2.20'<br>TBG RETURNED 1 JTS J-55 BAD TUBE<br>EOT @ 10,083.57'<br><br>TWTR= 12395 BBLS<br>TWR= 3000 BBLS<br>TWLTR= 9395 BBLS |



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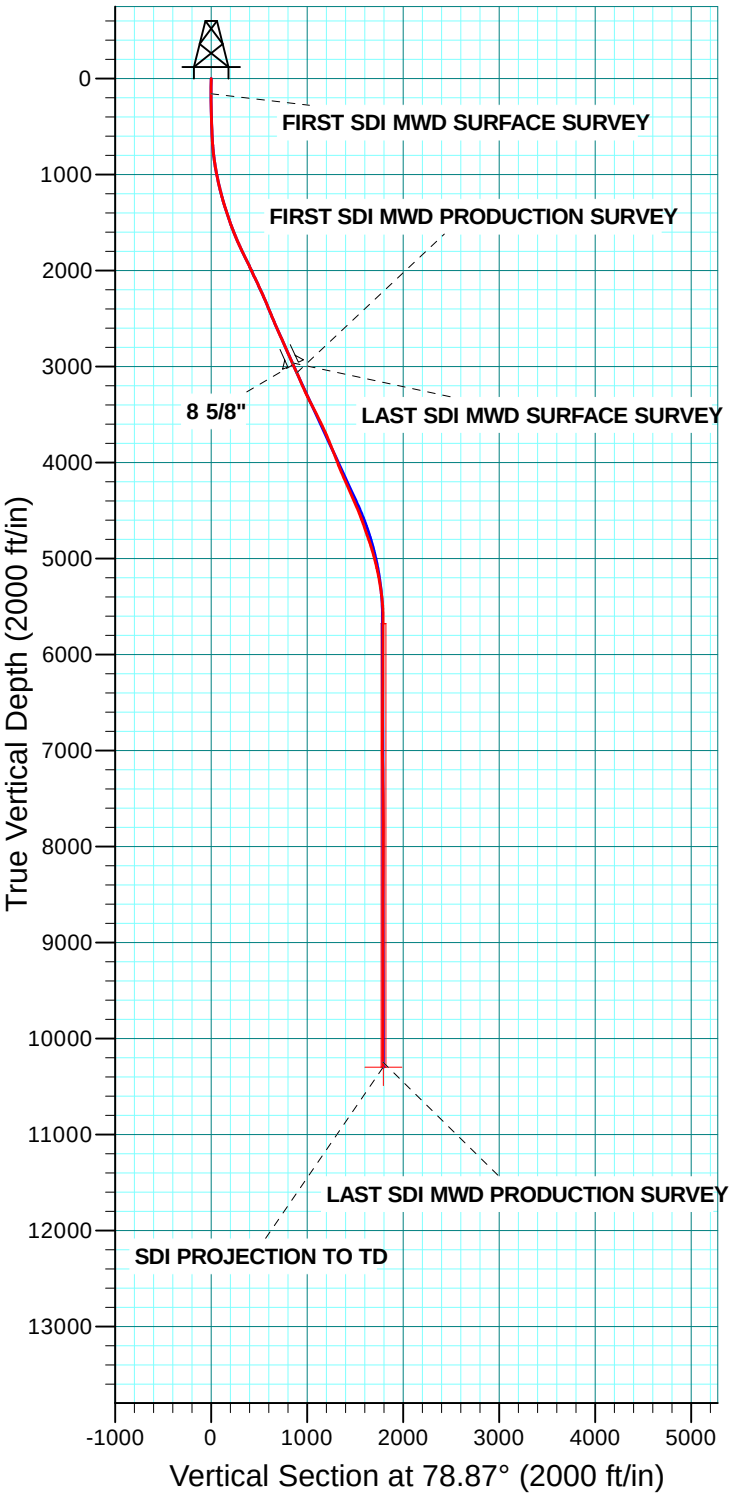
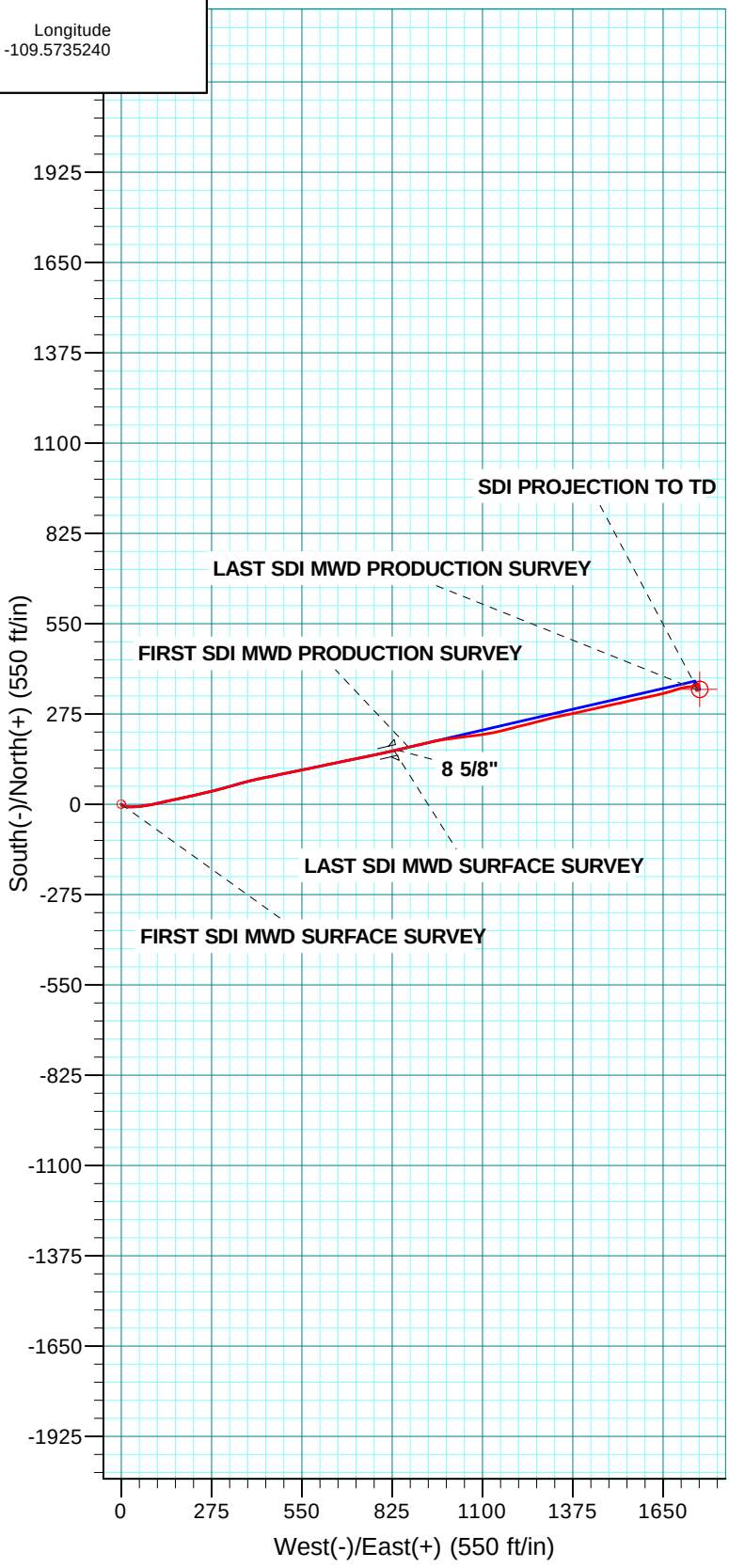
**Project:** UTAH - UTM (feet), NAD27, Zone 12N
**Site:** NBU 921-20B PAD
**Well:** NBU 921-20A1CS
**Wellbore:** OH

