# OPERATOR'S COPY

Form 3160-3
(April 2004)

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No: NMNM-89057

6 If Indian, Allotee or Tribe Name:

1a Type of work: ☑ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No:

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

8 Lease Name and Well No: Snapping 11 Federal 1H (38321)

2 Name of Operator: Devon Energy Production Company, LP (6137)

9 API Well No: 30-015-38193

3a Address: 20 North Broadway, Oklahoma City, Oklahoma City 73102-8260

3b Phone No (include area code): 405-228-8699

10 Field and Pool, or Exploratory: WILDCAT; ~~Big Sinks Southeast;~~ Bone Springs (96403)

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

At surface: SE/4 SW/4 430 FSL & 1650 FWL

At proposed prod zone: 330 FNL & 1650 FWL PP: 430 FSL & 1650 FWL

11 Sec, T R M or Blk and Survey or Area: SEC 11 T26S R31E

14 Distance in miles and direction from nearest town or post office*: Approximately 25 miles southeast of Loving, NM.

12 County or Parish: Eddy County

13 State: NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any): 430'

16 No of acres in lease: 2160 Acres

17 Spacing Unit dedicated to this well: 160 Acres

18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft: See attached Map.

19 Proposed Depth: ~~8797' MD~~ 12,798' TD

20 BLM/BIA Bond No on file: CO-1104

21 Elevations (Show whether DF, KDB, RT, GL, etc): 3212 GL

22 Approximate date work will start*:

23 Estimated duration: 45 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~~: Judy A. Barnett — Name (Printed Typed): Judy A. Barnett — Date: 04/14/2010

Title: Regulatory Analyst

Approved by (Signature): — Name (Printed/Typed): — Date: 6/21/10

Title: FIELD MANAGER — Office: CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that 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

APPROVAL FOR TWO YEARS

Title 18 USC Section 1001 and Title 43 USC 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

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

7

DISTRICT I
1625 N French Dr , Hobbs, NM 88240

DISTRICT II
1301 W Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd , Aztec, NM 87410

DISTRICT IV
1220 S St Francis Dr , Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

# OIL CONSERVATION DIVISION

*1220 South St. Francis Dr*
*Santa Fe, New Mexico 87505*

Form C-102
Revised October 15, 2009

Submit one copy to appropriate District Office

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

| API Number | Pool Code | Pool Name |
|---|---|---|
| 30-015-38193 | 96403 | WILDCAT ~~BIG SINKS SOUTHEAST; BONE~~ SPRINGS |

| Property Code | Property Name | Well Number |
|---|---|---|
| 38321 | SNAPPING "11" FEDERAL | 1H |

| OGRID No | Operator Name | Elevation |
|---|---|---|
| 6137 | DEVON ENERGY PRODUCTION COMPANY, L.P | 3212' |

### Surface Location

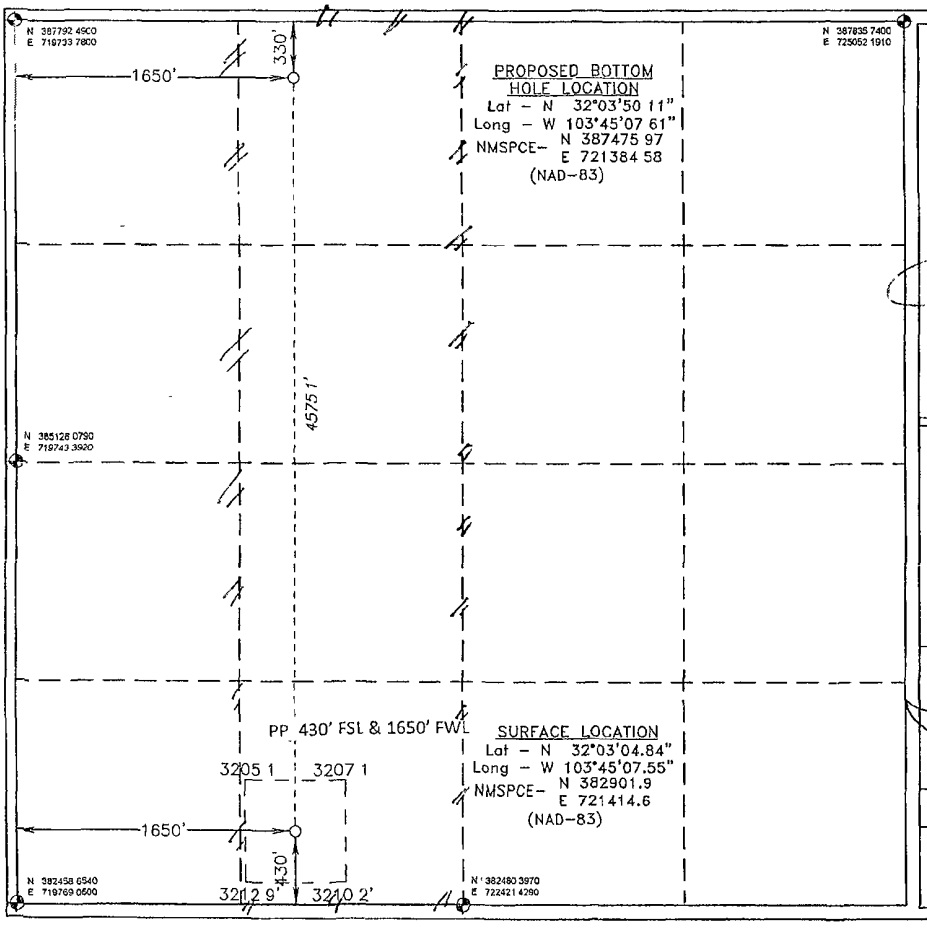
| UL or lot No | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| N | 11 | 26 S | 31 E | | 430 | SOUTH | 1650 | WEST | EDDY |

### Bottom Hole Location If Different From Surface

| UL or lot No | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| C | 11 | 26 S | 31 E | | 330 | NORTH | 1650 | WEST | EDDY |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No |
|---|---|---|---|
| 160 | | | |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION




### OPERATOR CERTIFICATION

*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*

Signature — Date: 4/13/10

Judy A Barnett Regulatory Analyst
Printed Name

### SURVEYOR CERTIFICATION

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief*

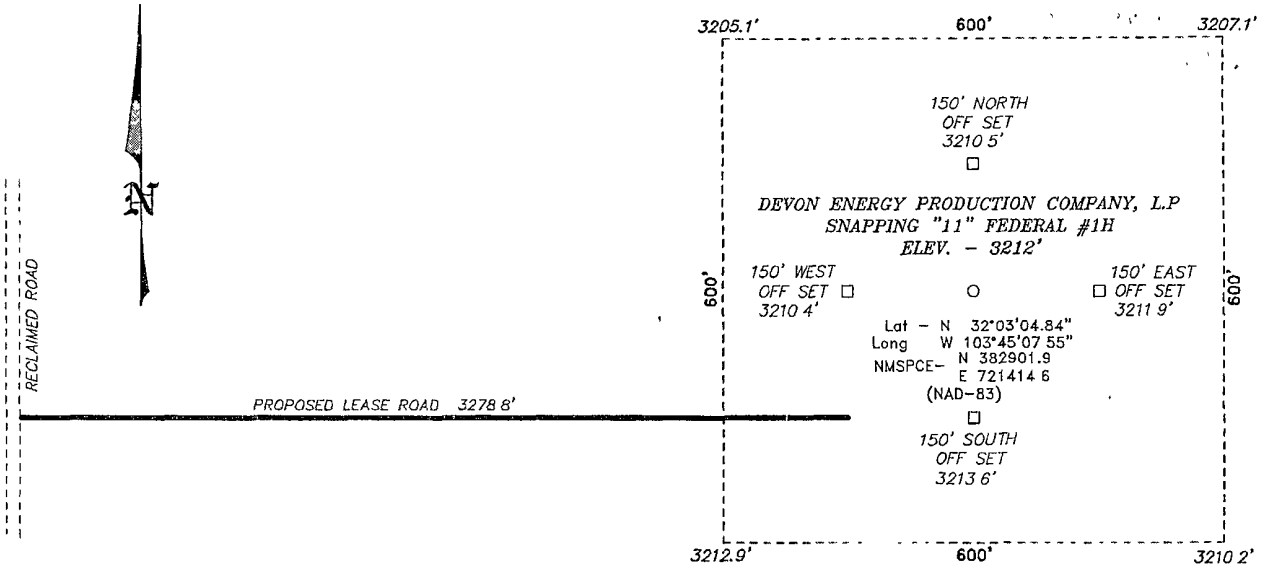
Date Surveyed
Signature & Seal of Professional Surveyor

NEW MEXICO — REGISTERED PROFESSIONAL SURVEYOR — 7977

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

# SECTION 11, TOWNSHIP 26 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.




200 0 200 400 FEET

SCALE: 1" = 200'

Directions to Location

FROM THE JUNCTION OF HWY 128 AND ORLA, GO SOUTH 10 6 MILES TO ROSS RANCH, GO WEST ON ROSS RANCH FOR 5 3 MILES TO RECLAIMED LEASE ROAD, ON RECLAIMED LEASE ROAD GO SOUTH 1 0 MILES TO PROPOSED LEASE ROAD

