

Results of Directional Survey

API number:	30-025-41487		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	THISTLE UNIT # 61H

surface	ULSTR:	M	22	T	23S	R	33E
				200	FSL	660	FWL

BH Loc	ULSTR:	D	22	T	23S	R	33E
15701	MD	11121.5	TVD	339	FNL	642	FWL
				4941	FSL		

Top Perf/OH	ULSTR:	M	22	T	23S	R	33E
11348	MD	11162.9	TVD	594	FSL	782	FWL

Bot Perf/OH	ULSTR:	D	22	T	23S	R	33E
15539	MD	11124.1	TVD	501	FNL	646	FWL
				4779	FSL		

	MD	N/S	E/W	VD
	11345	391.39	121.91	11162.37
TOP PERFS/OH	11348	394.34	121.94	11162.93
	11376	421.84	122.20	11168.15
	15453	4492.62	-11.93	11126.21
BOT PERFS/OH	15539	4578.57	-14.45	11124.11
	15547	4586.56	-14.68	11123.92

NEXT TO LAST	15660	4699.51	-17.20	11122.01
LAST READING	15701	4740.50	-18.06	11121.48
TD	15701	4740.50	-18.06	11121.48

Surface Location	200	FS	660	FW
Projected BHL	4941	FS	642	FW
Location of				
Top Perfs/OH	594	FS	782	FW
Bottom Perfs/OH	4779	FS	646	FW

SUMMARY of Subsurface Locations

Surface Location	M-22-23S-33E	200	FS	660	FW	Vert. Depth
Top Perfs/OH	M-22-23S-33E	594	FS	782	FW	11162.93
Bottom Perfs/OH	D-22-23S-33E	4779	FS	646	FW	11124.11
Projected TD	D-22-23S-33E	4941	FS	642	FW	11121.48

MAY 27 2014



A GYRO TECHNOLOGIES INC. COMPANY

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

March 25, 2014

HOBBS OCD

MAY 16 2014

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

RECEIVED

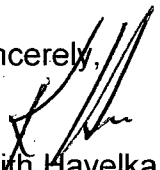
Attn: David Cook

Re: **Thistle Unit No 061H**

Please find enclosed a copy of the survey from 0' to 10,568.61' 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.

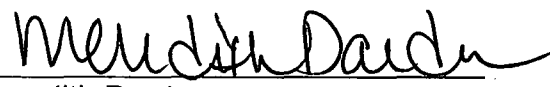
Sincerely,

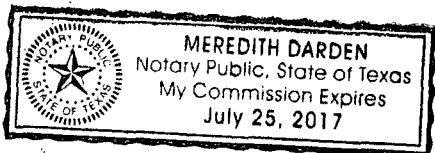


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 25th day of March, A.D., 2014, by Keith Havelka.


Meredith Darden
Notary Public, State of Texas





HOBBS OCD

MAY 16 2014

RECEIVED

Company: DEVON ENERGY
Lease/Well: THISTLE UNIT/No 061H

Location: S22 T23S R33E

Rig Name: H&P #394

State/County: NEW MEXICO/LEA

Latitude: 32.28, Longitude: -103.57

GRID North is 0.41 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB 25 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: gyro_surveyru-01-de_01_mrg.ut

Minimum Curvature Method

Report Date/Time: 3/25/2014 / 12:28

Vaughn Energy Services

Midland Texas

432-563-5444

Surveyor: Andy Askew

Thistle Unit No 061H / API 30-025-41487

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	****
57.16	0.57	149.59	57.16	-0.24	0.14	-0.24	0.28	149.59	0.99
151.73	0.69	143.68	151.72	-1.11	0.72	-1.11	1.32	147.03	0.15
246.30	0.61	118.08	246.29	-1.80	1.50	-1.80	2.34	140.29	0.32
340.87	0.41	113.03	340.85	-2.17	2.25	-2.17	3.13	133.97	0.21
435.44	0.36	89.97	435.42	-2.30	2.86	-2.30	3.67	128.88	0.17
530.01	0.36	104.13	529.99	-2.38	3.44	-2.38	4.18	124.65	0.09
624.58	0.29	83.79	624.56	-2.42	3.97	-2.42	4.65	121.42	0.14
719.15	0.22	74.30	719.13	-2.35	4.38	-2.35	4.97	118.19	0.09
813.72	0.30	90.40	813.70	-2.30	4.80	-2.30	5.32	115.61	0.12
908.29	0.15	100.09	908.27	-2.32	5.17	-2.32	5.67	114.19	0.17
1002.86	0.18	73.13	1002.84	-2.30	5.44	-2.30	5.91	112.95	0.09
1097.43	0.19	43.23	1097.40	-2.14	5.69	-2.14	6.08	110.65	0.10
1192.00	0.21	37.56	1191.97	-1.89	5.90	-1.89	6.20	107.78	0.03
1286.57	0.20	353.52	1286.54	-1.59	5.99	-1.59	6.20	104.89	0.16
1381.14	0.29	342.78	1381.11	-1.20	5.90	-1.20	6.02	101.49	0.10
1475.71	0.27	14.57	1475.68	-0.76	5.89	-0.76	5.94	97.33	0.16
1570.28	0.47	346.83	1570.25	-0.16	5.85	-0.16	5.86	91.56	0.28
1664.85	0.59	340.57	1664.82	0.68	5.60	0.68	5.64	83.03	0.14

