AT5-11-708

OCD-ARTESIA

Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No.
NM-000503

6. If Indian, Allotee or Tribe Name

1a. Type of work. ☑ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No
NMNM-070928-X

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

8 Lease Name and Well No
Cotton Draw Unit 163H (300635)

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

9. API Well No.
30-015-39375

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

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

10 Field and Pool, or Exploratory
~~Poker Lake East; Delaware~~ COTTON DRAW; DEL, SOUTH (96757)

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface **NE/4 NW/4 330 FNL & 1980 FWL** (UNIT C)
At proposed prod zone **SE/4 SW/4 330 FSL & 1980 FWL** **UNIT N PP: 330 FNL 1980 FWL**

11. Sec., T. R. M or Blk and Survey or Area
SEC 11 T25S R31E

14 Distance in miles and direction from nearest town or post office*
Approximately 22 miles soustheast of Loving, NM.

12 County or Parish
Eddy County

13 State
NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drlg. unit line, if any)
330'

16 No. of acres in lease
2360.8 Acres

17. Spacing Unit dedicated to this well
E/2 W/2 160 Acres

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

19 Proposed Depth
12,592' MD 8225' TVD

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

21 Elevations (Show whether DF, KDB, RT, GL, etc.)
3416 ' GL

22. Approximate date work will start*

23. Estimated duration
45 days

RECEIVED
AUG 29 2011
NMOCD ARTESIA

24. Attachments

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

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

25. Signature
Name *(Printed Typed)* **Judy A. Barnett**
Date **05/19/2011**
Title **Regulatory Specialist**

Approved by *(Signature)* **/s/ Don Peterson**
Name *(Printed/Typed)* **/s/ Don Peterson**
Date **AUG 24 2011**
Title **FOR FIELD MANAGER**
Office **CARLSBAD FIELD OFFICE**

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

APPROVAL FOR TWO YEARS

Title 18 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

(Instructions on page 2)

KZ 09/01/11

CARLSBAD CONTROLLED WATER BASIN

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

DRILLING PROGRAM

Devon Energy Production Company, LP

Cotton Draw Unit 163H

Surface Location: 330' FNL & 1980' FWL, Unit C, Sec 11 T25S R31E, Eddy, NM

Bottom Hole Location: 330' FSL & 1980' FWL, Unit N, Sec 11 T25S R31E, Eddy, NM

1. Geologic Name of Surface Formation

a. Quaternary Alluvium

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

a.	Fresh Water	300'	Fresh Water
b.	Rustler	584'	Water
c.	Top of Salt	1020'	
d.	Base of Salt	4082'	
e.	Delaware/Lamar	4322'	Oil
f.	Bell Canyon	4348'	Oil
g.	Cherry Canyon	5312'	Oil
h.	Brushy Canyon	6615'	Oil
i.	Total Depth	12,592'	

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 17 ½"casing at ~~750'~~ and circulating cement back to surface. Fresh water sands will be protected by setting 9 5/8" casing at ~~4400'~~ and circulating cement to surface. The Quaternary Alluvium intervals will be isolated by setting 5 ½" casing to total depth and circulating cement above the base of the 9 5/8" casing.

Casing Program:

	Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
See COA	17 ½"	0 - ~~750'~~ 700'	13 3/8""	0'-~~750'~~	48#	STC	H-40
	12 ¼"	750-~~4400'~~ 4350'	9 5/8"	0'-~~4400'~~	40#	LTC	J-55
	8 ¾"	4400-7500'	5 ½"	0-7500'	17#	LTC	N-80
	8 ½"	7500-12592'	5 ½"	7500-12592'	17#	BTC	N-80

Design Parameter Factors:

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
13 3/8"	1.90	4.43	8.9
9 5/8" 40#	1.20	1.72	2.56
5 ½" 17#	1.73	2.13	3.10
5 ½" 17#	1.58	1.94	1.84

NOTE REGARDING COLLAPSE DESIGN FACTOR FOR INTERMEDIATE CASING: The maximum possible collapse load that the intermediate casing will experience will result from evacuated casing with the pore pressure exerting a collapse load at TD. The pore pressure is estimated to be 9.3 ppg for this calculation. This results in a collapse design factor of 1.20 for the 9-5/8" 40# J-55 LTC casing at a depth of 4,400'. While running the intermediate casing, the casing string will never be completely evacuated. There is no potential for the intermediate casing to be used as a production string.

