

OCD-ARTESIA

Form 3160-3
(February 2005)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007 *EAS/6*5 Lease Serial No.
USA NMNM 0107697

6 If Indian, Allottee or Tribe Name

7 If Unit or CA Agreement, Name and No

8 Lease Name and Well No.

Spica 25 Federal 2H *<39137>*

9 API Well No.

30-015-40222

10 Field and Pool, or Exploratory

W.C. Williams Sink, B.S.

11 Sec, T R M or Blk and Survey or Area

*<297650>***Sec 25-T19S-R31E**

12 County or Parish

Eddy

13 State

NM14 Distance in miles and direction from nearest town or post office*
Approximately 15 miles southeast of Loco Hills, NM.15 Distance from proposed*
location to nearest
property or lease line, ft
(Also to nearest drg unit line, if any) **340'**16 No of acres in lease
2321.52 acres17 Spacing Unit dedicated to this well
16018 Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft **See Plat**19 Proposed Depth *9745'*
MTVD 9315' MD 13671'20 BLM/BIA Bond No on file
PH: 9745' CO-110421 Elevations (Show whether DF, KDB, RT, GL, etc)
3490.4' GL22 Approximate date work will start*
03/15/201223 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)

Date

Stephanie A. Ysasaga**01/23/2012**

Title

Sr. Staff Engineering Technician

Approved by (Signature)

/s/ Don Peterson

Name (Printed/Typed)

Date **APR 23 2012**

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICEApplication approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.**APPROVAL FOR TWO YEARS**

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

*(Instructions on page 2)

Capitan Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

Operators Representative:

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

Steven Jones
Operations Engineer Advisor

Don Mayberry
Superintendent

Devon Energy Production Company, L.P.
20 North Broadway, Suite 1500
Oklahoma City, OK 73102-8260

Devon Energy Production Company, L.P.
Post Office Box 250
Artesia, NM 88211-0250

(405) 552-7994 (office)
(405) 596-8041 (cell)

(505) 748-0164 (office)
(505) 748-5235 (cell)

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 23rd day of January, 2011.

Printed Name: Stephanie A. Ysasaga

Signed Name: [Signature]

Position Title: Sr. Staff Engineering Technician

Address: 20 North Broadway, OKC OK 73102

Telephone: (405)-552-7802

Field Representative (if not above signatory): Don Mayberry (see above)

Address (if different from above):

Telephone (if different from above):

E-mail (optional):

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-102
Revised October 15, 2009
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

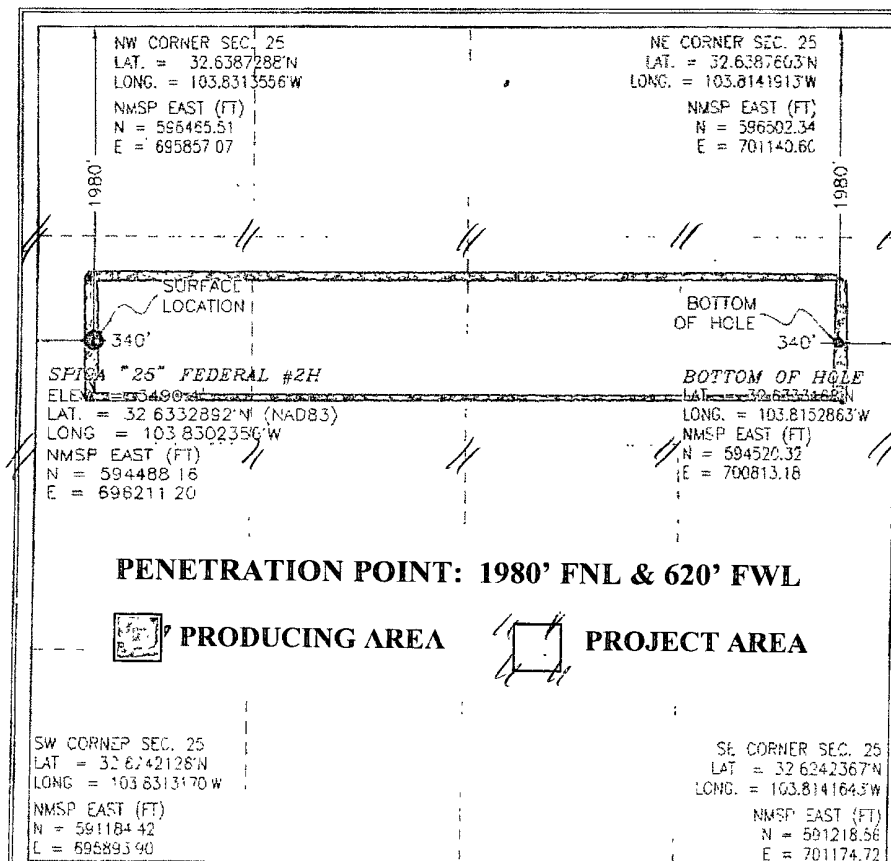
APN Number 30-015-70222	Pool Code 97650	Pool Name WC Williams Sink; B.S.
Property Code 39137	Property Name SPICA "25" FEDERAL	Well Number 2H
OGRID No. 6137	Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	Elevation 3490.4

b Surface Location									
U/L or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	25	19 S	31 E		1980	NORTH	340	WEST	EDDY

c Bottom Hole Location If Different From Surface									
U/L or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	25	19 S	31 E		1980	NORTH	340	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location, or has a right to drill this well in this location pursuant to an agreement with an owner of such a mineral or working interest, or its contributors, pooling agreement, or a company's pooling order, heretofore entered by the division.

Signature: *[Signature]* Date: *6/12/2012*
Printed Name: **STEPHANIE A. YASAGA**

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.

OCTOBER 17, 2011
Date of Survey: *10/17/2011*

Signature and Seal of Professional Surveyor: *[Signature]*
Certificate Number: **14347**

NEW MEXICO
LAND SURVEYORS
EDDY COUNTY

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DRILLING PROGRAM

Devon Energy Production Company, LP

Spica 25 Federal 2H

Surface Location: 1980' FNL & 340 FWL, Unit E, Sec 25 T19S R31E, Eddy, NM

Bottom hole Location: 1980' FNL & 340' FEL, Unit H, Sec 25 T19S R31E, Eddy, NM

1. Geologic Name of Surface Formation

a. Quaternary

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

a. Quaternary Alluvium	140'	Fresh Water
b. Rustler	790'	Barren
c. Salado	1085'	Barren
d. Base Salado	2285'	Barren
e. Tansil Dolomite	2365'	Barren
f. Yates	2480'	Barren
g. Seven Rivers	2675'	Barren
h. Capitan	2775'	Barren
i. B/Capitan	4455'	Barren
j. Delaware	4660'	Oil
k. Bone Springs	7210'	Oil
l. 1 st Bone Spring Ss	8400'	Oil
m. 2 nd Bone Spring Lime	8700'	Oil
n. 2 nd Bone Spring Ss	9100'	Oil
o. 2 nd Bone Spring Up'r Ss	9170'	Oil
p. 2 nd Bone Spring Up'r Base	9270'	Oil
q. 2 nd Bone Spring Middle Ss	9295'	Oil
r. 2 nd Bone Spring Middle Ss Base	9395'	Oil
s. 3 rd Bone Spring Lime	9595'	Oil
t. Pilot Hole	9745'	
u. Total Depth	TVD 9315' MD 13671'	

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 20" casing at 825' and 13 3/8" casing at 2600' and circulating cement back to surface. The fresh water sands will be protected by setting 9 5/8" casing at 4600' and circulating cement to surface. The Delaware intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 9 5/8" casing. All casing is new and API approved.

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Corliss Field Office

3. Casing Program:

<u>Hole Size</u>	<u>Hole Interval</u>	<u>OD Csg</u>	<u>Casing Interval</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
26"	0'-825'	20"	0'-825'	94#	BTC	J/K-55
17 1/2"	0'-2600'	13 3/8"	0'-2600'	68#	BTC	J/K-55
See CO/A 12 1/4"	2600'- 4600'	9 5/8"	0'- 4600' 4560'	40#	LTC	J-55
8 3/4"	4600'-8300'	5 1/2"	0'-8300'	17#	LTC	HCP-110
8 3/4"	8300'-13671'	5 1/2"	8300-13671'	17#	BTC	HCP-110

Max Lateral TVD: 9,315 ft

An 8-3/4" pilot hole will be drilled to 9,745 ft, and plugged back to KOP with approx 350 sxs Class H, 15.6 ppg, 1.16 cf/sk cement.

Design Parameter Factors:

<u>Casing Size</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
20"	2.46	10.01	31.42
13 3/8"	1.19	2.55	3.82
9 5/8" 40# J-55	1.25	1.92	2.95
5 1/2" 17# HCP-110 LTC	1.64	2.02	1.55
5 1/2" 17# HCP-110 BTC	1.84	2.27	5.22

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. All casing strings utilized are new.

