

Devon Energy, North Thistle 34 State Com 2H

1. Geologic Formations

30-025-42698

TVD of target	9,477'	Pilot hole depth	
MD at TD:	13,890'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	1,083	Barren	
Top of Salt	1,406	Barren	
Base of Salt	4,706	Barren	
Delaware	5,043	Oil	
Cherry Canyon	5,963	Oil	
Lower Brushy Canyon	8,638	Oil	
Bone Spring	8,897	Oil	
Leonard	9,014	Oil	

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

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2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn .	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	1,110'	13.375"	54.5	J-55	BTC	1.77	2.77	5.60
12.25"	0	4,820'	9.625"	40	J-55	BTC	1.49	1.27	2.36
8.75"	0'	13,890'	5.5"	17	P-110	BTC	1.20	1.55	2.28
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?	

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3. Cementing Program

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	490	13.5	9.28	1.74	10	Lead: Class C Cement + 4% Gel + 1% Calcium Chloride + 0.125 lbs/sack Poly-E-Flake
	550	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	1020	12.9	9.81	1.85	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod Two Stage	565	11.9	12.89	2.31	n/a	1 st Stage Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1295	14.5	5.31	1.2	25	1 st Stage 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
	DV Tool = 4870ft					
	20	11	14.81	2.55	22	2 nd Stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	30	14.8	6.32	1.33	6	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod Single Stage	325	11.9	12.89	2.31	n/a	1 st Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	330	12.5	10.86	1.96	30	2 nd Lead: (65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake
	1295	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

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	100%
9-5/8" Intermediate	0'	75%
5-1/2" Production Casing Two Stage Option	1 st Stage = 4870ft / 2 nd Stage = 4620'	25%
5-1/2" Production Casing Single Stage Option	4620'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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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	x	
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			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. See attached schematics.

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.
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Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	<p>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.</p> <p>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.</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>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.</p> <p>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.</p>

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	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
	See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,110'	FW Gel	8.6-8.8	28-34	N/C
1,110'	4,820'	Saturated Brine	10.0-10.2	28-34	N/C
4,820'	13,890'	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	

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7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4583 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H₂S) monitors will be installed prior to drilling out the surface shoe. If H₂S 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 H₂S is present

Y H₂S Plan attached

8. Other facets of operation

Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

☒ Directional Plan

☐ Other, describe



North Thistle 34
State Com 2H
Lea Co, NM



Weatherford

Plan Data for North Thistle 34 State Com 2H

Plan Point Information:
DogLeg Severity Unit: °/100.00ft Position offsets from Slot centre
MD Inc Az TVD +N/-S +E/-W Northing Easting VSec DLS
(USft) (°) (°) (USft) (USft) (USft) (USft) (USft) (USft) (DLSU)
0.00 0.00 0.00 0.00 0.00 0.00 488963.77 777934.07 0.00 0.00
8999.54 0.00 0.00 8999.54 0.00 0.00 488963.77 777934.07 0.00 0.00
9749.54 90.00 359.57 9477.00 477.45 -3.60 489441.22 777930.47 477.47 12.00
13890.04 90.00 359.57 9477.00 4617.83 -34.82 493581.60 777899.25 4617.96 0.00

Plan Data for North Thistle 34 State Com 2H

Slot: North Thistle 34 State Com 2H

Position:

Offset is from Site centre

+N/-S: 0.00USft Northing: 488963.77USft Latitude: 32.341906°
+E/-W: 0.00USft Easting: 777934.07USft Longitude: -103.567243°
Elevation Above VRD: 3565.00USft

Plan Data for North Thistle 34 State Com 2H

Target Set Information:

Name: North Thistle 34 State Com 2H

Position offsets from Slot centre

Name	TVD (USft)	TVD SS (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)
PBHL 2H	9477.00	-5887.00	4617.83	-34.82	493581.60	777899.25

Plan Data for North Thistle 34 State Com 2H

Well: North Thistle 34 State Com 2H

Type: Main-Well

File Number:

