



15-4837

September 26, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 11 2015

RECEIVED

Devon Energy
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

Attn: David Cook

Re: **Boss Hogg 15 State Com No. 003H**

Please find enclosed a copy of the survey from 0.00' to 8833.00' ran on the above referenced well.

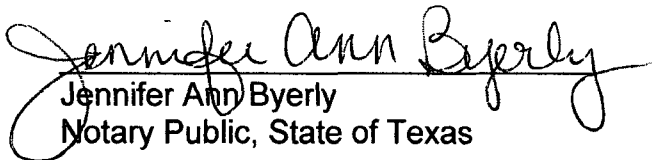
If I can be of any further service please do not hesitate to call me at 800-606-4976.

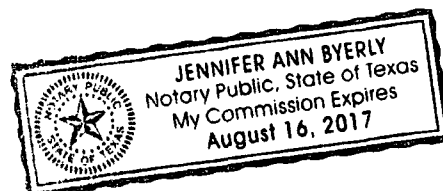
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 26 day of September A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: Devon Energy
Lease/Well: Boss Hogg 15 State COM/No. 003H



Rig Name: H&P 251
State/County: New Mexico/Eddy
Latitude: 32.31, Longitude: -104.28
GRID North is 0.03 Degrees East of True North
VS-Azi: 0.00 Degrees

Depth Reference : RKB= 25 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: drop.ut
Minimum Curvature Method
Report Date/Time: 9/26/2014 / 10:16

VES Survey International
West Texas
(432) 563-5444
Surveyor: Bryan Massey
Boss Hogg 15 State Com No. 003H / API 30-015-41837

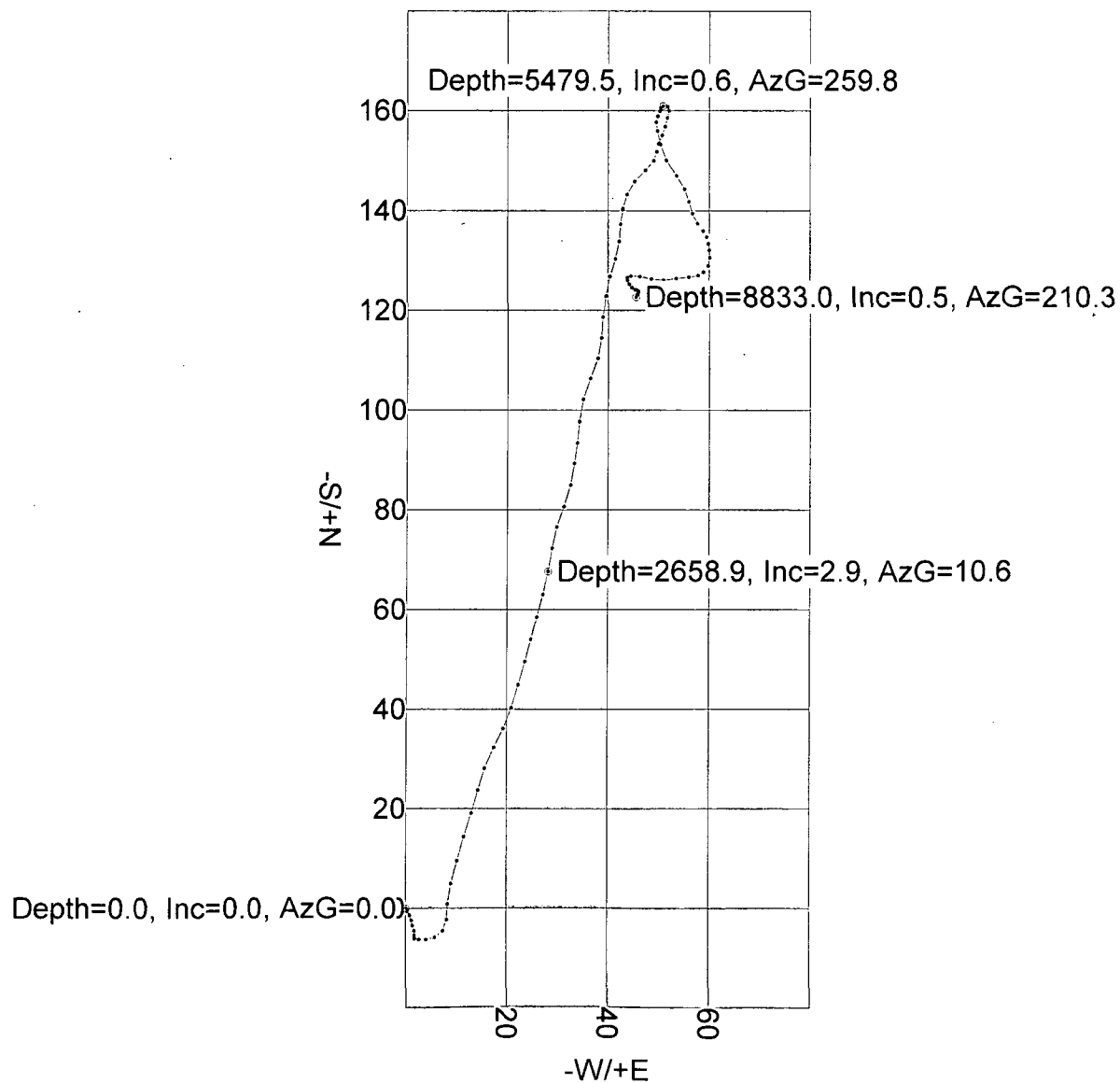
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
120.37	0.60	152.96	120.37	-0.56	0.29	-0.56	0.63	152.96	0.50
214.39	0.64	148.27	214.38	-1.44	0.78	-1.44	1.64	151.46	0.07
308.41	0.67	169.35	308.40	-2.42	1.16	-2.42	2.69	154.42	0.26
402.43	0.65	166.16	402.41	-3.48	1.39	-3.48	3.75	158.25	0.04
496.45	0.68	158.10	496.42	-4.52	1.72	-4.52	4.83	159.10	0.10
590.47	0.54	197.32	590.44	-5.45	1.80	-5.45	5.74	161.73	0.45
684.49	0.32	151.86	684.46	-6.10	1.79	-6.10	6.36	163.65	0.41
778.51	0.91	90.48	778.47	-6.34	2.66	-6.34	6.87	157.21	0.86
872.53	0.83	88.97	872.48	-6.33	4.10	-6.33	7.54	147.09	0.09
966.55	1.33	65.98	966.48	-5.87	5.78	-5.87	8.24	135.47	0.69
1060.57	1.30	34.35	1060.48	-4.55	7.38	-4.55	8.67	121.65	0.76
1154.59	1.62	6.54	1154.47	-2.34	8.13	-2.34	8.46	106.08	0.82
1248.61	2.27	0.60	1248.44	0.84	8.30	0.84	8.35	84.23	0.72
1342.63	2.83	15.73	1342.36	4.93	8.95	4.93	10.22	61.15	0.93
1436.65	3.01	13.58	1436.26	9.56	10.16	9.56	13.95	46.74	0.22
1530.67	3.07	16.73	1530.15	14.37	11.46	14.37	18.38	38.58	0.19
1624.69	3.00	18.41	1624.04	19.11	12.96	19.11	23.10	34.15	0.12
1718.71	2.86	13.15	1717.94	23.73	14.27	23.73	27.69	31.03	0.32