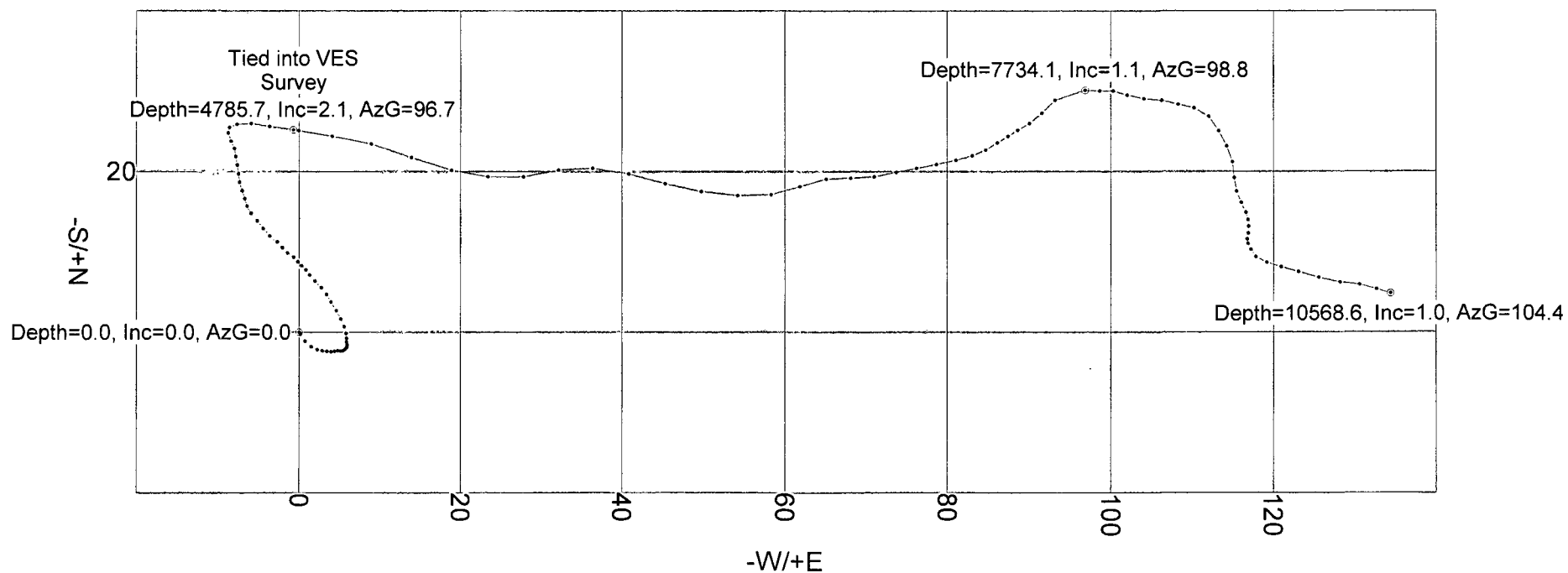
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1759.42	0.66	333.70	1759.38	1.64	5.20	1.64	5.45	72.53	0.10
1853.99	0.79	329.03	1853.94	2.68	4.62	2.68	5.34	59.85	0.15
1948.56	0.74	326.97	1948.50	3.76	3.95	3.76	5.45	46.41	0.06
2043.13	0.60	331.98	2043.07	4.71	3.38	4.71	5.80	35.65	0.16
2137.70	0.69	314.09	2137.63	5.55	2.74	5.55	6.19	26.29	0.23
2232.27	0.69	316.96	2232.19	6.36	1.94	6.36	6.65	17.00	0.04
2326.84	0.52	321.31	2326.76	7.11	1.29	7.11	7.22	10.26	0.19
2421.41	0.46	323.96	2421.33	7.75	0.80	7.75	7.79	5.86	0.07
2515.98	0.44	306.99	2515.89	8.27	0.29	8.27	8.28	1.98	0.14
2610.55	0.39	326.24	2610.46	8.75	-0.18	8.75	8.75	358.82	0.15
2705.12	0.55	309.90	2705.03	9.31	-0.71	9.31	9.34	355.66	0.22
2799.69	0.61	303.15	2799.59	9.88	-1.48	9.88	9.99	351.49	0.09
2894.26	0.52	330.37	2894.16	10.52	-2.11	10.52	10.73	348.67	0.30
2988.83	0.66	307.78	2988.72	11.23	-2.75	11.23	11.56	346.23	0.29
3083.40	0.77	309.42	3083.29	11.97	-3.68	11.97	12.52	342.92	0.12
3177.97	0.72	328.36	3177.85	12.88	-4.49	12.88	13.64	340.81	0.27
3272.54	0.77	316.71	3272.41	13.86	-5.24	13.86	14.81	339.30	0.17
3367.11	0.67	324.09	3366.97	14.77	-6.00	14.77	15.94	337.90	0.15
3461.68	0.60	339.93	3461.54	15.68	-6.49	15.68	16.97	337.51	0.20
3556.25	0.59	346.43	3556.10	16.62	-6.78	16.62	17.95	337.82	0.07
3650.82	0.66	340.12	3650.67	17.61	-7.08	17.61	18.98	338.10	0.11
3745.39	0.68	346.24	3745.23	18.67	-7.40	18.67	20.08	338.38	0.08
3839.96	0.62	358.54	3839.79	19.72	-7.54	19.72	21.11	339.07	0.16
3934.53	0.70	346.63	3934.36	20.80	-7.69	20.80	22.17	339.71	0.17
4029.10	0.62	353.47	4028.92	21.87	-7.88	21.87	23.25	340.18	0.12
4123.67	0.60	348.03	4123.49	22.86	-8.04	22.86	24.24	340.62	0.07
4218.24	0.66	324.58	4218.05	23.79	-8.46	23.79	25.25	340.42	0.28
4312.81	0.68	355.17	4312.61	24.79	-8.82	24.79	26.31	340.41	0.38
4407.38	0.33	54.01	4407.18	25.51	-8.65	25.51	26.94	341.27	0.62
4501.95	0.91	73.84	4501.74	25.88	-7.71	25.88	27.00	343.41	0.65
4596.52	1.23	96.61	4596.30	25.97	-5.98	25.97	26.65	347.03	0.55
4691.09	1.56	100.55	4690.84	25.62	-3.71	25.62	25.89	351.77	0.36
Tied into VES Survey									
4785.66	2.09	96.71	4785.36	25.18	-0.73	25.18	25.19	358.34	0.57
4803.06	2.22	97.80	4802.75	25.10	-0.08	25.10	25.10	359.81	0.77
4897.61	2.92	100.49	4897.20	24.41	4.09	24.41	24.75	9.52	0.75
4992.16	3.10	102.39	4991.62	23.43	8.95	23.43	25.08	20.92	0.22