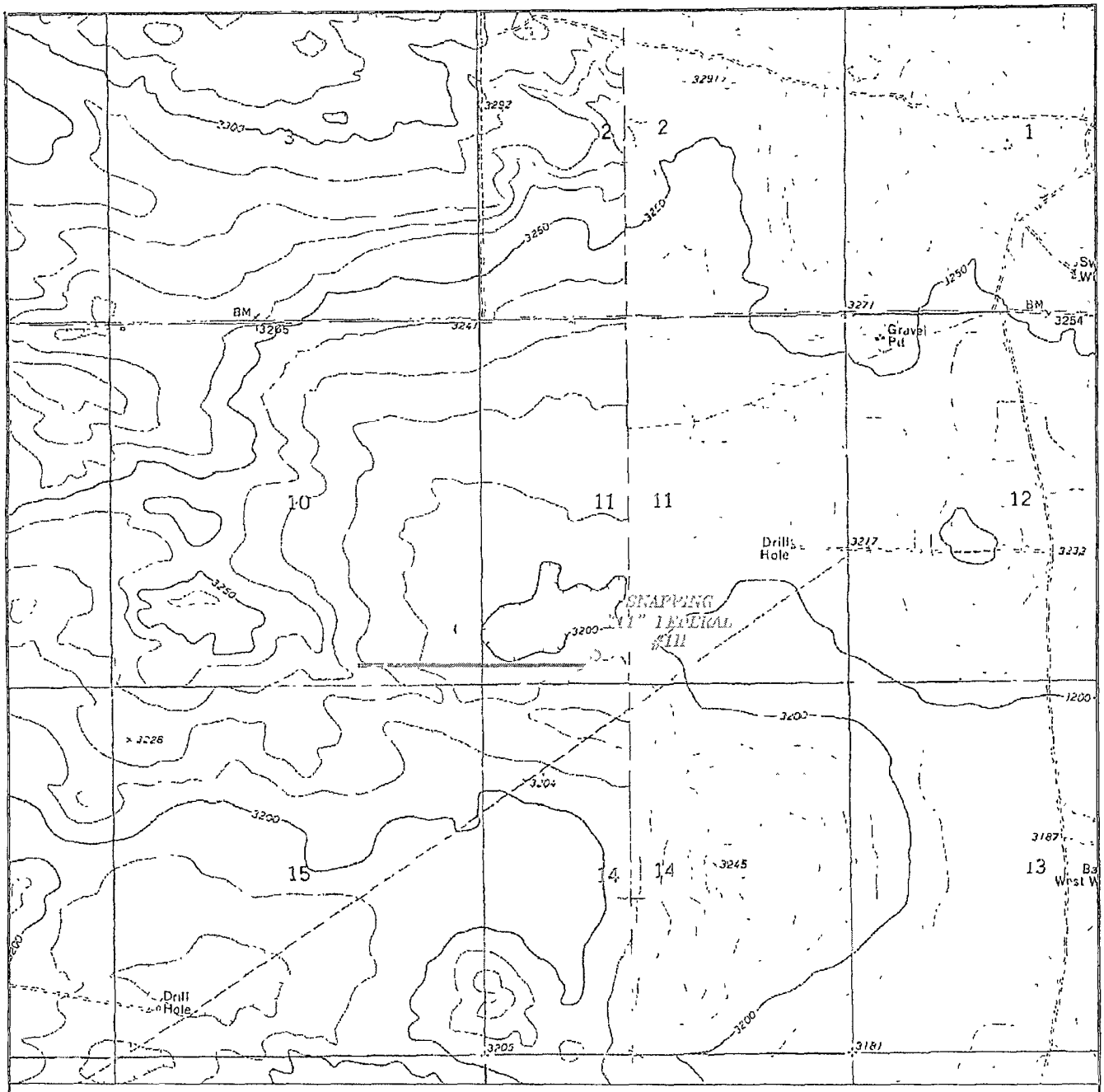
**DEVON ENERGY PRODUCTION COMPANY, L.P.**

REF SNAPPING "11" FEDERAL #1H / WELL PAD TOPO

THE SNAPPING "11" FEDERAL #1H LOCATED 430' FROM THE SOUTH LINE AND 1650' FROM THE WEST LINE OF SECTION 11, TOWNSHIP 26 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

**BASIN SURVEYS** P O. BOX 1786 –HOBBS, NEW MEXICO

| | | | |
|---|---|---|---|
| W O Number 22483 | Drawn By J. SMALL | Survey Date 03–19–2010 | Sheet 1 of 1 Sheets |
| Date 03–22–2010 | Disk: JMS 22483 | | |




# SNAPPING "11" FEDERAL #1H

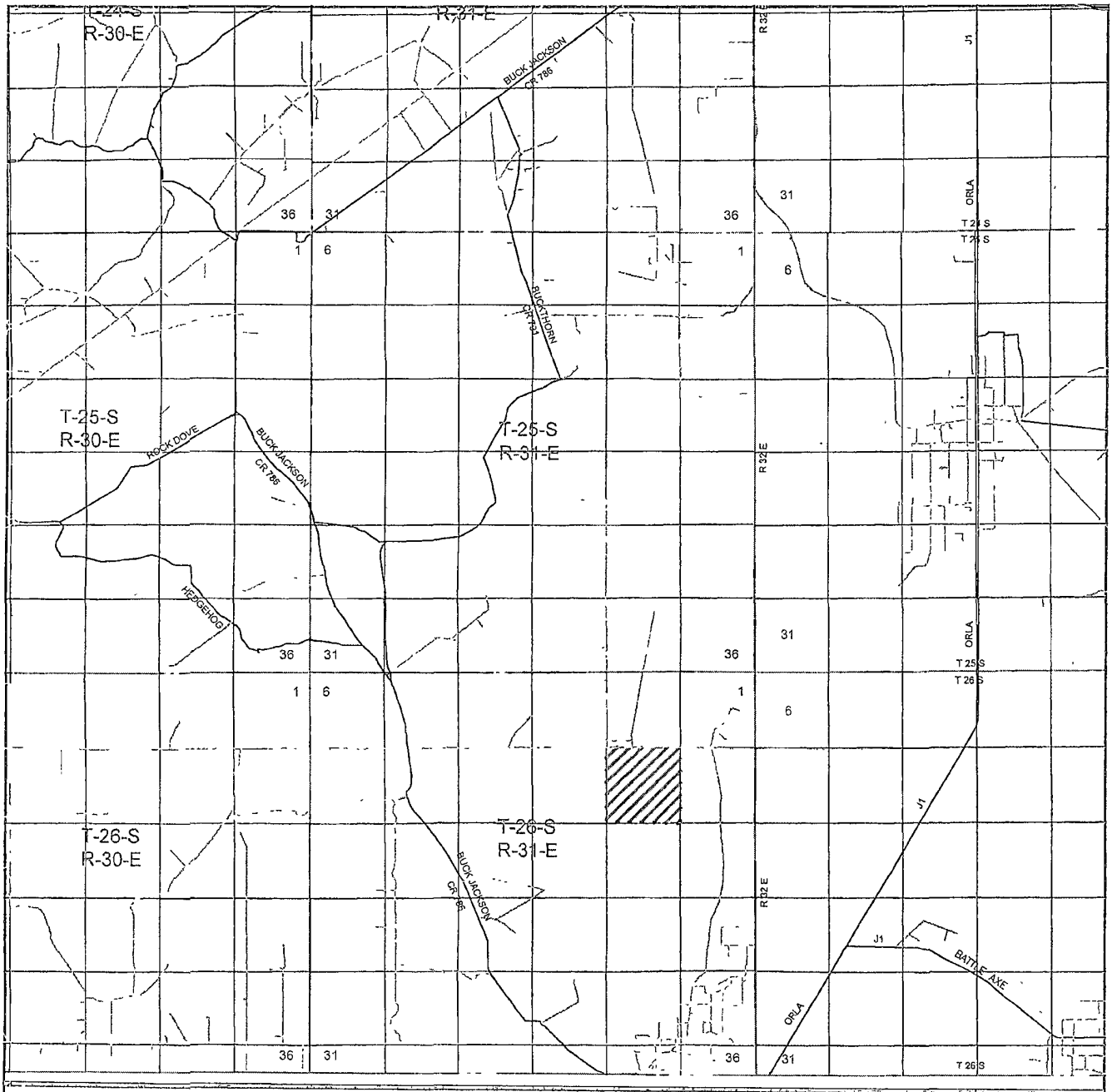
**Located 430' FSL and 1650' FWL**
**Section 11, Township 26 South, Range 31 East,**
**N.M.P.M., Eddy County, New Mexico.**


focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com


| | |
|---|---|
| W.O. Number: | JMS 22483 |
| Survey Date: | 03-19-2010 |
| Scale: | 1" = 2000' |
| Date: | 03-22-2010 |

DEVON ENERGY PRODUCTION COMPANY, L.P.



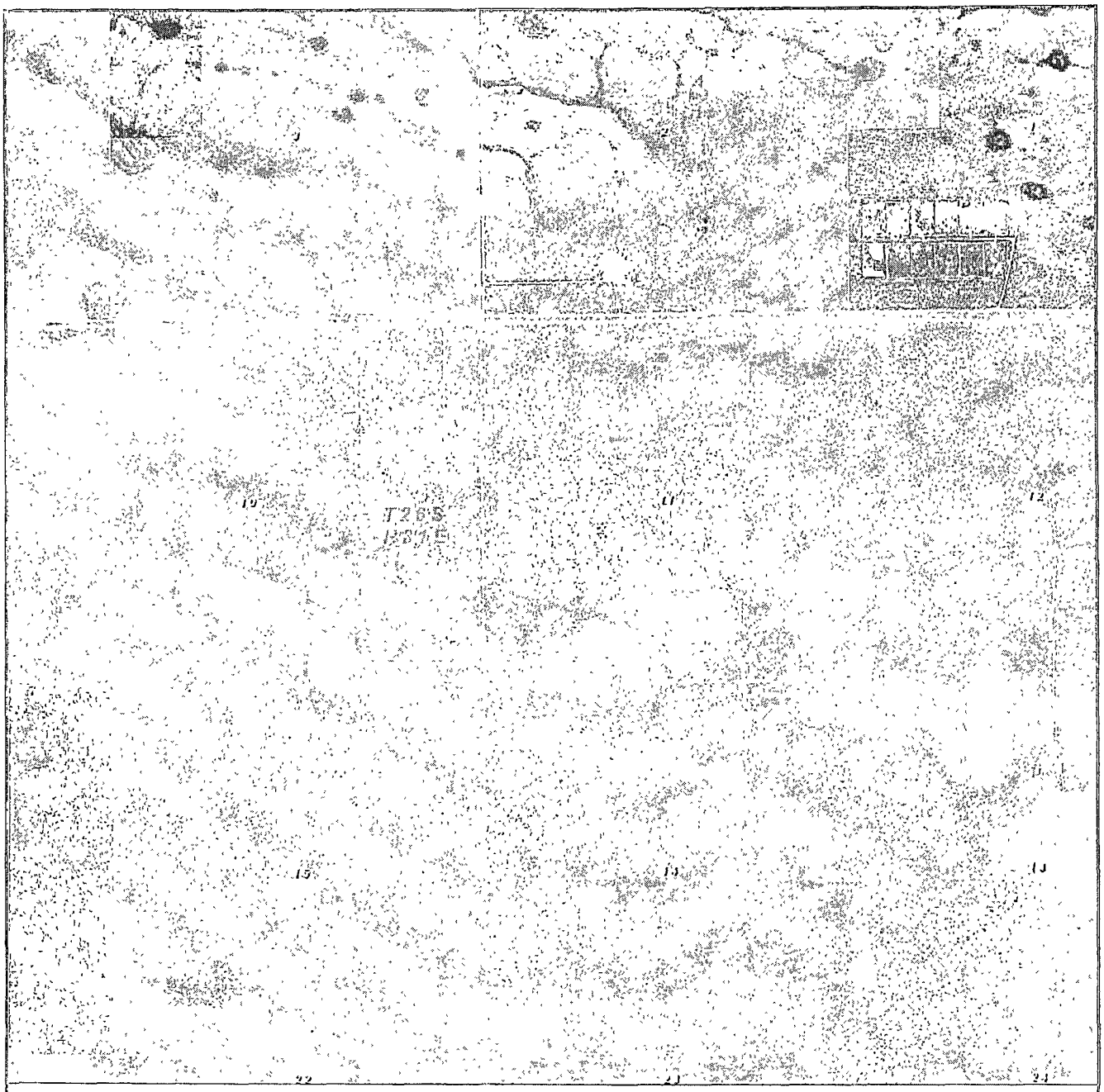

SNAPPING "11" FEDERAL #1B
Located 430' FSL and 1650' FWL
Section 11, Township 26 South, Range 31 East,
N.M.P.M., Eddy County, New Mexico.


focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com


| | |
|---|---|
| W.O. Number: | JMS 22483 |
| Survey Date: | 03-19-2010 |
| Scale: | 1" = 2 Miles |
| Date: | 03-22-2010 |

DEVON ENERGY PRODUCTION COMPANY, L.P.