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
1812.73	2.83	20.04	1811.84	28.20	15.60	28.20	32.23	28.96	0.36
1906.75	2.67	27.17	1905.75	32.33	17.40	32.33	36.71	28.29	0.40
2000.77	2.55	25.05	1999.67	36.17	19.29	36.17	40.99	28.07	0.17
2094.79	2.89	17.34	2093.59	40.33	20.88	40.33	45.42	27.37	0.53
2188.81	3.00	16.80	2187.48	44.95	22.30	44.95	50.18	26.38	0.12
2282.83	2.87	14.82	2281.38	49.59	23.61	49.59	54.92	25.46	0.18
2376.85	2.75	14.32	2375.29	54.06	24.78	54.06	59.46	24.62	0.13
2470.87	2.79	14.86	2469.20	58.46	25.92	58.46	63.94	23.91	0.05
2564.89	2.96	15.05	2563.10	63.01	27.14	63.01	68.61	23.30	0.18
2658.91	2.86	10.57	2657.00	67.66	28.20	67.66	73.30	22.62	0.26
2752.93	2.81	8.47	2750.90	72.24	28.97	72.24	77.83	21.85	0.12
2846.95	2.58	15.91	2844.82	76.56	29.89	76.56	82.18	21.32	0.45
2940.97	2.73	21.79	2938.74	80.67	31.30	80.67	86.53	21.20	0.33
3034.99	2.78	10.99	3032.65	84.98	32.56	84.98	91.01	20.96	0.55
3129.01	2.60	8.81	3126.57	89.32	33.32	89.32	95.33	20.46	0.22
3223.03	2.47	8.14	3220.49	93.43	33.94	93.43	99.40	19.96	0.14
3317.05	2.80	2.63	3314.42	97.72	34.33	97.72	103.58	19.35	0.44
3411.07	2.78	15.47	3408.33	102.21	35.04	102.21	108.05	18.92	0.66
3505.09	2.58	22.89	3502.24	106.36	36.47	106.36	112.44	18.93	0.43
3599.11	2.64	17.14	3596.17	110.38	37.93	110.38	116.71	18.97	0.29
3693.13	2.47	0.58	3690.09	114.47	38.59	114.47	120.80	18.63	0.80
3787.15	2.67	7.28	3784.02	118.66	38.89	118.66	124.87	18.15	0.39
3881.17	2.56	10.52	3877.94	122.90	39.55	122.90	129.10	17.84	0.19
3975.19	2.32	12.00	3971.88	126.82	40.33	126.82	133.08	17.64	0.27
4069.21	2.20	22.65	4065.82	130.35	41.42	130.35	136.77	17.63	0.46
4163.23	2.24	2.19	4159.77	133.85	42.18	133.85	140.34	17.49	0.84
4257.25	1.97	5.63	4253.73	137.30	42.41	137.30	143.70	17.17	0.32
4351.27	1.89	11.50	4347.70	140.42	42.88	140.42	146.82	16.98	0.23
4445.29	1.69	22.56	4441.67	143.23	43.72	143.23	149.75	16.98	0.42
4539.31	1.99	35.91	4535.64	145.83	45.21	145.83	152.68	17.23	0.55
4633.33	1.80	52.55	4629.61	148.05	47.34	148.05	155.44	17.73	0.62
4727.35	1.37	25.37	4723.60	149.96	48.99	149.96	157.76	18.09	0.91
4821.37	1.00	8.92	4817.60	151.78	49.60	151.78	159.68	18.10	0.53
4915.39	1.03	17.48	4911.60	153.40	49.98	153.40	161.33	18.05	0.17
5009.41	1.15	23.67	5005.61	155.07	50.61	155.07	163.12	18.08	0.18
5103.43	1.15	14.47	5099.61	156.84	51.23	156.84	165.00	18.09	0.20
5197.45	1.04	13.49	5193.61	158.59	51.66	158.59	166.79	18.04	0.11
5291.47	0.73	16.02	5287.62	160.00	52.03	160.00	168.25	18.01	0.33
5385.49	0.61	299.78	5381.63	160.82	51.76	160.82	168.95	17.84	0.89

