

Results of Directional Survey

API number:	30-025-41467		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	THISTLE UNIT # 63H

surface	ULSTR:	O	22	T 23S	R 33E
				450 FSL	2200 FEL

BH Loc	ULSTR:	B	22	T 23S	R 33E
14962	MD	11030.6	TVD	800 FNL	2012 FEL
				4480 FSL	

Top Perf/OH	ULSTR:	O	22	T 23S	R 33E
11234	MD	11055.9	TVD	763 FSL	2172 FEL

Bot Perf/OH	ULSTR:	B	22	T 23S	R 33E
14869	MD	11029.7	TVD	892 FNL	2018 FEL
				4388 FSL	

	MD	N/S	E/W	VD
	11203	283.93	26.65	11044.18
TOP PERFS/OH	11234	312.55	28.45	11055.94
	11234	312.55	28.45	11055.94
	14794	3862.72	177.36	11028.88
BOT PERFS/OH	14869	3937.57	182.07	11029.66
	14889	3957.53	183.32	11029.87

NEXT TO LAST	14889	3957.53	183.32	11029.87
LAST READING	14962	4030.37	188.16	11030.64
TD	14962	4030.37	188.16	11030.64

Surface Location	450	FS	2200	FE
Projected BHL	4480	FS	2012	FE
Location of				
Top Perfs/OH	763	FS	2172	FE
Bottom Perfs/OH	4388	FS	2018	FE

SUMMARY of Subsurface Locations

Surface Location	O-22-23S-33E	450	FS	2200	FE	Vert. Depth
Top Perfs/OH	O-22-23S-33E	763	FS	2172	FE	11055.94
Bottom Perfs/OH	B-22-23S-33E	4388	FS	2018	FE	11029.66
Projected TD	B-22-23S-33E	4480	FS	2012	FE	11030.64

OCT 15 2014



A GYRO TECHNOLOGIES INC. COMPANY

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

May 13, 2014

HOBBS OCD

OCT 07 2014

RECEIVED

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

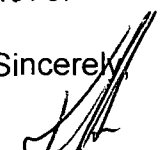
Attn: David Cook

Re: **Thistle Unit No 063H**

Please find enclosed a copy of the survey from 0' to 6,929' ran on the above referenced well.

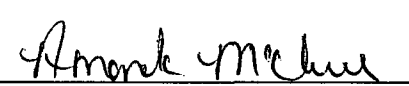
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

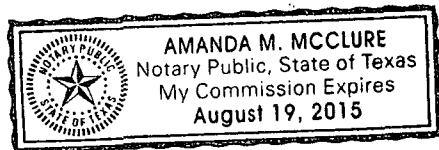
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 13 day of May,
A.D., 2014, by Keith Havelka.


Amanda McClure
Notary Public, State of Texas





Company: DEVON ENERGY
Lease/Well: THISTLE UNIT/No 063H

Rig Name: H & P 349
State/County: NEW MEXICO/LEA
Latitude: 32.28, Longitude: -103.56
GRID North is 0.41 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB: 25 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 5/13/2014 / 13:48

VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Thistle Unit No 063H / API 30-025-41467