SNAPPING "11" FEDERAL #1H
Located 430' FSL and 1650' FWL
Section 11, Township 26 South, Range 31 East,
N.M.P.M., Eddy County, New Mexico.

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(575) 393-7316 - Office
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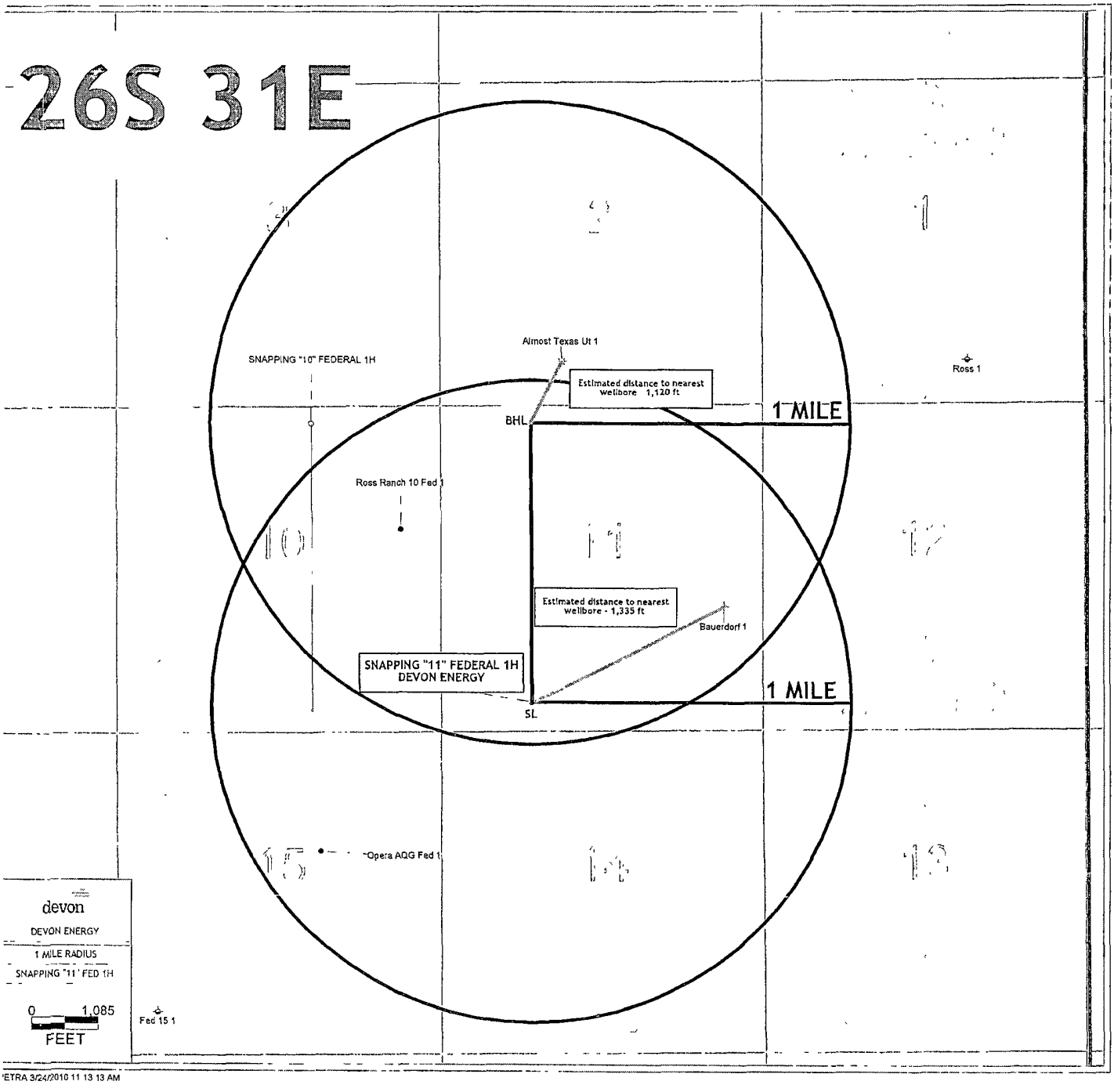
basinsurveys.com
focused on excellence in the oilfield

W.O. Number: JMS 22483

Scale: 1" = 2000'

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

DEVON ENERGY PRODUCTION COMPANY, L.P.


26S 31E
SNAPPING "10" FEDERAL 1H
Almost Texas Ut 1
Estimated distance to nearest wellbore 1,120 ft
1 MILE
BHL
Ross 1
Ross Ranch 10 Fed 1
Estimated distance to nearest wellbore - 1,335 ft
Bauerdorf 1
SNAPPING "11" FEDERAL 1H
DEVON ENERGY
1 MILE
SL
Opera AQG Fed 1
devon
DEVON ENERGY
1 MILE RADIUS
SNAPPING "11" FED 1H
0
1,085
FEET
Fed 15 1
ETRA 3/24/2010 11 13 13 AM

**DRILLING PROGRAM**

Devon Energy Production Company, LP

**Snapping 11 Federal 1H**

Surface Location 430' FSL & 1650' FWL, Unit N, Sec 11 T26S R31E, Eddy, NM

Bottom Hole Location 330' FNL & 1650' FWL, Unit C, Sec 11 T26S R31E, Eddy, NM

**1. Geologic Name of Surface Formation**

a Quaternary

**2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:**

| | | | |
|---|---|---|---|
| a. | Fresh Water | 150' | |
| b. | Rustler | 814' | |
| c. | Salado | 1169' | |
| d. | Base Salt | 3937' | |
| e. | Delaware/Lamar | 4178' | |
| f | Bell Canyon | 4180' | |
| g | Cherry Canyon | 5157' | |
| h | Brushy Canyon | 6505' | Oil |
| i. | Bone Spring | 8167' | Oil & Gas |
| Pilot Dept | | 9900' | |

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 875' and circulating cement back to surface. Fresh water sands will be protected by setting 9 5/8" casing at 4125' and circulating cement to surface. The Bone Springs intervals will be isolated by setting 5 ½" casing to total depth and circulating cement above the base of the 9 5/8" casing

**Casing Program:**

| Hole Size | Hole Interval | OD Csg | Casing Interval | Weight | Collar | Grade |
|---|---|---|---|---|---|---|
| 17 ½" | 0' –875' | 13 3/8" | 0'-875' | 48# | ST&C | H-40 |
| 12 ¼" | 875'–3000' | 9 5/8" | 0'-3000' | 36# | LT&C | J-55 |
| 12 ¼" | 3000'-4125' | 9 5/8" | 3000'-4125' | 40# | LT&C | J-55 |
| 8 ¾" | 4125' 7800' | 5 ½" | 0' 7800' | 17# | LT&C | N-80 |
| 8 ¾" | 7800-12,798' | 5 ½" | 7800-12,798 | 17# | BT&C | N-80 |

An 8 3/4" Pilot Hole will be drilled to 9,900' MD and cemented back to KOP The cement plug details and geometry are included below in the cementing program.

**Design Parameter Factors:**

| Casing Size | Collapse Design Factor | Burst Design Factor | Tension Design Factor |
|---|---|---|---|
| 13 3/8" | 1.88 | 4.22 | 7 67 |
| 9 5/8" 36# | 1 29 | 2.26 | 2.96 |
| 9 5/8" 40# | 1.20 | 1.84 | 11 56 |
| 5 ½" 17# LTC | 1 72 | 2.12 | 1 60 |
| 5 ½"17# BTC | 1 58 | 1.95 | 5 25 |

3. **Cement Program:**

| | | | |
|---|---|---|---|
| a | 13 3/8" | Surface | **Lead** w/665 sx Class C + 2% bwoc Calcium Chloride + 0.125#/sx CF + 4% bwoc Bentonite + 81.4% FW, 13.5 ppg. **Yield** 1 75 cf/sx **TOC** @ surface. **Tail** w/ 250 sx Class C + 2% bwoc Calcium Chloride +0 125#/sx CF + 56.3% FW, 14.8 ppg, **Yield** 1 35 cf/sx. |
| b | 9 5/8" | Intermediate | **Lead** w/ 1,115 sx 35 65 POZ (Fly Ash)· Class C +5% bwow Sodium Chloride + 0 125#/sx CF + 6% bwoc Bentonite + 107.8% FW, 12.5 ppg **Yield** 2.04 cf/sx **TOC** @ surface **Tail** w/ 300 sx 60·40 POZ (Fly Ash)· Class C + 5% bwow Sodium Chloride + 0 125#/sx CF + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 64 7% FW, 13.8 ppg **Yield** 1.37 cf/sx. |
| c. | 5 1/2" | Production | **1st Stage**<br>**Lead** w/ 455 sx 35·65 POZ (Fly Ash) Class H + 5% bwow Sodium Chloride + 0 3% bwoc CD-32 + 0 5% bwoc FL-25 + 2% bwoc Bentonite + 0.6% bwoc Sodium Metasilicate + 0.5% bwoc FL-52A + 102.5% FW, 12 5 ppg. **Yield** 2.01 cf/sx **Tail** w/ 1,455 sx 50·50 POZ (Fly Ash) Class H + 1% bwow Sodium Chloride + 0.2% bwoc R-3 + 0 125#/sx CF + 0 5% bwoc BA-10A + 4% bwoc MPA-5 + 58 3% FW, 14 2 ppg. **Yield** 1.31 cf/sx.<br>**DV Tool @ 6000'**<br>**2nd Stage**<br>**Lead** w/ 375 sx Class C + 1% bwow Calcium Chloride + 0.125%#/sx CF + 157 8% FW, 11 4 ppg **Yield** 2.89 cf/sx. **TOC** @ 3625' **Tail** w/ 100 sx 60 40 POZ (Fly Ash) Class C + 1% bwow Sodium Chloride + 0 2% bwoc R-3 + 0 125#/sx CF + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 63.2% FW, 13 8 ppg **Yield** 1 37 cf/sx |
| 8 ¾" Pilot Hole Plugs | | | **Plug 1: 130 sx Class H, 15.6 ppg, 1.18 cf/sx.** Top of plug: **9600'** Bottom of plug **9900'.**<br>**Plug 2:** 280 sx Class H, 18 0 ppg, 0.89 cf/sx. Top of plug 77 00' Bottom of Plug 8200' |