4. Cement Program: (Note: All cement volumes are calculated with 25% excesses.)

- a. 20" Surface **Lead:** 1300 sacks Class C Cement + 1% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 81% Fresh Water, 13.5 ppg. **Yield:** 1.73 cf/sk
- Tail:** 300 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56% Fresh Water, 14.8 ppg. **Yield:** 1.35 cf/sk. **TOC @ surface.**
- b. 13 3/8" Intermediate **Lead:** 1800 sacks (60:40) Poz Class C Cement + 5% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 89% Fresh Water, 12.6 ppg. **Yield:** 1.73 cf/sk
- Tail:** 450 sacks (60:40) Class C Cement + 5% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 66% Fresh Water, 13.8 ppg. **Yield:** 1.38 cf/sk.. **TOC @ surface.**

c. 9 5/8" Intermediate

1st Stage

Lead: 600 sacks (60:40) Poz Class C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 90% Fresh Water, 12.6 ppg. Yield: 1.73 cf/sk.

Tail: 300 sacks (60:40) Poz Class C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 66% Water, 13.8 ppg. Yield: 1.38 cf/sk. **TOC @ surface**

DV tool and ECP at (2,600') (approx 150' above the reef top)
see COA - min. 50' below 13 3/8" shoe

2nd Stage

Lead: 700 sacks (60:40) Poz (Fly Ash): Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6 bwoc Bentonite + 90% Fresh Water, 12.6 ppg. Yield: 1.73 cf/sk.

Tail: 200 sacks (60:40) Poz Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 66% Water, 13.8 ppg. Yield: 1.38 cf/sk. **TOC @ surface**

c. 5 1/2" Production

1st Stage

Lead: 900 sacks (35:65) Class H Cement + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 2% bwoc Bentonite + 0.6% bwoc Sodium Metasilicate + 0.5% bwoc FL-52A + 102.5% Fresh Water, 12.5 ppg. **Yield:** 2.00 cf/sk

Tail: 1,200 sacks (50:50) Poz Class H Cement + 1% bwow Sodium Chloride + 0.2% bwoc R-3 + 0.125 lbs/sack Cello Flake + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 58.3% Fresh Water, 14.2 ppg. **Yield:** 1.28 cf/sk

DV TOOL at ~5,000 ft

2nd Stage

Lead: 400 sacks Class C Cement + 1% bwow Calcium Chloride + 0.125 lbs/sack Cello Flake + 157.8% Fresh Water, 11.4 ppg. **Yield:** 2.88 cf/sk

Tail: 200 sacks (60:40) Poz Class C + 1% bwow Sodium Chloride + 0.2% bwoc R-3 + 0.125 lbs/sack Cello Flake + 0.5% bwoc BA-10A + 4 bwoc MPA-5 + 63.2% Fresh Water, 13.8 ppg. **Yield:** 1.38 cf/sk.
TOC @ 2,600' see COA

TOC for All Strings:

Surface: 0'
Intermediate 1: 0'
Intermediate 2: 0'
Production: 2,600' (approx 200' above reef top)

The above cement volumes could be revised pending the caliper measurement from the open hole logs. Actual cement volumes will be adjusted bases on fluid caliper and caliper log data.

5. 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 ^{5/8"}~~13 3/8"~~ **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). The line will be kept as straight as possible with minimal turns.

6. Proposed Mud Circulation System

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc</u>	<u>Fluid Loss</u>	<u>Type System</u>
0' - 825'	8.4-9.0	30-34	NC	Fresh Water
825' - 2600'	9.8-10.0	28-32	NC	Brine
2600' - 4500' ⁴⁵⁶⁰	8.4-9.0	28-30	NC	Fresh Water
4500' - 13671'	8.4-9.0	28-32	NC	Fresh Water

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

7. 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 20" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 20" shoe until total depth is reached.

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Carlsbad Field Office
Carlsbad, NM

8. **Logging, Coring, and Testing Program:** *See COA*
- a. Drill stem tests will be based on geological sample shows.
 - b. If a drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice to the BLM.
 - c. The open hole electrical logging program will be:
 - i. Total Depth to Intermediate Casing Dual Laterolog-Micro Laterolog with SP and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
 - ii. Total Depth to Surface Compensated Neutron with Gamma Ray
 - iii. No coring program is planned
 - iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.
9. **Potential Hazards:**
- a. No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. Possible 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 3800 psi and Estimated BHT 140°. No H₂S is anticipated to be encountered.
10. **Anticipated Starting Date and Duration of Operations:**
- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 32 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.



Devon Energy, Inc.

Eddy County

Spica "25" Federal

#2H

OH

Plan: Plan #2

PathfinderX & Y Report

23 January, 2012



PATHFINDER[®]

A Schlumberger Company

Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Site:	Spica "25" Federal	MD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

Project	Eddy County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Spica "25" Federal		
Site Position:		Northing:	596,083.840 usft
From:	Map	Easting:	695,579.840 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 38' 15.660 N
		Longitude:	103° 49' 56.143 W
		Grid Convergence:	0.27 °

Well	#2H		
Well Position	+N/-S	0.0 usft	Northing: 594,488.160 usft
	+E/-W	0.0 usft	Easting: 696,211.200 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 37' 59.841 N
		Longitude:	103° 49' 48.848 W
		Ground Level:	3,490.4 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF200510	1/23/2012	7.65
			Dip Angle (°)
			60.53
			Field Strength (nT)
			48,811

Design	Plan #2		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			89.60

Survey Tool Program	Date 1/23/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.0	13,671.1	Plan #2 (OH)	Pathfinder
			Description
			Pathfinder MWD



Pathfinder
PathfinderX & Y Report



Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Site:	Spica "25" Federal	MD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000 1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0 0	0 00	0 00	0 0	-3,510.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
100.0	0.00	0.00	100.0	-3,410.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
200.0	0.00	0.00	200.0	-3,310.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
300.0	0.00	0.00	300.0	-3,210.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
400.0	0.00	0.00	400.0	-3,110.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
500.0	0.00	0.00	500.0	-3,010.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
600.0	0.00	0.00	600.0	-2,910.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
700.0	0.00	0.00	700.0	-2,810.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
800.0	0.00	0.00	800.0	-2,710.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
900.0	0.00	0.00	900.0	-2,610.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,000.0	0.00	0.00	1,000.0	-2,510.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,100.0	0.00	0.00	1,100.0	-2,410.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,200.0	0.00	0.00	1,200.0	-2,310.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,300.0	0.00	0.00	1,300.0	-2,210.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,400.0	0.00	0.00	1,400.0	-2,110.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,500.0	0.00	0.00	1,500.0	-2,010.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,600.0	0.00	0.00	1,600.0	-1,910.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,700.0	0.00	0.00	1,700.0	-1,810.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,800.0	0.00	0.00	1,800.0	-1,710.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
1,900.0	0.00	0.00	1,900.0	-1,610.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,000.0	0.00	0.00	2,000.0	-1,510.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,100.0	0.00	0.00	2,100.0	-1,410.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,200.0	0.00	0.00	2,200.0	-1,310.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,300.0	0.00	0.00	2,300.0	-1,210.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,400.0	0.00	0.00	2,400.0	-1,110.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,500.0	0.00	0.00	2,500.0	-1,010.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,600.0	0.00	0.00	2,600.0	-910.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	



Pathfinder
PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
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Design:	Plan #2	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (?/100usft)	Northing (usft)	Easting (usft)	
2,700.0	0.00	0.00	2,700.0	-810.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,800.0	0.00	0.00	2,800.0	-710.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
2,900.0	0.00	0.00	2,900.0	-610.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,000.0	0.00	0.00	3,000.0	-510.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,100.0	0.00	0.00	3,100.0	-410.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,200.0	0.00	0.00	3,200.0	-310.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,300.0	0.00	0.00	3,300.0	-210.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,400.0	0.00	0.00	3,400.0	-110.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,500.0	0.00	0.00	3,500.0	-10.4	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,600.0	0.00	0.00	3,600.0	89.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,700.0	0.00	0.00	3,700.0	189.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,800.0	0.00	0.00	3,800.0	289.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
3,900.0	0.00	0.00	3,900.0	389.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,000.0	0.00	0.00	4,000.0	489.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,100.0	0.00	0.00	4,100.0	589.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,200.0	0.00	0.00	4,200.0	689.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,300.0	0.00	0.00	4,300.0	789.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,400.0	0.00	0.00	4,400.0	889.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,500.0	0.00	0.00	4,500.0	989.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,600.0	0.00	0.00	4,600.0	1,089.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,700.0	0.00	0.00	4,700.0	1,189.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,800.0	0.00	0.00	4,800.0	1,289.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
4,900.0	0.00	0.00	4,900.0	1,389.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,000.0	0.00	0.00	5,000.0	1,489.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,100.0	0.00	0.00	5,100.0	1,589.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,200.0	0.00	0.00	5,200.0	1,689.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,300.0	0.00	0.00	5,300.0	1,789.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	