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
5479.51	0.65	259.75	5475.65	160.98	50.81	160.98	168.80	17.52	0.46
5573.53	0.30	173.89	5569.67	160.63	50.31	160.63	168.33	17.39	0.74
5667.55	0.54	198.46	5663.68	159.96	50.19	159.96	167.65	17.42	0.31
5761.57	0.81	205.05	5757.70	158.94	49.77	158.94	166.55	17.39	0.29
5855.59	0.75	181.44	5851.71	157.72	49.48	157.72	165.30	17.42	0.34
5949.61	1.43	166.04	5945.71	155.97	49.74	155.97	163.71	17.69	0.78
6043.63	1.94	169.13	6039.69	153.27	50.33	153.27	161.32	18.18	0.56
6137.65	2.29	151.65	6133.65	150.05	51.52	150.05	158.65	18.95	0.77
6231.67	2.23	142.14	6227.59	146.96	53.53	146.96	156.40	20.02	0.40
6325.69	1.55	158.58	6321.56	144.33	55.12	144.33	154.49	20.90	0.91
6419.71	1.68	164.43	6415.55	141.81	55.96	141.81	152.45	21.53	0.22
6513.73	1.33	162.00	6509.53	139.44	56.66	139.44	150.52	22.11	0.38
6607.75	1.44	146.29	6603.53	137.42	57.66	137.42	149.03	22.76	0.42
6701.77	0.80	135.50	6697.53	135.96	58.78	135.96	148.13	23.38	0.72
6795.79	0.96	161.61	6791.54	134.75	59.49	134.75	147.29	23.82	0.45
6889.81	0.73	170.90	6885.55	133.41	59.83	133.41	146.21	24.15	0.28
6983.83	0.87	173.25	6979.56	132.11	60.01	132.11	145.10	24.43	0.15
7077.85	1.04	175.22	7073.56	130.55	60.16	130.55	143.74	24.74	0.19
7171.87	1.03	209.91	7167.57	128.96	59.81	128.96	142.16	24.88	0.66
7265.89	0.89	225.78	7261.58	127.72	58.87	127.72	140.64	24.75	0.32
7359.91	0.72	248.20	7355.59	126.99	57.80	126.99	139.53	24.47	0.38
7453.93	1.58	266.52	7449.59	126.70	55.96	126.70	138.51	23.83	0.98
7547.95	1.48	258.61	7543.58	126.38	53.48	126.38	137.23	22.94	0.25
7641.97	1.59	266.52	7637.56	126.06	50.98	126.06	135.98	22.02	0.25
7735.99	1.42	285.44	7731.55	126.29	48.56	126.29	135.30	21.03	0.56
7830.01	1.48	279.78	7825.54	126.81	46.24	126.81	134.97	20.03	0.17
7924.03	0.64	259.72	7919.54	126.92	44.52	126.92	134.50	19.33	0.96
8018.05	0.35	227.61	8013.56	126.63	43.79	126.63	133.99	19.08	0.42
8112.07	0.56	149.71	8107.58	126.04	43.82	126.04	133.44	19.17	0.63
8206.09	0.50	159.73	8201.59	125.25	44.19	125.25	132.82	19.43	0.12
8300.11	0.59	128.26	8295.61	124.57	44.72	124.57	132.35	19.75	0.33
8394.13	0.31	108.93	8389.63	124.19	45.33	124.19	132.20	20.05	0.34
8488.15	0.26	102.80	8483.64	124.06	45.78	124.06	132.24	20.25	0.06
8582.17	0.24	162.61	8577.66	123.83	46.04	123.83	132.11	20.40	0.26
8676.19	0.19	225.95	8671.68	123.53	45.99	123.53	131.82	20.42	0.24
8770.21	0.41	199.04	8765.70	123.11	45.77	123.11	131.34	20.39	0.27
8833.00	0.48	210.34	8828.49	122.67	45.56	122.67	130.86	20.38	0.17