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately 500' above the 9 5/8" casing shoe. All casing is new and API approved

**Pressure Control Equipment:**
The BOP system used to drill the intermediate hole will consist of a 13-5/8" 5M Double Ram and Annular preventer The BOP system will be tested as per BLM Onshore Oil and Gas Order No 2 as a 3M system prior to drilling out the surface casing shoe

The BOP system used to drill the production hole will consist of a 13-5/8" 5M Double Ram and Annular preventer. The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2 as a 5M system prior to drilling out the intermediate casing shoe

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP

4. **Proposed Mud Circulation System**

| Depth | Mud Wt. | Visc | Fluid Loss | Type System |
|---|---|---|---|---|
| 0' – 875' | 8 4-9.0 | 30-34 | NC | FW |
| 875'– 4125' | 9.8-10.0 | 28-32 | NC | Brine |
| 4125'–12,798' | 8 6–9 0 | 28-32 | NC-12 | FW |

The necessary mud products for weight addition and fluid loss control will be on location at all times.

5 **Auxiliary Well Control and Monitoring Equipment**

a A Kelly cock will be in the drill string at all times

b A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.

c Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached

6. **Logging, Coring, and Testing Program:**

a Drill stem tests will be based on geological sample shows

b If a drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice to the BLM

c The open hole electrical logging program will be:

i Total Depth to Intermediate Casing Dual Laterolog-Micro Laterolog with SP and Gamma Ray Compensated Neutron – Z Density log with Gamma Ray and Caliper

ii Total Depth to Surface Compensated Neutron with Gamma Ray

iii No coring program is planned

iv Additional testing will be initiated subsequent to setting the 5 ½" production casing Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

7. **Potential Hazards:**

a. No abnormal pressures or temperatures are expected There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No 6 No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well Estimated BHP 4500 psi and Estimated BHT 140° No H2S is anticipated to be encountered.

8. **Anticipated Starting Date and Duration of Operations:**

a Road and location construction will begin after the BLM has approved the APD Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available Move in operations and drilling is expected to take 32 days If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

Weatherford®

# Drilling Services

# Proposal

devon

SNAPPING 11 FEDERAL #1H

EDDY COUNTY, NM

WELL FILE **PLAN 1**

APRIL 5, 2010

**Weatherford International, Ltd**
P O Box 61028
Midland, TX 79711 USA
+1 432 561 8892 Main
+1 432 561 8895 Fax
www weatherford com

devon

# Snapping 11 Federal #1H
Eddy Co., NM

Rig H&P 214

**SECTION DETAILS**

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 359.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 7897.04 | 0.00 | 359.62 | 7897.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 8797.04 | 90.00 | 359.62 | 8470.00 | 572.95 | -3.76 | 10.00 | 359.62 | 572.96 | |
| 4 | 12798.25 | 90.00 | 359.62 | 8470.00 | 4574.07 | -30.02 | 0.00 | 0.00 | 4574.17 | Pbhl |

**WELL DETAILS**

| Name | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|---|---|---|---|---|---|---|---|
| Snapping 11 Fed #1H | 0.00 | 0.00 | 382901.90 | 721414.60 | 32°03'04.833N | 103°45'07.567W | N/A |

**TARGET DETAILS**

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Shape |
|---|---|---|---|---|---|---|
| Pbhl | 8470.00 | 4574.07 | -30.02 | 387475.97 | 721384.58 | Point |

**FIELD DETAILS**

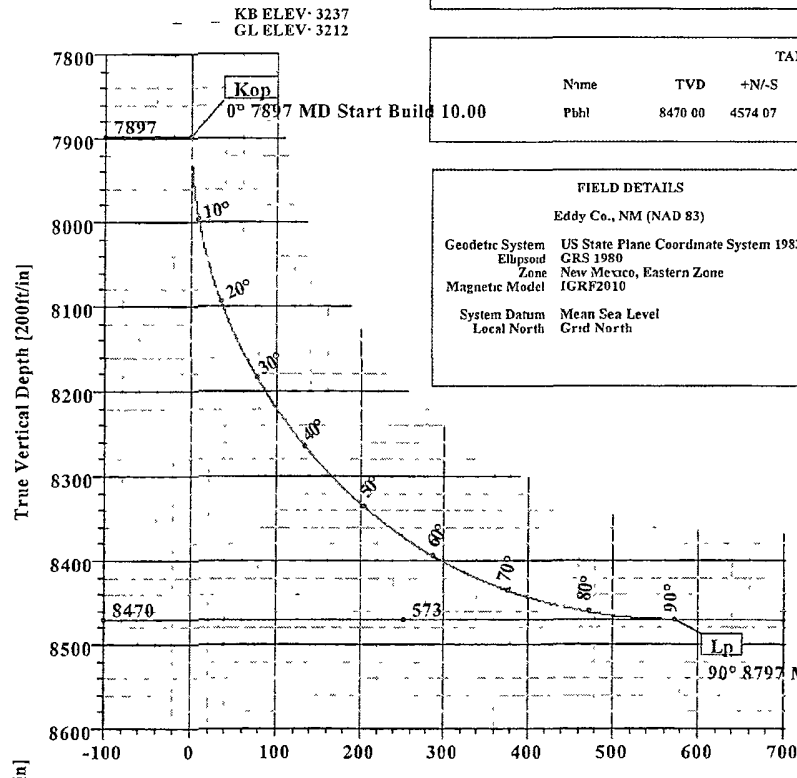
Eddy Co., NM (NAD 83)

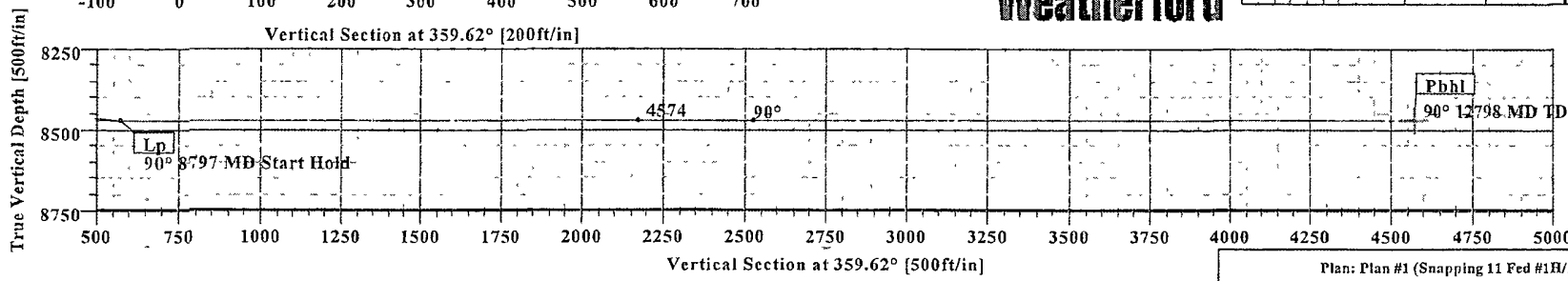
| | |
|---|---|
| Geodetic System | US State Plane Coordinate System 1983 |
| Ellipsoid | GRS 1980 |
| Zone | New Mexico, Eastern Zone |
| Magnetic Model | IGRF2010 |
| System Datum | Mean Sea Level |
| Local North | Grid North |

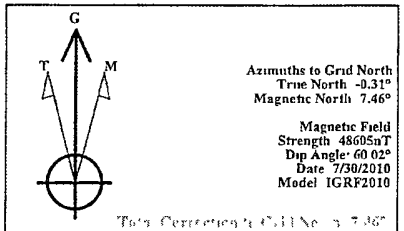
**SITE DETAILS**

Snapping 11 Federal #1H

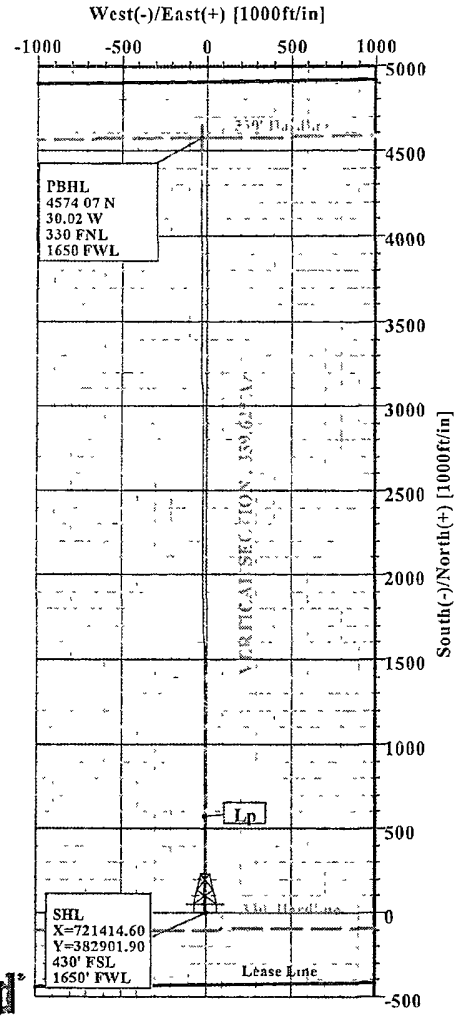
| | |
|---|---|
| Site Centre Northing | 382901.90 |
| Easting | 721414.60 |
| Ground Level | 3212.00 |
| Positional Uncertainty | 0.00 |
| Convergence | 0.31 |




Weatherford®




Plan: Plan #1 (Snapping 11 Fed #1H/1)

