API-13-624

JC 10/24/2013

Form 3160-3
(March 2012)

OCD Artesia

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

5. Lease Serial No.
USA NM-99040; USA NM-06370

6. If Indian, Allotee or Tribe Name
@HL @HL

1a. Type of work: ☑ DRILL ☐ REENTER — UNORTHODOX LOCATION

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.
Sirius 17 Fed Com 7H <38503>

2. Name of Operator Devon Energy Production Company, L.P. <6137>

9. API Well No.
30-015-41762

3a. Address 333 W. Sheridan Ave.
Oklahoma City, OK 73102

3b. Phone No. *(include area code)*
405-235-3611

10. Field and Pool, or Exploratory
Hacberry; Bone Spring NW <97020>

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

At surface 2080 FSL & 70 FWL L

At proposed prod. zone 2080 FSL & 340 FEL I

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 17 T 19S R 31E

14. Distance in miles and direction from nearest town or post office*
Approximately 15 miles SW of Maljamar, NM.

12. County or Parish
Eddy

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) See attached map

16. No. of acres in lease
NM-99040 480 ac
NM-06370 160 ac

17. Spacing Unit dedicated to this well
160

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

19. Proposed Depth
8030' TVD 12,683' MD

20. BLM/BIA Bond No. on file
CO-1104; NMB-000801

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3424.4' 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, must 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 must 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 BLM.

25. Signature — Name *(Printed/Typed)*: Judy A. Barnett — Date: 03/21/2013

Title: Regulatory Specialist

Approved by *(Signature)*: /S/ STEPHEN J. CAFFEY — Name *(Printed/Typed)*: — Date: OCT 24 2013

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.

Capitan Controlled Water Basin

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.

(Continued on page 2)

*(Instructions on page 2)

APPROVAL FOR TWO YEARS

RECEIVED
OCT 29 2013
NMOCD ARTESIA

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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 _18th__ day of __March 2013.
Printed Name: Judy A. Barnett
Signed Name:
Position Title: Regulatory Specialist
Address: 333 W. Sheridan, OKC OK 73102
Telephone: (405)-228-8699
Field Representative (if not above signatory):
Address (if different from above):
Telephone (if different from above):

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| 30-015-41762 | 97020 | Hackberry; Bone Spring NW |
| [4] Property Code 38503 | [5] Property Name SIRIUS "17" FED COM | [6] Well Number 7H |
| [7] OGRID No. 6137 | [8] Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P. | [9] Elevation 3424.4 |

## [10] Surface Location

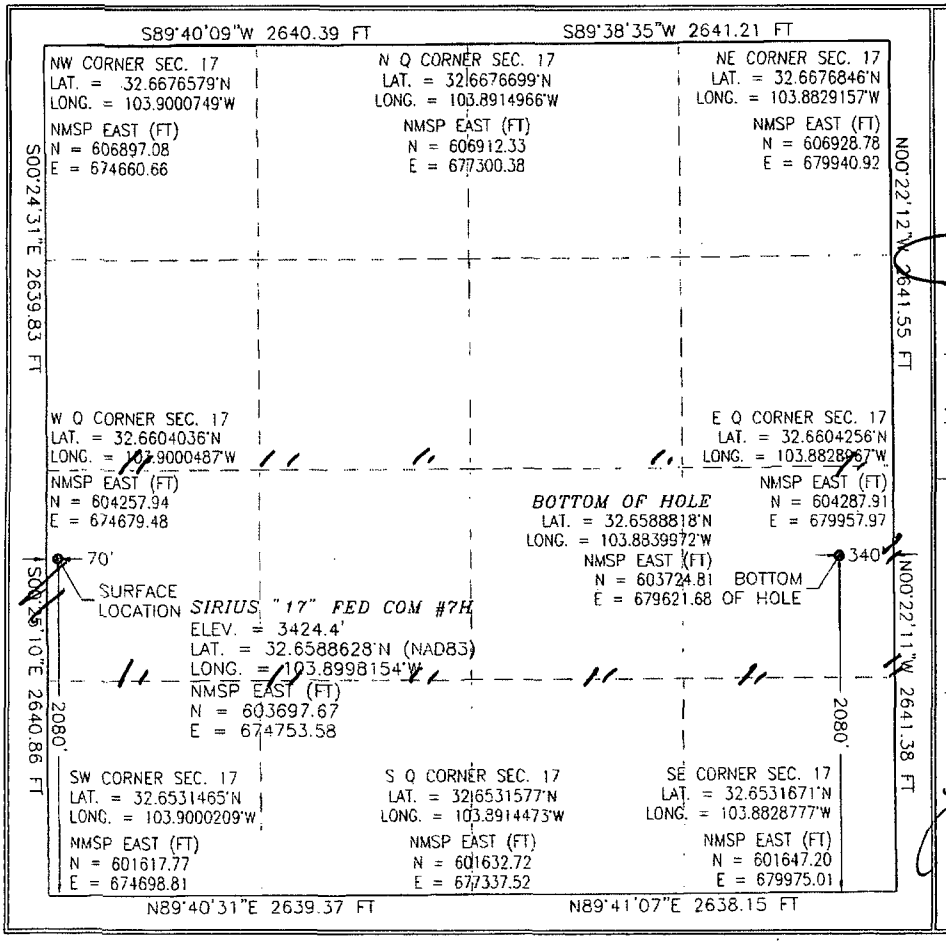
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| L | 17 | 19 S | 31 E | | 2080 | SOUTH | 70 | WEST | EDDY |

## [11] 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 |
|---|---|---|---|---|---|---|---|---|---|
| I | 17 | 19 S | 31 E | | 2080 | SOUTH | 340 | EAST | EDDY |

| [12] Dedicated Acres | [13] Joint or Infill | [14] Consolidation Code | [15] 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.




## [17] 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 3-19-13

Judith A. Barnett, Regulatory Specialist
Printed Name

Judith.Barnett@dvn.com
E-mail Address

## [18] 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 supervision, and that the same is true and correct to the best of my belief.*

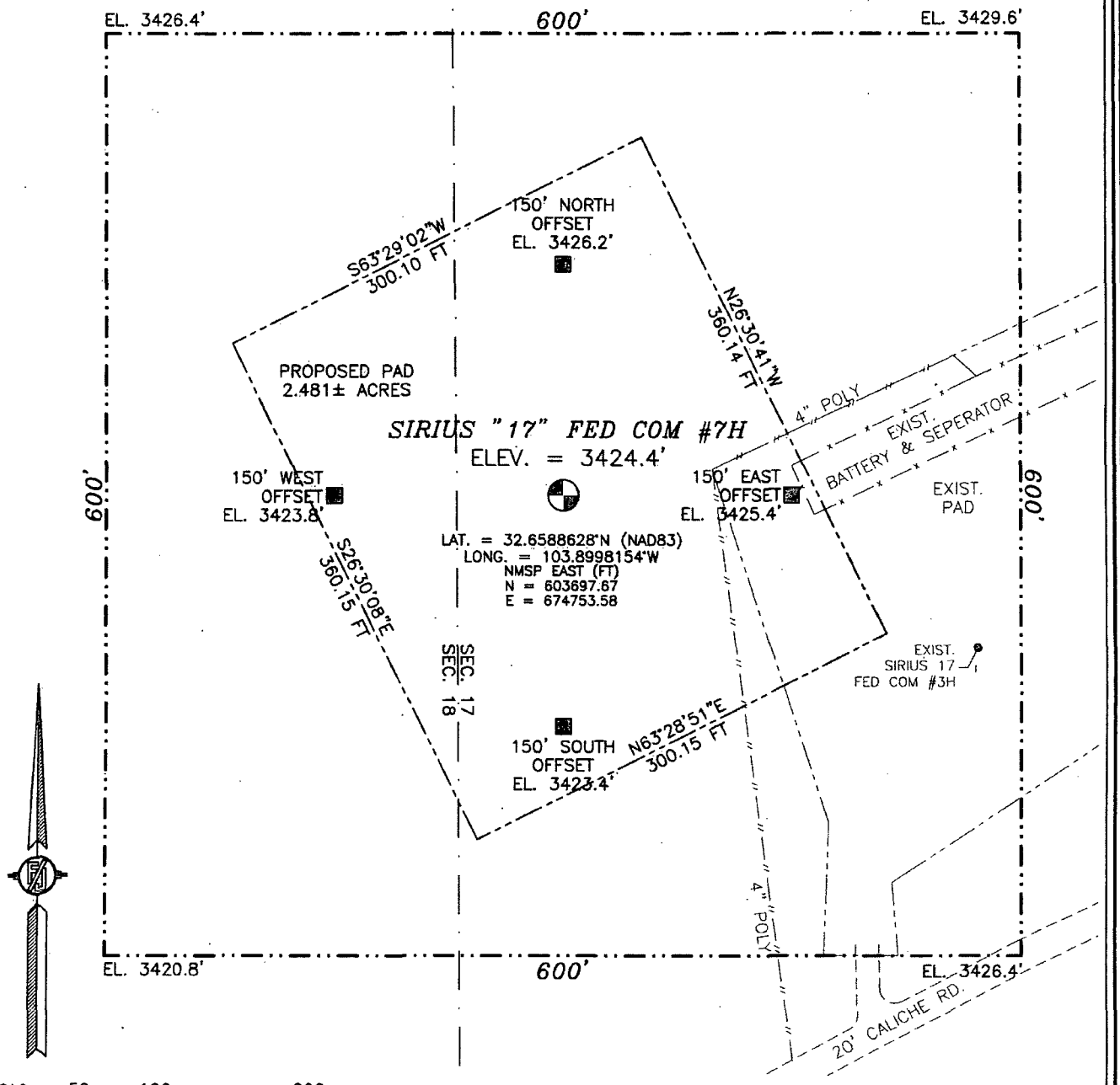
FEBRUARY 15, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: FILIMON F. JARAMILLO, PLS 12797

SURVEY NO. 1595

# SECTION 17, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.
# EDDY COUNTY, STATE OF NEW MEXICO




010 50 100 200

SCALE 1" = 100'

**DIRECTIONS TO LOCATION**

FROM CR. 222 (SHUGART) AND CR. 248 (LUSK PLANT) GO SOUTH-SOUTHWEST ON CR. 222 4.7 MILES TURN RIGHT AND GO NORTH 2.0 MILES, TURN LEFT AND GO NORTHWEST 660', TURN RIGHT AND GO NORTH 0.3 MILES WHERE ROAD BENDS RIGHT AND LOCATION IS NORTH 541'.

*DEVON ENERGY PRODUCTION COMPANY, L.P.*

## *SIRIUS "17" FED COM #7H*

*LOCATED 2080 FT. FROM THE SOUTH LINE AND 70 FT. FROM THE WEST LINE OF SECTION 17, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO*

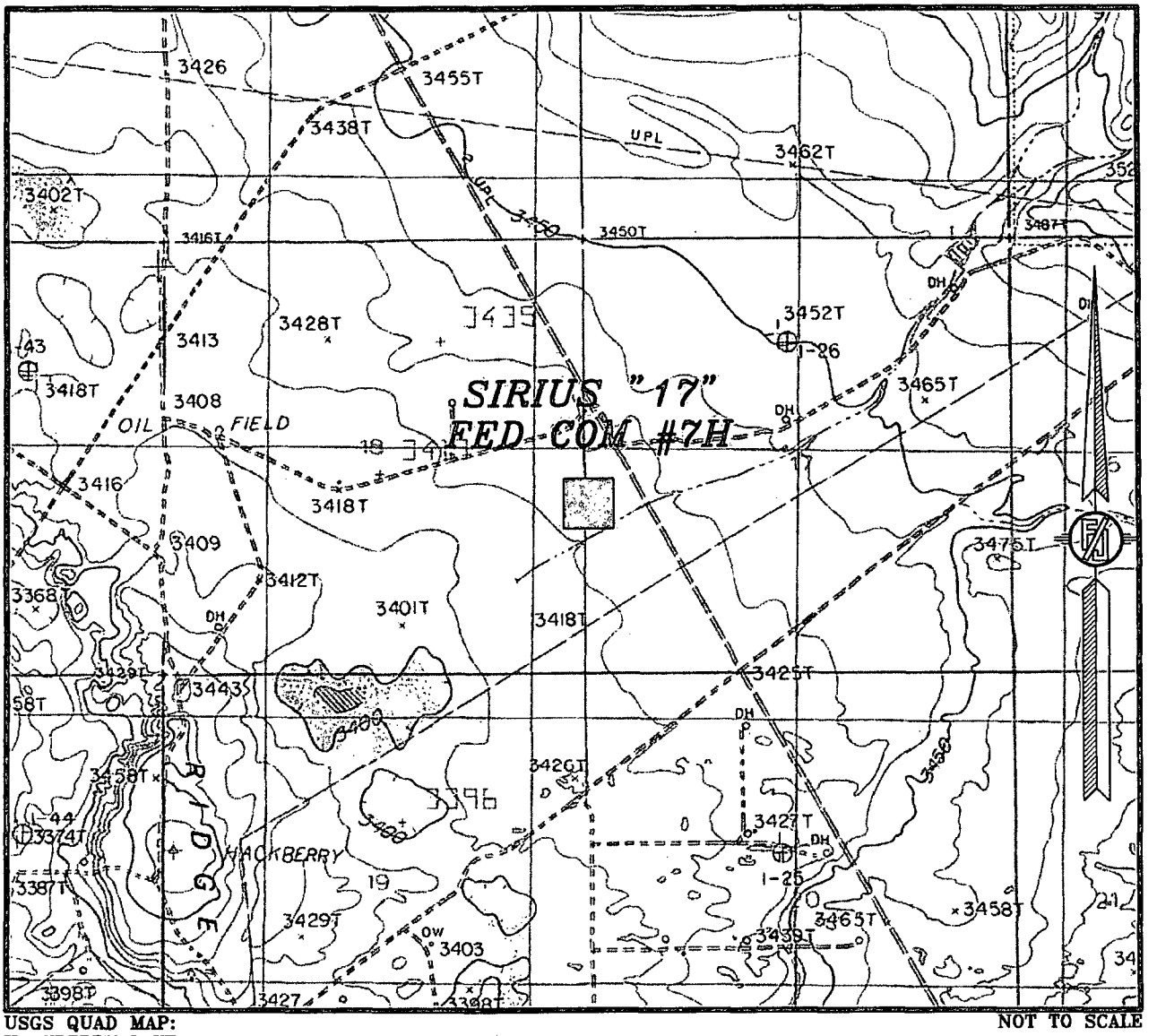
*FEBRUARY 15, 2013*

*SURVEY NO. 1595*

*MADRON SURVEYING, INC.* 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 17, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

# LOCATION VERIFICATION MAP




USGS QUAD MAP:
HACKBERRY LAKE

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

**SIRIUS "17" FED COM #7H**

LOCATED 2080 FT. FROM THE SOUTH LINE
AND 70 FT. FROM THE WEST LINE OF
SECTION 17, TOWNSHIP 19 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 15, 2013

SURVEY NO. 1595

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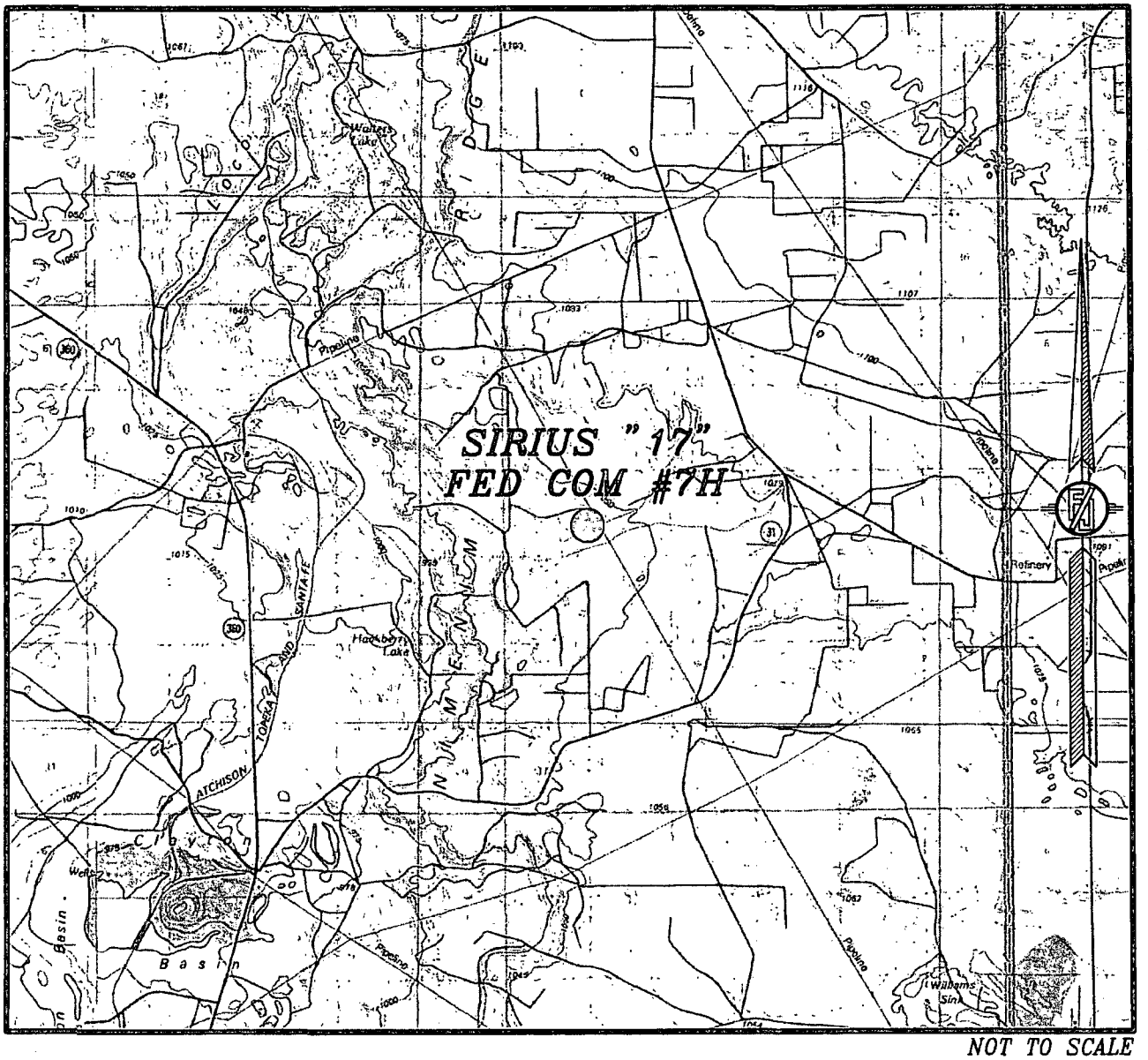
SECTION 17, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

# VICINITY MAP




NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

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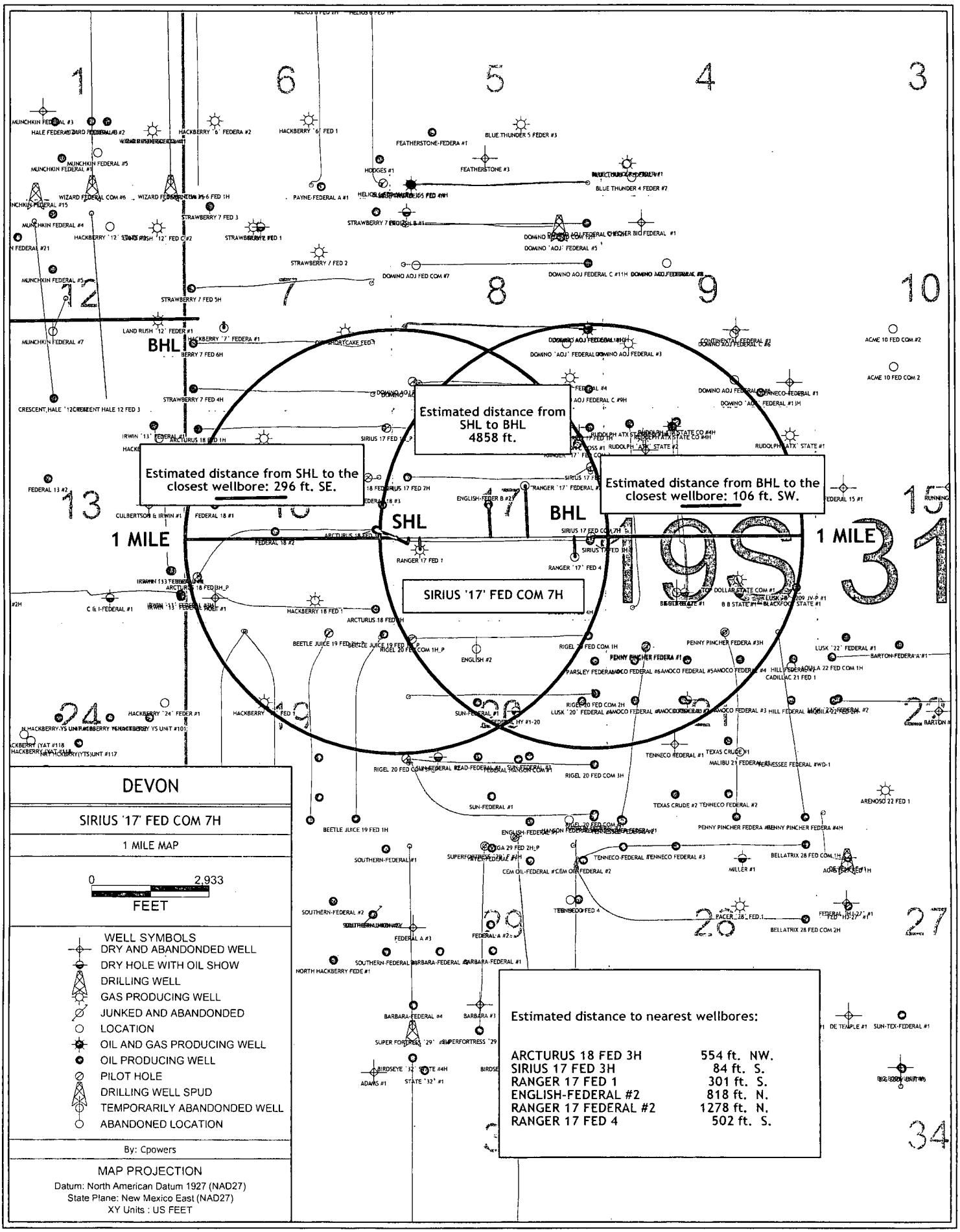