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

13 3/8"

Lead: 485 sx Cl C + 2% bwoc Calcium Chloride + 0.125#/sx CF + 4% bwoc Bentonite + 81.4% FW. **Yld:** 1.75 cf/sx. **TOC @ surface.**
Tail: 250 sx Cl C+ 2% bwoc Calcium Chloride + 0.125#/sx CF + 56.3% FW. **Yld:** 1.35 cf/sx

9 5/8" Intermediate

Lead: 1230 sx (35.65) Poz (Fly Ash):Cl C + 5% bwow Sodium Chloride + 0.125#/sx CF + 6% bwoc Bentonite + 0 2% bwoc FL- 52A + 0.2% bwoc Sodium Metasilicate + 107.9% FW. **Yld**: 2.05 cf/sx. **TOC @ surface.**
Tail: 300 sx (60:40) Poz (Fly Ash):Cl C + 5% bwow Sodium Chloride + 0.125#/sx CF + 0.2% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 65.4% FW. **Yld**: 1.37 cf/sx

5 ½" Production

1st Stage
Lead: 425 sc (35:65) Poz (Fly Ash):Cl H + 3% bwow Sodium Chloride + 0.125#/sx CF + 3#/sx LCM-1 + 6% bwoc Bentonite + 0.7% bwoc FL-52A + 102.5% FW ppg. **Yld**: 2.01 cf/sx. **TOC @ 6,000'**
Tail: 1170 sx (50:50) Poz (Fly Ash):Cl H + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 0.6% bwoc Sodium Metasilicate + 0.4% bwoc FL-52A + 57.3% FW. **Yld.** 1.28 **DV TOOL @ 6,000'**

2nd Stage
Lead: 255 sx Cl C + 0.125#/sx CF + 3% bwoc Sodium Metasilicate + 1% bwoc R-3 + 157% FW. **Yld**: 2.88 cf/sx. **TOC @ 3900**
Tail: 150 sx (60:40) Poz (Fly Ash):Cl C + 5% bwow Sodium Chloride + 0.125#/sx CF + 0.1% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 65.4% FW. **Yld**: 1.37cf/sx.

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

Positive standoff centralizers will 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.

Pressure Control Equipment BOP DESIGN:

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

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

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

Proposed Mud Circulation System

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0' – ~~750'~~ 700	8.4-9.0	30-34	NC	FW
~~750'~~ – ~~4400'~~ 4350	9.8-10.0	28-32	NC	Brine
~~4400'~~–12,592'	8.6-9.3	28-32	NC	FW

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

3. Auxiliary Well Control and Monitoring Equipment:
   a. A Kelly cock will be in the drill string at all times.
   b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times
   c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 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.

4. **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.

5. Potential Hazards:

a. No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6 No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 4405 psi and Estimated BHT 145°. No H2S is anticipated to be encountered.

6. 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.

7.

Depending on rig availability, Devon may set the surface casing using an Ashton Oilfield Services rig. The rig plat is attached. This rig will be used only to set the surface casing and will leave the location once the surface casing has been run and cemented. Another rig will drill the remainder of the wellbore. The reasons for using the smaller rig to set surface are: rig availability and economics.

The BLM will be contaeted 24 hours prior to commencing drilling operations. The surface casing will be run and cemented back to surface as per the approved APD. The well will be secured with a cap welded onto the surface casing. Another rig will be on location to drill the remainder of the wellbore within 60 days after the Ashton rig has left the location.

Weatherford®

Drilling Services

Proposal

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devon

COTTON DRAW UNIT #163H

EDDY COUNTY, NM

WELL FILE: **PLAN 1**

MAY 11, 2011

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Cotton Draw #163H
Eddy Co., New Mexico

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	179.64	0.00	0.00	0.00	0.00	0.00	0.00	
2	7637.05	0.00	179.64	7637.05	0.00	0.00	0.00	0.00	0.00	
3	8534.93	89.79	179.64	8210.00	-570.83	3.60	10.00	179.64	570.84	
4	12592.01	89.79	179.64	8225.00	-4627.80	29.16	0.00	0.00	4627.89	Pbhl