VES Survey International
West Texas
(432) 563-5444
Surveyor: Bryan Massey
Boss Hogg 15 State Com No. 003H / API 30-015-418



VES Survey Date: 09/11/2014



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HAPPY VALLEY	Project Group DELAWARE BASIN REG			State/Province NM	
Surface Legal Location SEC15 T23S R26E	API/UWI 3001541837	Latitude (°) 32° 18' 41.613" N	Longitude (°) 104° 16' 39.318" W	Ground Elev... 3,306.40	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,331.40	Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID	Kick Off Depth (ftKB)	Vertical Section Direction (°) 183.79
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) 6,195.0		Vertical Section Direction (°) 183.79	
Actual Deviation Survey MWD WEATHERFORD, Proposed? No				Definitive? No		Proposed? No		Proposed Deviation Survey		

Deviation Survey

Date 9/17/2014		Description MWD WEATHERFORD			
MD Tie In (ftKB) 0.00	TVD Tie In (ftKB) 0.00	Inclination Tie In (°) 0.00	Azimuth Tie In (°) 0.00	NSTie In (ft) 0.00	EW Tie In (ft) 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
9/17/2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD	VES
9/17/2014	214.39	0.64	148.27	214.39	0.97	-1.02	0.63	0.30	MWD	VES
9/17/2014	308.41	0.67	169.35	308.40	1.93	-2.01	1.01	0.26	MWD	VES
9/17/2014	402.43	0.65	166.16	402.41	2.97	-3.06	1.24	0.04	MWD	VES
9/17/2014	496.45	0.68	158.10	496.43	3.99	-4.10	1.57	0.10	MWD	VES
9/17/2014	590.47	0.54	197.32	590.44	4.92	-5.04	1.65	0.46	MWD	VES
9/17/2014	684.49	0.32	151.86	684.46	5.57	-5.69	1.64	0.41	MWD	VES
9/17/2014	778.51	0.91	90.48	778.47	5.75	-5.93	2.51	0.86	MWD	VES
9/17/2014	872.53	0.83	88.97	872.48	5.65	-5.93	3.94	0.09	MWD	VES
9/17/2014	966.55	1.33	65.98	966.49	5.09	-5.47	5.62	0.69	MWD	VES
9/17/2014	1,060.57	1.30	34.35	1,060.48	3.66	-4.14	7.21	0.76	MWD	VES
9/17/2014	1,154.59	1.62	6.54	1,154.47	1.41	-1.94	7.97	0.82	MWD	VES
9/17/2014	1,248.61	2.27	0.60	1,248.44	-1.77	1.24	8.14	0.72	MWD	VES
9/17/2014	1,342.63	2.83	15.73	1,342.37	-5.90	5.33	8.79	0.93	MWD	VES
9/17/2014	1,436.65	3.01	13.58	1,436.26	-10.61	9.97	10.00	0.22	MWD	VES
9/17/2014	1,530.67	3.07	16.73	1,530.15	-15.49	14.78	11.30	0.19	MWD	VES
9/17/2014	1,624.69	3.00	18.41	1,624.04	-20.33	19.52	12.80	0.12	MWD	VES
9/17/2014	1,718.71	2.86	13.15	1,717.94	-25.02	24.14	14.11	0.32	MWD	VES
9/17/2014	1,812.73	2.83	20.04	1,811.84	-29.57	28.61	15.44	0.36	MWD	VES
9/17/2014	1,906.75	2.67	27.17	1,905.75	-33.80	32.74	17.24	0.40	MWD	VES
9/17/2014	2,000.77	2.55	25.05	1,999.68	-37.76	36.58	19.12	0.16	MWD	VES
9/17/2014	2,094.79	2.89	17.34	2,093.59	-42.02	40.74	20.71	0.53	MWD	VES
9/17/2014	2,188.81	3.00	16.80	2,187.49	-46.72	45.35	22.13	0.12	MWD	VES
9/17/2014	2,282.83	2.87	14.82	2,281.38	-51.43	49.99	23.45	0.18	MWD	VES
9/17/2014	2,376.85	2.75	14.32	2,375.29	-55.95	54.45	24.61	0.13	MWD	VES
9/17/2014	2,470.87	2.79	14.86	2,469.20	-60.42	58.84	25.75	0.05	MWD	VES
9/17/2014	2,564.89	2.96	15.05	2,563.10	-65.04	63.40	26.97	0.18	MWD	VES
9/17/2014	2,658.91	2.86	10.57	2,657.00	-69.75	68.05	28.03	0.26	MWD	VES
9/17/2014	2,752.93	2.81	8.47	2,750.91	-74.38	72.63	28.80	0.12	MWD	VES
9/17/2014	2,846.95	2.58	15.91	2,844.82	-78.74	76.95	29.72	0.44	MWD	VES
9/17/2014	2,940.97	2.73	21.79	2,938.74	-82.94	81.06	31.13	0.33	MWD	VES
9/17/2014	3,034.99	2.78	10.99	3,032.65	-87.33	85.38	32.39	0.55	MWD	VES
9/17/2014	3,129.01	2.60	8.81	3,126.57	-91.72	89.73	33.16	0.22	MWD	VES
9/17/2014	3,223.03	2.47	8.14	3,220.50	-95.87	93.84	33.77	0.14	MWD	VES
9/17/2014	3,317.05	2.80	2.63	3,314.42	-100.18	98.14	34.16	0.44	MWD	VES
9/17/2014	3,411.07	2.78	15.47	3,408.33	-104.71	102.63	34.87	0.66	MWD	VES