Plan Folder: P1

Plan: P1:V1

Vertical Section: Position offset of origin from Slot centre:

+N/-S: 0.00USft Azimuth: 359.57°

+E/-W: 0.00USft

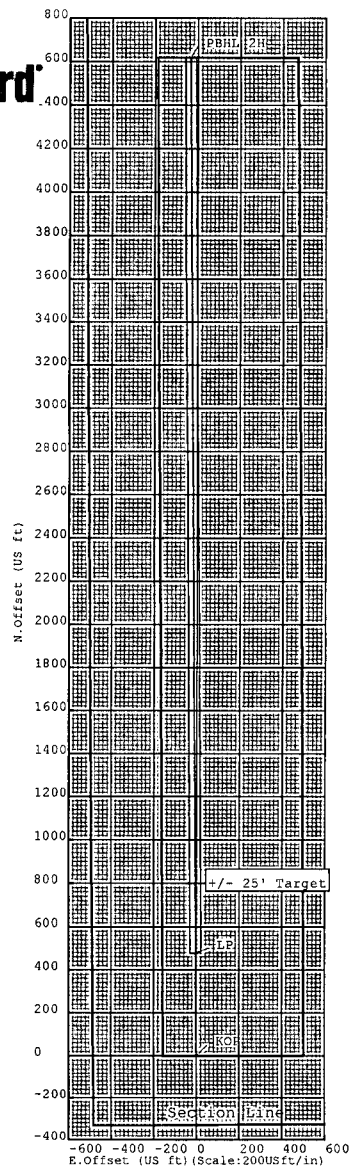
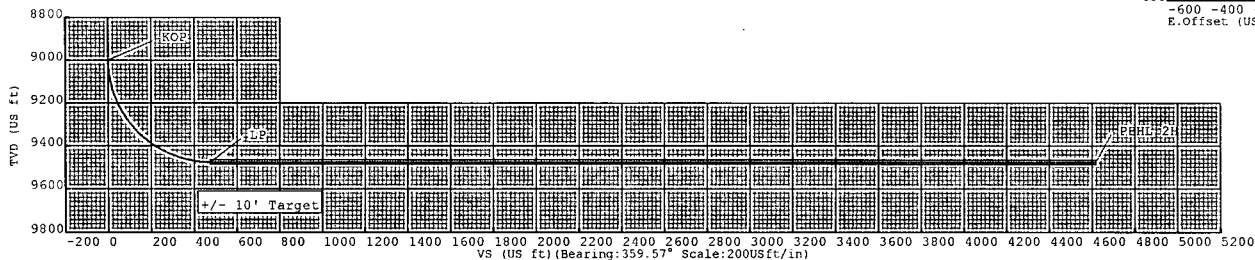
Magnetic Parameters:

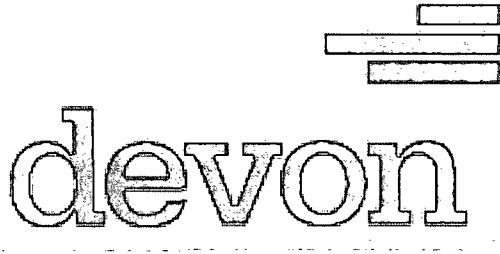
Model: Field Strength: Declination: Dip: Date:
BGGM_NOT_DEFINED 48283(nT) 7.23° 60.25° 2015-10-15

North Thistle 34 State Com 2H



KB:3590
GL:3565



**5D Plan Report**

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *North Thistle 34 State Com 2H*
Well Name: *North Thistle 34 State Com 2H*
Plan: *P1:V1*

