

Results of Directional Survey

API number:	30-025-41252		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	THISTLE UNIT # 47H

surface	ULSTR:	N	34	T	23S	R	33E
				280	FSL	2511	FWL

BH Loc	ULSTR:	D	34	T	23S	R	33E
16380	MD	11238.5	TVD	332	FNL	619	FWL
4948 FSL							

Top Perf/OH	ULSTR:	M	34	T	23S	R	33E
11816	MD	11228.8	TVD	389	FSL	696	FWL

Bot Perf/OH	ULSTR:	D	34	T	23S	R	33E
16218	MD	11231.3	TVD	494	FNL	624	FWL
				4786	FSL		

	MD	N/S	E/W	VD
	11796	89.37	-1814.46	11228.88
TOP PERFS/OH	11816	109.36	-1815.08	11228.81
	11859	152.34	-1816.42	11228.65
	16208	4496.08	-1885.86	11230.87
BOT PERFS/OH	16218	4506.06	-1886.52	11231.30
	16301	4588.93	-1892.00	11234.84

NEXT TO LAST	16301	4588.93	-1892.00	11234.84
LAST READING	16380	4667.80	-1892.00	11238.51
TD	16380	4667.80	-1892.00	11238.51

Surface Location	280	FS	2511	FW
Projected BHL	4948	FS	619	FW
Location of				
Top Perfs/OH	389	FS	696	FW
Bottom Perfs/OH	4786	FS	624	FW

SUMMARY of Subsurface Locations

Surface Location	N-34-23S-33E	280	FS	2511	FW	Vert. Depth
Top Perfs/OH	M-34-23S-33E	389	FS	696	FW	11228.81
Bottom Perfs/OH	D-34-23S-33E	4786	FS	624	FW	11231.30
Projected TD	D-34-23S-33E	4948	FS	619	FW	11238.51

JUN 23 2014



A GYRO TECHNOLOGIES INC. COMPANY

P.O. Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

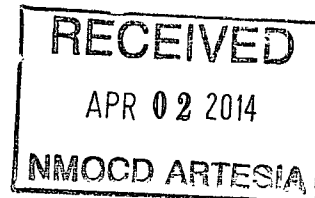
October 14, 2013

HOBBS OCD

MAY 01 2014

Devon Energy Production Co., L. P.
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

RECEIVED



Attn: Patti Riechers

Re: **Thistle Unit No. 047H**

Please find enclosed a copy of the survey from 0.00' to 1264.00' ran on the above referenced well.

If I can be of any further service please do not hesitate to call me at 800-606-4976.

Sincerely,

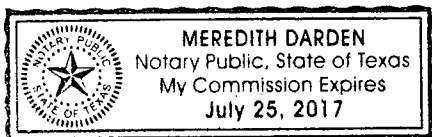
Keith Havelka
Operations

STATE OF TEXAS §

§

COUNTY OF NUECES §

This instrument was acknowledged before me on the 14 day of October, A.D., 2013, by Keith Havelka.



Meredith Darden
Notary Public, State of Texas



Company: Devon Energy Production Co.

Lease/Well: Thistle Unit /No. 047H

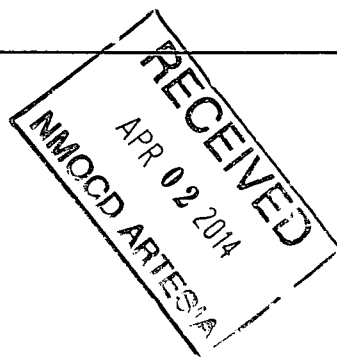
Rig Name: H&P 416

State/County: New Mexico/Lea

Latitude: 32.25, Longitude: -103.56

GRID North is 0.41 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB=25 feet

HOBBS OCD

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...tle unit #47h- gyro survey.ut