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
5086.71	3.33	114.81	5086.03	21.73	13.94	21.73	25.82	32.69	0.78
5181.26	3.02	99.78	5180.43	20.15	18.89	20.15	27.62	43.15	0.94
5275.81	2.63	100.41	5274.87	19.34	23.48	19.34	30.42	50.53	0.42
5370.36	2.77	80.67	5369.31	19.31	27.87	19.31	33.91	55.27	0.99
5464.91	2.58	76.79	5463.76	20.17	32.19	20.17	37.99	57.93	0.27
5559.46	2.62	96.86	5558.22	20.40	36.42	20.40	41.74	60.74	0.96
5654.01	2.85	100.90	5652.66	19.70	40.87	19.70	45.37	64.27	0.32
5748.56	2.80	109.42	5747.09	18.48	45.36	18.48	48.98	67.83	0.45
5843.11	2.71	95.60	5841.54	17.50	49.76	17.50	52.75	70.63	0.71
5937.66	2.71	97.35	5935.98	16.99	54.20	16.99	56.81	72.59	0.09
6032.21	2.34	77.98	6030.44	17.11	58.31	17.11	60.77	73.65	0.98
6126.76	2.14	69.12	6124.92	18.14	61.86	18.14	64.46	73.65	0.42
6221.31	1.89	79.48	6219.41	19.06	65.04	19.06	67.78	73.67	0.47
6315.86	1.84	95.94	6313.91	19.19	68.08	19.19	70.73	74.26	0.57
6410.41	1.72	77.69	6408.42	19.33	70.97	19.33	73.55	74.76	0.61
6504.96	1.68	78.76	6502.92	19.90	73.71	19.90	76.35	74.89	0.05
6599.51	1.42	78.78	6597.44	20.40	76.23	20.40	78.91	75.02	0.27
6694.06	1.60	80.02	6691.96	20.86	78.68	20.86	81.39	75.15	0.19
6788.61	1.36	74.76	6786.47	21.38	81.06	21.38	83.83	75.22	0.29
6883.16	1.15	71.79	6881.00	21.97	83.04	21.97	85.89	75.18	0.23
6977.71	1.04	62.15	6975.53	22.67	84.69	22.67	87.68	75.02	0.23
7072.26	1.01	53.20	7070.07	23.57	86.12	23.57	89.29	74.69	0.17
7166.81	0.85	63.87	7164.61	24.38	87.42	24.38	90.76	74.42	0.25
7261.36	0.86	50.94	7259.15	25.14	88.61	25.14	92.10	74.16	0.20
7355.91	1.18	65.39	7353.68	25.99	90.04	25.99	93.72	73.90	0.43
7450.46	1.33	38.05	7448.21	27.26	91.60	27.26	95.57	73.43	0.65
7545.01	1.45	50.49	7542.73	28.89	93.21	28.89	97.58	72.78	0.34
7734.11	1.11	98.81	7731.79	30.14	96.86	30.14	101.44	72.72	0.58
7828.66	1.06	86.53	7826.32	30.05	98.64	30.05	103.11	73.06	0.25
7923.21	0.93	93.59	7920.86	30.05	100.27	30.05	104.68	73.32	0.19
8017.76	1.26	117.93	8015.39	29.52	101.96	29.52	106.14	73.85	0.60
8112.31	1.40	88.12	8109.92	29.07	104.03	29.07	108.01	74.39	0.74
8206.86	1.32	103.14	8204.44	28.86	106.25	28.86	110.09	74.80	0.38
8301.41	1.22	103.49	8298.97	28.38	108.29	28.38	111.95	75.32	0.11
8395.96	1.22	103.03	8393.50	27.91	110.25	27.91	113.73	75.79	0.01
8490.51	1.43	135.50	8488.02	26.85	112.06	26.85	115.23	76.53	0.81
8585.06	1.27	156.47	8582.55	25.05	113.30	25.05	116.03	77.53	0.54
8679.61	1.30	149.03	8677.07	23.17	114.27	23.17	116.59	78.54	0.18
8774.16	1.32	171.59	8771.60	21.18	114.98	21.18	116.91	79.56	0.54
8868.71	1.07	176.74	8866.13	19.21	115.19	19.21	116.78	80.53	0.29