HOBBS OCD

OCT 07 2014

RECEIVED

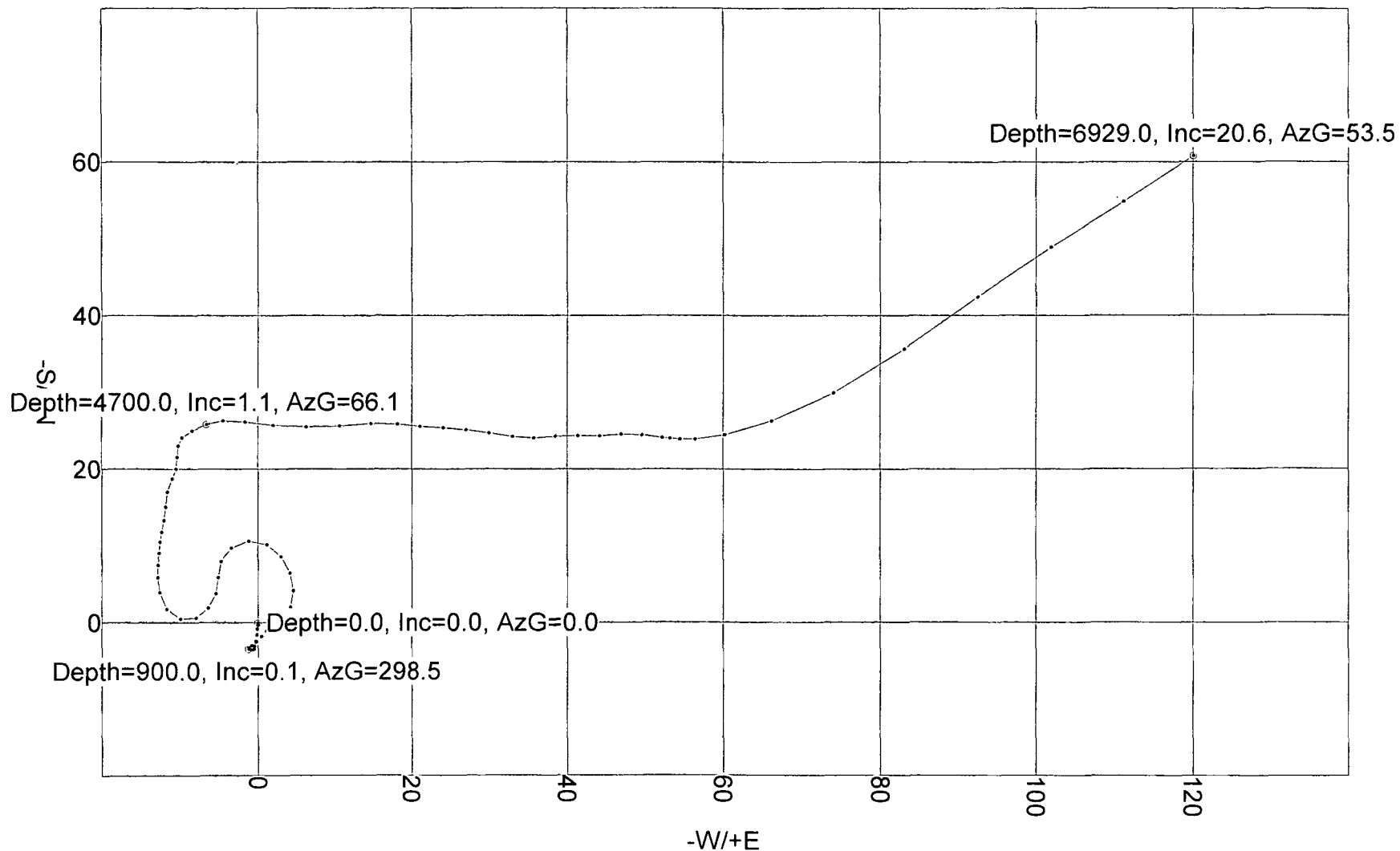
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.28	183.21	100.00	-0.25	-0.01	-0.25	0.25	183.21	0.28
200.00	0.37	193.79	200.00	-0.81	-0.10	-0.81	0.81	187.40	0.11
300.00	0.53	178.34	299.99	-1.59	-0.17	-1.59	1.59	186.06	0.20
400.00	0.46	200.96	399.99	-2.43	-0.30	-2.43	2.45	187.03	0.21
500.00	0.32	181.84	499.99	-3.08	-0.45	-3.08	3.12	188.35	0.19
600.00	0.15	224.46	599.99	-3.45	-0.55	-3.45	3.50	189.09	0.23
700.00	0.10	291.65	699.99	-3.51	-0.72	-3.51	3.59	191.65	0.14
800.00	0.24	269.13	799.99	-3.48	-1.01	-3.48	3.63	196.21	0.15
900.00	0.06	298.49	899.99	-3.46	-1.27	-3.46	3.68	200.12	0.19
1000.00	0.17	43.37	999.99	-3.33	-1.21	-3.33	3.54	200.05	0.19
1100.00	0.43	54.45	1099.99	-3.00	-0.81	-3.00	3.11	195.09	0.26
1200.00	0.50	42.00	1199.98	-2.46	-0.21	-2.46	2.47	184.99	0.12
1300.00	0.58	47.52	1299.98	-1.79	0.45	-1.79	1.85	165.85	0.10
1400.00	0.53	35.20	1399.97	-1.07	1.09	-1.07	1.53	134.50	0.13
1500.00	0.43	42.81	1499.97	-0.42	1.62	-0.42	1.67	104.56	0.11
1600.00	0.48	54.59	1599.97	0.10	2.22	0.10	2.22	87.38	0.10
1700.00	0.79	61.81	1699.96	0.67	3.16	0.67	3.23	78.06	0.32
1800.00	1.26	23.18	1799.95	2.00	4.20	2.00	4.65	64.53	0.81