Anadarko Petroleum Corporation

| WELL DETAILS: NBU 921-20A1CS | | | | | |
|---|---|---|---|---|---|
| GL 4873 & KB 24 @ 4897.00ft (HP 318) | | | | | |
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
| 0.00 | 0.00 | 14538990.93 | 2039764.28 | 40.0267730 | -109.5735240 |

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# US ROCKIES REGION PLANNING

**UTAH - UTM (feet), NAD27, Zone 12N**
**NBU 921-20B PAD**
**NBU 921-20A1CS**

**OH**

**Design: OH**

# Standard Survey Report

**12 February, 2014**

Anadarko Petroleum Corporation

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Scientific Drilling

# Scientific Drilling
## Survey Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Site:** | NBU 921-20B PAD | **MD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Well:** | NBU 921-20A1CS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | Denver Sales Office |

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

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

**Site** NBU 921-20B PAD, SECTION 20 T9S R21E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 14,539,017.64 usft | **Latitude:** | 40.0268450 |
| **From:** | Lat/Long | **Easting:** | 2,039,794.09 usft | **Longitude:** | -109.5734160 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 0.92 ° |

**Well** NBU 921-20A1CS, 764 FNL 2253 FEL

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 14,538,990.94 usft | **Latitude:** | 40.0267730 |
| | **+E/-W** | 0.00 ft | **Easting:** | 2,039,764.27 usft | **Longitude:** | -109.5735240 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 4,873.00 ft |

**Wellbore** OH

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | BGGM2013 | 11/7/2013 | 10.89 | 65.80 | 52,014 |

**Design** OH

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | 1.0 | **Phase:** | ACTUAL | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 78.87 |

**Survey Program** **Date** 2/11/2014

| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 20.00 | 3,125.00 | Survey #1 SDI MWD SURFACE (OH) | SDI MWD | SDI MWD - Standard ver 1.0.1 |
| 3,236.00 | 10,647.00 | Survey #2 SDI MWD PRODUCTION (OH) | SDI MWD | SDI MWD - Standard ver 1.0.1 |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20.00 | 0.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 159.00 | 0.18 | 194.84 | 159.00 | -0.21 | -0.06 | -0.10 | 0.13 | 0.13 | 0.00 |
| **FIRST SDI MWD SURFACE SURVEY** | | | | | | | | | |
| 215.00 | 0.72 | 161.36 | 215.00 | -0.63 | 0.03 | -0.09 | 1.03 | 0.96 | -59.79 |
| 296.00 | 1.33 | 132.40 | 295.99 | -1.75 | 0.89 | 0.54 | 0.97 | 0.75 | -35.75 |
| 382.00 | 2.19 | 115.28 | 381.94 | -3.12 | 3.11 | 2.45 | 1.16 | 1.00 | -19.91 |
| 472.00 | 2.29 | 109.41 | 471.88 | -4.45 | 6.36 | 5.39 | 0.28 | 0.11 | -6.52 |
| 562.00 | 2.73 | 109.14 | 561.79 | -5.75 | 10.09 | 8.79 | 0.49 | 0.49 | -0.30 |
| 652.00 | 3.87 | 99.92 | 651.64 | -6.98 | 15.10 | 13.47 | 1.39 | 1.27 | -10.24 |