Minimum Curvature Method

Report Date/Time: 10/11/2013 / 10:47

MAY 01 2014

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Vaughn Energy Services

Midland, TX

432-563-5444

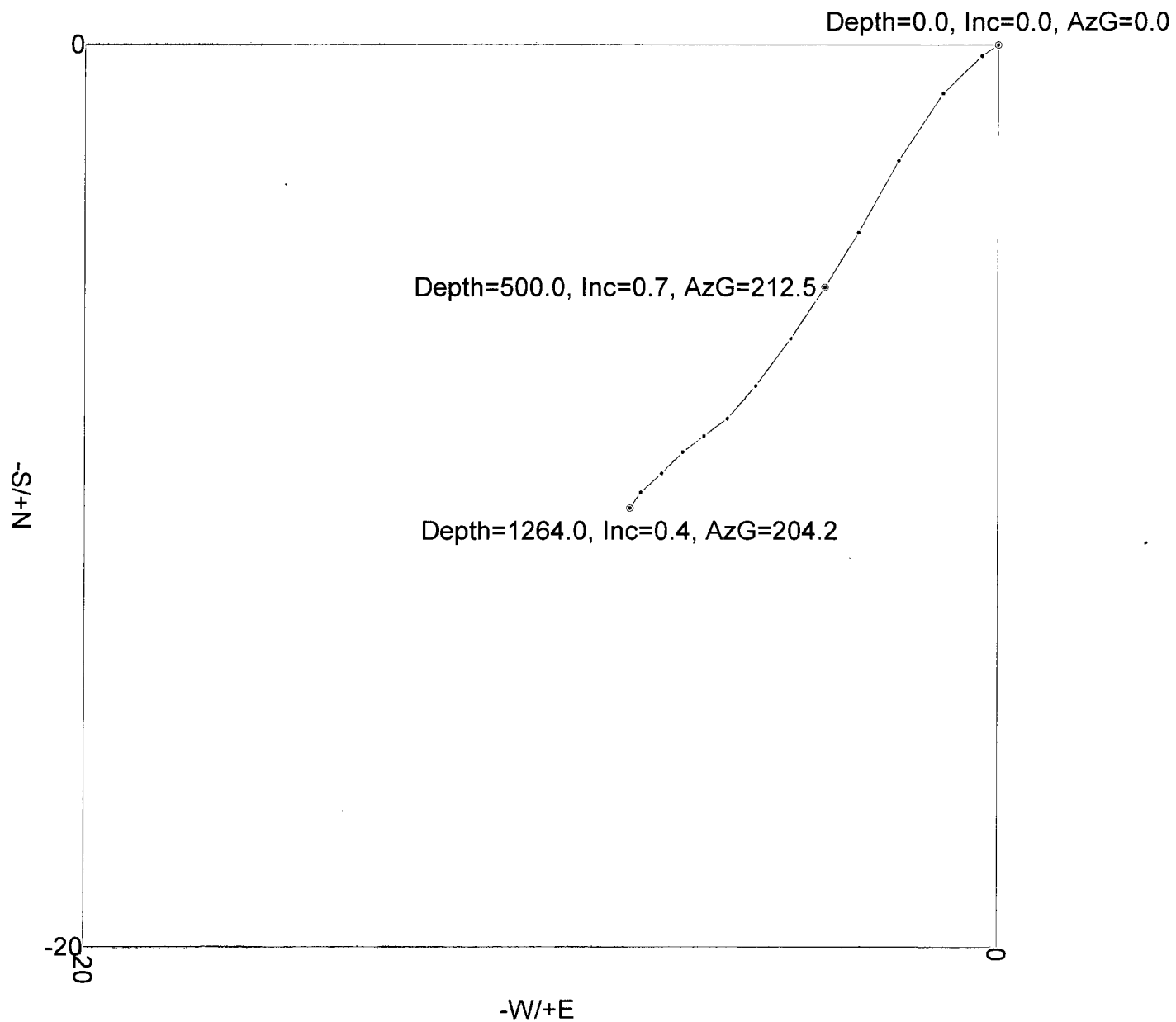
Surveyor: Cameron Ellis

Thistle Unit No. 047H / API 30-025-41252

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.49	235.34	100.00	-0.24	-0.35	-0.24	0.43	235.34	0.49
200.00	0.88	219.72	199.99	-1.08	-1.19	-1.08	1.61	227.97	0.43
300.00	1.18	207.27	299.98	-2.58	-2.16	-2.58	3.36	219.88	0.37
400.00	0.90	210.70	399.96	-4.16	-3.03	-4.16	5.15	215.99	0.29
500.00	0.73	212.50	499.95	-5.37	-3.77	-5.37	6.56	215.03	0.17
600.00	0.84	214.13	599.94	-6.51	-4.52	-6.51	7.92	214.74	0.11
700.00	0.66	218.81	699.93	-7.56	-5.28	-7.56	9.23	214.95	0.19
800.00	0.44	223.50	799.93	-8.29	-5.91	-8.29	10.18	215.49	0.22
900.00	0.30	247.40	899.92	-8.67	-6.42	-8.67	10.79	216.51	0.21
1000.00	0.39	220.48	999.92	-9.03	-6.88	-9.03	11.35	217.31	0.18
1100.00	0.36	228.44	1099.92	-9.50	-7.34	-9.50	12.00	217.69	0.06
1200.00	0.35	225.39	1199.92	-9.92	-7.79	-9.92	12.61	218.14	0.02
1264.00	0.41	204.19	1263.92	-10.27	-8.02	-10.27	13.03	218.01	0.24



Vaughn Energy Services
Midland, TX
432-563-5444
Surveyor: Cameron Ellis
Thistle Unit No. 047H / API 30-025-41252



VES Survey Date: 10/05/2013



Weatherford

Wft Survey Report X Y's.

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APR 02 2014

HOBBS OCD



Weatherford

Company: Devon Energy Date: 11/4/2013 Time: 05:40:18 Page: 1
Field: Lea County, New Mexico (NAD 83) Co-ordinate(NE) Reference: Well: Thistle Unit 47H, Grid North
Site: Thistle Unit 47H Vertical (TVD) Reference: SITE 3666.0
Well: Thistle Unit 47H Section (VS) Reference: Well (0.00N,0.00E,356.40Azi)
Wellpath: (ST01) Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: Wft Svy ST01

Start Date: 10/28/2013

Company: Weatherford
Tool: MWD;MWD - StandardEngineer: Russell W. Joyner
Tied-to: User Defined

Site: Thistle Unit 47H

Site Position: Northing: 457286.25 ft Latitude: 32 15 17.244 N
From: Map Easting: 780184.23 ft Longitude: 103 33 38.525 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3641.00 ft Grid Convergence: 0.41 deg

Well: Thistle Unit 47H

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 457286.25 ft Latitude: 32 15 17.244 N
+E/-W 0.00 ft Easting: 780184.23 ft Longitude: 103 33 38.525 W
Position Uncertainty: 0.00 ft

Wellpath: ST01

Drilled From: ST00
Tie-on Depth: 10885.00 ft
Above System Datum: Mean Sea Level
Declination: 7.30 deg
Mag Dip Angle: 60.16 deg
+E/-W Direction deg

Current Datum: SITE Height 3666.00 ft
Magnetic Data: 10/21/2013
Field Strength: 48426 nT
Vertical Section: Depth From (TVD) ft