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
1900.00	1.31	355.95	1899.92	4.15	4.55	4.15	6.16	47.65	0.61
2000.00	1.39	342.85	1999.89	6.45	4.11	6.45	7.65	32.53	0.32
2100.00	1.42	321.92	2099.86	8.59	2.99	8.59	9.09	19.21	0.51
2200.00	1.42	299.25	2199.83	10.16	1.15	10.16	10.23	6.46	0.56
2300.00	1.47	263.76	2299.80	10.63	-1.20	10.63	10.70	353.53	0.88
2400.00	1.39	231.86	2399.77	9.74	-3.44	9.74	10.33	340.55	0.79
2500.00	1.25	202.19	2499.75	7.98	-4.81	7.98	9.31	328.93	0.69
2600.00	1.25	176.84	2599.73	5.88	-5.16	5.88	7.82	318.75	0.55
2700.00	1.24	198.01	2699.70	3.77	-5.43	3.77	6.61	304.74	0.46
2800.00	1.20	218.13	2799.68	1.92	-6.41	1.92	6.69	286.66	0.43
2900.00	1.19	242.90	2899.66	0.62	-7.98	0.62	8.00	274.47	0.51
3000.00	1.29	287.42	2999.64	0.49	-9.97	0.49	9.99	272.79	0.94
3100.00	1.35	323.76	3099.61	1.78	-11.74	1.78	11.88	278.60	0.83
3200.00	1.38	351.30	3199.59	3.92	-12.62	3.92	13.22	287.26	0.65
3300.00	0.91	353.62	3299.57	5.90	-12.90	5.90	14.18	294.60	0.47
3400.00	0.93	9.03	3399.55	7.50	-12.86	7.50	14.88	300.25	0.25
3500.00	0.89	4.15	3499.54	9.08	-12.67	9.08	15.59	305.61	0.09
3600.00	0.74	4.00	3599.53	10.50	-12.57	10.50	16.38	309.87	0.15
3700.00	0.76	14.41	3699.52	11.79	-12.36	11.79	17.08	313.64	0.14
3800.00	1.03	7.59	3799.51	13.32	-12.08	13.32	17.98	317.80	0.28
3900.00	1.00	6.10	3899.49	15.07	-11.87	15.07	19.18	321.78	0.04
4000.00	1.24	7.07	3999.48	17.01	-11.64	17.01	20.61	325.61	0.24
4100.00	0.91	35.33	4099.46	18.73	-11.05	18.73	21.74	329.45	0.62
4200.00	0.74	6.04	4199.45	20.02	-10.53	20.02	22.61	332.26	0.45
4300.00	0.99	6.32	4299.44	21.52	-10.36	21.52	23.89	334.29	0.25
4400.00	0.72	3.23	4399.43	23.01	-10.23	23.01	25.18	336.03	0.28
4500.00	0.69	44.06	4499.42	24.07	-9.78	24.07	25.98	337.90	0.49
4600.00	1.17	63.90	4599.41	24.95	-8.44	24.95	26.34	341.31	0.57
4700.00	1.14	66.14	4699.38	25.81	-6.61	25.81	26.64	345.63	0.05
4800.00	1.36	86.86	4799.36	26.28	-4.52	26.28	26.66	350.25	0.50
4900.00	1.90	97.49	4899.32	26.12	-1.69	26.12	26.18	356.30	0.61
5000.00	2.32	95.78	4999.25	25.71	1.96	25.71	25.78	4.36	0.42
5100.00	2.60	90.30	5099.16	25.49	6.24	25.49	26.24	13.75	0.37
5200.00	2.39	86.63	5199.07	25.60	10.58	25.60	27.70	22.46	0.26
5300.00	2.31	84.45	5298.98	25.92	14.67	25.92	29.78	29.52	0.12
5400.00	1.75	99.80	5398.92	25.85	18.19	25.85	31.61	35.12	0.78
5500.00	1.72	91.71	5498.87	25.55	21.18	25.55	33.19	39.66	0.25
5600.00	1.77	94.85	5598.83	25.37	24.22	25.37	35.08	43.66	0.11
5700.00	1.58	96.36	5698.79	25.09	27.13	25.09	36.95	47.23	0.19

