API Well Number: 43047525680000

**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 921-22E4BS

**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)**
UTU 0147566

**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 Indian 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 | 2179 FNL 750 FWL | SWNW | 22 | 9.0 S | 21.0 E | S |
| Top of Uppermost Producing Zone | 2239 FNL 824 FWL | SWNW | 22 | 9.0 S | 21.0 E | S |
| At Total Depth | 2239 FNL 824 FWL | SWNW | 22 | 9.0 S | 21.0 E | S |

**21. COUNTY**
UINTAH

**22. DISTANCE TO NEAREST LEASE LINE (Feet)**
404

**23. NUMBER OF ACRES IN DRILLING UNIT**
160

**25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)**
81

**26. PROPOSED DEPTH**
MD: 11182 TVD: 11180

**27. ELEVATION - GROUND LEVEL**
4868

**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 - 2870 | 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 - 11182 | 11.6 | HCP-110 LT&C | 13.0 | Premium Lite High Strength | 350 | 3.38 | 12.0 |
| | | | | | | | 50/50 Poz | 1590 | 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** Laura Abrams | **TITLE** Regulatory Analyst II | **PHONE** 720 929-6356

**SIGNATURE** | **DATE** 04/27/2012 | **EMAIL** Laura.Abrams@anadarko.com

**API NUMBER ASSIGNED**
43047525680000

**APPROVAL**
Permit Manager

RECEIVED: May 30, 2012

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

**NBU 921-22E4BS**

| | | |
|---|---|---|
| Surface: | 2179 FNL / 750 FWL | SWNW |
| BHL: | 2239 FNL / 824 FWL | SWNW |

Section 22 T9S R21E

Unitah County, Utah
Mineral Lease: UTU 0147566

**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 | 1,557' | |
| Birds Nest | 1,919' | Water |
| Mahogany | 2,416' | Water |
| Wasatch | 4,948' | Gas |
| Mesaverde | 7,891' | Gas |
| Sego | 10,119' | Gas |
| Castlegate | 10,176' | Gas |
| MN5 | 10,580' | Gas |
| TVD = | 11,180' | |
| TD = | 11,182' | |

**2.c** Kerr McGee Oil & Gas Onshore LP (Kerr McGee) will either drill to the the Blackhawk formation, which is part of the Mesaverde formation, or the Wasatch/Mesaverde formation. If Kerr McGee drills to the Blackhawk formation (part of the Mesaverde formation), please refer to MN5 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 the Wasatch/Mesaverde formation please refer to Sego as the bottom formation. The attached Wasatch/Mesaverde Drilling Program includes Total Vertical Depth, Total Depth, and appropriate casing and cement programs for the depths the Wasatch/Mesaverde formations are found.

RECEIVED: April 23, 2012

**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:**

**7.a Blackhawk (Part of Mesaverde Formation) Target Formation**

Maximum anticipated bottom hole pressure calculated at 11180' TVD, approximately equals 7,379 psi (0.66 psi/ft = actual bottomhole gradient)

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

Maximum anticipated surface pressure equals approximately 4,970 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/Mesaverde Target Formation**

Maximum anticipated bottom hole pressure calculated at 10119' TVD, approximately equals 6,476 psi (0.64 psi/ft = actual bottomhole gradient)

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

Maximum anticipated surface pressure equals approximately 4,236 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.

RECEIVED: April 23, 2012

This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.

The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.

More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.

**Background**
In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.

Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.

The air rig is then mobilized to drill the surface casing hole by drilling a 12 1/4 inch hole for the first 200 feet, then will drill a 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.

RECEIVED: April 23, 2012

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

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

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

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

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

**10. Other Information:**

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

RECEIVED: April 23, 2012

API Well Number: 43047525680000

NBU 921-22E Pad



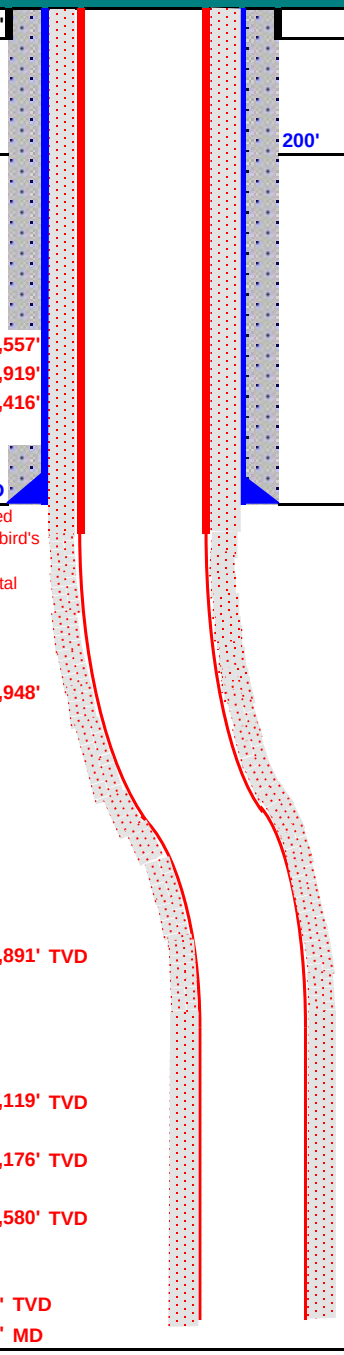
KerrMcGee

## KERR-McGEE OIL & GAS ONSHORE LP

# BLACKHAWK DRILLING PROGRAM

| | | | |
|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | DATE | December 19, 2011 |
| WELL NAME | **NBU 921-22E4BS** | TD | 11,180' TVD 11,182' MD |
| FIELD | Natural Buttes | COUNTY Uintah | STATE Utah FINISHED ELEVATION 4,868' |
| SURFACE LOCATION | SWNW 2179 FNL 750 FWL | Sec 22 T 9S R 21E | |
| | Latitude: 40.022865 | Longitude: -109.544625 | NAD 83 |
| BTM HOLE LOCATION | SWNW 2239 FNL 824 FWL | Sec 22 T 9S R 21E | |
| | Latitude: 40.022700 | Longitude: -109.544362 | NAD 83 |
| OBJECTIVE ZONE(S) | BLACKHAWK | | |
| 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 |
| **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 @** | **1,557'** | | | |
| | **Top of Birds Nest @** | **1,919'** | | | |
| | **Mahogany @** | **2,416'** | | | |
| | **Preset f/ GL @** | **2,870' 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 @** | **4,948'** | | | |
| Mud logging program TBD<br>Cased hole logging program from TD - surf csg | | | 7-7/8" | 4-1/2" 11.6#<br>HCP-110<br>Ultra DQX/LTC csg | Water / Fresh<br>Water Mud<br>8.3-13.0 ppg |
| | **Mesaverde @** | **7,891' TVD** | | | |
| | **Sego @** | **10,119' TVD** | | | |
| | **Castlegate @** | **10,176' TVD** | | | |
| | **MN5 @** | **10,580' TVD** | | | |
| Max anticipated Mud required 13.0 ppg | **TD @** | **11,180' TVD**<br>**11,182' MD** | | | |



RECEIVED: April 23, 2012

NBU 921-22E Pad



# 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 | 2,870 | 28.00 | IJ-55 | LTC | 1.87 | 1.40 | 4.95 | 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 | 1.14 | | 3.53 |
| | 4-1/2" | 5,000 | to | 11,182' | 11.60 | HCP-110 | LTC | 1.19 | 1.14 | 4.86 | |

**Surface Casing:**

(Burst Assumptions: TD = 13.0 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 @ 9000 psi) 0.66 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 | 2,370' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 220 | 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 | 4,442' | Premium Lite II +0.25 pps | 350 | 35% | 12.00 | | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | | |
| | | | + 0.5% extender | | | | | |
| | TAIL | 6,740' | 50/50 Poz/G + 10% salt + 2% gel | 1,590 | 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 / Chad Loesel

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

Kenny Gathings / Lovel Young

RECEIVED: April 23, 2012

KerrMcGee

# KERR-McGEE OIL & GAS ONSHORE LP
# WASATCH/MESAVERDE DRILLING PROGRAM

| | | | |
|---|---|---|---|
| COMPANY NAME | KERR-McGEE OIL & GAS ONSHORE LP | DATE | December 19, 2011 |
| WELL NAME | **NBU 921-22E4BS** | TD | 10,119' TVD 10,121' MD |
| FIELD | Natural Buttes | COUNTY Uintah | STATE Utah FINISHED ELEVATION 4,868' |
| SURFACE LOCATION | SWNW 2179 FNL 750 FWL Sec 22 T 9S R 21E | | |
| | Latitude: 40.022865 Longitude: -109.544625 | | NAD 83 |
| BTM HOLE LOCATION | SWNW 2239 FNL 824 FWL Sec 22 T 9S R 21E | | |
| | Latitude: 40.022700 Longitude: -109.544362 | | NAD 83 |
| OBJECTIVE ZONE(S) | Wasatch/Mesaverde | | |
| 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# I-80/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 @ 1,557'**
**Top of Birds Nest @ 1,919'**
**Mahogany @ 2,416'**

**Preset f/ GL @ 2,870' 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 @ 4,948'**

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

**Mesaverde @ 7,891' TVD**

**Sego 10,119' TVD**

Max anticipated Mud required 12.5 ppg

**TD @ 10,119' TVD 10,121' MD**

RECEIVED: April 23, 2012

NBU 921-22E Pad



# 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 | 2,870 | 28.00 | IJ-55 | LTC | 1.87 | 1.40 | 4.95 | N/A |
| | | | | | | | | 7,780 | 6,350 | | 267,035 |
| PRODUCTION | 4-1/2" | 0 | to | 5,000 | 11.60 | I-80 | DQX | 1.11 | 0.97 | | 2.81 |
| | | | | | | | | 10,690 | 8,650 | 223,000 | |
| | 4-1/2" | 5,000 | to | 10,121' | 11.60 | HCP-110 | LTC | 1.53 | 1.32 | 4.64 | |

**Surface Casing:**

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

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

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

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.64 psi/ft = bottomhole gradient

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

### CEMENT PROGRAM

| | | FT. OF FILL | DESCRIPTION | SACKS | EXCESS | WEIGHT | | YIELD |
|---|---|---|---|---|---|---|---|---|
| SURFACE | LEAD | 500' | Premium cmt + 2% CaCl | 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 | 2,370' | 65/35 Poz + 6% Gel + 10 pps gilsonite | 220 | 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 | 4,441' | Premium Lite II +0.25 pps | 350 | 35% | 12.00 | | 3.38 |
| | | | celloflake + 5 pps gilsonite + 10% gel | | | | | |
| | | | + 0.5% extender | | | | | |
| | TAIL | 5,680' | 50/50 Poz/G + 10% salt + 2% gel | 1,340 | 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.<br>1 centralizer on the first 3 joints and one every third joint thereafter. |

### ADDITIONAL INFORMATION

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

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

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

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

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

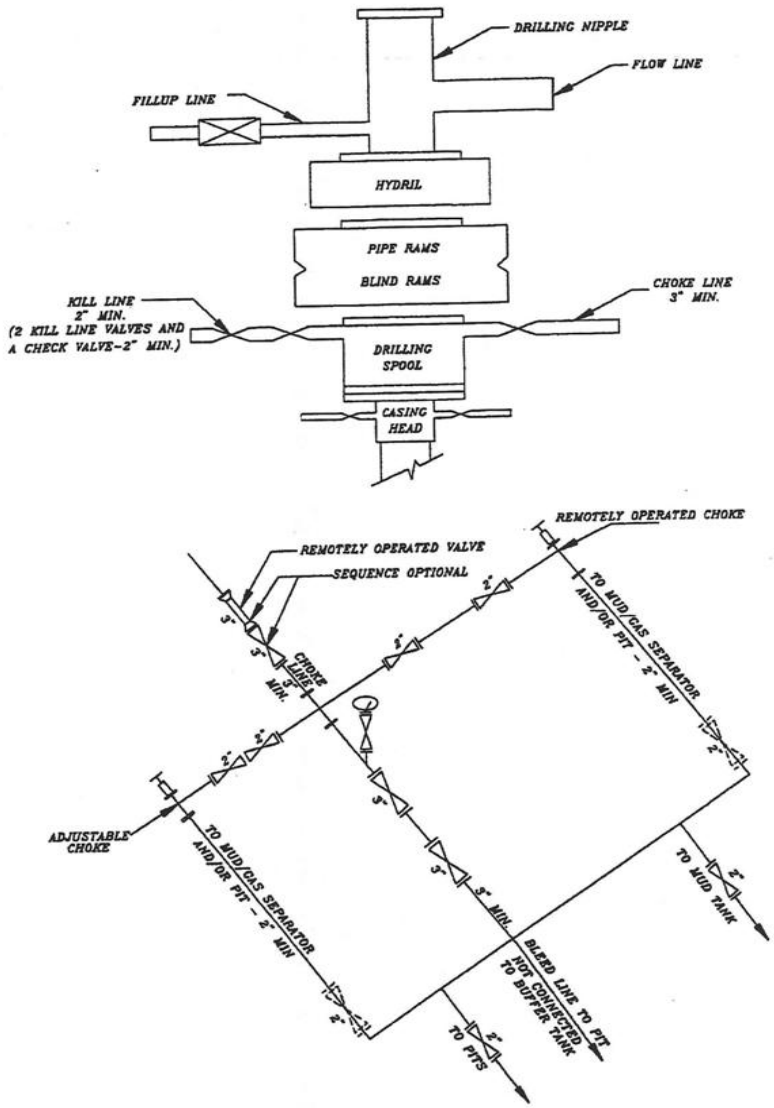
Nick Spence / Danny Showers / Chad Loesel

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

Kenny Gathings / Lovel Young

RECEIVED: April 23, 2012

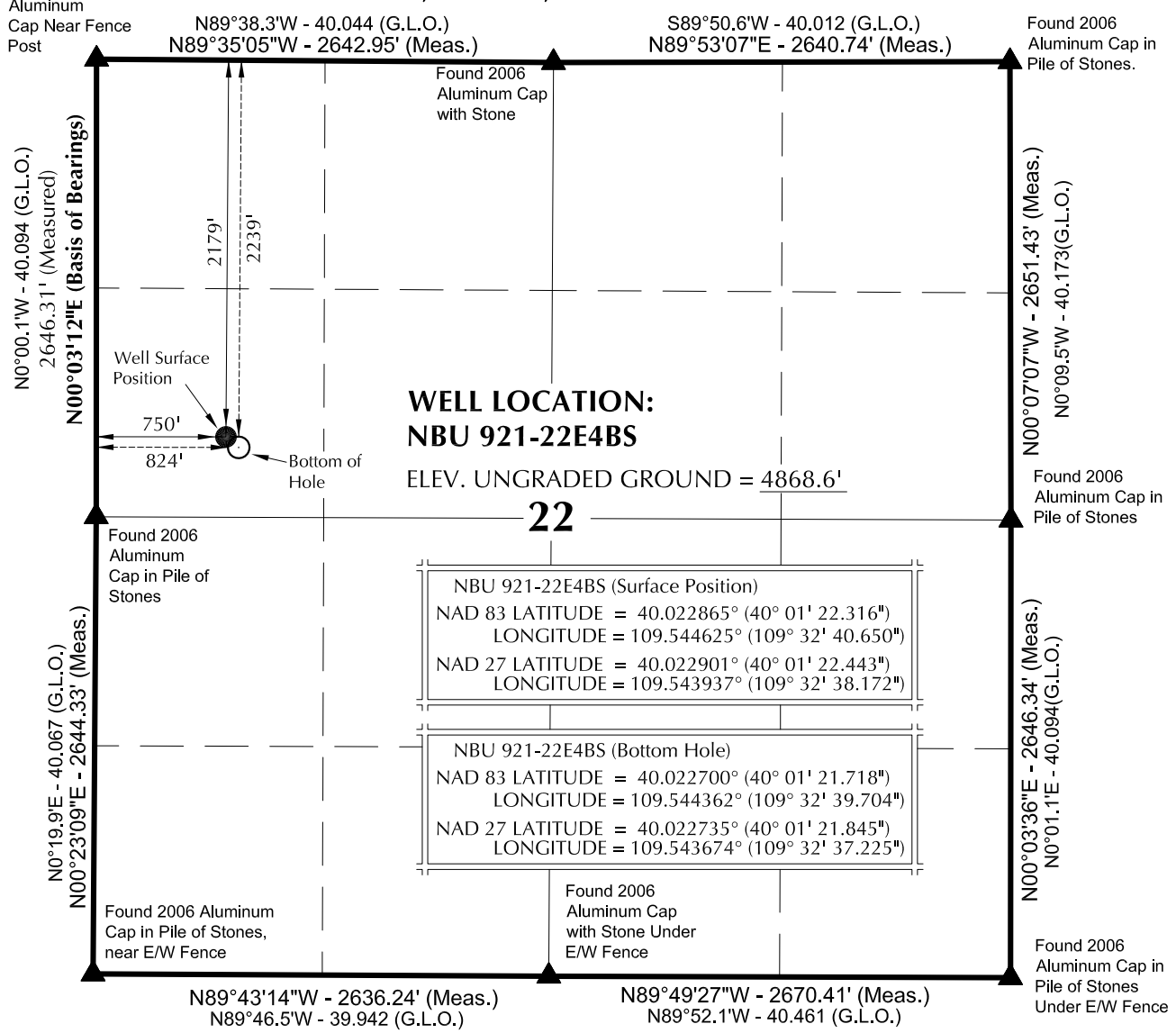
**EXHIBIT A**
**NBU 921-22E4BS**




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

RECEIVED: April 23, 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 S50°31'39"E 95.26' 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.

9-14-11

PROFESSIONAL LAND SURVEYOR
REGISTRATION No. 6028691
STATE OF UTAH

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

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

**WELL PAD: NBU 921-22E**

**NBU 921-22E4BS**
**WELL PLAT**
**2239' FNL, 824' FWL (Bottom Hole)**
**SW $\frac{1}{4}$ NW $\frac{1}{4}$ OF SECTION 22, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH.**

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

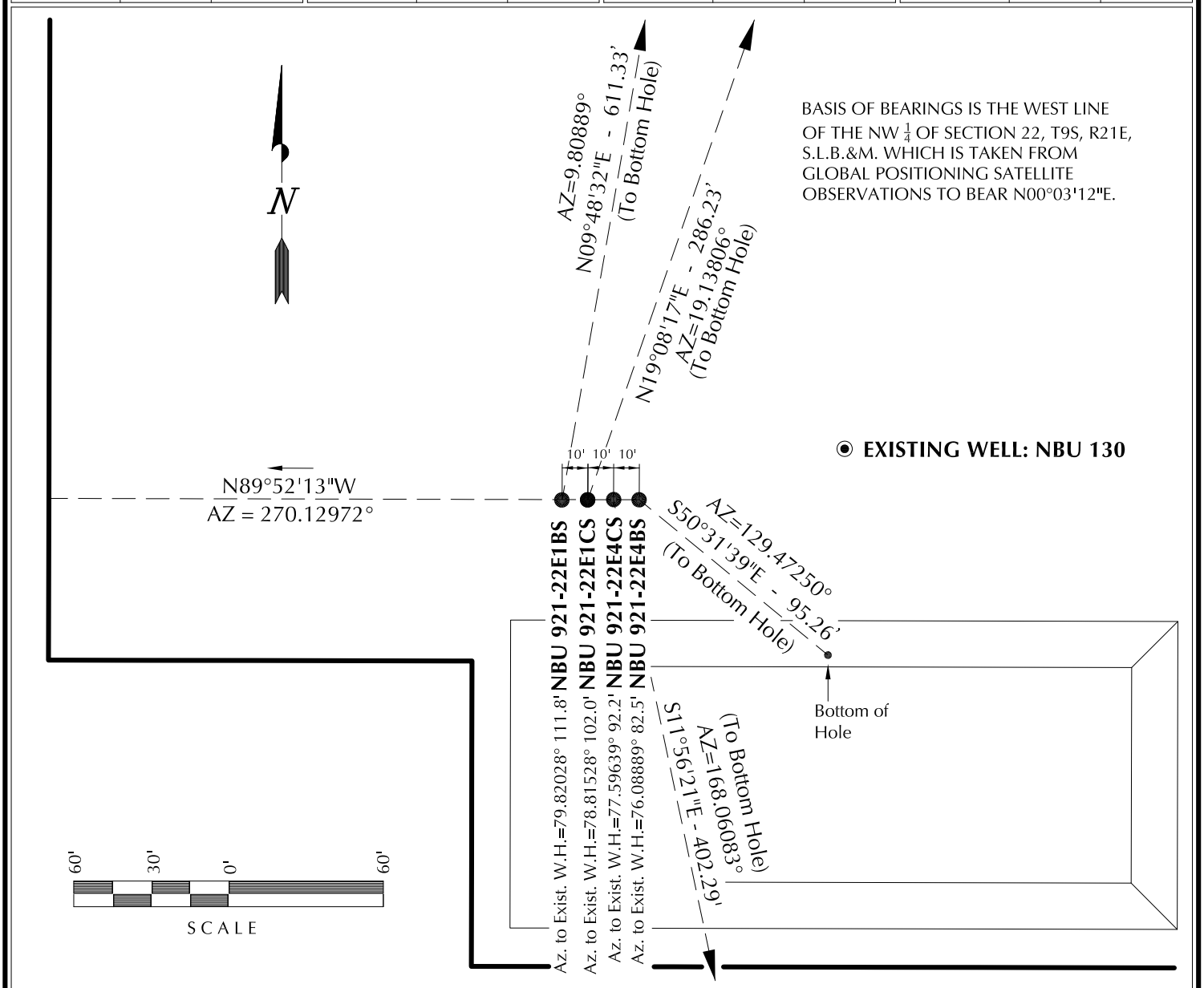
| | | |
|---|---|---|
| DATE SURVEYED: 7-19-11 | SURVEYED BY: D.J.S. | SHEET NO: |
| DATE DRAWN: 8-22-11 | DRAWN BY: C.T.C. | 1 |
| SCALE: 1" = 1000' | Date Last Revised: | 1 OF 16 |

API Well Number: 43047525680000

| WELL NAME | SURFACE POSITION | | | | | BOTTOM HOLE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | NAD83 | | NAD27 | | | NAD83 | | NAD27 | | |
| | LATITUDE | LONGITUDE | LATITUDE | LONGITUDE | FOOTAGES | LATITUDE | LONGITUDE | LATITUDE | LONGITUDE | FOOTAGES |
| NBU 921-22E4BS | 40°01'22.316" 40.022865° | 109°32'40.650" 109.544625° | 40°01'22.443" 40.022901° | 109°32'38.172" 109.543937° | 2179' FNL 750' FWL | 40°01'21.718" 40.022700° | 109°32'39.704" 109.544362° | 40°01'21.845" 40.022735° | 109°32'37.225" 109.543674° | 2239' FNL 824' FWL |
| NBU 921-22E4CS | 40°01'22.316" 40.022866° | 109°32'40.777" 109.544660° | 40°01'22.443" 40.022901° | 109°32'38.299" 109.543972° | 2179' FNL 740' FWL | 40°01'18.428" 40.021786° | 109°32'39.704" 109.544362° | 40°01'18.555" 40.021821° | 109°32'37.226" 109.543674° | 2572' FNL 824' FWL |
| NBU 921-22E1CS | 40°01'22.316" 40.022865° | 109°32'40.906" 109.544696° | 40°01'22.443" 40.022901° | 109°32'38.428" 109.544008° | 2179' FNL 730' FWL | 40°01'24.989" 40.023608° | 109°32'39.704" 109.544362° | 40°01'25.116" 40.023643° | 109°32'37.225" 109.543674° | 1908' FNL 824' FWL |
| NBU 921-22E1BS | 40°01'22.316" 40.022866° | 109°32'41.035" 109.544732° | 40°01'22.443" 40.022901° | 109°32'38.557" 109.544044° | 2179' FNL 720' FWL | 40°01'28.269" 40.024519° | 109°32'39.704" 109.544362° | 40°01'28.396" 40.024554° | 109°32'37.225" 109.543674° | 1576' FNL 824' FWL |
| NBU 130 | 40°01'22.512" 40.022920° | 109°32'39.621" 109.544339° | 40°01'22.640" 40.022955° | 109°32'37.143" 109.543651° | 2159' FNL 830' 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 921-22E4BS | -60.6' | 73.5' | NBU 921-22E4CS | -393.6' | 83.2' | NBU 921-22E1CS | 270.4' | 93.8' | NBU 921-22E1BS | 602.4' | 104.1' |

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**WELL PAD - NBU 921-22E**

**WELL PAD INTERFERENCE PLAT**
**WELLS - NBU 921-22E4BS, NBU 921-22E4CS, NBU 921-22E1CS & NBU 921-22E1BS LOCATED IN SECTION 22, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH.**

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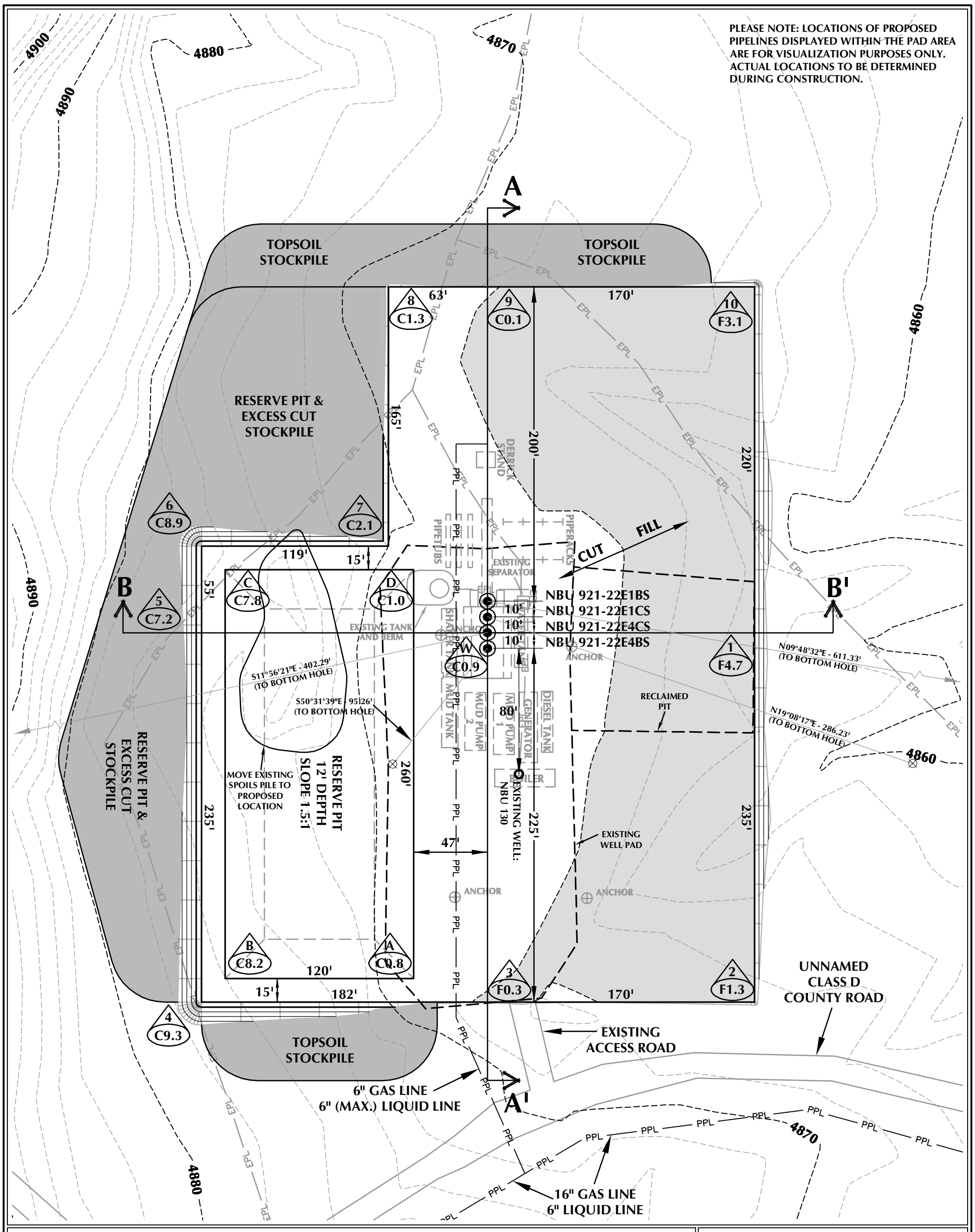
209 NORTH 300 WEST - VERNAL, UTAH 84078

| | | |
|---|---|---|
| DATE SURVEYED: 7-19-11 | SURVEYED BY: D.J.S. | SHEET NO: 5 |
| DATE DRAWN: 8-22-11 | DRAWN BY: C.T.C. | |
| SCALE: 1" = 60' | Date Last Revised: | 5 OF 16 |