0.00 0.00 0.00 356.40

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
10885.00	8.93	263.49	10760.53	-421.77	-1460.35	0.00	-329.24	456864.48	778723.88	Tie On Wft ST00
10917.00	12.30	257.36	10791.98	-422.80	-1466.15	11.09	-329.90	456863.45	778718.08	First Wft Svy S
10948.00	17.74	265.64	10821.91	-423.88	-1474.08	18.82	-330.49	456862.37	778710.15	
10980.00	22.39	268.56	10851.96	-424.40	-1485.04	14.86	-330.32	456861.85	778699.19	
11012.00	25.55	272.93	10881.20	-424.20	-1498.03	11.32	-329.31	456862.05	778686.20	
11043.00	29.67	277.78	10908.67	-422.82	-1512.32	15.13	-327.03	456863.43	778671.91	
11075.00	33.23	282.84	10935.97	-419.80	-1528.72	13.84	-322.98	456866.45	778655.51	
11106.00	37.10	286.76	10961.31	-415.22	-1545.97	14.45	-317.32	456871.03	778638.26	
11138.00	40.60	292.24	10986.23	-408.49	-1564.86	15.32	-309.42	456877.76	778619.37	
11169.00	44.20	296.66	11009.13	-399.82	-1583.86	15.07	-299.58	456886.43	778600.37	
11201.00	47.71	299.51	11031.37	-388.98	-1604.14	12.70	-287.48	456897.27	778580.09	
11232.00	51.15	303.29	11051.54	-376.70	-1624.22	14.45	-273.97	456909.55	778560.01	
11264.00	55.04	307.74	11070.75	-361.82	-1645.02	16.47	-257.81	456924.43	778539.21	
11295.00	58.85	310.94	11087.66	-345.34	-1665.10	15.03	-240.11	456940.91	778519.13	
11327.00	62.66	315.22	11103.30	-326.27	-1685.46	16.67	-219.79	456959.98	778498.77	
11358.00	64.54	319.01	11117.09	-305.92	-1704.35	12.52	-198.30	456980.33	778479.88	
11389.00	65.56	321.97	11130.16	-284.24	-1722.23	9.26	-175.54	457002.01	778462.00	
11421.00	67.32	326.59	11142.96	-260.43	-1739.34	14.33	-150.70	457025.82	778444.89	
11452.00	68.91	331.70	11154.52	-235.74	-1754.08	16.13	-125.14	457050.51	778430.15	
11484.00	70.31	336.23	11165.68	-208.80	-1767.23	13.97	-97.42	457077.45	778417.00	
11515.00	70.60	340.48	11176.05	-181.65	-1778.01	12.95	-69.65	457104.60	778406.22	
11547.00	70.45	344.93	11186.72	-152.86	-1786.97	13.12	-40.35	457133.39	778397.26	
11578.00	72.09	349.04	11196.68	-124.26	-1793.58	13.62	-11.40	457161.99	778390.65	
11607.00	74.34	352.32	11205.06	-96.87	-1798.07	13.32	16.22	457189.38	778386.16	
11638.00	78.51	353.62	11212.33	-66.97	-1801.75	14.06	46.30	457219.28	778382.48	
11670.00	80.79	354.28	11218.08	-35.67	-1805.07	7.41	77.75	457250.58	778379.16	
11701.00	82.77	354.96	11222.51	-5.12	-1807.95	6.75	108.41	457281.13	778376.28	
11733.00	84.74	355.69	11225.99	26.58	-1810.54	6.56	140.21	457312.83	778373.69	
11764.00	87.41	356.38	11228.12	57.43	-1812.68	8.89	171.14	457343.68	778371.55	
11796.00	89.86	357.22	11228.88	89.37	-1814.46	8.09	203.12	457375.62	778369.77	



Weatherford

Wft Survey Report X Y's.

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 47H
Well: Thistle Unit 47H
Wellpath: (ST01)