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
5800.00	1.82	99.54	5798.74	24.68	30.06	24.68	38.89	50.62	0.26
5900.00	1.63	96.99	5898.70	24.24	33.04	24.24	40.97	53.73	0.21
6000.00	1.49	92.35	5998.66	24.01	35.74	24.01	43.06	56.10	0.19
6100.00	1.71	78.66	6098.62	24.26	38.51	24.26	45.51	57.79	0.44
6200.00	1.63	99.07	6198.58	24.33	41.38	24.33	48.00	59.55	0.60
6300.00	1.57	81.52	6298.54	24.30	44.14	24.30	50.39	61.16	0.49
6400.00	1.61	88.38	6398.50	24.55	46.91	24.55	52.94	62.38	0.19
6500.00	1.46	96.33	6498.47	24.44	49.58	24.44	55.28	63.76	0.26
6600.00	1.53	99.93	6598.43	24.07	52.16	24.07	57.45	65.23	0.11
6629.00	2.47	90.81	6627.41	24.00	53.17	24.00	58.33	65.71	3.41
6659.00	2.54	99.08	6657.39	23.88	54.47	23.88	59.48	66.32	1.22
6689.00	4.93	84.82	6687.32	23.90	56.41	23.90	61.26	67.04	8.51
6719.00	9.84	80.52	6717.06	24.44	60.22	24.44	64.99	67.92	16.44
6749.00	14.34	67.73	6746.39	26.27	66.19	26.27	71.22	68.36	17.38
6779.00	19.35	63.06	6775.10	29.93	74.07	29.93	79.89	68.00	17.28
6809.00	22.49	52.93	6803.13	35.64	83.08	35.64	90.40	66.78	15.93
6839.00	22.93	55.34	6830.80	42.42	92.47	42.42	101.73	65.35	3.43
6869.00	22.04	55.98	6858.52	48.90	101.94	48.90	113.06	64.37	3.07
6899.00	21.11	58.80	6886.42	54.85	111.23	54.85	124.01	63.75	4.64
6929.00	20.59	53.47	6914.46	60.79	120.09	60.79	134.60	63.15	6.55



VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Thistle Unit No 063H / API 30-025-41467





THISTLE UNIT 63H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County LEA	Field Name JOHNSON RANCH	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541467	Latitude (°) 32° 17' 3.025" N	Longitude (°) 103° 33' 31.643" W	Ground Elev... 3,692.40	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,717.40	Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID	Kick Off Depth (ftKB)	Vertical Section Direction (°)
Actual Deviation Survey	Definitive?	Proposed?	Proposed Deviation Survey	

Deviation Survey

Date		Description			
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
Wellbore Name ST01		Parent Wellbore OH		SAP Well ID			Kick Off Depth (ftKB) 6,689.0		Vertical Section Direction (°) 2.37	
Actual Deviation Survey GYRO/MWD CURVE&LATERAL, Proposed? No				Definitive? Yes		Proposed? No		Proposed Deviation Survey		

Deviation Survey

Date		Description			
5/11/2014		GYRO/MWD CURVE&LATERAL			
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)
0.00	0.00	0.00	0.00	0.00	0.00