RECEIVED: April 23, 2012




## WELL PAD - NBU 921-22E DESIGN SUMMARY

EXISTING GRADE @ CENTER OF WELL PAD = 4868.7'
FINISHED GRADE ELEVATION = 4867.8'
CUT SLOPES = 1.5:1
FILL SLOPES = 1.5:1
TOTAL WELL PAD AREA = 3.46 ACRES
TOTAL DISTURBANCE AREA = 4.77 ACRES
SHRINKAGE FACTOR = 1.10
SWELL FACTOR = 1.00

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1099 18th Street - Denver, Colorado 80202

### WELL PAD QUANTITIES

TOTAL CUT FOR WELL PAD = 8,051 C.Y.
TOTAL FILL FOR WELL PAD = 6,402 C.Y.
TOPSOIL @ 6" DEPTH = 2,166 C.Y.
EXCESS MATERIAL = 1,649 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

WELL PAD - NBU 921-22E

WELL PAD - LOCATION LAYOUT
NBU 921-22E4BS, NBU 921-22E4CS,
NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

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209 NORTH 300 WEST - VERNAL, UTAH 84078

SCALE: 1"=60' | DATE: 9/14/11 | SHEET NO: 6
REVISED:
6 OF 16

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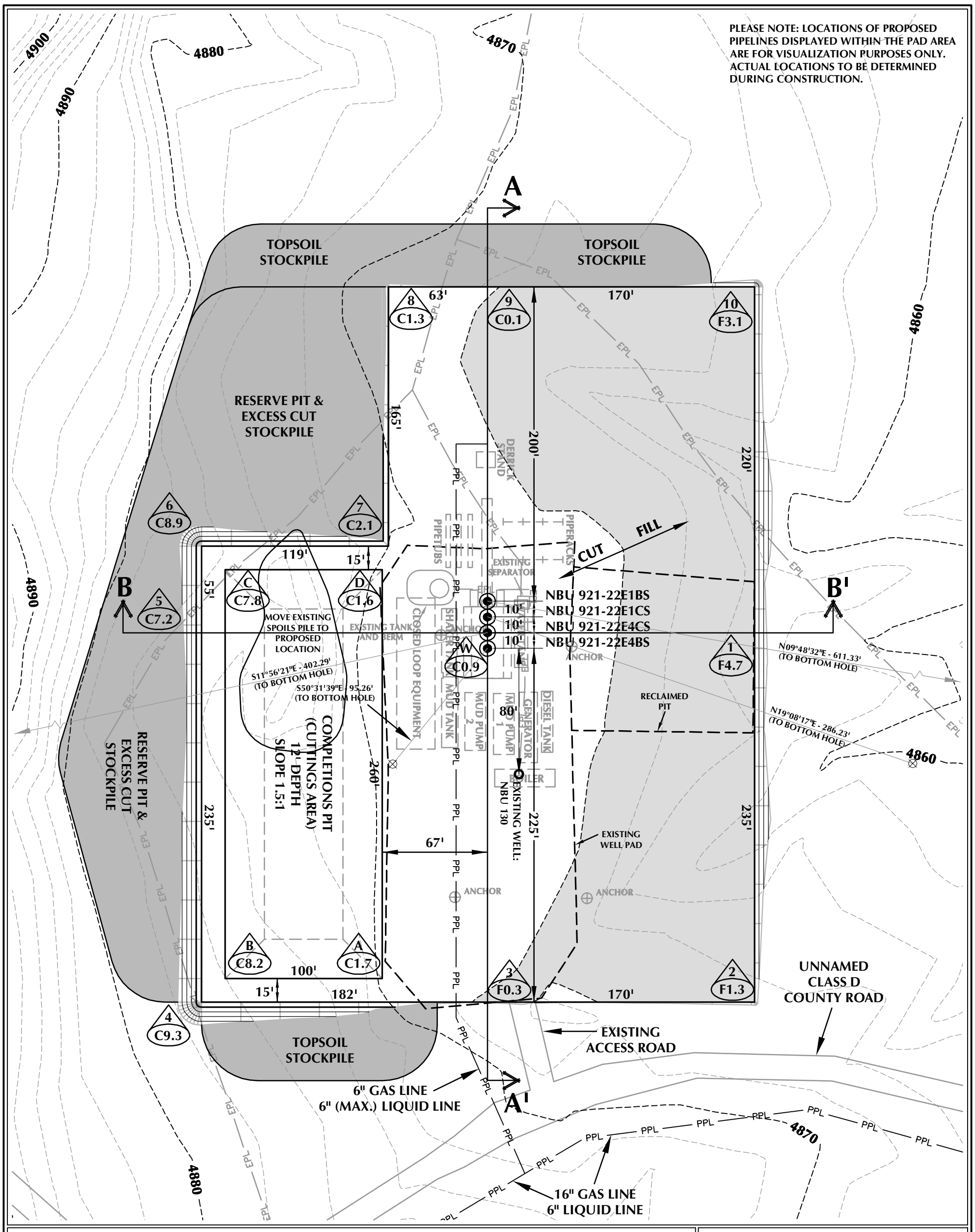
RECEIVED: April 23, 2012




## WELL PAD - NBU 921-22E (CLOSED LOOP) DESIGN SUMMARY

EXISTING GRADE @ CENTER OF WELL PAD = 4868.7'
FINISHED GRADE ELEVATION = 4867.8'
CUT SLOPES = 1.5:1
FILL SLOPES = 1.5:1
TOTAL WELL PAD AREA = 3.46 ACRES
TOTAL DISTURBANCE AREA = 4.77 ACRES
SHRINKAGE FACTOR = 1.10
SWELL FACTOR = 1.00

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WELL PAD - NBU 921-22E

WELL PAD - LOCATION LAYOUT
NBU 921-22E4BS, NBU 921-22E4CS,
NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

**WELL PAD QUANTITIES**

TOTAL CUT FOR WELL PAD = 8,051 C.Y.
TOTAL FILL FOR WELL PAD = 6,402 C.Y.
TOPSOIL @ 6" DEPTH = 2,166 C.Y.
EXCESS MATERIAL = 1,649 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

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209 NORTH 300 WEST - VERNAL, UTAH 84078

SCALE: 1"=60' | DATE: 12/1/11 | SHEET NO: 6B 6B OF 16
REVISED:

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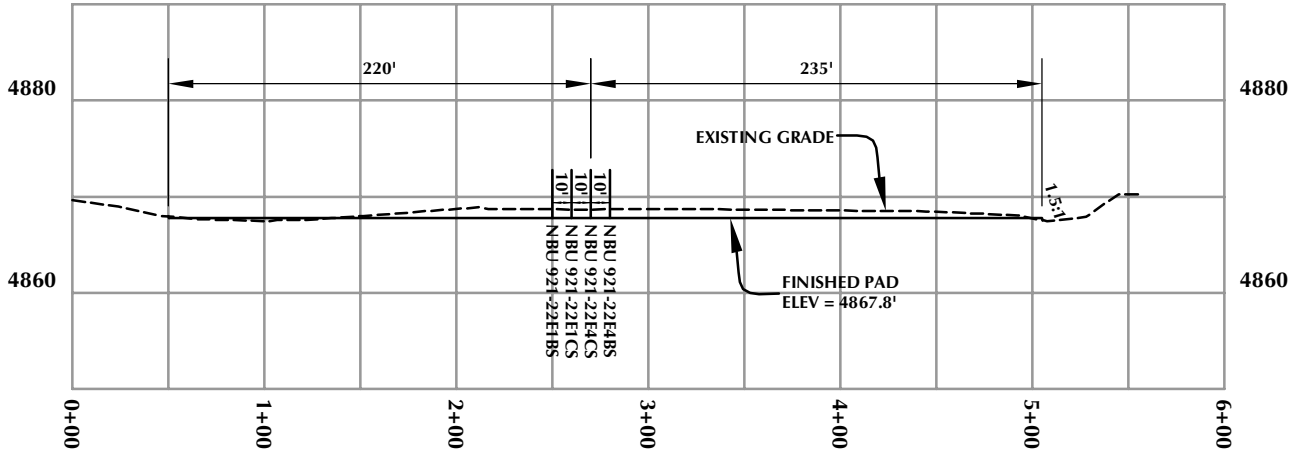
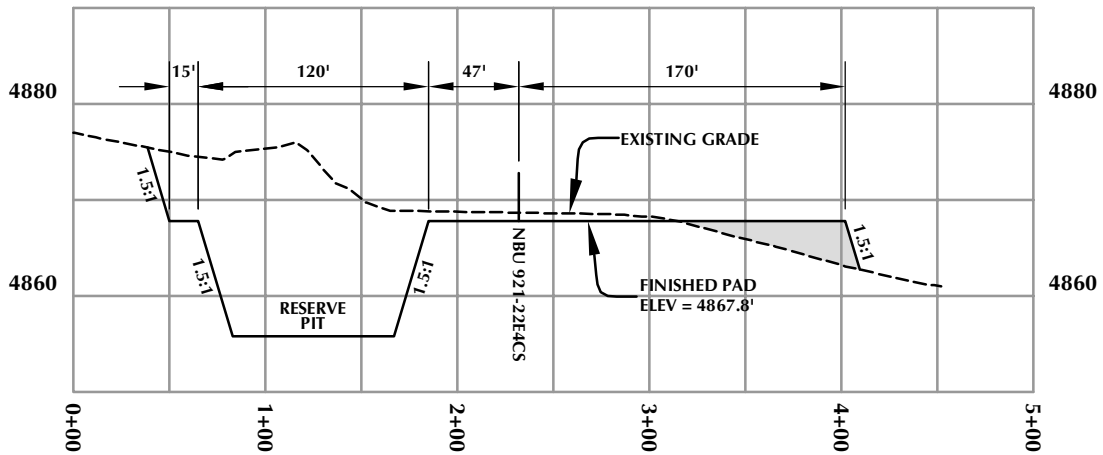
RECEIVED: April 23, 2012




## CROSS SECTION A-A'




## CROSS SECTION B-B'

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

WELL PAD - NBU 921-22E

WELL PAD - CROSS SECTIONS
NBU 921-22E4BS, NBU 921-22E4CS,
NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

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209 NORTH 300 WEST - VERNAL, UTAH 84078

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

Scale: 1"=100' | Date: 9/14/11 | SHEET NO: 7
REVISED:
7 OF 16

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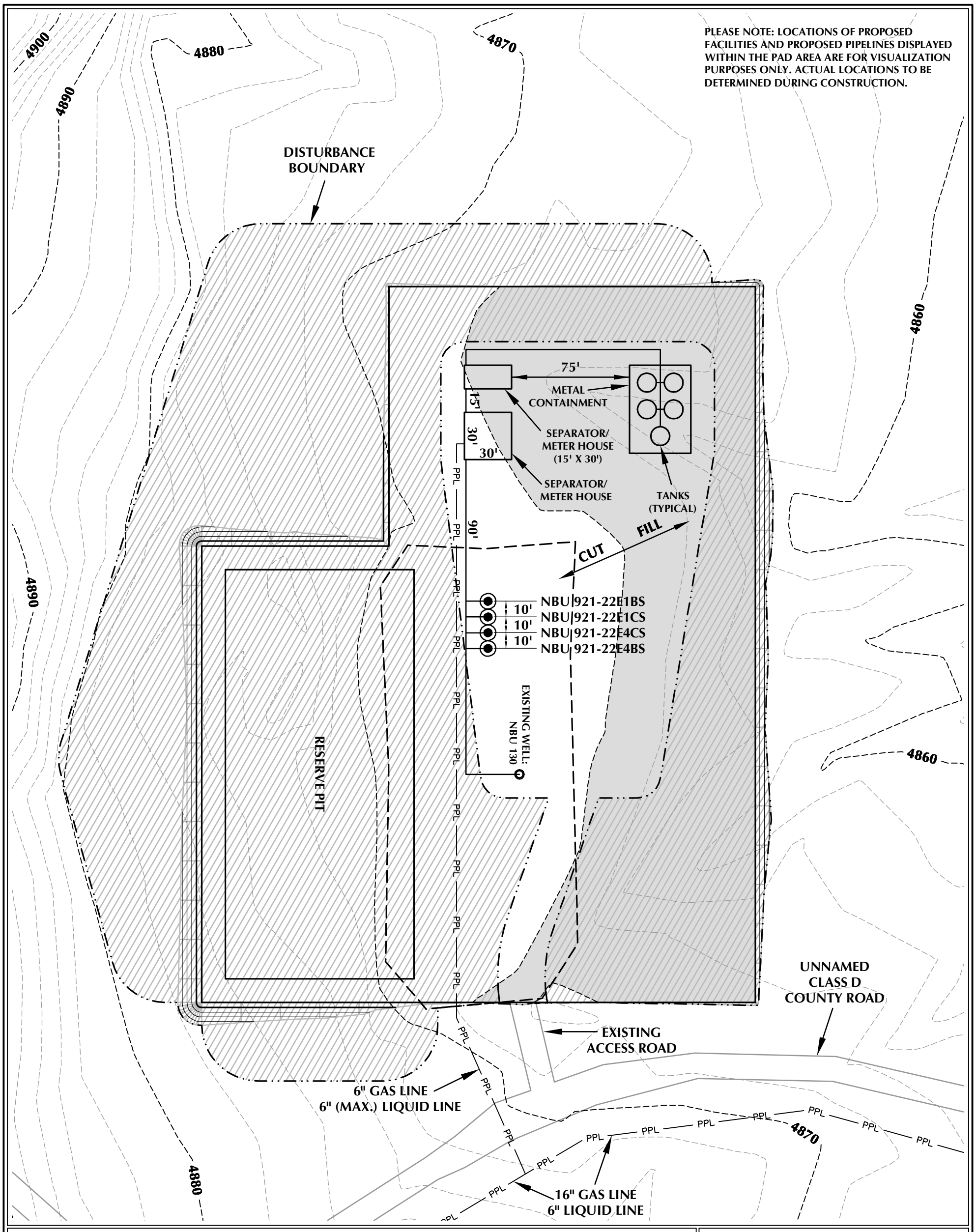


## WELL PAD - NBU 921-22E DESIGN SUMMARY

TOTAL DISTURBANCE AREA = 4.77 ACRES (INCLUDING EXISTING)
RECLAMATION AREA = 3.68 ACRES
TOTAL WELL PAD AREA AFTER RECLAMATION = 1.09 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 921-22E

WELL PAD - LOCATION LAYOUT
NBU 921-22E4BS, NBU 921-22E4CS,
NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, T9S, R21E,
S.L.B.&M., UINTAH COUNTY, UTAH

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SCALE: 1"=60' | DATE: 12/1/11 | SHEET NO: 8
REVISED:
8 OF 16

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RECEIVED: April 23, 2012

API Well Number: 43047525680000

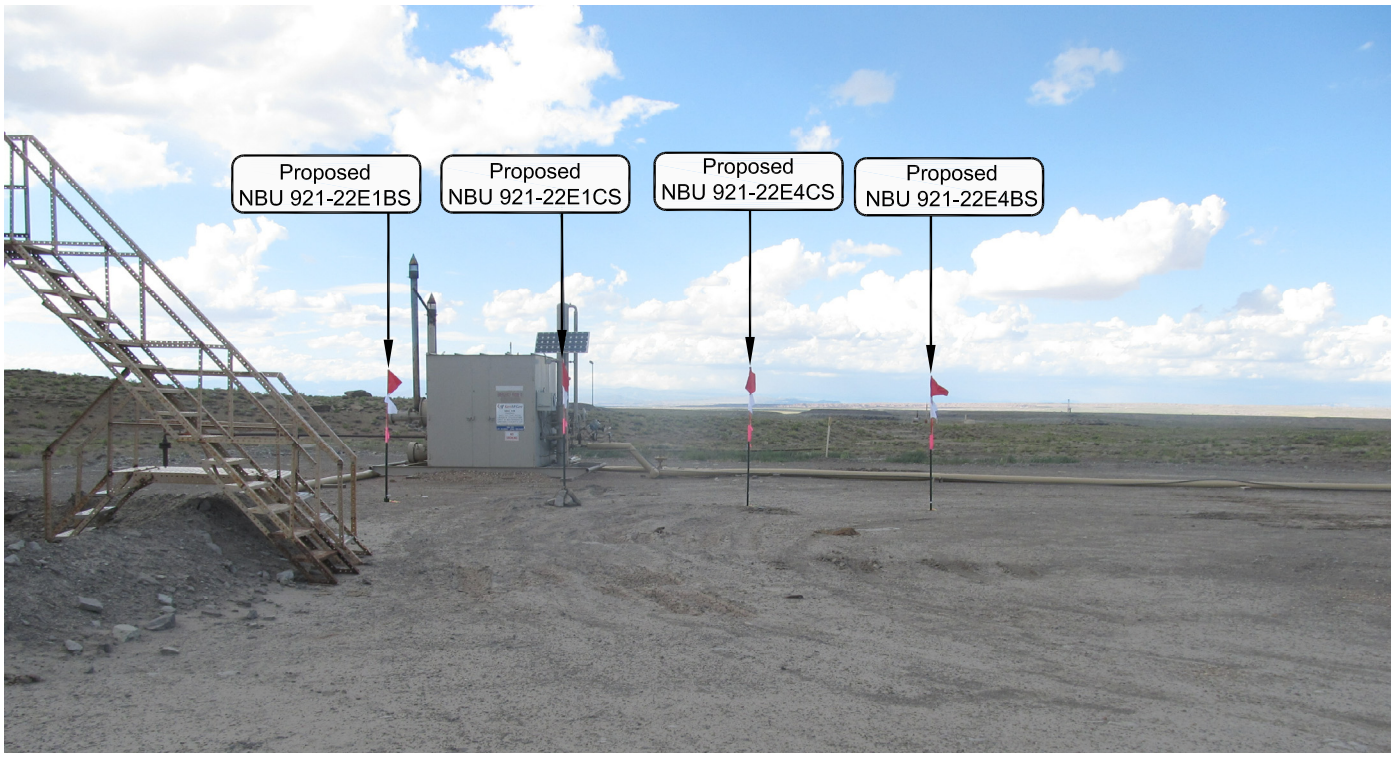


PHOTO VIEW: FROM CORNER #5 TO LOCATION STAKE

CAMERA ANGLE: NORTHERLY

PHOTO VIEW: FROM EXISTING ACCESS ROAD

CAMERA ANGLE: WESTERLY

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

**WELL PAD - NBU 921-22E**

**LOCATION PHOTOS**
**NBU 921-22E4BS, NBU 921-22E4CS, NBU 921-22E1CS & NBU 921-22E1BS**
**LOCATED IN SECTION 22, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH.**

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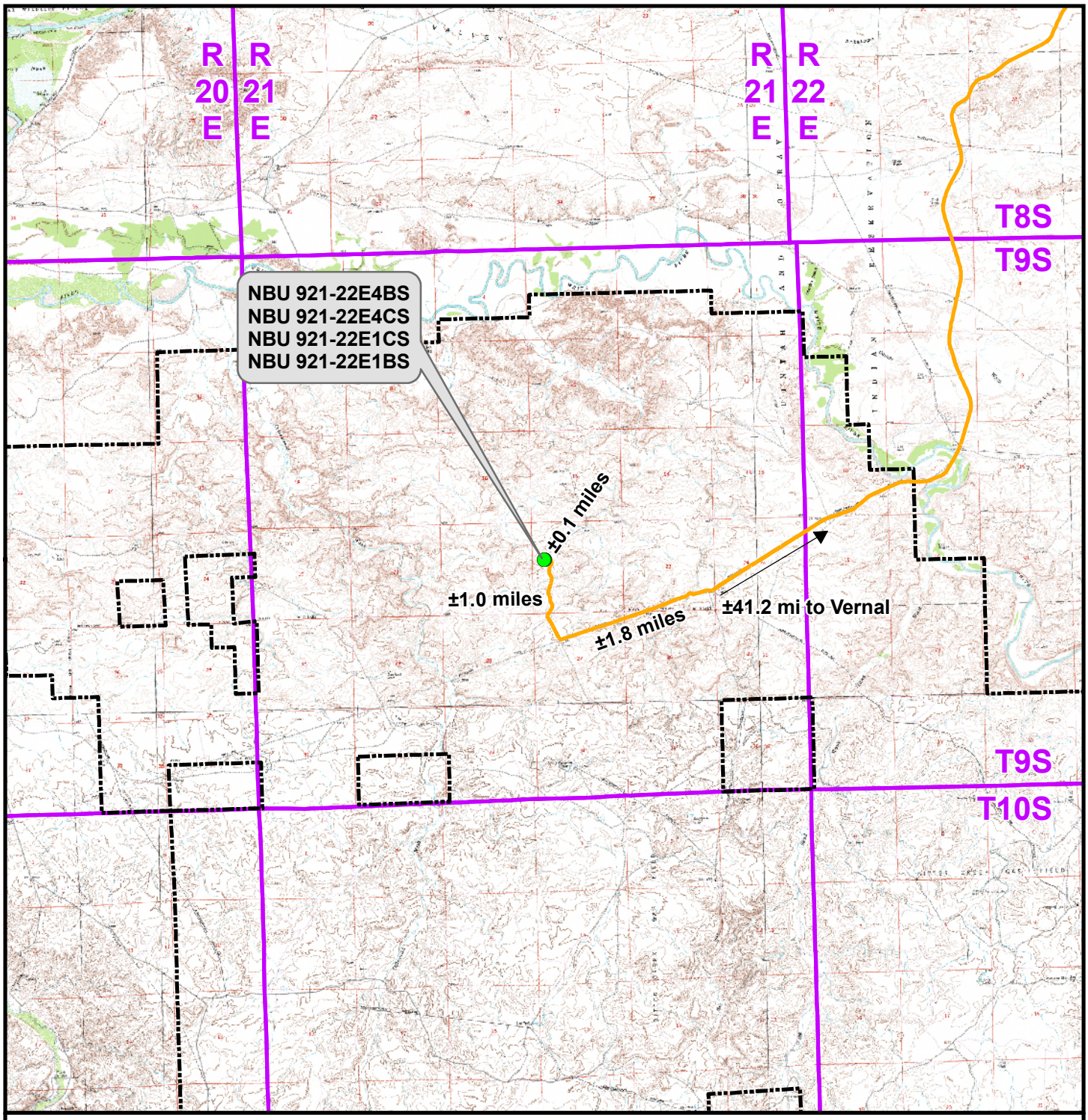
| | | |
|---|---|---|
| DATE PHOTOS TAKEN: 7-19-11 | PHOTOS TAKEN BY: D.J.S. | SHEET NO: |
| DATE DRAWN: 8-22-11 | DRAWN BY: C.T.C. | 9 |
| Date Last Revised: | | 9 OF 16 |

RECEIVED: April 23, 2012




**Legend**

Distance From Well Pad - NBU 921-22E To Unit Boundary: ±12,549ft

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

## WELL PAD - NBU 921-22E

TOPO A
NBU 921-22E4BS, NBU 921-22E4CS, NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH

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

1099 18th Street
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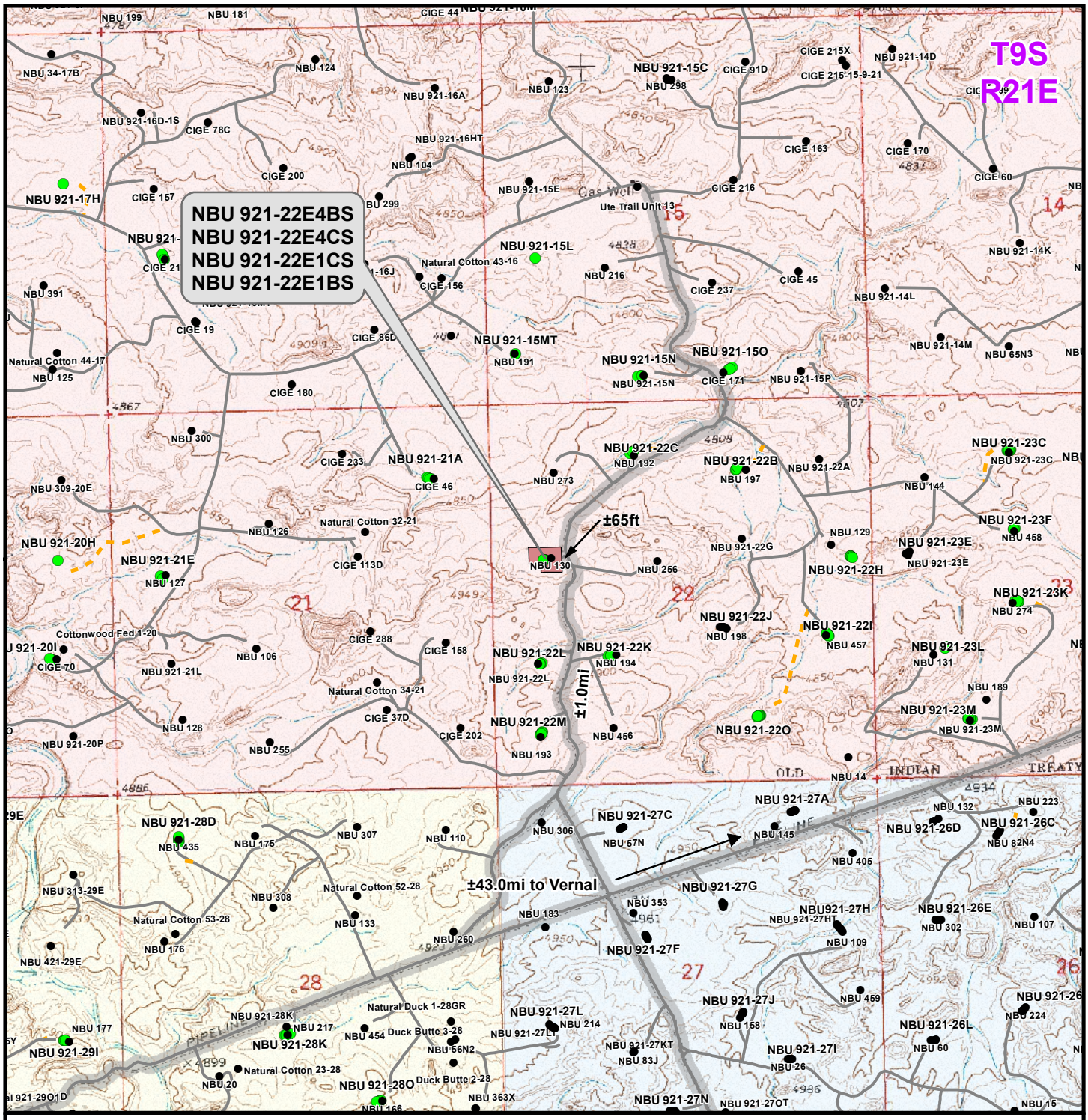
Phone 307-674-0609
Fax 307-674-0182

N

| | | |
|---|---|---|
| SCALE: 1:100,000 | NAD83 USP Central | SHEET NO: 10 |
| DRAWN: TL | DATE: 14 Sept 2011 | 10 OF 16 |
| REVISED: | DATE: | |

RECEIVED: April 23, 2012

API Well Number: 43047525680000




**Legend**

Total Proposed Road Length: ±0ft

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

# WELL PAD - NBU 921-22E

**TOPO B**
**NBU 921-22E4BS, NBU 921-22E4CS, NBU 921-22E1CS & NBU 921-22E1BS**
**LOCATED IN SECTION 22, 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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Sheridan, Wyoming 82801
Phone 307-674-0609
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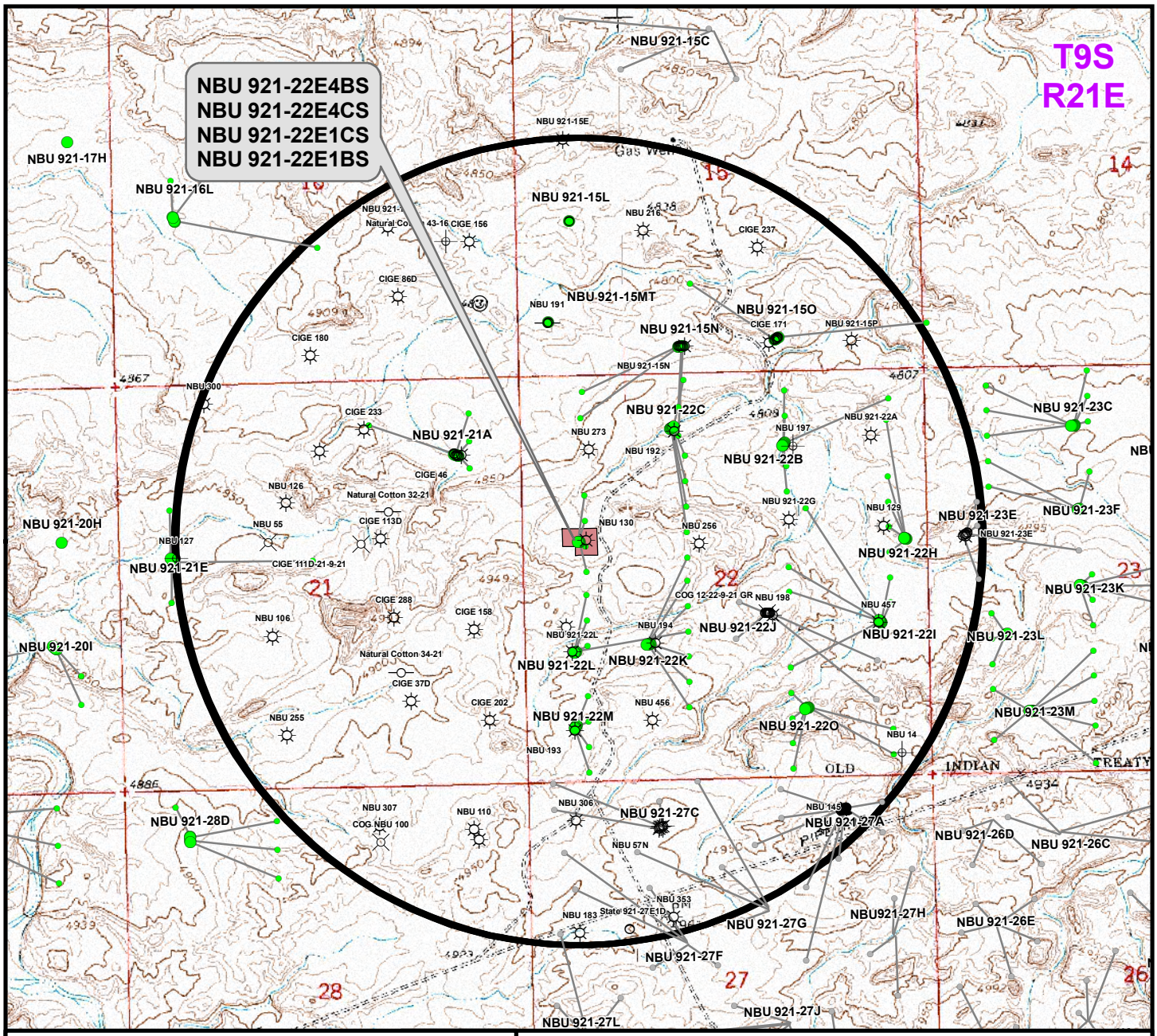
N

| | | |
|---|---|---|
| SCALE: 1" = 2,000ft | NAD83 USP Central | SHEET NO: 11 |
| DRAWN: TL | DATE: 14 Sept 2011 | 11 OF 16 |
| REVISED: | DATE: | |

RECEIVED: April 23, 2012

API Well Number: 43047525680000




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 921-22E4BS | NBU 130 | 81ft |
| NBU 921-22E4CS | NBU 130 | 413ft |
| NBU 921-22E1CS | NBU 130 | 251ft |
| NBU 921-22E1BS | NBU 130 | 582ft |

**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 921-22E

## TOPO C
## NBU 921-22E4BS, NBU 921-22E4CS, NBU 921-22E1CS & NBU 921-22E1BS LOCATED IN SECTION 22, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH

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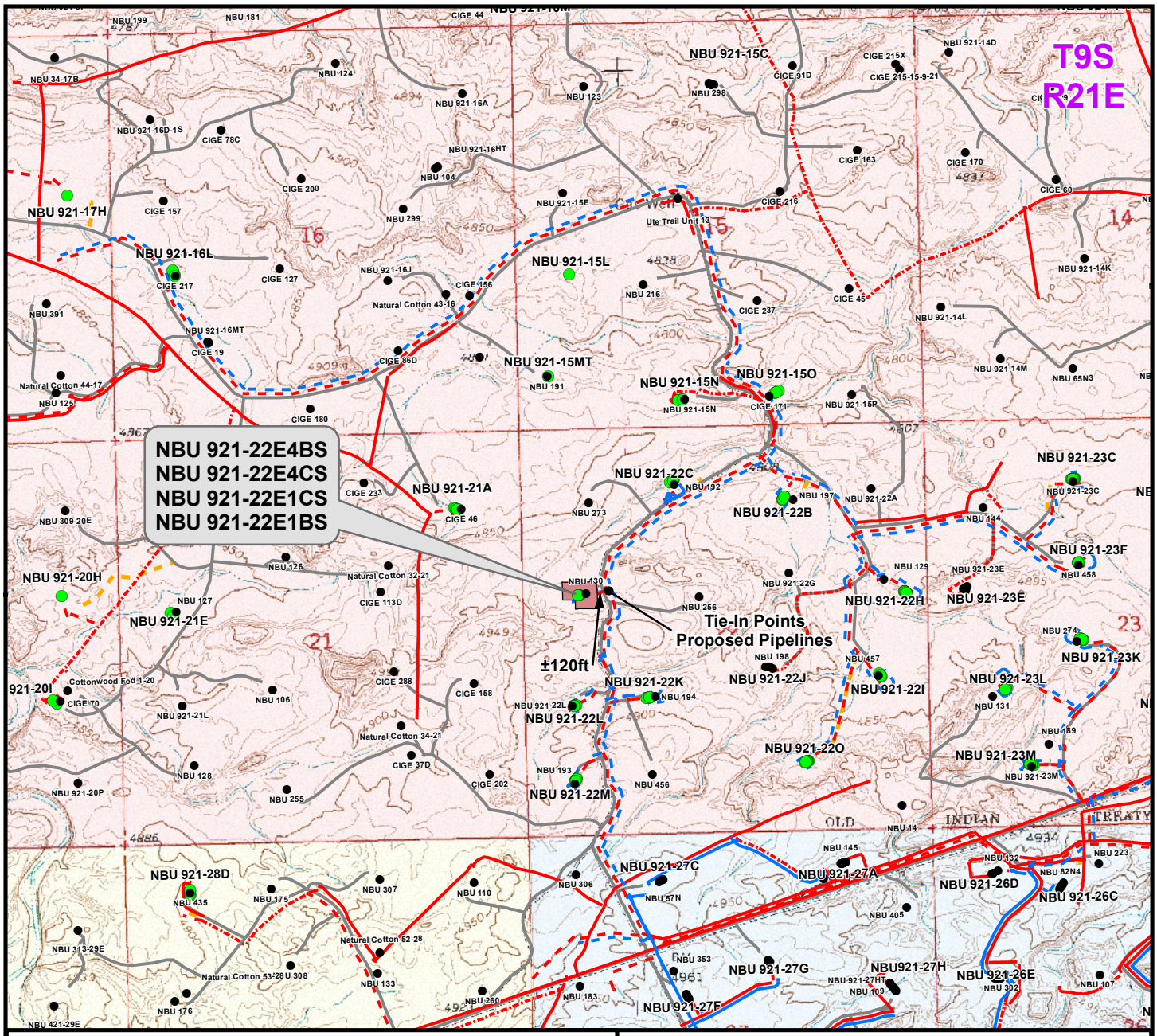
Fax 307-674-0182

N

| | | |
|---|---|---|
| SCALE: 1" = 2,000ft | NAD83 USP Central | SHEET NO: 12 |
| DRAWN: TL | DATE: 14 Sept 2011 | 12 OF 16 |
| REVISED: | DATE: | |

RECEIVED: April 23, 2012




| Proposed Liquid Pipeline | Length |
|---|---|
| Buried 6"(Max.) (Meter House to Edge of Pad) | ±360ft |
| Buried 6"(Max.) (Edge of Pad to Proposed 6" Liquid Pipeline ROW In Progress) | ±120ft |
| TOTAL PROPOSED BURIED LIQUID PIPELINE = | ±480ft |

| Proposed Gas Pipeline | Length |
|---|---|
| Buried 6" (Meter House to Edge of Pad) | ±360ft |
| Buried 6" (Edge of Pad to Proposed 16" Gas Pipeline ROW In Progress) | ±120ft |
| TOTAL PROPOSED BURIED GAS PIPELINE = | ±480ft |

**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 921-22E

TOPO D
NBU 921-22E4BS, NBU 921-22E4CS, NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, T9S, R21E, S.L.B.&M., UINTAH COUNTY, UTAH

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

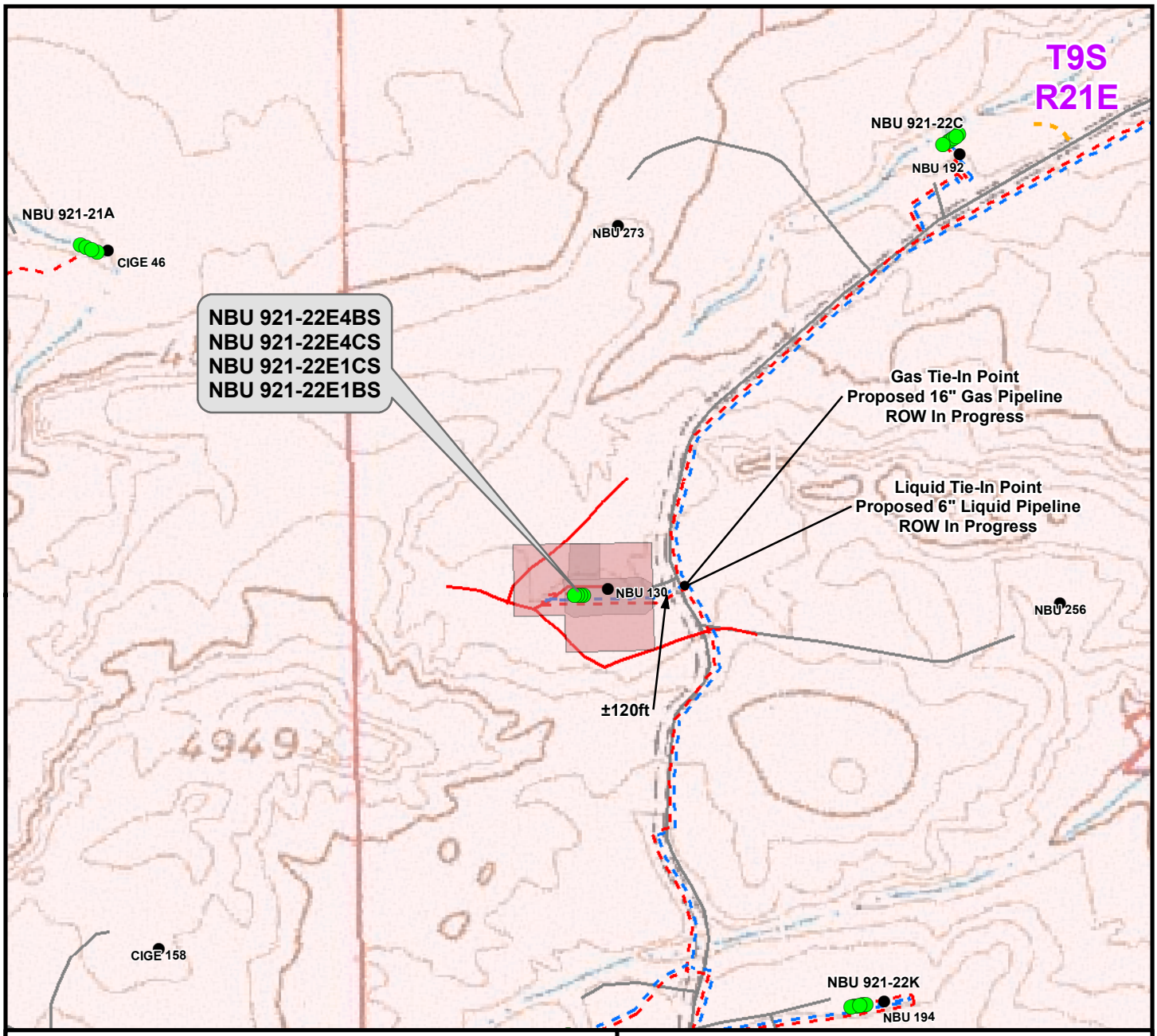
1099 18th Street
Denver, Colorado 80202

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

N

| | | |
|---|---|---|
| SCALE: 1" = 2,000ft | NAD83 USP Central | SHEET NO: 13 |
| DRAWN: TL | DATE: 14 Sept 2011 | 13 OF 16 |
| REVISED: | DATE: | |

RECEIVED: April 23, 2012




| Proposed Liquid Pipeline | Length |
|---|---|
| Buried 6"(Max.) (Meter House to Edge of Pad) | ±360ft |
| Buried 6"(Max.) (Edge of Pad to Proposed 6" Liquid Pipeline ROW In Progress) | ±120ft |
| TOTAL PROPOSED BURIED LIQUID PIPELINE = | ±480ft |

| Proposed Gas Pipeline | Length |
|---|---|
| Buried 6" (Meter House to Edge of Pad) | ±360ft |
| Buried 6" (Edge of Pad to Proposed 16" Gas Pipeline ROW In Progress) | ±120ft |
| TOTAL PROPOSED BURIED GAS PIPELINE = | ±480ft |

**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 921-22E

TOPO D2 (PAD & PIPELINE DETAIL)
NBU 921-22E4BS, NBU 921-22E4CS,
NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, 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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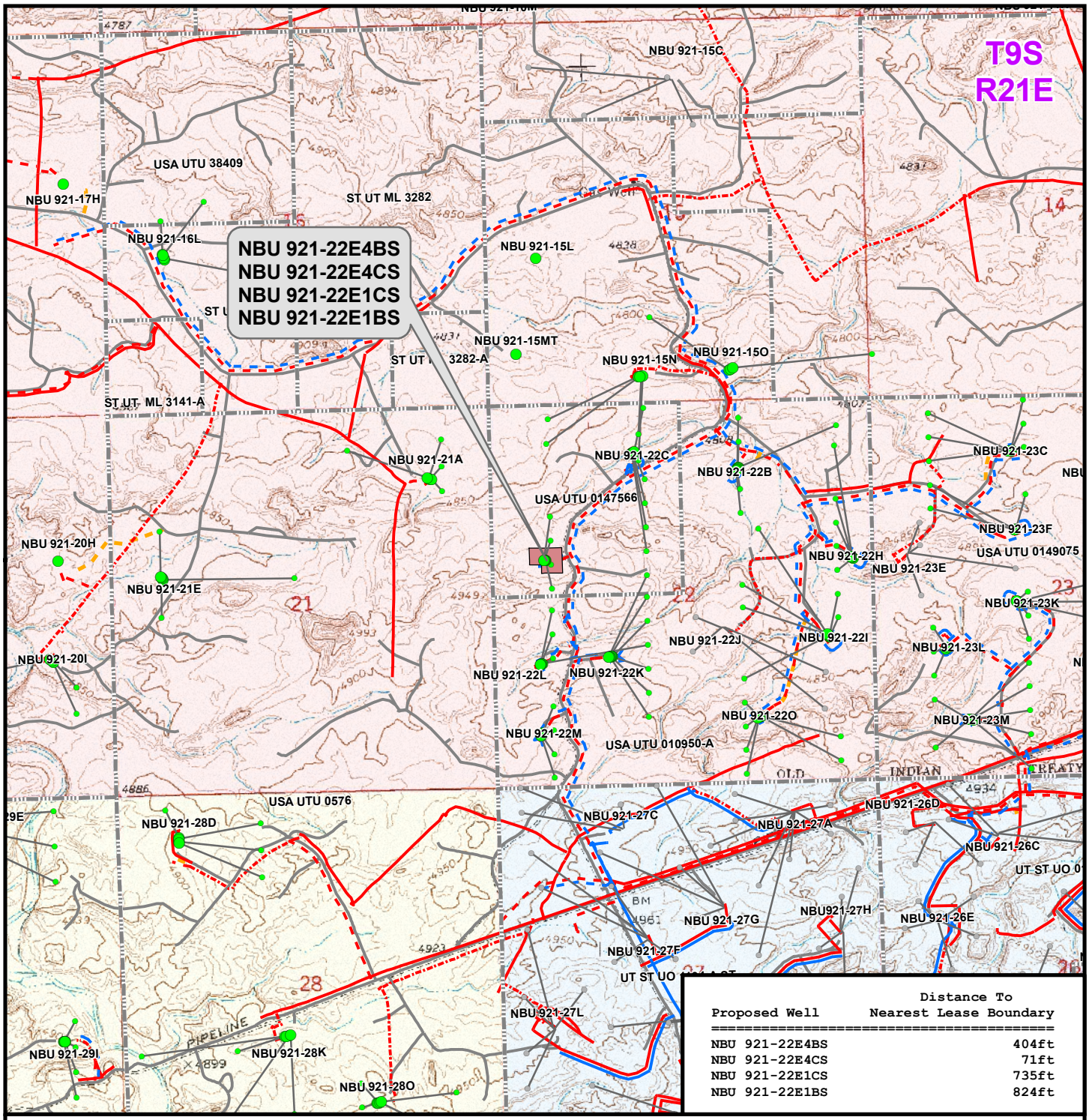
| | | |
|---|---|---|
| SCALE: 1" = 500ft | NAD83 USP Central | SHEET NO: 14 |
| DRAWN: TL | DATE: 14 Sept 2011 | 14 OF 16 |
| REVISED: | DATE: | |

RECEIVED: April 23, 2012

API Well Number: 43047525680000




| Proposed Well | Distance To Nearest Lease Boundary |
|---|---|
| NBU 921-22E4BS | 404ft |
| NBU 921-22E4CS | 71ft |
| NBU 921-22E1CS | 735ft |
| NBU 921-22E1BS | 824ft |

**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 921-22E

TOPO E
NBU 921-22E4BS, NBU 921-22E4CS, NBU 921-22E1CS & NBU 921-22E1BS
LOCATED IN SECTION 22, 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: 15 |
| DRAWN: TL | DATE: 14 Sept 2011 | 15 OF 16 |
| REVISED: | DATE: | |

RECEIVED: April 23, 2012

**Kerr-McGee Oil & Gas Onshore, LP**
**WELL PAD - NBU 921-22E**
**WELLS - NBU 921-22E4BS, NBU 921-22E4CS,**
**NBU 921-22E1CS & NBU 921-22E1BS**
**Section 22, 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 1.0 miles to the existing access road for the NBU 130 well pad. Exit left and proceed in a southwesterly direction along the access road approximately 65 feet to the proposed well location.

Total distance from Vernal, Utah to the proposed well location is approximately 44.0 miles in a southerly direction.



RECEIVED: April 23, 2012

API Well Number: 43047525680000

Scientific Drilling
Rocky Mountain Operations

Project: UTAH - UTM (feet), NAD27, Zone 12N
Site: NBU 921-22E PAD
Well: NBU 921-22E4BS
Wellbore: OH
Design: PLAN #1 PRELIMINARY

Anadarko Petroleum Corporation

T M
Azimuths to True North
Magnetic North: 11.04°

Magnetic Field
Strength: 52294.6snT
Dip Angle: 65.87°
Date: 2011/11/15
Model: IGRF2010

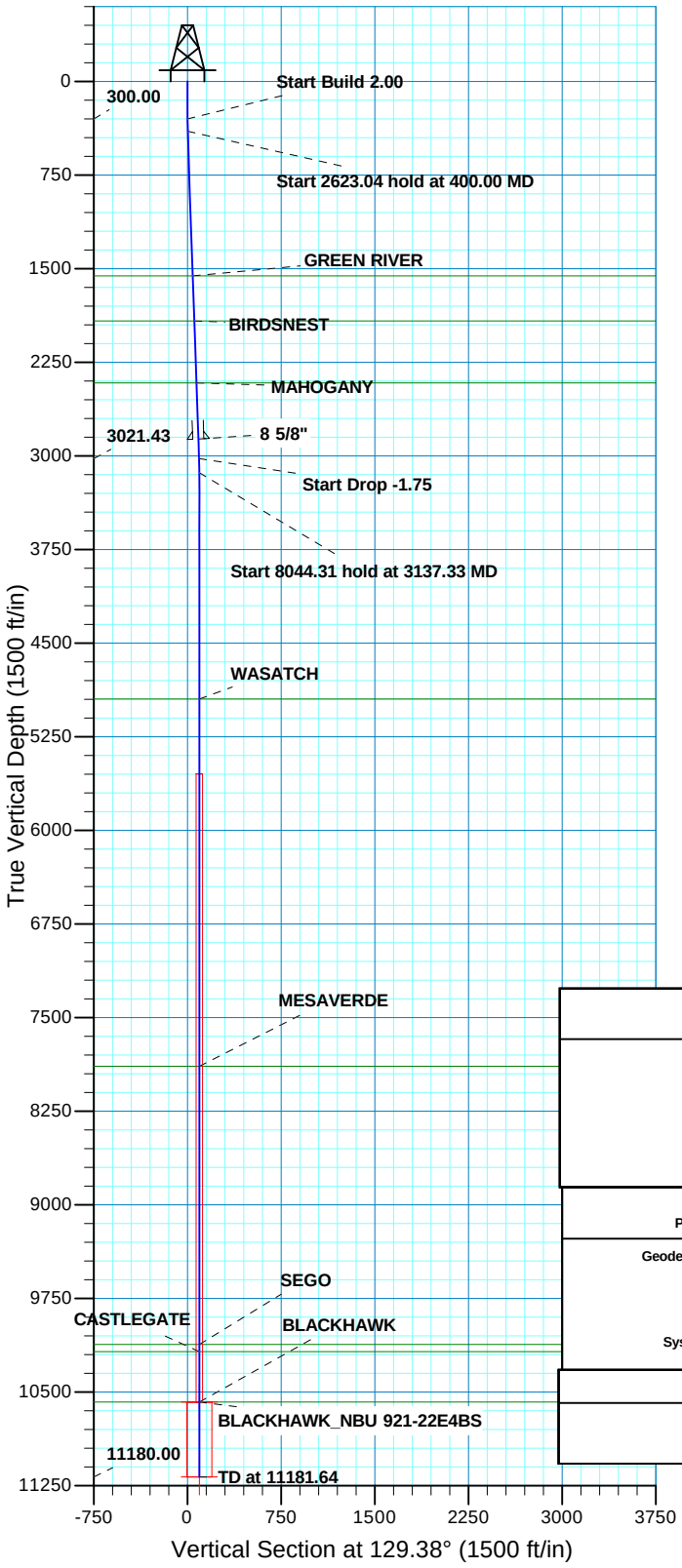
**WELL DETAILS: NBU 921-22E4BS**

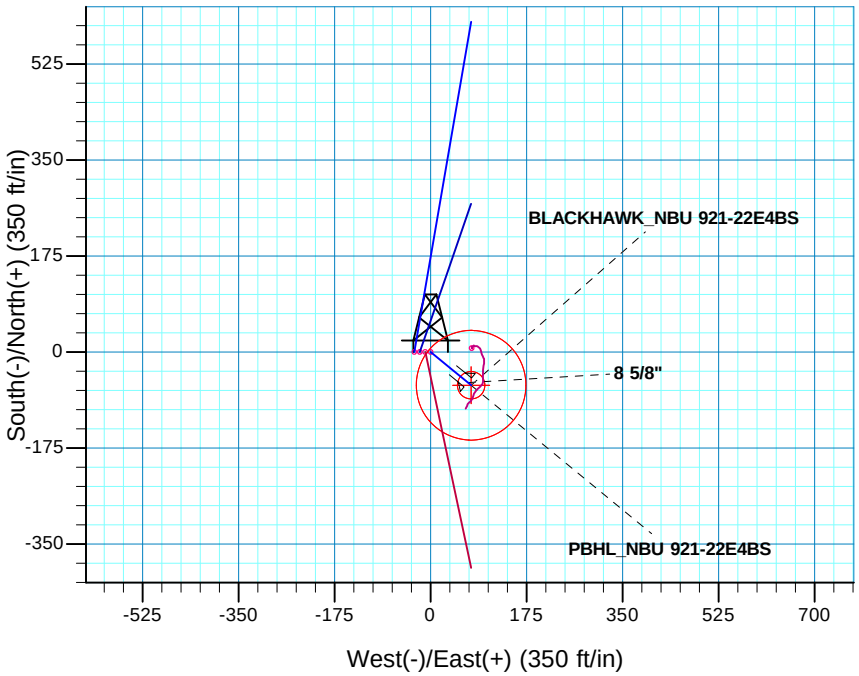
GL 4868 & KB 4 @ 4872.00ft (ASSUMED)