Created By: Russell W Joyner Date: 4/5/2010

devon

# Weatherford International Ltd.

## WFT Plan Report - X & Y's

Weatherford

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 4/5/2010 | **Time:** 10 51 03 | **Page:** | 1 |
| **Field:** | Eddy Co , NM (NAD 83) | **Co-ordinate(NE) Reference:** | Well Snapping 11 Fed #1H, Grid North | | |
| **Site:** | Snapping 11 Federal #1H | **Vertical (TVD) Reference:** | SITE 3237.0 | | |
| **Well:** | Snapping 11 Fed #1H | **Section (VS) Reference:** | Well (0 00N,0 00E,359.62Azi) | | |
| **Wellpath:** | 1 | **Survey Calculation Method:** | Minimum Curvature | **Db:** | Sybase |

**Field:** Eddy Co , NM (NAD 83)

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane Coordinate System 1983 | **Map Zone:** | New Mexico, Eastern Zone |
| **Geo Datum:** | GRS 1980 | **Coordinate System:** | Well Centre |
| **Sys Datum:** | Mean Sea Level | **Geomagnetic Model:** | IGRF2010 |

**Site:** Snapping 11 Federal #1H

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 382901 90 ft | **Latitude:** | 32 | 3 | 4 833 N |
| **From:** | Map | **Easting:** | 721414 60 ft | **Longitude:** | 103 | 45 | 7.567 W |
| **Position Uncertainty:** | 0 00 ft | | | **North Reference:** | | | Grid |
| **Ground Level:** | 3212 00 ft | | | **Grid Convergence:** | | | 0 31 deg |

**Well:** Snapping 11 Fed #1H **Slot Name:**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Well Position:** | +N/-S | 0 00 ft | **Northing:** | 382901 90 ft | **Latitude:** | 32 | 3 | 4 833 N |
| | +E/-W | 0 00 ft | **Easting :** | 721414 60 ft | **Longitude:** | 103 | 45 | 7 567 W |
| **Position Uncertainty:** | | 0 00 ft | | | | | | |

**Wellpath:** 1

| | | | |
|---|---|---|---|
| | | **Drilled From:** | Surface |
| | | **Tie-on Depth:** | 0 00 ft |
| **Current Datum:** | SITE | **Height** 3237 00 ft | **Above System Datum:** Mean Sea Level |
| **Magnetic Data:** | 7/30/2010 | | **Declination:** 7 76 deg |
| **Field Strength:** | 48605 nT | | **Mag Dip Angle:** 60 02 deg |

| **Vertical Section:** | **Depth From (TVD)** ft | **+N/-S** ft | **+E/-W** ft | **Direction** deg |
|---|---|---|---|---|
| | 8470 00 | 0 00 | 0 00 | 359 62 |

**Plan Section Information**

| MD ft | Incl deg | Azim deg | TVD ft | +N/-S ft | +E/-W ft | DLS deg/100ft | Build deg/100ft | Turn deg/100ft | TFO deg | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 0 00 | 359 62 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0.00 | |
| 7897 04 | 0 00 | 359 62 | 7897 04 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | |
| 8797 04 | 90 00 | 359 62 | 8470 00 | 572 95 | -3 76 | 10 00 | 10 00 | 0 00 | 359 62 | |
| 12798 25 | 90 00 | 359.62 | 8470 00 | 4574 07 | -30 02 | 0 00 | 0 00 | 0 00 | 0 00 | Pbh |

**Survey**

| MD ft | Incl deg | Azim deg | TVD ft | N/S ft | E/W ft | VS ft | DLS deg/100ft | MapN ft | MapE ft | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 7800 00 | 0 00 | 359 62 | 7800 00 | 0 00 | 0 00 | 0 00 | 0 00 | 382901 90 | 721414 60 | |
| 7897 04 | 0 00 | 359 62 | 7897 04 | 0 00 | 0 00 | 0 00 | 0 00 | 382901 90 | 721414 60 | Kop |
| 7900 00 | 0 30 | 359 62 | 7900 00 | 0 01 | 0 00 | 0 01 | 10 00 | 382901 91 | 721414 60 | |
| 8000 00 | 10 30 | 359 62 | 7999 45 | 9 23 | -0 06 | 9 23 | 10 00 | 382911 13 | 721414 54 | |
| 8100 00 | 20 30 | 359 62 | 8095 78 | 35 57 | -0 23 | 35 57 | 10.00 | 382937 47 | 721414 37 | |
| 8200 00 | 30 30 | 359 62 | 8186 08 | 78 25 | -0 51 | 78 25 | 10 00 | 382980 15 | 721414 09 | |
| 8300 00 | 40 30 | 359 62 | 8267 59 | 135 95 | -0 89 | 135 95 | 10 00 | 383037 85 | 721413 71 | |
| 8400 00 | 50 30 | 359.62 | 8337 85 | 206 93 | -1 36 | 206 94 | 10 00 | 383108 83 | 721413 24 | |
| 8500 00 | 60 30 | 359 62 | 8394 71 | 289 04 | -1 90 | 289 04 | 10.00 | 383190 94 | 721412 70 | |
| 8600 00 | 70 30 | 359 62 | 8436 45 | 379 77 | -2 49 | 379 78 | 10 00 | 383281.67 | 721412 11 | |
| 8700 00 | 80 30 | 359.62 | 8461 80 | 476 37 | -3 13 | 476 38 | 10 00 | 383378 27 | 721411.47 | |
| 8797 04 | 90 00 | 359 62 | 8470 00 | 572 95 | -3 76 | 572 96 | 10 00 | 383474 85 | 721410 84 | Lp |
| 8800 00 | 90 00 | 359 62 | 8470 00 | 575 90 | -3 78 | 575.92 | 0 00 | 383477 80 | 721410 82 | |
| 8900 00 | 90 00 | 359 62 | 8470 00 | 675 90 | -4 44 | 675 92 | 0 00 | 383577 80 | 721410 16 | |
| 9000 00 | 90 00 | 359 62 | 8470 00 | 775 90 | -5 09 | 775 92 | 0 00 | 383677.80 | 721409 51 | |
| 9100 00 | 90 00 | 359.62 | 8470 00 | 875 90 | -5 75 | 875 92 | 0 00 | 383777 80 | 721408 85 | |
| 9200 00 | 90.00 | 359 62 | 8470 00 | 975 89 | -6.40 | 975 92 | 0 00 | 383877 79 | 721408 20 | |
| 9300 00 | 90 00 | 359 62 | 8470 00 | 1075 89 | -7 06 | 1075 92 | 0 00 | 383977 79 | 721407 54 | |
| 9400 00 | 90 00 | 359 62 | 8470 00 | 1175 89 | -7 72 | 1175 92 | 0 00 | 384077 79 | 721406 88 | |
| 9500 00 | 90 00 | 359 62 | 8470 00 | 1275 89 | -8.37 | 1275 92 | 0 00 | 384177 79 | 721406 23 | |

devon

# Weatherford International Ltd.

## WFT Plan Report - X & Y's

Weatherford

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 4/5/2010 | **Time:** 10 51 03 | **Page:** | 2 |
| **Field:** | Eddy Co , NM (NAD 83) | **Co-ordinate(NE) Reference:** | Well Snapping 11 Fed #1H, Grid North | | |
| **Site:** | Snapping 11 Federal #1H | **Vertical (TVD) Reference:** | SITE 3237 0 | | |
| **Well:** | Snapping 11 Fed #1H | **Section (VS) Reference:** | Well (0 00N,0 00E,359 62Azi) | | |
| **Wellpath:** | 1 | **Survey Calculation Method:** | Minimum Curvature | **Db:** | Sybase |

**Survey**

| MD ft | Incl deg | Azim deg | TVD ft | N/S ft | E/W ft | VS ft | DLS deg/100ft | MapN ft | MapE ft | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 9600 00 | 90 00 | 359 62 | 8470 00 | 1375 89 | -9 03 | 1375 92 | 0 00 | 384277 79 | 721405 57 | |
| 9700 00 | 90 00 | 359 62 | 8470 00 | 1475 88 | -9 69 | 1475 92 | 0.00 | 384377 78 | 721404 91 | |
| 9800 00 | 90 00 | 359 62 | 8470 00 | 1575 88 | -10 34 | 1575 92 | 0 00 | 384477 78 | 721404 26 | |
| 9900 00 | 90 00 | 359 62 | 8470 00 | 1675 88 | 11 00 | 1675 92 | 0 00 | 384577 78 | 721403 60 | |
| 10000 00 | 90 00 | 359 62 | 8470 00 | 1775 88 | -11 66 | 1775 92 | 0 00 | 384677 78 | 721402 94 | |
| 10100 00 | 90 00 | 359 62 | 8470 00 | 1875 88 | -12 31 | 1875 92 | 0 00 | 384777 78 | 721402 29 | |
| 10200 00 | 90 00 | 359 62 | 8470 00 | 1975 87 | -12 97 | 1975 92 | 0 00 | 384877 77 | 721401.63 | |
| 10300 00 | 90 00 | 359 62 | 8470.00 | 2075 87 | -13 62 | 2075 92 | 0 00 | 384977 77 | 721400 98 | |
| 10400 00 | 90 00 | 359 62 | 8470 00 | 2175 87 | -14 28 | 2175 92 | 0 00 | 385077 77 | 721400 32 | |
| 10500 00 | 90 00 | 359 62 | 8470 00 | 2275 87 | -14 94 | 2275 92 | 0 00 | 385177 77 | 721399 66 | |
| 10600 00 | 90 00 | 359 62 | 8470 00 | 2375 86 | -15 59 | 2375 92 | 0 00 | 385277 76 | 721399 01 | |
| 10700 00 | 90 00 | 359 62 | 8470 00 | 2475 86 | -16 25 | 2475 92 | 0.00 | 385377 76 | 721398 35 | |
| 10800 00 | 90 00 | 359 62 | 8470 00 | 2575 86 | -16 91 | 2575 92 | 0 00 | 385477 76 | 721397 69 | |
| 10900 00 | 90 00 | 359 62 | 8470 00 | 2675 86 | -17 56 | 2675 92 | 0.00 | 385577.76 | 721397 04 | |
| 11000 00 | 90 00 | 359 62 | 8470 00 | 2775 86 | -18 22 | 2775 92 | 0 00 | 385677 76 | 721396.38 | |
| 11100 00 | 90 00 | 359 62 | 8470.00 | 2875 85 | -18 87 | 2875 92 | 0 00 | 385777 75 | 721395 73 | |
| 11200 00 | 90 00 | 359 62 | 8470 00 | 2975 85 | -19 53 | 2975 92 | 0 00 | 385877 75 | 721395 07 | |
| 11300 00 | 90 00 | 359 62 | 8470 00 | 3075 85 | -20 19 | 3075 92 | 0 00 | 385977 75 | 721394 41 | |
| 11400 00 | 90 00 | 359 62 | 8470 00 | 3175 85 | -20 84 | 3175 92 | 0 00 | 386077 75 | 721393 76 | |
| 11500 00 | 90 00 | 359 62 | 8470 00 | 3275 85 | -21 50 | 3275 92 | 0 00 | 386177 75 | 721393 10 | |
| 11600 00 | 90 00 | 359 62 | 8470 00 | 3375 84 | -22 16 | 3375 92 | 0 00 | 386277 74 | 721392 44 | |
| 11700 00 | 90 00 | 359 62 | 8470.00 | 3475 84 | -22.81 | 3475 92 | 0 00 | 386377 74 | 721391 79 | |
| 11800 00 | 90 00 | 359.62 | 8470 00 | 3575 84 | -23 47 | 3575 92 | 0 00 | 386477 74 | 721391 13 | |
| 11900 00 | 90 00 | 359 62 | 8470 00 | 3675 84 | -24 12 | 3675 92 | 0 00 | 386577 74 | 721390.48 | |
| 12000 00 | 90 00 | 359 62 | 8470 00 | 3775 83 | -24 78 | 3775 92 | 0 00 | 386677 73 | 721389 82 | |
| 12100 00 | 90 00 | 359 62 | 8470 00 | 3875 83 | -25 44 | 3875 92 | 0 00 | 386777 73 | 721389 16 | |
| 12200 00 | 90 00 | 359 62 | 8470 00 | 3975 83 | -26 09 | 3975 92 | 0 00 | 386877 73 | 721388 51 | |
| 12300 00 | 90 00 | 359 62 | 8470 00 | 4075 83 | -26 75 | 4075 92 | 0 00 | 386977 73 | 721387 85 | |
| 12400 00 | 90 00 | 359 62 | 8470 00 | 4175 83 | -27 41 | 4175 92 | 0 00 | 387077 73 | 721387.19 | |
| 12500 00 | 90 00 | 359 62 | 8470 00 | 4275 82 | -28 06 | 4275 92 | 0 00 | 387177 72 | 721386 54 | |
| 12600 00 | 90 00 | 359 62 | 8470 00 | 4375 82 | -28 72 | 4375 92 | 0.00 | 387277 72 | 721385.88 | |
| 12700 00 | 90 00 | 359 62 | 8470 00 | 4475 82 | -29 38 | 4475 92 | 0 00 | 387377 72 | 721385 22 | |
| 12798 25 | 90 00 | 359 62 | 8470 00 | 4574 07 | -30 02 | 4574 17 | 0 00 | 387475 97 | 721384 58 | Pbhl |