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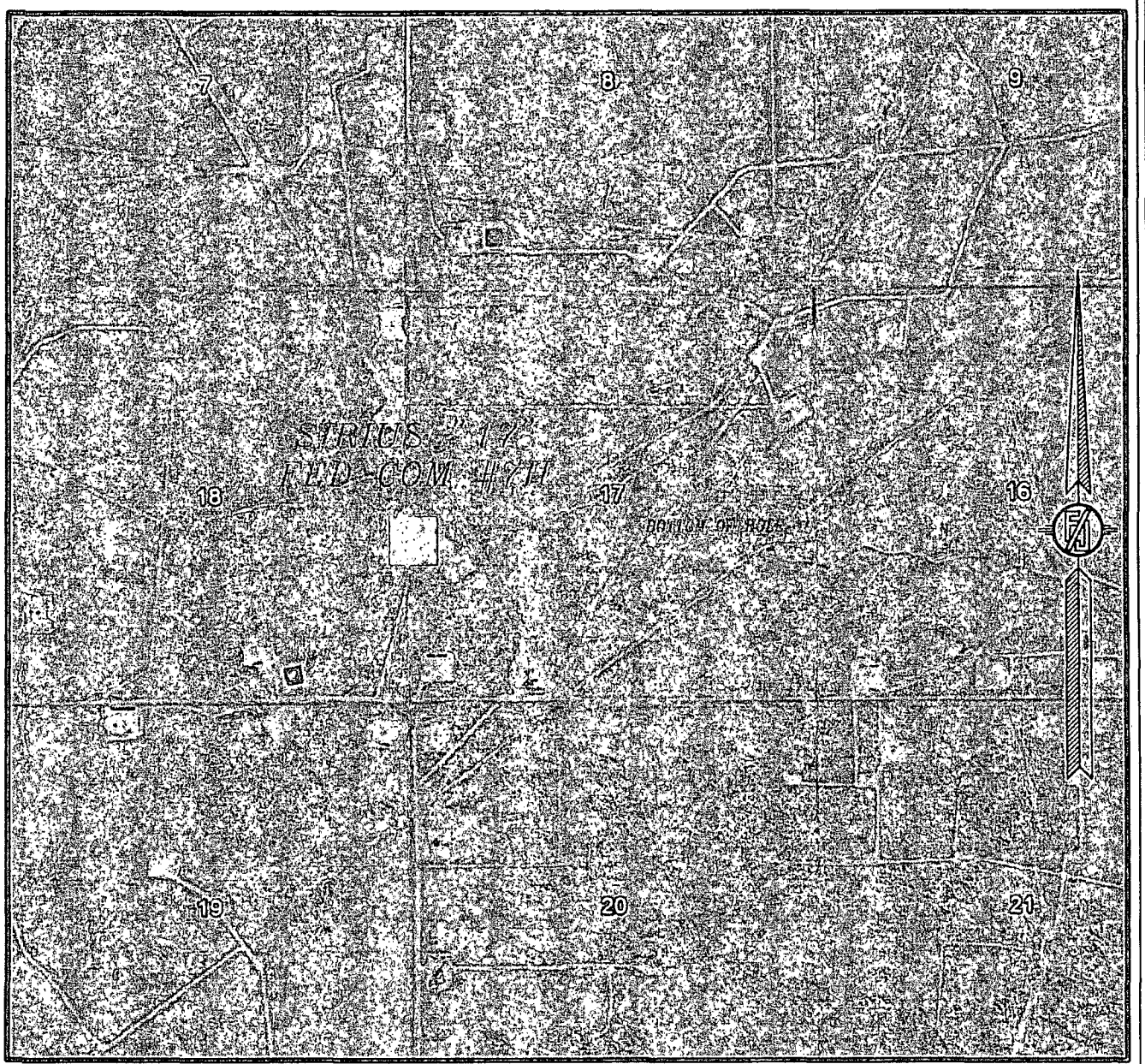
SECTION 17, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

# AERIAL PHOTO




NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
MARCH 2012

DEVON ENERGY PRODUCTION COMPANY, L.P.

**SIRIUS "17" FED COM #7H**

LOCATED 2080 FT. FROM THE SOUTH LINE
AND 70 FT. FROM THE WEST LINE OF
SECTION 17, TOWNSHIP 19 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 15, 2013

SURVEY NO. 1595

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

# DRILLING PROGRAM

Devon Energy Production Company, LP
**Sirius 17 Fed 7H**

Surface Location: 2080' FSL & 70' FWL, Unit L, Sec 17 T19S R31E, Eddy, NM
Bottom Hole Location: 2080' FSL & 340' FEL, Unit I, Sec 17 T19S R31E, Eddy, NM

**1. Geologic Name of Surface Formation**

- Quat Alluvium

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

| | | |
|---|---|---|
| • Fresh Water | 95' | |
| • Rustler | 430' | Barren |
| • Salado | 560' | Barren |
| • Tansil Dolomite | 2030' | Barren |
| • Yates | 2130' | Barren |
| • Seven Rivers | 2415' | Barren |
| • Capitan | 2500' | Barren |
| • Queen | 2840' | Barren |
| • Delaware | 4680' | Oil |
| • Bone Spring | 6520' | Oil |
| • 1st Bone Spring Ss | 7835' | Oil |
| Total Depth | 12683' | |

**Casing Program:**

Sel
COA

| Hole Size | Hole Interval | OD Csg | Casing Interval | Weight | Collar | Grade |
|---|---|---|---|---|---|---|
| 26" | 0' –480' | 20" | 0'-480' | 94# | BT&C | J/K-55 |
| 17 1/2" | 0'-2450' 4000 | 13 3/8" | 0'-2450' | 61# | BT&C | J/K-55 |
| 12 ¼" | 2450'-~~4640~~ | 9 5/8" | 0'-~~4640~~ 4000' | 40# | LT&C | J-55 |
| 8 ¾" | ~~4640~~'-7442' | 5 ½" | 0-7442' | 17# | LT&C | P-110 |
| 8 ¾" | 7442-12683 | 5 ½" | 7442'-12,683' | 17# | BT&C | P-110 |

All casing is new and API approved.

**Design Parameter Factors:**

| Casing Size | Collapse Design Factor | Burst Design Factor | Tension Design Factor |
|---|---|---|---|
| 20" | 2.31 | 9.39 | 32.80 |
| 13 3/8" | 1.21 | 2.43 | 3.62 |
| 9 5/8" | 1.18 | 1.82 | 3.39 |
| 5 /12" | 2.46 | 3.05 | 2.06 |
| 5 ½" | 2.29 | 2.84 | 4.99 |

While running the intermediate casing, the casing will never be completely evacuated. There is no potential for the intermediate casing to be used as a production string.

**Cement Program: (all cement volumes based on at least 25% excess)**

20"Surface **Lead**: 550 sx Cl C + 1% bwoc Calcium Chloride + 0.125#/sx CF + 4% bwoc Bentonite + 81.1% FW, 13.5 ppg **Yield:** 1.73 cf/sk **Tail**: 300 sx Cl C + 2% bwoc Calcium Chloride + 0.125#/sx CF + 56.3% FW, 14.8 ppg **Yield:** 1.35 cf/sk **TOC @ Surface.**

13 3/8"Intermediate **Lead**: 1385 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 0.25% bwoc FL-52 + 1.5% bwoc Sodium Metasilicate + 83.7% Fresh Water, 12.8 ppg, **Yield:** 1.66 cf/sk
**Tail:** 450 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.5% bwoc Sodium Metasilicate + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 65.3% Fresh Water, 13.8 ppg **Yield:** 1.38 cf/sk **TOC @ Surface.**

9 5/8" Intermediate

**1st Stage**
**Lead**: 660 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.2% bwoc R-3 + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 0.25% bwoc FL-52 + 1% bwoc Sodium Metasilicate + 89.6% Fresh Water, 12.6 ppg **Yield**: 1.73 cf/sk
**Tail**: 300 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.1% bwoc Sodium Metasilicate + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 65.2% Fresh Water, 13.8 ppg **Yield**: 1.38 cf/sk.

**2nd Stage**
**Lead**: 465 sacks (60:40) Poz (Fly Ash):Class C Cement +5% bwow Sodium Chloride + 0.125 lbs/sack CelloFlake + 3 lbs/sack LCM-1 + 0.25% bwoc FL-52 +1.5% bwoc Sodium Metasilicate + 83.7% FreshWater, 12.8 ppg **Yield**: 1.66 cf/sk
**Tail**: 150 sacks (60:40) Poz (Fly Ash):Class C Cement +5% bwow Sodium Chloride + 0.125 lbs/sack CelloFlake + 0.5% bwoc Sodium Metasilicate + 0.5%bwoc BA-10A + 4% bwoc MPA-5 + 65.3% Fresh Water, 13.8 ppg **Yield**: 1.38 cf/sk. **TOC @ Surface.**

DV Tool & ECP @ 2500'

5 ½" Production

**1st Lead:** 630 sacks (35:65) Poz (Fly Ash):Class H Cement + 3% bwow Sodium Chloride + 0.125 lbs/sack CelloFlake + 0.7% bwoc FL-52 + 0.3% bwoc ASA-301 + 6% bwoc Bentonite + 105.6% Fresh Water, 12.5 ppg. **Yield**: 2.01 cf/sk
**2nd Lead**: 1225 sacks (50:50) Poz (Fly Ash):Class H Cement + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 0.5% bwoc FL-52 + 0.3% bwoc Sodium Metasilicate + 57.2% Fresh Water, 14.2 ppg **Yield**: 1.28 cf/sk

**DV tool and ECP at 4,690'**
**2nd Stage**
**Lead**: 200 sacks Class C Cement + 1% bwoc R-3 + 0.125 lbs/sack Cello Flake + 0.3% bwoc FL-52 + 3% bwoc Sodium Metasilicate + 157% Fresh Water, 11.4 ppg **Yield**: 2.88 cf/sk
**Tail**: 150 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 65.1% Fresh Water, 13.8 ppg **Yield**: 1.37 cf/sk. TOC @ ~2300'

**ACTUAL CEMENT VOLUMES WILL BE ADJUSTED BASED ON FLUID CALIPER OR CALIPER LOG DATA.**

## Pressure Control Equipment

The BOP system used to drill the **17-1/2"** hole will consist of a **20" 2M Annular preventer**. The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2 as a **2M system** prior to drilling out the casing shoe.

The BOP system used to drill the **12-1/4" and 8-3/4"** holes will consist of a **13-5/8" 3M 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 casing shoe.

The pipe rams will be operated and checked as per Onshore Order No 2. 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 **3,000 psi WP**.

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line); **if an H&P rig or Scan Texas rig drills this well. Otherwise no flex line is needed**. The line will be kept as straight as possible with minimal turns.

**Proposed Mud Circulation System**

| Depth | Mud Wt. | Visc | Fluid Loss | Type System |
|---|---|---|---|---|
| 0' – 480' | 8.4-9.0 | 30-34 | NC | FW |
| 0'– 2450' | 9.8 - 10.0 | 28-32 | NC | Brine |
| 2450'–~~4640'~~1000' | 8.4– 9.0 | 28-30 | NC | FW |
| ~~4640~~ – 12,683' | 8.6-9.0 | 28-32 | NC | FW |

The necessary mud products for weight addition and fluid loss control will be on location at all times. Visual mud monitoring equipment will be in place to detect volume changes indicating loss or gain of circulating fluid volume. If abnormal pressures are encountered, electronic/mechanical mud monitoring equipment will be installed.

3. **Auxiliary Well Control and Monitoring Equipment**:
   - A Kelly cock will be in the drill string at all times.
   - A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
   - 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.

4. **Logging, Coring, and Testing Program:**
   - Drill stem tests will be based on geological sample shows.
   - 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.
   - 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.

5. **Potential Hazards:**

- 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 3450 psi and Estimated BHT 125°. No H2S is anticipated to be encountered.

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

- 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

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# Proposal

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devon

SIRIUS 17 FED COM 7H

EDDY COUNTY, NM

WELL FILE: **PLAN 2**

MARCH 8, 2013

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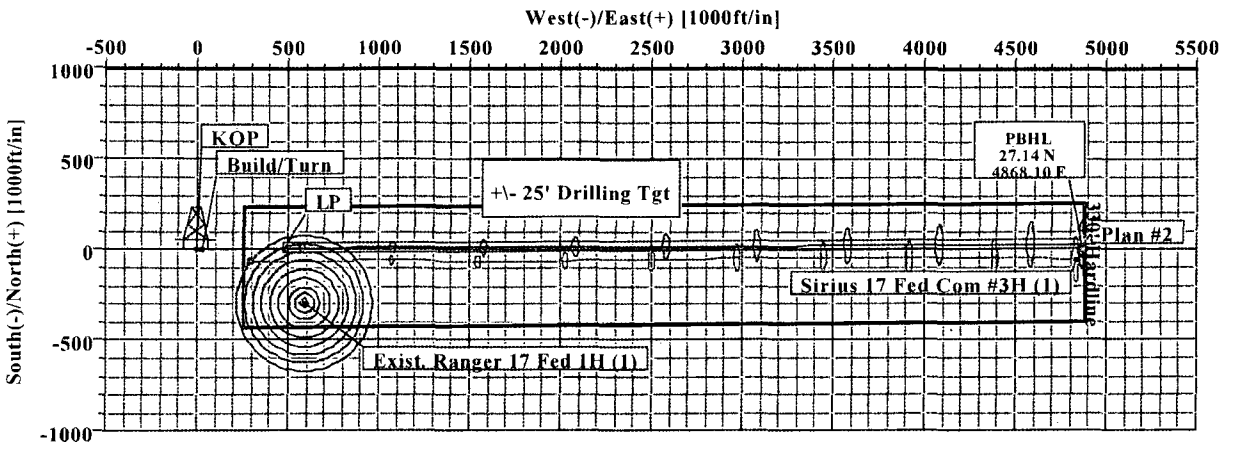
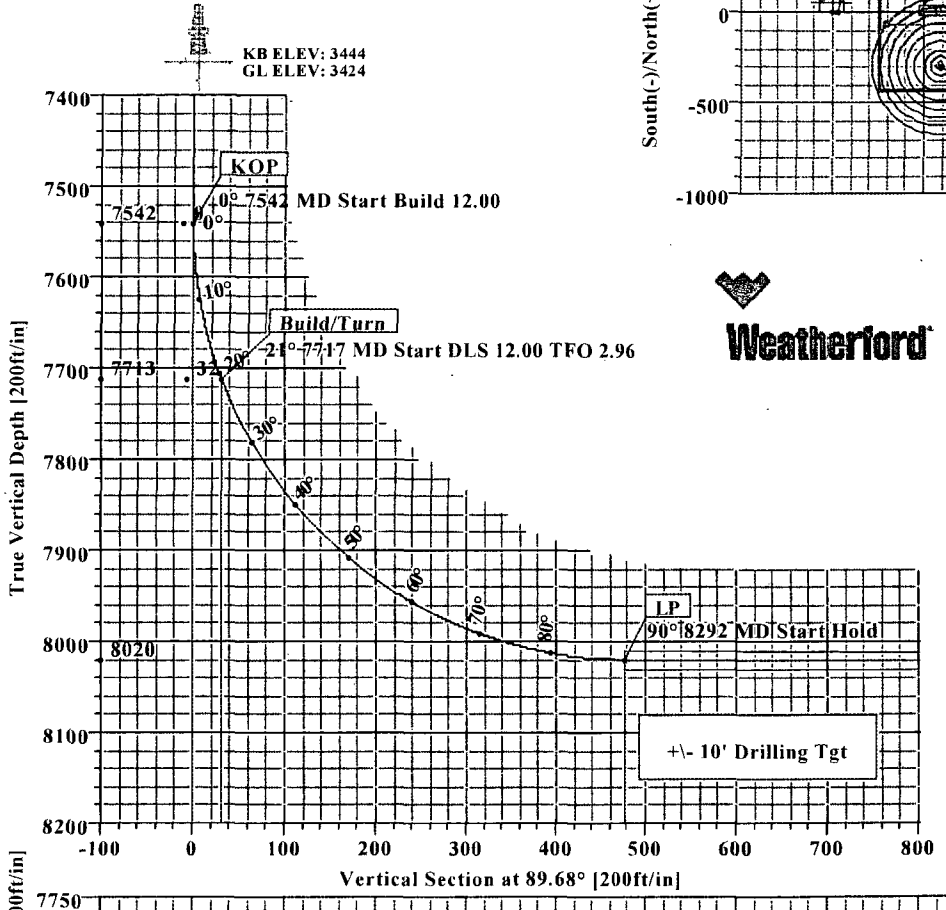
**Weatherford International, Ltd.**
P.O. Box 61028
Midland, TX 79711 USA
+1.432.561.8892 Main
+1.432.561.8895 Fax
www.weatherford.com

devon

# Sirius 17 Fed Com 7H
## Eddy Co, NM




Weatherford

**SECTION DETAILS**

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 7542.39 | 0.00 | 0.00 | 7542.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 7717.39 | 21.00 | 87.00 | 7713.50 | 1.66 | 31.67 | 12.00 | 87.00 | 31.68 | |
| 4 | 8291.52 | 89.87 | 89.77 | 8020.00 | 9.14 | 476.38 | 12.00 | 2.96 | 476.43 | |
| 5 | 12683.28 | 89.87 | 89.77 | 8030.00 | 27.14 | 4868.10 | 0.00 | 0.00 | 4868.18 | PBHL |

**WELL DETAILS**

| Name | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|---|---|---|---|---|---|---|---|
| Sirius 17 Fed Com 7H | 0.00 | 0.00 | 603697.67 | 674753.58 | 32°39'31.894N | 103°53'59.351W | N/A |

**TARGET DETAILS**

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Shape |
|---|---|---|---|---|---|---|
| PBHL | 8030.00 | 27.14 | 4868.10 | 603724.81 | 679621.68 | Rectangle (4391x50) |

**LEGEND**

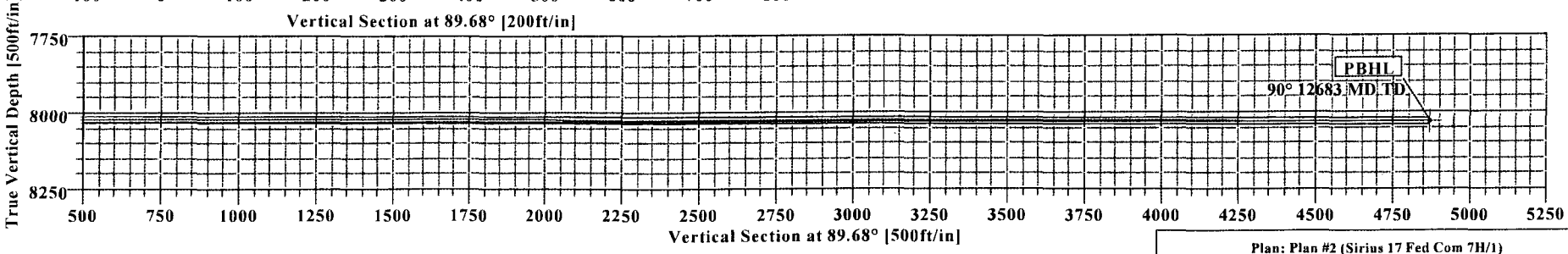
- Exist. Ranger 17 Fed 1H (1)
- Sirius 17 Fed Com #3H (1)
- Plan #2

**SITE DETAILS**

Sirius 17 Fed Com 7H

Site Centre Northing: 603697.67
Easting: 674753.58

Ground Level: 3424.00
Positional Uncertainty: 0.00
Convergence: 0.23




Plan: Plan #2 (Sirius 17 Fed Com 7H/1)

Created By: Russell W. Joyner Date: 3/8/2013

# Weatherford
## Wft Plan Report X Y's.

| | | | |
|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 **Time:** 14:45:30 | **Page:** 1 |
| **Field:** | Eddy Co., NM (NAD 83) | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North |
| **Site:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 |
| **Well:** | Sirius 17 Fed Com 7H | **Section (VS) Reference:** | Well (0.00N,0.00E,89.68Azi) |
| **Wellpath:** 1 | | **Survey Calculation Method:** | Minimum Curvature **Db:** Sybase |

| | | | |
|---|---|---|---|
| **Plan:** | Plan #2 | **Date Composed:** | 3/8/2013 |
| | | **Version:** | 1 |
| **Principal:** | Yes | **Tied-to:** | From Surface |

**Site:** Sirius 17 Fed Com 7H

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 603697.67 ft | **Latitude:** | 32 39 31.894 N |
| **From:** | Map | **Easting:** | 674753.58 ft | **Longitude:** | 103 53 59.351 W |
| **Position Uncertainty:** | 0.00 ft | | | **North Reference:** | Grid |
| **Ground Level:** | 3424.00 ft | | | **Grid Convergence:** | 0.23 deg |