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# Scientific Drilling

## Survey Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Site:** | NBU 921-20B PAD | **MD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Well:** | NBU 921-20A1CS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | Denver Sales Office |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 742.00 | 5.52 | 93.31 | 741.33 | -7.75 | 22.42 | 20.50 | 1.93 | 1.83 | -7.34 |
| 832.00 | 7.65 | 88.75 | 830.74 | -7.87 | 32.73 | 30.59 | 2.44 | 2.37 | -5.07 |
| 922.00 | 9.58 | 85.94 | 919.72 | -7.21 | 46.19 | 43.93 | 2.19 | 2.14 | -3.12 |
| 1,012.00 | 11.34 | 83.30 | 1,008.22 | -5.65 | 62.45 | 60.18 | 2.03 | 1.96 | -2.93 |
| 1,102.00 | 12.93 | 80.14 | 1,096.21 | -2.89 | 81.16 | 79.07 | 1.91 | 1.77 | -3.51 |
| 1,192.00 | 14.25 | 77.86 | 1,183.68 | 1.16 | 101.91 | 100.22 | 1.58 | 1.47 | -2.53 |
| 1,282.00 | 16.09 | 77.52 | 1,270.54 | 6.19 | 124.92 | 123.76 | 2.05 | 2.04 | -0.38 |
| 1,372.00 | 17.94 | 77.68 | 1,356.60 | 11.84 | 150.64 | 150.09 | 2.06 | 2.06 | 0.18 |
| 1,462.00 | 18.64 | 78.12 | 1,442.05 | 17.76 | 178.25 | 178.33 | 0.79 | 0.78 | 0.49 |
| 1,552.00 | 19.95 | 77.81 | 1,527.00 | 23.96 | 207.34 | 208.07 | 1.46 | 1.46 | -0.34 |
| 1,642.00 | 21.81 | 76.45 | 1,611.08 | 31.12 | 238.60 | 240.12 | 2.14 | 2.07 | -1.51 |
| 1,732.00 | 23.83 | 76.89 | 1,694.03 | 39.17 | 272.57 | 275.00 | 2.25 | 2.24 | 0.49 |
| 1,822.00 | 25.06 | 74.60 | 1,775.97 | 48.35 | 308.65 | 312.18 | 1.73 | 1.37 | -2.54 |
| 1,912.00 | 26.20 | 73.90 | 1,857.11 | 58.92 | 346.12 | 350.98 | 1.31 | 1.27 | -0.78 |
| 2,002.00 | 26.12 | 75.57 | 1,937.89 | 69.37 | 384.39 | 390.56 | 0.82 | -0.09 | 1.86 |
| 2,092.00 | 24.45 | 78.47 | 2,019.27 | 78.03 | 421.83 | 428.96 | 2.31 | -1.86 | 3.22 |
| 2,182.00 | 25.32 | 78.30 | 2,100.91 | 85.66 | 458.93 | 466.83 | 0.97 | 0.97 | -0.19 |
| 2,272.00 | 25.59 | 77.94 | 2,182.18 | 93.62 | 496.78 | 505.51 | 0.35 | 0.30 | -0.40 |
| 2,362.00 | 23.79 | 79.05 | 2,263.95 | 101.13 | 533.62 | 543.10 | 2.07 | -2.00 | 1.23 |
| 2,452.00 | 22.60 | 78.47 | 2,346.67 | 108.03 | 568.38 | 578.55 | 1.35 | -1.32 | -0.64 |