**Targets**

| Name | Description Dip. | Dir. | TVD ft | +N/-S ft | +E/-W ft | Map Northing ft | Map Easting ft | <---- Latitude ----> Deg Min Sec | <---- Longitude ----> Deg Min Sec |
|---|---|---|---|---|---|---|---|---|---|
| Pbhl | | | 8470 00 | 4574 07 | -30 02 | 387475 97 | 721384 58 | 32 3 50 099 N | 103 45 7 630 W |

**Casing Points**

| MD | TVD | Diameter | Hole Size | Name |
|---|---|---|---|---|
| | | | | |

**Annotation**

| MD ft | TVD ft | |
|---|---|---|
| 7897 04 | 7897 04 | Kop |
| 8797 04 | 8470 00 | Lp |
| 12798 25 | 8470.00 | Pbhl |

# Weatherford Drilling Services

GeoDec v5.03

| | |
|---|---|
| Report Date: | April 05, 2010 |
| Job Number | |
| Customer: | Devon Energy |
| Well Name. | Snapping 11 Federal #1H |
| API Number: | |
| Rig Name: | |
| Location | Eddy Co., NM |
| Block: | |
| Engineer: | R joyner |

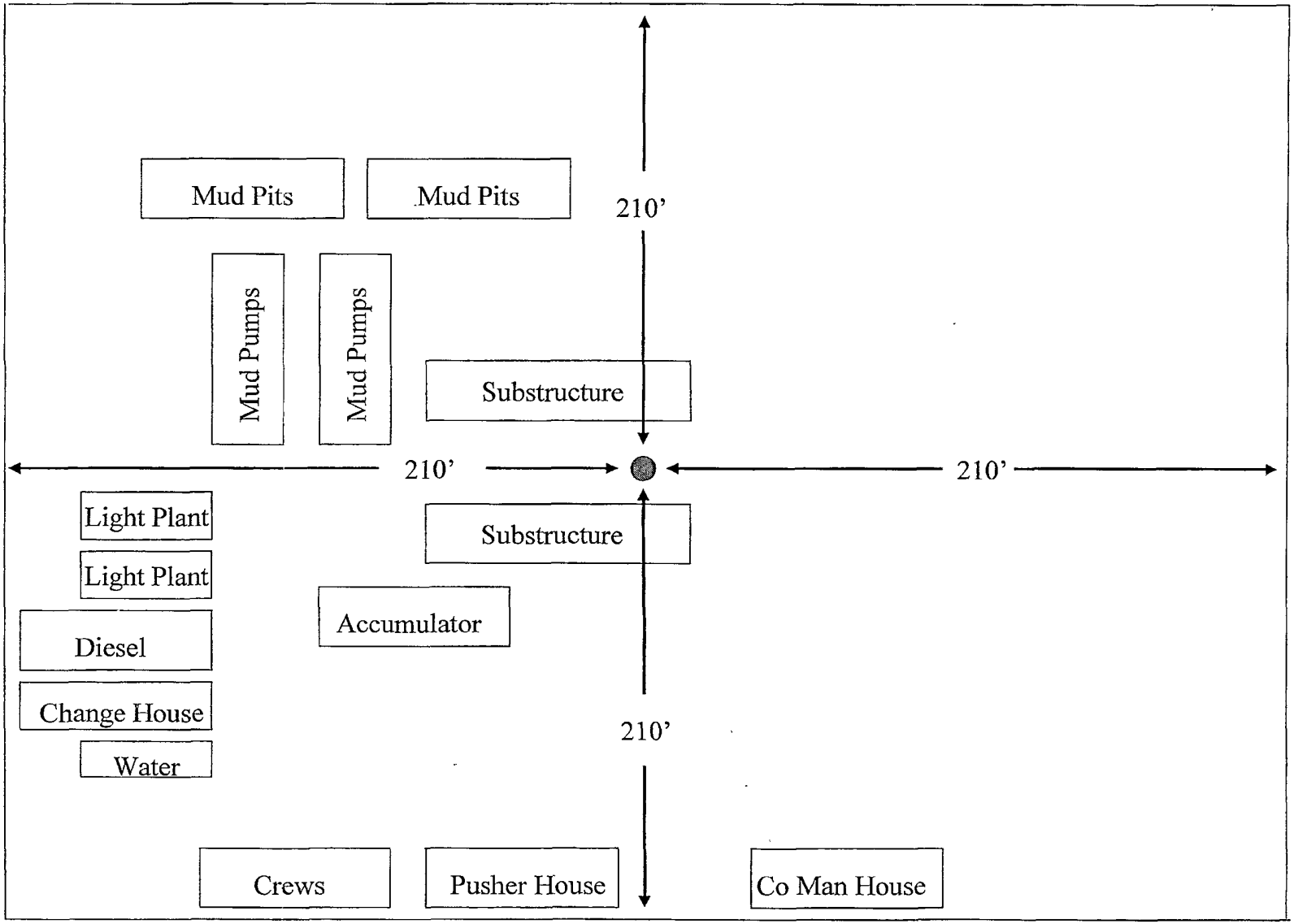
| | |
|---|---|
| US State Plane 1983 | Geodetic Latitude / Longitude |
| System. New Mexico Eastern Zone | System: Latitude / Longitude |
| Projection Transverse Mercator/Gauss Kruger | Projection Geodetic Latitude and Longitude |
| Datum: North American Datum 1983 | Datum: North American Datum 1983 |
| Ellipsoid: GRS 1980 | Ellipsoid: GRS 1980 |
| North/South 382901 900 USFT | Latitude 32.0513447 DEG |
| East/West 721414.600 USFT | Longitude -103.7520973 DEG |
| Grid Convergence: 31° | |
| Total Correction. +7.45° | |

| | | |
|---|---|---|
| Geodetic Location WGS84 | Elevation = | 0.0 Meters |
| Latitude = | 32.05134° N | 32° 3 min 4.841 sec |
| Longitude = | 103.75210° W | 103° 45 min 7.551 sec |

| | | | |
|---|---|---|---|
| Magnetic Declination = | 7.76° | [True North Offset] | |
| Local Gravity = | .9988 g | CheckSum = | 6494 |
| Local Field Strength = | 48601 nT | Magnetic Vector X = | 24066 nT |
| Magnetic Dip = | 60.02° | Magnetic Vector Y = | 3281 nT |
| Magnetic Model = | IGRF-2010g11 | Magnetic Vector Z = | 42096 nT |
| Spud Date = | Jul 30, 2010 | Magnetic Vector H = | 24289 nT |