Date: 11/4/2013 Time: 05:40:18 Page: 2
Co-ordinate(NE) Reference: Well: Thistle Unit 47H, Grid North
Vertical (TVD) Reference: SITE 3666.0
Section (VS) Reference: Well (0.00N,0.00E,356.40Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
11859.00	90.56	359.21	11228.65	152.34	-1816.42	3.35	266.09	457438.59	778367.81	
11954.00	87.48	0.42	11230.27	247.31	-1816.73	3.48	360.89	457533.56	778367.50	
12048.00	87.55	1.04	11234.35	341.21	-1815.53	0.66	454.54	457627.46	778368.70	
12143.00	87.90	1.96	11238.12	436.10	-1813.05	1.04	549.08	457722.35	778371.18	
12237.00	89.44	1.97	11240.30	530.02	-1809.83	1.64	642.61	457816.27	778374.40	
12331.00	90.14	1.85	11240.65	623.97	-1806.69	0.76	736.18	457910.22	778377.54	
12426.00	90.84	2.51	11239.83	718.89	-1803.08	1.01	830.69	458005.14	778381.15	
12521.00	91.40	2.90	11237.98	813.77	-1798.60	0.72	925.10	458100.02	778385.63	
12616.00	92.31	3.79	11234.90	908.55	-1793.06	1.34	1019.35	458194.80	778391.17	
12710.00	90.70	3.17	11232.43	1002.35	-1787.36	1.84	1112.60	458288.60	778396.87	
12805.00	89.16	1.30	11232.55	1097.27	-1783.65	2.55	1207.10	458383.52	778400.58	
12899.00	89.09	1.00	11233.98	1191.24	-1781.76	0.33	1300.76	458477.49	778402.47	
12994.00	89.09	1.26	11235.49	1286.21	-1779.89	0.27	1395.43	458572.46	778404.34	
13088.00	89.02	1.18	11237.04	1380.17	-1777.89	0.11	1489.08	458666.42	778406.34	
13182.00	88.60	0.14	11239.00	1474.14	-1776.81	1.19	1582.80	458760.39	778407.42	
13277.00	89.44	358.49	11240.62	1569.12	-1777.94	1.95	1677.66	458855.37	778406.29	
13372.00	90.49	355.91	11240.68	1664.00	-1782.58	2.93	1772.64	458950.25	778401.65	
13466.00	91.47	355.60	11239.07	1757.72	-1789.54	1.09	1866.62	459043.97	778394.69	
13561.00	91.82	355.88	11236.34	1852.42	-1796.59	0.47	1961.57	459138.67	778387.64	
13655.00	92.59	356.20	11232.73	1946.13	-1803.08	0.89	2055.50	459232.38	778381.15	
13749.00	90.91	356.61	11229.86	2039.89	-1808.97	1.84	2149.46	459326.14	778375.26	
13844.00	89.02	356.25	11229.91	2134.71	-1814.89	2.03	2244.45	459420.96	778369.34	
13938.00	88.67	356.83	11231.81	2228.51	-1820.56	0.72	2338.43	459514.76	778363.67	
14033.00	88.74	358.14	11233.96	2323.40	-1824.73	1.38	2433.39	459609.65	778359.50	
14128.00	88.53	358.68	11236.22	2418.33	-1827.36	0.61	2528.30	459704.58	778356.87	
14222.00	87.76	359.24	11239.26	2512.27	-1829.07	1.01	2622.16	459798.52	778355.16	
14317.00	87.97	358.78	11242.80	2607.19	-1830.71	0.53	2716.99	459893.44	778353.52	
14411.00	88.18	357.94	11245.96	2701.09	-1833.40	0.92	2810.88	459987.34	778350.83	
14506.00	89.16	356.89	11248.16	2795.97	-1837.68	1.51	2905.84	460082.22	778346.55	
14601.00	89.72	357.06	11249.09	2890.83	-1842.69	0.62	3000.83	460177.08	778341.54	
14695.00	90.28	357.93	11249.09	2984.74	-1846.80	1.10	3094.81	460270.99	778337.43	
14790.00	90.91	359.03	11248.11	3079.70	-1849.32	1.33	3189.74	460365.95	778334.91	
14885.00	90.21	359.21	11247.18	3174.68	-1850.78	0.76	3284.63	460460.93	778333.45	
14979.00	89.37	359.55	11247.52	3268.68	-1851.80	0.96	3378.50	460554.93	778332.43	
15074.00	89.30	358.73	11248.62	3363.66	-1853.22	0.87	3473.39	460649.91	778331.01	
15168.00	89.93	358.74	11249.26	3457.63	-1855.30	0.67	3567.31	460743.88	778328.93	
15263.00	91.19	358.42	11248.33	3552.60	-1857.65	1.37	3662.23	460838.85	778326.58	
15357.00	93.78	357.87	11244.25	3646.45	-1860.69	2.82	3756.09	460932.70	778323.54	
15452.00	93.92	358.35	11237.87	3741.19	-1863.82	0.53	3850.83	461027.44	778320.41	
15546.00	93.78	358.51	11231.56	3834.94	-1866.39	0.23	3944.56	461121.19	778317.84	
15641.00	92.80	359.05	11226.11	3929.76	-1868.41	1.18	4039.32	461216.01	778315.82	
15735.00	92.66	359.27	11221.63	4023.64	-1869.78	0.28	4133.11	461309.89	778314.45	
15830.00	90.49	358.92	11219.02	4118.59	-1871.28	2.31	4227.96	461404.84	778312.95	
15924.00	88.11	357.89	11220.17	4212.54	-1873.90	2.76	4321.89	461498.79	778310.33	
16019.00	87.48	357.27	11223.83	4307.38	-1877.91	0.93	4416.80	461593.63	778306.32	
16113.00	88.11	357.65	11227.44	4401.22	-1882.07	0.78	4510.71	461687.47	778302.16	
16208.00	87.76	357.77	11230.87	4496.08	-1885.86	0.39	4605.62	461782.33	778298.37	
16301.00	87.34	358.02	11234.84	4588.93	-1889.28	0.53	4698.51	461875.18	778294.95	Last Wft Svy ST
16380.00	87.34	358.02	11238.51	4667.80	-1892.00	0.00	4777.39	461954.05	778292.23	Proj To Bit ST



Weatherford

Wft Survey Report X Y's.



Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 47H
Well: Thistle Unit 47H
Wellpath: ST01

Date: 11/4/2013 Time: 05:40:18 Page: 3
Co-ordinate(NE) Reference: Well: Thistle Unit 47H, Grid North
Vertical (TVD) Reference: SITE 3666.0
Section (VS) Reference: Well (0.00N,0.00E,356.40Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Annotation

MD ft	TVD ft	
10885.00	10760.53	Tie On Wft ST00
10917.00	10791.98	First Wft Svy ST01
16301.00	11234.84	Last Wft Svy ST01
16380.00	11238.51	Projl To Bit ST01



Thistle Unit 47H
Lea County, New Mexico



KB ELEV: 3666
GL ELEV: 3641

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	1264.00	0.41	213.17	1263.92	-8.89	-9.53	0.00	0.00	-8.27	
2	1438.00	0.41	213.17	1437.91	-9.93	-10.21	0.00	0.00	-9.27	
3	1900.20	9.55	254.21	1897.90	-21.78	-48.09	2.00	42.69	-18.71	
4	10904.89	9.55	254.21	10777.81	-428.36	-1485.53	0.00	0.00	-334.24	
5	11670.04	89.81	356.40	11265.50	41.28	-1595.16	12.00	102.06	141.36	Tgt
6	16306.64	89.81	356.40	11281.00	-4668.70	-1886.29	0.00	0.00	4777.93	PBHL

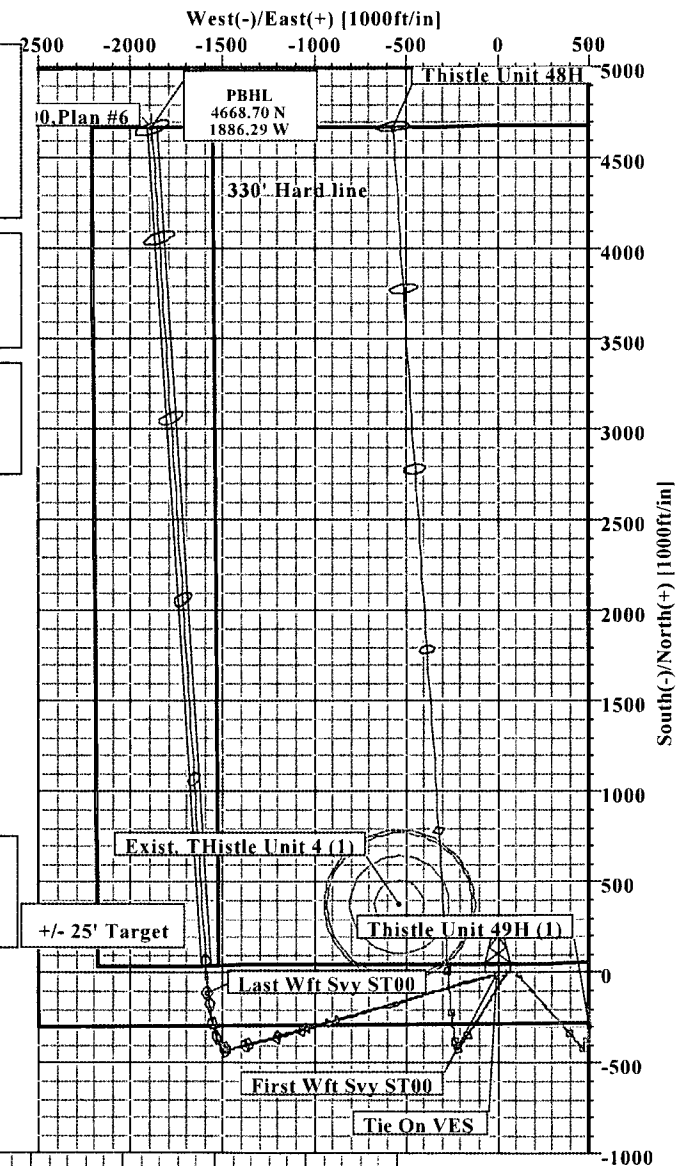
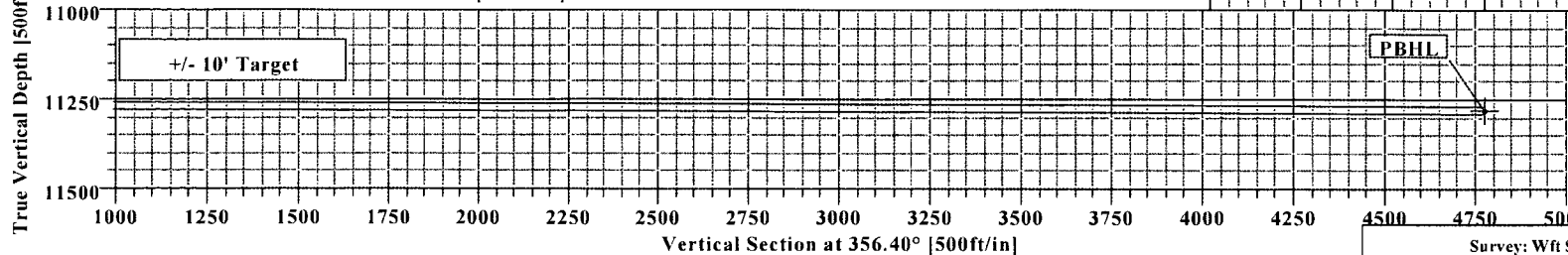
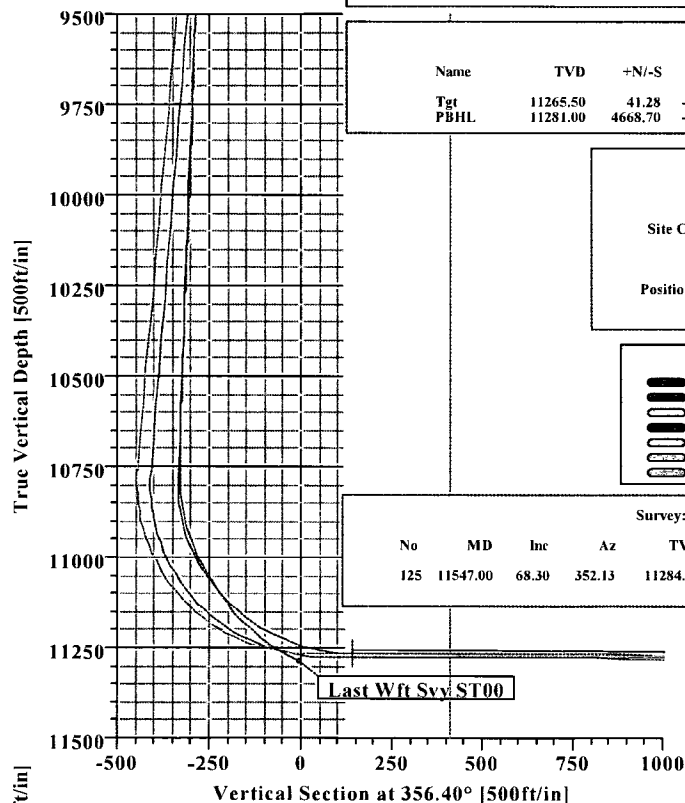
WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Thistle Unit 47H	0.00	0.00	457286.25	780184.23	32°15'17.244N	103°33'38.525W	N/A

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Tgt	11265.50	41.28	-1595.16	457327.53	778589.07	Point
PBHL	11281.00	4668.70	-1886.29	461954.95	778297.94	Rectangle (4636x50)

SITE DETAILS	
Thistle Unit 47H	
Site Centre Northing: 457286.25 Easting: 780184.23	
Ground Level: 3641.00	
Positional Uncertainty: 0.00	
Convergence: 0.41	

LEGEND	
	Thistle Unit 47H, ST00, Plan #6
	Thistle Unit 47H, ST00, Gyro
	Exist. Thistle Unit 4 (1)
	Thistle Unit 48H (1)
	Thistle Unit 49H (1)
	ST00
	Wft Svy

Survey: Wft Svy (Thistle Unit 47H/ST00)									
No	MD	Inc	Az	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
125	11547.00	68.30	352.13	11284.42	-105.53	-1588.56	13.23	-23.28	-5.57





Weatherford

Wft Survey Report X Y's.