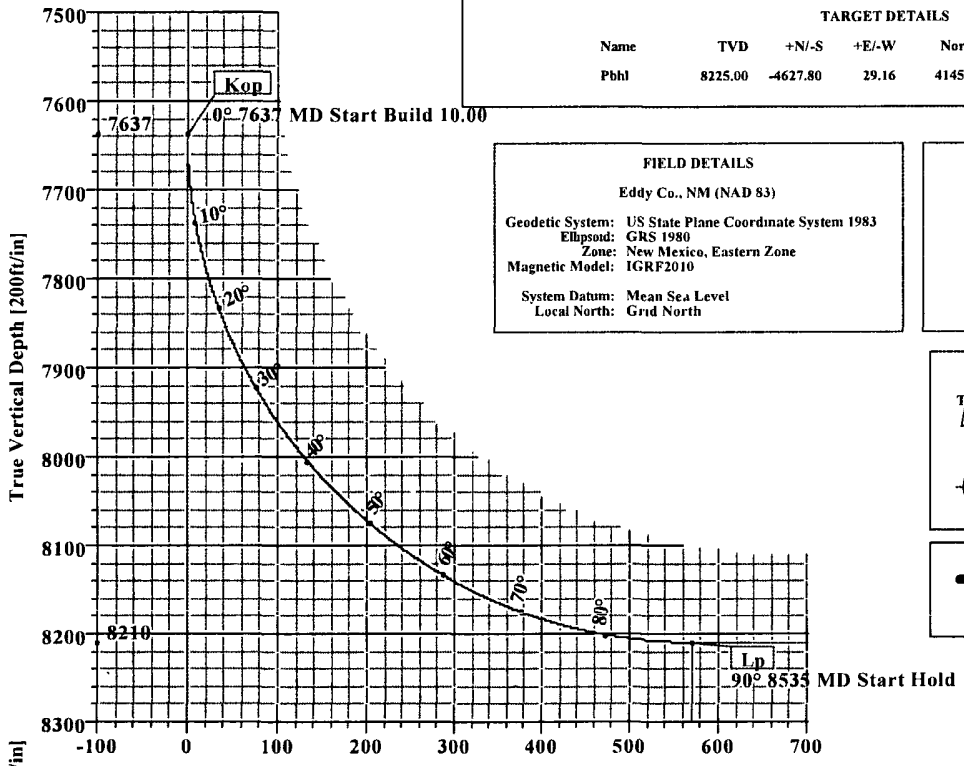
WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#163H	0.00	0.00	419201.20	721618.29	32°09'04.030N	103°45'02.922W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Pbhl	8225.00	-4627.80	29.16	414573.40	721647.45	Point

KB ELEV: 3435
GL ELEV: 3417



FIELD DETAILS

Eddy Co., NM (NAD 83)

Geodetic System: US State Plane Coordinate System 1983
Ellipsoid: GRS 1980
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010

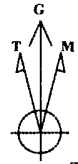
System Datum: Mean Sea Level
Local North: Grid North

SITE DETAILS

Cotton Draw Unit #163H

Site Centre Northing: 419201.20
Easting: 721618.29

Ground Level: 3417.00
Positional Uncertainty: 0.00
Convergence: 0.31



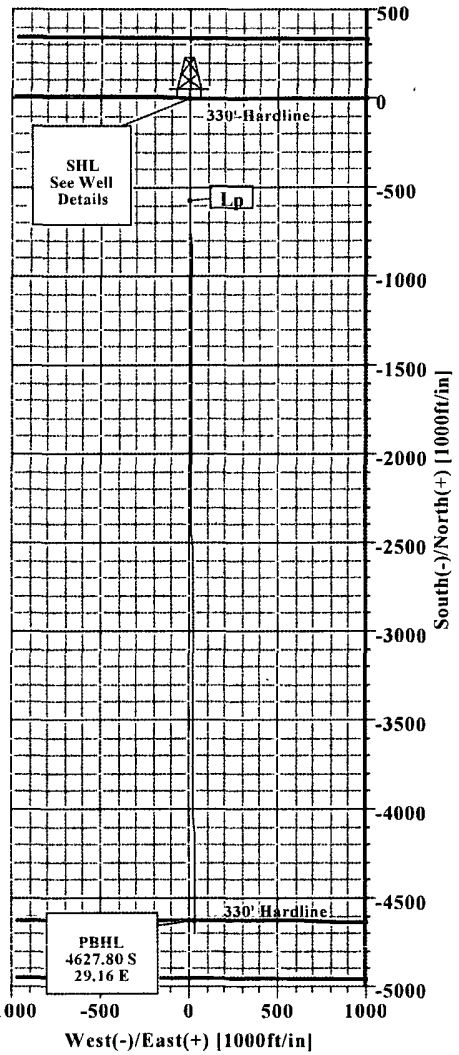
Azimuths to Grid North
True North: -0.31°
Magnetic North: 7.35°

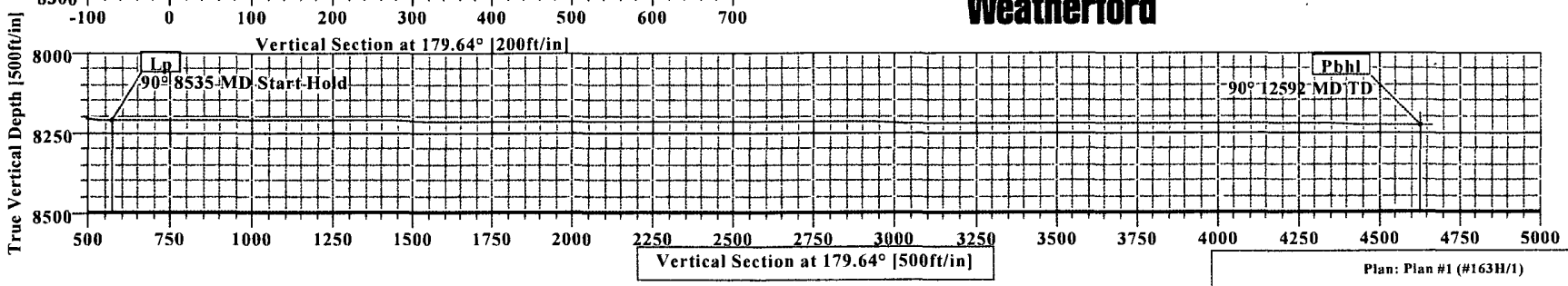
Magnetic Field
Strength: 48578nT
Dip Angle: 60.09°
Date: 6/15/2011
Model: IGRF2010

Total Correction to Grid North: 7.35°

LEGEND

Plan #1





Plan: Plan #1 (#163H/1)

Created By: Russell W. Joyner Date: 5/11/2011

Weatherford International Ltd.

WFT Plan Report - X & Y's

devon

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Company:	Devon Energy	**Date:** 5/11/2011	**Time:** 08:07:41	**Page:**	1
Field:	Eddy Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well: #163H, Grid North		
Site:	Cotton Draw Unit #163H	**Vertical (TVD) Reference:**	SITE 3435.0		
Well:	#163H	**Section (VS) Reference:**	Well (0.00N,0 00E,179.64Azi)		
Wellpath:	1	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Plan:	Plan #1	**Date Composed:**	5/11/2011
		Version:	1
Principal:	Yes	**Tied-to:**	From Surface

Field:	Eddy Co., NM (NAD 83)		
Map System:	US State Plane Coordinate System 1983	**Map Zone:**	New Mexico, Eastern Zone
Geo Datum:	GRS 1980	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site:	Cotton Draw Unit #163H						
Site Position:		**Northing:**	419201 20 ft	**Latitude:**	32	9	4 030 N
From:	Map	**Easting:**	721618 29 ft	**Longitude:**	103	45	2.922 W
Position Uncertainty:	0.00 ft			**North Reference:**			Grid
Ground Level:	3417.00 ft			**Grid Convergence:**			0 31 deg

Well:	#163H				**Slot Name:**			
Well Position:	+N/-S	0 00 ft	**Northing:**	419201.20 ft	**Latitude:**	32	9	4 030 N
	+E/-W	0 00 ft	**Easting :**	721618.29 ft	**Longitude:**	103	45	2 922 W
Position Uncertainty:		0.00 ft						

Wellpath:	1		**Drilled From:**	Surface	
			Tie-on Depth:	0.00 ft	
Current Datum:	SITE	**Height** 3435.00 ft	**Above System Datum:**	Mean Sea Level	
Magnetic Data:	6/15/2011		**Declination:**	7.66 deg	
Field Strength:	48578 nT		**Mag Dip Angle:**	60.09 deg	

Vertical Section:	**Depth From (TVD)** ft	**+N/-S** ft	**+E/-W** ft	**Direction** deg
	8225.00	0 00	0.00	179.64

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	179 64	0.00	0 00	0.00	0 00	0.00	0 00	0.00	
7637 05	0.00	179 64	7637.05	0 00	0 00	0.00	0.00	0 00	0.00	
8534 93	89.79	179 64	8210.00	-570 83	3 60	10.00	10.00	0 00	179.64	
12592.01	89.79	179 64	8225 00	-4627.80	29 16	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
7600 00	0.00	179.64	7600 00	0 00	0.00	0 00	0 00	419201.20	721618.29	
7637 05	0.00	179 64	7637.05	0.00	0.00	0 00	0 00	419201 20	721618 29	Kop
7700 00	6 30	179.64	7699 87	-3 45	0.02	3 45	10 00	419197.75	721618 31	
7800 00	16 30	179 64	7797.81	-23.02	0 15	23.02	10.00	419178.18	721618 44	
7900.00	26.30	179 64	7890.87	-59.29	0 37	59 29	10.00	419141.91	721618 66	
8000.00	36 30	179.64	7976 21	-111.16	0 70	111.17	10 00	419090.04	721618.99	
8100.00	46 30	179.64	8051 25	-177.07	1.12	177.08	10 00	419024 13	721619.41	
8200.00	56 30	179.64	8113.70	-255.01	1 61	255.01	10 00	418946 19	721619.90	
8300.00	66 30	179.64	8161 67	-342.61	2 16	342.61	10 00	418858 59	721620 45	
8400.00	76 30	179.64	8193 69	-437.20	2 75	437 21	10 00	418764 00	721621.04	
8500 00	86.30	179.64	8208.81	-535 92	3.38	535.93	10.00	418665.28	721621.67	
8534 93	89.79	179 64	8210.00	-570.83	3 60	570.84	10 00	418630 37	721621.89	Lp
8600 00	89.79	179.64	8210.24	-635.89	4 01	635 91	0.00	418565 31	721622.30	
8700 00	89 79	179 64	8210.61	-735.89	4 64	735 91	0.00	418465 31	721622.93	
8800.00	89.79	179 64	8210 98	-835.89	5.27	835 91	0.00	418365 31	721623.56	
8900.00	89 79	179 64	8211.35	-935.89	5.90	935 91	0 00	418265 31	721624.19	
9000.00	89 79	179.64	8211.72	-1035.88	6.53	1035.90	0 00	418165 32	721624.82	

Weatherford International Ltd.