**Well:** Sirius 17 Fed Com 7H **Slot Name:**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position:** | +N/-S | 0.00 ft | **Northing:** | 603697.67 ft | **Latitude:** | 32 39 31.894 N |
| | +E/-W | 0.00 ft | **Easting :** | 674753.58 ft | **Longitude:** | 103 53 59.351 W |
| **Position Uncertainty:** | | 0.00 ft | | | | |

**Wellpath:** 1

| | | | |
|---|---|---|---|
| | | **Drilled From:** | Surface |
| | | **Tie-on Depth:** | 0.00 ft |
| **Current Datum:** | SITE | **Height** 3444.00 ft | **Above System Datum:** Mean Sea Level |
| **Magnetic Data:** | 11/5/2013 | | **Declination:** 7.48 deg |
| **Field Strength:** | 48628 nT | | **Mag Dip Angle:** 60.47 deg |

| **Vertical Section:** | **Depth From (TVD)** ft | **+N/-S** ft | **+E/-W** ft | **Direction** deg |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 89.68 |

**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 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7542.39 | 0.00 | 0.00 | 7542.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7717.39 | 21.00 | 87.00 | 7713.50 | 1.66 | 31.67 | 12.00 | 12.00 | 0.00 | 87.00 | |
| 8291.52 | 89.87 | 89.77 | 8020.00 | 9.14 | 476.38 | 12.00 | 12.00 | 0.48 | 2.96 | |
| 12683.28 | 89.87 | 89.77 | 8030.00 | 27.14 | 4868.10 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 7500.00 | 0.00 | 0.00 | 7500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 603697.67 | 674753.58 | |
| 7542.39 | 0.00 | 0.00 | 7542.39 | 0.00 | 0.00 | 0.00 | 0.00 | 603697.67 | 674753.58 | KOP |
| 7600.00 | 6.91 | 87.00 | 7599.86 | 0.18 | 3.47 | 3.47 | 12.00 | 603697.85 | 674757.05 | |
| 7700.00 | 18.91 | 87.00 | 7697.15 | 1.35 | 25.74 | 25.75 | 12.00 | 603699.02 | 674779.32 | |
| 7717.39 | 21.00 | 87.00 | 7713.50 | 1.66 | 31.67 | 31.68 | 12.00 | 603699.33 | 674785.25 | Build/Turn |
| 7800.00 | 30.90 | 87.99 | 7787.69 | 3.18 | 67.74 | 67.76 | 12.00 | 603700.85 | 674821.32 | |
| 7900.00 | 42.90 | 88.62 | 7867.51 | 4.90 | 127.65 | 127.68 | 12.00 | 603702.57 | 674881.23 | |
| 8000.00 | 54.89 | 89.02 | 7933.13 | 6.42 | 202.85 | 202.88 | 12.00 | 603704.09 | 674956.43 | |
| 8100.00 | 66.89 | 89.31 | 7981.69 | 7.68 | 290.05 | 290.09 | 12.00 | 603705.35 | 675043.63 | |
| 8200.00 | 78.89 | 89.56 | 8011.05 | 8.61 | 385.45 | 385.49 | 12.00 | 603706.28 | 675139.03 | |
| 8291.52 | 89.87 | 89.77 | 8020.00 | 9.14 | 476.38 | 476.43 | 12.00 | 603706.81 | 675229.96 | LP |
| 8300.00 | 89.87 | 89.77 | 8020.02 | 9.18 | 484.87 | 484.91 | 0.00 | 603706.85 | 675238.45 | |
| 8400.00 | 89.87 | 89.77 | 8020.25 | 9.59 | 584.87 | 584.91 | 0.00 | 603707.26 | 675338.45 | |
| 8500.00 | 89.87 | 89.77 | 8020.48 | 10.00 | 684.87 | 684.91 | 0.00 | 603707.67 | 675438.45 | |
| 8600.00 | 89.87 | 89.77 | 8020.70 | 10.41 | 784.86 | 784.91 | 0.00 | 603708.08 | 675538.44 | |
| 8700.00 | 89.87 | 89.77 | 8020.93 | 10.82 | 884.86 | 884.91 | 0.00 | 603708.49 | 675638.44 | |
| 8800.00 | 89.87 | 89.77 | 8021.16 | 11.23 | 984.86 | 984.91 | 0.00 | 603708.90 | 675738.44 | |
| 8900.00 | 89.87 | 89.77 | 8021.39 | 11.64 | 1084.86 | 1084.91 | 0.00 | 603709.31 | 675838.44 | |
| 9000.00 | 89.87 | 89.77 | 8021.61 | 12.05 | 1184.86 | 1184.91 | 0.00 | 603709.72 | 675938.44 | |
| 9100.00 | 89.87 | 89.77 | 8021.84 | 12.46 | 1284.86 | 1284.91 | 0.00 | 603710.13 | 676038.44 | |
| 9200.00 | 89.87 | 89.77 | 8022.07 | 12.87 | 1384.86 | 1384.91 | 0.00 | 603710.54 | 676138.44 | |
| 9300.00 | 89.87 | 89.77 | 8022.30 | 13.28 | 1484.86 | 1484.91 | 0.00 | 603710.95 | 676238.44 | |

devon

# Weatherford

## Wft Plan Report X Y's.

Weatherford

| | | | |
|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 **Time:** 14:45:30 | **Page:** 2 |
| **Field:** | Eddy Co., NM (NAD 83) | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North |
| **Site:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 |
| **Well:** | Sirius 17 Fed Com 7H | **Section (VS) Reference:** | Well (0.00N,0.00E,89.68Azi) |
| **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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 9400.00 | 89.87 | 89.77 | 8022.52 | 13.69 | 1584.86 | 1584.91 | 0.00 | 603711.36 | 676338.44 | |
| 9500.00 | 89.87 | 89.77 | 8022.75 | 14.10 | 1684.85 | 1684.91 | 0.00 | 603711.77 | 676438.43 | |
| 9600.00 | 89.87 | 89.77 | 8022.98 | 14.51 | 1784.85 | 1784.91 | 0.00 | 603712.18 | 676538.43 | |
| 9700.00 | 89.87 | 89.77 | 8023.21 | 14.92 | 1884.85 | 1884.91 | 0.00 | 603712.59 | 676638.43 | |
| 9800.00 | 89.87 | 89.77 | 8023.44 | 15.33 | 1984.85 | 1984.91 | 0.00 | 603713.00 | 676738.43 | |
| 9900.00 | 89.87 | 89.77 | 8023.66 | 15.74 | 2084.85 | 2084.91 | 0.00 | 603713.41 | 676838.43 | |
| 10000.00 | 89.87 | 89.77 | 8023.89 | 16.15 | 2184.85 | 2184.90 | 0.00 | 603713.82 | 676938.43 | |
| 10100.00 | 89.87 | 89.77 | 8024.12 | 16.55 | 2284.85 | 2284.90 | 0.00 | 603714.22 | 677038.43 | |
| 10200.00 | 89.87 | 89.77 | 8024.35 | 16.96 | 2384.85 | 2384.90 | 0.00 | 603714.63 | 677138.43 | |
| 10300.00 | 89.87 | 89.77 | 8024.57 | 17.37 | 2484.85 | 2484.90 | 0.00 | 603715.04 | 677238.43 | |
| 10400.00 | 89.87 | 89.77 | 8024.80 | 17.78 | 2584.84 | 2584.90 | 0.00 | 603715.45 | 677338.42 | |
| 10500.00 | 89.87 | 89.77 | 8025.03 | 18.19 | 2684.84 | 2684.90 | 0.00 | 603715.86 | 677438.42 | |
| 10600.00 | 89.87 | 89.77 | 8025.26 | 18.60 | 2784.84 | 2784.90 | 0.00 | 603716.27 | 677538.42 | |
| 10700.00 | 89.87 | 89.77 | 8025.48 | 19.01 | 2884.84 | 2884.90 | 0.00 | 603716.68 | 677638.42 | |
| 10800.00 | 89.87 | 89.77 | 8025.71 | 19.42 | 2984.84 | 2984.90 | 0.00 | 603717.09 | 677738.42 | |
| 10900.00 | 89.87 | 89.77 | 8025.94 | 19.83 | 3084.84 | 3084.90 | 0.00 | 603717.50 | 677838.42 | |
| 11000.00 | 89.87 | 89.77 | 8026.17 | 20.24 | 3184.84 | 3184.90 | 0.00 | 603717.91 | 677938.42 | |
| 11100.00 | 89.87 | 89.77 | 8026.40 | 20.65 | 3284.84 | 3284.90 | 0.00 | 603718.32 | 678038.42 | |
| 11200.00 | 89.87 | 89.77 | 8026.62 | 21.06 | 3384.84 | 3384.90 | 0.00 | 603718.73 | 678138.42 | |
| 11300.00 | 89.87 | 89.77 | 8026.85 | 21.47 | 3484.83 | 3484.90 | 0.00 | 603719.14 | 678238.41 | |
| 11400.00 | 89.87 | 89.77 | 8027.08 | 21.88 | 3584.83 | 3584.90 | 0.00 | 603719.55 | 678338.41 | |
| 11500.00 | 89.87 | 89.77 | 8027.31 | 22.29 | 3684.83 | 3684.90 | 0.00 | 603719.96 | 678438.41 | |
| 11600.00 | 89.87 | 89.77 | 8027.53 | 22.70 | 3784.83 | 3784.90 | 0.00 | 603720.37 | 678538.41 | |
| 11700.00 | 89.87 | 89.77 | 8027.76 | 23.11 | 3884.83 | 3884.90 | 0.00 | 603720.78 | 678638.41 | |
| 11800.00 | 89.87 | 89.77 | 8027.99 | 23.52 | 3984.83 | 3984.90 | 0.00 | 603721.19 | 678738.41 | |
| 11900.00 | 89.87 | 89.77 | 8028.22 | 23.93 | 4084.83 | 4084.90 | 0.00 | 603721.60 | 678838.41 | |
| 12000.00 | 89.87 | 89.77 | 8028.44 | 24.34 | 4184.83 | 4184.90 | 0.00 | 603722.01 | 678938.41 | |
| 12100.00 | 89.87 | 89.77 | 8028.67 | 24.75 | 4284.83 | 4284.90 | 0.00 | 603722.42 | 679038.41 | |
| 12200.00 | 89.87 | 89.77 | 8028.90 | 25.16 | 4384.82 | 4384.90 | 0.00 | 603722.83 | 679138.40 | |
| 12300.00 | 89.87 | 89.77 | 8029.13 | 25.57 | 4484.82 | 4484.90 | 0.00 | 603723.24 | 679238.40 | |
| 12400.00 | 89.87 | 89.77 | 8029.36 | 25.98 | 4584.82 | 4584.90 | 0.00 | 603723.65 | 679338.40 | |
| 12500.00 | 89.87 | 89.77 | 8029.58 | 26.39 | 4684.82 | 4684.90 | 0.00 | 603724.06 | 679438.40 | |
| 12600.00 | 89.87 | 89.77 | 8029.81 | 26.80 | 4784.82 | 4784.90 | 0.00 | 603724.47 | 679538.40 | |
| 12683.28 | 89.87 | 89.77 | 8030.00 | 27.14 | 4868.10 | 4868.18 | 0.00 | 603724.81 | 679621.68 | 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 -Rectangle (4391x50) | 0.12 | 89.68 | 8030.00 | 27.14 | 4868.10 | 603724.81 | 679621.68 | 32 39 31.963 N | 103 53 2.406 W |

**Casing Points**

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

| | | | |
|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 **Time:** 14:45:30 | **Page:** 3 |
| **Field:** | Eddy Co., NM (NAD 83) | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North |
| **Site:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE:3444.0 |
| **Well:** | Sirius 17 Fed Com 7H | **Section (VS) Reference:** | Well (0.00N,0.00E,89.68Azi) |
| **Wellpath:** | 1 | **Survey Calculation Method:** | Minimum Curvature **Db:** Sybase |

**Annotation**

| MD ft | TVD ft | |
|---|---|---|
| 7542.39 | 7542.39 | KOP |
| 7717.39 | 7713.50 | Build/Turn |
| 8291.52 | 8020.00 | LP |
| 12683.28 | 8030.00 | PBHL |

devon

# Weatherford
## Anticollision Report

Weatherford

| | | | |
|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 **Time:** 14:45:10 | **Page:** 1 |
| **Field:** | Eddy Co., NM (NAD 83) | | |
| **Reference Site:** | Sirius 17 Fed Com 7H | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North |
| **Reference Well:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 |
| **Reference Wellpath:** | | | **Db:** Sybase |

| | | | |
|---|---|---|---|
| **NO GLOBAL SCAN: Using user defined selection & scan criteria** | | **Reference:** | Plan: Plan #2 |
| **Interpolation Method:** | MD + Stations **Interval:** 100.00 ft | **Error Model:** | ISCWSA Ellipse |
| **Depth Range:** | 100.00 to 12482.07 ft | **Scan Method:** | Closest Approach 3D |
| **Maximum Radius:** | 10000.00 ft | **Error Surface:** | Ellipse |

| | | | |
|---|---|---|---|
| **Plan:** | Plan #2 | **Date Composed:** | 3/8/2013 |
| | | **Version:** | 1 |
| **Principal:** | Yes | **Tied-to:** | From Surface |

**Summary**

| <---------- Offset Wellpath ----------> Site | Well | Wellpath | Reference MD ft | Offset MD ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|
| Exist. Ranger 17 Fed | Exist. Ranger 17 Fed 1 | V0 | 8400.00 | 8001.25 | 305.94 | 42.17 | 1.16 | Level 2 |
| Sirius 17 Fed Com #3 | Sirius 17 Fed Com #31 | V0 | 8100.00 | 7982.81 | 67.22 | 33.76 | 2.01 | |

**Site:** Exist. Ranger 17 Fed 1H
**Well:** Exist. Ranger 17 Fed 1H
**Wellpath:** 1 V0 **Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100.00 | 100.00 | 81.00 | 81.00 | 0.09 | 1.23 | 116.57 | -296.26 | 592.36 | 662.31 | 660.99 | 501.78 | |
| 200.00 | 200.00 | 181.00 | 181.00 | 0.31 | 3.22 | 116.57 | -296.26 | 592.36 | 662.31 | 658.78 | 187.42 | |
| 300.00 | 300.00 | 281.00 | 281.00 | 0.54 | 6.26 | 116.57 | -296.26 | 592.36 | 662.31 | 655.52 | 97.47 | |
| 400.00 | 400.00 | 381.00 | 381.00 | 0.76 | 9.29 | 116.57 | -296.26 | 592.36 | 662.31 | 652.26 | 65.86 | |
| 500.00 | 500.00 | 481.00 | 481.00 | 0.99 | 12.33 | 116.57 | -296.26 | 592.36 | 662.31 | 649.00 | 49.73 | |
| 600.00 | 600.00 | 581.00 | 581.00 | 1.21 | 15.37 | 116.57 | -296.26 | 592.36 | 662.31 | 645.73 | 39.95 | |
| 700.00 | 700.00 | 681.00 | 681.00 | 1.44 | 18.40 | 116.57 | -296.26 | 592.36 | 662.31 | 642.47 | 33.38 | |
| 800.00 | 800.00 | 781.00 | 781.00 | 1.66 | 21.44 | 116.57 | -296.26 | 592.36 | 662.31 | 639.21 | 28.67 | |
| 900.00 | 900.00 | 881.00 | 881.00 | 1.89 | 24.48 | 116.57 | -296.26 | 592.36 | 662.31 | 635.95 | 25.12 | |
| 1000.00 | 1000.00 | 981.00 | 981.00 | 2.11 | 27.51 | 116.57 | -296.26 | 592.36 | 662.31 | 632.69 | 22.36 | |
| 1100.00 | 1100.00 | 1081.00 | 1081.00 | 2.34 | 30.55 | 116.57 | -296.26 | 592.36 | 662.31 | 629.43 | 20.14 | |
| 1200.00 | 1200.00 | 1181.00 | 1181.00 | 2.56 | 33.59 | 116.57 | -296.26 | 592.36 | 662.31 | 626.16 | 18.32 | |
| 1300.00 | 1300.00 | 1281.00 | 1281.00 | 2.79 | 36.62 | 116.57 | -296.26 | 592.36 | 662.31 | 622.90 | 16.80 | |
| 1400.00 | 1400.00 | 1381.00 | 1381.00 | 3.01 | 39.66 | 116.57 | -296.26 | 592.36 | 662.31 | 619.64 | 15.52 | |
| 1500.00 | 1500.00 | 1481.00 | 1481.00 | 3.24 | 42.70 | 116.57 | -296.26 | 592.36 | 662.31 | 616.38 | 14.42 | |
| 1600.00 | 1600.00 | 1581.00 | 1581.00 | 3.46 | 45.74 | 116.57 | -296.26 | 592.36 | 662.31 | 613.12 | 13.46 | |
| 1700.00 | 1700.00 | 1681.00 | 1681.00 | 3.69 | 48.77 | 116.57 | -296.26 | 592.36 | 662.31 | 609.86 | 12.63 | |
| 1800.00 | 1800.00 | 1781.00 | 1781.00 | 3.91 | 51.81 | 116.57 | -296.26 | 592.36 | 662.31 | 606.59 | 11.89 | |
| 1900.00 | 1900.00 | 1881.00 | 1881.00 | 4.14 | 54.85 | 116.57 | -296.26 | 592.36 | 662.31 | 603.33 | 11.23 | |
| 2000.00 | 2000.00 | 1981.00 | 1981.00 | 4.36 | 57.88 | 116.57 | -296.26 | 592.36 | 662.31 | 600.07 | 10.64 | |
| 2100.00 | 2100.00 | 2081.00 | 2081.00 | 4.59 | 60.92 | 116.57 | -296.26 | 592.36 | 662.31 | 596.81 | 10.11 | |
| 2200.00 | 2200.00 | 2181.00 | 2181.00 | 4.81 | 63.96 | 116.57 | -296.26 | 592.36 | 662.31 | 593.55 | 9.63 | |
| 2300.00 | 2300.00 | 2281.00 | 2281.00 | 5.03 | 66.99 | 116.57 | -296.26 | 592.36 | 662.31 | 590.29 | 9.20 | |
| 2400.00 | 2400.00 | 2381.00 | 2381.00 | 5.26 | 70.03 | 116.57 | -296.26 | 592.36 | 662.31 | 587.02 | 8.80 | |
| 2500.00 | 2500.00 | 2481.00 | 2481.00 | 5.48 | 73.07 | 116.57 | -296.26 | 592.36 | 662.31 | 583.76 | 8.43 | |
| 2600.00 | 2600.00 | 2581.00 | 2581.00 | 5.71 | 76.10 | 116.57 | -296.26 | 592.36 | 662.31 | 580.50 | 8.10 | |
| 2700.00 | 2700.00 | 2681.00 | 2681.00 | 5.93 | 79.14 | 116.57 | -296.26 | 592.36 | 662.31 | 577.24 | 7.79 | |
| 2800.00 | 2800.00 | 2781.00 | 2781.00 | 6.16 | 82.18 | 116.57 | -296.26 | 592.36 | 662.31 | 573.98 | 7.50 | |
| 2900.00 | 2900.00 | 2881.00 | 2881.00 | 6.38 | 85.21 | 116.57 | -296.26 | 592.36 | 662.31 | 570.72 | 7.23 | |
| 3000.00 | 3000.00 | 2981.00 | 2981.00 | 6.61 | 88.25 | 116.57 | -296.26 | 592.36 | 662.31 | 567.45 | 6.98 | |
| 3100.00 | 3100.00 | 3081.00 | 3081.00 | 6.83 | 91.29 | 116.57 | -296.26 | 592.36 | 662.31 | 564.19 | 6.75 | |
| 3200.00 | 3200.00 | 3181.00 | 3181.00 | 7.06 | 94.33 | 116.57 | -296.26 | 592.36 | 662.31 | 560.93 | 6.53 | |
| 3300.00 | 3300.00 | 3281.00 | 3281.00 | 7.28 | 97.36 | 116.57 | -296.26 | 592.36 | 662.31 | 557.67 | 6.33 | |
| 3400.00 | 3400.00 | 3381.00 | 3381.00 | 7.51 | 100.40 | 116.57 | -296.26 | 592.36 | 662.31 | 554.41 | 6.14 | |
| 3500.00 | 3500.00 | 3481.00 | 3481.00 | 7.73 | 103.44 | 116.57 | -296.26 | 592.36 | 662.31 | 551.15 | 5.96 | |
| 3600.00 | 3600.00 | 3581.00 | 3581.00 | 7.96 | 106.47 | 116.57 | -296.26 | 592.36 | 662.31 | 547.88 | 5.79 | |

# Weatherford
## Anticollision Report

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 | **Time:** 14:45:10 | **Page:** | 2 |
| **Field:** | Eddy Co., NM (NAD 83) | | | | |
| **Reference Site:** | Sirius 17 Fed Com 7H | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North | | |
| **Reference Well:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 | | |
| **Reference Wellpath:** | | | | **Db:** | Sybase |