**Weatherford**

Company: Devon Energy	Date: 10/21/2013	Time: 09:15:50	Page: 1
Field: Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference: Well: Thistle Unit 47H, Grid North		
Site: Thistle Unit 47H	Vertical (TVD) Reference: SITE 3666.0		
Well: Thistle Unit 47H	Section (VS) Reference: Well (0.00N,0.00E,356.40Azi)		
Wellpath: ST00	Survey Calculation Method: Minimum Curvature		
	Db: Sybase		

Survey: Wft Svy	Start Date: 10/7/2013
Company: Weatherford	Engineer: Russell W. Joyner
Tool: MWD;MWD - Standard	Tied-to: User Defined

Site: Thistle Unit 47H

Site Position:	Northing: 457286.25 ft	Latitude: 32 15 17.244 N
From: Map	Easting: 780184.23 ft	Longitude: 103 33 38.525 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 3641.00 ft		Grid Convergence: 0.41 deg

Well: Thistle Unit 47H	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 457286.25 ft
+E/-W 0.00 ft	Easting: 780184.23 ft
Position Uncertainty: 0.00 ft	Latitude: 32 15 17.244 N
	Longitude: 103 33 38.525 W

Wellpath: ST00	Drilled From: Surface
Current Datum: SITE	Tie-on Depth: 0.00 ft
Magnetic Data: 1/15/2014	Above System Datum: Mean Sea Level
Field Strength: 48403 nT	Declination: 7.27 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 60.15 deg
ft	+N/-S
	ft
	+E/-W
	ft
	Direction
	deg
0.00	0.00
0.00	0.00
0.00	356.40

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
1264.00	0.41	213.17	1263.92	-8.89	-9.53	0.00	-8.27	457277.36	780174.70	Tie On VES
1412.00	0.63	209.51	1411.91	-10.04	-10.22	0.15	-9.38	457276.21	780174.01	First Wft Svy S
1444.00	1.15	223.78	1443.91	-10.43	-10.53	1.75	-9.74	457275.82	780173.70	
1507.00	2.06	243.49	1506.88	-11.39	-11.98	1.67	-10.61	457274.86	780172.25	
1602.00	3.73	254.45	1601.76	-12.98	-16.49	1.84	-11.92	457273.27	780167.74	
1696.00	5.77	258.64	1695.43	-14.73	-24.06	2.20	-13.19	457271.52	780160.17	
1791.00	7.16	260.40	1789.82	-16.66	-34.58	1.48	-14.45	457269.59	780149.65	
1886.00	9.23	257.13	1883.85	-19.34	-47.85	2.23	-16.30	457266.91	780136.38	
1980.00	9.43	257.88	1976.61	-22.64	-62.73	0.25	-18.65	457263.61	780121.50	
2075.00	8.65	258.51	2070.42	-25.70	-77.34	0.83	-20.79	457260.55	780106.89	
2169.00	8.91	255.51	2163.32	-28.92	-91.31	0.56	-23.13	457257.33	780092.92	
2264.00	9.24	253.87	2257.13	-32.88	-105.76	0.44	-26.18	457253.37	780078.47	
2359.00	8.91	255.85	2350.95	-36.80	-120.22	0.48	-29.18	457249.45	780064.01	
2454.00	8.58	256.61	2444.84	-40.24	-134.25	0.37	-31.73	457246.01	780049.98	
2549.00	9.19	256.06	2538.70	-43.71	-148.51	0.65	-34.30	457242.54	780035.72	
2643.00	9.58	254.18	2631.44	-47.65	-163.32	0.53	-37.30	457238.60	780020.91	
2738.00	9.37	255.10	2725.15	-51.79	-178.40	0.27	-40.49	457234.46	780005.83	
2832.00	8.98	255.88	2817.94	-55.55	-192.91	0.44	-43.33	457230.70	779991.32	
2927.00	9.31	254.44	2911.74	-59.42	-207.50	0.42	-46.28	457226.83	779976.73	
3022.00	9.67	251.62	3005.44	-64.00	-222.48	0.62	-49.90	457222.25	779961.75	
3116.00	9.07	252.10	3098.18	-68.77	-237.02	0.64	-53.75	457217.48	779947.21	
3211.00	9.29	252.07	3191.97	-73.43	-251.44	0.23	-57.49	457212.82	779932.79	
3305.00	10.61	251.80	3284.55	-78.47	-266.88	1.41	-61.55	457207.78	779917.35	
3400.00	11.03	252.08	3377.86	-83.99	-283.84	0.45	-66.01	457202.26	779900.39	
3495.00	10.51	253.27	3471.19	-89.29	-300.78	0.60	-70.22	457196.96	779883.45	
3589.00	9.69	253.03	3563.73	-94.06	-316.56	0.87	-74.00	457192.19	779867.67	
3684.00	8.76	253.52	3657.50	-98.45	-331.14	0.98	-77.46	457187.80	779853.09	
3779.00	9.17	252.77	3751.34	-102.74	-345.31	0.45	-80.86	457183.51	779838.92	
3874.00	9.23	253.42	3845.12	-107.16	-359.84	0.13	-84.35	457179.09	779824.39	
3968.00	8.73	254.42	3937.96	-111.23	-373.94	0.56	-87.53	457175.02	779810.29	



Weatherford

Wft Survey Report X Y's.