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
5/11/2014	100.00	0.28	183.21	100.00	-0.24	-0.24	-0.01	0.28	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	200.00	0.37	193.79	200.00	-0.81	-0.80	-0.10	0.11	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	300.00	0.53	178.34	299.99	-1.58	-1.58	-0.17	0.20	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	400.00	0.46	200.96	399.99	-2.42	-2.41	-0.30	0.21	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	500.00	0.32	181.84	499.99	-3.08	-3.07	-0.45	0.19	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	600.00	0.15	224.46	599.99	-3.46	-3.44	-0.55	0.23	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	700.00	0.10	291.65	699.99	-3.53	-3.50	-0.72	0.14	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	800.00	0.24	269.13	799.99	-3.51	-3.47	-1.01	0.15	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	900.00	0.06	298.49	899.99	-3.50	-3.45	-1.27	0.19	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,000.00	0.17	43.37	999.99	-3.37	-3.32	-1.21	0.19	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,100.00	0.43	54.45	1,099.99	-3.02	-2.99	-0.81	0.27	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,200.00	0.50	42.00	1,199.98	-2.46	-2.45	-0.21	0.12	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,300.00	0.58	47.52	1,299.98	-1.76	-1.78	0.46	0.10	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,400.00	0.53	35.20	1,399.97	-1.02	-1.06	1.10	0.13	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,500.00	0.43	42.81	1,499.97	-0.34	-0.41	1.62	0.12	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,600.00	0.48	54.59	1,599.97	0.20	0.11	2.21	0.11	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,700.00	0.79	61.81	1,699.96	0.81	0.68	3.16	0.32	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,800.00	1.26	23.18	1,799.95	2.18	2.01	4.20	0.81	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	1,900.00	1.31	355.95	1,899.92	4.35	4.16	4.55	0.61	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,000.00	1.39	342.85	1,999.89	6.63	6.46	4.12	0.32	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,100.00	1.42	321.92	2,099.86	8.71	8.60	2.99	0.51	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,200.00	1.42	299.25	2,199.83	10.22	10.18	1.15	0.56	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,300.00	1.47	263.76	2,299.80	10.58	10.64	-1.21	0.88	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,400.00	1.39	231.86	2,399.77	9.60	9.75	-3.44	0.79	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,500.00	1.25	202.19	2,499.75	7.79	8.00	-4.80	0.69	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,600.00	1.25	176.84	2,599.73	5.68	5.90	-5.15	0.55	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,700.00	1.24	198.01	2,699.70	3.55	3.78	-5.43	0.46	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,800.00	1.20	218.13	2,799.68	1.66	1.93	-6.41	0.43	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	2,900.00	1.19	242.90	2,899.66	0.30	0.63	-7.98	0.51	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,000.00	1.29	287.42	2,999.64	0.08	0.49	-9.98	0.94	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,100.00	1.35	323.76	3,099.61	1.29	1.78	-11.75	0.83	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,200.00	1.38	351.30	3,199.59	3.39	3.92	-12.63	0.65	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,300.00	0.91	353.62	3,299.57	5.36	5.90	-12.90	0.47	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,400.00	0.93	9.03	3,399.55	6.95	7.49	-12.86	0.25	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,500.00	0.89	4.15	3,499.54	8.53	9.07	-12.68	0.09	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,600.00	0.74	4.00	3,599.53	9.96	10.49	-12.57	0.15	GYRO	VAUHG N ENERGY SERVICES



