

Results of Directional Survey

API number:	30-025-37582		
OGRID:		Operator:	CHESAPEAKE OPERATING INC
		Property:	BRINSTOOL 25 FEDERAL # 1

surface	ULSTR:	H	25	T	23S	R	33E
			1980	FNL	660	FEL	

BH Loc	ULSTR:	H	25	T	23S	R	33E
			2048	FNL	698	FEL	

	MD	N/S	E/W	VD
	12718	-80.00	34.00	12708.4
TOP PERFS/OH	12753	-80.09	29.55	12743.12
	12755	-80.10	29.30	12745.10
	12786	-80.20	25.50	12775.90
BOT PERFS/OH	12798	-80.28	24.04	12787.79
	12818	-80.40	21.60	12807.60

NEXT TO LAST	13940	-71.60	-46.90	13925.60
LAST READING	14040	-67.80	-38.30	14025.20
TD	14040	-67.80	-38.30	14025.20

Surface Location	1980	FN	660	FE
Projected BHL	2048	FN	698	FE
Location of				
Top Perfs/OH	2060	FN	630	FE
Bottom Perfs/OH	2060	FN	636	FE

SUMMARY of Subsurface Locations

Surface Location	H-25-23S-33E	1980	FN	660	FE	Vert. Depth
Top Perfs/OH	H-25-23S-33E	2060	FN	630	FE	12743.12
Bottom Perfs/OH	H-25-23S-33E	2060	FN	636	FE	12787.79
Projected TD	H-25-23S-33E	2048	FN	698	FE	14025.20

SUR: H-25-23s-33e, 1980/N & 660/E
 BHL: H-25023s033e, 2048/N & 698/E
 API #30-025-37582

Directional Survey Report

Well ID: 819660

Well Name: Brininstool 25 Federal 1

Well Bore: Original Well Bore

Plane of Vertical Section: 196.3 degrees

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
INC	206.0	0.50	0.0	206.0	N 0.9		0.9	-0.9	0.243
INC	446.0	0.25	0.0	446.0	N 2.5		2.5	-2.4	0.104
INC	819.0	0.50	0.0	819.0	N 4.9		4.9	-4.7	0.067
INC	1225.0	0.75	0.0	1225.0	N 9.3		9.3	-9.0	0.062
INC	1370.0	0.75	0.0	1369.9	N 11.2		11.2	-10.8	0.000
INC	1741.0	1.00	0.0	1740.9	N 16.9		16.9	-16.2	0.067
INC	2236.0	0.50	0.0	2235.9	N 23.4		23.4	-22.4	0.101
INC	2734.0	0.50	0.0	2733.8	N 27.7		27.7	-26.6	0.000
INC	3214.0	0.75	0.0	3213.8	N 33.0		33.0	-31.6	0.052
INC	3560.0	1.75	0.0	3559.7	N 40.5		40.5	-38.9	0.289
INC	3749.0	2.00	0.0	3748.6	N 46.7		46.7	-44.8	0.132
INC	4013.0	1.25	0.0	4012.5	N 54.2		54.2	-52.0	0.284
INC	4264.0	1.75	0.0	4263.4	N 60.8		60.8	-58.3	0.199
INC	4507.0	2.00	0.0	4506.3	N 68.7		68.7	-65.9	0.103
INC	4791.0	2.00	0.0	4790.1	N 78.6		78.6	-75.5	0.000
INC	5045.0	1.75	0.0	5044.0	N 86.9		86.9	-83.4	0.098
** Tieln	5150.0	1.75	277.6	5148.9	S 12.8	W 68.0		31.3	
MSS	5483.0	1.00	72.9	5481.9	S 11.3	W 70.2	71.1	30.5	0.808
MSS	5990.0	0.80	124.6	5988.8	S 12.0	W 63.1	64.2	29.2	0.159
MSS	6465.0	0.30	40.6	6463.8	S 12.9	W 59.5	60.9	29.1	0.174
MSS	6940.0	0.60	141.0	6938.8	S 13.9	W 57.2	58.8	29.4	0.151
MSS	7414.0	1.10	155.5	7412.7	S 20.0	W 53.7	57.3	34.2	0.114
MSS	7921.0	1.30	141.0	7919.6	S 28.9	W 48.1	56.1	41.2	0.071
MSS	8360.0	2.10	94.2	8358.4	S 33.3	W 36.9	49.7	42.3	0.350
MSS	8676.0	2.50	115.2	8674.2	S 36.7	W 24.9	44.3	42.2	0.293
MSS	9020.0	2.00	76.5	9017.9	S 38.5	W 12.3	40.4	40.4	0.455
MSS	9354.0	1.10	79.6	9351.8	S 36.5	W 3.5	36.7	36.0	0.271
MSS	9863.0	2.40	146.7	9860.6	S 44.6	E 7.2	45.1	40.7	0.436
MSS	10092.0	2.20	78.1	10089.5	S 47.7	E 14.1	49.7	41.8	1.134