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 14537714.95 | 2048070.64 | 40° 1' 22.443 N | 109° 32' 38.173 W |

**DESIGN TARGET DETAILS**

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|---|---|---|---|---|---|---|---|---|
| BLACKHAWK | 10580.00 | -60.45 | 73.63 | 14537655.71 | 2048145.26 | 40° 1' 21.846 N | 109° 32' 37.226 W | Circle (Radius: 25.00) |
| - plan hits target center | | | | | | | | |
| PBHL | 11180.00 | -60.45 | 73.63 | 14537655.71 | 2048145.26 | 40° 1' 21.846 N | 109° 32' 37.226 W | Circle (Radius: 100.00) |
| - plan hits target center | | | | | | | | |




**SECTION DETAILS**

| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 400.00 | 2.00 | 129.38 | 399.98 | -1.11 | 1.35 | 2.00 | 129.38 | 1.75 | |
| 3022.61 | 2.00 | 129.38 | 3020.99 | -59.18 | 72.09 | 0.00 | 0.00 | 93.27 | |
| 3136.89 | 0.00 | 0.00 | 3135.25 | -60.45 | 73.63 | 1.75 | 180.00 | 95.27 | |
| 11181.64 | 0.00 | 0.00 | 11180.00 | -60.45 | 73.63 | 0.00 | 0.00 | 95.27 | PBHL_NBU 921-22E4BS |

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

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 12N (114 W to 108 W)
Location: SECTION 22 T9S R21E
System Datum: Mean Sea Level

**FORMATION TOP DETAILS**

| TVDPath | MDPath | Formation |
|---|---|---|
| 1557.00 | 1557.73 | GREEN RIVER |
| 1919.00 | 1919.95 | BIRDSNEST |
| 2416.00 | 2417.25 | MAHOGANY |
| 4948.00 | 4949.64 | WASATCH |
| 7891.00 | 7892.64 | MESAVERDE |
| 10119.00 | 10120.64 | SEGO |
| 10176.00 | 10177.64 | CASTLEGATE |
| 10580.00 | 10581.64 | BLACKHAWK |

**CASING DETAILS**

| TVD | MD | Name | Size |
|---|---|---|---|
| 2866.00 | 2867.52 | 8 5/8" | 8.625 |

Plan: PLAN #1 PRELIMINARY (NBU 921-22E4BS/OH)

Created By: RobertScott Date: 12:11, November 15 2011

RECEIVE

API Well Number: 43047525680000

Scientific Drilling
Rocky Mountain Operations

# US ROCKIES REGION PLANNING

**UTAH - UTM (feet), NAD27, Zone 12N**
**NBU 921-22E PAD**
**NBU 921-22E4BS**

**OH**

**Plan: PLAN #1 PRELIMINARY**

# Standard Planning Report

**15 November, 2011**

Anadarko
Petroleum Corporation

RECEIVED: April 23, 2012

Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Company:** | US ROCKIES REGION PLANNING | **TVD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **MD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Site:** | NBU 921-22E PAD | **North Reference:** | True |
| **Well:** | NBU 921-22E4BS | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | PLAN #1 PRELIMINARY | | |

**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 921-22E PAD, SECTION 22 T9S R21E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 14,537,714.95 usft | **Latitude:** | 40° 1' 22.443 N |
| **From:** | Lat/Long | **Easting:** | 2,048,070.64 usft | **Longitude:** | 109° 32' 38.173 W |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 0.94 ° |

**Well** NBU 921-22E4BS, 2179 FNL 750 FWL

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 14,537,714.95 usft | **Latitude:** | 40° 1' 22.443 N |
| | **+E/-W** | 0.00 ft | **Easting:** | 2,048,070.64 usft | **Longitude:** | 109° 32' 38.173 W |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | | **Ground Level:** | 4,868.00 ft |

**Wellbore** OH

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2010 | 2011/11/15 | 11.04 | 65.87 | 52,295 |

**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 | 129.38 |

**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 | |
| 400.00 | 2.00 | 129.38 | 399.98 | -1.11 | 1.35 | 2.00 | 2.00 | 0.00 | 129.38 | |
| 3,022.61 | 2.00 | 129.38 | 3,020.99 | -59.18 | 72.09 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,136.89 | 0.00 | 0.00 | 3,135.25 | -60.45 | 73.63 | 1.75 | -1.75 | 0.00 | 180.00 | |
| 11,181.64 | 0.00 | 0.00 | 11,180.00 | -60.45 | 73.63 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL_NBU 921-22E4 |



RECEIVED: April 23, 2012

Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Company:** | US ROCKIES REGION PLANNING | **TVD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **MD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Site:** | NBU 921-22E PAD | **North Reference:** | True |
| **Well:** | NBU 921-22E4BS | **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 | 129.38 | 399.98 | -1.11 | 1.35 | 1.75 | 2.00 | 2.00 | 0.00 |
| **Start 2623.04 hold at 400.00 MD** | | | | | | | | | |
| 500.00 | 2.00 | 129.38 | 499.92 | -3.32 | 4.05 | 5.24 | 0.00 | 0.00 | 0.00 |
| 600.00 | 2.00 | 129.38 | 599.86 | -5.54 | 6.74 | 8.73 | 0.00 | 0.00 | 0.00 |
| 700.00 | 2.00 | 129.38 | 699.80 | -7.75 | 9.44 | 12.22 | 0.00 | 0.00 | 0.00 |
| 800.00 | 2.00 | 129.38 | 799.74 | -9.96 | 12.14 | 15.70 | 0.00 | 0.00 | 0.00 |
| 900.00 | 2.00 | 129.38 | 899.68 | -12.18 | 14.84 | 19.19 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 2.00 | 129.38 | 999.61 | -14.39 | 17.53 | 22.68 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 2.00 | 129.38 | 1,099.55 | -16.61 | 20.23 | 26.17 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 2.00 | 129.38 | 1,199.49 | -18.82 | 22.93 | 29.66 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 2.00 | 129.38 | 1,299.43 | -21.04 | 25.63 | 33.15 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 2.00 | 129.38 | 1,399.37 | -23.25 | 28.32 | 36.64 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 2.00 | 129.38 | 1,499.31 | -25.47 | 31.02 | 40.13 | 0.00 | 0.00 | 0.00 |
| 1,557.73 | 2.00 | 129.38 | 1,557.00 | -26.74 | 32.58 | 42.15 | 0.00 | 0.00 | 0.00 |
| **GREEN RIVER** | | | | | | | | | |
| 1,600.00 | 2.00 | 129.38 | 1,599.25 | -27.68 | 33.72 | 43.62 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 2.00 | 129.38 | 1,699.19 | -29.89 | 36.42 | 47.11 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 2.00 | 129.38 | 1,799.13 | -32.11 | 39.11 | 50.60 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 2.00 | 129.38 | 1,899.07 | -34.32 | 41.81 | 54.09 | 0.00 | 0.00 | 0.00 |
| 1,919.95 | 2.00 | 129.38 | 1,919.00 | -34.76 | 42.35 | 54.79 | 0.00 | 0.00 | 0.00 |
| **BIRDSNEST** | | | | | | | | | |
| 2,000.00 | 2.00 | 129.38 | 1,999.01 | -36.54 | 44.51 | 57.58 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 2.00 | 129.38 | 2,098.94 | -38.75 | 47.21 | 61.07 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 2.00 | 129.38 | 2,198.88 | -40.97 | 49.90 | 64.56 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 2.00 | 129.38 | 2,298.82 | -43.18 | 52.60 | 68.05 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 2.00 | 129.38 | 2,398.76 | -45.40 | 55.30 | 71.54 | 0.00 | 0.00 | 0.00 |
| 2,417.25 | 2.00 | 129.38 | 2,416.00 | -45.78 | 55.76 | 72.15 | 0.00 | 0.00 | 0.00 |
| **MAHOGANY** | | | | | | | | | |
| 2,500.00 | 2.00 | 129.38 | 2,498.70 | -47.61 | 58.00 | 75.03 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 2.00 | 129.38 | 2,598.64 | -49.82 | 60.69 | 78.52 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 2.00 | 129.38 | 2,698.58 | -52.04 | 63.39 | 82.01 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 2.00 | 129.38 | 2,798.52 | -54.25 | 66.09 | 85.50 | 0.00 | 0.00 | 0.00 |
| 2,867.52 | 2.00 | 129.38 | 2,866.00 | -55.75 | 67.91 | 87.86 | 0.00 | 0.00 | 0.00 |
| **8 5/8"** | | | | | | | | | |
| 2,900.00 | 2.00 | 129.38 | 2,898.46 | -56.47 | 68.79 | 88.99 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 2.00 | 129.38 | 2,998.40 | -58.68 | 71.48 | 92.48 | 0.00 | 0.00 | 0.00 |
| 3,022.61 | 2.00 | 129.38 | 3,020.99 | -59.18 | 72.09 | 93.27 | 0.00 | 0.00 | 0.00 |
| 3,023.04 | 1.99 | 129.38 | 3,021.43 | -59.19 | 72.10 | 93.29 | 1.75 | -1.75 | 0.00 |
| **Start Drop -1.75** | | | | | | | | | |
| 3,100.00 | 0.65 | 129.38 | 3,098.36 | -60.32 | 73.47 | 95.06 | 1.75 | -1.75 | 0.00 |
| 3,136.89 | 0.00 | 0.00 | 3,135.25 | -60.45 | 73.63 | 95.27 | 1.75 | -1.75 | 0.00 |
| 3,137.33 | 0.00 | 0.00 | 3,135.69 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| **Start 8044.31 hold at 3137.33 MD** | | | | | | | | | |
| 3,200.00 | 0.00 | 0.00 | 3,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 0.00 | 0.00 | 3,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 0.00 | 0.00 | 3,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 0.00 | 0.00 | 3,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 0.00 | 0.00 | 3,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |



RECEIVED: April 23, 2012

Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Company:** | US ROCKIES REGION PLANNING | **TVD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **MD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Site:** | NBU 921-22E PAD | **North Reference:** | True |
| **Well:** | NBU 921-22E4BS | **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) |
|---|---|---|---|---|---|---|---|---|---|
| 3,700.00 | 0.00 | 0.00 | 3,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 0.00 | 0.00 | 3,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 0.00 | 0.00 | 3,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 0.00 | 0.00 | 3,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 0.00 | 0.00 | 4,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 0.00 | 0.00 | 4,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 0.00 | 0.00 | 4,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 0.00 | 0.00 | 4,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 0.00 | 0.00 | 4,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 0.00 | 0.00 | 4,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 0.00 | 0.00 | 4,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 0.00 | 0.00 | 4,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 0.00 | 0.00 | 4,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 4,949.64 | 0.00 | 0.00 | 4,948.00 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| **WASATCH** | | | | | | | | | |
| 5,000.00 | 0.00 | 0.00 | 4,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 0.00 | 0.00 | 5,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 0.00 | 0.00 | 5,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 0.00 | 0.00 | 5,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 0.00 | 0.00 | 5,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 0.00 | 0.00 | 5,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 0.00 | 0.00 | 5,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 0.00 | 0.00 | 5,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 0.00 | 0.00 | 5,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 0.00 | 0.00 | 5,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 0.00 | 0.00 | 5,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 0.00 | 0.00 | 6,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 6,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 0.00 | 0.00 | 6,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 0.00 | 0.00 | 6,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 0.00 | 0.00 | 7,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 0.00 | 0.00 | 7,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 0.00 | 0.00 | 7,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 0.00 | 0.00 | 7,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 0.00 | 0.00 | 7,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 0.00 | 0.00 | 7,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 0.00 | 0.00 | 7,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 0.00 | 0.00 | 7,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 7,892.64 | 0.00 | 0.00 | 7,891.00 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| **MESAVERDE** | | | | | | | | | |
| 7,900.00 | 0.00 | 0.00 | 7,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 0.00 | 0.00 | 7,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 0.00 | 0.00 | 8,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 0.00 | 0.00 | 8,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 0.00 | 0.00 | 8,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 0.00 | 0.00 | 8,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 0.00 | 0.00 | 8,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 0.00 | 0.00 | 8,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |



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Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Company:** | US ROCKIES REGION PLANNING | **TVD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **MD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Site:** | NBU 921-22E PAD | **North Reference:** | True |
| **Well:** | NBU 921-22E4BS | **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 | 8,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 0.00 | 0.00 | 8,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 0.00 | 0.00 | 8,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 0.00 | 0.00 | 8,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 0.00 | 0.00 | 9,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 0.00 | 0.00 | 9,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 0.00 | 0.00 | 9,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 0.00 | 0.00 | 9,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 0.00 | 0.00 | 9,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 0.00 | 0.00 | 9,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 0.00 | 0.00 | 9,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 0.00 | 0.00 | 9,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 0.00 | 0.00 | 9,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 0.00 | 0.00 | 9,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 0.00 | 0.00 | 10,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,120.64 | 0.00 | 0.00 | 10,119.00 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| **SEGO** | | | | | | | | | |
| 10,177.64 | 0.00 | 0.00 | 10,176.00 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| **CASTLEGATE** | | | | | | | | | |
| 10,200.00 | 0.00 | 0.00 | 10,198.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 0.00 | 0.00 | 10,298.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 0.00 | 0.00 | 10,398.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 0.00 | 0.00 | 10,498.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,581.64 | 0.00 | 0.00 | 10,580.00 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| **BLACKHAWK - BLACKHAWK_NBU 921-22E4BS** | | | | | | | | | |
| 10,600.00 | 0.00 | 0.00 | 10,598.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 0.00 | 0.00 | 10,698.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 0.00 | 0.00 | 10,798.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 0.00 | 0.00 | 10,898.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 0.00 | 0.00 | 10,998.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 0.00 | 0.00 | 11,098.36 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| 11,181.64 | 0.00 | 0.00 | 11,180.00 | -60.45 | 73.63 | 95.27 | 0.00 | 0.00 | 0.00 |
| **PBHL_NBU 921-22E4BS** | | | | | | | | | |

**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 |
|---|---|---|---|---|---|---|---|---|---|
| BLACKHAWK_NBU 921<br>- plan hits target center<br>- Circle (radius 25.00) | 0.00 | 0.00 | 10,580.00 | -60.45 | 73.63 | 14,537,655.72 | 2,048,145.25 | 40° 1' 21.846 N | 109° 32' 37.226 W |
| PBHL_NBU 921-22E4B<br>- plan hits target center<br>- Circle (radius 100.00) | 0.00 | 0.00 | 11,180.00 | -60.45 | 73.63 | 14,537,655.72 | 2,048,145.25 | 40° 1' 21.846 N | 109° 32' 37.226 W |



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Scientific Drilling
Rocky Mountain Operations

# SDI
## Planning Report

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Database:** | EDM5000-RobertS-Local | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Company:** | US ROCKIES REGION PLANNING | **TVD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **MD Reference:** | GL 4868 & KB 4 @ 4872.00ft (ASSUMED) |
| **Site:** | NBU 921-22E PAD | **North Reference:** | True |
| **Well:** | NBU 921-22E4BS | **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) |
|---|---|---|---|---|
| 2,867.52 | 2,866.00 | 8 5/8" | 8.625 | 11.000 |

### Formations

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 1,557.73 | 1,557.00 | GREEN RIVER | | | |
| 1,919.95 | 1,919.00 | BIRDSNEST | | | |
| 2,417.25 | 2,416.00 | MAHOGANY | | | |
| 4,949.64 | 4,948.00 | WASATCH | | | |
| 7,892.64 | 7,891.00 | MESAVERDE | | | |
| 10,120.64 | 10,119.00 | SEGO | | | |
| 10,177.64 | 10,176.00 | CASTLEGATE | | | |
| 10,581.64 | 10,580.00 | 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 |
| 400.00 | 399.98 | -1.11 | 1.35 | Start 2623.04 hold at 400.00 MD |
| 3,023.04 | 3,021.43 | -59.19 | 72.10 | Start Drop -1.75 |
| 3,137.33 | 3,135.69 | -60.45 | 73.63 | Start 8044.31 hold at 3137.33 MD |
| 11,181.64 | 11,180.00 | -60.45 | 73.63 | TD at 11181.64 |



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

## NBU 921-22E Pad

| API # | NBU 921-22E1BS | | |
|---|---|---|---|
| Surface: | 2179 FNL / 720 FWL | SWNW | Lot |
| BHL: | 1576 FNL / 824 FWL | SWNW | Lot |

| API # | NBU 921-22E1CS | | |
|---|---|---|---|
| Surface: | 2179 FNL / 730 FWL | SWNW | Lot |
| BHL: | 1908 FNL / 824 FWL | SWNW | Lot |

| API # | NBU 921-22E4BS | | |
|---|---|---|---|
| Surface: | 2179 FNL / 750 FWL | SWNW | Lot |
| BHL: | 2239 FNL / 824 FWL | SWNW | Lot |

| API # | NBU 921-22E4CS | | |
|---|---|---|---|
| Surface: | 2179 FNL / 740 FWL | SWNW | Lot |
| BHL: | 2572 FNL / 824 FWL | SWNW | 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 October 3-4, 2011. Present were:

- Bucky Secakuku (10/4/2011 only) - BIA;
- LeAllen Blackhair, Rainey Longhair - Ute Indian Tribe;
- Kelly Jo Jackson - Montgomery Archeological Consultants Inc.;
- Scott Carson - Smiling Lake Consulting;
- John Slaugh, Mitch Batty - Timberline Engineering & Land Surveying, Inc.;
- Laura Abrams, Charles Chase, Raleen White, Doyle Holmes, Lovel Young, Sheila Wopsock - Kerr-McGee

**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 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.

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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.

No new access road is proposed for this well pad - See Topo B.

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**C. Location of Existing Wells:**

A) Refer to Topo Map C.

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

This pad will expand the existing pad for the NBU 130, which is a producing gas well according to Utah Division of Oil, Gas and Mining (UDOGM) records on November 3, 2011. Gathering (pipeline) infrastructure will be utilized to collect and transport gas and fluids from the wells which are owned and operated by Kerr McGee Oil and Gas Onshore LP (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 ±480' 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.**

±480' (0.1 miles) – Section 22 T9S R21E (NW/4) – On-lease UTU0147566 Ute Indian Tribe surface, New 6" buried gas gathering pipeline from the meter to the proposed 16" gas pipeline- ROW in progress. 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 ±480' 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.**

±480' (0.1 miles) – Section 22 T9S R21E (NW/4) – On-lease UTU0147566 Ute Indian Tribe surface, New 6" buried liquid gathering pipeline from the separator to the proposed 6" liquid pipeline- ROW in progress. Please refer to Topo D2 - Pad and Pipeline Detail.

**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.

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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.

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).

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**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.

**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.

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**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).

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.

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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.

**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.

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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

**H. Ancillary Facilities:**

ancillary facilities are

**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.

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**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.

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.

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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 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
P.O. Box 70
988 South 7500 East Annex Building
Fort Duschesne, UT 84026
(435) 722-4307

United States of America
Bureau of Land Management
170 South 500 East
Vernal, UT 84078
(435) 781-4400

**L. Other Information:**

**Onsite Specifics:**

- Construct diversion ditch along east side of topsoil stockpile
- Energy and Minerals monitoring during construction
- Arch monitor during construction
- Paleo monitor during construction

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**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.

**Resource Reports:**

A Class I literature survey was completed in December, 2011 by Montgomery Archaeological Consultants, Inc (MOAC). For additional details please refer to report MOAC 11-406.

A paleontological reconnaissance survey was completed on July 21, 2010 by SWCA Environmental Consultants. For additional details please refer to report UT11-14314-116.

Biological field survey was completed on August 8 and 16, 2011 by Grasslands Consulting, Inc (GCI). For additional details please refer to report GCI-567.

**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 | 15.68 | 16,547 | 0.09% |
| VOC | 20 | 127,495 | 0.02% |

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

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

Laura Abrams
Regulatory Analyst II
Kerr-McGee Oil & Gas Onshore LP
PO Box 173779
Denver, CO 80217-3779
(720) 929-6356

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.

Laura Abrams

December 16, 2011
Date

Kerr-McGee Oil & Gas Onshore LP
PO Box 173779
Denver, CO 80217-3779

October 10, 2011

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

Re: Directional Drilling R649-3-11
NBU 921-22E4BS
T9S-R21E
Section 22 SWNW (Surface and Bottom Hole)
Surface: 2179' FNL, 750' FWL
Bottom Hole: 2239' FNL, 824' FWL
Uintah County, Utah

Dear Ms. Mason:

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

- Kerr-McGee's NBU 921-22E4BS is located within the Natural Buttes Unit area.
- Kerr-McGee is permitting this well as a directional well in order to minimize surface disturbance. Locating the well at the surface location and directionally drilling from this location, Kerr-McGee will be able to utilize the existing roads and pipelines in the area.
- Furthermore, Kerr-McGee certifies that it is the sole working interest owner within 460 feet of the entire directional well bore.

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

Sincerely,

KERR-MCGEE OIL & GAS ONSHORE LP

Joe Matney

Joe Matney
Sr. Staff Landman

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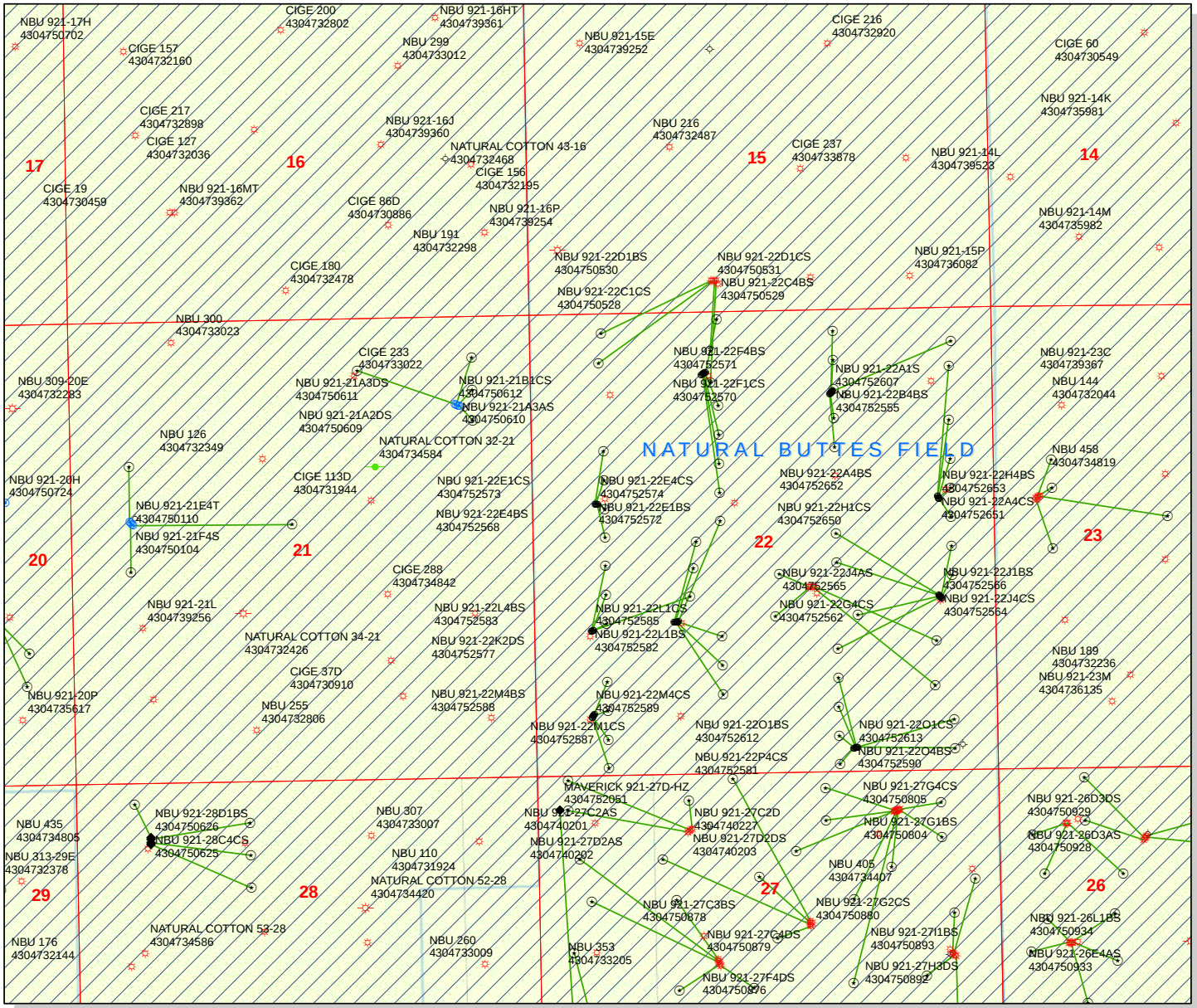
API Well Number: 43047525680000




**API Number: 4304752568**

**Well Name: NBU 921-22E4BS**

**Township T0.9 . Range R2.1 . Section 22**

**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
- LA - Location Abandoned
- LOC - New Location
- OPS - Operation Suspended
- PA - Plugged Abandoned
- PGW - Producing Gas Well
- POW - Producing Oil Well
- RET - Returned APD
- 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

1,500 750 0 1,500 Feet

1:14,184

RECEIVED: May 11, 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)**

May 14, 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) | | |
| **WELL PAD - NBU 921-22K** | | |
| 43-047-52550 | NBU 921-22K2AS | Sec 22 T09S R21E 1748 FSL 1611 FWL |
| | | BHL Sec 22 T09S R21E 2366 FSL 1832 FWL |
| 43-047-52551 | NBU 921-22K4CS | Sec 22 T09S R21E 1753 FSL 1640 FWL |
| | | BHL Sec 22 T09S R21E 1576 FSL 2147 FWL |
| 43-047-52552 | NBU 921-22N1BS | Sec 22 T09S R21E 1751 FSL 1630 FWL |
| | | BHL Sec 22 T09S R21E 1244 FSL 2147 FWL |
| 43-047-52575 | NBU 921-22F4CS | Sec 22 T09S R21E 1755 FSL 1650 FWL |
| | | BHL Sec 22 T09S R21E 2406 FNL 2148 FWL |
| 43-047-52576 | NBU 921-22F3DS | Sec 22 T09S R21E 1747 FSL 1601 FWL |
| | | BHL Sec 22 T09S R21E 2634 FNL 1870 FWL |
| 43-047-52580 | NBU 921-22N1CS | Sec 22 T09S R21E 1750 FSL 1620 FWL |
| | | BHL Sec 22 T09S R21E 0912 FSL 2146 FWL |
| **WELL PAD - NBU 921-22B** | | |
| 43-047-52553 | NBU 921-22G1CS | Sec 22 T09S R21E 0973 FNL 1861 FEL |
| | | BHL Sec 22 T09S R21E 1574 FNL 1818 FEL |
| 43-047-52554 | NBU 921-22B4CS | Sec 22 T09S R21E 0965 FNL 1854 FEL |
| | | BHL Sec 22 T09S R21E 1243 FNL 1819 FEL |
| 43-047-52555 | NBU 921-22B4BS | Sec 22 T09S R21E 0935 FNL 1828 FEL |
| | | BHL Sec 22 T09S R21E 0911 FNL 1819 FEL |
| 43-047-52556 | NBU 921-22B1CS | Sec 22 T09S R21E 0950 FNL 1841 FEL |
| | | BHL Sec 22 T09S R21E 0579 FNL 1819 FEL |

RECEIVED: May 15, 2012

API # WELL NAME LOCATION

(Proposed PZ WASATCH-MESA VERDE)

43-047-52557 NBU 921-22B1BS Sec 22 T09S R21E 0958 FNL 1848 FEL
BHL Sec 22 T09S R21E 0249 FNL 1819 FEL

43-047-52607 NBU 921-22A1S Sec 22 T09S R21E 0943 FNL 1835 FEL
BHL Sec 22 T09S R21E 0386 FNL 0464 FEL

**WELL PAD - NBU 921-22C**

43-047-52558 NBU 921-22C1BS Sec 22 T09S R21E 0691 FNL 2010 FWL
BHL Sec 22 T09S R21E 0085 FNL 2150 FWL

43-047-52567 NBU 921-22C4CS Sec 22 T09S R21E 0696 FNL 2001 FWL
BHL Sec 22 T09S R21E 1078 FNL 2149 FWL

43-047-52569 NBU 921-22F1BS Sec 22 T09S R21E 0701 FNL 1993 FWL
BHL Sec 22 T09S R21E 1410 FNL 2149 FWL

43-047-52570 NBU 921-22F1CS Sec 22 T09S R21E 0707 FNL 1984 FWL
BHL Sec 22 T09S R21E 1742 FNL 2149 FWL

43-047-52571 NBU 921-22F4BS Sec 22 T09S R21E 0712 FNL 1976 FWL
BHL Sec 22 T09S R21E 2073 FNL 2149 FWL

**WELL PAD - NBU 921-22I**

43-047-52560 NBU 921-22I1CS Sec 22 T09S R21E 1973 FSL 0620 FEL
BHL Sec 22 T09S R21E 2237 FSL 0494 FEL

43-047-52561 NBU 921-22I1BS Sec 22 T09S R21E 1981 FSL 0626 FEL
BHL Sec 22 T09S R21E 2569 FSL 0494 FEL

43-047-52562 NBU 921-22G4CS Sec 22 T09S R21E 2013 FSL 0650 FEL
BHL Sec 22 T09S R21E 2569 FNL 1818 FEL

43-047-52564 NBU 921-22J4CS Sec 22 T09S R21E 1989 FSL 0632 FEL
BHL Sec 22 T09S R21E 1410 FSL 1817 FEL

43-047-52565 NBU 921-22J4AS Sec 22 T09S R21E 1997 FSL 0638 FEL
BHL Sec 22 T09S R21E 1796 FSL 1580 FEL

43-047-52566 NBU 921-22J1BS Sec 22 T09S R21E 2005 FSL 0644 FEL
BHL Sec 22 T09S R21E 2405 FSL 1817 FEL

**WELL PAD - NBU 921-22H**

43-047-52563 NBU 921-22H4CS Sec 22 T09S R21E 2196 FNL 0627 FEL
BHL Sec 22 T09S R21E 2403 FNL 0494 FEL

43-047-52650 NBU 921-22H1CS Sec 22 T09S R21E 2179 FNL 0637 FEL
BHL Sec 22 T09S R21E 1740 FNL 0494 FEL

43-047-52651 NBU 921-22A4CS Sec 22 T09S R21E 2170 FNL 0642 FEL
BHL Sec 22 T09S R21E 1288 FNL 0504 FEL

43-047-52652 NBU 921-22A4BS Sec 22 T09S R21E 2162 FNL 0647 FEL
BHL Sec 22 T09S R21E 0670 FNL 0494 FEL

43-047-52653 NBU 921-22H4BS Sec 22 T09S R21E 2188 FNL 0632 FEL
BHL Sec 22 T09S R21E 2071 FNL 0494 FEL

RECEIVED: May 15, 2012

API # WELL NAME LOCATION

(Proposed PZ WASATCH-MESA VERDE)

**WELL PAD - NBU 921-22E**

43-047-52568 NBU 921-22E4BS Sec 22 T09S R21E 2179 FNL 0750 FWL
BHL Sec 22 T09S R21E 2239 FNL 0824 FWL

43-047-52572 NBU 921-22E1BS Sec 22 T09S R21E 2179 FNL 0720 FWL
BHL Sec 22 T09S R21E 1576 FNL 0824 FWL

43-047-52573 NBU 921-22E1CS Sec 22 T09S R21E 2179 FNL 0730 FWL
BHL Sec 22 T09S R21E 1908 FNL 0824 FWL

43-047-52574 NBU 921-22E4CS Sec 22 T09S R21E 2179 FNL 0740 FWL
BHL Sec 22 T09S R21E 2572 FNL 0824 FWL

**WELL PAD - NBU 921-22L**

43-047-52577 NBU 921-22K2DS Sec 22 T09S R21E 1668 FSL 0666 FWL
BHL Sec 22 T09S R21E 2038 FSL 1784 FWL

43-047-52582 NBU 921-22L1BS Sec 22 T09S R21E 1660 FSL 0648 FWL
BHL Sec 22 T09S R21E 2408 FSL 0824 FWL

43-047-52583 NBU 921-22L4BS Sec 22 T09S R21E 1672 FSL 0675 FWL
BHL Sec 22 T09S R21E 1744 FSL 0824 FWL

43-047-52585 NBU 921-22L1CS Sec 22 T09S R21E 1664 FSL 0657 FWL
BHL Sec 22 T09S R21E 2076 FSL 0824 FWL

**WELL PAD - NBU 921-22O**

43-047-52578 NBU 921-22O4CS Sec 22 T09S R21E 0269 FSL 1655 FEL
BHL Sec 22 T09S R21E 0086 FSL 1816 FEL

43-047-52579 NBU 921-22P4BS Sec 22 T09S R21E 0280 FSL 1606 FEL
BHL Sec 22 T09S R21E 0581 FSL 0494 FEL

43-047-52581 NBU 921-22P4CS Sec 22 T09S R21E 0278 FSL 1616 FEL
BHL Sec 22 T09S R21E 0251 FSL 0494 FEL

43-047-52590 NBU 921-22O4BS Sec 22 T09S R21E 0271 FSL 1645 FEL
BHL Sec 22 T09S R21E 0416 FSL 1816 FEL

43-047-52612 NBU 921-22O1BS Sec 22 T09S R21E 0276 FSL 1625 FEL
BHL Sec 22 T09S R21E 1079 FSL 1817 FEL

43-047-52613 NBU 921-22O1CS Sec 22 T09S R21E 0274 FSL 1635 FEL
BHL Sec 22 T09S R21E 0747 FSL 1816 FEL

**WELL PAD - NBU 921-22M**

43-047-52586 NBU 921-22M1BS Sec 22 T09S R21E 0695 FSL 0660 FWL
BHL Sec 22 T09S R21E 1080 FSL 0823 FWL

43-047-52587 NBU 921-22M1CS Sec 22 T09S R21E 0686 FSL 0654 FWL
BHL Sec 22 T09S R21E 0748 FSL 0823 FWL

43-047-52588 NBU 921-22M4BS Sec 22 T09S R21E 0678 FSL 0649 FWL
BHL Sec 22 T09S R21E 0416 FSL 0823 FWL

43-047-52589 NBU 921-22M4CS Sec 22 T09S R21E 0670 FSL 6043 FWL
BHL Sec 22 T09S R21E 0086 FSL 0823 FWL

RECEIVED: May 15, 2012

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

Michael L. Coulthard

Digitally signed by Michael L. Coulthard
DN: cn=Michael L. Coulthard, o=Bureau of Land Management, ou=Branch of Minerals, email=Michael_Coulthard@blm.gov, c=US
Date: 2012.05.15 07:17:01 -06'00'

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

MCoulthard:mc:5-14-12

RECEIVED: May 15, 2012

# WORKSHEET
# APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 4/27/2012
**API NO. ASSIGNED:** 43047525680000
**WELL NAME:** NBU 921-22E4BS
**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995)
**PHONE NUMBER:** 720 929-6356
**CONTACT:** Laura Abrams

**PROPOSED LOCATION:** SWNW 22 090S 210E
**Permit Tech Review:** ✔

**SURFACE:** 2179 FNL 0750 FWL
**Engineering Review:** ✔

**BOTTOM:** 2239 FNL 0824 FWL
**Geology Review:** ✔

**COUNTY:** UINTAH
**LATITUDE:** 40.02282
**LONGITUDE:** -109.54459
**UTM SURF EASTINGS:** 624194.00
**NORTHINGS:** 4431304.00
**FIELD NAME:** NATURAL BUTTES
**LEASE TYPE:** 1 - Federal
**LEASE NUMBER:** UTU 0147566
**PROPOSED PRODUCING FORMATION(S):** BLACKHAWK
**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: May 30, 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 921-22E4BS
**API Well Number:** 43047525680000
**Lease Number:** UTU 0147566
**Surface Owner:** INDIAN
**Approval Date:** 5/30/2012

**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 BLACKHAWK 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
JAN 10 2012
BLM VERNAL, UTAH

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

## APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
UTU0147566

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 921-22E4BS

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

2. Name of Operator
KERR MCGEE OIL&GAS ONSHORE LP
Contact: LAURA ABRAMS
E-Mail: Laura.Abrams@anadarko.com

9. API Well No.
43-047-52568

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

3b. Phone No. (include area code)
Ph: 720-929-6356
Fx: 720-929-7356

10. Field and Pool, or Exploratory
NATURAL BUTTES

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

At surface SWNW 2179FNL 750FWL 40.022865 N Lat, 109.544625 W Lon

At proposed prod. zone SWNW 2239FNL 824FWL 40.022700 N Lat, 109.544362 W Lon

11. Sec., T., R., M., or Blk. and Survey or Area
Sec 22 T9S R21E Mer SLB

14. Distance in miles and direction from nearest town or post office*
APPROXIMATELY 44.0 MILES SOUTH OF VERNAL, UT

12. County or Parish
UINTAH

13. State
UT

15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
404'

16. No. of Acres in Lease
160.00

17. Spacing Unit dedicated to this well

18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft.
81'

19. Proposed Depth
11182 MD
11180 TVD

20. BLM/BIA Bond No. on file
WYB000291

21. Elevations (Show whether DF, KB, RT, GL, etc.
4869 GL

22. Approximate date work will start
06/30/2012

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)
LAURA ABRAMS Ph: 720-929-6356

Date
12/19/2011

Title
REGULATORY ANALYST II

Approved by (Signature)

Name (Printed/Typed)
Jerry Kenczka

Date
JUN 05 2012

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 2012
DIV. OF OIL, GAS & MINING

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

**Electronic Submission #126257 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 ****

12RRH1301AE NO NOS APD posted 1/4/2012

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:** | **SWNW, Sec. 22, T9S, R21E** |
| **Well No:** | **NBU 921-22E4BS** | **Lease No:** | **UTU-0147566** |
| **API No:** | **43-047-52568** | **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

| | | |
|---|---|---|
| Construction Activity (Notify Ute Tribe Energy & Minerals Dept. and BLM Environmental Scientist) | - | The Ute Tribe Energy & Minerals Dept. and BLM Environmental Scientist shall be notified at least 48 hours in advance of any construction activity. The Ute Tribal office is open Monday through Thursday. |
| Construction Completion (Notify Ute Tribe Energy & Minerals Dept. and BLM Environmental Scientist) | - | Upon completion of the pertinent APD/ROW construction, notify the Ute Tribe Energy & Minerals Dept. for a Tribal Technician to verify the Affidavit of Completion. Notify the BLM Environmental Scientist prior to moving on the drilling rig. |
| Spud Notice (Notify BLM Petroleum Engineer) | - | Twenty-Four (24) hours prior to spudding the well. |
| Casing String & Cementing (Notify BLM 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 (Notify BLM Supv. Petroleum Tech.) | - | Twenty-Four (24) hours prior to initiating pressure tests. |
| First Production Notice (Notify BLM 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)***

- Paint facilities "Shadow Gray" .
- Conduct a raptor survey prior to construction operation if such activates would take place during raptor nesting season (January 1- 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.
- If construction and/or drilling operations have not been initiated prior to August 8, 2012, conduct a biological survey to determine the guidelines specified in the USFWS Rare Plant Conservation Measures and the BLM RMP ROD. KMG will implement commitment contained in the GNB BO.
- Monitor construction operation with a permitted archaeologist.
- Monitor construction operation with a permitted paleontologist.
- Monitor construction operations with Ute Energy and Minerals technician.
- Construct diversion ditch on east side of topsoil stockpile.

**Pipeline Route from North Compressor to West Cottonwood Compressor**

- If construction and/or drilling operations have not been initiated prior to August 8, 2012, conduct a biological survey to determine the guidelines specified in the USFWS Rare Plant Conservation Measures and the BLM RMP ROD. KMG will implement commitment contained in the GNB BO.
- Monitor areas with a permitted paleontologist where pipeline travels through Sections 15, 16, 17, and 22. Monitor section 27 at the beginning of construction and spot monitor thereafter.

**ACTS line**

- If construction and/or drilling operations have not been initiated prior to August 8, 2012, conduct a biological survey to determine the guidelines specified in the USFWS Rare Plant Conservation Measures and the BLM RMP ROD. KMG will implement commitment contained in the GNB BO.
- Monitor areas with a permitted paleontologist where ACTS line travels through Section 15 SWSE, and Section 22 NWNE, NENW, SWSW, and SWSE.

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

**SITE SPECIFIC DOWNHOLE COAs:**

- A copy of Kerr McGee's Standard Operating Practices (SOP version: dated 7/17/08 and approved 7/28/08) shall be on location.
- Surface casing cement shall be brought to surface.
- Production casing cement shall be brought 200' up and into the surface casing.
- Electronic/mechanical mud monitoring equipment shall be required, from surface casing shoe to TD, which shall include as a minimum: pit volume totalizer (PVT); stroke counter; and flow sensor.
- Require usage of a modified 5m stack. The 5M BOPE (minimum) shall be a modified 5m BOPE stack to include a third (3) pipe ram and one (1) remote kill line.

**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 LAS format to BLM_UT_VN_Welllogs@BLM.gov. 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.

SUBMIT AS EMAIL | Print Form

# BLM - Vernal Field Office - Notification Form

Operator KERR-McGEE OIL & GAS Rig Name/# BUCKET RIG
Submitted By J. Scharnowske Phone Number 720.929.6304
Well Name/Number NBU 921-22E4BS
Qtr/Qtr SWNW Section 22 Township 9S Range 21E
Lease Serial Number UTU0147566
API Number 4304752568

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

Date/Time 10/09/2012 11:00 HRS AM ☐ PM ☐

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

- ☑ Surface Casing
- ☐ Intermediate Casing
- ☐ Production Casing
- ☐ Liner
- ☐ Other

Date/Time 11/10/2012 08:00 HRS AM ☐ PM ☐

BOPE

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

Date/Time _____ _____ AM ☐ PM ☐

Remarks ESTIMATED DATE AND TIME. PLEASE CONTACT KENNY GATHINGS AT 435.828.0986 OR LOVEL YOUNG AT 435.781.7051

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

FORM 9

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU 0147566

## 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 In

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

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-22E4BS

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

**9. API NUMBER:** 43047525680000

**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:** 2179 FNL 0750 FWL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWNW Section: 22 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**

- ☐ NOTICE OF INTENT — Approximate date work will start:
- ☐ SUBSEQUENT REPORT — Date of Work Completion:
- ✓ SPUD REPORT — Date of Spud: 10/9/2012
- ☐ DRILLING REPORT — Report Date:

**TYPE OF ACTION**

| | | |
|---|---|---|
| ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ☐ 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 |
| ☐ 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.**

MIRU BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'. RAN 14" 36.7# SCHEDULE 10 CONDUCTOR PIPE. CMT W/ 28 SX READY MIX. SPUD WELL LOCATION ON OCTOBER 9, 2012 AT 16:00 HRS.

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

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Jaime Scharnowske | 720 929-6304 | Regulartory Analyst |

| SIGNATURE | DATE |
|---|---|
| N/A | 10/12/2012 |

RECEIVED: Oct. 12, 2012

FORM 6

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

# ENTITY ACTION FORM

Operator: KERR McGEE OIL & GAS ONSHORE LP
Operator Account Number: N 2995
Address: P.O. Box 173779
city DENVER
state CO zip 80217
Phone Number: (720) 929-6304

**Well 1**

| API Number | Well Name | | QQ | Sec | Twp | Rng | County |
|---|---|---|---|---|---|---|---|
| 4304752568 | NBU 921-22E4BS | | SWNW | 22 | 9S | 21E | UINTAH |
| **Action Code** | **Current Entity Number** | **New Entity Number** | **Spud Date** | | | **Entity Assignment Effective Date** | |
| B | 99999 | 2900 | 10/9/2012 | | | 10/24/2012 | |

**Comments:** MIRU BUCKET RIG.
SPUD WELL LOCATION ON 10/09/2012 AT 16:00 HRS. · WSMVD BHL: SWNW

**Well 2**

| API Number | Well Name | | QQ | Sec | Twp | Rng | County |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Action Code** | **Current Entity Number** | **New Entity Number** | **Spud Date** | | | **Entity Assignment Effective Date** | |
| | | | | | | | |

**Comments:**

**Well 3**

| API Number | Well Name | | QQ | Sec | Twp | Rng | County |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Action Code** | **Current Entity Number** | **New Entity Number** | **Spud Date** | | | **Entity Assignment Effective Date** | |
| | | | | | | | |

**Comments:**

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

RECEIVED
OCT 17 2012
Div. of Oil, Gas & Mining

JAIME SCHARNOWSKE
Name (Please Print)
Signature
REGULATORY ANALYST
Title
10/12/2012
Date

(5/2000)

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

FORM 9

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU 0147566

## 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 In

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

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-22E4BS

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

**9. API NUMBER:** 43047525680000

**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:** 2179 FNL 0750 FWL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWNW Section: 22 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: | ☐ 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:<br>12/3/2012 | ☐ 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.**

No Activity for the month of November 2012. Well TD at 10,122.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
December 03, 2012

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Lindsey Frazier | 720 929-6857 | Regulatory Analyst II |

| SIGNATURE | DATE |
|---|---|
| N/A | 12/3/2012 |

RECEIVED: Dec. 03, 2012

FORM 9

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

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU 0147566

## 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 In

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

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-22E4BS

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

**9. API NUMBER:** 43047525680000

**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:** 2179 FNL 0750 FWL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWNW Section: 22 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**

- ☐ NOTICE OF INTENT — Approximate date work will start:
- ☐ SUBSEQUENT REPORT — Date of Work Completion:
- ☐ SPUD REPORT — Date of Spud:
- ✓ DRILLING REPORT — Report Date: 12/5/2012

**TYPE OF ACTION**

| | | |
|---|---|---|
| ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ☐ 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 |
| ☐ 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.**

FINISHED DRILLING TO 10,122' ON 12/1/2012. CEMENTED PRODUCTION CASING. RELEASED H&P 318 RIG ON 12/05/2012. DETAILS OF CASING AND CEMENT WILL BE INCLUDED WITH THE WELL COMPLETION REPORT. WELL IS WAITING ON FINAL COMPLETION ACTIVITIES

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
December 06, 2012

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Lindsey Frazier | 720 929-6857 | Regulatory Analyst II |

| SIGNATURE | DATE |
|---|---|
| N/A | 12/6/2012 |

RECEIVED: Dec. 06, 2012

State of Utah - Notification Form

Operator Anadarko Petroleum Rig Name/# HP 318 Submitted By BRAD PEDERSEN Phone Number 435- 828-0988/1544
Well Name/Number NBU 921-22E4BS
Qtr/Qtr SW/NW Section 22 Township 9S Range 21E
Lease Serial Number UTU-0147566
API Number 43047525680000

Casing – Time casing run starts, not cementing times.

☐ Production Casing
☐ Other

Date/Time _____ _____ AM ☐ PM ☐

BOPE
☐ Initial BOPE test at surface casing point
☐ Other

Date/Time 11/24/2012 22:00 AM ☐ PM ☐

RECEIVED
NOV 27 2012
DIV. OF OIL, GAS & MINING

Rig Move
Location To: NBU 921-22E4BS

Date/Time 11/23/2012 09:00 AM ☐ PM ☐

Remarks TIME IS ESTIMATED

FORM 9

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

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU 0147566

## 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 In

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

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-22E4BS

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

**9. API NUMBER:** 43047525680000

**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:** 2179 FNL 0750 FWL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWNW Section: 22 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: | ☐ 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:<br>2/4/2013 | ☐ 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.**

No Activity for the month of January 2013. Well TD at 10,122

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
February 11, 2013

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Laura Abrams | 720 929-6356 | Regulatory Analyst II |

| SIGNATURE | DATE |
|---|---|
| N/A | 2/4/2013 |

RECEIVED: Feb. 04, 2013

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

**FORM 9**

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU 0147566

## SUNDRY NOTICES AND REPORTS ON WELLS

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**6. IF INDIAN, ALLOTTEE OR TRIBE NAME:** Ute In

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

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-22E4BS

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

**9. API NUMBER:** 43047525680000

**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:** 2179 FNL 0750 FWL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWNW Section: 22 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**

- ☐ NOTICE OF INTENT — Approximate date work will start:
- ☐ SUBSEQUENT REPORT — Date of Work Completion:
- ☐ SPUD REPORT — Date of Spud:
- ✓ DRILLING REPORT — Report Date: 2/25/2013

**TYPE OF ACTION**

| | | |
|---|---|---|
| ☐ ACIDIZE | ☐ ALTER CASING | ☐ CASING REPAIR |
| ☐ CHANGE TO PREVIOUS PLANS | ☐ CHANGE TUBING | ☐ CHANGE WELL NAME |
| ☐ CHANGE WELL STATUS | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ CONVERT WELL TYPE |
| ☐ DEEPEN | ☐ FRACTURE TREAT | ☐ NEW CONSTRUCTION |
| ☐ OPERATOR CHANGE | ☐ PLUG AND ABANDON | ☐ PLUG BACK |
| ✓ 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 |
| ☐ 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 subject well was placed on production on 2/25/2013. The Chronological Well History will be submitted with the well completion report.

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
March 01, 2013

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Laura Abrams | 720 929-6356 | Regulatory Analyst II |

| SIGNATURE | DATE |
|---|---|
| N/A | 2/28/2013 |

RECEIVED: Feb. 28, 2013

FORM 9

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

**5.LEASE DESIGNATION AND SERIAL NUMBER:** UTU 0147566

## 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 In

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

**1. TYPE OF WELL** Gas Well

**8. WELL NAME and NUMBER:** NBU 921-22E4BS

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

**9. API NUMBER:** 43047525680000

**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:** 2179 FNL 0750 FWL
**QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:** Qtr/Qtr: SWNW Section: 22 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: | ☐ 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:<br>3/4/2013 | ☐ 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.**

Well was completed, finishing well completion report. Well TD at 10,122

**Accepted by the Utah Division of Oil, Gas and Mining**
**FOR RECORD ONLY**
March 05, 2013

| NAME (PLEASE PRINT) | PHONE NUMBER | TITLE |
|---|---|---|
| Laura Abrams | 720 929-6356 | Regulatory Analyst II |

| SIGNATURE | DATE |
|---|---|
| N/A | 3/4/2013 |

RECEIVED: Mar. 04, 2013

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. UTU0147566

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 & GAS ONSHORE LP Contact: LINDSEY A FRAZIER E-Mail: lindsey.frazier@anadarko.com

8. Lease Name and Well No. NBU 921-22E4BS

3. Address PO BOX 173779 DENVER, CO 80217

3a. Phone No. (include area code) Ph: 720-929-6857

9. API Well No. 43-047-52568

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

At surface SWNW 2179FNL 750FWL 40.022865 N Lat, 109.544625 W Lon

At top prod interval reported below SWNW 2230FNL 811FWL

At total depth SWNW 2237FNL 825FWL

10. Field and Pool, or Exploratory NATURAL BUTTES

11. Sec., T., R., M., or Block and Survey or Area Sec 22 T9S R21E Mer SLB

12. County or Parish UINTAH

13. State UT

14. Date Spudded 10/09/2012

15. Date T.D. Reached 12/01/2012

16. Date Completed ☐ D & A ☒ Ready to Prod. 02/25/2013

17. Elevations (DF, KB, RT, GL)* 4892 KB

18. Total Depth: MD 10122 TVD 10119

19. Plug Back T.D.: MD 10053 TVD 10050

20. Depth Bridge Plug Set: MD TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each) CEMENT VOLUME-TRIPLE COMBO-CBL/GR/CCL/TEMP

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 |
|---|---|---|---|---|---|---|---|---|---|
| 20.000 | 14.000 STL | 36.7 | 0 | 40 | | 28 | | | |
| 11.000 | 8.625 IJ-55 | 28.0 | 0 | 2910 | | 670 | | 0 | |
| 7.875 | 4.500 I-80 | 11.6 | 0 | 10101 | | 2125 | | 1600 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

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 | 9361 | | | | | | | |

25. Producing Intervals

| Formation | Top | Bottom |
|---|---|---|
| A) WASATCH | 6482 | 7923 |
| B) MESAVERDE | 7944 | 9915 |
| C) | | |
| D) | | |

26. Perforation Record

| Perforated Interval | Size | No. Holes | Perf. Status |
|---|---|---|---|
| 6482 TO 7923 | 0.360 | 72 | OPEN |
| 7944 TO 9915 | 0.360 | 168 | OPEN |
| | | | |
| | | | |

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

| Depth Interval | Amount and Type of Material |
|---|---|
| 6482 TO 9915 | PUMP 10,893 BBLS SLICK H2O AND 244,282 LBS 30/50 OTTAWA SAND |
| | |
| | |
| | |

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APR 01 2013
DIV. OF OIL, GAS & MINING

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 |
|---|---|---|---|---|---|---|---|---|---|
| 02/25/2013 | 02/28/2013 | 24 | → | 0.0 | 1997.0 | 0.0 | | | 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 | 1945 | 2639.0 | → | 0 | 1997 | 0 | | 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 #202697 VERIFIED BY THE BLM WELL INFORMATION SYSTEM**

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

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.

| Formation | Top | Bottom | Descriptions, Contents, etc. |
|---|---|---|---|
| | | | |

31. Formation (Log) Markers

| Name | Top Meas. Depth |
|---|---|
| GREEN RIVER | 1609 |
| BIRD'S NEST | 1926 |
| MAHOGANY | 2443 |
| WASATCH | 5021 |
| MESAVERDE | 7927 |

32. Additional remarks (include plugging procedure):
The first 210 ft. of the surface hole was drilled with a 12 ? in. bit. The remainder of surface hole was drilled with an 11 in. bit. DQX csg was run from surface to 5083 ft; LTC csg was run from 5083 ft. to 10,101 ft. Attached is the chronological well history, perforation report & 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 #202697 Verified by the BLM Well Information System.**
**For KERR MCGEE OIL & GAS ONSHORE L, sent to the Vernal**

Name *(please print)* LINDSEY A FRAZIER Title REGUALTORY ANALYST

Signature (Electronic Submission) Date 03/26/2013

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 ****

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 11/2/2012 | 19:00 - 0:00 | 5.00 | RDMO | 01 | E | P | | RIG DOWN AND LOAD OUT TRUCKS.<br>PREPING FOR RIG MOVE. |
| 11/3/2012 | 0:00 - 6:00 | 6.00 | RDMO | 01 | E | P | | WAITING ON TRUCKS TO MOVE RIG.<br>MOVING ALL PROPETRO EQUIPMENT, TRUCKS, AND RIG TO NEW LOCATION. |
| | 6:00 - 11:00 | 5.00 | MIRU | 01 | A | P | | MOVE RIG 15.2 MILES TO NBU 921-22E PAD RIG UP MOVED WITH 9 TRUCKS AND 2 SWAMPERS AND 1 TRUCK PUSHER FROM JD FIELD SERVICES.<br>MOVED CAMPS WITH 3 TRUCKS AND TWO SWAMPERS.<br>MOVED RIG IN A TOTAL OF 5 HOURS.<br>SET MUD TANKS, 400 BBL UPRIGHT TANKS AND, FRACK TANKS, SET IN FLOW BACK TANK, SET MUD PUMP, SET FUEL SKID, SET DOG HOUSE, MATTING BOARD AND, RIG. SET IN CAMPS. |
| | 11:00 - 14:30 | 3.50 | MIRU | 01 | B | P | | RIG UP ALL 4" MUD LINES, RIG UP FLOW LINE, RIG UP ALL NOV EQUIPMENT, CUT AND PREPAIR CONDUCTOR, SET AND RAISE DERRICK, RIG UP RIG, SET IN TOOL BASKETS, RIG UP PET-ALL TONGS, SET DRILLER STAND AND, CONSOLE.<br><br>SAFETY AND RIG INSPECTION, RIG UP.<br>PREPARE TO SPUD. |
| | 14:30 - 15:00 | 0.50 | MIRU | 01 | C | P | | PRE SPUD JOB SAFETY MEETING<br>REVEW 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 OVERVEW OF WELLBORE, PRIOR TO SPUD.<br><br>FINISH PICKING UP BHA.<br>PICK UP NOV 1.83 DEGREE BENT MOTOR (RUN # 6) - .17 REV/GAL SN (1044684-3).<br>PICK UP 12.25 Q506 DRILL BIT RUN 14 SN (7137066) |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | Spud Date: 11/3/2012 | |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 15:00 - 16:30 | 1.50 | DRLSUR | 02 | D | P | | SPUD 11/03/2012 15:00.<br>DRILL 12.25" HOLE 4'-210' (206', 110'/PER HOUR).<br>12.25 in. BIT ON 38 th RUN.<br>WEIGHT ON BIT 5-15 K.<br>STROKES PER MINUTE 120 GALLONS PER MINUTE 491.<br>PRESSURE ON/OFF (BOTTOM) 800/600.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROTATE 20/20/20 K. DRAG 0 K.<br><br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.5# WATER.<br>DRILL DOWN TO 210' WITH 6" DRILL COLLARS.<br><br>NO HOLE ISSUES. |
| | 16:30 - 18:30 | 2.00 | DRLSUR | 06 | A | P | | PRE JOB SAFETY MEETING, CIRCULATE 15 MINUTES AND, TRIP OUT TO CHANGE ASSEMBLY.<br>LAY DOWN 6" DRILL COLLARS, BREAK 12 1/4" BIT.<br><br>MAKE UP Q506F 11" BIT (1ST RUN) (SN 7029640)<br>PICK UP 8" DIRECTIONAL ASSEMBLY.<br><br>INSTALL EM TOOL, TRIP IN HOLE. |
| | 18:30 - 0:00 | 5.50 | DRLSUR | 02 | B | P | | DRILL 11". SURFACE HOLE 210'-800', (590', 107'/PER HOUR).<br><br>WEIGHT ON BIT 15-25 K.<br>STROKES PER MINUTE 120 GALLONS PER MINUTE 491.<br>PRESSURE ON/OFF(BOTTOM) 1000/830.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 60/45/50 K. DRAG 10 K.<br><br>SLIDING 15' PER 90'OF ROTATION GETTING 1.5 DEGREE BUILD RATES CURRENTLY 1.4' WEST OF THE LINE<br><br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRAFUGE DEWATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br><br>NO HOLE ISSUES. |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 11/4/2012 | 0:00 - 6:00 | 7.00 | DRLSUR | 02 | B | P | | DRILL 11". SURFACE HOLE 800'-1430', (630', 90'/PER HOUR).<br><br>WEIGHT ON BIT 18-25 K.<br>STROKES PER MINUTE 120 GALLONS PER MINUTE 491.<br>PRESSURE ON/OFF(BOTTOM) 1000/830.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 65/55/60 K. DRAG 5 K.<br><br>SLIDING 10' PER 90'OF ROTATION GETTING 1.0 DEGREE BUILD RATES CURRENTLY 1.0' NORTH 1.4' WEST OF THE LINE<br><br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRAFUGE DEWATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br><br>NO HOLE ISSUES. |
| | 6:00 - 12:00 | 6.00 | DRLSUR | 02 | B | P | | DRILL 11". SURFACE HOLE 1430'-1930', (500', 83'/PER HOUR).<br><br>WEIGHT ON BIT 18-25 K.<br>STROKES PER MINUTE 120 GALLONS PER MINUTE 491.<br>PRESSURE ON/OFF(BOTTOM) 1200/1000.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 75/65/70 K. DRAG 5 K.<br><br>SLIDING 10' PER 90'OF ROTATION GETTING 1.0 DEGREE BUILD RATES CURRENTLY .5' SOUTH 1.0' WEST OF THE LINE<br><br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRAFUGE DEWATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br><br>NO HOLE ISSUES. |

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 12:00 - 18:00 | 6.00 | DRLSUR | 02 | B | P | | DRILL 11". SURFACE HOLE 1930'-2380', (450', 75'/PER HOUR).<br><br>WEIGHT ON BIT 18-25 K.<br>STROKES PER MINUTE 120 GALLONS PER MINUTE 491.<br>PRESSURE ON/OFF(BOTTOM) 1450/1150.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 80/70/75 K. DRAG 5 K.<br><br>SLIDING 10' PER 90'OF ROTATION GETTING 1.0 DEGREE BUILD RATES CURRENTLY 1.0' SOUTH 1.0' EAST OF THE LINE<br><br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRAFUGE DEWATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br><br>NO HOLE ISSUES. |
| | 18:00 - 23:59 | 5.98 | DRLSUR | 02 | B | P | | DRILL 11". SURFACE HOLE 2380'-2770', (390', 65'/PER HOUR).<br><br>WEIGHT ON BIT 18-25 K.<br>STROKES PER MINUTE 120 GALLONS PER MINUTE 491.<br>PRESSURE ON/OFF(BOTTOM) 1450/1250.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 85/75/80 K. DRAG 5 K.<br><br>SLIDING 10' PER 90'OF ROTATION GETTING 1.0 DEGREE BUILD RATES CURRENTLY 1.5' SOUTH 1.5' EAST OF THE LINE<br><br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRAFUGE DEWATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br><br>NO HOLE ISSUES. |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 11/5/2012 | 0:00 - 2:00 | 2.00 | DRLSUR | 02 | B | P | | DRILL 11". SURFACE HOLE 2770'-2920', (150', 75'/PER HOUR).<br><br>WEIGHT ON BIT 18-25 K.<br>STROKES PER MINUTE 120 GALLONS PER MINUTE 491.<br>PRESSURE ON/OFF(BOTTOM) 1450/1250.<br>ROTARY RPM 55, MOTOR RPM 83, TOTAL RPM 138.<br>UP/DOWN/ ROT 85/75/80 K. DRAG 5 K.<br><br>SLIDING 10' PER 90'OF ROTATION GETTING 1.0 DEGREE BUILD RATES CURRENTLY 1.5' SOUTH 1.5' EAST OF THE LINE<br><br>CIRCULATE CLOSED LOOP SYSTEM WITH 8.4# WATER.<br>RUNNING VOLUME THROUGH 1 CENTRAFUGE DEWATERING AND,<br>RUNNING VOLUME OVER BOTH SHAKERS.<br><br>NO HOLE ISSUES. |
| | 2:00 - 4:00 | 2.00 | DRLSUR | 05 | A | P | | CIRCULATE AND CONDITION HOLE,<br>VOLUME IS CLEAN COMING OVER SHAKERS, 4-400 BBL UPRIGHT'S FULL AND 2-400 BBL UPRIGHTS EMPTY, MUD TANKS FULL. |
| | 4:00 - 9:30 | 5.50 | CSGSUR | 06 | D | P | | TRIP OUT OF HOLE,<br>LAY DOWN DRILL STRING, BOTTOM HOLE ASSEMBLY, DIRECTIONAL TOOLS, MOTOR AND, BIT.<br><br>CLEAR TOOL AREA. |
| | 9:30 - 10:30 | 1.00 | CSGSUR | 06 | A | P | | PRE JOB SAFETY MEETING,<br>MOVE PIPE RACKS AND CATWALK. PULL DIVERTER HEAD. RIG UP TO RUN SURFACE CASING.<br><br>CLEAR UNRELATED TOOLS. |
| | 10:30 - 13:30 | 3.00 | CSGSUR | 12 | C | P | | RUN 65 JOINTS OF 8-5/8". 28# J-55 LTC CASING.<br><br>RAN 1 CENTRALIZER ON FIRST THREE JOINTS, AND EVERY OTHER JOINT FOR 2 JOINTS FOR A TOTAL OF 5 CENTRALIZERS.<br><br>RUN A TOTAL OF 65 JOINTS.<br>RUN CASING TO BOTTOM WITH NO PROBLEMS.<br><br>SET FLOAT SHOE @ 2889.65' KB.<br>SET TOP OF BAFFLE PLATE @ 2843.50' KB. |

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 13:30 - 15:30 | 2.00 | CSGSUR | 12 | E | P | | PRE JOB SAFETY MEETING,<br>RELEASE RIG @ 11/05/2012 13:30<br>RAN 200 ft OF 1 lin. PIPE DOWN BACK-SIDE OF CASING.<br>PRESSURE TEST LINES TO 2000 PSI.<br><br>PUMP 170 BBLS OF WATER AHEAD CLEARING THE SHOE.<br>MIX AND PUMP 20 BBLS OF 8.5# GEL WATER AHEAD.<br>MIX AND PUMP (300 sx) 152.8 BBLS OF 12.0# 2.86 YIELD LEAD CEMENT.<br>MIX AND PUMP (170 sx) 34.8 BBLS OF 15.8# 1.15 YIELD TAIL CEMENT.<br>DROP PLUG ON FLY,<br><br>DISPLACE WITH 177.2 BBLS OF H2O, FULL RETURNS THROUGH OUT JOB,<br>FINAL LIFT OF 700 PSI AT 3 BBL/MINUTE.<br>BUMP THE PLUGG WITH 1000 PSI, HELD 1000 PSI FOR 5 MINUTES, TESTED FLOAT AND FLOAT HELD.<br><br>SHUT DOWN AND WASH UP. |
| | 15:30 - 18:00 | 2.50 | CSGSUR | 12 | E | P | | PUMP CEMENT DOWN ONE INCH PIPE WITH 125 sx (25.6 bbls.)SAME TAIL CEMENT 1 BBL RETURNS TO SURFACE, CEMENT FELL BACK.<br>SHUT DOWN AND WASH UP.<br>WAIT 1.5 HOURS ON CEMENT, CEMENT DOWN BACKSIDE W/ 75 sx (15.3 bbls.) SAME TAIL CEMENT 3 BBLS RETURNS TO SURFACE CEMENT HELD AT SURFACE. RIG DOWN CEMENTERS.<br><br>(CEMENT JOB FINISHED @ 11/05/2012 18:00) |
| 11/22/2012 | 10:00 - 0:00 | 14.00 | MIRU3 | 01 | E | P | | PREP RIG F/ SKID , SKID RIG BACK 40' ,RIG DOWN ROTARY TOOLS, PREPARE RIG F/ MOVE |
| 11/23/2012 | 0:00 - 6:00 | 6.00 | MIRU3 | 01 | E | P | | RIG DOWN ROTARY TOOLS , PREP RIG F/ MOVE |
| | 6:00 - 18:00 | 12.00 | MIRU3 | 01 | E | P | | SAFETY MEETING W/ JONES TRUCKING , J&C CRANE, STALLION ,RIG DOWN , LOAD OUT TRUCKS , MOVE RIG 1/2 MILE, SET IN CAMPS, PITS, CATCH TANK , PUMPS, GENERATORS, CONEXS , MATTING BOARDS, SKID RAILS, 60% OF SUB, 90% MOVED , 30% RIGGED UP , 4 FLATBEDS , 2 HAUL TRUCKS, 2 FORKLIFTS, 2 SUPERVISORS, 6 SWAMPERS, 2 CRANES, 2 STALLION HANDS, 1 STALLION HAUL TRUCK, 1 HOWCROFT HAUL TRUCK |
| | 18:00 - 0:00 | 6.00 | MIRU3 | 21 | C | P | | WAIT ON DAYLIGHT |
| 11/24/2012 | 0:00 - 6:00 | 6.00 | MIRU3 | 21 | C | P | | WAIT ON DAYLIGHT |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:00 - 22:00 | 16.00 | MIRU3 | 01 | B | P | | RIG UP ROTARY TOOLS, FINISH SETTING SUB , INSTALL STORM CLAMPS,SET CENTER STEEL, INSTALL WIND WALLS OVER TRIP TANKS, SET TOOL DECK, DRAW WORKS, UPPER MCC PORCH, DRILLERS CABIN, DRILL LINE SPOOL, PUT DERRICK TOGETHER SET ON FLOOR, RAISE MAST, RIG UP MISC, RELEASED TRUCKS @ 13:00, CRANES @ 15:30, 4 FLAT BEDS , 2 HAUL TRUCKS, 2 FORK LIFTS, 6 SWAPERS, 2 SUPERVISORS, 2 CRANES |
| | 22:00 - 0:00 | 2.00 | MIRU3 | 21 | C | P | | WAIT ON DAY LIGHT |
| 11/25/2012 | 0:00 - 6:00 | 6.00 | MIRU3 | 21 | C | P | | WAIT ON DAYLIGHT |
| | 6:00 - 9:00 | 3.00 | MIRU3 | 01 | B | P | | RIG UP ROTARY TOOLS, PIN TRAVELING BLOCKS TO TOP DRIVE, CALIBRATE DRAW WORKS, MOVE PIPE WRANGLER INTO POSITION, SET IN BEAVER SLIDE, P/U MOUSE HOLE |
| | 9:00 - 13:00 | 4.00 | MIRU3 | 08 | C | Z | | ***RIG REPAIR***CHANGE OUT ANNULAR ELEMENT |
| | 13:00 - 16:00 | 3.00 | MIRU3 | 14 | A | P | | NIPPLE UP BOP @ EQUIPMENT, FUNCTION TEST BOP, ANNULAR LEAKING AROUND SEALS |
| | 16:00 - 20:30 | 4.50 | MIRU3 | 08 | C | Z | | ***RIG REPAIR*** NIPPLE DOWN TOP OF ANNULAR TO CHECK SEALS |
| | 20:30 - 0:00 | 3.50 | PRPSPD | 15 | A | P | | SAFETY MEETING W/ A-1 TESTING, TEST BOP , IBOP, LOWER KELLY VALVE, FLOOR VALVE, PIPE RAMS, BLIND RAMS, HCR, WING VALVES CHOKE MANIFOLD ,CHECK VALVE LOW 250 HIGH 5,000 PSI HAD TO FIX LEAK AT RISER |
| 11/26/2012 | 0:00 - 5:00 | 5.00 | PRPSPD | 15 | A | P | | ANNULAR LOW 250 PSI HIGH 2500 PSI CASING 1500 FOR 30 MINS, TEST SWACO CHOKE LINES & ORBIT VALVE TO 1,000 PSI, BLOW OUT LINES & FILL W/ METHANOL , RIG DOWN TESTER (HAD TO FUNCTION NEW ANNULAR ELEMENT 3 TIMES TO GET IT TO TEST AND FLUSH THROUGH CHOKE VALVE 2 TIMES TO GET IT TO TEST) |
| | 5:00 - 5:30 | 0.50 | PRPSPD | 14 | B | P | | INSTALL WEAR BUSHING |
| | 5:30 - 12:30 | 7.00 | PRPSPD | 06 | A | P | | PICK UP SMITH MDI 616 BIT, SDI .23 RPG/1.5 BEND, MWD, ORIENT MWD, D.CS, HWDP & DRILL PIPE TO 2800' |
| | 12:30 - 13:30 | 1.00 | DRLPRV | 02 | F | P | | DRILL CEMENT & FLOAT EQUIP F/ 2800' TO 2940' |
| | 13:30 - 14:30 | 1.00 | DRLPRV | 02 | B | P | | DRILL F/ 2940' TO 3010' , 70' @ 70' HR<br>WEIGHT ON BIT: 18/22<br>ROTATIONS PER MINUTE: 50<br>TORQUE 6/3<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2130/1650<br>PICKUP/SLACK OFF/ROTATE: 98/88/93<br>MUD WEIGHT 8.7 , VISCOSITY 32<br>ROTATE: 70' IN 1 HR = 70' HR<br>SLIDE: 0<br>NOV: DEWATERING<br>SWACO ONLINE HOLDING 200PSI , 9.7 EMW |
| | 14:30 - 15:00 | 0.50 | DRLPRV | 07 | A | P | | RIG SERVICE |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 15:00 - 0:00 | 9.00 | DRLPRV | 02 | B | P | | DRILL F/ 3010' TO 4275' , 1265' @ 140.5' HR<br>WEIGHT ON BIT: 23/25<br>ROTATIONS PER MINUTE: 55/60<br>TORQUE 8/3<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2300/1800<br>PICKUP/SLACK OFF/ROTATE: 121/99/109<br>MUD WEIGHT 8.9 , VISCOSITY 32<br>ROTATE: 1144' IN 6.75 HRS = 169.4' HR<br>SLIDE: 121' IN 2.25 HRS = 53.7' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>HOLE STARTED SEEPING @ 4200'<br>LOST 150 BBLS TO SEEPAGE |
| 11/27/2012 | 0:00 - 6:00 | 6.00 | DRLPRV | 02 | B | P | | DRILL F/ 4275' TO 4932' , 657' @ 109.5' HR<br>WEIGHT ON BIT: 23/25<br>ROTATIONS PER MINUTE: 58/62<br>TORQUE 8/4<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2300/1800<br>PICKUP/SLACK OFF/ROTATE: 130/109/121<br>MUD WEIGHT 8.9 , VISCOSITY 34<br>ROTATE: 634' IN 5.33 HRS = 118.9' HR<br>SLIDE: 23' IN .67 HRS = 34.3' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI<br>EMW 9.9 , LOST 20 BBLS TO SEEPAGE |
| | 6:00 - 16:00 | 10.00 | DRLPRV | 02 | B | P | | DRILL F/ 4932' TO 6222' , 1290' @ 129' HR<br>WEIGHT ON BIT: 23/25<br>ROTATIONS PER MINUTE: 58/62<br>TORQUE 8/4<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2400/1900<br>PICKUP/SLACKOFF/ROTATE: 152/122/143<br>MUD WEIGHT 8.9 , VISCOSITY 34<br>ROTATE: 1270' IN 9.33 HRS = 136.1' HR<br>SLIDE: 20' IN .67 HRS = 29.8' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.9 , LOST 80 TO SEEPAGE @ 5950' |
| | 16:00 - 16:30 | 0.50 | DRLPRV | 07 | A | P | | RIG SERVICE |

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 16:30 - 20:00 | 3.50 | DRLPRV | 02 | B | P | | DRILL F/ 6222' TO 6504' , 282' @ 80.5' HR<br>WEIGHT ON BIT: 23/25<br>ROTATIONS PER MINUTE: 58/62<br>TORQUE 8/4<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2550/2000<br>PICKUP/SLACK OFF/ROTATE: 158/132/143<br>MUD WEIGHT 8.9 , VISCOSITY 34<br>ROTATE: 255' IN 2.5 HRS = 102' HR<br>SLIDE: 27' IN 1 HR = 27' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.9<br>LOST 30 BBLS TO SEEPAGE<br>( NOTE: WHILE PICKING UP DRILLSTRING TO REAM & MAKE CONNECTION PULLING 18K DRAG & 9000 TORQUE LOST 84K STRING WT ) |
| | 20:00 - 0:00 | 4.00 | DRLPRV | 19 | A | X | | *** DRILLSTRING FAILURE*** HOOKLOAD 143K , AFTER DRILLSTRING FAILURE 59K WELL FLOWING , DISPLACE FLOWZAN MUD W/ 12# MUD |
| 11/28/2012 | 0:00 - 1:00 | 1.00 | DRLPRV | 06 | G | X | | ***DRILLSTRING FAILURE*** TRIP OUT OF HOLE W/ 2135' DRILL PIPE, ( PIN END WASHED & PULLED THREADS ) |
| | 1:00 - 4:30 | 3.50 | DRLPRV | 21 | D | X | | ***FISHING***WAIT ON FISHING TOOLS |
| | 4:30 - 9:00 | 4.50 | DRLPRV | 19 | A | X | | ***FISHING***STRAP FISHING TOOLS, PICK UP 7 5/8 OVERSHOT W/ 6 1/8 SPIRAL GRAPPLE, PUMP OUT SUB, BUMPER SUB, JARS, 15 JTS HWDP TO 2105' |
| | 9:00 - 10:30 | 1.50 | DRLPRV | 19 | A | X | | ***FISHING***DISPLACE OUT HEAVY MUD W/ FLOWZAN MUD |
| | 10:30 - 14:30 | 4.00 | DRLPRV | 19 | A | X | | ***FISHING*** ENGAGE FISH @ 2147', BREAK CIRCULATION, FISH PULLED FREE F/ 6504' TO 6400', WORK FISH FREE THROUGH TIGHT SPOT F/ 6400' TO 6000' 80K OVER, LOST 40 BBLS FLOWZAN MUD |
| | 14:30 - 17:00 | 2.50 | DRLPRV | 19 | A | X | | ***FISHING*** TRIP OUT OF HOLE F/ 6000' TO 4369' , PULL ROTATING HEAD , LAY DOWN JARS, BUMPER SUB, PUMP OUT SUB, OVERSHOT |
| | 17:00 - 18:00 | 1.00 | DRLPRV | 19 | A | X | | ***FISHING*** LAY DOWN JT BAD DRILL PIPE, INSTALL ROTATING HEAD ,SPOT 80 BBL 12# PILL, |
| | 18:00 - 0:00 | 6.00 | DRLPRV | 19 | A | X | | TRIP OUT OF HOLE STANDING BACK THE STRAIGHT DRILL PIPE & LAYING DOWN 27 BENT JOINTS DRILL PIPE, 30 JTS BEND HWDP |
| 11/29/2012 | 0:00 - 1:30 | 1.50 | DRLPRV | 19 | A | X | | ***FISHING*** LAY DOWN DIRECTIONAL TOOLS, MOTOR, BIT ( NO VISUAL DAMAGE TO BIT) |
| | 1:30 - 3:00 | 1.50 | DRLPRV | 06 | A | X | | ***DRILLSTRING FAILURE*** PICKUP NEW SMITH MDI616 BIT, SDI .23 RPG/ 1.5 BEND MOTOR , NEW DIRECTIONAL TOOLS , MWD, ORIENT MWD |
| | 3:00 - 8:00 | 5.00 | DRLPRV | 06 | A | X | | ***DRILLSTRING FAILURE*** TRIP IN HOLE PICKING UP 15 JOINTS NEW HWDP, TIGHT @ 4628' , TAG BRIDGE @ 6370' |
| | 8:00 - 9:00 | 1.00 | DRLPRV | 03 | A | X | | ***DRILLSTRING FAILURE*** WASH F/ 6370' TO 6504' |

US ROCKIES REGION

# Operation Summary Report

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|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 9:00 - 17:00 | 8.00 | DRLPRV | 02 | B | P | | DRILL F/ 6504' TO 7255' , 751' @ 93.8' HR<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 60/62<br>TORQUE 8/5<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2400/2000<br>PICKUP/SLACK OFF/ROTATE: 180/145/159<br>MUD WEIGHT 8.7 , VISCOSITY 35<br>ROTATE: 729' IN 6.75 HRS = 108' HR<br>SLIDE: 22' IN 1.25 HRS = 17.6' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.7<br>LOST APPROX 50 BBLS TO SEEPAGE<br>PUMPING 40 BBL LCM SWEEPS EVERY 300' |
| | 17:00 - 17:30 | 0.50 | DRLPRV | 07 | A | P | | RIG SERVICE |
| | 17:30 - 0:00 | 6.50 | DRLPRV | 02 | B | P | | DRILL F/ 7255' TO 7835' , 580' @ 96.6' HR<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 60/62<br>TORQUE 9/6<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2500/2100<br>PICKUP/SLACK OFF/ROTATE: 200/150/170<br>MUD WEIGHT 9.0 , VISCOSITY 35<br>ROTATE:568' IN 6 HRS = 94.6' HR<br>SLIDE: 12' IN .50 HRS - 24' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 10.0<br>LOST APPROX 60 BBLS TO SEEPAGE<br>PUMPING 40 BBL LCM SWEEPS EVERY 300' |
| 11/30/2012 | 0:00 - 6:00 | 6.00 | DRLPRV | 02 | B | P | | DRILL F/ 7835' TO 8282' , 447' @ 74.5' HR<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 60/62<br>TORQUE 9/6<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2500/2100<br>PICKUP/SLACK OFF/ROTATE: 205/155/175<br>MUD WEIGHT 9.0 , VISCOSITY 35<br>ROTATE:431' IN 5.08 HRS = 84.8' HR<br>SLIDE: 16' IN .92 HRS = 17.3' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.5<br>LOST APPROX 60 BBLS TO SEEPAGE<br>PUMPING 60 BBL LCM SWEEPS EVERY 300' |

US ROCKIES REGION

# Operation Summary Report

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|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:00 - 15:00 | 9.00 | DRLPRV | 02 | B | P | | DRILL F/ 8282' TO 9049' , 767' @ 85.2' HR<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 62/64<br>TORQUE 10/7<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2800/2400<br>PICKUP/SLACK OFF/ROTATE: 221/167/185<br>MUD WEIGHT 9.1 , VISCOSITY 34<br>ROTATE: 747' HR 8 HRS = 93.3' HR<br>SLIDE: 20' IN 1 HR = 20' HR<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200/250 PSI,<br>EMW 9.5<br>LOST APPROX 80 BBLS TO SEEPAGE<br>PUMPING 70 BBL LCM SWEEPS EVERY 300' |
| | 15:00 - 15:30 | 0.50 | DRLPRV | 07 | A | P | | RIG SERVICE |
| | 15:30 - 16:00 | 0.50 | DRLPRV | 02 | B | P | | DRILL F/ 9049' TO 9069' ,( BLEW VIBERATING HOSE BETWEEN PUMPS & SUB) |
| | 16:00 - 22:00 | 6.00 | DRLPRV | 08 | B | Z | | ***MUD LINE HOSE FAILURE***, BLEW VIBERATING HOSE BETWEEN PUMPS & SUB , WAIT ON HOSE , REPLACE HOSE<br>( WORKING & ROTATING DRILLSTRING SLOW , SWACO ONLINE HOLDING 250PSI / 350PSI ) |
| | 22:00 - 23:00 | 1.00 | DRLPRV | 08 | B | Z | | ***MUD LINE HOSE FAILURE*** CIRCULATE OUT GAS, 30' TO 40' FLARE 30 MIN |
| | 23:00 - 0:00 | 1.00 | DRLPRV | 02 | B | P | | DRILL F/ 9069' TO 9144' , 75' @ 75' HR<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 60/62<br>TORQUE 9/6<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2500/2100<br>PICKUP/SLACK OFF/ROTATE: 205/155/175<br>MUD WEIGHT 9.0 , VISCOSITY 35<br>ROTATE: 75' IN 1 HR = 75' HR<br>SLIDE: 0<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.5 |
| 12/1/2012 | 0:00 - 6:00 | 6.00 | DRLPRV | 02 | B | P | | DRILL F/ 9144' TO 9522' , 378' @ 63' HR<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 60/62<br>TORQUE `12/7<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2850/2450<br>PICKUP/SLACK OFF/ROTATE: 225/170/191<br>MUD WEIGHT 9.1 , VISCOSITY 35<br>ROTATE: 378' IN 6 HRS = 63' HR<br>SLIDE: 0<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.6<br>LOST APPROX 40 BBLS TO SEEPAGE |