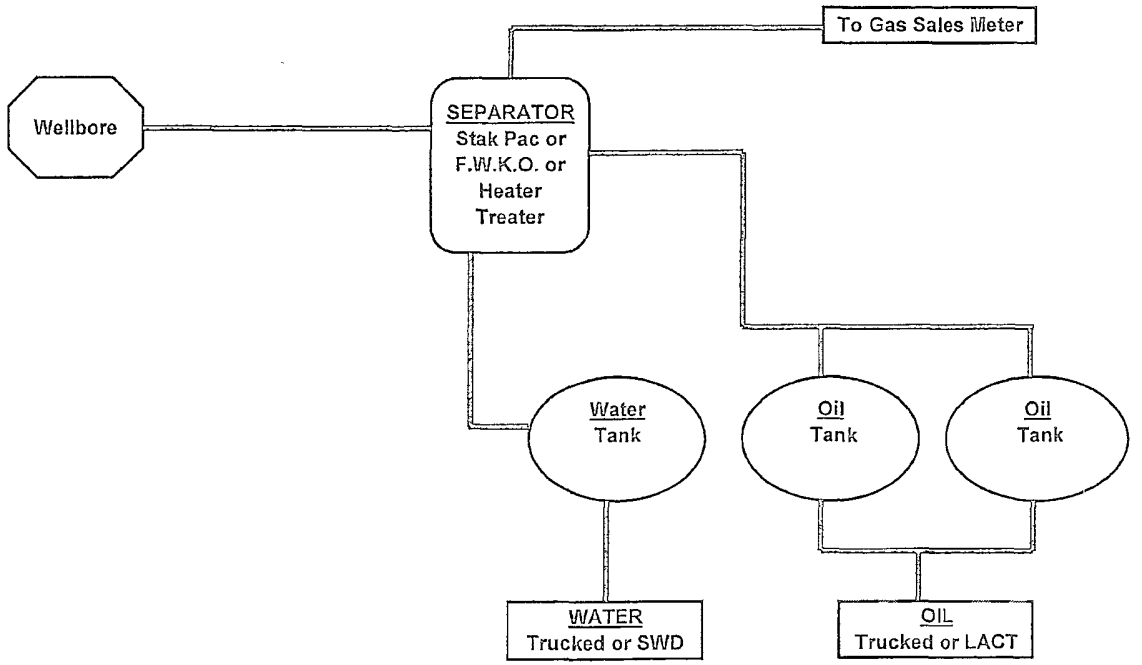
Signed._____ Date:_____

# DEVON PAD DIMENSIONS

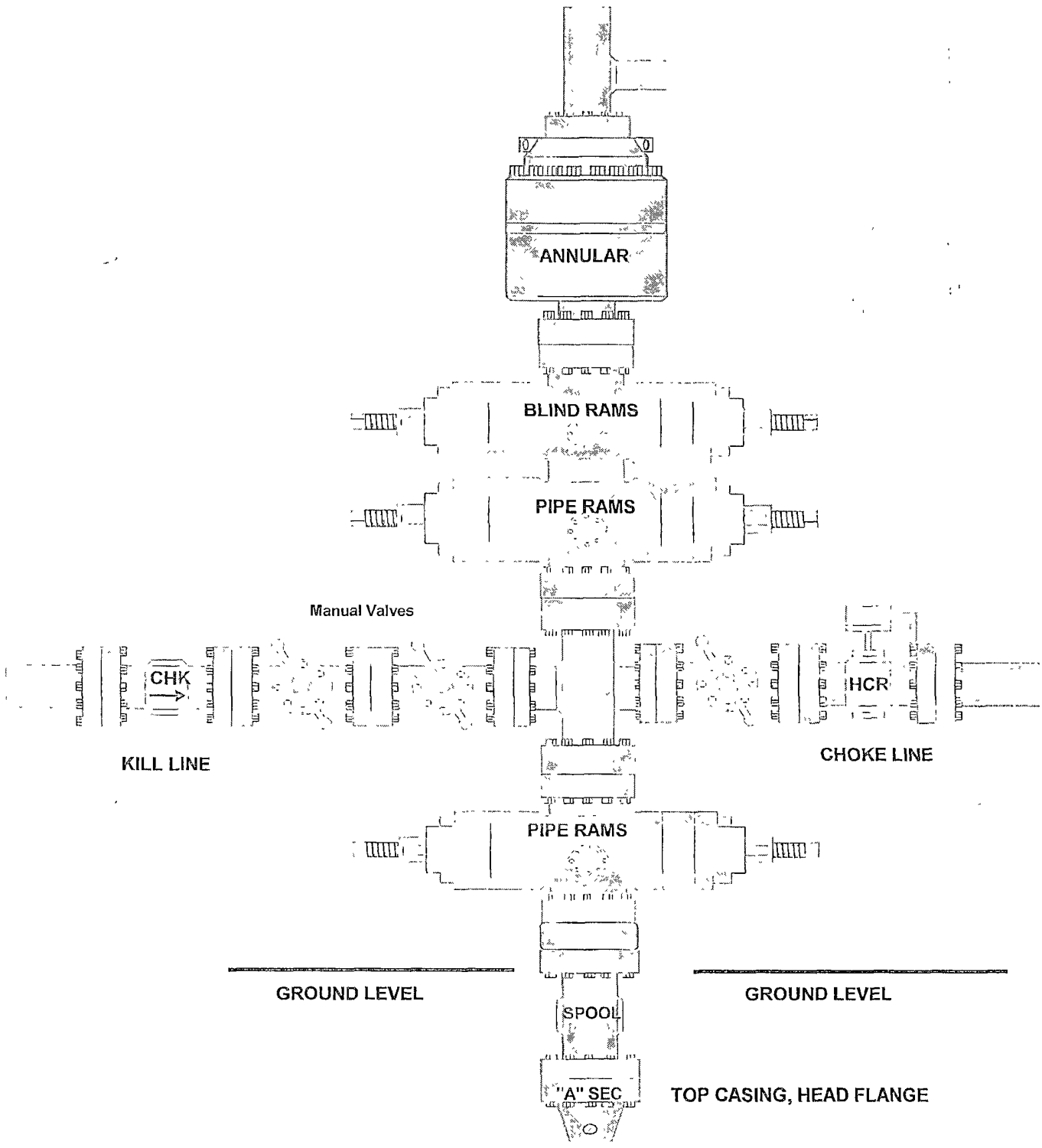


DEVON ENERGY PRODUCTION COMPANY LP

General Production Facilities Diagram

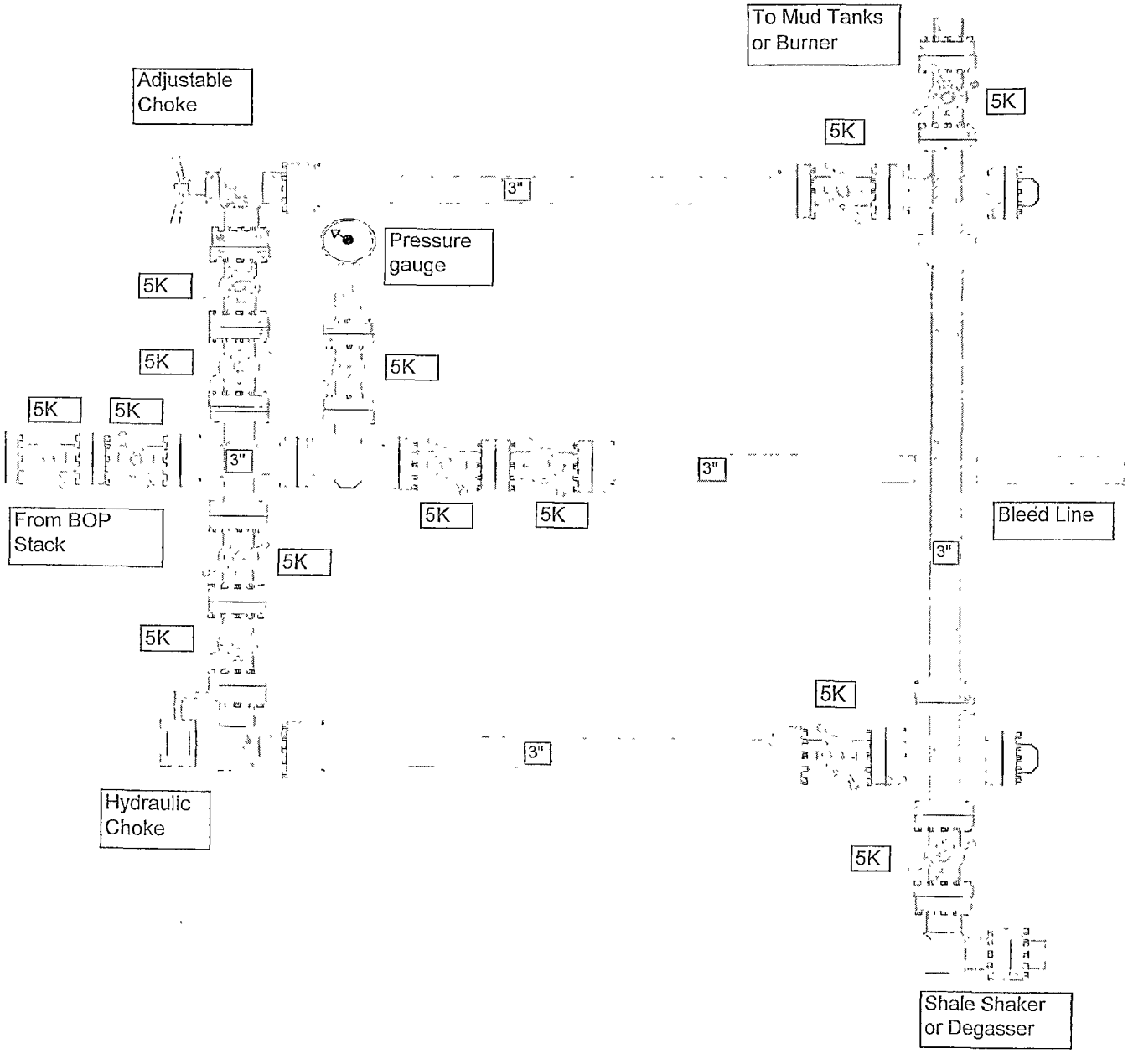


# 13-5/8" x 5,000 psi BOP Stack




L:\Western\Drilling\Wes Handley\Drawings\5K 2_3 ram BOP 11_13 625 w choke xls

# 5,000 PSI CHOKE MANIFOLD



## NOTES REGARDING BLOWOUT PREVENTERS
**Devon Energy Production Company, LP**
**Snapping 11 Federal 1H**

Surface Location· 430' FSL & 1650' FWL, Unit N, Sec 11 T26S R31E, Eddy, NM
Bottom hole Location· 330' FNL & 1650' FWL, Unit C, Sec 11 T26S R31E, Eddy, NM

1 Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder The minimum internal diameter will equal BOP bore

2 Wear ring will be properly installed in head

3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 5000 psi working pressure.

4 All fittings will be flanged.

5 A full bore safety valve tested to a minimum 5000 psi WP with proper thread connections will be available on the rotary rig floor at all times

6 All choke lines will be anchored to prevent movement

7 All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string

8 Will maintain a kelly cock attached to the kelly

9 Hand wheels and wrenches will be properly installed and tested for safe operation

10 Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible

11 All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access road proposed herein, that I am familiar with the conditions that presently exist, that I have full knowledge of State and Federal laws applicable to this operation, that the statements made in this APD package are, to the best of my knowledge, true and correct, and that 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 Devon Energy Production Company, L.P am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U S C. 1001 for the filing of false statements.