Pathfinder
PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Site:	Spica "25" Federal	MD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
5,400.0	0 00	0 00	5,400.0	1,889.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,500.0	0.00	0.00	5,500.0	1,989.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,600.0	0.00	0.00	5,600.0	2,089.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,700.0	0.00	0.00	5,700.0	2,189.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,800.0	0.00	0.00	5,800.0	2,289.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
5,900.0	0.00	0.00	5,900.0	2,389.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,000.0	0.00	0.00	6,000.0	2,489.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,100.0	0.00	0.00	6,100.0	2,589.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,200.0	0.00	0.00	6,200.0	2,689.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,300.0	0.00	0.00	6,300.0	2,789.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,400.0	0.00	0.00	6,400.0	2,889.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,500.0	0.00	0.00	6,500.0	2,989.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,600.0	0.00	0.00	6,600.0	3,089.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,700.0	0.00	0.00	6,700.0	3,189.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,800.0	0.00	0.00	6,800.0	3,289.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
6,900.0	0.00	0.00	6,900.0	3,389.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,000.0	0.00	0.00	7,000.0	3,489.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,100.0	0.00	0.00	7,100.0	3,589.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,200.0	0.00	0.00	7,200.0	3,689.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,300.0	0.00	0.00	7,300.0	3,789.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,400.0	0.00	0.00	7,400.0	3,889.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,500.0	0.00	0.00	7,500.0	3,989.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,600.0	0.00	0.00	7,600.0	4,089.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,700.0	0.00	0.00	7,700.0	4,189.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,800.0	0.00	0.00	7,800.0	4,289.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
7,900.0	0.00	0.00	7,900.0	4,389.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,000.0	0.00	0.00	8,000.0	4,489.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	



Pathfinder
PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Site:	Spica "25" Federal	MD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,100.0	0.00	0.00	8,100.0	4,589.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,200.0	0.00	0.00	8,200.0	4,689.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,300.0	0.00	0.00	8,300.0	4,789.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,400.0	0.00	0.00	8,400.0	4,889.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,500.0	0.00	0.00	8,500.0	4,989.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,600.0	0.00	0.00	8,600.0	5,089.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,700.0	0.00	0.00	8,700.0	5,189.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,742.0	0.00	0.00	8,742.0	5,231.6	0.0	0.0	0.0	0.00	594,488.16	696,211.20	
8,750.0	0.80	89.60	8,750.0	5,239.6	0.0	0.1	0.1	10.00	594,488.16	696,211.26	
8,800.0	5.80	89.60	8,799.9	5,289.5	0.0	2.9	2.9	10.00	594,488.18	696,214.13	
8,850.0	10.80	89.60	8,849.4	5,339.0	0.1	10.1	10.1	10.00	594,488.23	696,221.35	
8,900.0	15.80	89.60	8,898.0	5,387.6	0.2	21.6	21.6	10.00	594,488.31	696,232.85	
8,950.0	20.80	89.60	8,945.5	5,435.1	0.3	37.3	37.3	10.00	594,488.42	696,248.54	
9,000.0	25.80	89.60	8,991.4	5,481.0	0.4	57.1	57.1	10.00	594,488.56	696,268.31	
9,050.0	30.80	89.60	9,035.4	5,525.0	0.6	80.8	80.8	10.00	594,488.72	696,292.01	
9,100.0	35.80	89.60	9,077.2	5,566.8	0.8	108.2	108.3	10.00	594,488.92	696,319.45	
9,150.0	40.80	89.60	9,116.4	5,606.0	1.0	139.2	139.2	10.00	594,489.13	696,350.43	
9,200.0	45.80	89.60	9,152.8	5,642.4	1.2	173.5	173.5	10.00	594,489.37	696,384.71	
9,250.0	50.80	89.60	9,186.0	5,675.6	1.5	210.8	210.8	10.00	594,489.63	696,422.03	
9,300.0	55.80	89.60	9,215.9	5,705.5	1.8	250.9	250.9	10.00	594,489.91	696,462.10	
9,350.0	60.80	89.60	9,242.1	5,731.7	2.1	293.4	293.4	10.00	594,490.21	696,504.63	
9,400.0	65.80	89.60	9,264.6	5,754.2	2.4	338.1	338.1	10.00	594,490.52	696,549.28	
9,450.0	70.80	89.60	9,283.1	5,772.7	2.7	384.5	384.5	10.00	594,490.85	696,595.72	
9,500.0	75.80	89.60	9,297.5	5,787.1	3.0	432.4	432.4	10.00	594,491.18	696,643.60	
9,550.0	80.80	89.60	9,307.6	5,797.2	3.4	481.3	481.4	10.00	594,491.52	696,692.54	
9,600.0	85.80	89.60	9,313.4	5,803.0	3.7	531.0	531.0	10.00	594,491.87	696,742.18	
9,642.0	90.00	89.60	9,315.0	5,804.6	4.0	572.9	573.0	10.00	594,492.16	696,784.14	



Pathfinder
PathfinderX & Y Report



Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Site:	Spica "25" Federal	MD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
9,700.0	90.00	89.60	9,315.0	5,804.6	4.4	630.9	631.0	0.00	594,492.57	696,842.14	
9,800.0	90.00	89.60	9,315.0	5,804.6	5.1	730.9	731.0	0.00	594,493.27	696,942.14	
9,900.0	90.00	89.60	9,315.0	5,804.6	5.8	830.9	831.0	0.00	594,493.97	697,042.14	
10,000.0	90.00	89.60	9,315.0	5,804.6	6.5	930.9	931.0	0.00	594,494.67	697,142.14	
10,100.0	90.00	89.60	9,315.0	5,804.6	7.2	1,030.9	1,031.0	0.00	594,495.36	697,242.13	
10,200.0	90.00	89.60	9,315.0	5,804.6	7.9	1,130.9	1,131.0	0.00	594,496.06	697,342.13	
10,300.0	90.00	89.60	9,315.0	5,804.6	8.6	1,230.9	1,231.0	0.00	594,496.76	697,442.13	
10,400.0	90.00	89.60	9,315.0	5,804.6	9.3	1,330.9	1,331.0	0.00	594,497.46	697,542.13	
10,500.0	90.00	89.60	9,315.0	5,804.6	10.0	1,430.9	1,431.0	0.00	594,498.16	697,642.12	
10,600.0	90.00	89.60	9,315.0	5,804.6	10.7	1,530.9	1,531.0	0.00	594,498.86	697,742.12	
10,700.0	90.00	89.60	9,315.0	5,804.6	11.4	1,630.9	1,631.0	0.00	594,499.56	697,842.12	
10,800.0	90.00	89.60	9,315.0	5,804.6	12.1	1,730.9	1,731.0	0.00	594,500.26	697,942.12	
10,900.0	90.00	89.60	9,315.0	5,804.6	12.8	1,830.9	1,831.0	0.00	594,500.95	698,042.11	
11,000.0	90.00	89.60	9,315.0	5,804.6	13.5	1,930.9	1,931.0	0.00	594,501.65	698,142.11	
11,100.0	90.00	89.60	9,315.0	5,804.6	14.2	2,030.9	2,031.0	0.00	594,502.35	698,242.11	
11,200.0	90.00	89.60	9,315.0	5,804.6	14.9	2,130.9	2,131.0	0.00	594,503.05	698,342.11	
11,300.0	90.00	89.60	9,315.0	5,804.6	15.6	2,230.9	2,231.0	0.00	594,503.75	698,442.10	
11,400.0	90.00	89.60	9,315.0	5,804.6	16.3	2,330.9	2,331.0	0.00	594,504.45	698,542.10	
11,500.0	90.00	89.60	9,315.0	5,804.6	17.0	2,430.9	2,431.0	0.00	594,505.15	698,642.10	
11,600.0	90.00	89.60	9,315.0	5,804.6	17.7	2,530.9	2,531.0	0.00	594,505.85	698,742.10	
11,700.0	90.00	89.60	9,315.0	5,804.6	18.4	2,630.9	2,631.0	0.00	594,506.55	698,842.09	
11,800.0	90.00	89.60	9,315.0	5,804.6	19.1	2,730.9	2,731.0	0.00	594,507.24	698,942.09	
11,900.0	90.00	89.60	9,315.0	5,804.6	19.8	2,830.9	2,831.0	0.00	594,507.94	699,042.09	
12,000.0	90.00	89.60	9,315.0	5,804.6	20.5	2,930.9	2,931.0	0.00	594,508.64	699,142.09	
12,100.0	90.00	89.60	9,315.0	5,804.6	21.2	3,030.9	3,031.0	0.00	594,509.34	699,242.08	
12,200.0	90.00	89.60	9,315.0	5,804.6	21.9	3,130.9	3,131.0	0.00	594,510.04	699,342.08	
12,300.0	90.00	89.60	9,315.0	5,804.6	22.6	3,230.9	3,231.0	0.00	594,510.74	699,442.08	



Pathfinder
PathfinderX & Y Report



Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Site:	Spica "25" Federal	MD Reference:	KB = 20 @ 3510.4usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
12,400.0	90.00	89.60	9,315.0	5,804.6	23.3	3,330.9	3,331.0	0.00	594,511.44	699,542.08	
12,500.0	90.00	89.60	9,315.0	5,804.6	24.0	3,430.9	3,431.0	0.00	594,512.14	699,642.07	
12,600.0	90.00	89.60	9,315.0	5,804.6	24.7	3,530.9	3,531.0	0.00	594,512.83	699,742.07	
12,700.0	90.00	89.60	9,315.0	5,804.6	25.4	3,630.9	3,631.0	0.00	594,513.53	699,842.07	
12,800.0	90.00	89.60	9,315.0	5,804.6	26.1	3,730.9	3,731.0	0.00	594,514.23	699,942.07	
12,900.0	90.00	89.60	9,315.0	5,804.6	26.8	3,830.9	3,831.0	0.00	594,514.93	700,042.06	
13,000.0	90.00	89.60	9,315.0	5,804.6	27.5	3,930.9	3,931.0	0.00	594,515.63	700,142.06	
13,100.0	90.00	89.60	9,315.0	5,804.6	28.2	4,030.9	4,031.0	0.00	594,516.33	700,242.06	
13,200.0	90.00	89.60	9,315.0	5,804.6	28.9	4,130.9	4,131.0	0.00	594,517.03	700,342.06	
13,300.0	90.00	89.60	9,315.0	5,804.6	29.6	4,230.9	4,231.0	0.00	594,517.73	700,442.05	
13,400.0	90.00	89.60	9,315.0	5,804.6	30.3	4,330.9	4,331.0	0.00	594,518.43	700,542.05	
13,500.0	90.00	89.60	9,315.0	5,804.6	31.0	4,430.8	4,431.0	0.00	594,519.12	700,642.05	
13,600.0	90.00	89.60	9,315.0	5,804.6	31.7	4,530.8	4,531.0	0.00	594,519.82	700,742.05	
13,671.1	90.00	89.60	9,315.0	5,804.6	32.2	4,602.0	4,602.1	0.00	594,520.32	700,813.18	