**Site:** Exist. Ranger 17 Fed 1H
**Well:** Exist. Ranger 17 Fed 1H
**Wellpath:** 1 V0 **Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3700.00 | 3700.00 | 3681.00 | 3681.00 | 8.18 | 109.51 | 116.57 | -296.26 | 592.36 | 662.31 | 544.62 | 5.63 | |
| 3800.00 | 3800.00 | 3781.00 | 3781.00 | 8.41 | 112.55 | 116.57 | -296.26 | 592.36 | 662.31 | 541.36 | 5.48 | |
| 3900.00 | 3900.00 | 3881.00 | 3881.00 | 8.63 | 115.58 | 116.57 | -296.26 | 592.36 | 662.31 | 538.10 | 5.33 | |
| 4000.00 | 4000.00 | 3981.00 | 3981.00 | 8.86 | 118.62 | 116.57 | -296.26 | 592.36 | 662.31 | 534.84 | 5.20 | |
| 4100.00 | 4100.00 | 4081.00 | 4081.00 | 9.08 | 121.66 | 116.57 | -296.26 | 592.36 | 662.31 | 531.58 | 5.07 | |
| 4200.00 | 4200.00 | 4181.00 | 4181.00 | 9.31 | 124.69 | 116.57 | -296.26 | 592.36 | 662.31 | 528.32 | 4.94 | |
| 4300.00 | 4300.00 | 4281.00 | 4281.00 | 9.53 | 127.73 | 116.57 | -296.26 | 592.36 | 662.31 | 525.05 | 4.83 | |
| 4400.00 | 4400.00 | 4381.00 | 4381.00 | 9.75 | 130.77 | 116.57 | -296.26 | 592.36 | 662.31 | 521.79 | 4.71 | |
| 4500.00 | 4500.00 | 4481.00 | 4481.00 | 9.98 | 133.80 | 116.57 | -296.26 | 592.36 | 662.31 | 518.53 | 4.61 | |
| 4600.00 | 4600.00 | 4581.00 | 4581.00 | 10.20 | 136.84 | 116.57 | -296.26 | 592.36 | 662.31 | 515.27 | 4.50 | |
| 4700.00 | 4700.00 | 4681.00 | 4681.00 | 10.43 | 139.88 | 116.57 | -296.26 | 592.36 | 662.31 | 512.01 | 4.41 | |
| 4800.00 | 4800.00 | 4781.00 | 4781.00 | 10.65 | 142.92 | 116.57 | -296.26 | 592.36 | 662.31 | 508.75 | 4.31 | |
| 4900.00 | 4900.00 | 4881.00 | 4881.00 | 10.88 | 145.95 | 116.57 | -296.26 | 592.36 | 662.31 | 505.48 | 4.22 | |
| 5000.00 | 5000.00 | 4981.00 | 4981.00 | 11.10 | 148.99 | 116.57 | -296.26 | 592.36 | 662.31 | 502.22 | 4.14 | |
| 5100.00 | 5100.00 | 5081.00 | 5081.00 | 11.33 | 152.03 | 116.57 | -296.26 | 592.36 | 662.31 | 498.96 | 4.05 | |
| 5200.00 | 5200.00 | 5181.00 | 5181.00 | 11.55 | 155.06 | 116.57 | -296.26 | 592.36 | 662.31 | 495.70 | 3.98 | |
| 5300.00 | 5300.00 | 5281.00 | 5281.00 | 11.78 | 158.10 | 116.57 | -296.26 | 592.36 | 662.31 | 492.44 | 3.90 | |
| 5400.00 | 5400.00 | 5381.00 | 5381.00 | 12.00 | 161.14 | 116.57 | -296.26 | 592.36 | 662.31 | 489.18 | 3.83 | |
| 5500.00 | 5500.00 | 5481.00 | 5481.00 | 12.23 | 164.17 | 116.57 | -296.26 | 592.36 | 662.31 | 485.91 | 3.75 | |
| 5600.00 | 5600.00 | 5581.00 | 5581.00 | 12.45 | 167.21 | 116.57 | -296.26 | 592.36 | 662.31 | 482.65 | 3.69 | |
| 5700.00 | 5700.00 | 5681.00 | 5681.00 | 12.68 | 170.25 | 116.57 | -296.26 | 592.36 | 662.31 | 479.39 | 3.62 | |
| 5800.00 | 5800.00 | 5781.00 | 5781.00 | 12.90 | 173.28 | 116.57 | -296.26 | 592.36 | 662.31 | 476.13 | 3.56 | |
| 5900.00 | 5900.00 | 5881.00 | 5881.00 | 13.13 | 176.32 | 116.57 | -296.26 | 592.36 | 662.31 | 472.87 | 3.50 | |
| 6000.00 | 6000.00 | 5981.00 | 5981.00 | 13.35 | 179.36 | 116.57 | -296.26 | 592.36 | 662.31 | 469.61 | 3.44 | |
| 6100.00 | 6100.00 | 6081.00 | 6081.00 | 13.58 | 182.39 | 116.57 | -296.26 | 592.36 | 662.31 | 466.34 | 3.38 | |
| 6200.00 | 6200.00 | 6181.00 | 6181.00 | 13.80 | 185.43 | 116.57 | -296.26 | 592.36 | 662.31 | 463.08 | 3.32 | |
| 6300.00 | 6300.00 | 6281.00 | 6281.00 | 14.03 | 188.47 | 116.57 | -296.26 | 592.36 | 662.31 | 459.82 | 3.27 | |
| 6400.00 | 6400.00 | 6381.00 | 6381.00 | 14.25 | 191.51 | 116.57 | -296.26 | 592.36 | 662.31 | 456.56 | 3.22 | |
| 6500.00 | 6500.00 | 6481.00 | 6481.00 | 14.47 | 194.54 | 116.57 | -296.26 | 592.36 | 662.31 | 453.30 | 3.17 | |
| 6600.00 | 6600.00 | 6581.00 | 6581.00 | 14.70 | 197.58 | 116.57 | -296.26 | 592.36 | 662.31 | 450.04 | 3.12 | |
| 6700.00 | 6700.00 | 6681.00 | 6681.00 | 14.92 | 200.62 | 116.57 | -296.26 | 592.36 | 662.31 | 446.77 | 3.07 | |
| 6800.00 | 6800.00 | 6781.00 | 6781.00 | 15.15 | 203.65 | 116.57 | -296.26 | 592.36 | 662.31 | 443.51 | 3.03 | |
| 6900.00 | 6900.00 | 6881.00 | 6881.00 | 15.37 | 206.69 | 116.57 | -296.26 | 592.36 | 662.31 | 440.25 | 2.98 | |
| 7000.00 | 7000.00 | 6981.00 | 6981.00 | 15.60 | 209.73 | 116.57 | -296.26 | 592.36 | 662.31 | 436.99 | 2.94 | |
| 7100.00 | 7100.00 | 7081.00 | 7081.00 | 15.82 | 212.76 | 116.57 | -296.26 | 592.36 | 662.31 | 433.73 | 2.90 | |
| 7200.00 | 7200.00 | 7181.00 | 7181.00 | 16.05 | 215.80 | 116.57 | -296.26 | 592.36 | 662.31 | 430.47 | 2.86 | |
| 7300.00 | 7300.00 | 7281.00 | 7281.00 | 16.27 | 218.84 | 116.57 | -296.26 | 592.36 | 662.31 | 427.20 | 2.82 | |
| 7400.00 | 7400.00 | 7381.00 | 7381.00 | 16.50 | 221.87 | 116.57 | -296.26 | 592.36 | 662.31 | 423.94 | 2.78 | |
| 7500.00 | 7500.00 | 7481.00 | 7481.00 | 16.72 | 224.91 | 116.57 | -296.26 | 592.36 | 662.31 | 420.68 | 2.74 | |
| 7542.39 | 7542.39 | 7523.39 | 7523.39 | 16.82 | 226.20 | 116.57 | -296.26 | 592.36 | 662.31 | 419.30 | 2.73 | |
| 7550.00 | 7550.00 | 7531.00 | 7531.00 | 16.83 | 226.43 | 29.58 | -296.26 | 592.36 | 662.26 | 419.00 | 2.72 | |
| 7575.00 | 7574.97 | 7555.97 | 7555.97 | 16.88 | 227.19 | 29.68 | -296.26 | 592.36 | 661.35 | 417.30 | 2.71 | |
| 7600.00 | 7599.86 | 7580.86 | 7580.86 | 16.93 | 227.94 | 29.90 | -296.26 | 592.36 | 659.30 | 414.49 | 2.69 | |
| 7625.00 | 7624.59 | 7605.59 | 7605.59 | 16.98 | 228.69 | 30.25 | -296.26 | 592.36 | 656.12 | 410.59 | 2.67 | |
| 7650.00 | 7649.09 | 7630.09 | 7630.09 | 17.04 | 229.44 | 30.74 | -296.26 | 592.36 | 651.84 | 405.60 | 2.65 | |
| 7675.00 | 7673.30 | 7654.30 | 7654.30 | 17.09 | 230.17 | 31.36 | -296.26 | 592.36 | 646.46 | 399.56 | 2.62 | |
| 7700.00 | 7697.15 | 7678.15 | 7678.15 | 17.14 | 230.90 | 32.12 | -296.26 | 592.36 | 640.02 | 392.48 | 2.59 | |
| 7717.39 | 7713.50 | 7694.50 | 7694.50 | 17.18 | 231.39 | 32.75 | -296.26 | 592.36 | 634.93 | 386.95 | 2.56 | |
| 7725.00 | 7720.58 | 7701.58 | 7701.58 | 17.20 | 231.61 | 32.92 | -296.26 | 592.36 | 632.54 | 384.38 | 2.55 | |
| 7750.00 | 7743.52 | 7724.52 | 7724.52 | 17.26 | 232.31 | 33.63 | -296.26 | 592.36 | 624.03 | 375.29 | 2.51 | |
| 7775.00 | 7765.91 | 7746.91 | 7746.91 | 17.32 | 232.99 | 34.58 | -296.26 | 592.36 | 614.52 | 365.22 | 2.46 | |

# Weatherford
## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 **Time:** 14:45:10 | **Page:** 3 |
| **Field:** | Eddy Co., NM (NAD 83) | | |
| **Reference Site:** | Sirius 17 Fed Com 7H | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North |
| **Reference Well:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 |
| **Reference Wellpath:** | | | **Db:** Sybase |

**Site:** Exist. Ranger 17 Fed 1H
**Well:** Exist. Ranger 17 Fed 1H
**Wellpath:** 1 V0 **Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Separation Distance ft | Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800.00 | 7787.69 | 7768.69 | 7768.69 | 17.38 | 233.65 | 35.77 | -296.26 | 592.36 | 604.06 | 354.22 | 2.42 | |
| 7825.00 | 7808.79 | 7789.79 | 7789.79 | 17.46 | 234.29 | 37.20 | -296.26 | 592.36 | 592.69 | 342.32 | 2.37 | |
| 7850.00 | 7829.17 | 7810.17 | 7810.17 | 17.53 | 234.91 | 38.87 | -296.26 | 592.36 | 580.48 | 329.57 | 2.31 | |
| 7875.00 | 7848.76 | 7829.76 | 7829.76 | 17.62 | 235.50 | 40.79 | -296.26 | 592.36 | 567.48 | 316.03 | 2.26 | |
| 7900.00 | 7867.51 | 7848.51 | 7848.51 | 17.71 | 236.07 | 42.98 | -296.26 | 592.36 | 553.76 | 301.75 | 2.20 | |
| 7925.00 | 7885.37 | 7866.37 | 7866.37 | 17.82 | 236.61 | 45.44 | -296.26 | 592.36 | 539.40 | 286.80 | 2.14 | |
| 7950.00 | 7902.29 | 7883.29 | 7883.29 | 17.94 | 237.13 | 48.18 | -296.26 | 592.36 | 524.47 | 271.25 | 2.07 | |
| 7975.00 | 7918.22 | 7899.22 | 7899.22 | 18.07 | 237.61 | 51.19 | -296.26 | 592.36 | 509.07 | 255.17 | 2.01 | |
| 8000.00 | 7933.13 | 7914.13 | 7914.13 | 18.22 | 238.06 | 54.45 | -296.26 | 592.36 | 493.29 | 238.68 | 1.94 | |
| 8025.00 | 7946.97 | 7927.97 | 7927.97 | 18.38 | 238.48 | 57.94 | -296.26 | 592.36 | 477.24 | 221.88 | 1.87 | |
| 8050.00 | 7959.69 | 7940.69 | 7940.69 | 18.57 | 238.87 | 61.59 | -296.26 | 592.36 | 461.04 | 204.90 | 1.80 | |
| 8075.00 | 7971.28 | 7952.28 | 7952.28 | 18.77 | 239.22 | 65.35 | -296.26 | 592.36 | 444.80 | 187.88 | 1.73 | |
| 8100.00 | 7981.69 | 7962.69 | 7962.69 | 18.99 | 239.54 | 69.14 | -296.26 | 592.36 | 428.68 | 170.97 | 1.66 | |
| 8125.00 | 7990.89 | 7971.89 | 7971.89 | 19.23 | 239.82 | 72.85 | -296.26 | 592.36 | 412.82 | 154.36 | 1.60 | |
| 8150.00 | 7998.87 | 7979.87 | 7979.87 | 19.49 | 240.06 | 76.40 | -296.26 | 592.36 | 397.37 | 138.22 | 1.53 | |
| 8175.00 | 8005.59 | 7986.59 | 7986.59 | 19.78 | 240.27 | 79.70 | -296.26 | 592.36 | 382.53 | 122.73 | 1.47 | Level 3 |
| 8200.00 | 8011.05 | 7992.05 | 7992.05 | 20.08 | 240.43 | 82.67 | -296.26 | 592.36 | 368.45 | 108.08 | 1.42 | Level 3 |
| 8225.00 | 8015.22 | 7996.22 | 7996.22 | 20.40 | 240.56 | 85.25 | -296.26 | 592.36 | 355.35 | 94.46 | 1.36 | Level 3 |
| 8250.00 | 8018.10 | 7999.10 | 7999.10 | 20.74 | 240.64 | 87.41 | -296.26 | 592.36 | 343.41 | 82.05 | 1.31 | Level 3 |
| 8275.00 | 8019.68 | 8000.68 | 8000.68 | 21.09 | 240.69 | 89.10 | -296.26 | 592.36 | 332.84 | 71.06 | 1.27 | Level 3 |
| 8291.52 | 8020.00 | 8001.00 | 8001.00 | 21.33 | 240.70 | 89.95 | -296.26 | 592.36 | 326.68 | 64.65 | 1.25 | Level 2 |
| 8300.00 | 8020.02 | 8001.02 | 8001.02 | 21.45 | 240.70 | 89.95 | -296.26 | 592.36 | 323.80 | 61.65 | 1.24 | Level 2 |
| 8400.00 | 8020.25 | 8001.25 | 8001.25 | 23.06 | 240.71 | 90.00 | -296.26 | 592.36 | 305.94 | 42.17 | 1.16 | Level 2 |
| 8500.00 | 8020.48 | 8001.48 | 8001.48 | 24.88 | 240.72 | 90.04 | -296.26 | 592.36 | 319.92 | 54.33 | 1.20 | Level 2 |
| 8600.00 | 8020.70 | 8001.70 | 8001.70 | 26.85 | 240.72 | 90.08 | -296.26 | 592.36 | 362.08 | 94.51 | 1.35 | Level 3 |
| 8700.00 | 8020.93 | 8001.93 | 8001.93 | 28.95 | 240.73 | 90.13 | -296.26 | 592.36 | 424.09 | 154.41 | 1.57 | |
| 8800.00 | 8021.16 | 8002.16 | 8002.16 | 31.15 | 240.74 | 90.17 | -296.26 | 592.36 | 498.60 | 226.71 | 1.83 | |
| 8900.00 | 8021.39 | 8002.39 | 8002.39 | 33.44 | 240.74 | 90.21 | -296.26 | 592.36 | 580.83 | 306.64 | 2.12 | |
| 9000.00 | 8021.61 | 8002.61 | 8002.61 | 35.79 | 240.75 | 90.25 | -296.26 | 592.36 | 667.91 | 391.37 | 2.42 | |
| 9100.00 | 8021.84 | 8002.84 | 8002.84 | 38.20 | 240.76 | 90.30 | -296.26 | 592.36 | 758.20 | 479.24 | 2.72 | |
| 9200.00 | 8022.07 | 8003.07 | 8003.07 | 40.65 | 240.77 | 90.34 | -296.26 | 592.36 | 850.65 | 569.24 | 3.02 | |
| 9300.00 | 8022.30 | 8003.30 | 8003.30 | 43.13 | 240.77 | 90.38 | -296.26 | 592.36 | 944.65 | 660.75 | 3.33 | |
| 9400.00 | 8022.52 | 8003.52 | 8003.52 | 45.65 | 240.78 | 90.42 | -296.26 | 592.36 | 1039.77 | 753.34 | 3.63 | |
| 9500.00 | 8022.75 | 8003.75 | 8003.75 | 48.19 | 240.79 | 90.47 | -296.26 | 592.36 | 1135.72 | 846.74 | 3.93 | |
| 9600.00 | 8022.98 | 8003.98 | 8003.98 | 50.76 | 240.79 | 90.51 | -296.26 | 592.36 | 1232.32 | 940.77 | 4.23 | |
| 9700.00 | 8023.21 | 8004.21 | 8004.21 | 53.34 | 240.80 | 90.55 | -296.26 | 592.36 | 1329.42 | 1035.28 | 4.52 | |
| 9800.00 | 8023.44 | 8004.44 | 8004.44 | 55.95 | 240.81 | 90.59 | -296.26 | 592.36 | 1426.93 | 1130.17 | 4.81 | |
| 9900.00 | 8023.66 | 8004.66 | 8004.66 | 58.56 | 240.81 | 90.64 | -296.26 | 592.36 | 1524.75 | 1225.38 | 5.09 | |
| 10000.00 | 8023.89 | 8004.89 | 8004.89 | 61.19 | 240.82 | 90.68 | -296.26 | 592.36 | 1622.84 | 1320.84 | 5.37 | |
| 10100.00 | 8024.12 | 8005.12 | 8005.12 | 63.83 | 240.83 | 90.72 | -296.26 | 592.36 | 1721.15 | 1416.50 | 5.65 | |
| 10200.00 | 8024.35 | 8005.35 | 8005.35 | 66.47 | 240.83 | 90.76 | -296.26 | 592.36 | 1819.65 | 1512.34 | 5.92 | |
| 10300.00 | 8024.57 | 8005.57 | 8005.57 | 69.13 | 240.84 | 90.81 | -296.26 | 592.36 | 1918.30 | 1608.33 | 6.19 | |
| 10400.00 | 8024.80 | 8005.80 | 8005.80 | 71.79 | 240.85 | 90.85 | -296.26 | 592.36 | 2017.08 | 1704.44 | 6.45 | |
| 10500.00 | 8025.03 | 8006.03 | 8006.03 | 74.47 | 240.86 | 90.89 | -296.26 | 592.36 | 2115.98 | 1800.67 | 6.71 | |
| 10600.00 | 8025.26 | 8006.26 | 8006.26 | 77.14 | 240.86 | 90.94 | -296.26 | 592.36 | 2214.98 | 1896.98 | 6.97 | |
| 10700.00 | 8025.48 | 8006.48 | 8006.48 | 79.82 | 240.87 | 90.98 | -296.26 | 592.36 | 2314.06 | 1993.37 | 7.22 | |
| 10800.00 | 8025.71 | 8006.71 | 8006.71 | 82.51 | 240.88 | 91.02 | -296.26 | 592.36 | 2413.22 | 2089.84 | 7.46 | |
| 10900.00 | 8025.94 | 8006.94 | 8006.94 | 85.20 | 240.88 | 91.06 | -296.26 | 592.36 | 2512.44 | 2186.37 | 7.71 | |
| 11000.00 | 8026.17 | 8007.17 | 8007.17 | 87.90 | 240.89 | 91.11 | -296.26 | 592.36 | 2611.73 | 2282.95 | 7.94 | |
| 11100.00 | 8026.40 | 8007.40 | 8007.40 | 90.59 | 240.90 | 91.15 | -296.26 | 592.36 | 2711.06 | 2379.59 | 8.18 | |
| 11200.00 | 8026.62 | 8007.62 | 8007.62 | 93.30 | 240.90 | 91.19 | -296.26 | 592.36 | 2810.45 | 2476.26 | 8.41 | |

# Weatherford
## Anticollision Report

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 | **Time:** 14:45:10 | **Page:** | 4 |
| **Field:** | Eddy Co., NM (NAD 83) | | | | |
| **Reference Site:** | Sirius 17 Fed Com 7H | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North | | |
| **Reference Well:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 | | |
| **Reference Wellpath:** | | | | **Db:** | Sybase |

**Site:** Exist. Ranger 17 Fed 1H
**Well:** Exist. Ranger 17 Fed 1H
**Wellpath:** 1 V0 **Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11300.00 | 8026.85 | 8007.85 | 8007.85 | 96.00 | 240.91 | 91.23 | -296.26 | 592.36 | 2909.87 | 2572.98 | 8.64 | |
| 11400.00 | 8027.08 | 8008.08 | 8008.08 | 98.71 | 240.92 | 91.28 | -296.26 | 592.36 | 3009.34 | 2669.73 | 8.86 | |
| 11500.00 | 8027.31 | 8008.31 | 8008.31 | 101.42 | 240.92 | 91.32 | -296.26 | 592.36 | 3108.84 | 2766.51 | 9.08 | |
| 11600.00 | 8027.53 | 8008.53 | 8008.53 | 104.13 | 240.93 | 91.36 | -296.26 | 592.36 | 3208.37 | 2863.32 | 9.30 | |
| 11700.00 | 8027.76 | 8008.76 | 8008.76 | 106.85 | 240.94 | 91.40 | -296.26 | 592.36 | 3307.92 | 2960.16 | 9.51 | |
| 11800.00 | 8027.99 | 8008.99 | 8008.99 | 109.56 | 240.95 | 91.45 | -296.26 | 592.36 | 3407.51 | 3057.03 | 9.72 | |
| 11900.00 | 8028.22 | 8009.22 | 8009.22 | 112.28 | 240.95 | 91.49 | -296.26 | 592.36 | 3507.11 | 3153.91 | 9.93 | |
| 12000.00 | 8028.44 | 8009.44 | 8009.44 | 115.00 | 240.96 | 91.53 | -296.26 | 592.36 | 3606.74 | 3250.81 | 10.13 | |
| 12100.00 | 8028.67 | 8009.67 | 8009.67 | 117.73 | 240.97 | 91.57 | -296.26 | 592.36 | 3706.39 | 3347.74 | 10.33 | |
| 12200.00 | 8028.90 | 8009.90 | 8009.90 | 120.45 | 240.97 | 91.62 | -296.26 | 592.36 | 3806.06 | 3444.68 | 10.53 | |
| 12300.00 | 8029.13 | 8010.13 | 8010.13 | 123.17 | 240.98 | 91.66 | -296.26 | 592.36 | 3905.75 | 3541.63 | 10.73 | |
| 12400.00 | 8029.36 | 8010.36 | 8010.36 | 125.90 | 240.99 | 91.70 | -296.26 | 592.36 | 4005.45 | 3638.60 | 10.92 | |

**Site:** Sirius 17 Fed Com #3H
**Well:** Sirius 17 Fed Com #3H
**Wellpath:** 1 V0 **Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100.00 | 100.00 | 99.10 | 99.10 | 0.09 | 0.10 | 112.09 | -108.37 | 267.05 | 288.20 | 288.01 | 1528.50 | |
| 200.00 | 200.00 | 199.06 | 199.06 | 0.31 | 0.33 | 112.10 | -108.55 | 267.32 | 288.52 | 287.88 | 450.20 | |
| 300.00 | 300.00 | 299.21 | 299.21 | 0.54 | 0.57 | 112.14 | -108.87 | 267.52 | 288.83 | 287.71 | 259.73 | |
| 400.00 | 400.00 | 400.13 | 400.13 | 0.76 | 0.79 | 112.22 | -109.28 | 267.48 | 288.94 | 287.39 | 185.97 | |
| 500.00 | 500.00 | 501.69 | 501.68 | 0.99 | 0.98 | 112.49 | -110.41 | 266.66 | 288.62 | 286.66 | 146.57 | |
| 600.00 | 600.00 | 602.49 | 602.45 | 1.21 | 1.18 | 112.88 | -111.95 | 265.23 | 287.90 | 285.51 | 120.10 | |
| 700.00 | 700.00 | 702.00 | 701.95 | 1.44 | 1.40 | 113.26 | -113.38 | 263.80 | 287.14 | 284.30 | 101.07 | |
| 800.00 | 800.00 | 801.32 | 801.25 | 1.66 | 1.64 | 113.57 | -114.60 | 262.67 | 286.58 | 283.28 | 86.83 | |
| 900.00 | 900.00 | 901.11 | 901.03 | 1.89 | 1.88 | 113.80 | -115.51 | 261.84 | 286.18 | 282.42 | 75.93 | |
| 1000.00 | 1000.00 | 1000.48 | 1000.40 | 2.11 | 2.13 | 113.98 | -116.21 | 261.25 | 285.94 | 281.69 | 67.36 | |
| 1100.00 | 1100.00 | 1100.35 | 1100.26 | 2.34 | 2.39 | 114.13 | -116.83 | 260.85 | 285.82 | 281.09 | 60.46 | |
| 1200.00 | 1200.00 | 1199.66 | 1199.58 | 2.56 | 2.57 | 114.19 | -117.14 | 260.74 | 285.85 | 280.71 | 55.71 | |
| 1300.00 | 1300.00 | 1297.57 | 1297.48 | 2.79 | 2.65 | 114.04 | -116.63 | 261.52 | 286.36 | 280.92 | 52.68 | |
| 1400.00 | 1400.00 | 1396.44 | 1396.32 | 3.01 | 2.71 | 113.64 | -115.26 | 263.29 | 287.44 | 281.71 | 50.19 | |
| 1500.00 | 1500.00 | 1495.11 | 1494.94 | 3.24 | 2.80 | 113.13 | -113.50 | 265.68 | 288.95 | 282.91 | 47.83 | |
| 1600.00 | 1600.00 | 1594.92 | 1594.70 | 3.46 | 2.92 | 112.56 | -111.54 | 268.45 | 290.75 | 284.37 | 45.58 | |
| 1700.00 | 1700.00 | 1694.80 | 1694.52 | 3.69 | 3.05 | 111.97 | -109.46 | 271.30 | 292.60 | 285.86 | 43.45 | |
| 1800.00 | 1800.00 | 1794.67 | 1794.32 | 3.91 | 3.20 | 111.40 | -107.41 | 274.15 | 294.50 | 287.39 | 41.43 | |
| 1900.00 | 1900.00 | 1895.97 | 1895.57 | 4.14 | 3.36 | 110.80 | -105.18 | 276.88 | 296.22 | 288.73 | 39.53 | |
| 2000.00 | 2000.00 | 1996.41 | 1995.95 | 4.36 | 3.53 | 110.19 | -102.70 | 279.34 | 297.64 | 289.76 | 37.74 | |
| 2100.00 | 2100.00 | 2097.54 | 2097.02 | 4.59 | 3.70 | 109.59 | -100.18 | 281.52 | 298.83 | 290.54 | 36.06 | |
| 2200.00 | 2200.00 | 2198.85 | 2198.29 | 4.81 | 3.88 | 109.01 | -97.62 | 283.26 | 299.61 | 290.92 | 34.46 | |
| 2300.00 | 2300.00 | 2298.98 | 2298.36 | 5.03 | 4.07 | 108.43 | -94.91 | 284.76 | 300.17 | 291.07 | 32.97 | |
| 2400.00 | 2400.00 | 2398.61 | 2397.95 | 5.26 | 4.26 | 107.86 | -92.24 | 286.28 | 300.78 | 291.26 | 31.59 | |
| 2500.00 | 2500.00 | 2498.32 | 2497.60 | 5.48 | 4.46 | 107.29 | -89.59 | 287.89 | 301.52 | 291.57 | 30.31 | |
| 2600.00 | 2600.00 | 2597.47 | 2596.71 | 5.71 | 4.67 | 106.71 | -86.97 | 289.67 | 302.46 | 292.08 | 29.14 | |
| 2700.00 | 2700.00 | 2698.34 | 2697.53 | 5.93 | 4.89 | 106.15 | -84.42 | 291.43 | 303.42 | 292.59 | 28.03 | |
| 2800.00 | 2800.00 | 2798.29 | 2797.45 | 6.16 | 5.11 | 105.67 | -82.19 | 292.92 | 304.24 | 292.97 | 27.00 | |
| 2900.00 | 2900.00 | 2899.24 | 2898.38 | 6.38 | 5.34 | 105.31 | -80.53 | 294.10 | 304.93 | 293.21 | 26.02 | |
| 3000.00 | 3000.00 | 2998.80 | 2997.92 | 6.61 | 5.57 | 105.05 | -79.35 | 295.05 | 305.54 | 293.36 | 25.09 | |
| 3100.00 | 3100.00 | 3099.09 | 3098.20 | 6.83 | 5.81 | 104.81 | -78.28 | 295.99 | 306.17 | 293.54 | 24.23 | |
| 3200.00 | 3200.00 | 3199.27 | 3198.37 | 7.06 | 6.04 | 104.55 | -77.05 | 296.89 | 306.73 | 293.64 | 23.42 | |
| 3300.00 | 3300.00 | 3298.59 | 3297.67 | 7.28 | 6.28 | 104.25 | -75.64 | 297.92 | 307.38 | 293.82 | 22.67 | |

# Weatherford
## Anticollision Report

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 | **Time:** 14:45:10 | **Page:** | 5 |
| **Field:** | Eddy Co., NM (NAD 83) | | | | |
| **Reference Site:** | Sirius 17 Fed Com 7H | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North | | |
| **Reference Well:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 | | |
| **Reference Wellpath:** | | | | **Db:** | Sybase |

**Site:** Sirius 17 Fed Com #3H
**Well:** Sirius 17 Fed Com #3H
**Wellpath:** 1 V0 **Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3400.00 | 3400.00 | 3398.99 | 3398.06 | 7.51 | 6.52 | 103.93 | -74.17 | 299.00 | 308.07 | 294.05 | 21.97 | |
| 3500.00 | 3500.00 | 3500.48 | 3499.54 | 7.73 | 6.76 | 103.61 | -72.60 | 299.80 | 308.46 | 293.98 | 21.29 | |
| 3600.00 | 3600.00 | 3600.92 | 3599.97 | 7.96 | 6.99 | 103.36 | -71.31 | 300.19 | 308.54 | 293.60 | 20.65 | |
| 3700.00 | 3700.00 | 3700.98 | 3700.02 | 8.18 | 7.22 | 103.16 | -70.24 | 300.44 | 308.55 | 293.15 | 20.04 | |
| 3800.00 | 3800.00 | 3800.29 | 3799.32 | 8.41 | 7.45 | 102.98 | -69.32 | 300.77 | 308.65 | 292.80 | 19.47 | |
| 3900.00 | 3900.00 | 3900.70 | 3899.72 | 8.63 | 7.69 | 102.77 | -68.27 | 301.16 | 308.81 | 292.49 | 18.92 | |
| 4000.00 | 4000.00 | 4000.88 | 3999.90 | 8.86 | 7.93 | 102.53 | -66.99 | 301.51 | 308.87 | 292.09 | 18.41 | |
| 4100.00 | 4100.00 | 4099.98 | 4098.99 | 9.08 | 8.17 | 102.27 | -65.65 | 301.99 | 309.05 | 291.80 | 17.92 | |
| 4200.00 | 4200.00 | 4199.62 | 4198.61 | 9.31 | 8.41 | 101.96 | -64.12 | 302.71 | 309.43 | 291.72 | 17.47 | |
| 4300.00 | 4300.00 | 4299.02 | 4298.00 | 9.53 | 8.66 | 101.64 | -62.52 | 303.60 | 309.98 | 291.79 | 17.04 | |
| 4400.00 | 4400.00 | 4398.97 | 4397.94 | 9.75 | 8.91 | 101.35 | -61.15 | 304.55 | 310.64 | 291.97 | 16.64 | |
| 4500.00 | 4500.00 | 4498.30 | 4497.25 | 9.98 | 9.17 | 101.14 | -60.18 | 305.53 | 311.41 | 292.27 | 16.27 | |
| 4600.00 | 4600.00 | 4598.83 | 4597.77 | 10.20 | 9.41 | 101.03 | -59.71 | 306.44 | 312.21 | 292.60 | 15.92 | |
| 4700.00 | 4700.00 | 4698.75 | 4697.70 | 10.43 | 9.64 | 100.99 | -59.63 | 307.19 | 312.93 | 292.87 | 15.60 | |
| 4800.00 | 4800.00 | 4800.29 | 4799.23 | 10.65 | 9.88 | 100.95 | -59.52 | 307.72 | 313.43 | 292.90 | 15.26 | |
| 4900.00 | 4900.00 | 4900.86 | 4899.81 | 10.88 | 10.14 | 100.90 | -59.32 | 307.92 | 313.58 | 292.57 | 14.92 | |
| 5000.00 | 5000.00 | 4999.38 | 4998.32 | 11.10 | 10.38 | 100.87 | -59.19 | 308.24 | 313.88 | 292.40 | 14.61 | |
| 5100.00 | 5100.00 | 5100.37 | 5099.31 | 11.33 | 10.61 | 100.85 | -59.13 | 308.64 | 314.26 | 292.32 | 14.32 | |
| 5200.00 | 5200.00 | 5200.06 | 5199.00 | 11.55 | 10.82 | 100.85 | -59.20 | 308.90 | 314.52 | 292.15 | 14.06 | |
| 5300.00 | 5300.00 | 5300.49 | 5299.43 | 11.78 | 10.96 | 100.90 | -59.52 | 309.09 | 314.77 | 292.04 | 13.85 | |
| 5400.00 | 5400.00 | 5400.36 | 5399.30 | 12.00 | 11.04 | 101.04 | -60.34 | 309.14 | 314.98 | 291.93 | 13.67 | |
| 5500.00 | 5500.00 | 5503.09 | 5502.01 | 12.23 | 11.11 | 101.29 | -61.64 | 308.65 | 314.76 | 291.42 | 13.49 | |
| 5600.00 | 5600.00 | 5603.37 | 5602.29 | 12.45 | 11.16 | 101.56 | -62.95 | 307.69 | 314.08 | 290.47 | 13.30 | |
| 5700.00 | 5700.00 | 5704.32 | 5703.22 | 12.68 | 11.22 | 101.78 | -63.93 | 306.58 | 313.19 | 289.30 | 13.11 | |
| 5800.00 | 5800.00 | 5804.48 | 5803.37 | 12.90 | 11.28 | 101.94 | -64.59 | 305.37 | 312.15 | 287.97 | 12.91 | |
| 5900.00 | 5900.00 | 5905.62 | 5904.50 | 13.13 | 11.35 | 102.08 | -65.07 | 303.96 | 310.88 | 286.40 | 12.70 | |
| 6000.00 | 6000.00 | 6006.01 | 6004.88 | 13.35 | 11.43 | 102.19 | -65.32 | 302.35 | 309.36 | 284.58 | 12.48 | |
| 6100.00 | 6100.00 | 6106.26 | 6105.12 | 13.58 | 11.53 | 102.27 | -65.42 | 300.67 | 307.75 | 282.65 | 12.26 | |
| 6200.00 | 6200.00 | 6206.86 | 6205.69 | 13.80 | 11.63 | 102.34 | -65.39 | 298.87 | 306.00 | 280.57 | 12.04 | |
| 6300.00 | 6300.00 | 6308.24 | 6307.06 | 14.03 | 11.74 | 102.37 | -65.09 | 296.76 | 303.89 | 278.13 | 11.80 | |
| 6400.00 | 6400.00 | 6408.76 | 6407.55 | 14.25 | 11.87 | 102.35 | -64.45 | 294.38 | 301.45 | 275.33 | 11.54 | |
| 6500.00 | 6500.00 | 6507.20 | 6505.96 | 14.47 | 12.00 | 102.28 | -63.62 | 292.31 | 299.21 | 272.73 | 11.30 | |
| 6600.00 | 6600.00 | 6606.45 | 6605.19 | 14.70 | 12.15 | 102.18 | -62.71 | 290.61 | 297.35 | 270.50 | 11.07 | |
| 6700.00 | 6700.00 | 6706.27 | 6704.99 | 14.92 | 12.31 | 102.08 | -61.86 | 289.03 | 295.62 | 268.39 | 10.86 | |
| 6800.00 | 6800.00 | 6805.09 | 6803.80 | 15.15 | 12.46 | 102.02 | -61.25 | 287.63 | 294.11 | 266.50 | 10.65 | |
| 6900.00 | 6900.00 | 6901.09 | 6899.80 | 15.37 | 12.63 | 102.00 | -61.04 | 287.08 | 293.49 | 265.49 | 10.48 | |
| 7000.00 | 7000.00 | 6997.15 | 6995.86 | 15.60 | 12.82 | 101.98 | -61.07 | 287.79 | 294.23 | 265.82 | 10.35 | |
| 7100.00 | 7100.00 | 7093.60 | 7092.28 | 15.82 | 13.01 | 101.87 | -60.90 | 289.81 | 296.24 | 267.40 | 10.27 | |
| 7200.00 | 7200.00 | 7195.32 | 7193.97 | 16.05 | 13.24 | 101.65 | -60.29 | 292.40 | 298.61 | 269.33 | 10.20 | |
| 7300.00 | 7300.00 | 7298.33 | 7296.96 | 16.27 | 13.47 | 101.45 | -59.56 | 294.15 | 300.13 | 270.39 | 10.09 | |
| 7400.00 | 7400.00 | 7401.40 | 7400.03 | 16.50 | 13.70 | 101.31 | -58.95 | 294.80 | 300.63 | 270.43 | 9.95 | |
| 7500.00 | 7500.00 | 7503.29 | 7501.92 | 16.72 | 13.88 | 101.25 | -58.61 | 294.53 | 300.31 | 269.71 | 9.81 | |
| 7542.39 | 7542.39 | 7546.79 | 7545.42 | 16.82 | 13.94 | 101.25 | -58.54 | 294.18 | 299.96 | 269.21 | 9.75 | |
| 7550.00 | 7550.00 | 7554.60 | 7553.22 | 16.83 | 13.95 | 14.26 | -58.53 | 294.10 | 299.83 | 269.04 | 9.74 | |
| 7575.00 | 7574.97 | 7580.21 | 7578.84 | 16.88 | 13.99 | 14.36 | -58.48 | 293.80 | 298.51 | 267.67 | 9.68 | |
| 7600.00 | 7599.86 | 7605.57 | 7604.19 | 16.93 | 14.02 | 14.56 | -58.44 | 293.45 | 295.88 | 265.02 | 9.59 | |
| 7625.00 | 7624.59 | 7630.27 | 7628.89 | 16.98 | 14.05 | 14.86 | -58.40 | 293.08 | 291.97 | 261.12 | 9.46 | |
| 7650.00 | 7649.09 | 7654.73 | 7653.34 | 17.04 | 14.08 | 15.30 | -58.39 | 292.72 | 286.83 | 256.02 | 9.31 | |
| 7675.00 | 7673.30 | 7678.87 | 7677.48 | 17.09 | 14.11 | 15.86 | -58.39 | 292.35 | 280.46 | 249.72 | 9.12 | |
| 7700.00 | 7697.15 | 7702.59 | 7701.20 | 17.14 | 14.14 | 16.58 | -58.40 | 291.99 | 272.90 | 242.25 | 8.90 | |
| 7717.39 | 7713.50 | 7718.63 | 7717.23 | 17.18 | 14.16 | 17.17 | -58.42 | 291.74 | 266.95 | 236.39 | 8.73 | |

devon

# Weatherford
## Anticollision Report

Weatherford

| | | | |
|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 **Time:** 14:45:10 | **Page:** 6 |
| **Field:** | Eddy Co., NM (NAD 83) | | |
| **Reference Site:** | Sirius 17 Fed Com 7H | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North |
| **Reference Well:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 |
| **Reference Wellpath:** | | | **Db:** Sybase |

**Site:** Sirius 17 Fed Com #3H
**Well:** Sirius 17 Fed Com #3H
**Wellpath:** 1 V0

**Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7725.00 | 7720.58 | 7725.58 | 7724.18 | 17.20 | 14.17 | 17.33 | -58.43 | 291.64 | 264.18 | 233.66 | 8.66 | |
| 7750.00 | 7743.52 | 7748.08 | 7746.69 | 17.26 | 14.20 | 18.02 | -58.48 | 291.33 | 254.34 | 223.97 | 8.37 | |
| 7775.00 | 7765.91 | 7770.05 | 7768.65 | 17.32 | 14.22 | 18.99 | -58.55 | 291.04 | 243.42 | 213.22 | 8.06 | |
| 7800.00 | 7787.69 | 7791.42 | 7790.02 | 17.38 | 14.25 | 20.29 | -58.64 | 290.78 | 231.46 | 201.43 | 7.71 | |
| 7825.00 | 7808.79 | 7812.34 | 7810.94 | 17.46 | 14.27 | 21.97 | -58.73 | 290.54 | 218.51 | 188.66 | 7.32 | |
| 7850.00 | 7829.17 | 7832.66 | 7831.26 | 17.53 | 14.30 | 24.12 | -58.83 | 290.30 | 204.61 | 174.92 | 6.89 | |
| 7875.00 | 7848.76 | 7852.15 | 7850.75 | 17.62 | 14.32 | 26.82 | -58.92 | 290.06 | 189.84 | 160.27 | 6.42 | |
| 7900.00 | 7867.51 | 7870.78 | 7869.37 | 17.71 | 14.34 | 30.22 | -59.01 | 289.81 | 174.31 | 144.78 | 5.90 | |
| 7925.00 | 7885.37 | 7888.47 | 7887.06 | 17.82 | 14.36 | 34.50 | -59.09 | 289.57 | 158.15 | 128.55 | 5.34 | |
| 7950.00 | 7902.29 | 7905.19 | 7903.78 | 17.94 | 14.38 | 39.86 | -59.17 | 289.34 | 141.55 | 111.71 | 4.74 | |
| 7975.00 | 7918.22 | 7920.87 | 7919.46 | 18.07 | 14.40 | 46.49 | -59.25 | 289.11 | 124.79 | 94.50 | 4.12 | |
| 8000.00 | 7933.13 | 7935.51 | 7934.10 | 18.22 | 14.42 | 54.44 | -59.31 | 288.90 | 108.29 | 77.33 | 3.50 | |
| 8025.00 | 7946.97 | 7949.06 | 7947.64 | 18.38 | 14.43 | 63.53 | -59.37 | 288.70 | 92.76 | 60.99 | 2.92 | |
| 8050.00 | 7959.69 | 7961.48 | 7960.06 | 18.57 | 14.45 | 73.18 | -59.42 | 288.51 | 79.39 | 46.85 | 2.44 | |
| 8075.00 | 7971.28 | 7972.74 | 7971.32 | 18.77 | 14.46 | 82.52 | -59.47 | 288.34 | 70.09 | 36.97 | 2.12 | |
| 8100.00 | 7981.69 | 7982.81 | 7981.39 | 18.99 | 14.47 | 90.66 | -59.51 | 288.19 | 67.22 | 33.76 | 2.01 | |
| 8125.00 | 7990.89 | 7991.66 | 7990.24 | 19.23 | 14.49 | 97.06 | -59.55 | 288.06 | 72.06 | 38.44 | 2.14 | |
| 8150.00 | 7998.87 | 7999.28 | 7997.85 | 19.49 | 14.49 | 101.47 | -59.58 | 287.94 | 83.65 | 49.94 | 2.48 | |
| 8175.00 | 8005.59 | 8005.64 | 8004.21 | 19.78 | 14.50 | 103.89 | -59.60 | 287.84 | 99.94 | 66.07 | 2.95 | |
| 8200.00 | 8011.05 | 8010.72 | 8009.30 | 20.08 | 14.51 | 104.31 | -59.62 | 287.76 | 119.17 | 85.04 | 3.49 | |
| 8225.00 | 8015.22 | 8014.52 | 8013.10 | 20.40 | 14.51 | 102.70 | -59.63 | 287.70 | 140.23 | 105.69 | 4.06 | |
| 8250.00 | 8018.10 | 8017.02 | 8015.60 | 20.74 | 14.52 | 98.95 | -59.64 | 287.67 | 162.46 | 127.40 | 4.63 | |
| 8275.00 | 8019.68 | 8018.22 | 8016.79 | 21.09 | 14.52 | 92.93 | -59.65 | 287.65 | 185.45 | 149.87 | 5.21 | |
| 8291.52 | 8020.00 | 8018.29 | 8016.86 | 21.33 | 14.52 | 87.72 | -59.65 | 287.65 | 200.91 | 165.08 | 5.61 | |
| 8300.00 | 8020.02 | 8018.18 | 8016.75 | 21.45 | 14.52 | 87.63 | -59.64 | 287.65 | 208.91 | 172.96 | 5.81 | |
| 8400.00 | 8020.25 | 8016.87 | 8015.45 | 23.06 | 14.52 | 86.53 | -59.64 | 287.67 | 305.19 | 267.66 | 8.13 | |
| 8500.00 | 8020.48 | 8015.56 | 8014.14 | 24.88 | 14.52 | 85.43 | -59.64 | 287.69 | 403.28 | 363.97 | 10.26 | |
| 8600.00 | 8020.70 | 8014.25 | 8012.83 | 26.85 | 14.51 | 84.34 | -59.63 | 287.71 | 502.13 | 460.89 | 12.18 | |
| 8700.00 | 8020.93 | 8012.94 | 8011.51 | 28.95 | 14.51 | 83.24 | -59.63 | 287.73 | 601.35 | 558.07 | 13.90 | |
| 8800.00 | 8021.16 | 8011.62 | 8010.20 | 31.15 | 14.51 | 82.15 | -59.62 | 287.75 | 700.79 | 655.39 | 15.44 | |
| 8900.00 | 8021.39 | 8010.31 | 8008.88 | 33.44 | 14.51 | 81.07 | -59.62 | 287.77 | 800.37 | 752.79 | 16.82 | |
| 9000.00 | 8021.61 | 9529.84 | 8883.40 | 35.79 | 27.41 | 175.14 | -61.16 | 1193.88 | 864.94 | 839.52 | 34.03 | |
| 9100.00 | 8021.84 | 9617.62 | 8883.23 | 38.20 | 29.45 | 175.02 | -62.69 | 1281.64 | 864.66 | 838.36 | 32.88 | |
| 9200.00 | 8022.07 | 9738.86 | 8882.13 | 40.65 | 32.36 | 174.89 | -64.02 | 1402.87 | 863.68 | 836.29 | 31.54 | |
| 9300.00 | 8022.30 | 9844.51 | 8879.09 | 43.13 | 34.95 | 174.83 | -64.21 | 1508.48 | 860.61 | 832.17 | 30.26 | |
| 9400.00 | 8022.52 | 9931.98 | 8877.23 | 45.65 | 37.14 | 174.81 | -63.89 | 1595.92 | 858.29 | 828.84 | 29.15 | |
| 9500.00 | 8022.75 | 10024.30 | 8876.74 | 48.19 | 39.47 | 174.78 | -63.95 | 1688.24 | 857.55 | 827.03 | 28.09 | |
| 9600.00 | 8022.98 | 10124.17 | 8876.20 | 50.76 | 42.02 | 174.75 | -63.91 | 1788.11 | 856.82 | 825.15 | 27.05 | |
| 9700.00 | 8023.21 | 10221.32 | 8876.11 | 53.34 | 44.52 | 174.75 | -63.47 | 1885.26 | 856.50 | 823.67 | 26.09 | |
| 9800.00 | 8023.44 | 10315.56 | 8876.28 | 55.95 | 46.97 | 174.76 | -62.94 | 1979.50 | 856.44 | 822.44 | 25.19 | |
| 9900.00 | 8023.66 | 10420.27 | 8877.22 | 58.56 | 49.70 | 174.79 | -62.07 | 2084.20 | 857.09 | 821.85 | 24.32 | |
| 10000.00 | 8023.89 | 10521.58 | 8876.89 | 61.19 | 52.36 | 174.82 | -61.22 | 2185.51 | 856.50 | 820.02 | 23.47 | |
| 10100.00 | 8024.12 | 10636.51 | 8876.37 | 63.83 | 55.39 | 174.84 | -60.34 | 2300.42 | 855.86 | 818.02 | 22.62 | |
| 10200.00 | 8024.35 | 10732.30 | 8874.70 | 66.47 | 57.94 | 174.83 | -59.88 | 2396.20 | 853.89 | 814.78 | 21.83 | |
| 10300.00 | 8024.57 | 10841.13 | 8872.85 | 69.13 | 60.83 | 174.82 | -59.39 | 2505.01 | 851.98 | 811.50 | 21.05 | |
| 10400.00 | 8024.80 | 10938.27 | 8870.83 | 71.79 | 63.40 | 174.91 | -57.57 | 2602.11 | 849.55 | 807.82 | 20.36 | |
| 10500.00 | 8025.03 | 11024.70 | 8869.94 | 74.47 | 65.71 | 175.01 | -55.53 | 2688.51 | 848.13 | 805.21 | 19.76 | |
| 10600.00 | 8025.26 | 11140.41 | 8868.42 | 77.14 | 68.80 | 175.16 | -52.68 | 2804.18 | 846.39 | 802.12 | 19.12 | |
| 10700.00 | 8025.48 | 11232.61 | 8867.04 | 79.82 | 71.27 | 175.30 | -50.18 | 2896.33 | 844.48 | 798.99 | 18.57 | |
| 10800.00 | 8025.71 | 11336.46 | 8865.47 | 82.51 | 74.08 | 175.40 | -48.14 | 3000.15 | 842.61 | 795.81 | 18.00 | |
| 10900.00 | 8025.94 | 11435.89 | 8863.86 | 85.20 | 76.75 | 175.46 | -46.67 | 3099.55 | 840.68 | 792.55 | 17.47 | |

| | | | |
|---|---|---|---|
| **Company:** | Devon Energy | **Date:** 3/8/2013 **Time:** 14:45:10 | **Page:** 7 |
| **Field:** | Eddy Co., NM (NAD 83) | | |
| **Reference Site:** | Sirius 17 Fed Com 7H | **Co-ordinate(NE) Reference:** | Well: Sirius 17 Fed Com 7H, Grid North |
| **Reference Well:** | Sirius 17 Fed Com 7H | **Vertical (TVD) Reference:** | SITE 3444.0 |
| **Reference Wellpath:** | | | **Db:** Sybase |

**Site:** Sirius 17 Fed Com #3H
**Well:** Sirius 17 Fed Com #3H
**Wellpath:** 1 V0 **Inter-Site Error:** 0.00 ft

| Reference MD ft | Reference TVD ft | Offset MD ft | Offset TVD ft | Semi-Major Axis Ref ft | Semi-Major Axis Offset ft | TFO-HS deg | Offset Location North ft | Offset Location East ft | Ctr-Ctr Distance ft | Edge Distance ft | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11000.00 | 8026.17 | 11533.58 | 8862.26 | 87.90 | 79.38 | 175.55 | -44.72 | 3197.21 | 838.70 | 789.27 | 16.97 | |
| 11100.00 | 8026.40 | 11633.48 | 8861.32 | 90.59 | 82.09 | 175.60 | -43.52 | 3297.10 | 837.47 | 786.70 | 16.49 | |
| 11200.00 | 8026.62 | 11742.59 | 8858.76 | 93.30 | 85.04 | 175.64 | -42.30 | 3406.17 | 834.81 | 782.62 | 15.99 | |
| 11300.00 | 8026.85 | 11836.03 | 8856.69 | 96.00 | 87.56 | 175.60 | -42.38 | 3499.58 | 832.42 | 778.83 | 15.53 | |
| 11400.00 | 8027.08 | 11943.67 | 8854.67 | 98.71 | 90.48 | 175.50 | -43.10 | 3607.20 | 830.44 | 775.32 | 15.07 | |
| 11500.00 | 8027.31 | 12034.06 | 8852.17 | 101.42 | 92.94 | 175.44 | -43.42 | 3697.56 | 827.58 | 771.06 | 14.64 | |
| 11600.00 | 8027.53 | 12133.56 | 8851.23 | 104.13 | 95.64 | 175.36 | -44.09 | 3797.06 | 826.49 | 768.48 | 14.25 | |
| 11700.00 | 8027.76 | 12235.03 | 8849.33 | 106.85 | 98.40 | 175.30 | -44.39 | 3898.50 | 824.46 | 764.94 | 13.85 | |
| 11800.00 | 8027.99 | 12353.96 | 8846.26 | 109.56 | 101.64 | 175.22 | -44.75 | 4017.38 | 821.76 | 760.61 | 13.44 | |
| 11900.00 | 8028.22 | 12440.29 | 8843.53 | 112.28 | 103.98 | 175.17 | -44.90 | 4103.67 | 818.43 | 755.87 | 13.08 | |
| 12000.00 | 8028.44 | 12531.10 | 8841.89 | 115.00 | 106.44 | 175.08 | -45.64 | 4194.47 | 816.51 | 752.47 | 12.75 | |
| 12100.00 | 8028.67 | 12620.79 | 8841.25 | 117.73 | 108.87 | 174.93 | -47.28 | 4284.14 | 815.76 | 750.18 | 12.44 | |
| 12200.00 | 8028.90 | 12715.24 | 8841.51 | 120.45 | 111.47 | 174.78 | -49.18 | 4378.57 | 816.03 | 748.83 | 12.14 | |
| 12300.00 | 8029.13 | 12831.50 | 8841.25 | 123.17 | 114.66 | 174.68 | -50.07 | 4494.82 | 815.70 | 746.79 | 11.84 | |
| 12400.00 | 8029.36 | 12941.16 | 8839.03 | 125.90 | 117.64 | 174.59 | -50.57 | 4604.46 | 813.52 | 742.97 | 11.53 | |

# Weatherford Drilling Services

GeoDec v5.03

| | |
|---|---|
| Report Date: | March 08, 2013 |
| Job Number: | |
| Customer: | Devon |
| Well Name: | Sirius 17 Fed Com 7H |
| API Number: | |
| Rig Name: | |
| Location: | Eddy Co., NM |
| Block: | |
| Engineer: | RWJ |

| | |
|---|---|
| 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: NAD 1927 (NADCON CONUS) |
| Ellipsoid: GRS 1980 | Ellipsoid: Clarke 1866 |
| North/South 603697.670 USFT | Latitude 32.6587433 DEG |
| East/West 674753.580 USFT | Longitude -103.8993124 DEG |
| Grid Convergence: .23° | |
| Total Correction: +7.36° | |

| | | |
|---|---|---|
| Geodetic Location WGS84 | Elevation = | 0.0 Meters |
| Latitude = | 32.65874° N | 32° 39 min 31.476 sec |
| Longitude = | 103.89931° W | 103° 53 min 57.525 sec |

| | | | |
|---|---|---|---|
| Magnetic Declination = | 7.59° | [True North Offset] | |
| Local Gravity = | .9988 g | CheckSum = | 6630 |
| Local Field Strength = | 48587 nT | Magnetic Vector X = | 23767 nT |
| Magnetic Dip = | 60.43° | Magnetic Vector Y = | 3167 nT |
| Magnetic Model = | bggm2012 | Magnetic Vector Z = | 42258 nT |
| Spud Date = | Nov 05, 2013 | Magnetic Vector H = | 23977 nT |

Signed:_____ Date:_____

NOTES REGARDING BLOWOUT PREVENTERS
Devon Energy Production Company, LP
**Sirius 17 Fed 7H**

Surface Location: 2080' FSL & 70' FWL, Unit L, Sec 17 T19S R31E, Eddy, NM
Bottom Hole Location: 2080' FSL & 340' FEL, Unit I, Sec 17 T19S 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 3000 psi working pressure.

4. All fittings will be flanged.

5. A full bore safety valve tested to a minimum 3000 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.

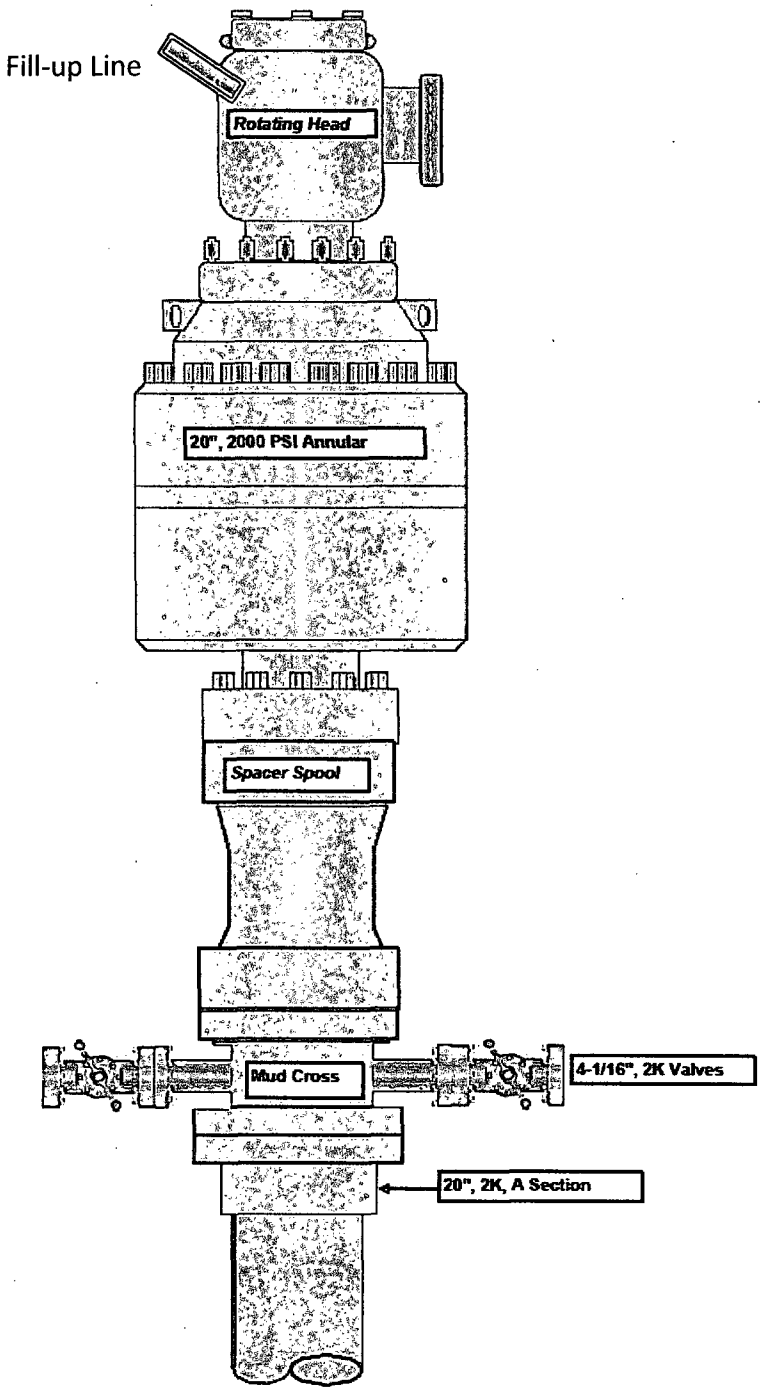
8. Will maintain a kelly cock attached to the kelly.

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.

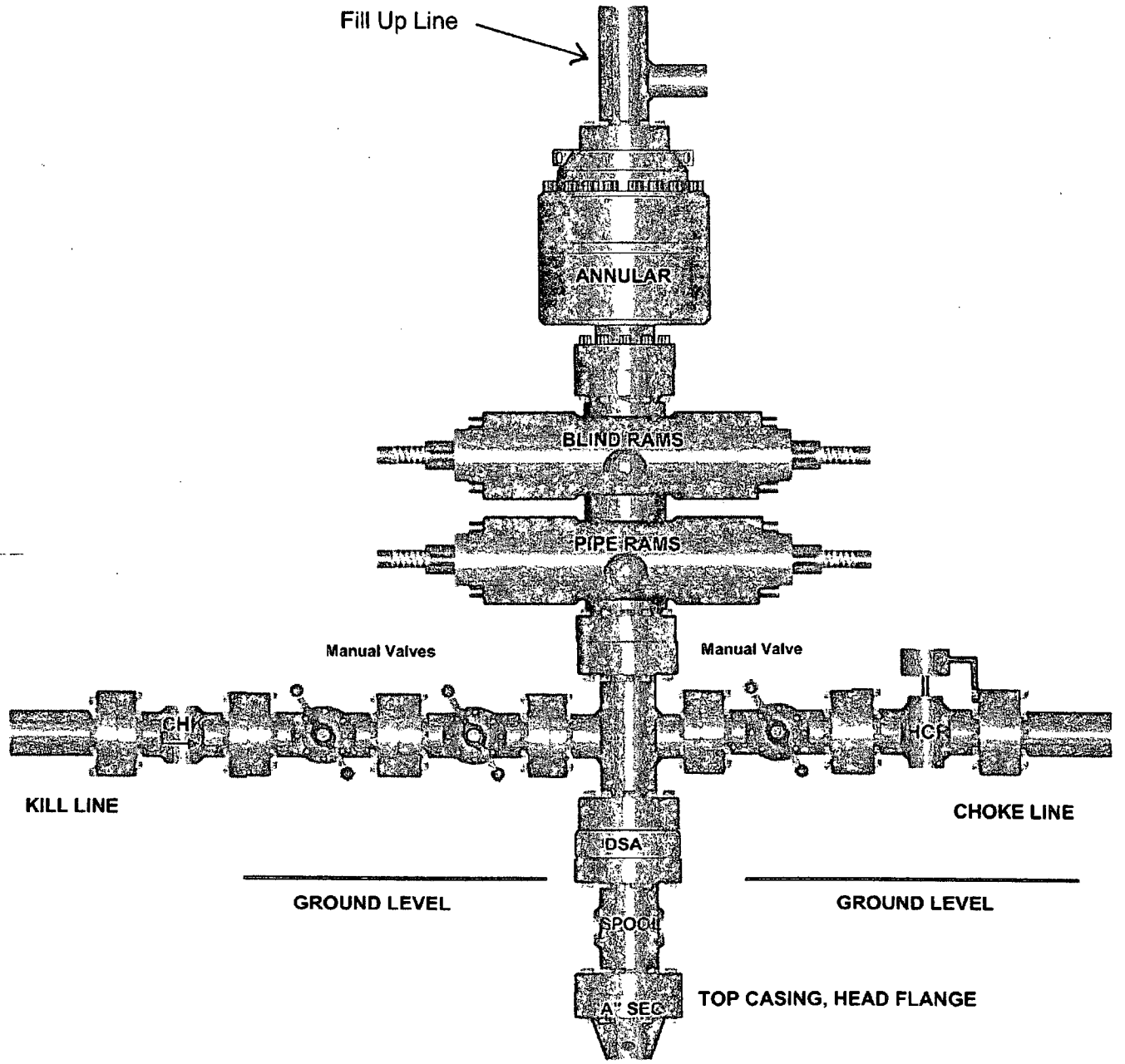
11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

## 20" 2K Annular



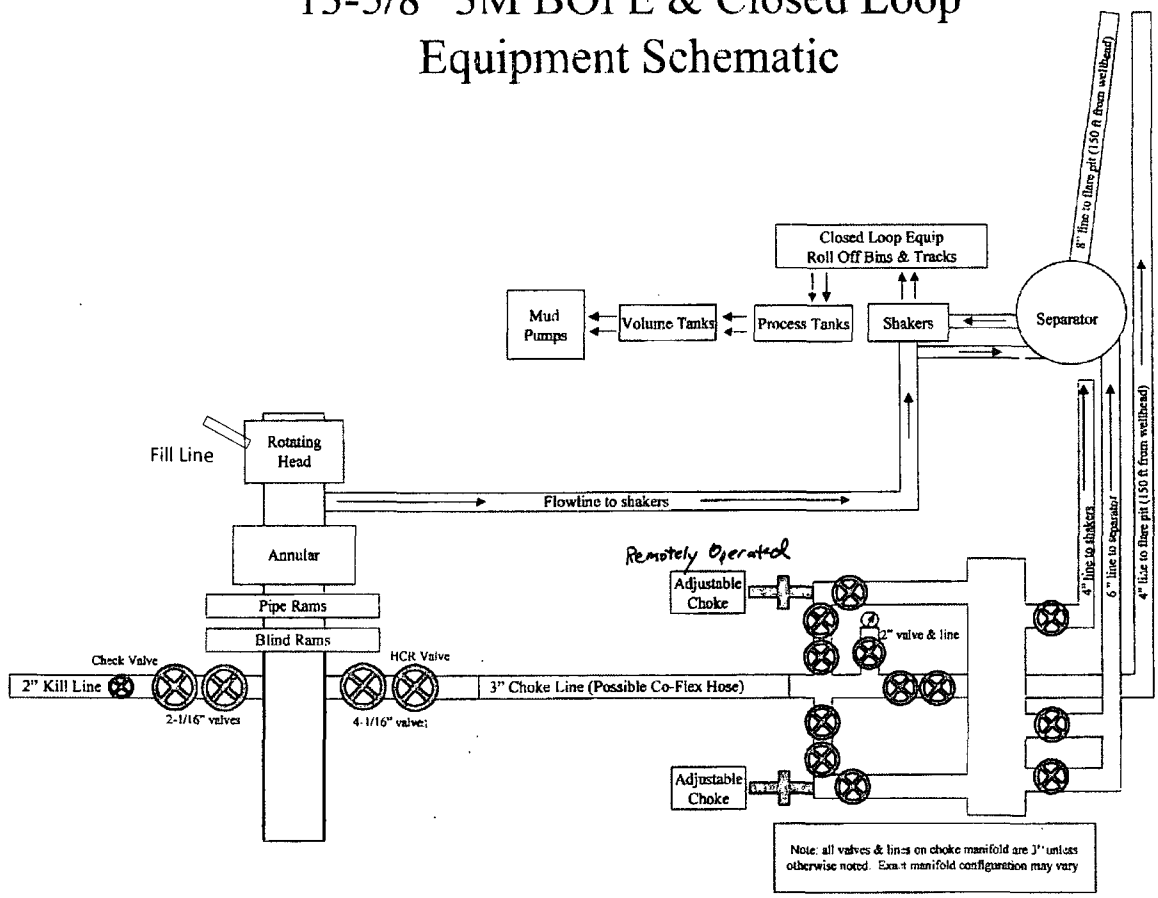

***The same choke manifold will be used with all BOP's**

# 13-5/8" x 3,000 psi BOP Stack




L:\Western\Drilling\Wes Handley\Drawings\BOPS\BOPs.xls

# 13-5/8" 3M BOPE & Closed Loop Equipment Schematic



Continental CONTITECH

**Fluid Technology**

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly it is good practice to use lifting & safety equipment but not mandatory

Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com

Continental CONTITECH

Fluid Technology

Quality Document

# QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

CERT. N°: 1713

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PURCHASER: | ContiTech Beattie Co. | | | | P.O. N°: | 002808 | |
| CONTITECH ORDER N°: | 426127 | HOSE TYPE: | 3" | ID | Choke and Kill Hose | | |
| HOSE SERIAL N°: | 53622 | NOMINAL / ACTUAL LENGTH: | | | 10,67 m | | |
| W.P. 68,96 MPa | 10000 psi | T.P. 103,4 MPa | 15000 psi | | Duration: 60 min. | | |

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 25 MPa

| COUPLINGS Type | Serial N° | Quality | Heat N° |
|---|---|---|---|
| 3" coupling with | 5503 2029 | AISI 4130 | N1590P |
| 4 1/16" Flange end | | AISI 4130 | 27566 |

**INFOCHIP INSTALLED**

**API Spec 16 C**
**Temperature rate:"B"**

All metal parts are flawless

**Hose conform to NACE MR 01-75**

**WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.**

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

| Date: | Inspector | Quality Control |
|---|---|---|
| 25. August. 2008 | | ContiTech Rubber Industrial Kft. Quality Control Dept. |

ContiTech Rubber Industrial Kft.
Budapesti út 10., Szeged H 6728
P.O.Box 152 Szeged H-6701
Hungary

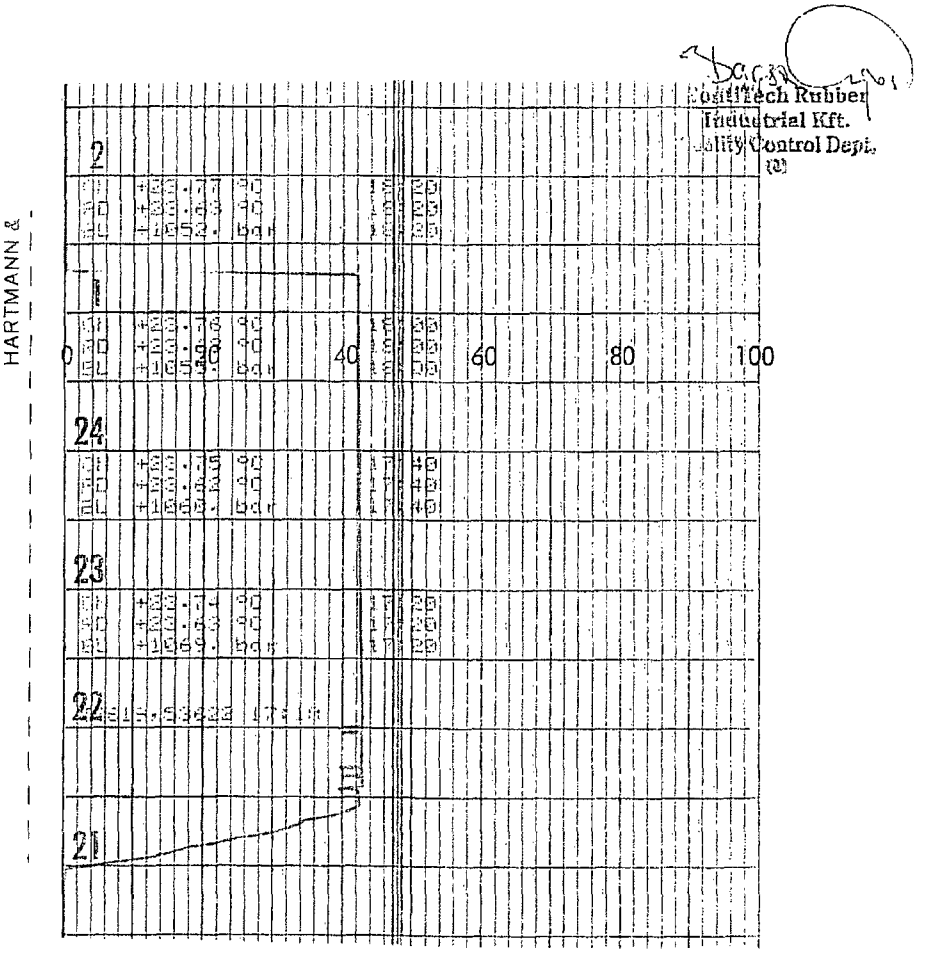
Phone: +36 62 566 737
Fax: +36 62 566 738
e-mail: info@fluid.contitech.hu
Internet: www.contitech-rubber.hu

The Court of Csongrád County as Registry Court
Registry Court No: HU 06-09-002502
EU VAT No: HU11087209

Bank data,
Commerzbank Zrt.
Szeged
14220108-26830003-00000000

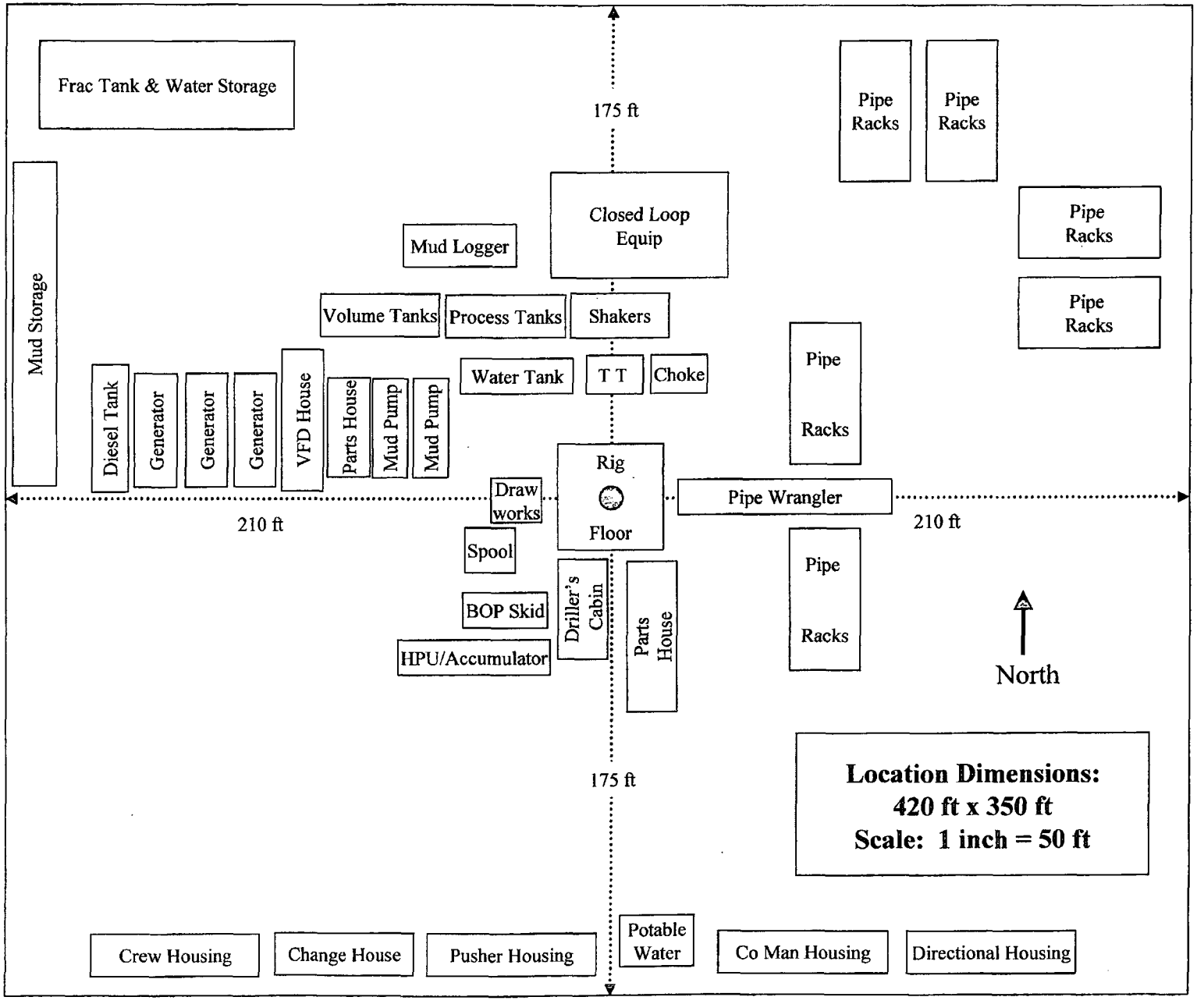
*ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE* *No 1711,1713*






CostTech Rubber
Industrial Kft.
Quality Control Dept.

# H&P Flex Rig Location Layout



devon

Devon Energy Center
333 West Sheridan Avenue
Oklahoma City, Oklahoma 73102-5015

# Hydrogen Sulfide ($H_2S$) Contingency Plan

## For

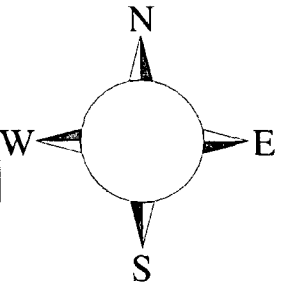
## Sirius "17" Fed Com 7H

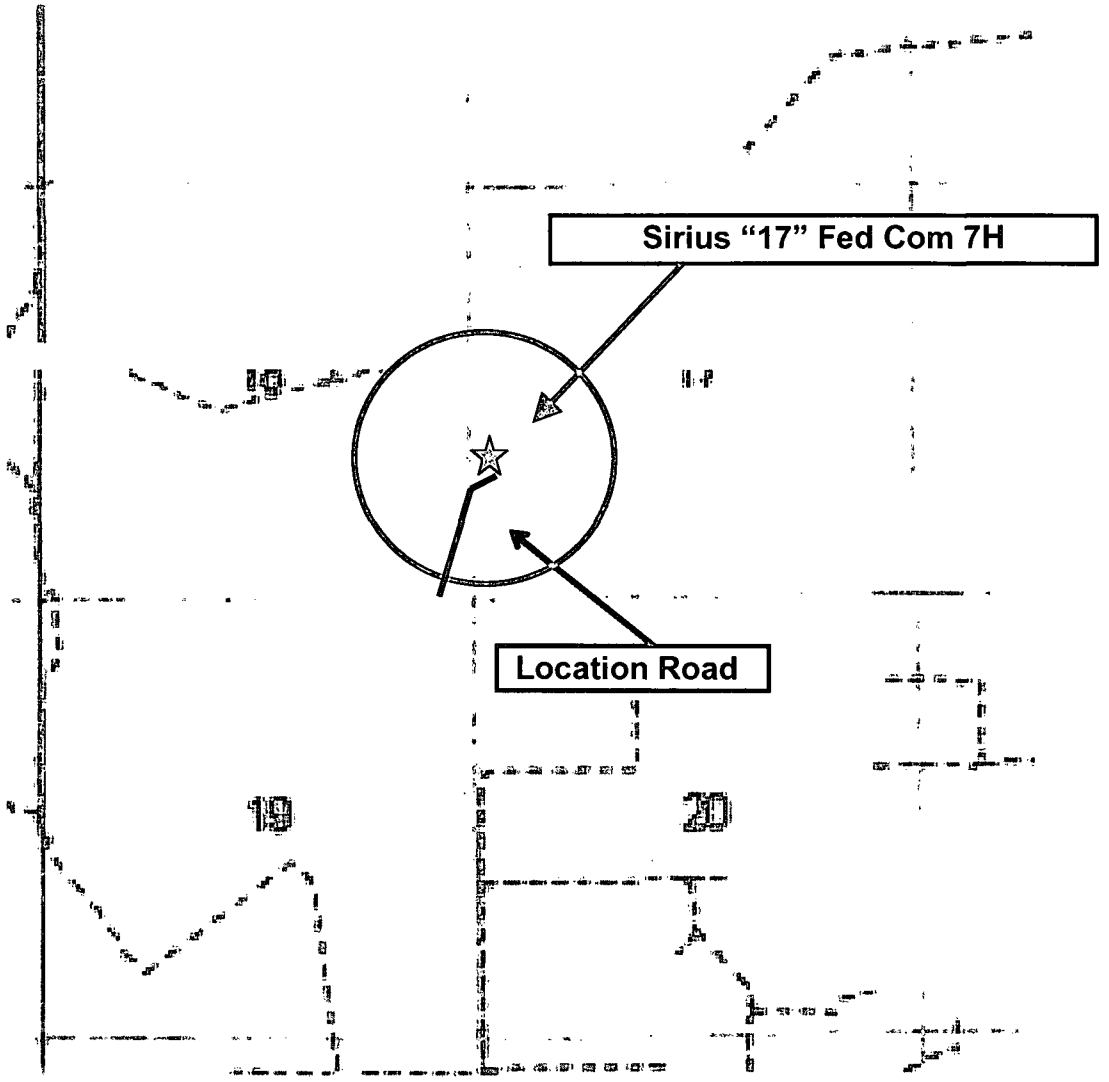
Sec-17, T-19S R-31E
2080' FSL & 70' FWL,
LAT. = 32.6588628'N (NAD83)
LONG = 103.8998154'W

Eddy County NM

# Sirius "17" Fed Com 7H

This is an open drilling site. $H_2S$ monitoring equipment and emergency response equipment will be used within 500' of zones known to contain $H_2S$, including warning signs, wind indicators and $H_2S$ monitor.




Assumed 100 ppm [illegible] = 3000' ([illegible])
100 ppm H2S concentration shall trigger activation of this plan.

**Escape**

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road, West then Northwest on lease road. Crews should then block entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

**Assumed 100 ppm ROE = 3000'**

**100 ppm $H_2S$ concentration shall trigger activation of this plan.**

Emergency Procedures

**In the event of a release of gas containing $H_2S$, the first responder(s) must**

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with $H_2S$ monitors and air packs in order to control the release.**
- **Use the "buddy system" to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
  - **Detection of $H_2S$, and**
  - **Measures for protection against the gas,**
  - **Equipment used for protection and emergency response.**

**Ignition of Gas Source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide ($SO_2$). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

**Characteristics of $H_2S$ and $SO_2$**

| Common Name | Chemical Formula | Specific Gravity | Threshold Limit | Hazardous Limit | Lethal Concentration |
|---|---|---|---|---|---|
| Hydrogen Sulfide | $H_2S$ | 1.189 Air = 1 | 10 ppm | 100 ppm/hr | 600 ppm |
| Sulfur Dioxide | $SO_2$ | 2.21 Air = 1 | 2 ppm | N/A | 1000 ppm |

**Contacting Authorities**

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

## Hydrogen Sulfide Drilling Operation Plan

### I. HYDROGEN SULFIDE ($H_2S$) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide ($H_2S$)

2. The proper use and maintenance of personal protective equipment and life support systems.

3. The proper use of $H_2S$ detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.

4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of $H_2S$ metal components. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.

2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.

3. The contents and requirements of the $H_2S$ Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable $H_2S$ zone (within 3 days or 500 feet) and weekly $H_2S$ and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific $H_2S$ Drilling Operations Plan and the Public Protection Plan.

## II. HYDROGEN SULFIDE TRAINING

Note: All $H_2S$ safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain $H_2S$.

1. **Well Control Equipment**

   A. Flare line

   B. Choke manifold with remotely operated choke

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

   D. Auxiliary equipment may include if applicable: annular preventer and rotating head.

2. **Protective equipment for essential personnel:**

   A. 30-minute SCBA units located in the doghouse and at briefing areas, as indicated on well site diagram. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

3. **$H_2S$ detection and monitoring equipment:**

   A. Portable $H_2S$ monitors positioned on location for best coverage and response. These unites have warning lights and audible sirens when $H_2S$ levels of 20 PPM are reached. These units are usually capable of detecting $SO_2$, which is a byproduct of burning $H_2S$.

4. **Visual warning systems:**

   A. Wind direction indicators as shown on well site diagram

B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

**5. Mud program:**

A. The mud program has been designed to minimize the volume of $H_2S$ circulated to surface. Proper mud weight, safe drilling practices and the use of $H_2S$ scavengers will minimize hazards when penetrating $H_2S$ bearing zones.

**6. Metallurgy:**

A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be $H_2S$ trim.

B. All elastomers used for packing and seals shall be $H_2S$ trim.

**7. Communication:**

A. Radio communications in company vehicles including cellular telephones and 2-way radio

B. Land line (telephone) communications at Office

**8. Well testing:**

A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an $H_2S$ environment will use the closed chamber method of testing.

B. There will be no drill stem testing.

## Devon Energy Corp. Company Call List

| Artesia (575) | Cellular | Office | Home |
|---|---|---|---|
| Foreman – Robert Bell | 748-7448 | 748-0178 | 746-2991 |
| Asst. Foreman –Tommy Polly | 748-5290 | 748-0165 | 748-2846 |
| Don Mayberry | 748-5235 | 748-0164 | 746-4945 |
| Montral Walker | 390-5182 | 748-0193 | (936) 414-6246 |
| Engineer – Marcos Ortiz | (405) 317-0666 | (405) 552-8152 | (405) 381-4350 |

## Agency Call List

**Lea County (575)**

**Hobbs**

| | |
|---|---|
| Lea County Communication Authority | 393-3981 |
| State Police | 392-5588 |
| City Police | 397-9265 |
| Sheriff's Office | 393-2515 |
| Ambulance | 911 |
| Fire Department | 397-9308 |
| LEPC (Local Emergency Planning Committee).. | 393-2870 |
| NMOCD | 393-6161 |
| US Bureau of Land Management | 393-3612 |

**Eddy County (575)**

**Carlsbad**

| | |
|---|---|
| State Police | 885-3137 |
| City Police | 885-2111 |
| Sheriff's Office | 887-7551 |
| Ambulance | 911 |
| Fire Department | 885-2111 |
| LEPC (Local Emergency Planning Committee) | 887-3798 |
| US Bureau of Land Management | 887-6544 |
| NM Emergency Response Commission (Santa Fe) | (505) 476-9600 |
| 24 HR | (505) 827-9126 |
| National Emergency Response Center (Washington, DC) | (800) 424-8802 |

**Emergency Services**

| | |
|---|---|
| Boots & Coots IWC | (800)-256-9688 or (281) 931-8884 |
| Cudd Pressure Control | (915) 699-0139 or (915) 563-3356 |
| Halliburton | (575) 746-2757 |
| B. J. Services | (575) 746-3569 |