I hereby also certify that I, or Devon Energy Production Company, L.P have made a good faith effort to provide the surface owner with a copy of the Surface Use Plan of Operations and any Conditions of Approval that are attached to the APD

Executed this _14th___ day of __April, 2010
Printed Name Judy A Barnett
Signed Name
Position Title Regulatory Analyst
Address 20 North Broadway, OKC OK 73102
Telephone (405)-228-8699
Field Representative (if not above signatory)
Address (if different from above)
Telephone (if different from above)

# PECOS DISTRICT
# CONDITIONS OF APPROVAL

| | |
|---|---|
| OPERATOR'S NAME: | Devon Energy Production Company, LP |
| LEASE NO.: | NM89057 |
| WELL NAME & NO.: | Snapping 11 Federal 11H |
| SURFACE HOLE FOOTAGE: | 0430' FSL & 1650' FWL |
| BOTTOM HOLE FOOTAGE | 0330' FNL & 1650' FWL |
| LOCATION: | Section 11, T 26 S., R 31 E., NMPM |
| COUNTY: | Eddy County, New Mexico |

## TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

## I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD (Filing of a Sundry Notice is required for this 60 day extension.)

## III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer

## IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**Fence Requirement**
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**Livestock Watering Requirement**
The freshwater pipeline will be avoided wherever feasible. Where crossing over the pipeline is necessary, the operator shall place sufficient earthen material atop the pipeline to prevent damage. If excavation of the line is required, the operator will notify the BLM-CFO to obtain approval prior to any action which could stop or diminish the flow of water

**Tank Battery / Fluid Storage not Allowed**
As per the applicant's Surface Use Plan of Operations and agreements reached during the onsite inspection – no liquid production is to be placed on location. This includes produced water and oil. Well treatment fluids are allowed on location provided a secondary containment system (such as a drip-pan/basin) is in place.

**Playa Protection**
Surface disturbance will not be allowed within 450 feet of playa; and the interim reclamation on the pad will be 100 feet from the north and 50 feet from the west.

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.

# VI. CONSTRUCTION

## A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer

Surface disturbance will not be allowed within 450 feet of playa; and the interim reclamation on the pad will be 100 feet from the north and 50 feet from the west.

## B. V-DOOR DIRECTION: Not stipulated

## C. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 10 inches in depth. The topsoil will be used for interim and final reclamation.

## D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

## E. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call theCarlsbad Field Office at (575) 234-5972.

## F. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

## G. ON LEASE ACCESS ROADS

**Road Width**
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

**Surfacing**
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

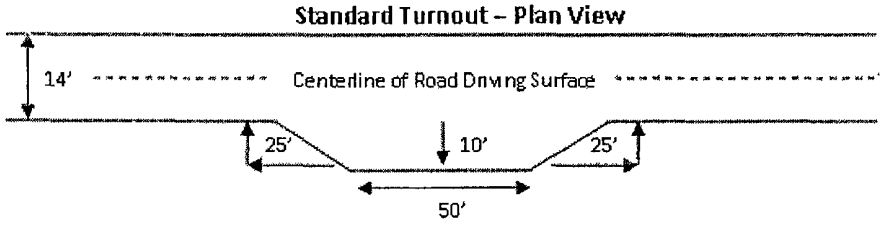
Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1, cross section and plans for typical road construction.

**Ditching**
Ditching shall be required on the uphill side of the road.

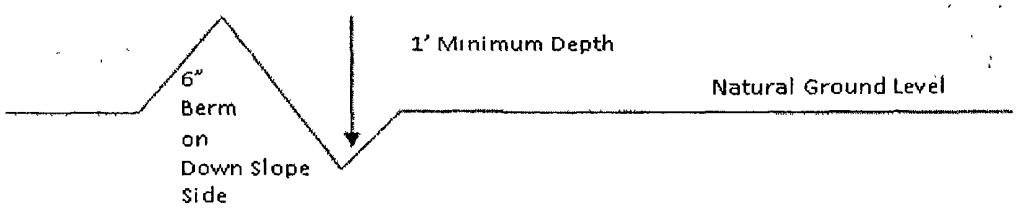
**Turnouts**
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:




**Drainage**
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level The berm shall be on the down-slope side of the lead-off ditch.

**Cross Section of a Typical Lead-off Ditch**




All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

**Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula.

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

**Culvert Installations**
Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

**Cattleguards**
An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

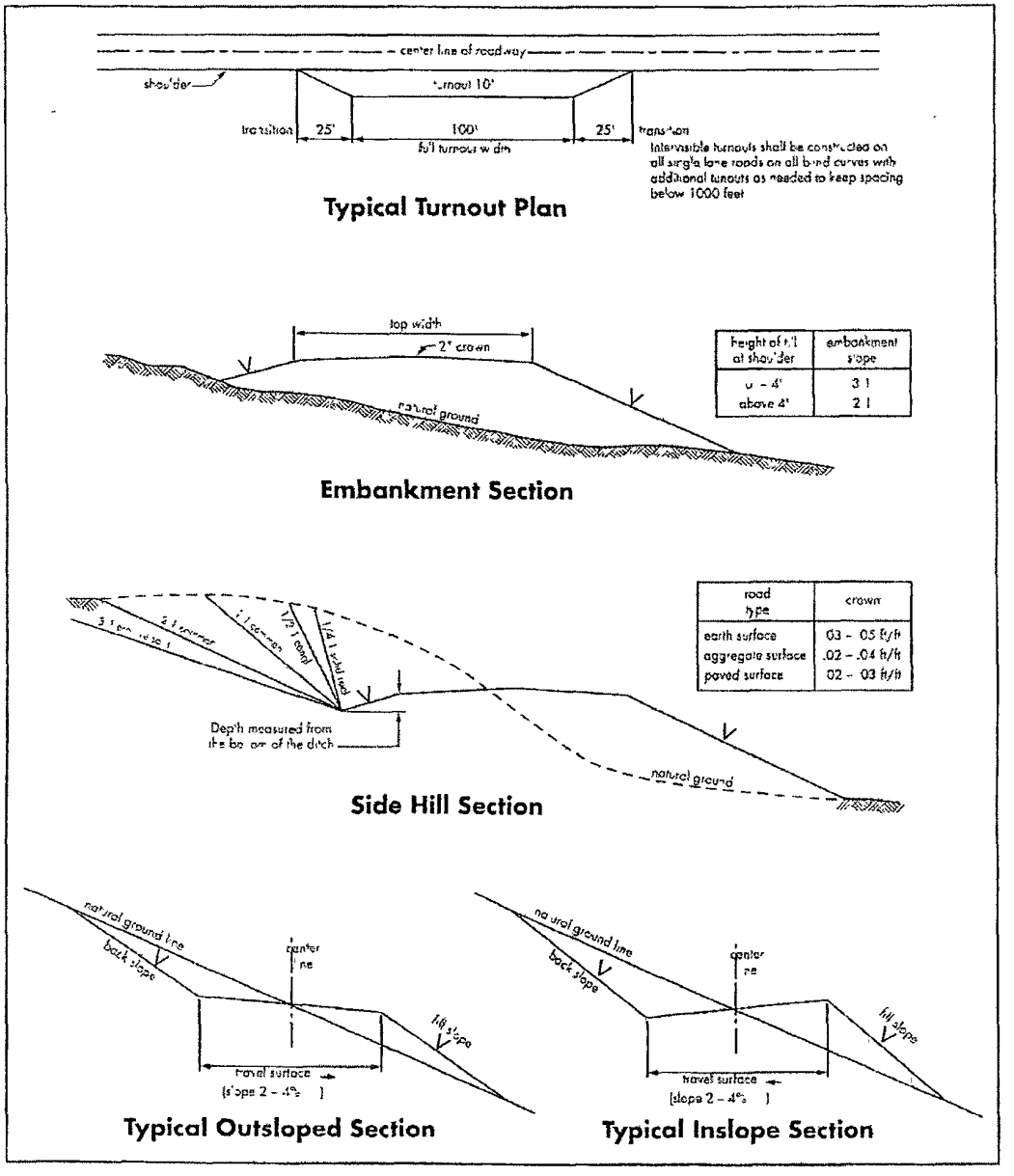
A gate shall be constructed and fastened securely to H-braces.

**Fence Requirement**
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**Public Access**
Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

## Figure 1 – Cross Sections and Plans For Typical Road Sections



# VII. DRILLING

## A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

a. Spudding well
b. Setting and/or Cementing of all casing strings
c. BOPE tests

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361 2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

3 Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

4 **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

## B. CASING

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**Possible lost circulation in the Delaware and Bone Spring Groups.**
**Possible high pressure gas in the Wolfcamp Formation. (Pilot Hole)**

1 The **13-3/8** inch surface casing shall be set at **approximately 875 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.

   a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

   **b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**

   c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater

   d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2 The minimum required fill of cement behind the **9-5/8** inch intermediate casing is. **Set this casing in the Lamar Limestone.**

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

**Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.**

**Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.**

**Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 200' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug.**

3 The minimum required fill of cement behind the **5-1/2** inch production casing is:

a. First stage to DV tool, cement shall

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool, cement shall.

☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

4 If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

## C. PRESSURE CONTROL

1 All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No 2 and API RP 53 Sec. 17

1 Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi. **Operator installing a 5M system and testing as a 3M.**

a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

3 The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. Casing cut-off and BOP installation will not be initiated until the cement has had a minimum of 8 hours setup time for a water basin. The casing shall remain stationary and under pressure for at least eight hours after the operator places the cement. In the potash area, the minimum time is 12 hours and the casing shall remain stationary and under pressure during this time period. Casing shall be under pressure if the operator uses some acceptable means of holding pressure or if the operator employs one or more float valves to hold the cement in place. Testing the BOP/BOPE against a plug can commence after meeting the above conditions plus the BOP installation time.

b. The tests shall be done by an independent service company utilizing a test plug.

c. The results of the test shall be reported to the appropriate BLM office.

d All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

f. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No 2. **(Pilot Hole)**

## D. DRILLING MUD (Pilot Hole)

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

**Proposed mud weight may not be adequate for drilling through Wolfcamp.**

## E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**CRW 051710**

# VIII. PRODUCTION (POST DRILLING)

## A. WELL STRUCTURES & FACILITIES

**Placement of Production Facilities**
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

**Containment Structures**
The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

**Painting Requirement**
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

## B. PIPELINES – not requested in APD

## C. ELECTRIC LINES – not requested in APD

## IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared; these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

| Species | lb/acre |
|---|---|
| Sand dropseed (Sporobolus cryptandrus) | 1.0 |
| Sand love grass (Eragrostis trichodes) | 1.0 |
| Plains bristlegrass (Setaria macrostachya) | 2.0 |

*Pounds of pure live seed

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed