

Submit 1 Copy To Appropriate District
Office
District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM
87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised August 1, 2011

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

WELL API NO. 30-025-42425
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name THISTLE UNIT
8. Well Number 71H
9. OGRID Number 6137
10. Pool name or Wildcat Triple X; Bone Spring (59900)

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG A WELL IN A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐

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

3. Address of Operator
333 West Sheridan Ave. Oklahoma City, Oklahoma 73102-5010 (405) 552-7848

4. Well Location
Unit Letter A : 200 feet from the N line and 632 feet from the E line
Section 27 Township 23S Range 33E NMPM Lea County New Mexico

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
3681'

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☒	COMMENCE DRILLING OPNS. ☐	P AND A ☐
PULL OR ALTER CASING ☐	MULTIPLE COMPL ☐	CASING/CEMENT JOB ☐	
DOWNHOLE COMMINGLE ☐			
OTHER: ☐		OTHER: ☐	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Devon Energy Production Co., L.P. respectfully requests approval to change the approved APD as follows:

- Change TD from 14,948' to 15,035'.
- Change casing points and design due to updated geoprog.
- Change production casing to 7" x 5-1/2" mixed string.
- See attached revised Drill Plan for updated casing/cement volumes.
- See attached revised directional survey.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE David H. Cook TITLE Regulatory Specialist DATE 3/20/2015

Type or print name David H. Cook E-mail address: david.cook@dvn.com PHONE: (405) 552-7848

For State Use Only

APPROVED BY: [Signature] TITLE Petroleum Engineer DATE 03/23/15
Conditions of Approval (if any): MAR 26 2015

Devon Energy, Thistle Unit 71H

1. Geologic Formations

TVD of target	10,491'	Pilot hole depth	N/A
MD at TD:	15,035'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	1,376	110'	
Top of Salt	1,643	Barren	
Base of Salt	4,993	Barren	
Delaware	5,300	Oil	
Cherry Canyon	6,240	Oil	
Brushy Canyon	8,035	Oil	
Lower Brushy Canyon	9,000	Oil	
1 st Bone Spring Lime	9,160	Oil	
1 st Bone Spring Sand	10,286	Oil	

*H₂S, water flows, loss of circulation, abnormal pressures, etc.

Devon Energy, Thistle Unit 71H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	1,440'	13.375"	48	H-40	STC	1.22	2.74	4.86
12.25"	0	4,300	9.625"	40	J55	BTC	1.15	1.77	4.15
12.25"	4,300	5,200	9.625"	40	HCK55	BTC	1.56	1.46	4.45
8.75"	0	9,900'	7"	29	P-110	BTC	1.80	2.38	2.84
8.75"	9,900'	15,035'	5.5"	17	P-110	BTC	1.49	2.13	6.58
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy, Thistle Unit 71H

3. Cementing Program

Casing	# Sk	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	860	12.9	9.81	1.87	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	325	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	1275	12.9	9.81	1.87	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	395	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
7 x 5- 1/2" Combo Prod.	610	10.4	16.9	3.32	16	Lead: Tuned Light ® + 0.125 lb/sk Pol-E-Flake
	1060	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

Casing String	TOC	% Excess
13-3/8" Surface	0'	100%
9-5/8" Intermediate	0'	75%
7 x 5-1/2" Production Casing	5000'	25%

Devon Energy, Thistle Unit 71H

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold.

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	Y Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly (FMC Uni-head). This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi. • Wellhead will be installed by FMC's representatives. • If the welding is performed by a third party, the FMC's representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • FMC representative will install the test plug for the initial BOP test. • FMC will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the FMC Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the FMC Uni-head. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 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

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5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,440'	FW Gel	8.6-8.8	28-34	N/C
1,440'	5,200'	Saturated Brine	10.0-10.2	28-34	N/C
5,200'	15,035'	Cut Brine	8.5-9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
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Devon Energy, Thistle Unit 71H

BH Pressure at deepest TVD	2759 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H ₂ S is present
N	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

☒ Directional Plan

☐ Other, describe



Project: Lea Co., NM
 Site: Sec.27-T23S-R33E
 Well: Thistle Unit 71H
 Wellbore: Wellbore #1
 Design: Design #1
 Lat: 32° 16' 56.568 N
 Long: 103° 33' 13.373 W
 GL: 3681.00
 KB: GL+25'KB @ 3706.00usft



Precision
 Directional Services

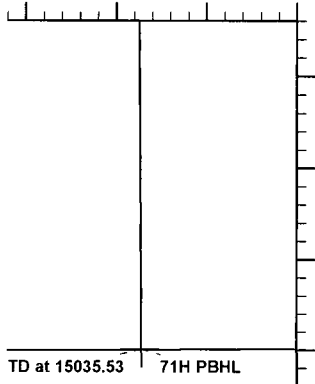
Azimuths to Grid North
 True North: -0.42°
 Magnetic North: 6.78°

Magnetic Field
 Strength: 48204.4snT
 Dip Angle: 60.15°
 Date: 03/19/2015
 Model: IGRF2015

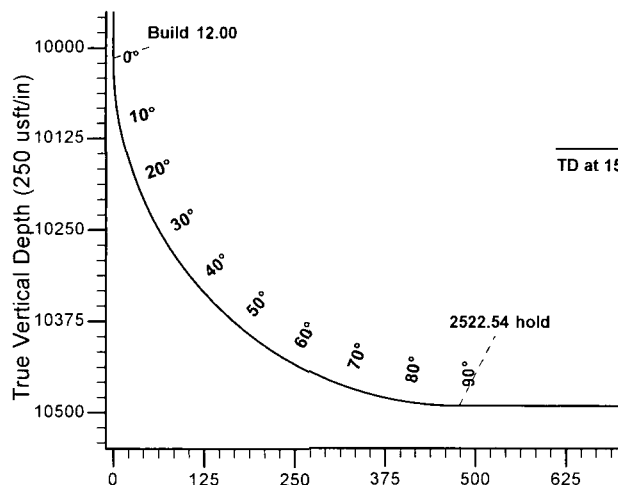
CASING DETAILS:
 No casing data is available

West(-)/East(+) (250 usft/in)

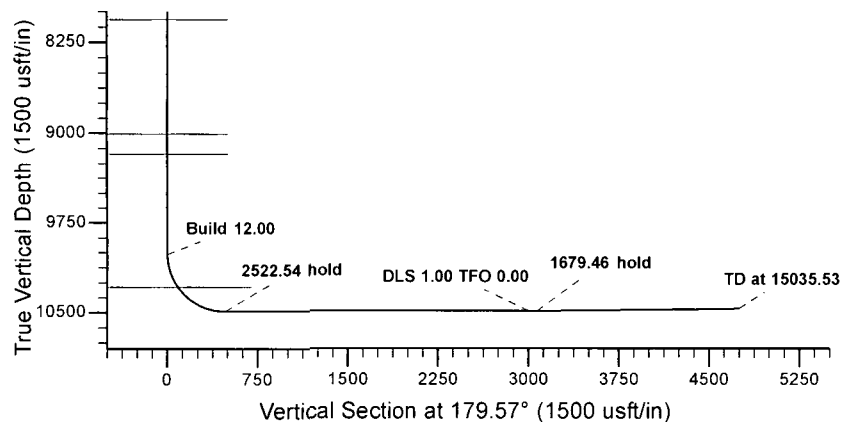
-125 0 125 250



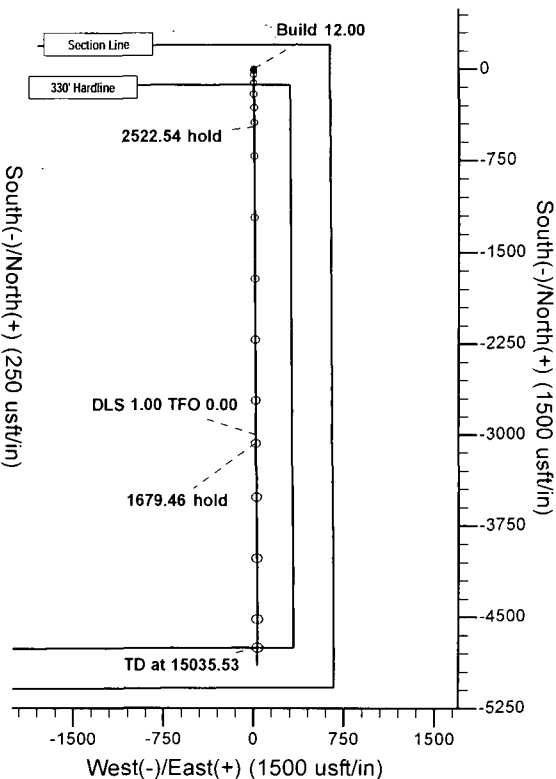
TD at 15035.53 71H PBHL



Vertical Section at 179.57° (250 usft/in)



Vertical Section at 179.57° (1500 usft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1376.00	1376.00	Rustler
1643.00	1643.00	Top of Salt
4993.00	4993.00	Base of Salt
5256.00	5256.00	Delaware
6236.00	6236.00	Cherry Canyon
8061.00	8061.00	Brushy Canyon
9006.00	9006.00	Lower Brushy
9171.00	9171.00	1st BSPG Lime
10286.00	10303.50	1st BSPG Sand

LEGEND

Design #1

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
71H PBHL	10470.06	-4749.20	35.30	32° 16' 9.572 N	103° 33' 13.363 W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10013.54	0.00	0.00	10013.54	0.00	0.00	0.00	0.00	0.00	Build 12.00
10763.54	90.00	179.57	10491.00	-477.45	3.55	12.00	179.57	477.46	2522.54 hold
13286.08	90.00	179.57	10491.00	-2999.92	22.30	0.00	0.00	3000.00	DLS 1.00 TFO 0.00
13356.08	90.70	179.57	10490.58	-3069.91	22.82	1.00	0.00	3070.00	1679.46 hold
15035.53	90.70	179.57	10470.06	-4749.20	35.30	0.00	0.00	4749.33	TD at 15035.53



Precision
Directional Services

Devon Energy

Lea Co., NM
Sec.27-T23S-R33E
Thistle Unit 71H

Wellbore #1

Plan: Design #1

Standard Planning Report

19 March, 2015


devon

Database:	EDM	Local Co-ordinate Reference:	Well Thistle Unit 71H
Company:	Devon Energy	TVD Reference:	GL+25'KB @ 3706.00usft
Project:	Lea Co., NM	MD Reference:	GL+25'KB @ 3706.00usft
Site:	Sec.27-T23S-R33E	North Reference:	Grid
Well:	Thistle Unit 71H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea Co., NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec.27-T23S-R33E		
Site Position:		Northing:	467,338.20 usft
From:	Map	Easting:	782,269.60 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 16' 56.568 N
		Longitude:	103° 33' 13.373 W
		Grid Convergence:	0.42 °

Well	Thistle Unit 71H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 16' 56.568 N
		Longitude:	103° 33' 13.373 W
		Ground Level:	3,681.00 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	03/19/15	7.19
			Dip Angle (°)
			60.15
			Field Strength (nT)
			48,204

Design	Design #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			179.57

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10,013.54	0.00	0.00	10,013.54	0.00	0.00	0.00	0.00	0.00	0.00	
10,763.54	90.00	179.57	10,491.01	-477.45	3.55	12.00	12.00	0.00	179.57	71H PBHL
13,286.08	90.00	179.57	10,491.01	-2,999.92	22.30	0.00	0.00	0.00	0.00	
13,356.08	90.70	179.57	10,490.58	-3,069.91	22.82	1.00	1.00	0.00	0.00	71H PBHL
15,035.53	90.70	179.57	10,470.06	-4,749.20	35.30	0.00	0.00	0.00	0.00	71H PBHL

Database:	EDM	Local Co-ordinate Reference:	Well Thistle Unit 71H
Company:	Devon Energy	TVD Reference:	GL+25'KB @ 3706.00usft
Project:	Lea Co., NM	MD Reference:	GL+25'KB @ 3706.00usft
Site:	Sec.27-T23S-R33E	North Reference:	Grid
Well:	Thistle Unit 71H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	EDM	Local Co-ordinate Reference:	Well Thistle Unit 71H
Company:	Devon Energy	TVD Reference:	GL+25'KB @ 3706.00usft
Project:	Lea Co., NM	MD Reference:	GL+25'KB @ 3706.00usft
Site:	Sec.27-T23S-R33E	North Reference:	Grid
Well:	Thistle Unit 71H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	10,000.00	0.00	0.00	0.00	0.00	0.00	0.00
10,013.54	0.00	0.00	10,013.54	0.00	0.00	0.00	0.00	0.00	0.00
Build 12.00									
10,025.00	1.38	179.57	10,025.00	-0.14	0.00	0.14	12.00	12.00	0.00
10,050.00	4.38	179.57	10,049.96	-1.39	0.01	1.39	12.00	12.00	0.00
10,075.00	7.38	179.57	10,074.83	-3.95	0.03	3.95	12.00	12.00	0.00
10,100.00	10.38	179.57	10,099.53	-7.81	0.06	7.81	12.00	12.00	0.00