16 July 2015





North Thistle 34 State Com 2H

Field Name: Lea Co, NM Nad 83 NMEZ	Map Units: US ft Vertical Reference Datum (VRD): Mean Sea Level Projected Coordinate System: NAD83 / New Mexico East (ftUS) Comment:		Company Name: Devon Energy																												
Site: North Thistle 34 State Com 2H	Units: US ft Position:	North Reference: Grid Northings: 488963.77US ft Easting: 777934.07US ft	Convergence Angle: 0.41 Latitude: 32° 20' 30.86" Longitude: -103° 34' 2.07" Elevation above MSL: 3565.00 US ft Comment:																												
Slot: North Thistle 34 State Com 2H	Position (Relative to Site Centre) <table style="width: 100%;"> <tr> <td>+N/-S: 0.00US ft</td> <td>Northings: 488963.77US ft</td> <td>Latitude: 32°20'30.86"</td> </tr> <tr> <td>+E/-W: 0.00US ft</td> <td>Easting: 777934.07US ft</td> <td>Longitude: -103°34'2.07"</td> </tr> </table> Slot TVD Reference: Ground Elevation Elevation above MSL: 3565.00US ft Comment:				+N/-S: 0.00US ft	Northings: 488963.77US ft	Latitude: 32°20'30.86"	+E/-W: 0.00US ft	Easting: 777934.07US ft	Longitude: -103°34'2.07"																					
+N/-S: 0.00US ft	Northings: 488963.77US ft	Latitude: 32°20'30.86"																													
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Well: North Thistle 34 State Com 2H	<table style="width: 100%;"> <tr> <td>Type: Main well</td> <td>UWI:</td> <td>Plan: P1:V1</td> </tr> <tr> <td>File Number:</td> <td>Comment:</td> <td></td> </tr> <tr> <td>Closure Distance: 4617.96US ft</td> <td>Closure Azimuth: 359.57°</td> <td></td> </tr> <tr> <td colspan="3">Vertical Section: Position of Origin (Relative to Slot centre)</td> </tr> <tr> <td>+N/-S: 0.00US ft</td> <td>+E/-W: 0.00US ft</td> <td>Az: 359.57°</td> </tr> <tr> <td colspan="3">Magnetic Parameters:</td> </tr> <tr> <td>Model: BGGM_NOT_DEFIN</td> <td>Field Strength: 48283.5nT</td> <td>Declination: 7.23°</td> </tr> <tr> <td>ED</td> <td></td> <td>Dip: 60.25°</td> </tr> <tr> <td></td> <td></td> <td>Date: 15/Oct/2015</td> </tr> </table>				Type: Main well	UWI:	Plan: P1:V1	File Number:	Comment:		Closure Distance: 4617.96US ft	Closure Azimuth: 359.57°		Vertical Section: Position of Origin (Relative to Slot centre)			+N/-S: 0.00US ft	+E/-W: 0.00US ft	Az: 359.57°	Magnetic Parameters:			Model: BGGM_NOT_DEFIN	Field Strength: 48283.5nT	Declination: 7.23°	ED		Dip: 60.25°			Date: 15/Oct/2015
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ED		Dip: 60.25°																													
		Date: 15/Oct/2015																													

Drill floor: Plan: P1:V1		
Rig Height (Kelly Bushing): 25.00us ft	Elevation above MSL: 3590.00us ft	Inclination: 0.00° Azimuth: 0.00°

Target set: North Thistle 34 State Com 2H Comment:							
Target Name:	Shape:	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northings (USft)	Easting (USft)	Comment
PBHL 2H	Cuboid	9477.00	4617.83	-34.82	493581.60	777899.25	

Wellpath created using minimum curvature:

Use Points	MD: 0.00USft	Inclination: 0.00°	Azimuth: 0.00°	TVD: 0.00USft	North Offset: 0.00USft	East Offset: 0.00USft
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SD Plan Report

Salient Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100US ft)	B. Rate (°/100US ft)	T. Rate (°/100US ft)	T. Face (°)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8999.54	0.00	0.00	8999.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP
9749.54	90.00	359.57	9477.00	477.45	-3.60	477.47	12.00	12.00	0.00	359.57	LP
13890.04	90.00	359.57	9477.00	4617.83	-34.82	4617.96	0.00	0.00	0.00	0.00	PBHL 2H

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)		Comment
8900.00	0.00	0.00	8900.00	0.00	0.00	0.00	0.00	488963.77	777934.07		
8999.54	0.00	0.00	8999.54	0.00	0.00	0.00	0.00	488963.77	777934.07		KOP
9000.00	0.06	359.57	9000.00	0.00	-0.00	0.00	12.00	488963.77	777934.07		
9100.00	12.06	359.57	9099.26	10.53	-0.08	10.53	12.00	488974.30	777933.99		
9200.00	24.06	359.57	9194.16	41.47	-0.31	41.47	12.00	489005.24	777933.76		
9300.00	36.06	359.57	9280.56	91.46	-0.69	91.46	12.00	489055.23	777933.38		
9400.00	48.06	359.57	9354.67	158.32	-1.19	158.32	12.00	489122.09	777932.88		
9500.00	60.06	359.57	9413.27	239.12	-1.80	239.13	12.00	489202.89	777932.27		
9600.00	72.06	359.57	9453.78	330.35	-2.49	330.36	12.00	489294.12	777931.58		
9700.00	84.06	359.57	9474.44	428.00	-3.23	428.01	12.00	489391.77	777930.84		
9749.54	90.00	359.57	9477.00	477.45	-3.60	477.47	12.00	489441.22	777930.47		LP
9800.00	90.00	359.57	9477.00	527.91	-3.98	527.92	0.00	489491.68	777930.09		
9900.00	90.00	359.57	9477.00	627.91	-4.73	627.92	0.00	489591.68	777929.34		
10000.00	90.00	359.57	9477.00	727.90	-5.49	727.92	0.00	489691.67	777928.58		
10100.00	90.00	359.57	9477.00	827.90	-6.24	827.92	0.00	489791.67	777927.83		
10200.00	90.00	359.57	9477.00	927.90	-7.00	927.92	0.00	489891.67	777927.07		
10300.00	90.00	359.57	9477.00	1027.90	-7.75	1027.92	0.00	489991.67	777926.32		
10400.00	90.00	359.57	9477.00	1127.89	-8.50	1127.92	0.00	490091.66	777925.57		
10500.00	90.00	359.57	9477.00	1227.89	-9.26	1227.92	0.00	490191.66	777924.81		
10600.00	90.00	359.57	9477.00	1327.89	-10.01	1327.92	0.00	490291.66	777924.06		
10700.00	90.00	359.57	9477.00	1427.88	-10.77	1427.92	0.00	490391.65	777923.30		
10800.00	90.00	359.57	9477.00	1527.88	-11.52	1527.92	0.00	490491.65	777922.55		
10900.00	90.00	359.57	9477.00	1627.88	-12.27	1627.92	0.00	490591.65	777921.80		
11000.00	90.00	359.57	9477.00	1727.88	-13.03	1727.92	0.00	490691.65	777921.04		
11100.00	90.00	359.57	9477.00	1827.87	-13.78	1827.92	0.00	490791.64	777920.29		
11200.00	90.00	359.57	9477.00	1927.87	-14.54	1927.92	0.00	490891.64	777919.53		
11300.00	90.00	359.57	9477.00	2027.87	-15.29	2027.92	0.00	490991.64	777918.78		
11400.00	90.00	359.57	9477.00	2127.86	-16.04	2127.92	0.00	491091.63	777918.03		
11500.00	90.00	359.57	9477.00	2227.86	-16.80	2227.92	0.00	491191.63	777917.27		
11600.00	90.00	359.57	9477.00	2327.86	-17.55	2327.92	0.00	491291.63	777916.52		
11700.00	90.00	359.57	9477.00	2427.86	-18.31	2427.92	0.00	491391.63	777915.76		
11800.00	90.00	359.57	9477.00	2527.85	-19.06	2527.92	0.00	491491.62	777915.01		
11900.00	90.00	359.57	9477.00	2627.85	-19.81	2627.92	0.00	491591.62	777914.26		
12000.00	90.00	359.57	9477.00	2727.85	-20.57	2727.92	0.00	491691.62	777913.50		
12100.00	90.00	359.57	9477.00	2827.84	-21.32	2827.92	0.00	491791.61	777912.75		
12200.00	90.00	359.57	9477.00	2927.84	-22.08	2927.92	0.00	491891.61	777911.99		
12300.00	90.00	359.57	9477.00	3027.84	-22.83	3027.92	0.00	491991.61	777911.24		
12400.00	90.00	359.57	9477.00	3127.84	-23.58	3127.92	0.00	492091.61	777910.49		
12500.00	90.00	359.57	9477.00	3227.83	-24.34	3227.92	0.00	492191.60	777909.73		
12600.00	90.00	359.57	9477.00	3327.83	-25.09	3327.92	0.00	492291.60	777908.98		
12700.00	90.00	359.57	9477.00	3427.83	-25.85	3427.92	0.00	492391.60	777908.22		
12800.00	90.00	359.57	9477.00	3527.82	-26.60	3527.92	0.00	492491.59	777907.47		
12900.00	90.00	359.57	9477.00	3627.82	-27.36	3627.92	0.00	492591.59	777906.71		
13000.00	90.00	359.57	9477.00	3727.82	-28.11	3727.92	0.00	492691.59	777905.96		
13100.00	90.00	359.57	9477.00	3827.82	-28.86	3827.92	0.00	492791.59	777905.21		
13200.00	90.00	359.57	9477.00	3927.81	-29.62	3927.92	0.00	492891.58	777904.45		
13300.00	90.00	359.57	9477.00	4027.81	-30.37	4027.92	0.00	492991.58	777903.70		
13400.00	90.00	359.57	9477.00	4127.81	-31.13	4127.92	0.00	493091.58	777902.94		
13500.00	90.00	359.57	9477.00	4227.80	-31.88	4227.92	0.00	493191.57	777902.19		
13600.00	90.00	359.57	9477.00	4327.80	-32.63	4327.92	0.00	493291.57	777901.44		
13700.00	90.00	359.57	9477.00	4427.80	-33.39	4427.92	0.00	493391.57	777900.68		