Checked By: _____	Approved By: _____	Date: _____
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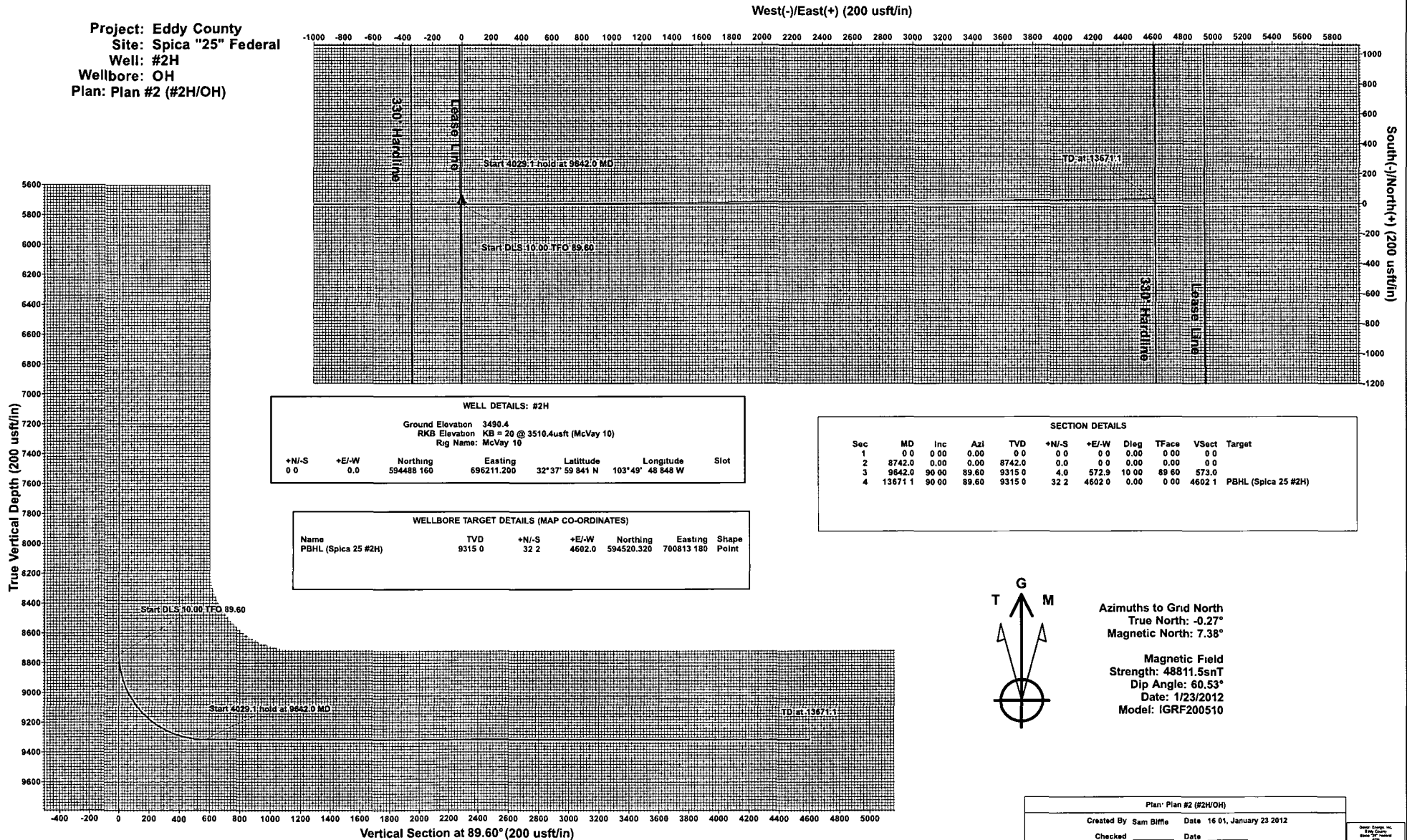
devon

PROJECT DETAILS: Eddy County
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

PATHFINDER®

A Schlumberger Company

Project: Eddy County
Site: Spica "25" Federal
Well: #2H
Wellbore: OH
Plan: Plan #2 (#2H/OH)



Devon - Spica 25 Federal #2H Plan #2 TXT.txt

HEADER INFORMATION

COMPANY : Devon Energy, Inc.
 FIELD : Eddy County
 SITE : Spica "25" Federal
 WELL : #2H
 WELLPATH: OH
 DEPTHUNT: usft

WELL INFORMATION

WELL EW MAP : 696211.20
 WELL NS MAP : 594488.16
 DATUM ELEVN : 3510.40
 VSECT ANGLE : 89.60
 VSECT NORTH : 0.00
 VSECT EAST : 0.00

SURVEY TYPE INFORMATION

H 0.00 - 13671.13 PLAN #2 : PATHFINDER

SURVEY LIST

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Devon - Spica 25 Federal #2H Plan #2 TXT.txt						
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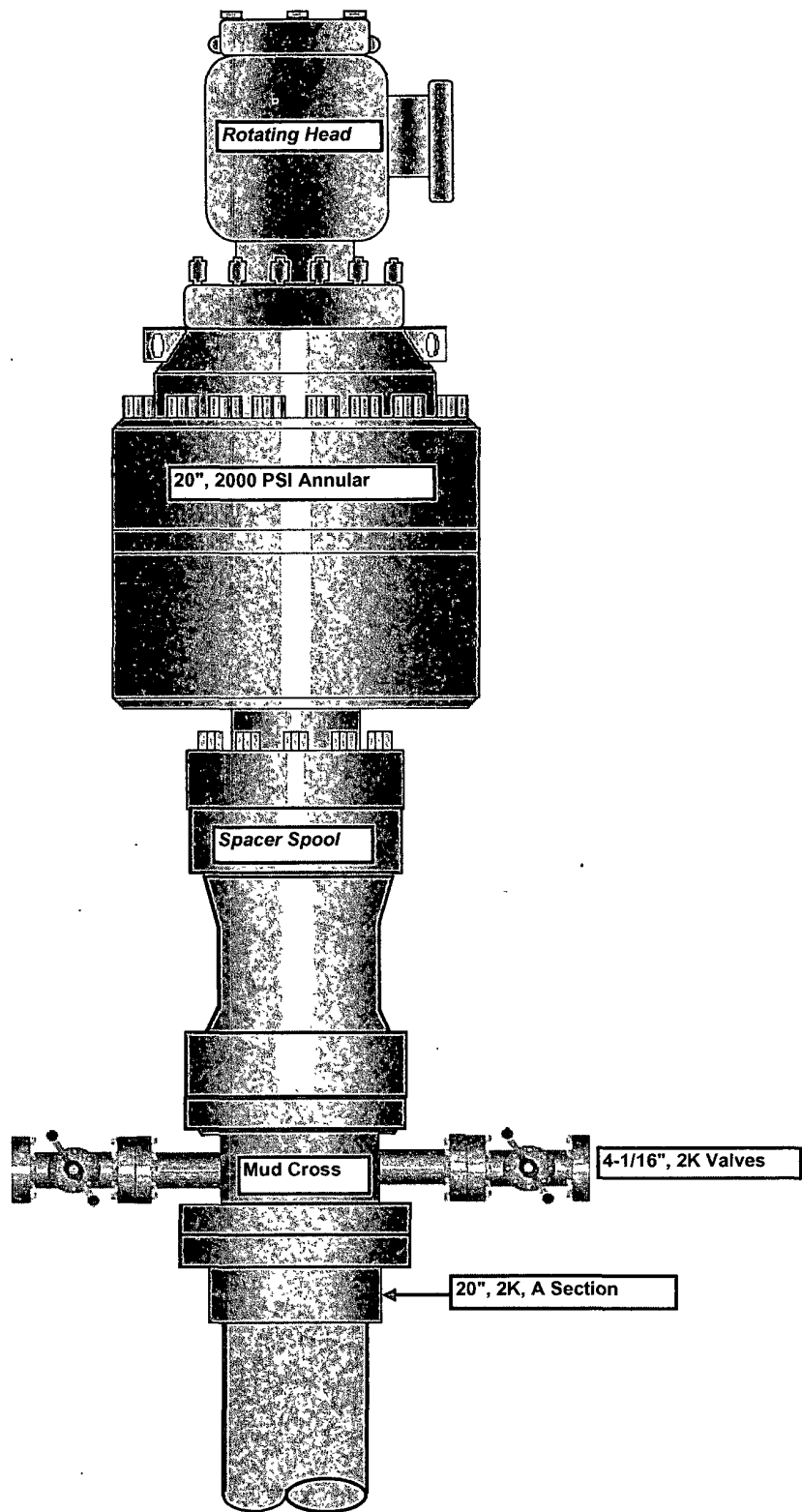
Devon - Spica 25 Federal #2H Plan #2 TXT.txt						
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Attachment to Exhibit #1
NOTES REGARDING BLOWOUT PREVENTERS
Devon Energy Production Company, LP
Spica 25 Federal 2H