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HAPPY VALLEY	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location SEC15 T23S R26E	API/UWI 3001541837	Latitude (°) 32° 18' 41.613" N	Longitude (°) 104° 16' 39.318" W	Ground Elev... 3,306.40	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,331.40	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
9/17/2014	3,505.09	2.58	22.89	3,502.25	-108.94	106.78	36.31	0.43	MWD	VES
9/17/2014	3,599.11	2.64	17.14	3,596.17	-113.05	110.80	37.77	0.29	MWD	VES
9/17/2014	3,693.13	2.47	0.58	3,690.10	-117.18	114.89	38.43	0.80	MWD	VES
9/17/2014	3,787.15	2.67	7.28	3,784.02	-121.39	119.09	38.72	0.38	MWD	VES
9/17/2014	3,881.17	2.56	10.52	3,877.94	-125.66	123.33	39.38	0.20	MWD	VES
9/17/2014	3,975.19	2.32	12.00	3,971.88	-129.63	127.25	40.16	0.26	MWD	VES
9/17/2014	4,069.21	2.20	22.65	4,065.83	-133.22	130.78	41.25	0.46	MWD	VES
9/17/2014	4,163.23	2.24	2.19	4,159.78	-136.76	134.28	42.02	0.84	MWD	VES
9/17/2014	4,257.25	1.97	5.63	4,253.73	-140.22	137.72	42.25	0.32	MWD	VES
9/17/2014	4,351.27	1.89	11.50	4,347.70	-143.37	140.85	42.72	0.23	MWD	VES
9/17/2014	4,445.29	1.69	22.56	4,441.67	-146.22	143.65	43.56	0.42	MWD	VES
9/17/2014	4,539.31	1.99	35.91	4,535.65	-148.91	146.25	45.05	0.55	MWD	VES
9/17/2014	4,633.33	1.80	52.55	4,629.62	-151.27	148.47	47.18	0.62	MWD	VES
9/17/2014	4,727.35	1.37	25.37	4,723.60	-153.29	150.39	48.83	0.91	MWD	VES
9/17/2014	4,821.37	1.00	8.92	4,817.60	-155.15	152.21	49.44	0.53	MWD	VES
9/17/2014	4,915.39	1.03	17.48	4,911.61	-156.79	153.83	49.82	0.16	MWD	VES
9/17/2014	5,009.41	1.15	23.67	5,005.61	-158.49	155.50	50.45	0.18	MWD	VES
9/17/2014	5,103.43	1.15	14.47	5,099.61	-160.31	157.28	51.07	0.20	MWD	VES
9/17/2014	5,197.45	1.04	13.49	5,193.61	-162.08	159.02	51.50	0.12	MWD	VES
9/17/2014	5,291.47	0.73	16.02	5,287.62	-163.50	160.43	51.87	0.33	MWD	VES
9/17/2014	5,385.49	0.61	299.78	5,381.64	-164.31	161.25	51.60	0.89	MWD	VES
9/17/2014	5,479.51	0.65	259.75	5,475.65	-164.40	161.40	50.64	0.46	MWD	VES
9/17/2014	5,573.53	0.30	173.89	5,569.67	-164.03	161.06	50.14	0.74	MWD	VES
9/17/2014	5,667.55	0.54	198.46	5,663.69	-163.36	160.40	50.02	0.31	MWD	VES
9/17/2014	5,761.57	0.81	205.05	5,757.70	-162.31	159.38	49.60	0.30	MWD	VES
9/17/2014	5,855.59	0.75	181.44	5,851.71	-161.07	158.16	49.31	0.35	MWD	VES
9/17/2014	5,949.61	1.43	166.04	5,945.71	-159.34	156.41	49.57	0.78	MWD	VES