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|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 6:00 - 14:30 | 8.50 | DRLPRV | 02 | B | P | | DRILL F/ 9522' TO 10088' , 566' @ 66.5' HR<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 60/64<br>TORQUE `12/8<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2800/2450<br>PICKUP/SLACK OFF/ROTATE: 250/176/200<br>MUD WEIGHT 9.1 , VISCOSITY 35<br>ROTATE: 566' IN 8.5 HRS = 66.5' HR<br>SLIDE: 0<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.6<br>LOST APPROX 60 BBLS TO SEEPAGE |
| | 14:30 - 15:00 | 0.50 | DRLPRV | 07 | A | P | | RIG SERVICE |
| | 15:00 - 15:30 | 0.50 | DRLPRV | 02 | B | P | | DRILL F/ 10088' TO 10122' , 34', TD @ 15:30 12/1/2012<br>WEIGHT ON BIT: 24/27<br>ROTATIONS PER MINUTE: 60/64<br>TORQUE `12/8<br>STROKES PER MINUTE: 120<br>GALLONS PER MINUTE: 540<br>ON/OFF PSI: 2800/2450<br>PICKUP/SLACK OFF/ROTATE: 250/176/200<br>MUD WEIGHT 9.1 , VISCOSITY 35<br>ROTATE: 34' IN .5 HRS = 68' HR<br>SLIDE: 0<br>NOV: DEWATERING<br>SWACO ON LINE HOLDING 200 PSI,<br>EMW 9.6 |
| | 15:30 - 20:00 | 4.50 | DRLPRV | 05 | C | P | | CIRC & COND, DISPLACE HOLE W/ 12.2 MUD, MIXING LCM TO 10% |
| | 20:00 - 0:00 | 4.00 | DRLPRV | 06 | E | P | | WIPER TRIP TO CASING SHOE, SEVERAL TIGHT SPOTS, 8137' ,7463' ,6559' ,4775, 4588' |
| 12/2/2012 | 0:00 - 4:00 | 4.00 | DRLPRV | 06 | E | P | | WIPER TRIP F/ CASING SHOE, WASH THROUGH TIGHT SPOT 4900' TO 5000' |
| | 4:00 - 4:30 | 0.50 | DRLPRV | 03 | E | P | | WASH & REAM F/ 10000' TO 10122' |
| | 4:30 - 6:30 | 2.00 | DRLPRV | 05 | C | P | | CIRCULATE & CONDITION |
| | 6:30 - 10:00 | 3.50 | DRLPRV | 06 | E | X | | ***2ND WIPER TRIP*** WIPER TRIP TO CASING SHOE |
| | 10:00 - 10:30 | 0.50 | DRLPRV | 07 | A | P | | RIG SERVICE |
| | 10:30 - 14:30 | 4.00 | DRLPRV | 06 | E | X | | ***2ND WIPER TRIP*** WIPER TRIP F/ CASING SHOE, HIT BRIDGES @ 4350' ,4590' ,7940', WASHED AND REAMED F/ 4350' TO 4612' |
| | 14:30 - 16:00 | 1.50 | DRLPRV | 05 | C | X | | ***2ND WIPER TRIP*** CIRC & COND |
| | 16:00 - 22:00 | 6.00 | DRLPRV | 06 | A | P | | TRIP OUT OF HOLE , LAYDOWN MWD, MOTOR ,BIT |
| | 22:00 - 0:00 | 2.00 | DRLPRV | 11 | C | P | | SAFETY MEETING W/ SCHLUMBERGER, RIG UP & RUN TRIPLE COMBO , START IN HOLE W/ LOGS |
| 12/3/2012 | 0:00 - 2:30 | 2.50 | EVALPR | 11 | C | X | | RUN TRIPLE COMBO , LOGS BRIDGED OUT @ 4350' WORK LOGS TO 4360' , HOLE STICKY, PULL OUT RIG DOWN LOGGERS, LOST BOW SPRING IN HOLE |

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 2:30 - 6:30 | 4.00 | EVALPR | 06 | E | X | | ***3RD WIPER TRIP***PICK UP TRICONE BIT & BIT SUB , TIH TO SHOE, FILL PIPE TOOK 3100 PSI TO OPEN FLOAT, FLOAT FAILURE, TRIP OUT OF HOLE CHANGE FLOAT |
| | 6:30 - 8:30 | 2.00 | EVALPR | 06 | E | X | | ***3RD WIPER TRIP*** TRIP IN HOLE W/ TRICONE TO CASING SHOE, FILL PIPE |
| | 8:30 - 9:30 | 1.00 | EVALPR | 09 | A | P | | CUT & SLIP 96" DRILL LINE |
| | 9:30 - 14:00 | 4.50 | EVALPR | 06 | E | X | | ***3RD WIPER TRIP*** TRIP IN HOLE F/ CASING SHOE , WASH THROUGH BRIDGE 4288' TO 4478' & 9962' TO 10122' |
| | 14:00 - 16:00 | 2.00 | EVALPR | 05 | C | X | | ***3RD WIPER TRIP*** CIRC & COND |
| | 16:00 - 21:00 | 5.00 | EVALPR | 06 | E | X | | ***3RD WIPER TRIP*** TRIP OUT OF HOLE F/ LOGS ( NO PROBLEMS) |
| | 21:00 - 22:00 | 1.00 | EVALPR | 11 | C | Z | | LOGGERS ON LOCATION @ 22:00 ,WAIT ON LOGGERS 1 HR , ( WAIT ON KEYS TO LOGGING TRUCK) |
| | 22:00 - 0:00 | 2.00 | EVALPR | 11 | C | P | | SAFETY MEETING W/ SCHLUMBERGER, RIG UP LOGGERS , RUN TRIPLE COMBO LOGS TO 9990' LOGGERS TD |
| 12/4/2012 | 0:00 - 4:30 | 4.50 | EVALPR | 11 | C | P | | LOG OUT F/ 9990' ,LOGGERS TD, RIG DOWN LOGGERS |
| | 4:30 - 5:00 | 0.50 | CSGPRO | 14 | B | P | | PULL WEAR BUSHING |
| | 5:00 - 6:00 | 1.00 | CSGPRO | 12 | A | P | | SAFETY MEETING W/ KIMZEY & RIG UP CASERS |
| | 6:00 - 13:00 | 7.00 | CSGPRO | 12 | C | P | | RUN 231 JTS 4.5 11.6 ( 115 JTS P110 LT&C / 116 JTS I80 DQX) SHOE 10100.65, TOP OF FLOAT 10053.41, TOP OF MARKER 7836.40, TOP OF X/O 5061.02 |
| | 13:00 - 15:00 | 2.00 | CSGPRO | 05 | D | P | | CIRCULATE OUT GAS 5' FLARE 15/MIN, RIG DOWN CASERS |
| | 15:00 - 16:00 | 1.00 | CSGPRO | 12 | B | P | | SAFETY MEETING W/ BJ SERVICES RIG UP CEMENTERS |
| | 16:00 - 21:00 | 5.00 | CSGPRO | 12 | E | P | | CEMENT PROD CASING, PRESSURE TEST TO 4671 PSI, DROP BOTTOM PLUG , PUMP 25 BBLS SPACER , 635 SX, 200 BBLS, PREMIUM LITE II CEMENT + .05 LBS/SX STATIC FREE+ 0.4% BWOC FL-52 + 0.4% BWOC SODIUM METASILICATE + 6% BWOC BENTONITE II + 0.6% BWOC R-3 +0.25 LBS/SACK CELLO FLAKE +5 LBS/SX KOL-SEAL,50 LB BAG 84.8 % FRESH WATER ,13# 1.77 YLD, LEAD , 1490 SACKS , 353 BBLS , ( 50:50) POZ ( FLY ASH): CLASS G CEMENT + 0.05 LBS/SACK STATIC FREE + 10% BWOW SODIUM CHLORIDE + 0.9% BWOC R-3 +.5% BWOC EC-1+ 0.002 GPS FP-6L +1.2% BWOC SODIUM METASILICATE 2% BWOC BENTONITE II + 59% FRESH WATER 14.3# ,1.33 YLD TAIL, SHUT DOWN WASH UP ,DROP TOP PLUG, DISPLACE W/ 154.8 BBLS CLAY CARE + 1 GAL MAGNACIDE @ 8.34 PPG, FINAL LIFT 2935 PSI , BUMP PLUG @ 3512 PSI HELD F/ 5 MIN , FLOATS HELD ,FULL RETURNS THROUGHN OUT JOB , 75 BBLS CEMENT BACK TO SURFACE ,TOP OF TAIL EST 4451', FLUSH STACK AND LINES , RIG DOWN CEMENTERS |
| | 21:00 - 21:30 | 0.50 | CSGPRO | 14 | B | P | | INSTALL PACK OFF, LAY DOWN LANDING JOINT |
| | 21:30 - 23:30 | 2.00 | RDMO | 14 | A | P | | NIPPLE DOWN BOP |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | Spud Date: 11/3/2012 | |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: PROPETRO 12/12, H&P 318/318 |
| Event: DRILLING | Start Date: 10/22/2012 | End Date: 12/5/2012 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 23:30 - 0:00 | 0.50 | RDMO | 01 | E | P | | RIG DOWN ROTARY TOOLS, PREP RIG F/ SKID |

# 1 General

## 1.1 Customer Information

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

## 1.2 Well/Wellbore Information

| | | | |
|---|---|---|---|
| Well | NBU 921-22E4BS RED | Wellbore No. | OH |
| Well Name | NBU 921-22E4BS | Wellbore Name | NBU 921-22E4BS |
| Report No. | 1 | Report Date | 2/18/2013 |
| Project | UTAH-UINTAH | Site | NBU 921-22E PAD |
| Rig Name/No. | | Event | COMPLETION |
| Start Date | 2/14/2013 | End Date | 2/25/2013 |
| Spud Date | 11/3/2012 | Active Datum | RKB @4,892.00usft (above Mean Sea Level) |
| UWI | SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | | |

## 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 | 6,482.0 (usft)-9,915.0 (usft | Start Date/Time | 2/18/2013 12:00AM |
| No. of Intervals | 74 | End Date/Time | 2/18/2013 12:00AM |
| Total Shots | 240 | Net Perforation Interval | 79.00 (usft) |
| Avg Shot Density | 3.04 (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/18/2013 12:00AM | WASATCH/ | | | 6,482.0 | 6,483.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |

## 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/18/2013 12:00AM | WASATCH/ | | | 6,634.0 | 6,635.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 6,756.0 | 6,758.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 6,786.0 | 6,787.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 6,796.0 | 6,798.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 6,816.0 | 6,817.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,088.0 | 7,089.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,264.0 | 7,265.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,333.0 | 7,334.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,342.0 | 7,344.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,383.0 | 7,384.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,403.0 | 7,404.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,416.0 | 7,417.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,585.0 | 7,586.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,601.0 | 7,602.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,632.0 | 7,633.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,663.0 | 7,664.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,677.0 | 7,678.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,824.0 | 7,825.0 | 4.00 | | 0.360 | EXP/ | 3.375 | 90.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | WASATCH/ | | | 7,922.0 | 7,923.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 7,944.0 | 7,945.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 7,958.0 | 7,959.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |

## 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/18/2013 12:00AM | MESAVERDE/ | | | 7,965.0 | 7,966.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,110.0 | 8,112.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,158.0 | 8,159.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,175.0 | 8,176.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,191.0 | 8,192.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,222.0 | 8,223.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,248.0 | 8,249.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,278.0 | 8,279.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,361.0 | 8,362.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,386.0 | 8,387.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,518.0 | 8,519.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,532.0 | 8,533.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,553.0 | 8,554.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,756.0 | 8,757.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,792.0 | 8,793.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,877.0 | 8,878.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,884.0 | 8,885.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,891.0 | 8,892.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,904.0 | 8,905.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,931.0 | 8,932.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,937.0 | 8,938.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |

## 2.1 Perforated Interval (Continued)

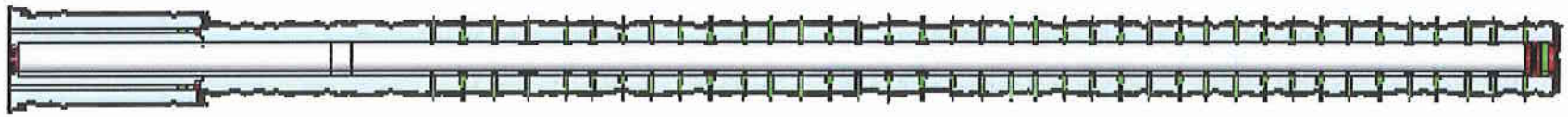
| Date | Formation/ Reservoir | CCL@ (usft) | CCL-TS (usft) | MD Top (usft) | MD Base (usft) | Shot Density (shot/ft) | Misfires/ Add. Shot | Diameter (in) | Carr Type /Stage No | Carr Size (in) | Phasing (°) | Charge Desc /Charge Manufacturer | Charge Weight (gram) | Reason | Misrun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,960.0 | 8,962.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 8,987.0 | 8,988.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,010.0 | 9,011.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,028.0 | 9,029.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,044.0 | 9,045.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,083.0 | 9,084.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,164.0 | 9,165.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,194.0 | 9,195.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,206.0 | 9,207.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,222.0 | 9,223.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,288.0 | 9,289.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,305.0 | 9,306.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,329.0 | 9,330.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,341.0 | 9,342.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,355.0 | 9,356.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,400.0 | 9,401.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,419.0 | 9,420.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,432.0 | 9,433.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,478.0 | 9,479.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,494.0 | 9,495.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,551.0 | 9,552.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |

### 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,627.0 | 9,628.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,638.0 | 9,639.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,705.0 | 9,706.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,714.0 | 9,715.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,733.0 | 9,734.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,793.0 | 9,794.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,801.0 | 9,802.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,807.0 | 9,808.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,864.0 | 9,865.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |
| 2/18/2013 12:00AM | MESAVERDE/ | | | 9,914.0 | 9,915.0 | 3.00 | | 0.360 | EXP/ | 3.375 | 120.00 | | 23.00 | PRODUCTION | |

## 3 Plots

### 3.1 Wellbore Schematic



US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 | |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | | Rig Name No: |
| Event: COMPLETION | Start Date: 2/14/2013 | | End Date: 2/25/2013 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| 11/3/2012 | - | | | | | | | |
| 2/14/2013 | 9:30 - 10:30 | 1.00 | SUBSPR | 33 | C | 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 48 PSI.<br>NO COMMUNICATION OR MIGRATION WITH SURFACE CSG<br>BLEED OFF PSI.<br><br>PRESSURE TEST 8 5/8 X 4 1/2 TO 520 PSI HELD FOR 5 MIN<br>LOST -372 PSI,BLED PSI OFF, REINSTALLED POP OFF SWIFN |
| 2/15/2013 | 7:00 - 10:00 | 3.00 | SUBSPR | 37 | | P | | PERF STG 1)PU 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH PERF AS PER PERF DESIGN. POOH. SWIFW |
| 2/19/2013 | 6:30 - 7:00 | 0.50 | FRAC | 48 | | P | | JSA-SAFETY MEETING |
| | 7:00 - 17:30 | 10.50 | FRAC | 36 | B | P | | PRESSURE TEST SURFACE LINES TO 8153#, LOST 465 # IN 15 MIN,<br>1.REFER TO STIMULATION PJR FOR FLUID, SAND AND CHEMICAL VOLUME, ALL STAGES WERE PERFORATED ACCORDING TO PERF RECORD IN OPEN WELL, ALL STAGES WERE STIMULATED TO VENDOR POST JOB REPORT.<br><br>( FRAC STG #1) WHP = 1910#, BRK DN PERFS = 4753#, @ 4.7 BPM, ISIP = 3079#, FG = 0.75 , FINAL ISIP = 3071#, FINAL FG = 0.75,<br><br>( FRAC STG #2) WHP = 1705#, BRK DN PERFS = 3667#, @ = 5.1 BPM, ISIP = 2647#, FG = 0.71, FINAL ISIP = 3135#, FINAL FG = 0.77<br><br>SHUT WELL IN, SDFN |
| 2/20/2013 | 6:30 - 7:00 | 0.50 | FRAC | 48 | | P | | JSA-SAFETY MEETING |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 | |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | | Rig Name No: |
| Event: COMPLETION | Start Date: 2/14/2013 | | End Date: 2/25/2013 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 7:00 - 17:30 | 10.50 | FRAC | 36 | B | P | | 1.REFER TO STIMULATION PJR FOR FLUID, SAND AND CHEMICAL VOLUME, ALL STAGES WERE PERFORATED ACCORDING TO PERF RECORD IN OPEN WELL, ALL STAGES WERE STIMULATED TO VENDOR POST JOB REPORT.<br><br>( FRAC STG #3) WHP = 2380#, BRK DN PERFS = 4269#, @ 4.2 BPM, ISIP = 2714#, F.G = 0.73 , FINAIL ISIP = 3031#, FINIAL F.G. = 0.77,<br><br>( FRAC STG #4) WHP = 2030#, BRK DN PERFS = 2796#, @ 4.7 BPM, ISIP = 2390#, FG = 0.70 , FINAL ISIP = 2736#, FINAL FG = 0.74 ,<br><br>( FRAC STG #5 ) WHP = 2425#, BRK DN PERFS = 3136#, @ = 4.7 BPM, ISIP = 2549 #, F G = 0.73 , FINAL ISIP = 2884#, FINAL F G = 0.74 ,<br><br>( FRAC STG #6 ) WHP = 1120#, BRK DN PERFS = 2660#, @ 4.6 BPM, ISIP = 1932#, F G = 0.67 , FINAL ISIP = 2290#, FINAL F G = 0.71 , |
| | | | | | | | | SWI, |
| 2/21/2013 | 6:30 - 7:00 | 0.50 | FRAC | 48 | | P | | JSA-SAFETY MEETING |
| | 7:00 - 17:30 | 10.50 | FRAC | 36 | B | P | | 1.REFER TO STIMULATION PJR FOR FLUID, SAND AND CHEMICAL VOLUME, ALL STAGES WERE PERFORATED ACCORDING TO PERF RECORD IN OPEN WELL, ALL STAGES WERE STIMULATED TO VENDOR POST JOB REPORT.<br><br>( FRAC STG #7) WHP = 1944#, BRK DN PERFS = 2143#, @ 4.6 BPM, ISIP = 1957#, FG = 0.68 , FINAL ISIP = 2562#, FINAL FG = 0.76,<br><br>( FRAC STG #8) WHP = 2005#, BRK DN PERFS = 2545#, @ = 6.9 BPM, ISIP = 2011#, FG = 0.70, FINAL ISIP = 2761 #, FINAL FG = 0.79<br><br>( FRAC STG #9) WHP = 900#, BRK DN PERFS = 2238#, @ 5.1 BPM, ISIP = 1433#, F.G = 0.64 , FINAIL ISIP = 2113 #, FINIAL F.G. = 0.73,<br><br>( FRAC STG #10) WHP = 485 #, BRK DN PERFS = 1779#, @ 5.1 BPM, ISIP = 1475#, FG = 0.66 , FINAL ISIP = 1685 #, FINAL FG = 0.69 ,<br><br>( KILL PLUG ) P/U RIH W/ HALIBURTON 8K CBP, SET FOR TOP KILL @ = 6432'<br>R/D WIRELINE AND FRAC CREW, SHUT WELL IN,<br><br>TOTAL FLUID PUMP'D = 10893 BBLS<br>TOTAL SAND PUMP'D = 244282# |
| 2/22/2013 | 7:00 - 7:15 | 0.25 | DRLOUT | 48 | | P | | HSM, SLIPS, TRIPS & FALLS, RIG MOVE |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: |
| Event: COMPLETION | Start Date: 2/14/2013 | End Date: 2/25/2013 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 7:15 - 13:00 | 5.75 | DRLOUT | 46 | G | P | | WAIT ON FRAC, FILL IN SINK HOLE & AROUND WH, W/ ROAD BASE. |
| | 13:00 - 17:00 | 4.00 | DRLOUT | 31 | I | P | | ROAD RIG FROM BC 1122-2H A & PARK ON NBU 921-22M PAD 2/21/13, MIRU, SPOT EQUIP, ND WH, NU BOP, RU FLOOR & TBG EQUIP, PU 3 7/8" BIT, POBS, 1.875" XN S/N, TALLY & PU TBG, SWI, SDFWE |
| 2/25/2013 | 7:00 - 7:15 | 0.25 | DRLOUT | 48 | | P | | HSM, SLIPS, TRIPS & FALLS, PU TBG, D/O PLUGS |

US ROCKIES REGION

# Operation Summary Report

| | | |
|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | Rig Name No: |
| Event: COMPLETION | Start Date: 2/14/2013 | End Date: 2/25/2013 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation |
|---|---|---|---|---|---|---|---|---|
| | 7:15 - 17:30 | 10.25 | DRLOUT | 31 | I | P | | 1 OF 4, TALLY & PU TBG, RU P/S FILL TBG & BREAK CIRC, SURFACE CSG VALVE OPEN & LOCKED, D/O 10 PLUGS<br><br>C/O 10' SAND, TAG 1ST PLUG @ 6,432' DRL PLUG IN 10 MIN. 0 PSI INCREASE RIH, CSG PRESS 0 PSI. (NO FLOW W/O PUMP)<br><br>C/O 30' SAND, TAG 2ND PLUG @ 6,847' DRL PLUG IN 9 MIN. 700 PSI INCREASE RIH, CSG PRESS 100 PSI.<br><br>C/O 25' SAND, TAG 3RD PLUG @ 7,447' DRL PLUG IN 10 MIN. 400 PSI INCREASE RIH, CSG PRESS 300 PSI.<br><br>C/O 25' SAND, TAG 4TH PLUG @ 7,933' DRL PLUG IN 8 MIN. 300 PSI INCREASE RIH, CSG PRESS 400 PSI.<br><br>C/O 30' SAND, TAG 5TH PLUG @ 8,202' DRL PLUG IN 10 MIN. 500 PSI INCREASE RIH, CSG PRESS 350 PSI.<br><br>C/O 30' SAND, TAG 6TH PLUG @ 8,584' DRL PLUG IN 9 MIN. 900 PSI INCREASE RIH, CSG PRESS 350 PSI.<br><br>C/O 20' SAND, TAG 7TH PLUG @ 8,948' DRL PLUG IN 8 MIN. 200 PSI INCREASE RIH, CSG PRESS 400 PSI.<br><br>C/O 30' SAND, TAG 8TH PLUG @ 9,175' DRL PLUG IN 9 MIN. 700 PSI INCREASE RIH, CSG PRESS 600 PSI.<br><br>C/O 30' SAND, TAG 9TH PLUG @ 9,386' DRL PLUG IN 10 MIN. 500 PSI INCREASE RIH, CSG PRESS 800 PSI.<br><br>C/O 20' SAND, TAG 10TH PLUG @ 9,669' DRL PLUG IN 8 MIN. 800 PSI INCREASE RIH, CSG PRESS 800 PSI.<br><br>PBTD @ 10,053', BTM PERF @ 9,915', RIH TAGGED @ 10,010", C/O TO PBTD, 138' PAST BTM PERF W/ 316 JTS 2 3/8" L-80 TBG, LD 22 JTS, PU & STRIP IN TBG HANGER & LAND TBG W/ 294 JTS 2 3/8" L-80, EOT 9,360.55'.<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, LET BIT FALL FOR 20 MIN.<br><br>TURN OVER TO FLOW BACK CREW & SALES, |

US ROCKIES REGION

# Operation Summary Report

| | | | |
|---|---|---|---|
| Well: NBU 921-22E4BS RED | | Spud Date: 11/3/2012 | |
| Project: UTAH-UINTAH | Site: NBU 921-22E PAD | | Rig Name No: |
| Event: COMPLETION | Start Date: 2/14/2013 | | End Date: 2/25/2013 |
| Active Datum: RKB @4,892.00usft (above Mean Sea Level) | UWI: SW/NW/0/9/S/21/E/22/0/0/26/PM/N/2179/W/0/750/0/0 | | |

| Date | Time Start-End | Duration (hr) | Phase | Code | Sub Code | P/U | MD From (usft) | Operation | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | SDFN. | |
| | | | | | | | | KB= 24' | |
| | | | | | | | | 4 1/16" CAMERON HANGER= .83' | TBG |
| | | | | | | | | DELIVERED 317 JTS | |
| | | | | | | | | 294 JTS 2 3/8" L-80 = 9,333.52' | |
| | | | | | | | | TBG USED 294 JTS | |
| | | | | | | | | POBS= 2.20' | |
| | | | | | | | | TBG RETURNED 23 JTS | |
| | | | | | | | | EOT @ 9,360.55' | 1 |
| | | | | | | | | W/ BAD THREADS | |
| | | | | | | | | TWTR= 10,893 BBLS | |
| | | | | | | | | TWR= 3,500 BBLS | |
| | | | | | | | | TWLTR= 7,393 BBLS | |