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
8963.26	1.02	162.98	8960.66	17.53	115.48	17.53	116.81	81.37	0.27
9057.81	0.85	151.85	9055.20	16.11	116.06	16.11	117.17	82.10	0.26
9152.36	0.75	158.57	9149.74	14.92	116.61	14.92	117.56	82.71	0.14
9246.91	0.44	172.27	9244.29	13.98	116.89	13.98	117.72	83.18	0.36
9341.46	0.55	177.55	9338.83	13.17	116.96	13.17	117.70	83.58	0.13
9436.01	0.48	189.94	9433.38	12.32	116.91	12.32	117.56	83.99	0.14
9530.56	0.41	189.98	9527.93	11.59	116.78	11.59	117.35	84.33	0.07
9625.11	0.35	145.87	9622.47	11.02	116.88	11.02	117.40	84.62	0.31
9719.66	0.61	159.60	9717.02	10.30	117.22	10.30	117.67	84.98	0.31
9814.21	0.78	134.87	9811.56	9.37	117.86	9.37	118.23	85.45	0.36
9908.76	1.07	106.58	9906.10	8.66	119.16	8.66	119.47	85.84	0.56
10003.31	1.20	107.01	10000.63	8.12	120.95	8.12	121.22	86.16	0.14
10097.86	1.48	104.96	10095.16	7.52	123.08	7.52	123.31	86.51	0.30
10192.41	1.68	108.03	10189.67	6.77	125.59	6.77	125.77	86.91	0.22
10286.96	1.58	95.93	10284.18	6.21	128.20	6.21	128.35	87.23	0.38
10381.51	1.34	98.99	10378.70	5.90	130.59	5.90	130.73	87.41	0.27
10476.06	1.25	110.22	10473.23	5.37	132.66	5.37	132.77	87.68	0.28
10568.61	0.95	104.37	10565.76	4.83	134.35	4.83	134.44	87.94	0.35



Vaughn Energy Services
Midland Texas
432-563-5444
Surveyor: Andy Askew
Thistle Unit No 061H / API 30-025-41487



VES Survey Date: 03/08/2014



THISTLE UNIT 61H

WEST UNRESTRICTED

Directional Survey

District PERMIAN BASIN	County LEA	Field Name PADUCA	Project Group DELAWARE BASIN	State/Province NM
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541487	Latitude (°) 32° 17' 0.592" N	Longitude (°) 103° 33' 59.841" W	Ground Elev... 3,701.80
			KB - GL (ft) 25.00	Orig KB Elev (ft) 3,726.80
				Tubing Head Elevation (ft)

Wellbore Name OH	Parent Wellbore	SAP Well ID 34631	Kick Off Depth (ftKB)	Vertical Section Direction (°)
Actual Deviation Survey GYRO & MWD, Proposed? No	Definitive? No	Proposed? No	Proposed Deviation Survey GYRO & MWD, Proposed? No	

Deviation Survey						
Date 3/8/2014		Description GYRO & MWD				
MD Tie In (ftKB) 0.00	TVD Tie In (ftKB) 0.00	Inclination Tie In (°) 0.00	Azimuth Tie In (°) 149.59	NSTie In (ft) 0.00	EW Tie In (ft) 0.00	

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
3/8/2014	0.00	0.00	149.59	0.00	0.00	0.00	0.00	0.00	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	57.16	0.57	149.59	57.16	-0.25	-0.25	0.14	1.00	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	151.73	0.69	143.68	151.72	-1.11	-1.11	0.72	0.14	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	246.30	0.61	118.08	246.29	-1.81	-1.81	1.50	0.32	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	340.87	0.41	113.03	340.85	-2.18	-2.17	2.26	0.22	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	435.44	0.36	89.97	435.42	-2.32	-2.31	2.86	0.17	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	530.01	0.36	104.13	529.99	-2.39	-2.38	3.45	0.09	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	624.58	0.29	83.79	624.56	-2.44	-2.43	3.98	0.14	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	719.15	0.22	74.30	719.13	-2.37	-2.35	4.39	0.09	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	813.72	0.30	90.40	813.70	-2.32	-2.30	4.81	0.11	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	908.29	0.15	100.09	908.27	-2.35	-2.33	5.18	0.16	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,002.86	0.18	73.13	1,002.84	-2.33	-2.31	5.44	0.09	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,097.43	0.19	43.23	1,097.40	-2.17	-2.15	5.69	0.10	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,192.00	0.21	37.56	1,191.97	-1.92	-1.90	5.91	0.03	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,286.57	0.20	353.52	1,286.54	-1.62	-1.60	5.99	0.16	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,381.14	0.29	342.78	1,381.11	-1.23	-1.20	5.90	0.11	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,475.71	0.27	14.57	1,475.68	-0.78	-0.76	5.89	0.16	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,570.28	0.47	346.83	1,570.25	-0.19	-0.17	5.86	0.28	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,664.85	0.59	340.57	1,664.82	0.65	0.67	5.61	0.14	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,759.42	0.66	333.70	1,759.38	1.60	1.62	5.20	0.11	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,853.99	0.79	329.03	1,853.94	2.65	2.67	4.63	0.15	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	1,948.56	0.74	326.97	1,948.50	3.72	3.74	3.96	0.06	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,043.13	0.60	331.98	2,043.07	4.67	4.69	3.39	0.16	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,137.70	0.69	314.09	2,137.63	5.51	5.52	2.75	0.23	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,232.27	0.69	316.96	2,232.19	6.32	6.33	1.95	0.04	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,326.84	0.52	321.31	2,326.76	7.08	7.08	1.30	0.19	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,421.41	0.46	323.96	2,421.33	7.72	7.73	0.81	0.07	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,515.98	0.44	306.99	2,515.89	8.25	8.25	0.29	0.14	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,610.55	0.39	326.24	2,610.46	8.74	8.74	-0.18	0.16	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,705.12	0.55	309.90	2,705.03	9.30	9.30	-0.70	0.22	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,799.69	0.61	303.15	2,799.59	9.87	9.86	-1.47	0.10	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,894.26	0.52	330.37	2,894.16	10.52	10.51	-2.11	0.30	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	2,988.83	0.66	307.78	2,988.72	11.23	11.22	-2.75	0.28	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,083.40	0.77	309.42	3,083.29	11.97	11.95	-3.67	0.12	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,177.97	0.72	328.36	3,177.85	12.88	12.86	-4.47	0.26	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,272.54	0.77	316.71	3,272.41	13.85	13.83	-5.22	0.17	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,367.11	0.67	324.09	3,366.97	14.77	14.74	-5.98	0.14	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,461.68	0.60	339.93	3,461.54	15.68	15.66	-6.48	0.20	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,556.25	0.59	346.43	3,556.10	16.62	16.59	-6.76	0.07	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,650.82	0.66	340.12	3,650.67	17.61	17.58	-7.06	0.10	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,745.39	0.68	346.24	3,745.23	18.66	18.64	-7.38	0.08	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,839.96	0.62	358.54	3,839.79	19.72	19.69	-7.52	0.16	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	3,934.53	0.70	346.63	3,934.36	20.80	20.77	-7.67	0.17	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	4,029.10	0.62	353.47	4,028.92	21.87	21.84	-7.86	0.12	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	4,123.67	0.60	348.03	4,123.49	22.86	22.83	-8.02	0.06	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	4,218.24	0.66	324.58	4,218.05	23.79	23.76	-8.44	0.28	GYRO	VAUHG N ENERGY SERVICES
3/8/2014	4,312.81	0.68	355.17	4,312.61	24.79	24.76	-8.80	0.37	GYRO	VAUHG N ENERGY SERVICES