| 2,542.00 | 22.25 | 78.12 | 2,429.86 | 115.00 | 602.00 | 612.88 | 0.42 | -0.39 | -0.39 |
| 2,632.00 | 23.04 | 77.33 | 2,512.93 | 122.37 | 635.86 | 647.52 | 0.94 | 0.88 | -0.88 |
| 2,722.00 | 23.83 | 78.73 | 2,595.50 | 129.79 | 670.87 | 683.31 | 1.07 | 0.88 | 1.56 |
| 2,812.00 | 24.11 | 78.70 | 2,677.74 | 136.94 | 706.73 | 719.87 | 0.31 | 0.31 | -0.03 |
| 2,902.00 | 23.57 | 78.21 | 2,760.06 | 144.22 | 742.37 | 756.25 | 0.64 | -0.60 | -0.54 |
| 2,992.00 | 23.65 | 77.94 | 2,842.53 | 151.67 | 777.64 | 792.29 | 0.15 | 0.09 | -0.30 |
| 3,082.00 | 24.18 | 77.50 | 2,924.80 | 159.43 | 813.29 | 828.77 | 0.62 | 0.59 | -0.49 |
| 3,125.00 | 24.80 | 76.80 | 2,963.93 | 163.39 | 830.67 | 846.58 | 1.59 | 1.44 | -1.63 |
| **LAST SDI MWD SURFACE SURVEY** | | | | | | | | | |
| 3,144.00 | 24.62 | 76.80 | 2,981.19 | 165.21 | 838.40 | 854.52 | 0.96 | -0.96 | 0.02 |
| **8 5/8"** | | | | | | | | | |
| 3,236.00 | 23.73 | 76.82 | 3,065.12 | 173.80 | 875.08 | 892.17 | 0.96 | -0.96 | 0.02 |
| **FIRST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 3,331.00 | 23.81 | 76.28 | 3,152.06 | 182.71 | 912.32 | 930.43 | 0.24 | 0.08 | -0.57 |
| 3,425.00 | 24.18 | 77.82 | 3,237.94 | 191.27 | 949.57 | 968.63 | 0.77 | 0.39 | 1.64 |
| 3,520.00 | 26.16 | 82.39 | 3,323.93 | 198.15 | 989.35 | 1,009.00 | 2.92 | 2.08 | 4.81 |
| 3,614.00 | 28.40 | 83.02 | 3,407.47 | 203.61 | 1,032.09 | 1,051.98 | 2.40 | 2.38 | 0.67 |
| 3,708.00 | 27.06 | 82.91 | 3,490.67 | 208.97 | 1,075.49 | 1,095.60 | 1.43 | -1.43 | -0.12 |
| 3,803.00 | 25.44 | 80.03 | 3,575.87 | 215.17 | 1,117.04 | 1,137.56 | 2.17 | -1.71 | -3.03 |
| 3,897.00 | 25.10 | 76.39 | 3,660.88 | 223.36 | 1,156.30 | 1,177.67 | 1.69 | -0.36 | -3.87 |
| 3,991.00 | 22.77 | 75.31 | 3,746.79 | 232.66 | 1,193.28 | 1,215.75 | 2.52 | -2.48 | -1.15 |
| 4,086.00 | 21.81 | 76.03 | 3,834.69 | 241.58 | 1,228.19 | 1,251.73 | 1.05 | -1.01 | 0.76 |
| 4,180.00 | 21.42 | 76.10 | 3,922.08 | 249.92 | 1,261.80 | 1,286.31 | 0.42 | -0.41 | 0.07 |
| 4,274.00 | 20.83 | 74.07 | 4,009.77 | 258.63 | 1,294.53 | 1,320.11 | 1.00 | -0.63 | -2.16 |