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
13800.00	90.00	359.57	9477.00	4527.80	-34.14	4527.92	0.00	493491.57	777899.93	
13890.04	90.00	359.57	9477.00	4617.83	-34.82	4617.96	0.00	493581.60	777899.25	PBHL 2H

**Weatherford®**

Weatherford Drilling Services

GeoDec4 v2.1.0.0

Report Date: July 16, 2015
Job Number: _____
Customer: Devon Energy
Well Name: North Thistle 34 State Com 2H
API Number: _____
Rig Name: _____
Location: Lea Co, NM Nad83 NME
Block: _____
Engineer: RWJ

NAD83 / New Mexico East (ftUS)	NAD83 (1986)
Projected Coordinate System	Geodetic Coordinate System
Datum: North American Datum 1983 (1986)	Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
EPSG: 2257	EPSG: 4269
North: 488963.77 US Survey Foot	Latitude: 32.341906 Degree
East: 777934.07 US Survey Foot	Longitude: -103.567243 Degree
Convergence: 0.41°	
Declination: 7.23°	
Total Correction: 6.82°	
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m
Latitude = 32° 20' 30.86" N
Longitude = 103° 34' 02.07" W

Magnetic Declination = 7.23 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6601
Local Field Strength = 48283 nT	Magnetic Vector X = 23769 nT
Magnetic Dip = 60.25 deg	Magnetic Vector Y = 3015 nT
Magnetic Model = bggm2015.dat	Magnetic Vector Z = 41919 nT
Run Date = October 15, 2015	Magnetic Vector H = 23960 nT

Signed: _____ Date: _____