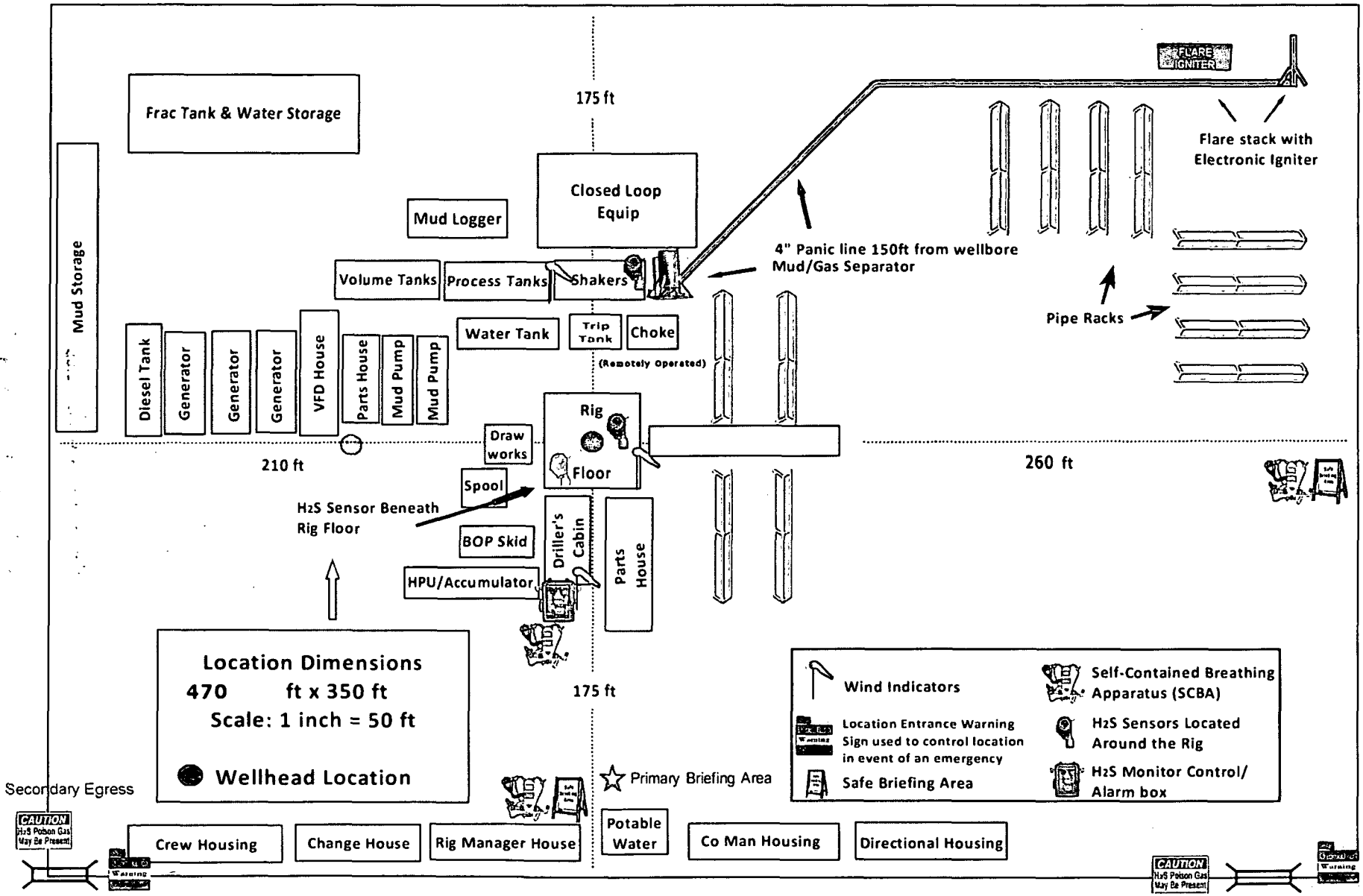
*Give GPS position:*

| | |
|---|---|
| Native Air – Emergency Helicopter – Hobbs | (575) 392-6429 |
| Flight For Life - Lubbock, TX | (806) 743-9911 |
| Aerocare - Lubbock, TX | (806) 747-8923 |
| Med Flight Air Amb - Albuquerque, NM | (575) 842-4433 |
| Lifeguard Air Med Svc. Albuquerque, NM | (575) 272-3115 |

Prepared in conjunction with
Dave Small

SHARP COMMUNICATIONS & CONSULTING, LLC

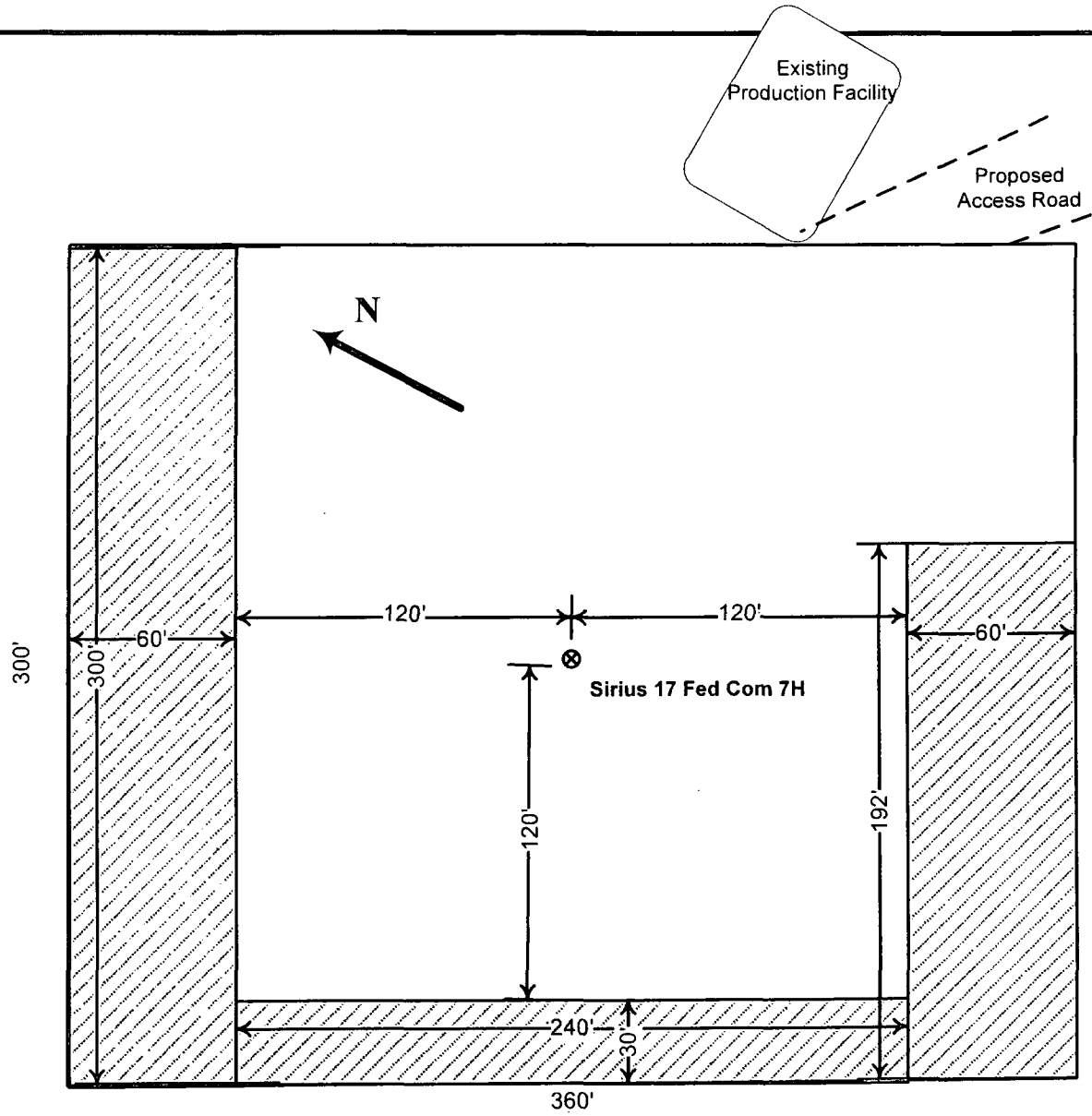
# Devon Energy - 1 Well Pad
# Rig Location Layout
# Safety Equipment Location



devon

# Proposed Interim Site Reclamation

**Devon Energy Production Co.**
**Sirius 17 Fed Com 7H**
**2080' FSL & 70' FWL**
**Sec. 17-T19S-R31E**
**Eddy County, NM**




Stockpile for Spoils Pile- West Side of Location

Proposed Reclamation Area

Scale: 1in = 60ft.

**SURFACE USE PLAN**

Devon Energy Production Company, LP

**Sirius 17 Fed 7H**

Surface Location: 2080' FSL & 70' FWL, Unit L, Sec 17 T19S R31E, Eddy, NM

Bottom Hole Location: 2080' FSL & 340' FEL, Unit I, Sec 17 T19S R31E, Eddy, NM

1. **Existing Roads:**
   a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by Madron Surveyors.
   b. All roads into the location are depicted on Exhibit 3. Existing roads will be maintained and kept the same or better condition than before operations began.
   c. Directions to Location: From CR 222 Shugart & CR 248 (Lusk Plan) go south southwes on CR 222, 4.7 miles, turn right and go north 2.0 miles, turn left and go northwest 660, turn right and north 0.3 miles where road bends right and location is north 541'.

2. **New or Reconstructed Access Roads:**
   a. The well site layout, Form C-102 shows the existing County road. No new access road will be constructed.
   b. No cattle guards, grates or fence cuts will be required. No turnouts are planned.

3. **Location of Existing Wells:**
   One Mile Radius Plat shows all existing and proposed wells within a one-mile radius of the proposed location. See attached plat.

4. **Location of Existing and/or Proposed Production Facilities:**
   a. In the event the well is found productive, the Sirius Fed Com 3H Sec 17 T19S R31E tank battery will be utilized and the necessary production equipment will be installed at the well site. See Diagram.

   If necessary, the well will be operated by means of an electric prime mover. Electric power poles will be set along side of the access road. If said power poles are needed, a plat and a sundry notice will be filed with your office.
   b. All flow lines will adhere to API standards.
   c. If the well is productive, rehabilitation plans are as follows:
      i. The original topsoil from the well site will be returned to the location. The drill site will then be contoured as close as possible to the original state.

5. **Location and Types of Water Supply:**
This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in the C-102. On occasion, water will be obtained from a pre-existing water well, running a pump directly to the drill rig. In these cases where a poly pipeline is used to transport water for drilling purposes, proper authorizations will be secured. If a poly pipeline is used, the size, distance, and map showing route will be provided to the BLM via sundry notice.

6. **Construction Materials:**
The caliche utilized for the drilling pad and proposed access road will be from minerals that are located onsite or will be used onsite. If minerals are not available onsite, then an established mineral pit will be used to build the location and stem road.

7. **Methods of Handling Waste Material:**
   a. Drill cuttings will be disposed.
   b. All trash, junk and other waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary landfill.
   c. The supplier, including broken sacks, will pick up salts remaining after completion of well.
   d. A Porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
   e. Remaining drilling fluids will be sent to a closed loop system. Water produced during completion will be put into a closed loop system. Oil and condensate produced will be put into a storage tank and sold.
   f. Disposal of fluids to be transported by the following companies:
      i. American Production Service Inc, Odessa TX
      ii. Gandy Corporation, Lovington NM
      iii. I & W Inc, Loco Hill NM
      iv. Jims Water Service of Co Inc, Denver CO

8. **Ancillary Facilities:** No campsite or other facilities will be constructed as a result of this well.

**9. Well Site Layout**

a. Exhibit D shows the proposed well site layout with dimensions of the pad layout.
b. This exhibit indicated proposed location of sump pits and living facilities.
*c.* Mud pits in the active circulating system will be steel pits.
d. A closed loop system will be utilized.
**e.** If a pit or closed loop system is utilized, Devon will comply with the NMOCD requirements 19.15.17 and submit form C-144 to the appropriate NMOCD District Office. A copy to be provided to the BLM.

**10. Plans for Surface Reclamation**

a. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original top soil will again be returned to the pad and contoured, as close as possible, to the original topography.
b. The location and road will be rehabilitated as recommended by the BLM.
c. If the well is deemed commercially productive, caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography.
d. All disturbed areas not needed for active support of production operations will undergo interim reclamation. The portions of the cleared well site not needed for operational and safety purposes will be recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Topsoil will be respread over areas not needed for all-weather operations.

**11. Surface Ownership**

a. The surface is owned by the US Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas.
b. The proposed road routes and the surface location will be restored as directed by the BLM.

**12. Other Information:**

a. The area surrounding the well site is grassland. The topsoil is very sandy in nature. The vegetation is moderately sparse with native prairie grass, sage bush, yucca and miscellaneous weeds. No wildlife was observed but it is likely that deer, rabbits, coyotes, and rodents traverse the area.
b. There is no permanent or live water in the general proximity of the location.
c. There are no dwellings within 2 miles of location.
d. A Cultural Resources Examination will be completed by the Permian Basin Cultural Resource Fund in lieu of being required to conduct a Class III Survey for cultural resources associated with their project within the BLM office in Carlsbad, New Mexico.

13. **Bond Coverage:**
Bond Coverage is Nationwide; Bond # is CO-1104; NMB-000801

**Operators Representative:**

The Devon Energy Production Company, L.P. representatives responsible for ensuring compliance of the surface use plan are listed below.

Justin Lazzari - Operations Engineer Advisor
Devon Energy Production Company, L.P.
333 W. Sheridan
Oklahoma City, OK 73102-8260
(405) 228-8466 (office)
(405) 464-9261 (Cellular)

Jerry Mathews - Superintendent
Devon Energy Production Company, L.P.
Post Office Box 250
Artesia, NM 88211-0250
(575) 748-0161 (office)
(575) 748-5234 (home)

# PECOS DISTRICT
# CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Devon Energy Production Company, LP.** |
| **LEASE NO.:** | **NMNM-99040** |
| **WELL NAME & NO.:** | **Sirius 17 Fed Com 7H** |
| **SURFACE HOLE FOOTAGE:** | **2080' FSL & 0070' FWL** |
| **BOTTOM HOLE FOOTAGE** | **2080' FSL & 0340' FEL** |
| **LOCATION:** | **Section 17, T. 19 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)

**Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken**: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

**Ground-level Abandoned Well Marker to avoid raptor perching**: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

## Hackberry OHV Special Recreation Management Area Mitigation

1. All Pipelines (including temporary lines) shall be buried a minimum of __24__ inches under all roads, "two-tracks," and trails.
2. Burial of the pipe will continue for 20 feet on each side of each crossing.
3. Power poles and associated ground structures (poles, guy wires) will not be placed within 20 feet of recreation trails.
4. Guy wires must be equipped with a sleeve, tape or other industry approved apparatus that is highly visible during the day and reflective at night.
5. Appropriate safety signage will be in place during all phases of the project.
6. Upon completion of construction, the road shall be returned to pre-construction condition with no bumps or dips.
7. All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits.

## Drilling:

**Communitization Agreement**

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. In addition, the well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

# 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) 234-5909 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.

## B. 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 6 inches in depth. The topsoil will be used for interim and final reclamation.

## C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

## D. FEDERAL MINERAL MATERIALS PIT

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

## E. 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.

## F. EXCLOSURE FENCING (CELLARS & PITS)

**Exclosure Fencing**
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For

examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

## 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 twenty-five (25) 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

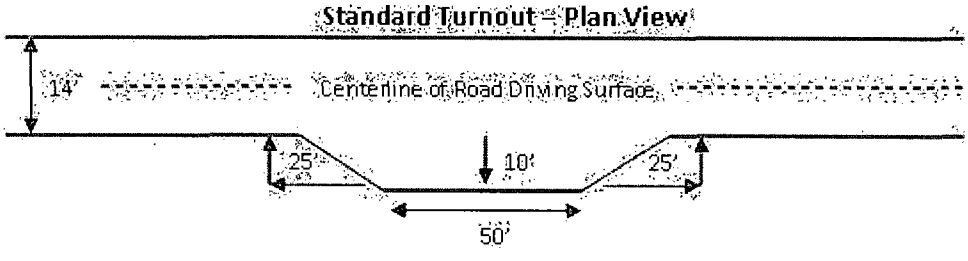
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### Ditching

Ditching shall be required on both sides 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:

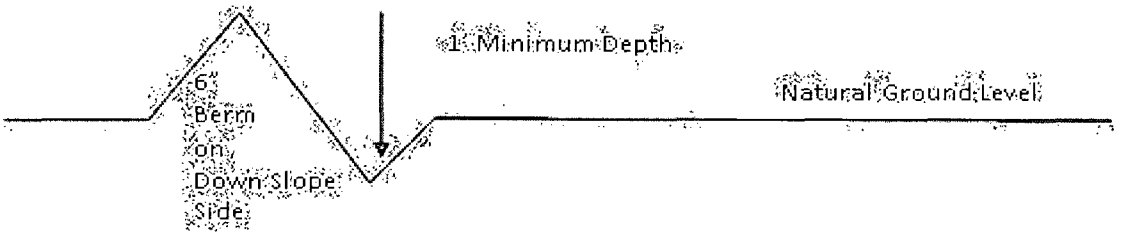


## Drainage

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:

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

## 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**

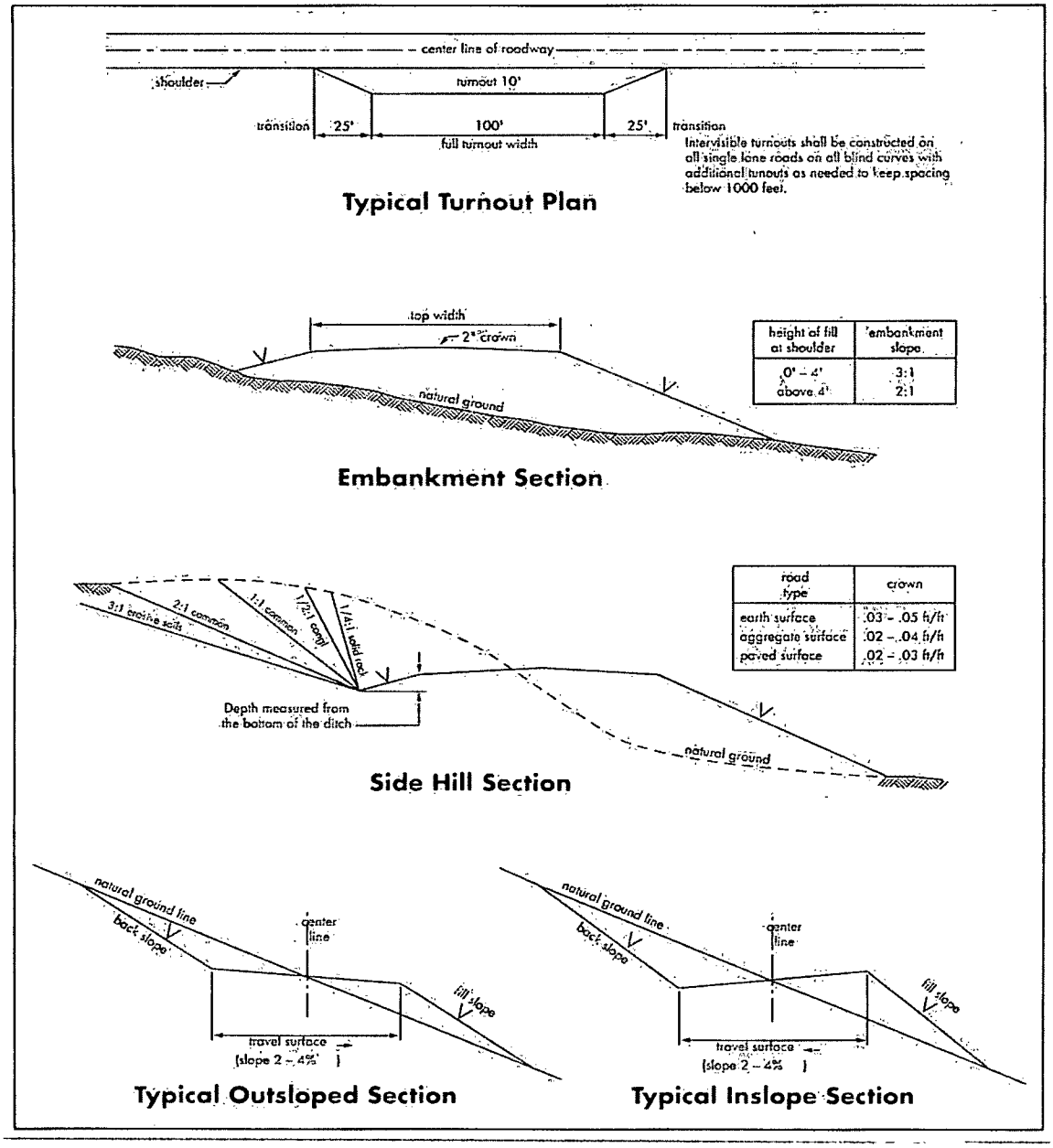
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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 in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **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, report measured amounts and formations to the BLM. Operator has stated that they will have monitoring equipment in place prior to drilling out of the surface shoe.**

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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

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 is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall 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 program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).**

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

**Wait on cement (WOC) time prior to drilling out 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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. 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.**

**Capitan Reef**
**Possibility of water and brine flows in the Artesia and Salado Groups.**
**Possibility of lost circulation in the Artesia Group and Capitan Reef.**

1. The **20** inch surface casing shall be set at approximately **480** 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 **13-3/8** inch 1st intermediate casing is:

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

3. The minimum required fill of cement behind the **9-5/8** inch 2nd intermediate casing, which shall be set at approximately **4000** feet, is:

**Operator has proposed DV tool at depth of 2500'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.**

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef. Excess calculates to 10% - Additional cement may be required.**

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

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

**Operator has proposed DV tool at depth of 4690'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.**

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:

☒ Cement should tie-back at least **50 feet above the Capitan Reef.** Operator shall provide method of verification.

5. 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.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

    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.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8** 1st intermediate casing shoe shall be **3000 (3M)** psi.

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

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.

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

e. 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.**

f. 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. This test shall be performed prior to the test at full stack pressure.

## D. DRILL STEM TEST

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

## E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

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

**JAM 102313**

# 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.

**Exclosure Netting (Open-top Tanks)**
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

**Chemical and Fuel Secondary Containment and Exclosure Screening**
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

**Open-Vent Exhaust Stack Exclosures**
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

**Containment Structures**
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

**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** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

**VRM Facility Requirement**
Low-profile tanks not greater than eight-feet-high shall be used.

## B. PIPELINES

. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
b. Activities of other parties including, but not limited to:
    (1) Land clearing.
    (2) Earth-disturbing and earth-moving work.
    (3) Blasting.
    (4) Vandalism and sabotage.
c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of **20** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

9. The pipeline shall be buried with a minimum of **24** inches under all roads,

"two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder 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 will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. 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, powerline 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.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

## 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).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

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