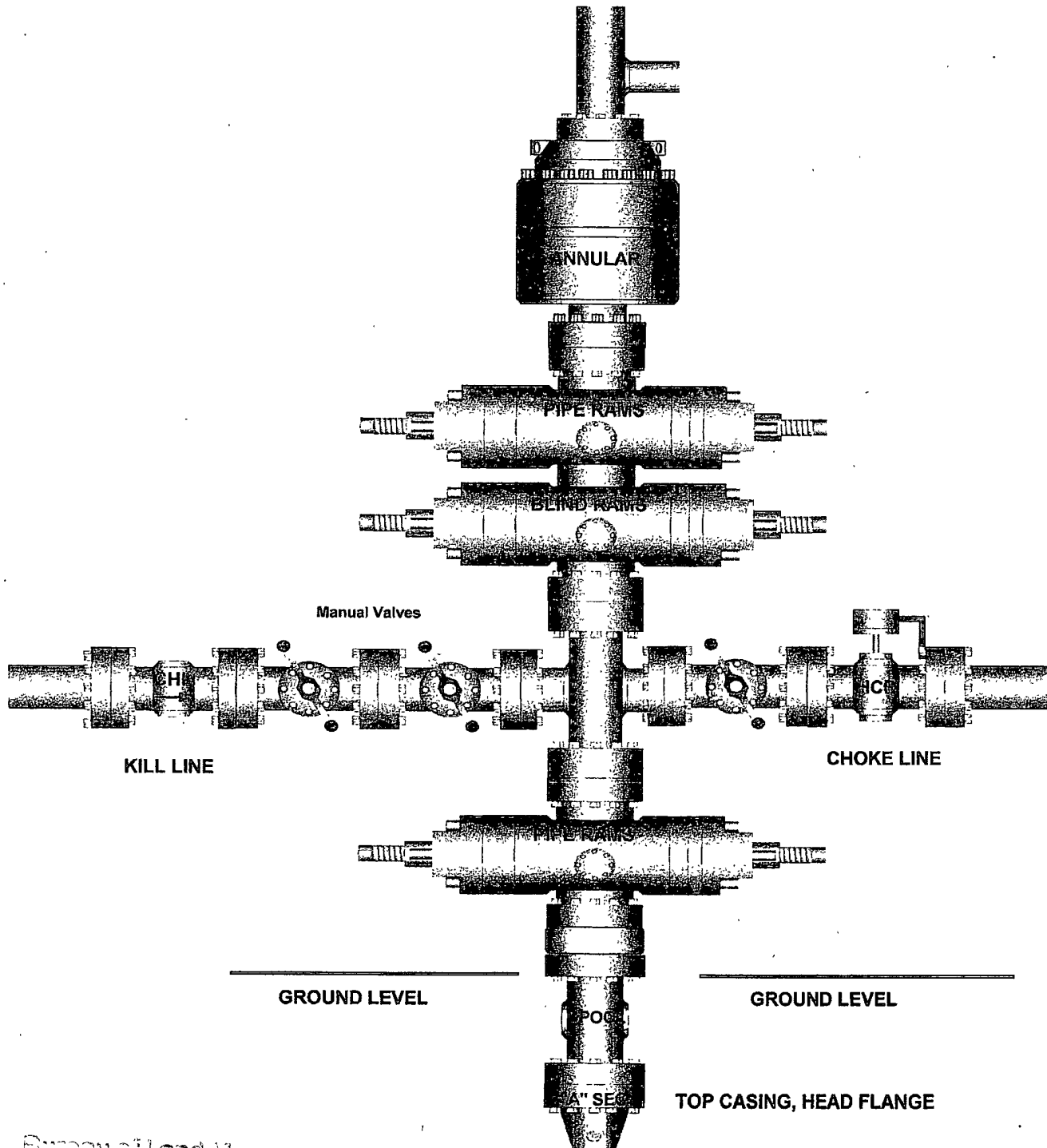
Surface Location: 1980' FNL & 340' FWL, Unit E, Sec 25 T19S R31E, Eddy, NM
Bottom hole Location: 1980' FNL & 340' FEL, Unit H, Sec 25 T19S R31E, Eddy, NM

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



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



Bureau of Land Management
RECEIVED

FEB 08 2012

Carlsbad Field Office
Carlsbad, NM

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

Hydrostatic Test Certificate



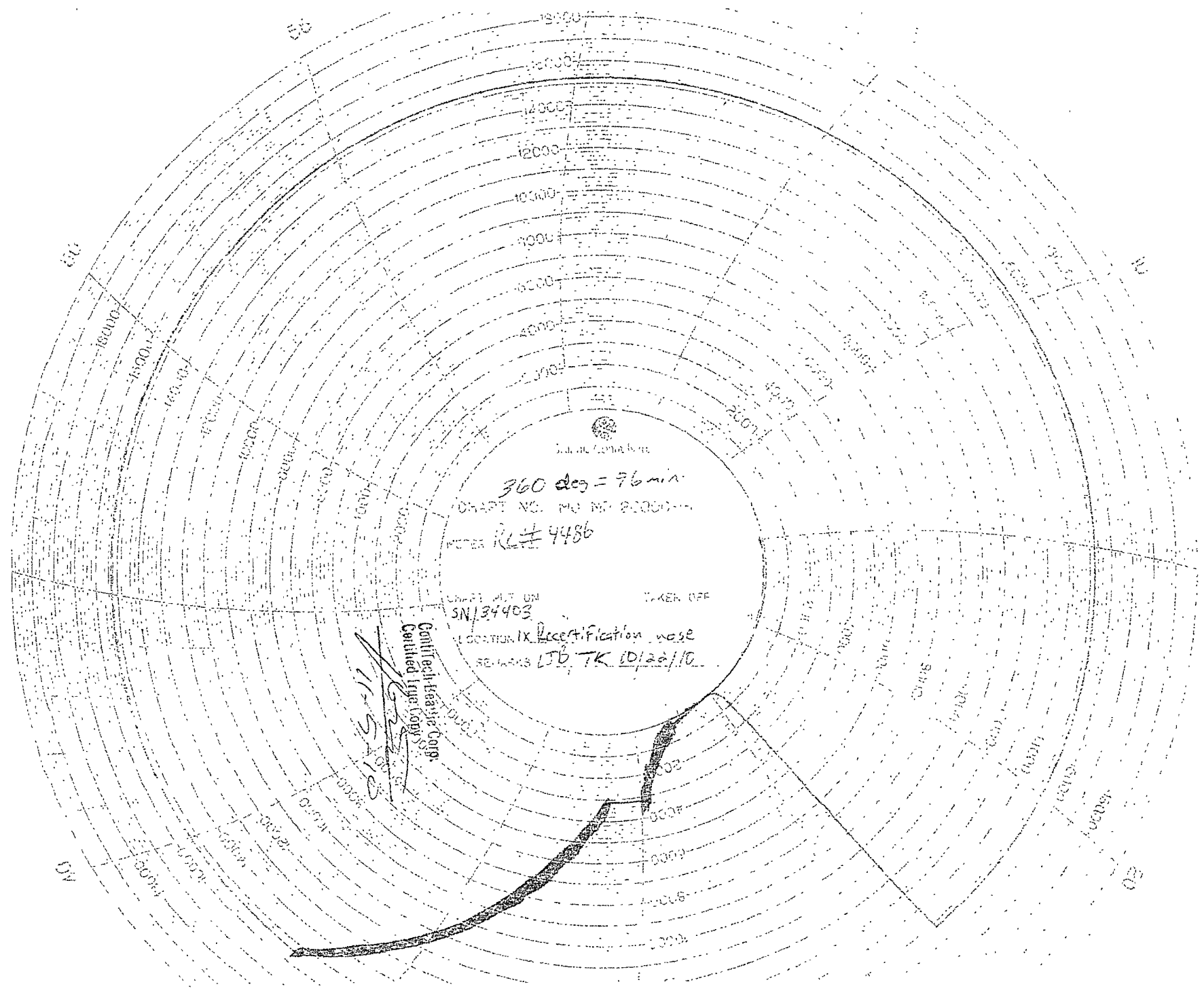
Certificate Number: 4520	PBC No: 10321	Customer Name & Address
Customer Purchase Order No: RIG 300		HELMERICH & PAYNE INT'L DRILLING CO 1437 SOUTH BOULDER TULSA, OK 74119
Project:		
Test Centre Address	Accepted by ContiTech Beattie Inspection	Accepted by Client Inspection
ContiTech Beattie Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	Signed: Josh Sims Date: 10/27/10	

We certify that the goods detailed hereon have been inspected by our Quality Management System, and to the best of our knowledge are found to conform to relevant industrial standards within the requirements of the purchase order as issued to ContiTech Beattie Corporation

These goods were made in the United States of America

Item	Part No.	Description	Qty	Serial Number	As-Built Length (m)	Work Press.	Test Press.	Test Time (minutes)
1		3" ID 10K Choke & Kill Hose x 35ft OAL End A: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange End B: 4 1/16" 10Kpsi API Spec 6A Type 6BX Flange Working Pressure: 10,000psi Test Pressure: 15,000psi Serial#: 49106	1	49106		10 kpsi	15 kpsi	60

45



15



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.