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 47H
Well: Thistle Unit 47H
Wellpath: ST00

Date: 10/21/2013 Time: 09:15:50 Page: 2
Co-ordinate(NE) Reference: Well: Thistle Unit 47H, Grid North
Vertical (TVD) Reference: SITE 3666.0
Section (VS) Reference: Well (0.00N,0.00E,356.40Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
4063.00	9.60	249.32	4031.75	-115.96	-388.29	1.25	-91.35	457170.29	779795.94	
4158.00	10.06	246.96	4125.36	-122.00	-403.34	0.64	-96.44	457164.25	779780.89	
4252.00	9.48	248.16	4217.99	-128.10	-418.08	0.65	-101.59	457158.15	779766.15	
4347.00	8.75	246.92	4311.79	-133.84	-431.99	0.80	-106.45	457152.41	779752.24	
4441.00	8.08	246.05	4404.78	-139.33	-444.61	0.73	-111.13	457146.92	779739.62	
4536.00	8.09	249.60	4498.84	-144.37	-456.97	0.53	-115.39	457141.88	779727.26	
4631.00	7.69	252.75	4592.94	-148.58	-469.31	0.62	-118.82	457137.67	779714.92	
4725.00	7.70	253.78	4686.09	-152.20	-481.36	0.15	-121.68	457134.05	779702.87	
4805.00	7.98	253.43	4765.34	-155.29	-491.83	0.36	-124.10	457130.96	779692.40	
4899.00	7.82	248.18	4858.45	-159.52	-504.02	0.79	-127.56	457126.73	779680.21	
4994.00	9.84	246.69	4952.32	-165.14	-517.48	2.14	-132.32	457121.11	779666.75	
5089.00	10.94	249.76	5045.76	-171.47	-533.39	1.30	-137.64	457114.78	779650.84	
5183.00	10.35	250.17	5138.15	-177.42	-549.70	0.63	-142.55	457108.83	779634.53	
5231.00	9.91	250.13	5185.40	-180.29	-557.64	0.92	-144.92	457105.96	779626.59	
5424.00	10.13	263.58	5375.48	-187.83	-590.13	1.22	-150.40	457098.42	779594.10	
5487.00	9.96	262.99	5437.51	-189.11	-601.05	0.32	-151.00	457097.14	779583.18	
5582.00	9.57	261.87	5531.14	-191.23	-617.02	0.46	-152.11	457095.02	779567.21	
5676.00	9.53	261.55	5623.84	-193.48	-632.45	0.07	-153.39	457092.77	779551.78	
5771.00	10.31	252.83	5717.42	-197.15	-648.35	1.78	-156.05	457089.10	779535.88	
5865.00	10.15	252.66	5809.93	-202.10	-664.30	0.17	-159.99	457084.15	779519.93	
5960.00	9.93	250.24	5903.47	-207.36	-680.00	0.50	-164.26	457078.89	779504.23	
6054.00	9.61	249.56	5996.11	-212.84	-694.98	0.36	-168.79	457073.41	779489.25	
6149.00	9.36	254.78	6089.81	-217.64	-709.86	0.94	-172.64	457068.61	779474.37	
6244.00	8.47	256.46	6183.66	-221.31	-724.12	0.98	-175.40	457064.94	779460.11	
6339.00	8.21	254.25	6277.66	-224.79	-737.45	0.43	-178.04	457061.46	779446.78	
6433.00	7.80	254.53	6370.74	-228.31	-750.05	0.44	-180.76	457057.94	779434.18	
6528.00	9.92	254.38	6464.60	-232.23	-764.15	2.23	-183.79	457054.02	779420.08	
6622.00	9.75	254.17	6557.22	-236.58	-779.61	0.18	-187.17	457049.67	779404.62	
6717.00	9.12	253.91	6650.94	-240.87	-794.58	0.66	-190.50	457045.38	779389.65	
6811.00	9.09	252.68	6743.75	-245.14	-808.83	0.21	-193.87	457041.11	779375.40	
6906.00	8.67	254.30	6837.61	-249.31	-822.88	0.51	-197.15	457036.94	779361.35	
7001.00	9.07	257.94	6931.48	-252.81	-837.10	0.73	-199.75	457033.44	779347.13	
7095.00	8.78	259.37	7024.34	-255.69	-851.40	0.39	-201.72	457030.56	779332.83	
7190.00	9.77	251.21	7118.10	-259.62	-866.15	1.73	-204.72	457026.63	779318.08	
7285.00	9.33	251.80	7211.78	-264.62	-881.10	0.47	-208.77	457021.63	779303.13	
7379.00	8.97	251.88	7304.59	-269.28	-895.30	0.38	-212.53	457016.97	779288.93	
7474.00	8.55	252.72	7398.48	-273.68	-909.08	0.46	-216.06	457012.57	779275.15	
7568.00	10.05	252.06	7491.24	-278.28	-923.56	1.60	-219.74	457007.97	779260.67	
7663.00	9.68	251.77	7584.83	-283.34	-939.03	0.39	-223.81	457002.91	779245.20	
7757.00	8.84	249.04	7677.61	-288.39	-953.28	1.01	-227.97	456997.86	779230.95	
7851.00	7.70	250.37	7770.63	-293.09	-965.96	1.23	-231.86	456993.16	779218.27	
7946.00	8.20	252.39	7864.72	-297.28	-978.41	0.60	-235.26	456988.97	779205.82	
8041.00	9.46	254.30	7958.59	-301.44	-992.39	1.36	-238.53	456984.81	779191.84	
8135.00	9.38	254.88	8051.32	-305.53	-1007.22	0.13	-241.68	456980.72	779177.01	
8230.00	8.59	253.64	8145.16	-309.55	-1021.50	0.86	-244.80	456976.70	779162.73	
8324.00	9.95	254.96	8237.93	-313.63	-1036.08	1.46	-247.96	456972.62	779148.15	
8419.00	9.46	254.02	8331.57	-317.91	-1051.51	0.54	-251.26	456968.34	779132.72	
8513.00	8.83	254.92	8424.37	-321.92	-1065.90	0.69	-254.35	456964.33	779118.33	
8606.00	8.31	255.35	8516.33	-325.47	-1079.30	0.56	-257.06	456960.78	779104.93	
8702.00	9.52	254.06	8611.17	-329.41	-1093.64	1.28	-260.09	456956.84	779090.59	
8797.00	9.14	256.65	8704.91	-333.31	-1108.54	0.60	-263.04	456952.94	779075.69	
8892.00	8.45	255.72	8798.80	-336.77	-1122.65	0.74	-265.61	456949.48	779061.58	



Weatherford

Wft Survey Report X Y's.