THISTLE UNIT 63H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County LEA	Field Name JOHNSON RANCH	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541467	Latitude (°) 32° 17' 3.025" N	Longitude (°) 103° 33' 31.643" W	Ground Elev... 3,692.40	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,717.40	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
5/11/2014	3,700.00	0.76	14.41	3,699.52	11.25	11.77	-12.36	0.14	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,800.00	1.03	7.59	3,799.51	12.79	13.30	-12.08	0.29	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	3,900.00	1.00	6.10	3,899.49	14.56	15.06	-11.87	0.04	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,000.00	1.24	7.07	3,999.48	16.51	17.01	-11.64	0.24	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,100.00	0.91	35.33	4,099.46	18.25	18.73	-11.05	0.61	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,200.00	0.74	6.04	4,199.45	19.56	20.02	-10.52	0.45	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,300.00	0.99	6.32	4,299.44	21.07	21.52	-10.36	0.25	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,400.00	0.72	3.23	4,399.43	22.56	23.00	-10.23	0.27	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,500.00	0.69	44.06	4,499.42	23.64	24.06	-9.78	0.49	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,600.00	1.17	63.90	4,599.41	24.58	24.95	-8.44	0.57	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,700.00	1.14	66.14	4,699.38	25.50	25.80	-6.61	0.05	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,800.00	1.36	86.86	4,799.36	26.05	26.26	-4.52	0.50	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	4,900.00	1.90	97.49	4,899.32	26.02	26.11	-1.69	0.62	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,000.00	2.32	95.78	4,999.25	25.75	25.69	1.97	0.42	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,100.00	2.60	90.30	5,099.16	25.71	25.48	6.25	0.37	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,200.00	2.39	86.63	5,199.07	26.00	25.59	10.60	0.26	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,300.00	2.31	84.45	5,298.98	26.49	25.91	14.69	0.12	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,400.00	1.75	99.80	5,398.92	26.57	25.84	18.20	0.78	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,500.00	1.72	91.71	5,498.87	26.39	25.54	21.20	0.25	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,600.00	1.77	94.85	5,598.83	26.34	25.36	24.24	0.11	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,700.00	1.58	96.36	5,698.78	26.18	25.08	27.15	0.20	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,800.00	1.82	99.54	5,798.74	25.88	24.66	30.09	0.26	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	5,900.00	1.63	96.99	5,898.70	25.57	24.23	33.06	0.20	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,000.00	1.49	92.35	5,998.66	25.46	24.00	35.77	0.19	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,100.00	1.71	78.66	6,098.62	25.81	24.24	38.54	0.44	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,200.00	1.63	99.07	6,198.58	26.00	24.31	41.40	0.60	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,300.00	1.57	81.52	6,298.54	26.09	24.29	44.16	0.49	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,400.00	1.61	88.38	6,398.50	26.45	24.53	46.92	0.19	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,500.00	1.46	96.33	6,498.47	26.46	24.43	49.59	0.26	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,600.00	1.53	99.93	6,598.43	26.19	24.06	52.17	0.12	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,629.00	2.47	90.81	6,627.41	26.16	23.98	53.18	3.41	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,659.00	2.54	99.08	6,657.38	26.10	23.87	54.48	1.23	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,689.00	4.93	84.82	6,687.32	26.19	23.88	56.42	8.49	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,733.09	1.03	118.15	6,731.34	26.27	23.86	58.66	9.32	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,826.60	0.81	135.14	6,824.84	25.45	23.00	59.87	0.37	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	6,920.11	0.73	146.42	6,918.34	24.52	22.03	60.66	0.18	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,013.62	0.82	148.61	7,011.84	23.48	20.96	61.34	0.10	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,107.13	0.92	145.17	7,105.34	22.33	19.78	62.12	0.12	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,200.64	0.85	144.26	7,198.84	21.19	18.60	62.95	0.08	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,294.15	0.94	147.84	7,292.34	20.01	17.39	63.77	0.11	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,387.66	1.09	150.75	7,385.84	18.62	15.96	64.61	0.17	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,481.17	0.91	159.08	7,479.33	17.18	14.49	65.31	0.25	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,574.68	1.16	161.18	7,572.83	15.61	12.90	65.88	0.27	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,668.19	1.24	165.29	7,666.32	13.76	11.03	66.44	0.13	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,761.70	1.26	162.23	7,759.80	11.83	9.07	67.01	0.07	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,855.21	1.23	157.76	7,853.29	9.95	7.16	67.71	0.11	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	7,948.72	0.97	164.23	7,946.78	8.29	5.47	68.30	0.31	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,042.23	0.66	170.83	8,040.29	7.01	4.18	68.60	0.35	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,135.74	1.01	181.09	8,133.79	5.66	2.82	68.67	0.41	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,229.25	0.99	160.02	8,227.28	4.09	1.24	68.93	0.39	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,322.76	1.02	149.53	8,320.78	2.64	-0.24	69.63	0.20	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,416.27	1.11	152.42	8,414.27	1.16	-1.76	70.47	0.11	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,509.78	1.14	157.73	8,507.76	-0.47	-3.42	71.24	0.12	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,603.29	1.05	165.81	8,601.26	-2.14	-5.11	71.81	0.19	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,696.80	1.19	172.66	8,694.75	-3.92	-6.91	72.14	0.21	GYRO	VAUHG N ENERGY SERVICES