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Scientific Drilling

# Scientific Drilling

## Survey Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Site:** | NBU 921-20B PAD | **MD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Well:** | NBU 921-20A1CS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | Denver Sales Office |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 4,369.00 | 23.15 | 78.46 | 4,097.85 | 267.01 | 1,329.08 | 1,355.62 | 2.99 | 2.44 | 4.62 |
| 4,463.00 | 24.12 | 78.40 | 4,183.97 | 274.57 | 1,366.00 | 1,393.31 | 1.03 | 1.03 | -0.06 |
| 4,558.00 | 23.32 | 77.05 | 4,270.94 | 282.68 | 1,403.34 | 1,431.51 | 1.02 | -0.84 | -1.42 |
| 4,652.00 | 24.08 | 77.24 | 4,357.01 | 291.09 | 1,440.18 | 1,469.28 | 0.81 | 0.81 | 0.20 |
| 4,746.00 | 23.62 | 77.95 | 4,442.99 | 299.26 | 1,477.29 | 1,507.28 | 0.58 | -0.49 | 0.76 |
| 4,841.00 | 22.16 | 77.66 | 4,530.50 | 307.06 | 1,513.41 | 1,544.22 | 1.54 | -1.54 | -0.31 |
| 4,935.00 | 18.97 | 76.08 | 4,618.50 | 314.52 | 1,545.57 | 1,577.21 | 3.44 | -3.39 | -1.68 |
| 5,029.00 | 19.15 | 78.84 | 4,707.35 | 321.18 | 1,575.53 | 1,607.89 | 0.98 | 0.19 | 2.94 |
| 5,124.00 | 19.74 | 77.94 | 4,796.93 | 327.55 | 1,606.50 | 1,639.52 | 0.70 | 0.62 | -0.95 |
| 5,219.00 | 17.02 | 77.21 | 4,887.08 | 333.98 | 1,635.76 | 1,669.46 | 2.87 | -2.86 | -0.77 |
| 5,313.00 | 15.20 | 74.81 | 4,977.38 | 340.26 | 1,661.07 | 1,695.51 | 2.06 | -1.94 | -2.55 |
| 5,408.00 | 13.75 | 71.83 | 5,069.37 | 347.04 | 1,683.81 | 1,719.14 | 1.72 | -1.53 | -3.14 |
| 5,502.00 | 11.48 | 75.38 | 5,161.09 | 352.89 | 1,703.48 | 1,739.56 | 2.55 | -2.41 | 3.78 |
| 5,596.00 | 9.54 | 81.63 | 5,253.52 | 356.38 | 1,720.24 | 1,756.68 | 2.39 | -2.06 | 6.65 |
| 5,691.00 | 8.14 | 83.36 | 5,347.39 | 358.31 | 1,734.71 | 1,771.25 | 1.50 | -1.47 | 1.82 |
| 5,785.00 | 5.50 | 86.69 | 5,440.71 | 359.34 | 1,745.82 | 1,782.35 | 2.84 | -2.81 | 3.54 |
| 5,880.00 | 2.82 | 86.06 | 5,535.45 | 359.76 | 1,752.70 | 1,789.18 | 2.82 | -2.82 | -0.66 |
| 5,974.00 | 1.29 | 95.80 | 5,629.39 | 359.81 | 1,756.06 | 1,792.49 | 1.66 | -1.63 | 10.36 |
| 6,068.00 | 0.61 | 277.95 | 5,723.38 | 359.78 | 1,756.62 | 1,793.03 | 2.02 | -0.72 | -189.20 |