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 47H
Well: Thistle Unit 47H
Wellpath: ST00

Date: 10/21/2013 Time: 09:15:50 Page: 3
Co-ordinate(NE) Reference: Well: Thistle Unit 47H, Grid North
Vertical (TVD) Reference: SITE 3666.0
Section (VS) Reference: Well (0.00N,0.00E,356.40Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
8987.00	9.99	254.43	8892.57	-340.70	-1137.35	1.64	-268.62	456945.55	779046.88	
9081.00	9.58	254.69	8985.20	-344.96	-1152.75	0.44	-271.90	456941.29	779031.48	
9176.00	7.97	253.32	9079.08	-348.94	-1166.68	1.71	-274.99	456937.31	779017.55	
9270.00	7.61	253.06	9172.22	-352.62	-1178.88	0.38	-277.90	456933.63	779005.35	
9365.00	8.16	259.05	9266.32	-355.73	-1191.52	1.04	-280.22	456930.52	778992.71	
9459.00	8.80	256.14	9359.29	-358.72	-1205.05	0.82	-282.35	456927.53	778979.18	
9554.00	10.84	256.28	9452.90	-362.58	-1220.78	2.15	-285.21	456923.67	778963.45	
9649.00	9.58	252.18	9546.39	-367.12	-1236.99	1.53	-288.73	456919.13	778947.24	
9743.00	9.20	255.53	9639.13	-371.39	-1251.71	0.71	-292.06	456914.86	778932.52	
9838.00	9.65	257.08	9732.85	-375.07	-1266.82	0.54	-294.79	456911.18	778917.41	
9933.00	11.52	255.02	9826.23	-379.30	-1283.75	2.01	-297.95	456906.95	778900.48	
10027.00	10.81	256.06	9918.45	-383.85	-1301.37	0.79	-301.38	456902.40	778882.86	
10122.00	12.00	255.05	10011.57	-388.55	-1319.56	1.27	-304.92	456897.70	778864.67	
10216.00	13.07	257.06	10103.33	-393.45	-1339.36	1.23	-308.57	456892.80	778844.87	
10311.00	12.44	256.03	10195.99	-398.32	-1359.76	0.71	-312.16	456887.93	778824.47	
10406.00	11.24	255.57	10288.96	-403.10	-1378.66	1.27	-315.74	456883.15	778805.57	
10500.00	10.57	256.16	10381.26	-407.45	-1395.90	0.72	-318.99	456878.80	778788.33	
10595.00	10.73	254.96	10474.63	-411.83	-1412.90	0.29	-322.30	456874.42	778771.33	
10689.00	9.81	256.40	10567.12	-415.98	-1429.14	1.02	-325.42	456870.27	778755.09	
10783.00	9.51	260.13	10659.79	-419.19	-1444.57	0.74	-327.66	456867.06	778739.66	
10815.00	8.92	259.15	10691.38	-420.11	-1449.61	1.91	-328.26	456866.14	778734.62	
10885.00	8.93	263.49	10760.53	-421.75	-1460.34	0.96	-329.22	456864.50	778723.89	
10917.00	10.62	273.55	10792.07	-421.85	-1465.75	7.49	-328.98	456864.40	778718.48	
10948.00	13.91	284.81	10822.36	-420.72	-1472.21	13.07	-327.45	456865.53	778712.02	
10980.00	16.91	292.78	10853.21	-417.94	-1480.22	11.46	-324.17	456868.31	778704.01	
11011.00	19.82	299.59	10882.63	-413.59	-1488.95	11.65	-319.28	456872.66	778695.28	
11043.00	22.42	309.29	10912.49	-407.05	-1498.39	13.59	-312.16	456879.20	778685.84	
11074.00	23.39	317.41	10941.05	-398.77	-1507.14	10.66	-303.35	456887.48	778677.09	
11106.00	26.65	322.58	10970.05	-388.39	-1515.80	12.26	-292.45	456897.86	778668.43	
11137.00	29.09	327.70	10997.45	-376.50	-1524.05	11.02	-280.06	456909.75	778660.18	
11169.00	29.85	331.02	11025.31	-362.95	-1532.07	5.63	-266.04	456923.30	778652.16	
11200.00	31.31	335.90	11052.01	-348.85	-1539.10	9.29	-251.52	456937.40	778645.13	
11232.00	33.06	342.04	11079.09	-332.95	-1545.19	11.59	-235.27	456953.30	778639.04	
11263.00	35.24	345.61	11104.75	-316.24	-1550.02	9.55	-218.29	456970.01	778634.21	
11294.00	37.23	346.32	11129.75	-298.46	-1554.46	6.56	-200.27	456987.79	778629.77	
11326.00	40.31	346.73	11154.70	-278.98	-1559.12	9.66	-180.53	457007.27	778625.11	
11357.00	43.18	348.83	11177.83	-258.81	-1563.48	10.30	-160.13	457027.44	778620.75	
11389.00	47.43	347.49	11200.33	-236.55	-1568.16	13.61	-137.62	457049.70	778616.07	
11421.00	51.49	348.19	11221.13	-212.78	-1573.27	12.80	-113.58	457073.47	778610.96	
11452.00	55.14	350.75	11239.64	-188.35	-1577.80	13.51	-88.91	457097.90	778606.43	
11484.00	59.30	352.36	11256.97	-161.74	-1581.74	13.67	-62.10	457124.51	778602.49	
11515.00	64.40	353.93	11271.59	-134.61	-1585.00	17.05	-34.82	457151.64	778599.23	
11547.00	68.30	352.13	11284.42	-105.53	-1588.56	13.23	-5.57	457180.72	778595.67	Last Wft Svy ST

Annotation

MD ft	TVD ft	
1264.00	1263.92	Tie On VES
1412.00	1411.91	First Wft Svy ST00
11547.00	11284.42	Last Wft Svy ST00