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WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County LEA	Field Name JOHNSON RANCH	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541467	Latitude (°) 32° 17' 3.025" N	Longitude (°) 103° 33' 31.643" W	Ground Elev... 3,692.40	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,717.40	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
5/11/2014	8,790.31	1.56	178.95	8,788.23	-6.15	-9.14	72.29	0.43	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,883.82	1.36	182.96	8,881.71	-8.53	-11.52	72.25	0.24	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	8,977.33	1.47	185.10	8,975.19	-10.83	-13.83	72.09	0.13	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,070.84	1.65	190.28	9,068.67	-13.37	-16.35	71.74	0.24	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,164.35	1.87	193.84	9,162.13	-16.19	-19.15	71.14	0.26	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,257.86	1.86	203.67	9,255.59	-19.10	-22.02	70.16	0.34	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,351.37	1.79	193.04	9,349.06	-21.95	-24.84	69.22	0.37	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,444.88	1.56	186.01	9,442.53	-24.66	-27.52	68.76	0.33	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,538.39	1.27	194.04	9,536.01	-26.94	-29.80	68.38	0.37	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,631.90	1.53	198.97	9,629.49	-29.15	-31.98	67.72	0.31	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,725.41	1.54	199.82	9,722.97	-31.55	-34.34	66.89	0.03	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,818.92	1.84	204.45	9,816.44	-34.14	-36.89	65.84	0.35	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	9,912.43	2.27	211.66	9,909.89	-37.15	-39.84	64.25	0.54	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,005.94	2.97	213.07	10,003.30	-40.84	-43.44	61.95	0.75	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,099.45	3.07	214.18	10,096.68	-45.05	-47.54	59.22	0.12	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,192.96	3.08	216.57	10,190.05	-49.26	-51.63	56.32	0.14	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,286.47	3.20	218.25	10,283.42	-53.45	-55.70	53.21	0.16	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,379.98	2.75	221.09	10,376.81	-57.32	-59.44	50.12	0.51	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,473.49	2.37	233.55	10,470.22	-60.28	-62.28	47.09	0.72	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,567.00	2.36	247.96	10,563.65	-62.29	-64.15	43.75	0.63	GYRO	VAUHG N ENERGY SERVICES
5/11/2014	10,621.00	0.80	343.40	10,617.64	-62.39	-64.21	42.61	4.75	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,653.00	5.30	5.20	10,649.59	-60.70	-62.52	42.68	14.27	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,685.00	9.90	0.10	10,681.30	-56.48	-58.30	42.82	14.51	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,716.00	14.90	356.00	10,711.56	-49.85	-51.65	42.55	16.37	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,748.00	20.30	355.00	10,742.05	-40.25	-42.01	41.77	16.90	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,779.00	25.90	353.20	10,770.56	-28.22	-29.92	40.50	18.21	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,811.00	31.00	352.70	10,798.68	-13.19	-14.80	38.63	15.95	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,842.00	36.40	351.60	10,824.47	3.73	2.23	36.27	17.53	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,873.00	41.80	351.60	10,848.51	22.93	21.57	33.41	17.42	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,905.00	45.80	351.10	10,871.61	44.67	43.46	30.08	12.55	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,937.00	47.50	352.00	10,893.57	67.52	66.48	26.66	5.69	MWD	LEAM DRILLING SYSTEMS
5/11/2014	10,968.00	49.00	354.50	10,914.22	90.35	89.44	23.95	7.72	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,000.00	50.10	358.20	10,934.98	114.56	113.73	22.41	9.45	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,031.00	51.40	0.10	10,954.59	138.53	137.73	22.05	6.33	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,063.00	53.60	0.80	10,974.07	163.90	163.12	22.26	7.09	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,094.00	56.50	1.70	10,991.83	189.30	188.52	22.81	9.65	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,126.00	60.00	1.70	11,008.67	216.51	215.71	23.62	10.94	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,157.00	61.50	2.70	11,023.81	243.55	242.74	24.66	5.60	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,189.00	64.50	2.70	11,038.34	272.06	271.22	26.00	9.38	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,203.00	66.20	3.10	11,044.18	284.78	283.93	26.65	12.42	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,234.00	69.20	4.10	11,055.94	313.46	312.55	28.45	10.13	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,266.00	73.20	4.10	11,066.25	343.73	342.76	30.62	12.50	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,297.00	77.40	2.50	11,074.12	373.70	372.68	32.34	14.44	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,329.00	80.50	1.30	11,080.25	405.10	404.07	33.38	10.36	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,360.00	81.10	0.80	11,085.21	435.70	434.66	33.94	2.51	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,392.00	81.80	0.80	11,089.96	467.33	466.31	34.38	2.19	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,423.00	83.20	1.50	11,094.01	498.06	497.03	35.00	5.04	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,455.00	84.70	2.40	11,097.38	529.87	528.84	36.08	5.46	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,486.00	87.10	2.70	11,099.60	560.79	559.72	37.46	7.80	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,581.00	90.20	4.10	11,101.84	655.74	654.52	43.09	3.58	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,676.00	89.70	4.80	11,101.92	750.67	749.23	50.46	0.91	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,770.00	90.60	3.40	11,101.67	844.63	842.98	57.18	1.77	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,865.00	90.70	3.60	11,100.60	939.60	937.80	62.98	0.24	MWD	LEAM DRILLING SYSTEMS
5/11/2014	11,960.00	90.40	4.00	11,099.68	1,034.57	1,032.59	69.27	0.53	MWD	LEAM DRILLING SYSTEMS
5/11/2014	12,054.00	90.30	3.10	11,099.11	1,128.55	1,126.40	75.09	0.96	MWD	LEAM DRILLING SYSTEMS