THISTLE UNIT 61H

WEST UNRESTRICTED

Directional Survey

District PERMIAN BASIN	County LEA	Field Name PADUCA	Project Group DELAWARE BASIN	State/Province NM
Surface Legal Location SEC22 T2S R33E	API/UWI 3002541487	Latitude (") 32° 17' 0.592" N	Longitude (") 103° 33' 59.841" W	Ground Elev... 3,701.80
			KB - GL (ft) 25.00	Ong KB Elev (ft) 3,726.80
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
3/8/2014	4,407.38	0.33	54.01	4,407.18	25.51	25.48	-8.63	0.62	GYRO	VAUHG ENERGY SERVICES
3/8/2014	4,501.95	0.91	73.84	4,501.75	25.88	25.85	-7.69	0.64	GYRO	VAUHG ENERGY SERVICES
3/8/2014	4,596.52	1.23	96.61	4,596.30	25.96	25.94	-5.96	0.56	GYRO	VAUHG ENERGY SERVICES
3/8/2014	4,691.09	1.56	100.55	4,690.84	25.60	25.59	-3.69	0.36	GYRO	VAUHG ENERGY SERVICES
3/8/2014	4,785.66	2.09	96.71	4,785.36	25.15	25.15	-0.71	0.57	GYRO	VAUHG ENERGY SERVICES
3/8/2014	4,803.06	2.22	97.80	4,802.75	25.07	25.07	-0.06	0.78	GYRO	VAUHG ENERGY SERVICES
3/8/2014	4,897.61	2.92	100.49	4,897.20	24.37	24.38	4.12	0.75	GYRO	VAUHG ENERGY SERVICES
3/8/2014	4,992.16	3.10	102.39	4,991.62	23.36	23.40	8.99	0.22	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,086.71	3.33	114.81	5,086.03	21.64	21.69	13.98	0.77	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,181.26	3.02	99.78	5,180.43	20.05	20.12	18.92	0.94	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,275.81	2.63	100.41	5,274.87	19.21	19.30	23.51	0.41	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,370.36	2.77	80.67	5,369.31	19.18	19.28	27.90	0.99	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,464.91	2.58	76.79	5,463.76	20.02	20.14	32.23	0.28	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,559.46	2.62	96.86	5,558.22	20.23	20.37	36.44	0.96	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,654.01	2.85	100.90	5,652.66	19.51	19.66	40.90	0.32	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,748.56	2.80	109.42	5,747.09	18.28	18.45	45.38	0.45	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,843.11	2.71	95.60	5,841.54	17.28	17.47	49.79	0.71	GYRO	VAUHG ENERGY SERVICES
3/8/2014	5,937.66	2.71	97.35	5,935.98	16.76	16.96	54.23	0.09	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,032.21	2.34	77.98	6,030.44	16.86	17.08	58.33	0.98	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,126.76	2.14	69.12	6,124.92	17.87	18.11	61.87	0.42	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,221.31	1.89	79.48	6,219.41	18.78	19.02	65.05	0.47	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,315.86	1.84	95.94	6,313.91	18.89	19.15	68.10	0.57	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,410.41	1.72	77.69	6,408.42	19.03	19.30	70.99	0.61	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,504.96	1.68	78.76	6,502.92	19.59	19.87	73.74	0.05	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,599.51	1.42	78.78	6,597.44	20.08	20.37	76.25	0.27	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,694.06	1.60	80.02	6,691.96	20.52	20.82	78.70	0.19	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,788.61	1.36	74.76	6,786.47	21.04	21.35	81.08	0.29	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,883.16	1.15	71.79	6,881.00	21.62	21.94	83.06	0.23	GYRO	VAUHG ENERGY SERVICES
3/8/2014	6,977.71	1.04	62.15	6,975.53	22.31	22.64	84.72	0.23	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,072.26	1.01	53.20	7,070.07	23.21	23.54	86.15	0.17	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,166.81	0.85	63.87	7,164.61	24.01	24.34	87.44	0.25	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,261.36	0.86	50.94	7,259.15	24.76	25.10	88.62	0.20	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,355.91	1.18	65.39	7,353.68	25.61	25.95	90.06	0.43	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,450.46	1.33	38.05	7,448.21	26.87	27.22	91.62	0.65	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,545.01	1.45	50.49	7,542.73	28.49	28.85	93.22	0.34	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,734.11	1.11	98.81	7,731.79	29.72	30.09	96.88	0.58	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,828.66	1.06	86.53	7,826.32	29.63	30.00	98.66	0.25	GYRO	VAUHG ENERGY SERVICES
3/8/2014	7,923.21	0.93	93.59	7,920.86	29.62	30.01	100.29	0.19	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,017.76	1.26	117.93	8,015.39	29.08	29.47	101.98	0.60	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,112.31	1.40	88.12	8,109.92	28.63	29.02	104.05	0.74	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,206.86	1.32	103.14	8,204.44	28.41	28.81	106.27	0.39	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,301.41	1.22	103.49	8,298.97	27.92	28.33	108.31	0.11	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,395.96	1.22	103.03	8,393.50	27.45	27.87	110.27	0.01	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,490.51	1.43	135.50	8,488.02	26.37	26.80	112.07	0.81	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,585.06	1.27	156.47	8,582.55	24.57	25.00	113.32	0.55	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,679.61	1.30	149.03	8,677.07	22.68	23.12	114.29	0.18	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,774.16	1.32	171.59	8,771.60	20.68	21.12	115.00	0.54	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,868.71	1.07	176.74	8,866.13	18.72	19.16	115.21	0.29	GYRO	VAUHG ENERGY SERVICES
3/8/2014	8,963.26	1.02	162.98	8,960.66	17.04	17.48	115.51	0.27	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,057.81	0.85	151.85	9,055.20	15.61	16.05	116.08	0.26	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,152.36	0.75	158.57	9,149.74	14.41	14.86	116.64	0.14	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,246.91	0.44	172.27	9,244.29	13.48	13.92	116.91	0.36	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,341.46	0.55	177.55	9,338.83	12.66	13.11	116.98	0.13	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,436.01	0.48	189.94	9,433.38	11.82	12.27	116.93	0.14	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,530.56	0.41	189.98	9,527.93	11.10	11.54	116.81	0.07	GYRO	VAUHG ENERGY SERVICES