Database:	EDM	Local Co-ordinate Reference:	Well Thistle Unit 71H
Company:	Devon Energy	TVD Reference:	GL+25'KB @ 3706.00usft
Project:	Lea Co., NM	MD Reference:	GL+25'KB @ 3706.00usft
Site:	Sec.27-T23S-R33E	North Reference:	Grid
Well:	Thistle Unit 71H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,125.00	13.38	179.57	10,123.99	-12.95	0.10	12.95	12.00	12.00	0.00	
10,150.00	16.38	179.57	10,148.15	-19.37	0.14	19.37	12.00	12.00	0.00	
10,175.00	19.38	179.57	10,171.94	-27.04	0.20	27.04	12.00	12.00	0.00	
10,200.00	22.38	179.57	10,195.30	-35.95	0.27	35.95	12.00	12.00	0.00	
10,225.00	25.38	179.57	10,218.15	-46.06	0.34	46.07	12.00	12.00	0.00	
10,250.00	28.38	179.57	10,240.45	-57.36	0.43	57.37	12.00	12.00	0.00	
10,275.00	31.38	179.57	10,262.13	-69.81	0.52	69.82	12.00	12.00	0.00	
10,300.00	34.38	179.57	10,283.12	-83.38	0.62	83.39	12.00	12.00	0.00	
10,325.00	37.38	179.57	10,303.38	-98.03	0.73	98.03	12.00	12.00	0.00	
10,350.00	40.38	179.57	10,322.84	-113.72	0.85	113.72	12.00	12.00	0.00	
10,375.00	43.38	179.57	10,341.45	-130.41	0.97	130.41	12.00	12.00	0.00	
10,400.00	46.38	179.57	10,359.16	-148.04	1.10	148.05	12.00	12.00	0.00	
10,425.00	49.38	179.57	10,375.93	-166.58	1.24	166.59	12.00	12.00	0.00	
10,450.00	52.38	179.57	10,391.70	-185.97	1.38	185.98	12.00	12.00	0.00	
10,475.00	55.38	179.57	10,406.44	-206.16	1.53	206.17	12.00	12.00	0.00	
10,500.00	58.38	179.57	10,420.10	-227.10	1.69	227.10	12.00	12.00	0.00	
10,525.00	61.38	179.57	10,432.65	-248.72	1.85	248.72	12.00	12.00	0.00	
10,550.00	64.38	179.57	10,444.04	-270.97	2.01	270.97	12.00	12.00	0.00	
10,575.00	67.38	179.57	10,454.26	-293.78	2.18	293.79	12.00	12.00	0.00	
10,600.00	70.38	179.57	10,463.27	-317.10	2.36	317.10	12.00	12.00	0.00	
10,625.00	73.38	179.57	10,471.05	-340.85	2.53	340.86	12.00	12.00	0.00	
10,650.00	76.38	179.57	10,477.57	-364.98	2.71	364.99	12.00	12.00	0.00	
10,675.00	79.38	179.57	10,482.82	-389.42	2.89	389.43	12.00	12.00	0.00	
10,700.00	82.38	179.57	10,486.78	-414.10	3.08	414.11	12.00	12.00	0.00	
10,725.00	85.38	179.57	10,489.45	-438.95	3.26	438.97	12.00	12.00	0.00	
10,750.00	88.38	179.57	10,490.81	-463.91	3.45	463.93	12.00	12.00	0.00	
10,763.54	90.00	179.57	10,491.01	-477.45	3.55	477.46	12.00	12.00	0.00	
2522.54 hold										
10,800.00	90.00	179.57	10,491.01	-513.91	3.82	513.92	0.00	0.00	0.00	
10,900.00	90.00	179.57	10,491.01	-613.91	4.56	613.92	0.00	0.00	0.00	
11,000.00	90.00	179.57	10,491.01	-713.91	5.31	713.92	0.00	0.00	0.00	
11,100.00	90.00	179.57	10,491.01	-813.90	6.05	813.92	0.00	0.00	0.00	
11,200.00	90.00	179.57	10,491.01	-913.90	6.79	913.92	0.00	0.00	0.00	
11,300.00	90.00	179.57	10,491.01	-1,013.90	7.54	1,013.92	0.00	0.00	0.00	
11,400.00	90.00	179.57	10,491.01	-1,113.89	8.28	1,113.92	0.00	0.00	0.00	
11,500.00	90.00	179.57	10,491.01	-1,213.89	9.02	1,213.92	0.00	0.00	0.00	
11,600.00	90.00	179.57	10,491.01	-1,313.89	9.77	1,313.92	0.00	0.00	0.00	
11,700.00	90.00	179.57	10,491.01	-1,413.89	10.51	1,413.92	0.00	0.00	0.00	
11,800.00	90.00	179.57	10,491.01	-1,513.88	11.25	1,513.92	0.00	0.00	0.00	
11,900.00	90.00	179.57	10,491.01	-1,613.88	12.00	1,613.92	0.00	0.00	0.00	
12,000.00	90.00	179.57	10,491.01	-1,713.88	12.74	1,713.92	0.00	0.00	0.00	
12,100.00	90.00	179.57	10,491.01	-1,813.87	13.48	1,813.92	0.00	0.00	0.00	
12,200.00	90.00	179.57	10,491.01	-1,913.87	14.23	1,913.92	0.00	0.00	0.00	
12,300.00	90.00	179.57	10,491.01	-2,013.87	14.97	2,013.92	0.00	0.00	0.00	
12,400.00	90.00	179.57	10,491.01	-2,113.87	15.71	2,113.92	0.00	0.00	0.00	
12,500.00	90.00	179.57	10,491.01	-2,213.86	16.46	2,213.92	0.00	0.00	0.00	
12,600.00	90.00	179.57	10,491.01	-2,313.86	17.20	2,313.92	0.00	0.00	0.00	
12,700.00	90.00	179.57	10,491.01	-2,413.86	17.94	2,413.92	0.00	0.00	0.00	
12,800.00	90.00	179.57	10,491.01	-2,513.86	18.69	2,513.92	0.00	0.00	0.00	
12,900.00	90.00	179.57	10,491.01	-2,613.85	19.43	2,613.92	0.00	0.00	0.00	
13,000.00	90.00	179.57	10,491.01	-2,713.85	20.17	2,713.92	0.00	0.00	0.00	
13,100.00	90.00	179.57	10,491.01	-2,813.85	20.91	2,813.92	0.00	0.00	0.00	
13,200.00	90.00	179.57	10,491.01	-2,913.84	21.66	2,913.92	0.00	0.00	0.00	
13,286.08	90.00	179.57	10,491.01	-2,999.92	22.30	3,000.00	0.00	0.00	0.00	

Database:	EDM	Local Co-ordinate Reference:	Well Thistle Unit 71H
Company:	Devon Energy	TVD Reference:	GL+25'KB @ 3706.00usft
Project:	Lea Co., NM	MD Reference:	GL+25'KB @ 3706.00usft
Site:	Sec.27-T23S-R33E	North Reference:	Grid
Well:	Thistle Unit 71H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
DLS 1.00 TFO 0.00									
13,300.00	90.14	179.57	10,490.99	-3,013.84	22.40	3,013.92	1.00	1.00	0.00
13,356.08	90.70	179.57	10,490.58	-3,069.91	22.82	3,070.00	1.00	1.00	0.00
1679.46 hold									
13,400.00	90.70	179.57	10,490.04	-3,113.83	23.14	3,113.92	0.00	0.00	0.00
13,500.00	90.70	179.57	10,488.82	-3,213.82	23.89	3,213.91	0.00	0.00	0.00
13,600.00	90.70	179.57	10,487.60	-3,313.81	24.63	3,313.90	0.00	0.00	0.00
13,700.00	90.70	179.57	10,486.38	-3,413.80	25.37	3,413.90	0.00	0.00	0.00
13,800.00	90.70	179.57	10,485.15	-3,513.79	26.12	3,513.89	0.00	0.00	0.00
13,900.00	90.70	179.57	10,483.93	-3,613.78	26.86	3,613.88	0.00	0.00	0.00
14,000.00	90.70	179.57	10,482.71	-3,713.77	27.60	3,713.88	0.00	0.00	0.00
14,100.00	90.70	179.57	10,481.49	-3,813.76	28.35	3,813.87	0.00	0.00	0.00
14,200.00	90.70	179.57	10,480.27	-3,913.75	29.09	3,913.86	0.00	0.00	0.00
14,300.00	90.70	179.57	10,479.05	-4,013.74	29.83	4,013.85	0.00	0.00	0.00
14,400.00	90.70	179.57	10,477.82	-4,113.73	30.58	4,113.85	0.00	0.00	0.00
14,500.00	90.70	179.57	10,476.60	-4,213.72	31.32	4,213.84	0.00	0.00	0.00
14,600.00	90.70	179.57	10,475.38	-4,313.71	32.06	4,313.83	0.00	0.00	0.00
14,700.00	90.70	179.57	10,474.16	-4,413.70	32.81	4,413.82	0.00	0.00	0.00
14,800.00	90.70	179.57	10,472.94	-4,513.69	33.55	4,513.82	0.00	0.00	0.00
14,900.00	90.70	179.57	10,471.72	-4,613.68	34.29	4,613.81	0.00	0.00	0.00
15,000.00	90.70	179.57	10,470.49	-4,713.67	35.04	4,713.80	0.00	0.00	0.00
15,035.53	90.70	179.57	10,470.06	-4,749.20	35.30	4,749.33	0.00	0.00	0.00
TD at 15035.53									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
71H PBHL	0.00	0.01	10,470.06	-4,749.20	35.30	462,589.00	782,304.90	32° 16' 9.572 N	103° 33' 13.363 W
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,376.00	1,376.00	Rustler		0.00		
1,643.00	1,643.00	Top of Salt		0.00		
4,993.00	4,993.00	Base of Salt		0.00		
5,256.00	5,256.00	Delaware		0.00		
6,236.00	6,236.00	Cherry Canyon		0.00		
8,061.00	8,061.00	Brushy Canyon		0.00		
9,006.00	9,006.00	Lower Brushy		0.00		
9,171.00	9,171.00	1st BSPG Lime		0.00		
10,303.50	10,286.00	1st BSPG Sand		0.00		

Database:	EDM	Local Co-ordinate Reference:	Well Thistle Unit 71H
Company:	Devon Energy	TVD Reference:	GL+25'KB @ 3706.00usft
Project:	Lea Co., NM	MD Reference:	GL+25'KB @ 3706.00usft
Site:	Sec.27-T23S-R33E	North Reference:	Grid
Well:	Thistle Unit 71H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,013.54	10,013.54	0.00	0.00	Build 12.00
10,763.54	10,491.01	-477.45	3.55	2522.54 hold
13,286.08	10,491.01	-2,999.92	22.30	DLS 1.00 TFO 0.00
13,356.08	10,490.58	-3,069.91	22.82	1679.46 hold
15,035.53	10,470.06	-4,749.20	35.30	TD at 15035.53