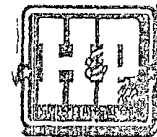
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

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

Best regards,

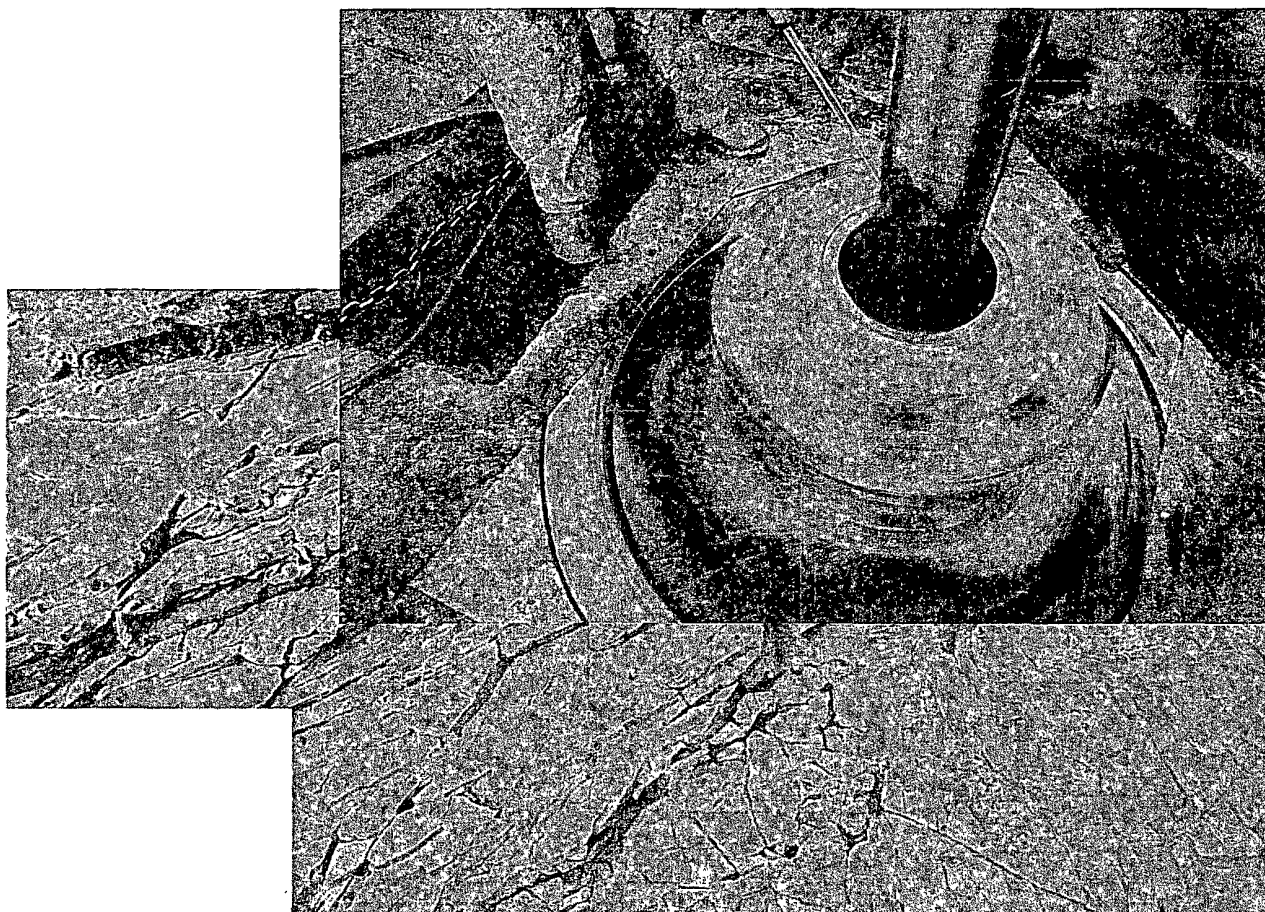
Robin Hodgson
Sales Manager
ContiTech Beattie Corp

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





Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
June 2008

I. Design Plan

Devon uses various high efficient closed loop systems (CLS). The CLS shown is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

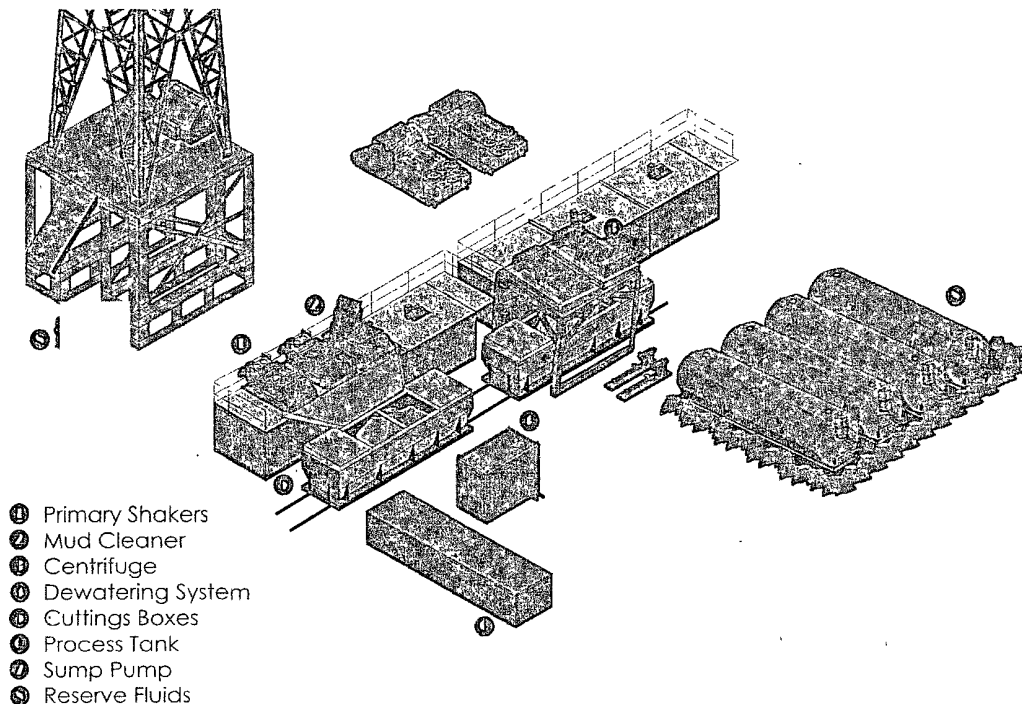
II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.

devon

Closed Loop Schematic



Centrifuges: The centrifuges can be utilized depending on the well's anticipated solids volume. One or two centrifuges can be used depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds

ultra fine solids into a mass that is within the centrifuge operating design. The dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

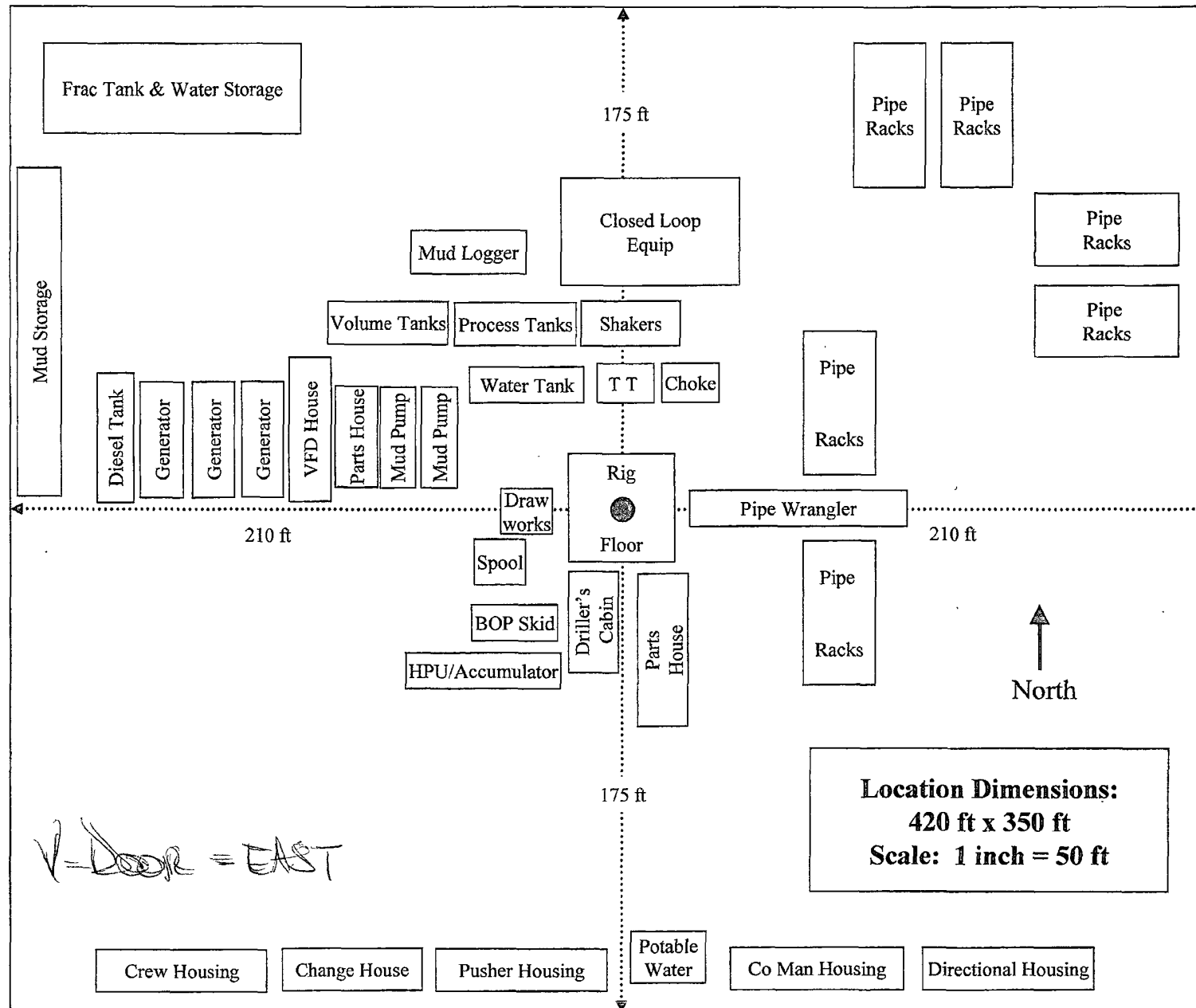
dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Solids Control service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