| 6,163.00 | 0.83 | 255.35 | 5,818.38 | 359.67 | 1,755.45 | 1,791.86 | 0.37 | 0.23 | -23.79 |
| 6,256.00 | 0.51 | 242.21 | 5,911.37 | 359.31 | 1,754.43 | 1,790.79 | 0.38 | -0.34 | -14.13 |
| 6,350.00 | 0.68 | 231.82 | 6,005.37 | 358.77 | 1,753.62 | 1,789.90 | 0.21 | 0.18 | -11.05 |
| 6,444.00 | 0.55 | 210.56 | 6,099.36 | 358.03 | 1,752.96 | 1,789.10 | 0.28 | -0.14 | -22.62 |
| 6,539.00 | 0.81 | 211.84 | 6,194.35 | 357.07 | 1,752.37 | 1,788.34 | 0.27 | 0.27 | 1.35 |
| 6,633.00 | 0.75 | 199.59 | 6,288.34 | 355.93 | 1,751.81 | 1,787.57 | 0.19 | -0.06 | -13.03 |
| 6,728.00 | 0.70 | 202.75 | 6,383.34 | 354.81 | 1,751.38 | 1,786.93 | 0.07 | -0.05 | 3.33 |
| 6,822.00 | 0.74 | 168.37 | 6,477.33 | 353.68 | 1,751.28 | 1,786.61 | 0.45 | 0.04 | -36.57 |
| 6,916.00 | 0.90 | 187.58 | 6,571.32 | 352.36 | 1,751.31 | 1,786.38 | 0.34 | 0.17 | 20.44 |
| 7,010.00 | 0.99 | 166.84 | 6,665.31 | 350.83 | 1,751.39 | 1,786.18 | 0.37 | 0.10 | -22.06 |
| 7,105.00 | 0.98 | 182.50 | 6,760.29 | 349.22 | 1,751.54 | 1,786.01 | 0.28 | -0.01 | 16.48 |
| 7,199.00 | 1.31 | 172.51 | 6,854.28 | 347.35 | 1,751.65 | 1,785.76 | 0.41 | 0.35 | -10.63 |
| 7,293.00 | 0.64 | 254.38 | 6,948.26 | 346.15 | 1,751.28 | 1,785.16 | 1.46 | -0.71 | 87.10 |
| 7,388.00 | 1.11 | 47.88 | 7,043.26 | 346.62 | 1,751.46 | 1,785.42 | 1.80 | 0.49 | 161.58 |
| 7,482.00 | 1.14 | 59.73 | 7,137.24 | 347.70 | 1,752.94 | 1,787.09 | 0.25 | 0.03 | 12.61 |
| 7,576.00 | 1.05 | 62.78 | 7,231.22 | 348.57 | 1,754.51 | 1,788.80 | 0.11 | -0.10 | 3.24 |
| 7,671.00 | 1.94 | 9.24 | 7,326.20 | 350.55 | 1,755.54 | 1,790.19 | 1.65 | 0.94 | -56.36 |
| 7,765.00 | 1.67 | 21.41 | 7,420.15 | 353.40 | 1,756.30 | 1,791.48 | 0.50 | -0.29 | 12.95 |
| 7,860.00 | 1.41 | 24.98 | 7,515.11 | 355.75 | 1,757.30 | 1,792.92 | 0.29 | -0.27 | 3.76 |
| 7,954.00 | 1.25 | 33.38 | 7,609.09 | 357.65 | 1,758.35 | 1,794.32 | 0.27 | -0.17 | 8.94 |
| 8,048.00 | 1.18 | 26.38 | 7,703.07 | 359.38 | 1,759.34 | 1,795.63 | 0.17 | -0.07 | -7.45 |
| 8,143.00 | 1.15 | 336.12 | 7,798.05 | 361.12 | 1,759.39 | 1,796.01 | 1.04 | -0.03 | -52.91 |
| 8,237.00 | 1.22 | 322.03 | 7,892.03 | 362.78 | 1,758.40 | 1,795.35 | 0.32 | 0.07 | -14.99 |
| 8,331.00 | 0.81 | 335.08 | 7,986.02 | 364.17 | 1,757.50 | 1,794.74 | 0.50 | -0.44 | 13.88 |