9/17/2014	6,043.63	1.94	169.13	6,039.69	-156.68	153.70	50.16	0.55	MWD	VES
9/17/2014	6,137.65	2.29	151.65	6,133.65	-153.55	150.49	51.35	0.78	MWD	VES
9/19/2014	6,166.00	2.05	164.72	6,161.98	-152.60	149.50	51.75	1.93	MWD	WEATHERFORD
9/19/2014	6,197.00	3.44	172.16	6,192.94	-151.16	148.04	52.02	4.62	MWD	WEATHERFORD
9/19/2014	6,228.00	6.81	174.38	6,223.81	-148.44	145.29	52.33	10.89	MWD	WEATHERFORD
9/19/2014	6,260.00	11.42	176.45	6,255.40	-143.42	140.24	52.71	14.44	MWD	WEATHERFORD
9/19/2014	6,291.00	15.59	178.17	6,285.54	-136.23	133.01	53.04	13.51	MWD	WEATHERFORD
9/19/2014	6,323.00	19.40	179.54	6,316.05	-126.64	123.40	53.22	11.97	MWD	WEATHERFORD
9/19/2014	6,354.00	23.10	181.48	6,344.94	-115.43	112.16	53.10	12.15	MWD	WEATHERFORD
9/19/2014	6,386.00	25.96	185.18	6,374.05	-102.15	98.91	52.31	10.14	MWD	WEATHERFORD
9/20/2014	6,414.00	28.13	187.57	6,398.99	-89.44	86.26	50.88	8.67	MWD	WEATHERFORD
9/20/2014	6,446.00	30.33	190.72	6,426.91	-73.89	70.84	48.39	8.39	MWD	WEATHERFORD
9/20/2014	6,477.00	32.45	192.03	6,453.38	-57.88	55.02	45.20	7.18	MWD	WEATHERFORD
9/20/2014	6,509.00	35.18	191.76	6,479.96	-40.25	37.59	41.53	8.54	MWD	WEATHERFORD
9/20/2014	6,540.00	37.79	191.28	6,504.88	-21.99	19.53	37.85	8.47	MWD	WEATHERFORD
9/20/2014	6,571.00	40.47	189.81	6,528.93	-2.56	0.30	34.28	9.15	MWD	WEATHERFORD
9/20/2014	6,602.00	42.53	188.36	6,552.14	17.89	-19.98	31.04	7.33	MWD	WEATHERFORD
9/20/2014	6,634.00	44.75	187.89	6,575.30	39.91	-41.84	27.92	7.01	MWD	WEATHERFORD
9/20/2014	6,665.00	47.14	187.77	6,596.86	62.13	-63.91	24.89	7.71	MWD	WEATHERFORD
9/20/2014	6,696.00	49.44	188.01	6,617.48	85.21	-86.84	21.71	7.44	MWD	WEATHERFORD
9/20/2014	6,727.00	52.22	187.31	6,637.06	109.19	-110.65	18.51	9.14	MWD	WEATHERFORD
9/21/2014	6,759.00	54.36	187.56	6,656.19	134.79	-136.09	15.19	6.72	MWD	WEATHERFORD
9/21/2014	6,790.00	57.25	187.22	6,673.61	160.37	-161.51	11.89	9.37	MWD	WEATHERFORD
9/21/2014	6,822.00	60.46	186.87	6,690.16	187.71	-188.69	8.53	10.07	MWD	WEATHERFORD
9/21/2014	6,853.00	63.81	187.12	6,704.64	215.07	-215.89	5.20	10.83	MWD	WEATHERFORD
9/21/2014	6,885.00	66.41	187.32	6,718.11	244.05	-244.68	1.55	8.14	MWD	WEATHERFORD
9/21/2014	6,916.00	69.71	187.44	6,729.69	272.74	-273.20	-2.15	10.65	MWD	WEATHERFORD
9/21/2014	6,948.00	72.38	187.38	6,740.08	302.94	-303.21	-6.05	8.35	MWD	WEATHERFORD