THISTLE UNIT 61H

WEST UNRESTRICTED

Directional Survey

District PERMIAN BASIN	County LEA	Field Name PADUCA	Project Group DELAWARE BASIN	State/Province NM
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541487	Latitude (°) 32° 17' 0.592" N	Longitude (°) 103° 33' 59.841" W	Ground Elev... 3,701.80
			KB - GL (ft) 25.00	Orig KB Elev (ft) 3,726.80
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
3/8/2014	9,625.11	0.35	145.87	9,622.47	10.53	10.97	116.91	0.31	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,719.66	0.61	159.60	9,717.02	9.81	10.26	117.25	0.30	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,814.21	0.78	134.87	9,811.56	8.89	9.33	117.88	0.36	GYRO	VAUHG ENERGY SERVICES
3/8/2014	9,908.76	1.07	106.58	9,906.10	8.17	8.63	119.18	0.56	GYRO	VAUHG ENERGY SERVICES
3/8/2014	10,003.31	1.20	107.01	10,000.63	7.63	8.09	120.97	0.14	GYRO	VAUHG ENERGY SERVICES
3/8/2014	10,097.86	1.48	104.96	10,095.16	7.01	7.48	123.10	0.30	GYRO	VAUHG ENERGY SERVICES
3/8/2014	10,192.41	1.68	108.03	10,189.67	6.26	6.74	125.60	0.23	GYRO	VAUHG ENERGY SERVICES
3/8/2014	10,286.96	1.58	95.93	10,284.18	5.69	6.17	128.21	0.38	GYRO	VAUHG ENERGY SERVICES
3/8/2014	10,381.51	1.34	98.99	10,378.70	5.37	5.87	130.60	0.27	GYRO	VAUHG ENERGY SERVICES
3/8/2014	10,476.06	1.25	110.22	10,473.23	4.83	5.34	132.66	0.28	GYRO	VAUHG ENERGY SERVICES
3/8/2014	10,568.61	0.95	104.37	10,565.76	4.29	4.80	134.35	0.35	GYRO	VAUHG ENERGY SERVICES
3/9/2014	10,621.00	0.67	71.70	10,618.15	4.27	4.79	135.06	1.01	MWD	BAKER HUGHES INTEQ
3/9/2014	10,651.00	1.80	339.49	10,648.14	4.77	5.28	135.06	6.48	MWD	BAKER HUGHES INTEQ
3/9/2014	10,682.00	5.49	349.00	10,679.07	6.68	7.20	134.61	12.02	MWD	BAKER HUGHES INTEQ
3/9/2014	10,714.00	6.80	340.89	10,710.89	9.98	10.49	133.70	4.90	MWD	BAKER HUGHES INTEQ
3/9/2014	10,745.00	8.92	342.57	10,741.60	14.01	14.52	132.38	6.88	MWD	BAKER HUGHES INTEQ
3/9/2014	10,777.00	12.28	347.43	10,773.05	19.71	20.21	130.89	10.86	MWD	BAKER HUGHES INTEQ
3/9/2014	10,808.00	15.28	352.09	10,803.15	26.98	27.47	129.61	10.31	MWD	BAKER HUGHES INTEQ
3/9/2014	10,840.00	18.87	355.00	10,833.74	36.32	36.81	128.58	11.53	MWD	BAKER HUGHES INTEQ
3/9/2014	10,871.00	22.56	357.85	10,862.73	47.26	47.75	127.92	12.34	MWD	BAKER HUGHES INTEQ
3/9/2014	10,903.00	25.86	359.83	10,891.91	60.38	60.86	127.67	10.62	MWD	BAKER HUGHES INTEQ
3/9/2014	10,934.00	29.07	1.65	10,919.41	74.67	75.16	127.87	10.70	MWD	BAKER HUGHES INTEQ
3/9/2014	10,966.00	32.80	1.77	10,946.86	91.11	91.60	128.36	11.66	MWD	BAKER HUGHES INTEQ
3/9/2014	10,998.00	36.11	2.05	10,973.24	109.20	109.69	128.96	10.36	MWD	BAKER HUGHES INTEQ
3/9/2014	11,029.00	39.93	0.39	10,997.66	128.28	128.77	129.36	12.76	MWD	BAKER HUGHES INTEQ
3/9/2014	11,061.00	42.95	359.31	11,021.64	149.45	149.95	129.30	9.70	MWD	BAKER HUGHES INTEQ