Directional Survey Report

Well ID: 819660

Well Name: Brininstool 25 Federal 1

Well Bore: Original Well Bore

Plane of Vertical Section: 196.3 degrees

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
MSS	10300.0	3.80	110.6	10297.2	S 49.3	E 24.5	55.0	40.4	1.094
MSS	10390.0	3.40	295.6	10387.1	S 49.2	E 24.9	55.1	40.2	7.992
MSS	10489.0	3.10	85.3	10486.1	S 47.7	E 24.9	53.8	38.8	6.338
MSS	10584.0	3.00	108.8	10580.9	S 48.3	E 29.8	56.7	38.0	1.311
MSS	10678.0	3.60	116.7	10674.8	S 50.4	E 34.8	61.2	38.6	0.799
MSS	10772.0	3.50	117.9	10768.6	S 53.0	E 39.9	66.4	39.7	0.133
MSS	10863.0	4.00	136.8	10859.4	S 56.7	E 44.6	72.1	41.9	1.457
MSS	11016.0	4.10	131.9	11012.0	S 64.2	E 52.3	82.8	46.9	0.235
MSS	11110.0	3.20	115.7	11105.8	S 67.6	E 57.2	88.5	48.8	1.447
MSS	11244.0	3.60	96.8	11239.6	S 69.7	E 64.7	95.1	48.7	0.883
MSS	11433.0	3.40	90.6	11428.2	S 70.5	E 76.2	103.8	46.2	0.226
MSS	11895.0	2.50	77.5	11889.6	S 68.4	E 99.7	121.0	37.7	0.242
MWD	11934.0	2.90	95.0	11928.6	S 68.3	E 101.6	122.4	37.1	2.337
MWD	11961.0	2.80	95.7	11955.6	S 68.5	E 102.9	123.6	36.8	0.392
MWD	11992.0	1.40	116.4	11986.5	S 68.7	E 104.0	124.6	36.8	5.066
MWD	12024.0	1.00	183.6	12018.5	S 69.2	E 104.3	125.2	37.1	4.279
MWD	12055.0	1.50	212.0	12049.5	S 69.8	E 104.1	125.3	37.7	2.522
MWD	12087.0	2.50	235.2	12081.5	S 70.5	E 103.3	125.1	38.7	3.961
MWD	12118.0	4.00	252.8	12112.5	S 71.2	E 101.7	124.2	39.8	5.757
MWD	12149.0	5.10	258.8	12143.4	S 71.8	E 99.3	122.6	41.1	3.862
MWD	12181.0	6.00	263.4	12175.2	S 72.3	E 96.3	120.4	42.4	3.135
MWD	12219.0	6.20	262.3	12213.0	S 72.8	E 92.3	117.5	44.0	0.610
MWD	12251.0	6.20	261.6	12244.8	S 73.3	E 88.8	115.1	45.4	0.236
MWD	12314.0	6.00	260.5	12307.4	S 74.3	E 82.2	110.8	48.2	0.368
MWD	12409.0	5.00	257.0	12402.0	S 76.1	E 73.3	105.6	52.4	1.110
MWD	12441.0	5.80	257.4	12433.9	S 76.7	E 70.3	104.1	53.9	2.503
MWD	12472.0	5.50	258.4	12464.7	S 77.4	E 67.4	102.6	55.3	1.018
MWD	12503.0	6.70	263.7	12495.5	S 77.9	E 64.1	100.9	56.7	4.272
MWD	12535.0	8.30	266.2	12527.3	S 78.2	E 60.0	98.6	58.3	5.102