III. Closure Plan

A maximum 170' X 170' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

H&P Flex Rig Location Layout





**Devon Energy Corporation
20 North Broadway
Oklahoma City, Oklahoma 73102-8260**

Hydrogen Sulfide (H₂S) Contingency Plan

For

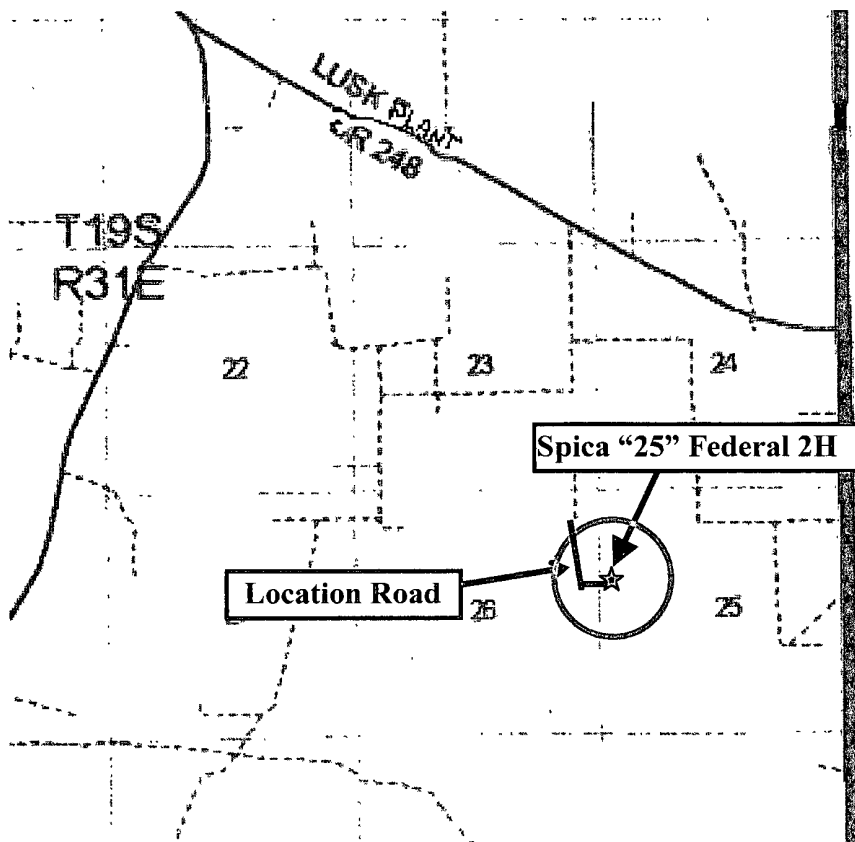
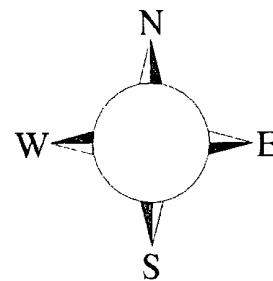
Spica "25" Federal 2H

**Sec-25, T-19S R-31E
1980' FNL & 340' FWL,
LAT. = 32.6332892°N (NAD83)
LONG = 103.8302356°W**

Eddy County NM

Spica "25" Federal 2H

This is an open drilling site. H₂S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H₂S, including warning signs, wind indicators and H₂S monitor.



Assumed 100 ppm ROE = 3000' (- - - - -)
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 West then North to caliche road and out of danger. 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 H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, 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 H₂S 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 H₂S, 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 (SO₂). 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 H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	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)

Devon Energy Corp. Company Call List

<u>Artesia (575)</u>	<u>Cellular</u>	<u>Office</u>	<u>Home</u>
Foreman – Roger Hernandez ..748-0169	748-5238.....	746-2991	
Asst. Foreman –Tommy Polly.748-5290.....	748-0165.....	748-2846	
Brian Schultz	(505) 325-5623.....	746-9072.....	746-4945
Montral Walker.....	390-5182	748-0193.....	936-414-6246
Engineer – Steven Jones	(405) 596-8041.....	(405) 552-7994	

Agency Call List

<u>Lea</u>	<u>Hobbs</u>
<u>County</u>	State Police.....
<u>(575)</u>	City Police.....
	Sheriff's Office.....
	Ambulance.....
	Fire Department.....
	LEPC (Local Emergency Planning Committee)
	NMOCD
	US Bureau of Land Management

<u>Eddy</u>	<u>Carlsbad</u>
<u>County</u>	State Police.....
<u>(575)</u>	City Police.....
	Sheriff's Office.....
	Ambulance.....
	Fire Department.....
	LEPC (Local Emergency Planning Committee).....
	US Bureau of Land Management
	New Mexico Emergency Response Commission (Santa Fe) ...
	24 HR
	National Emergency Response Center (Washington, DC) ..

Emergency Services

	Boots & Coots IWC	1-800-256-9688 or (281) 931-8884
	Cudd Pressure Control.....	(915) 699-0139 or (915) 563-3356
	Halliburton	(575) 746-2757
	B. J. Services.....	(575) 746-3569
<i>Give</i>	Flight For Life - Lubbock, TX	(806) 743-9911
<i>GPS</i>	Aerocare - Lubbock, TX	(806) 747-8923
<i>position:</i>	Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM	(575) 272-3115

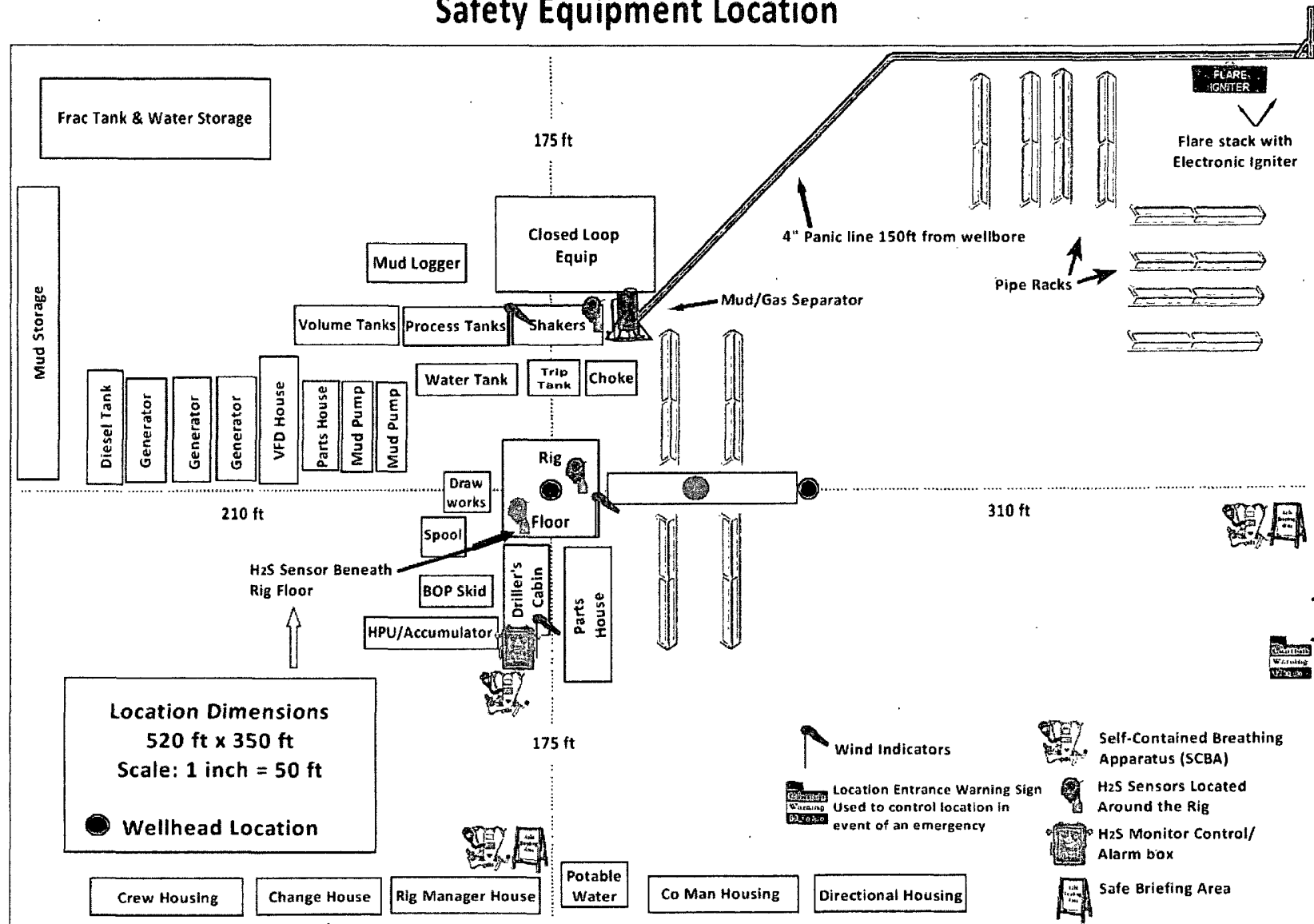
Prepared in conjunction with
Wade Rohloff