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Directional Survey

District DELAWARE BASIN	County LEA	Field Name JOHNSON RANCH	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541467	Latitude (°) 32° 17' 3.025" N	Longitude (°) 103° 33' 31.643" W	Ground Elev... 3,692.40
			KB - GL (ft) 25.00	Orig KB Elev (ft) 3,717.40
				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
5/11/2014	12,149.00	92.30	1.70	11,096.95	1,223.51	1,221.29	79.07	2.57	MWD	LEAM DRILLING SYSTEMS
5/11/2014	12,243.00	93.00	2.20	11,092.61	1,317.41	1,315.13	82.27	0.91	MWD	LEAM DRILLING SYSTEMS
5/11/2014	12,338.00	90.90	2.40	11,089.38	1,412.35	1,410.00	86.08	2.22	MWD	LEAM DRILLING SYSTEMS
5/14/2014	12,433.00	92.50	1.80	11,086.56	1,507.30	1,504.89	89.56	1.80	MWD	LEAM DRILLING SYSTEMS
5/14/2014	12,527.00	91.50	1.10	11,083.28	1,601.23	1,598.80	91.93	1.30	MWD	LEAM DRILLING SYSTEMS
5/14/2014	12,622.00	90.50	1.50	11,081.62	1,696.20	1,693.76	94.09	1.13	MWD	LEAM DRILLING SYSTEMS
5/14/2014	12,716.00	90.80	1.30	11,080.55	1,790.18	1,787.72	96.39	0.38	MWD	LEAM DRILLING SYSTEMS
5/15/2014	12,811.00	90.80	1.10	11,079.23	1,885.15	1,882.69	98.37	0.21	MWD	LEAM DRILLING SYSTEMS
5/15/2014	12,905.00	91.90	0.10	11,077.01	1,979.08	1,976.66	99.36	1.58	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,000.00	92.00	0.10	11,073.78	2,073.95	2,071.60	99.52	0.11	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,095.00	91.10	1.00	11,071.21	2,168.86	2,166.56	100.44	1.34	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,187.00	90.90	1.10	11,069.60	2,260.82	2,258.53	102.12	0.24	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,282.00	90.20	1.50	11,068.69	2,355.80	2,353.50	104.28	0.85	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,337.00	91.50	1.10	11,067.88	2,410.79	2,408.48	105.53	2.47	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,471.00	91.40	1.00	11,064.49	2,544.71	2,542.42	107.98	0.11	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,565.00	90.80	1.10	11,062.68	2,638.67	2,636.38	109.70	0.65	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,660.00	90.70	1.50	11,061.44	2,733.64	2,731.35	111.86	0.43	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,754.00	92.20	2.00	11,059.06	2,827.60	2,825.27	114.73	1.68	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,849.00	92.30	2.00	11,055.33	2,922.53	2,920.14	118.04	0.11	MWD	LEAM DRILLING SYSTEMS
5/15/2014	13,943.00	92.90	2.90	11,051.06	3,016.43	3,013.96	122.05	1.15	MWD	LEAM DRILLING SYSTEMS
5/15/2014	14,038.00	92.50	3.10	11,046.59	3,111.32	3,108.72	127.02	0.47	MWD	LEAM DRILLING SYSTEMS
5/15/2014	14,132.00	92.50	3.60	11,042.49	3,205.21	3,202.47	132.51	0.53	MWD	LEAM DRILLING SYSTEMS
5/15/2014	14,226.00	91.80	3.10	11,038.96	3,299.13	3,296.25	138.00	0.91	MWD	LEAM DRILLING SYSTEMS
5/15/2014	14,321.00	91.50	4.00	11,036.23	3,394.07	3,391.02	143.88	1.00	MWD	LEAM DRILLING SYSTEMS
5/15/2014	14,416.00	92.20	4.10	11,033.16	3,488.98	3,485.74	150.58	0.74	MWD	LEAM DRILLING SYSTEMS
5/16/2014	14,510.00	90.40	3.20	11,031.03	3,582.93	3,579.52	156.56	2.14	MWD	LEAM DRILLING SYSTEMS
5/16/2014	14,605.00	90.10	4.10	11,030.61	3,677.90	3,674.32	162.61	1.00	MWD	LEAM DRILLING SYSTEMS
5/16/2014	14,700.00	91.30	5.20	11,029.45	3,772.82	3,769.00	170.31	1.71	MWD	LEAM DRILLING SYSTEMS
5/16/2014	14,794.00	89.40	3.40	11,028.88	3,866.75	3,862.72	177.36	2.78	MWD	LEAM DRILLING SYSTEMS
5/16/2014	14,889.00	89.40	3.80	11,029.87	3,961.73	3,957.53	183.32	0.42	MWD	LEAM DRILLING SYSTEMS
5/16/2014	14,962.00	89.40	3.80	11,030.64	4,034.70	4,030.37	188.16	0.00	BIT	LEAM DRILLING SYSTEMS