Scientific Drilling

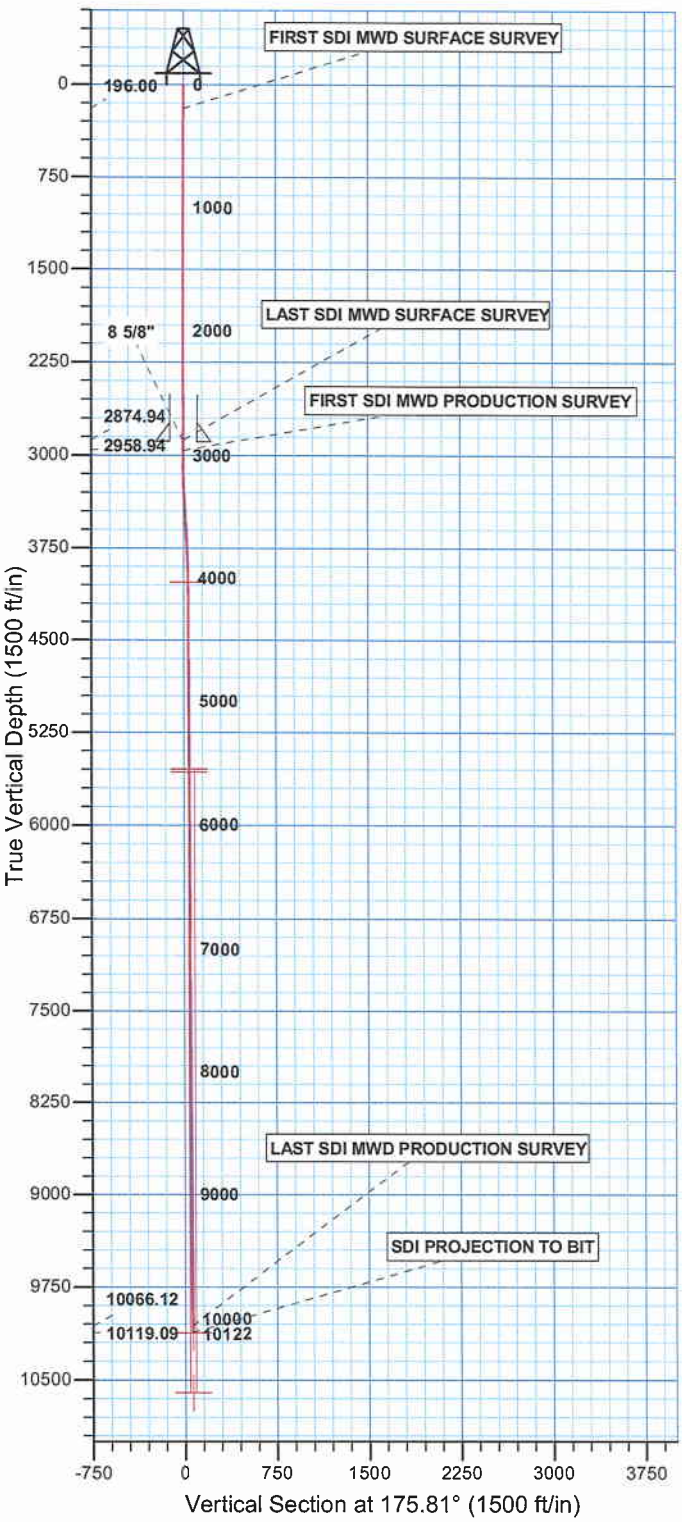
Project: UTAH - UTM (feet), NAD27, Zone 12N
Site: NBU 921-22E PAD
Well: NBU 921-22E4BS
Wellbore: OH
Design: OH

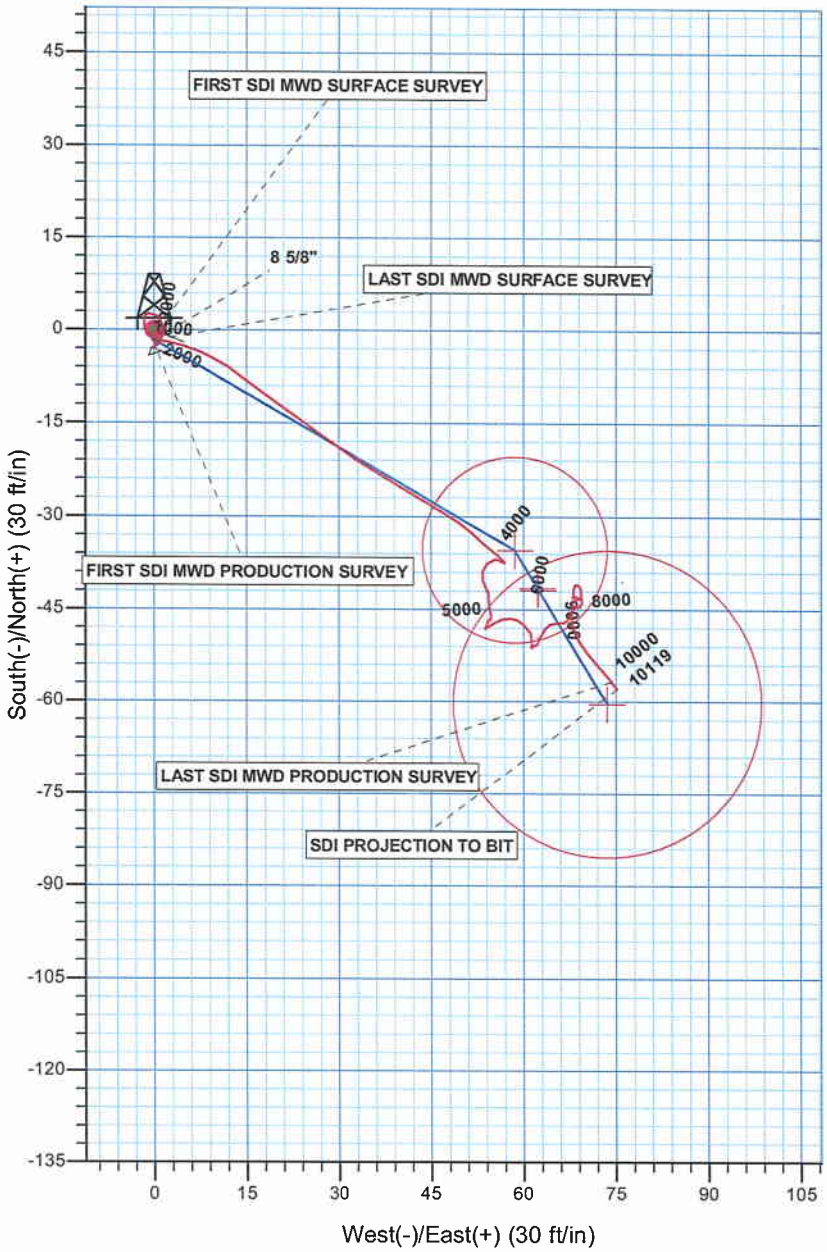
Anadarko Petroleum Corporation

| WELL DETAILS: NBU 921-22E4BS | | | | | |
|---|---|---|---|---|---|
| GL 4868 & KB 24 @ 4892.00ft (HP 318) | | | | | |
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
| 0.00 | 0.00 | 14537714.95 | 2048070.64 | 40.022901 | -109.543937 |

Azimuths to True North
Magnetic North: 11.04°

Magnetic Field
Strength: 52294.4snT
Dip Angle: 65.87°
Date: 11/15/2011
Model: IGRF2010




| PROJECT DETAILS: UTAH - UTM (feet), NAD27, Zone 12N | |
|---|---|
| Geodetic System: | Universal Transverse Mercator (US Survey Feet) |
| Datum: | NAD 1927 (NADCON CONUS) |
| Ellipsoid: | Clarke 1866 |
| Zone: | Zone 12N (114 W to 108 W) |
| Location: | SECTION 22 T9S R21E |
| System Datum: | Mean Sea Level |

Design: OH (NBU 921-22E4BS/OH)

Created By: Gabe Kendall Date: 10:58, January 02 2013

Scientific Drilling

# US ROCKIES REGION PLANNING

**UTAH - UTM (feet), NAD27, Zone 12N**
**NBU 921-22E PAD**
**NBU 921-22E4BS**

**OH**

**Design: OH**

# Standard Survey Report

**02 January, 2013**

Anadarko Petroleum Corporation

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Site:** | NBU 921-22E PAD | **MD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Well:** | NBU 921-22E4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**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 921-22E PAD, SECTION 22 T9S R21E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 14,537,714.95 usft | **Latitude:** | 40.022901 |
| **From:** | Lat/Long | **Easting:** | 2,048,070.64 usft | **Longitude:** | -109.543937 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 0.94 ° |

**Well** NBU 921-22E4BS, 2179 FNL 750 FWL

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 14,537,714.95 usft | **Latitude:** | 40.022901 |
| | **+E/-W** | 0.00 ft | **Easting:** | 2,048,070.64 usft | **Longitude:** | -109.543937 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 4,868.00 ft |

**Wellbore** OH

| **Magnetics** | **Model Name** | **Sample Date** | **Declination (°)** | **Dip Angle (°)** | **Field Strength (nT)** |
|---|---|---|---|---|---|
| | IGRF2010 | 11/15/11 | 11.04 | 65.87 | 52,294 |

**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 | 175.81 |

**Survey Program** **Date** 01/02/13

| **From (ft)** | **To (ft)** | **Survey (Wellbore)** | **Tool Name** | **Description** |
|---|---|---|---|---|
| 20.00 | 2,875.00 | Survey #1 SDI MWD SURFACE (OH) | SDI MWD | SDI MWD - Standard ver 1.0.1 |
| 2,959.00 | 10,122.00 | 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 (°/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 |
| 20.00 | 0.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 196.00 | 0.35 | 128.25 | 196.00 | -0.33 | 0.42 | 0.36 | 0.20 | 0.20 | 0.00 |
| **FIRST SDI MWD SURFACE SURVEY** | | | | | | | | | |
| 280.00 | 0.09 | 227.31 | 280.00 | -0.54 | 0.58 | 0.58 | 0.45 | -0.31 | 117.93 |
| 363.00 | 0.18 | 129.40 | 363.00 | -0.66 | 0.63 | 0.71 | 0.26 | 0.11 | -117.96 |
| 453.00 | 0.44 | 148.12 | 453.00 | -1.05 | 0.92 | 1.11 | 0.31 | 0.29 | 20.80 |
| 543.00 | 0.53 | 274.15 | 543.00 | -1.31 | 0.69 | 1.36 | 0.96 | 0.10 | 140.03 |
| 633.00 | 0.53 | 325.83 | 632.99 | -0.94 | 0.04 | 0.94 | 0.51 | 0.00 | 57.42 |
| 723.00 | 0.79 | 284.61 | 722.99 | -0.43 | -0.80 | 0.38 | 0.58 | 0.29 | -45.80 |

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Site:** | NBU 921-22E PAD | **MD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Well:** | NBU 921-22E4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 813.00 | 0.35 | 346.22 | 812.98 | -0.01 | -1.46 | -0.10 | 0.77 | -0.49 | 68.46 |
| 903.00 | 0.35 | 349.30 | 902.98 | 0.53 | -1.58 | -0.64 | 0.02 | 0.00 | 3.42 |
| 993.00 | 0.53 | 7.58 | 992.98 | 1.21 | -1.57 | -1.32 | 0.25 | 0.20 | 20.31 |
| 1,083.00 | 0.62 | 3.89 | 1,082.97 | 2.11 | -1.49 | -2.21 | 0.11 | 0.10 | -4.10 |
| 1,173.00 | 0.44 | 86.68 | 1,172.97 | 2.61 | -1.11 | -2.69 | 0.79 | -0.20 | 91.99 |
| 1,263.00 | 0.70 | 102.77 | 1,262.97 | 2.51 | -0.23 | -2.52 | 0.34 | 0.29 | 17.88 |
| 1,353.00 | 0.35 | 134.14 | 1,352.96 | 2.20 | 0.51 | -2.16 | 0.49 | -0.39 | 34.86 |
| 1,443.00 | 0.53 | 151.99 | 1,442.96 | 1.64 | 0.90 | -1.57 | 0.25 | 0.20 | 19.83 |
| 1,533.00 | 0.35 | 153.92 | 1,532.96 | 1.03 | 1.22 | -0.93 | 0.20 | -0.20 | 2.14 |
| 1,623.00 | 0.33 | 139.44 | 1,622.96 | 0.58 | 1.50 | -0.47 | 0.10 | -0.02 | -16.09 |
| 1,713.00 | 0.26 | 182.84 | 1,712.95 | 0.18 | 1.66 | -0.06 | 0.25 | -0.08 | 48.22 |
| 1,803.00 | 0.53 | 182.48 | 1,802.95 | -0.44 | 1.63 | 0.56 | 0.30 | 0.30 | -0.40 |
| 1,893.00 | 0.70 | 213.25 | 1,892.95 | -1.31 | 1.32 | 1.41 | 0.41 | 0.19 | 34.19 |
| 1,983.00 | 0.53 | 202.61 | 1,982.94 | -2.16 | 0.85 | 2.22 | 0.23 | -0.19 | -11.82 |
| 2,073.00 | 0.09 | 200.24 | 2,072.94 | -2.61 | 0.67 | 2.65 | 0.49 | -0.49 | -2.63 |
| 2,163.00 | 0.24 | 272.27 | 2,162.94 | -2.67 | 0.46 | 2.69 | 0.25 | 0.17 | 80.03 |
| 2,253.00 | 0.35 | 225.99 | 2,252.94 | -2.85 | 0.07 | 2.85 | 0.28 | 0.12 | -51.42 |
| 2,343.00 | 0.26 | 53.99 | 2,342.94 | -2.92 | 0.04 | 2.92 | 0.68 | -0.10 | -191.11 |
| 2,433.00 | 0.09 | 13.21 | 2,432.94 | -2.73 | 0.22 | 2.74 | 0.22 | -0.19 | -45.31 |
| 2,523.00 | 0.18 | 12.85 | 2,522.94 | -2.53 | 0.27 | 2.54 | 0.10 | 0.10 | -0.40 |
| 2,613.00 | 0.09 | 351.41 | 2,612.94 | -2.32 | 0.29 | 2.33 | 0.11 | -0.10 | -23.82 |
| 2,703.00 | 0.26 | 359.67 | 2,702.94 | -2.05 | 0.28 | 2.06 | 0.19 | 0.19 | 9.18 |
| 2,793.00 | 0.09 | 315.11 | 2,792.94 | -1.79 | 0.22 | 1.80 | 0.23 | -0.19 | -49.51 |
| 2,875.00 | 0.09 | 302.72 | 2,874.94 | -1.71 | 0.13 | 1.72 | 0.02 | 0.00 | -15.11 |
| **LAST SDI MWD SURFACE SURVEY** | | | | | | | | | |
| 2,959.00 | 0.46 | 280.34 | 2,958.94 | -1.61 | -0.26 | 1.59 | 0.45 | 0.44 | -26.64 |
| **FIRST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 3,053.00 | 1.68 | 98.08 | 3,052.92 | -1.74 | 0.73 | 1.79 | 2.28 | 1.30 | 189.09 |
| 3,148.00 | 2.84 | 103.74 | 3,147.85 | -2.50 | 4.40 | 2.81 | 1.24 | 1.22 | 5.96 |
| 3,242.00 | 3.55 | 117.38 | 3,241.70 | -4.39 | 9.24 | 5.05 | 1.10 | 0.76 | 14.51 |
| 3,336.00 | 4.75 | 127.60 | 3,335.46 | -8.10 | 14.91 | 9.17 | 1.49 | 1.28 | 10.87 |
| 3,431.00 | 3.70 | 124.49 | 3,430.20 | -12.24 | 20.55 | 13.71 | 1.13 | -1.11 | -3.27 |
| 3,525.00 | 4.84 | 126.25 | 3,523.94 | -16.30 | 26.25 | 18.17 | 1.22 | 1.21 | 1.87 |
| 3,620.00 | 5.12 | 123.23 | 3,618.58 | -20.99 | 33.03 | 23.35 | 0.40 | 0.29 | -3.18 |
| 3,714.00 | 4.97 | 120.23 | 3,712.21 | -25.34 | 40.06 | 28.20 | 0.32 | -0.16 | -3.19 |
| 3,809.00 | 4.32 | 119.89 | 3,806.90 | -29.19 | 46.71 | 32.53 | 0.68 | -0.68 | -0.36 |
| 3,903.00 | 3.09 | 132.50 | 3,900.70 | -32.67 | 51.65 | 36.36 | 1.56 | -1.31 | 13.41 |
| 3,997.00 | 1.32 | 127.82 | 3,994.63 | -35.05 | 54.38 | 38.93 | 1.89 | -1.88 | -4.98 |
| 4,092.00 | 0.75 | 129.19 | 4,089.61 | -36.11 | 55.72 | 40.09 | 0.60 | -0.60 | 1.44 |
| 4,186.00 | 1.38 | 139.56 | 4,183.60 | -37.36 | 56.93 | 41.42 | 0.70 | 0.67 | 11.03 |
| 4,281.00 | 1.29 | 315.70 | 4,278.59 | -37.47 | 56.93 | 41.53 | 2.81 | -0.09 | 185.41 |
| 4,375.00 | 0.90 | 256.42 | 4,372.57 | -36.88 | 55.47 | 40.84 | 1.21 | -0.41 | -63.06 |
| 4,470.00 | 0.98 | 232.16 | 4,467.56 | -37.56 | 54.10 | 41.41 | 0.42 | 0.08 | -25.54 |

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Site:** | NBU 921-22E PAD | **MD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Well:** | NBU 921-22E4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 4,564.00 | 0.94 | 182.77 | 4,561.55 | -38.82 | 53.43 | 42.62 | 0.85 | -0.04 | -52.54 |
| 4,658.00 | 0.15 | 185.57 | 4,655.55 | -39.71 | 53.38 | 43.51 | 0.84 | -0.84 | 2.98 |
| 4,753.00 | 0.36 | 169.96 | 4,750.54 | -40.13 | 53.42 | 43.93 | 0.23 | 0.22 | -16.43 |
| 4,847.00 | 1.07 | 155.32 | 4,844.54 | -41.22 | 53.84 | 45.04 | 0.77 | 0.76 | -15.57 |
| 4,942.00 | 0.33 | 167.12 | 4,939.53 | -42.29 | 54.27 | 46.14 | 0.79 | -0.78 | 12.42 |
| 5,036.00 | 0.55 | 179.47 | 5,033.53 | -43.01 | 54.34 | 46.86 | 0.25 | 0.23 | 13.14 |
| 5,130.00 | 0.85 | 174.19 | 5,127.52 | -44.15 | 54.41 | 48.01 | 0.33 | 0.32 | -5.62 |
| 5,225.00 | 1.14 | 165.69 | 5,222.50 | -45.77 | 54.72 | 49.64 | 0.34 | 0.31 | -8.95 |
| 5,319.00 | 0.28 | 271.62 | 5,316.50 | -46.67 | 54.72 | 50.54 | 1.33 | -0.91 | 112.69 |
| 5,414.00 | 0.17 | 237.24 | 5,411.50 | -46.74 | 54.37 | 50.58 | 0.18 | -0.12 | -36.19 |
| 5,508.00 | 0.57 | 192.78 | 5,505.50 | -47.27 | 54.15 | 51.10 | 0.49 | 0.43 | -47.30 |
| 5,602.00 | 0.50 | 205.94 | 5,599.49 | -48.09 | 53.86 | 51.90 | 0.15 | -0.07 | 14.00 |
| 5,697.00 | 0.88 | 45.68 | 5,694.49 | -47.96 | 54.20 | 51.79 | 1.43 | 0.40 | -168.69 |
| 5,791.00 | 0.95 | 62.21 | 5,788.48 | -47.09 | 55.41 | 51.01 | 0.29 | 0.07 | 17.59 |
| 5,886.00 | 0.65 | 71.23 | 5,883.47 | -46.55 | 56.62 | 50.56 | 0.34 | -0.32 | 9.49 |
| 5,980.00 | 0.95 | 97.10 | 5,977.46 | -46.47 | 57.90 | 50.58 | 0.49 | 0.32 | 27.52 |
| 6,074.00 | 0.46 | 121.75 | 6,071.45 | -46.77 | 58.99 | 50.95 | 0.60 | -0.52 | 26.22 |
| 6,169.00 | 1.03 | 126.33 | 6,166.44 | -47.47 | 60.00 | 51.73 | 0.60 | 0.60 | 4.82 |
| 6,263.00 | 1.14 | 148.46 | 6,260.43 | -48.77 | 61.17 | 53.11 | 0.46 | 0.12 | 23.54 |
| 6,357.00 | 1.16 | 196.17 | 6,354.41 | -50.48 | 61.40 | 54.83 | 0.99 | 0.02 | 50.76 |
| 6,447.00 | 0.24 | 47.23 | 6,444.40 | -51.23 | 61.28 | 55.57 | 1.52 | -1.02 | -165.49 |
| 6,541.00 | 0.33 | 41.89 | 6,538.40 | -50.89 | 61.61 | 55.26 | 0.10 | 0.10 | -5.68 |
| 6,636.00 | 0.53 | 93.79 | 6,633.40 | -50.72 | 62.23 | 55.13 | 0.44 | 0.21 | 54.63 |
| 6,731.00 | 0.71 | 344.19 | 6,728.40 | -50.18 | 62.50 | 54.62 | 1.07 | 0.19 | -115.37 |
| 6,825.00 | 0.11 | 137.07 | 6,822.40 | -49.69 | 62.41 | 54.12 | 0.86 | -0.64 | 162.64 |
| 6,919.00 | 0.28 | 197.56 | 6,916.40 | -49.97 | 62.40 | 54.40 | 0.26 | 0.18 | 64.35 |
| 7,013.00 | 1.14 | 31.21 | 7,010.39 | -49.39 | 62.81 | 53.85 | 1.50 | 0.91 | -176.97 |
| 7,108.00 | 0.70 | 30.51 | 7,105.38 | -48.08 | 63.60 | 52.60 | 0.46 | -0.46 | -0.74 |
| 7,202.00 | 0.53 | 69.62 | 7,199.37 | -47.44 | 64.30 | 52.01 | 0.47 | -0.18 | 41.61 |
| 7,296.00 | 0.78 | 80.61 | 7,293.37 | -47.18 | 65.34 | 51.83 | 0.30 | 0.27 | 11.69 |
| 7,391.00 | 0.79 | 98.57 | 7,388.36 | -47.17 | 66.62 | 51.92 | 0.26 | 0.01 | 18.91 |
| 7,485.00 | 0.83 | 2.14 | 7,482.35 | -46.59 | 67.29 | 51.38 | 1.29 | 0.04 | -102.59 |
| 7,580.00 | 0.45 | 47.26 | 7,577.35 | -45.65 | 67.59 | 50.47 | 0.64 | -0.40 | 47.49 |
| 7,674.00 | 0.62 | 35.70 | 7,671.34 | -44.99 | 68.16 | 49.85 | 0.21 | 0.18 | -12.30 |
| 7,768.00 | 0.13 | 79.47 | 7,765.34 | -44.55 | 68.56 | 49.44 | 0.57 | -0.52 | 46.56 |
| 7,863.00 | 0.58 | 100.14 | 7,860.34 | -44.62 | 69.14 | 49.55 | 0.48 | 0.47 | 21.76 |
| 7,957.00 | 0.95 | 349.82 | 7,954.33 | -43.93 | 69.47 | 48.89 | 1.35 | 0.39 | -117.36 |
| 8,051.00 | 0.66 | 5.46 | 8,048.32 | -42.63 | 69.38 | 47.59 | 0.38 | -0.31 | 16.64 |
| 8,146.00 | 0.45 | 348.40 | 8,143.32 | -41.72 | 69.36 | 46.68 | 0.28 | -0.22 | -17.96 |
| 8,240.00 | 0.25 | 324.07 | 8,237.32 | -41.19 | 69.16 | 46.14 | 0.26 | -0.21 | -25.88 |
| 8,334.00 | 0.26 | 293.04 | 8,331.32 | -40.94 | 68.85 | 45.86 | 0.15 | 0.01 | -33.01 |
| 8,429.00 | 0.39 | 236.74 | 8,426.31 | -41.03 | 68.38 | 45.92 | 0.34 | 0.14 | -59.26 |
| 8,524.00 | 0.70 | 184.54 | 8,521.31 | -41.79 | 68.06 | 46.65 | 0.58 | 0.33 | -54.95 |
| 8,618.00 | 0.64 | 173.41 | 8,615.30 | -42.88 | 68.08 | 47.74 | 0.15 | -0.06 | -11.84 |

| | | | |
|---|---|---|---|
| **Company:** | US ROCKIES REGION PLANNING | **Local Co-ordinate Reference:** | Well NBU 921-22E4BS |
| **Project:** | UTAH - UTM (feet), NAD27, Zone 12N | **TVD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Site:** | NBU 921-22E PAD | **MD Reference:** | GL 4868 & KB 24 @ 4892.00ft (HP 318) |
| **Well:** | NBU 921-22E4BS | **North Reference:** | True |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | OH | **Database:** | EDM 5000.1 Single User Db |

**Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 8,712.00 | 0.38 | 332.81 | 8,709.30 | -43.13 | 68.00 | 47.98 | 1.07 | -0.28 | 169.57 |
| 8,807.00 | 0.49 | 88.43 | 8,804.30 | -42.84 | 68.26 | 47.71 | 0.78 | 0.12 | 121.71 |
| 8,901.00 | 0.67 | 117.16 | 8,898.30 | -43.08 | 69.15 | 48.02 | 0.36 | 0.19 | 30.56 |
| 8,996.00 | 0.36 | 263.02 | 8,993.30 | -43.37 | 69.35 | 48.32 | 1.04 | -0.33 | 153.54 |
| 9,090.00 | 0.35 | 282.76 | 9,087.29 | -43.34 | 68.77 | 48.25 | 0.13 | -0.01 | 21.00 |
| 9,185.00 | 0.49 | 222.46 | 9,182.29 | -43.57 | 68.22 | 48.44 | 0.46 | 0.15 | -63.47 |
| 9,279.00 | 0.27 | 194.94 | 9,276.29 | -44.08 | 67.89 | 48.93 | 0.30 | -0.23 | -29.28 |
| 9,374.00 | 0.29 | 154.61 | 9,371.29 | -44.52 | 67.93 | 49.36 | 0.20 | 0.02 | -42.45 |
| 9,468.00 | 0.34 | 196.55 | 9,465.29 | -45.00 | 67.96 | 49.85 | 0.24 | 0.05 | 44.62 |
| 9,563.00 | 0.98 | 186.01 | 9,560.28 | -46.08 | 67.79 | 50.91 | 0.68 | 0.67 | -11.09 |
| 9,657.00 | 1.27 | 162.27 | 9,654.26 | -47.87 | 68.02 | 52.71 | 0.58 | 0.31 | -25.26 |
| 9,752.00 | 1.68 | 151.80 | 9,749.23 | -50.10 | 69.00 | 55.01 | 0.51 | 0.43 | -11.02 |
| 9,846.00 | 1.38 | 139.69 | 9,843.20 | -52.18 | 70.38 | 57.18 | 0.47 | -0.32 | -12.88 |
| 9,941.00 | 1.61 | 137.38 | 9,938.17 | -54.03 | 72.03 | 59.15 | 0.25 | 0.24 | -2.43 |
| 10,035.00 | 1.56 | 142.26 | 10,032.13 | -56.02 | 73.71 | 61.25 | 0.15 | -0.05 | 5.19 |
| 10,069.00 | 1.65 | 141.18 | 10,066.12 | -56.76 | 74.30 | 62.04 | 0.28 | 0.26 | -3.18 |
| **LAST SDI MWD PRODUCTION SURVEY** | | | | | | | | | |
| 10,122.00 | 1.65 | 141.18 | 10,119.09 | -57.95 | 75.25 | 63.30 | 0.00 | 0.00 | 0.00 |
| **SDI PROJECTION TO BIT** | | | | | | | | | |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) |
|---|---|---|---|---|
| 2,890.00 | 2,889.94 | 8 5/8" | 8.625 | 11.000 |

**Design Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 196.00 | 196.00 | -0.33 | 0.42 | FIRST SDI MWD SURFACE SURVEY |
| 2,875.00 | 2,874.94 | -1.71 | 0.13 | LAST SDI MWD SURFACE SURVEY |
| 2,959.00 | 2,958.94 | -1.61 | -0.26 | FIRST SDI MWD PRODUCTION SURVEY |
| 10,069.00 | 10,066.12 | -56.76 | 74.30 | LAST SDI MWD PRODUCTION SURVEY |
| 10,122.00 | 10,119.09 | -57.95 | 75.25 | SDI PROJECTION TO BIT |

Checked By: _____ Approved By: _____ Date: _____