BOSS HOGG 15 STATE COM 3H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HAPPY VALLEY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location SEC15 T23S R26E	API/UWI 3001541837	Latitude (°) 32° 18' 41.613" N	Longitude (°) 104° 16' 39.318" W	Ground Elev... 3,306.40
			KB - GL (ft) 25.00	Orig KB Elev (ft) 3,331.40
				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
9/21/2014	6,978.00	74.72	187.12	6,748.58	331.66	-331.75	-9.68	7.84	MWD	WEATHERFORD
9/21/2014	7,010.00	75.44	187.91	6,756.82	362.52	-362.40	-13.72	3.28	MWD	WEATHERFORD
9/22/2014	7,041.00	77.52	187.77	6,764.06	392.58	-392.26	-17.83	6.72	MWD	WEATHERFORD
9/22/2014	7,072.00	80.87	187.18	6,769.88	422.96	-422.45	-21.79	10.97	MWD	WEATHERFORD
9/22/2014	7,105.00	85.17	186.23	6,773.88	455.67	-454.97	-25.62	13.34	MWD	WEATHERFORD
9/23/2014	7,149.00	89.86	184.90	6,775.79	499.59	-498.71	-29.88	11.08	MWD	WEATHERFORD
9/23/2014	7,180.00	90.84	184.62	6,775.60	530.59	-529.60	-32.45	3.29	MWD	WEATHERFORD
9/23/2014	7,274.00	89.93	184.37	6,774.97	624.58	-623.31	-39.82	1.00	MWD	WEATHERFORD
9/23/2014	7,368.00	90.56	185.16	6,774.57	718.56	-716.98	-47.62	1.07	MWD	WEATHERFORD
9/23/2014	7,461.00	90.91	184.45	6,773.38	811.54	-809.65	-55.41	0.85	MWD	WEATHERFORD
9/23/2014	7,556.00	89.93	184.06	6,772.68	906.53	-904.38	-62.46	1.11	MWD	WEATHERFORD
9/23/2014	7,650.00	89.79	183.61	6,772.91	1,000.53	-998.17	-68.75	0.50	MWD	WEATHERFORD
9/24/2014	7,744.00	89.86	183.69	6,773.20	1,094.53	-1,091.98	-74.73	0.11	MWD	WEATHERFORD
9/24/2014	7,838.00	91.19	183.60	6,772.34	1,188.52	-1,185.78	-80.71	1.42	MWD	WEATHERFORD
9/24/2014	7,932.00	90.42	183.98	6,771.01	1,282.51	-1,279.57	-86.92	0.91	MWD	WEATHERFORD
9/24/2014	8,026.00	90.63	183.36	6,770.15	1,376.51	-1,373.37	-92.94	0.70	MWD	WEATHERFORD
9/24/2014	8,120.00	91.40	183.57	6,768.49	1,470.49	-1,467.18	-98.62	0.85	MWD	WEATHERFORD
9/24/2014	8,214.00	91.05	183.66	6,766.48	1,564.47	-1,560.97	-104.54	0.38	MWD	WEATHERFORD
9/24/2014	8,308.00	91.05	183.73	6,764.76	1,658.45	-1,654.76	-110.60	0.07	MWD	WEATHERFORD
9/24/2014	8,402.00	90.42	183.93	6,763.55	1,752.44	-1,748.54	-116.88	0.70	MWD	WEATHERFORD
9/24/2014	8,497.00	90.84	184.14	6,762.51	1,847.44	-1,843.30	-123.56	0.49	MWD	WEATHERFORD
9/24/2014	8,592.00	90.56	184.53	6,761.34	1,942.43	-1,938.02	-130.74	0.51	MWD	WEATHERFORD
9/24/2014	8,686.00	91.61	184.71	6,759.56	2,036.40	-2,031.70	-138.31	1.13	MWD	WEATHERFORD
9/24/2014	8,779.00	91.26	184.94	6,757.24	2,129.35	-2,124.34	-146.13	0.45	MWD	WEATHERFORD
9/24/2014	8,873.00	91.33	184.84	6,755.11	2,223.31	-2,217.97	-154.15	0.13	MWD	WEATHERFORD