WFT Plan Report - X & Y's

Company:	Devon Energy	**Date:** 5/11/2011	**Time:** 08:07:41	**Page:**	2
Field:	Eddy Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well: #163H, Grid North		
Site:	Cotton Draw Unit #163H	**Vertical (TVD) Reference:**	SITE 3435.0		
Well:	#163H	**Section (VS) Reference:**	Well (0.00N,0.00E,179.64Azi)		
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
9100 00	89 79	179.64	8212 09	-1135 88	7 16	1135 90	0 00	418065.32	721625.45	
9200 00	89 79	179 64	8212 46	-1235 88	7 79	1235.90	0.00	417965.32	721626.08	
9300 00	89 79	179 64	8212 83	-1335 88	8 42	1335.90	0.00	417865.32	721626 71	
9400 00	89 79	179.64	8213 20	-1435 87	9 05	1435.90	0.00	417765 33	721627.34	
9500 00	89.79	179 64	8213 57	-1535 87	9 68	1535 90	0.00	417665 33	721627 97	
9600 00	89.79	179.64	8213.94	-1635.87	10.31	1635.90	0 00	417565 33	721628 60	
9700.00	89.79	179 64	8214.31	-1735 87	10 94	1735.90	0 00	417465 33	721629.23	
9800 00	89 79	179 64	8214.68	-1835.86	11 57	1835 90	0 00	417365.34	721629.86	
9900 00	89.79	179 64	8215 05	-1935 86	12 20	1935.90	0 00	417265.34	721630 49	
10000 00	89 79	179 64	8215 42	-2035 86	12.83	2035.90	0 00	417165.34	721631.12	
10100 00	89 79	179 64	8215 79	-2135.85	13 46	2135.90	0 00	417065.35	721631.75	
10200 00	89 79	179 64	8216 16	-2235 85	14 09	2235 90	0.00	416965 35	721632.38	
10300 00	89.79	179.64	8216 53	-2335 85	14 72	2335 90	0.00	416865 35	721633.01	
10400 00	89 79	179 64	8216.90	-2435.85	15.35	2435 90	0 00	416765 35	721633 64	
10500.00	89.79	179 64	8217.27	-2535 84	15 98	2535 89	0 00	416665.36	721634 27	
10600 00	89.79	179 64	8217.64	-2635 84	16.61	2635.89	0 00	416565.36	721634 90	
10700 00	89 79	179 64	8218 01	-2735 84	17 24	2735 89	0 00	416465 36	721635.53	
10800 00	89 79	179 64	8218 38	-2835 84	17 87	2835.89	0.00	416365 36	721636.16	
10900 00	89.79	179 64	8218 75	-2935 83	18 50	2935 89	0 00	416265 37	721636 79	
11000.00	89 79	179.64	8219 12	-3035.83	19 13	3035 89	0 00	416165.37	721637.42	
11100 00	89.79	179.64	8219 49	-3135 83	19 76	3135.89	0.00	416065 37	721638 05	
11200 00	89 79	179.64	8219 85	-3235 83	20.39	3235 89	0.00	415965 37	721638 68	
11300 00	89 79	179 64	8220 22	-3335 82	21.02	3335.89	0.00	415865 38	721639.31	
11400 00	89.79	179.64	8220 59	-3435.82	21 65	3435 89	0.00	415765.38	721639 94	
11500.00	89 79	179 64	8220 96	-3535.82	22 28	3535.89	0 00	415665 38	721640 57	
11600.00	89 79	179 64	8221 33	-3635.81	22.91	3635.89	0 00	415565.39	721641 20	
11700.00	89.79	179.64	8221.70	-3735.81	23 54	3735 89	0.00	415465.39	721641.83	
11800.00	89.79	179.64	8222 07	-3835.81	24 17	3835 89	0 00	415365.39	721642 46	
11900.00	89 79	179 64	8222 44	-3935.81	24 80	3935 88	0.00	415265 39	721643.09	
12000.00	89 79	179 64	8222 81	-4035 80	25 43	4035 88	0 00	415165 40	721643.72	
12100 00	89 79	179.64	8223 18	-4135.80	26 06	4135.88	0 00	415065 40	721644.35	
12200 00	89 79	179 64	8223.55	-4235.80	26 69	4235.88	0 00	414965.40	721644 98	
12300.00	89.79	179 64	8223 92	-4335 80	27.32	4335.88	0.00	414865 40	721645.61	
12400 00	89.79	179.64	8224 29	-4435 79	27 95	4435 88	0.00	414765.41	721646 24	
12500 00	89.79	179.64	8224 66	-4535.79	28 58	4535 88	0.00	414665 41	721646.87	
12592 01	89 79	179.64	8225 00	-4627.80	29 16	4627.89	0 00	414573 40	721647.45	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			8225.00	-4627.80	29.16	414573 40	721647 45	32 8 18 234 N	103 45 2 874 W

Casing Points

MD	TVD	Diameter	Hole Size	Name

Weatherford International Ltd.
WFT Plan Report - X & Y's

Company:	Devon Energy	**Date:** 5/11/2011	**Time:** 08:07 41	**Page:**	3
Field:	Eddy Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well: #163H, Grid North		
Site:	Cotton Draw Unit #163H	**Vertical (TVD) Reference:**	SITE 3435 0		
Well:	#163H	**Section (VS) Reference:**	Well (0 00N,0 00E,179.64Azi)		
Wellpath:	1	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Annotation

MD ft	TVD ft	
7637.05	7637.05	Kop
8534.93	8210.00	Lp
12592.01	8225 00	Pbhl

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Weatherford

Weatherford Drilling Services

GeoDec v5.03

Report Date:	May 11, 2011
Job Number:	
Customer:	Devon Energy
Well Name:	Cotton Draw Unit #163H
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: North American Datum 1983
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
North/South 419201.200 USFT	Latitude 32.1511219 DEG
East/West 721618.290 USFT	Longitude -103.7508069 DEG
Grid Convergence: .31°	
Total Correction: +7.23°	

Geodetic Location WGS84	Elevation = 0.0 Meters	
Latitude =	32.15112° N	32° 9 min 4.039 sec
Longitude =	103.75081° W	103° 45 min 2.905 sec

Magnetic Declination =	7.54°	[True North Offset]	
Local Gravity =	.9988 g	CheckSum =	6557
Local Field Strength =	48474 nT	Magnetic Vector X =	23981 nT
Magnetic Dip =	60.06°	Magnetic Vector Y =	3175 nT
Magnetic Model =	IGRF-2010g11	Magnetic Vector Z =	42007 nT
Spud Date =	Jun 15, 2012	Magnetic Vector H =	24190 nT

Signed:_____ Date:_____

13 5/8" 5M BOPE & Closed Loop Equipment Schematic Tested to 3M System Per Onshore Orders #2