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Scientific Drilling

# Scientific Drilling
## Survey Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-20A1CS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Site:** | NBU 921-20B PAD | **MD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Well:** | NBU 921-20A1CS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | Denver Sales Office |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 8,426.00 | 0.76 | 326.60 | 8,081.01 | 365.30 | 1,756.87 | 1,794.34 | 0.13 | -0.05 | -8.93 |
| 8,520.00 | 0.59 | 318.45 | 8,175.00 | 366.18 | 1,756.21 | 1,793.86 | 0.21 | -0.18 | -8.67 |
| 8,614.00 | 0.66 | 295.62 | 8,269.00 | 366.78 | 1,755.40 | 1,793.18 | 0.27 | 0.07 | -24.29 |
| 8,709.00 | 0.50 | 293.46 | 8,363.99 | 367.18 | 1,754.52 | 1,792.40 | 0.17 | -0.17 | -2.27 |
| 8,803.00 | 0.24 | 314.62 | 8,457.99 | 367.48 | 1,754.01 | 1,791.95 | 0.31 | -0.28 | 22.51 |
| 8,897.00 | 0.30 | 161.20 | 8,551.99 | 367.39 | 1,753.95 | 1,791.88 | 0.56 | 0.06 | -163.21 |
| 8,991.00 | 0.31 | 164.16 | 8,645.99 | 366.91 | 1,754.10 | 1,791.93 | 0.02 | 0.01 | 3.15 |
| 9,085.00 | 0.57 | 153.34 | 8,739.98 | 366.25 | 1,754.37 | 1,792.08 | 0.29 | 0.28 | -11.51 |
| 9,180.00 | 0.90 | 136.20 | 8,834.98 | 365.29 | 1,755.10 | 1,792.61 | 0.41 | 0.35 | -18.04 |
| 9,274.00 | 0.62 | 228.57 | 8,928.97 | 364.42 | 1,755.23 | 1,792.57 | 1.18 | -0.30 | 98.27 |
| 9,369.00 | 0.67 | 226.15 | 9,023.96 | 363.69 | 1,754.45 | 1,791.65 | 0.06 | 0.05 | -2.55 |
| 9,463.00 | 0.84 | 195.53 | 9,117.96 | 362.65 | 1,753.87 | 1,790.88 | 0.46 | 0.18 | -32.57 |
| 9,589.00 | 0.21 | 76.53 | 9,243.95 | 361.81 | 1,753.84 | 1,790.70 | 0.76 | -0.50 | -94.44 |
| 9,683.00 | 0.47 | 148.69 | 9,337.95 | 361.52 | 1,754.21 | 1,791.00 | 0.48 | 0.28 | 76.77 |
| 9,777.00 | 0.37 | 179.19 | 9,431.95 | 360.89 | 1,754.42 | 1,791.08 | 0.26 | -0.11 | 32.45 |
| 9,872.00 | 0.64 | 174.60 | 9,526.94 | 360.06 | 1,754.47 | 1,790.97 | 0.29 | 0.28 | -4.83 |
| 9,966.00 | 0.78 | 192.78 | 9,620.94 | 358.91 | 1,754.38 | 1,790.66 | 0.28 | 0.15 | 19.34 |
| 10,044.00 | 0.79 | 189.72 | 9,698.93 | 357.86 | 1,754.17 | 1,790.26 | 0.06 | 0.01 | -3.92 |
| 10,138.00 | 0.95 | 189.17 | 9,792.92 | 356.45 | 1,753.94 | 1,789.76 | 0.17 | 0.17 | -0.59 |
| 10,232.00 | 1.15 | 184.68 | 9,886.90 | 354.74 | 1,753.73 | 1,789.23 | 0.23 | 0.21 | -4.78 |
| 10,327.00 | 1.29 | 171.12 | 9,981.88 | 352.74 | 1,753.82 | 1,788.93 | 0.34 | 0.15 | -14.27 |
| 10,421.00 | 1.32 | 159.49 | 10,075.86 | 350.68 | 1,754.36 | 1,789.06 | 0.28 | 0.03 | -12.37 |
| 10,515.00 | 1.11 | 154.08 | 10,169.84 | 348.85 | 1,755.14 | 1,789.47 | 0.25 | -0.22 | -5.76 |
| 10,591.00 | 1.23 | 154.04 | 10,245.82 | 347.45 | 1,755.82 | 1,789.87 | 0.16 | 0.16 | -0.05 |
| **LAST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 10,647.00 | 1.23 | 154.04 | 10,301.81 | 346.37 | 1,756.35 | 1,790.17 | 0.00 | 0.00 | 0.00 |
| **SDI PROJECTION TO TD** | | | | | | | | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| PBHL_NBU 921-20A1C: | 0.00 | 0.00 | 10,299.00 | 350.06 | 1,761.18 | 14,539,369.16 | 2,041,519.62 | 40.0277340 | -109.5672340 |

- actual wellpath misses target center by 6.07ft at 10644.17ft MD (10298.98 TVD, 346.42 N, 1756.32 E)
- Circle (radius 25.00)

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) |
|---|---|---|---|---|
| 3,144.00 | 2,981.19 | 8 5/8" | 8.625 | 11.000 |



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## Survey Report

Anadarko Petroleum Corporation

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| **Site:** | NBU 921-20B PAD | **MD Reference:** | GL 4873 & KB 24 @ 4897.00ft (HP 318) |
| **Well:** | NBU 921-20A1CS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | Denver Sales Office |

**Design Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 159.00 | 159.00 | -0.21 | -0.06 | FIRST SDI MWD SURFACE SURVEY |
| 3,125.00 | 2,963.93 | 163.39 | 830.67 | LAST SDI MWD SURFACE SURVEY |
| 3,236.00 | 3,065.12 | 173.80 | 875.08 | FIRST SDI MWD PRODUCTION SURVEY |
| 10,591.00 | 10,245.82 | 347.45 | 1,755.82 | LAST SDI MWD PRODUCTION SURVEY |
| 10,647.00 | 10,301.81 | 346.37 | 1,756.35 | SDI PROJECTION TO TD |

Checked By: _____ Approved By: _____ Date: _____



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