9/24/2014	8,968.00	92.10	183.85	6,752.27	2,318.26	-2,312.66	-161.34	1.32	MWD	WEATHERFORD
9/24/2014	9,062.00	91.75	183.99	6,749.11	2,412.21	-2,406.38	-167.76	0.40	MWD	WEATHERFORD
9/24/2014	9,156.00	91.33	184.51	6,746.58	2,506.17	-2,500.09	-174.73	0.71	MWD	WEATHERFORD
9/24/2014	9,250.00	90.77	185.04	6,744.86	2,600.14	-2,593.75	-182.55	0.82	MWD	WEATHERFORD
9/24/2014	9,344.00	91.12	183.94	6,743.31	2,694.12	-2,687.45	-189.91	1.23	MWD	WEATHERFORD
9/24/2014	9,439.00	91.40	182.24	6,741.22	2,789.09	-2,782.28	-195.03	1.81	MWD	WEATHERFORD
9/24/2014	9,533.00	91.05	182.90	6,739.21	2,883.04	-2,876.16	-199.24	0.79	MWD	WEATHERFORD
9/24/2014	9,627.00	90.56	183.35	6,737.89	2,977.03	-2,970.01	-204.36	0.71	MWD	WEATHERFORD
9/24/2014	9,722.00	90.00	183.23	6,737.43	3,072.02	-3,064.86	-209.82	0.60	MWD	WEATHERFORD
9/24/2014	9,816.00	89.58	184.07	6,737.77	3,166.02	-3,158.66	-215.80	1.00	MWD	WEATHERFORD
9/24/2014	9,910.00	90.70	183.90	6,737.54	3,260.02	-3,252.43	-222.33	1.21	MWD	WEATHERFORD
9/24/2014	10,004.00	91.47	184.19	6,735.76	3,354.00	-3,346.18	-228.96	0.88	MWD	WEATHERFORD
9/24/2014	10,098.00	91.26	184.66	6,733.52	3,447.97	-3,439.88	-236.21	0.55	MWD	WEATHERFORD
9/24/2014	10,193.00	91.19	183.90	6,731.49	3,542.94	-3,534.59	-243.30	0.80	MWD	WEATHERFORD
9/24/2014	10,287.00	90.77	182.88	6,729.88	3,636.92	-3,628.41	-248.86	1.17	MWD	WEATHERFORD
9/24/2014	10,381.00	90.21	182.67	6,729.08	3,730.90	-3,722.29	-253.41	0.64	MWD	WEATHERFORD
9/24/2014	10,474.00	89.58	183.17	6,729.25	3,823.89	-3,815.17	-258.15	0.86	MWD	WEATHERFORD
9/24/2014	10,569.00	89.02	183.81	6,730.41	3,918.88	-3,909.99	-263.93	0.90	MWD	WEATHERFORD
9/24/2014	10,662.00	89.30	182.46	6,731.78	4,011.87	-4,002.84	-269.01	1.48	MWD	WEATHERFORD
9/24/2014	10,756.00	89.72	182.40	6,732.58	4,105.84	-4,096.75	-273.00	0.45	MWD	WEATHERFORD
9/24/2014	10,851.00	91.40	182.66	6,731.65	4,200.80	-4,191.65	-277.19	1.79	MWD	WEATHERFORD
9/24/2014	10,945.00	91.05	182.93	6,729.64	4,294.77	-4,285.52	-281.78	0.47	MWD	WEATHERFORD
9/24/2014	11,039.00	90.49	183.48	6,728.38	4,388.75	-4,379.36	-287.03	0.83	MWD	WEATHERFORD
9/24/2014	11,134.00	89.72	183.33	6,728.20	4,483.75	-4,474.19	-292.67	0.83	MWD	WEATHERFORD
9/24/2014	11,228.00	89.65	183.68	6,728.72	4,577.75	-4,568.01	-298.42	0.38	MWD	WEATHERFORD
9/24/2014	11,322.00	90.42	184.05	6,728.66	4,671.75	-4,661.80	-304.76	0.91	MWD	WEATHERFORD
9/24/2014	11,416.00	90.21	184.47	6,728.15	4,765.74	-4,755.54	-311.74	0.50	MWD	WEATHERFORD
9/24/2014	11,492.00	89.86	184.72	6,728.10	4,841.74	-4,831.29	-317.83	0.57	MWD	WEATHERFORD
9/24/2014	11,557.00	89.86	184.72	6,728.26	4,906.73	-4,896.07	-323.17	0.00	BIT	WEATHERFORD