Directional Survey Report

Well ID: 819660

Well Name: Brininstool 25 Federal 1

Well Bore: Original Well Bore

Plane of Vertical Section: 196.3 degrees

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
MWD	12566.0	8.70	265.5	12557.9	S 78.6	E 55.4	96.1	59.9	1.333
MWD	12600.0	8.40	265.8	12591.5	S 78.9	E 50.3	93.6	61.6	0.892
MWD	12631.0	8.10	265.5	12622.2	S 79.3	E 45.9	91.6	63.2	0.978
MWD	12663.0	8.10	266.9	12653.9	S 79.6	E 41.4	89.7	64.8	0.616
MWD	12693.0	7.70	266.2	12683.6	S 79.8	E 37.3	88.1	66.1	1.371
MWD	12718.0	7.40	268.3	12708.4	S 80.0	E 34.0	86.9	67.2	1.630
MWD	12755.0	7.20	268.6	12745.1	S 80.1	E 29.3	85.3	68.7	0.550
MWD	12786.0	7.00	267.9	12775.9	S 80.2	E 25.5	84.2	69.8	0.703
MWD	12818.0	6.80	268.1	12807.6	S 80.4	E 21.6	83.2	71.1	0.629
MWD	12849.0	6.90	269.0	12838.4	S 80.5	E 17.9	82.4	72.2	0.473
MWD	12881.0	6.50	269.0	12870.2	S 80.5	E 14.2	81.8	73.3	1.250
MWD	12912.0	6.20	269.7	12901.0	S 80.6	E 10.8	81.3	74.3	0.999
MWD	12944.0	6.20	267.9	12932.8	S 80.6	E 7.3	81.0	75.3	0.607
MWD	12976.0	6.20	269.3	12964.6	S 80.7	E 3.9	80.8	76.4	0.472
MWD	13008.0	6.10	268.6	12996.4	S 80.8	E 0.4	80.8	77.4	0.391
MWD	13038.0	6.10	267.9	13026.3	S 80.9	W 2.7	80.9	78.4	0.248
MWD	13069.0	5.80	267.2	13057.1	S 81.0	W 6.0	81.2	79.4	0.996
MWD	13101.0	5.80	267.9	13088.9	S 81.1	W 9.2	81.7	80.5	0.221
MWD	13163.0	5.40	266.5	13150.7	S 81.4	W 15.2	82.9	82.4	0.682
MWD	13208.0	4.80	263.4	13195.5	S 81.8	W 19.2	84.0	83.9	1.467
MSS	13400.0	4.50	255.4	13386.8	S 84.6	W 34.5	91.4	90.9	0.372
MSS	13557.0	3.60	256.4	13543.4	S 87.3	W 45.2	98.3	96.5	0.575
MSS	13751.0	4.20	342.6	13737.1	S 82.0	W 53.3	97.8	93.6	2.755
MSS	13940.0	5.60	65.7	13925.6	S 71.6	W 46.9	85.6	81.9	3.481
PROJ	14040.0	5.20	67.8	14025.2	S 67.8	W 38.3	77.9	75.9	0.446

Calculations using Minimum Curvature Method