Devon Energy - 3 Well Pad

Rig Location Layout

Safety Equipment Location



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Prod Co
LEASE NO.:	NM0107697
WELL NAME & NO.:	2H Spica 25 Federal
SURFACE HOLE FOOTAGE:	1980' FNL & 340' FWL
BOTTOM HOLE FOOTAGE:	1980' FNL & 340' FEL
LOCATION:	Section 25, T.19 S., R.31E., 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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Lesser Prairie-Chicken Timing Stipulations
 - Ground-level Abandoned Well Marker
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - H₂S – Onshore Order #6
 - Logging Requirements
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

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.

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) 234-6235 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 4 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. 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 (20) 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

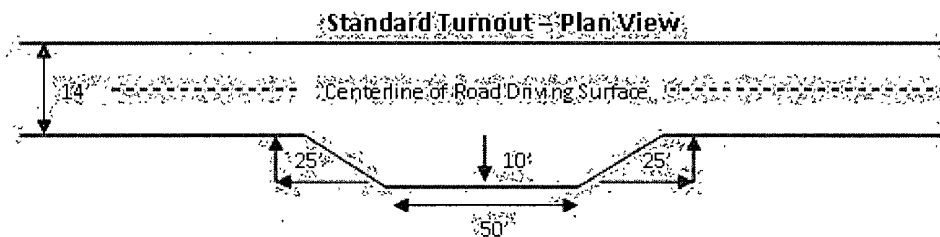
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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:

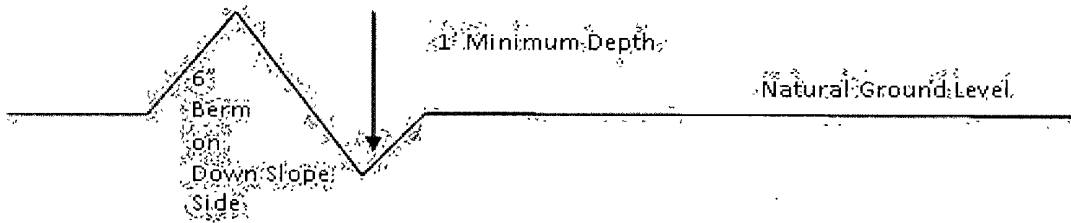


Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

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

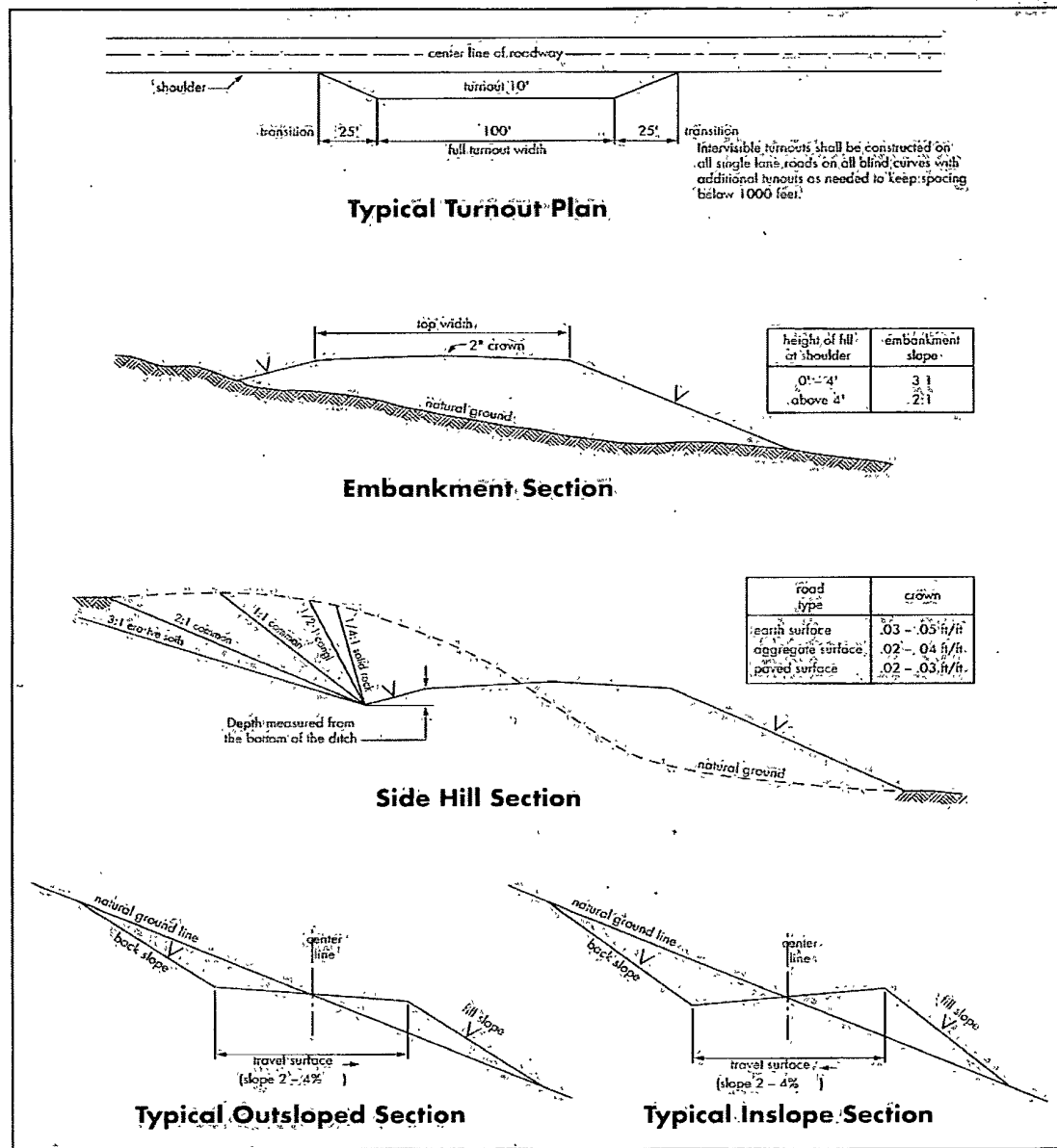
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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 a minimum of 4 hours in advance for a representative to witness:

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

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. A Hydrogen Sulfide (H₂S) Drilling Plan should be activated 500 feet prior to drilling into the Yates formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. **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 and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

Wait on cement (WOC) time 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. See individual casing strings for details regarding lead cement slurry requirements.

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

**Possible water and brine flows in the Salado and Artesia groups.
Possible lost circulation in the Artesia group and Capitan Reef.**

1. The **20** inch surface casing shall be set at **approximately 825 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. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef.**

3. The minimum required fill of cement behind the **9-5/8 inch 2nd** intermediate casing is: **(Ensure casing is set above the Delaware sands at approximately 4560') DV tool shall be set a minimum of 50 feet below previous casing shoe.**
- 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.**

Positive standoff centralizers shall be utilized for the production string every other joint of casing from 100' MD above KOP or at the legal footage setback, whichever is the deeper MD, up to TOC.

The pilot hole plugging procedure is approved as written.

4. The minimum required fill of cement behind the **5-1/2 inch** production casing is:
- a. First stage to DV tool, cement shall:
 - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage..
 - b. Second stage above DV tool, cement shall:
 - ☒ Cement should tie-back a minimum of 200 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.** 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 **9-5/8** inch 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 results of the test shall be reported to the appropriate BLM office.

- d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

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.

CRW 041912

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Containment Structures

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

Painting Requirement

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

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 for LPC Sand/Shinnery 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:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A
Four-winged Saltbush	5lbs/A

*Pounds of pure live seed:

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