3/9/2014	11,092.00	46.15	359.23	11,043.73	171.20	171.69	129.02	10.32	MWD	BAKER HUGHES INTEQ
3/9/2014	11,124.00	49.91	356.91	11,065.13	194.97	195.46	128.20	12.93	MWD	BAKER HUGHES INTEQ
3/9/2014	11,155.00	53.60	356.50	11,084.32	219.28	219.76	126.80	11.95	MWD	BAKER HUGHES INTEQ
3/9/2014	11,186.00	57.62	357.12	11,101.82	244.82	245.30	125.38	13.07	MWD	BAKER HUGHES INTEQ
3/9/2014	11,218.00	61.46	357.64	11,118.04	272.37	272.85	124.13	12.08	MWD	BAKER HUGHES INTEQ
3/9/2014	11,250.00	65.58	357.66	11,132.31	300.99	301.46	122.95	12.88	MWD	BAKER HUGHES INTEQ
3/9/2014	11,281.00	69.56	358.65	11,144.13	329.63	330.10	122.03	13.17	MWD	BAKER HUGHES INTEQ
3/9/2014	11,313.00	73.41	0.14	11,154.29	359.96	360.43	121.72	12.82	MWD	BAKER HUGHES INTEQ
3/9/2014	11,345.00	77.36	0.58	11,162.37	390.92	391.39	121.91	12.42	MWD	BAKER HUGHES INTEQ
3/9/2014	11,376.00	81.14	0.51	11,168.15	421.37	421.84	122.20	12.20	MWD	BAKER HUGHES INTEQ
3/9/2014	11,455.00	90.09	1.56	11,174.18	500.04	500.51	123.63	11.41	MWD	BAKER HUGHES INTEQ
3/9/2014	11,487.00	90.59	1.21	11,173.99	532.02	532.50	124.40	1.91	MWD	BAKER HUGHES INTEQ
3/9/2014	11,581.00	92.13	1.55	11,171.76	625.96	626.45	126.66	1.68	MWD	BAKER HUGHES INTEQ
3/9/2014	11,676.00	90.74	0.75	11,169.38	720.90	721.39	128.57	1.69	MWD	BAKER HUGHES INTEQ
3/9/2014	11,770.00	91.85	1.24	11,167.26	814.85	815.35	130.20	1.29	MWD	BAKER HUGHES INTEQ
3/9/2014	11,864.00	90.59	1.21	11,165.26	908.80	909.31	132.21	1.34	MWD	BAKER HUGHES INTEQ
3/9/2014	11,958.00	91.39	1.58	11,163.63	1,002.75	1,003.27	134.50	0.94	MWD	BAKER HUGHES INTEQ
3/9/2014	12,053.00	92.03	2.34	11,160.80	1,097.63	1,098.17	137.75	1.05	MWD	BAKER HUGHES INTEQ
3/9/2014	12,148.00	90.68	1.31	11,158.55	1,192.54	1,193.09	140.77	1.79	MWD	BAKER HUGHES INTEQ
3/9/2014	12,243.00	90.09	359.53	11,157.91	1,287.53	1,288.08	141.47	1.97	MWD	BAKER HUGHES INTEQ
3/9/2014	12,337.00	90.83	357.32	11,157.16	1,381.50	1,382.04	138.88	2.48	MWD	BAKER HUGHES INTEQ
3/9/2014	12,432.00	92.90	357.17	11,154.07	1,476.35	1,476.87	134.32	2.18	MWD	BAKER HUGHES INTEQ
3/9/2014	12,526.00	92.00	357.69	11,150.05	1,570.18	1,570.69	130.11	1.11	MWD	BAKER HUGHES INTEQ
3/9/2014	12,620.00	90.74	357.08	11,147.80	1,664.07	1,664.56	125.82	1.49	MWD	BAKER HUGHES INTEQ
3/9/2014	12,714.00	90.06	355.94	11,147.14	1,757.91	1,758.38	120.10	1.41	MWD	BAKER HUGHES INTEQ
3/9/2014	12,809.00	91.45	356.12	11,145.89	1,852.70	1,853.14	113.52	1.48	MWD	BAKER HUGHES INTEQ
3/9/2014	12,903.00	91.26	354.49	11,143.67	1,946.38	1,946.80	105.83	1.75	MWD	BAKER HUGHES INTEQ
3/9/2014	12,998.00	92.16	354.64	11,140.83	2,040.95	2,041.33	96.84	0.96	MWD	BAKER HUGHES INTEQ
3/9/2014	13,092.00	90.74	354.38	11,138.45	2,134.51	2,134.87	87.85	1.54	MWD	BAKER HUGHES INTEQ



THISTLE UNIT 61H

WEST UNRESTRICTED

Directional Survey

District PERMIAN BASIN	County LEA	Field Name PADUCA	Project Group DELAWARE BASIN	State/Province NM
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541487	Latitude (°) 32° 17' 0.592" N	Longitude (°) 103° 33' 59.841" W	Ground Elev... 3,701.80
			KB - GL (ft) 25.00	Orig KB Elev (ft) 3,726.80
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
3/9/2014	13,187.00	89.11	354.86	11,138.58	2,229.13	2,229.44	78.94	1.79	MWD	BAKER HUGHES INTEQ
3/9/2014	13,281.00	90.09	354.83	11,139.24	2,322.77	2,323.06	70.49	1.04	MWD	BAKER HUGHES INTEQ
3/9/2014	13,376.00	90.25	355.90	11,138.95	2,417.49	2,417.75	62.82	1.14	MWD	BAKER HUGHES INTEQ
3/9/2014	13,470.00	88.80	356.38	11,139.73	2,511.29	2,511.53	56.49	1.62	MWD	BAKER HUGHES INTEQ
3/9/2014	13,565.00	89.88	356.51	11,140.83	2,606.13	2,606.34	50.60	1.15	MWD	BAKER HUGHES INTEQ
3/9/2014	13,660.00	90.68	356.93	11,140.36	2,700.99	2,701.18	45.16	0.95	MWD	BAKER HUGHES INTEQ
3/9/2014	13,754.00	90.31	357.23	11,139.55	2,794.88	2,795.05	40.38	0.51	MWD	BAKER HUGHES INTEQ
3/9/2014	13,849.00	89.29	356.73	11,139.88	2,889.76	2,889.92	35.37	1.20	MWD	BAKER HUGHES INTEQ
3/9/2014	13,944.00	90.09	356.80	11,140.40	2,984.63	2,984.77	30.01	0.85	MWD	BAKER HUGHES INTEQ
3/9/2014	14,039.00	91.45	356.98	11,139.12	3,079.50	3,079.62	24.86	1.44	MWD	BAKER HUGHES INTEQ
3/9/2014	14,130.00	90.15	357.23	11,137.85	3,170.39	3,170.49	20.26	1.45	MWD	BAKER HUGHES INTEQ
3/9/2014	14,225.00	90.86	357.44	11,137.01	3,265.30	3,265.38	15.84	0.78	MWD	BAKER HUGHES INTEQ
3/9/2014	14,319.00	88.95	357.76	11,137.17	3,359.22	3,359.29	11.91	2.06	MWD	BAKER HUGHES INTEQ
3/9/2014	14,414.00	88.58	358.41	11,139.22	3,454.16	3,454.22	8.73	0.79	MWD	BAKER HUGHES INTEQ
3/9/2014	14,508.00	88.34	358.36	11,141.74	3,548.10	3,548.15	6.09	0.26	MWD	BAKER HUGHES INTEQ
3/9/2014	14,603.00	88.37	358.41	11,144.47	3,643.03	3,643.07	3.41	0.06	MWD	BAKER HUGHES INTEQ
3/9/2014	14,697.00	90.09	359.24	11,145.73	3,737.00	3,737.04	1.48	2.03	MWD	BAKER HUGHES INTEQ
3/9/2014	14,792.00	90.65	358.87	11,145.12	3,831.99	3,832.02	-0.08	0.71	MWD	BAKER HUGHES INTEQ
3/9/2014	14,886.00	91.97	359.49	11,142.97	3,925.96	3,925.99	-1.43	1.55	MWD	BAKER HUGHES INTEQ
3/9/2014	14,981.00	92.04	359.17	11,139.65	4,020.90	4,020.92	-2.54	0.34	MWD	BAKER HUGHES INTEQ
3/9/2014	15,075.00	91.88	359.20	11,136.43	4,114.84	4,114.86	-3.88	0.17	MWD	BAKER HUGHES INTEQ
3/9/2014	15,170.00	91.39	359.09	11,133.72	4,209.80	4,209.81	-5.29	0.53	MWD	BAKER HUGHES INTEQ
3/9/2014	15,264.00	91.63	358.98	11,131.24	4,303.76	4,303.76	-6.87	0.28	MWD	BAKER HUGHES INTEQ
3/9/2014	15,359.00	91.42	358.36	11,128.71	4,398.70	4,398.70	-9.08	0.69	MWD	BAKER HUGHES INTEQ
3/9/2014	15,453.00	91.63	358.16	11,126.21	4,492.64	4,492.62	-11.93	0.31	MWD	BAKER HUGHES INTEQ
3/9/2014	15,547.00	91.17	358.49	11,123.92	4,586.58	4,586.56	-14.68	0.60	MWD	BAKER HUGHES INTEQ
3/9/2014	15,642.00	90.83	358.91	11,122.26	4,681.55	4,681.52	-16.83	0.57	MWD	BAKER HUGHES INTEQ
3/9/2014	15,660.00	90.74	358.79	11,122.01	4,699.54	4,699.51	-17.20	0.83	MWD	BAKER HUGHES INTEQ
3/9/2014	15,701.00	90.74	358.79	11,121.48	4,740.53	4,740.50	-18.06	0.00	BIT	BAKER HUGHES INTEQ