

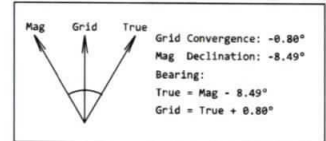


CONSOL ENERGY
 OXF13AHS
 DODDRIDGE COUNTY, WV
 PVA

Plan Data for AHS

Plan Point Information:
 Dogleg Severity Unit: °/100.00ft Position offsets from Slot centre

MD	Inc	Az	TVD	+N/-S	+E/-W	VSec	DLS	Build	Turn
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(DLSU)	(DLSU)	(DLSU)	(DLSU)
6188.00	19.45	255.44	6042.66	-280.45	-895.02	42.74	2.43	-2.43	0.46
6300.00	19.45	255.44	6148.26	-289.83	-931.12	46.28	0.00	0.00	0.00
6533.10	30.00	278.00	6360.15	-291.48	-1026.86	77.49	6.00	4.53	9.68
7129.58	59.95	340.53	6796.66	-8.64	-1277.14	428.89	8.50	5.02	10.48
7470.35	90.00	339.99	6884.00	297.55	-1387.13	754.24	8.82	8.82	-0.16
12635.22	90.00	339.99	6884.00	5150.75	-3154.15	5919.12	0.00	0.00	0.00



Plan Data for AHS

Field: CONSOL ENERGY_DODDRIDGE COUNTY, WV_NAD 27 (WV NORTH)
 Map Unit: USft Vertical Reference Datum (VRD): Mean Sea Level
 Projected Coordinate System: NAD27 / West Virginia North

Site: OXF 13 PAD
 Unit: USFeet TVD Reference:
 Company Name: CONSOL ENERGY
 Position: Northing: 246003.53USft Latitude: 39°10'7.237"
 Easting: 1646174.06USft Longitude: -80°44'52.693"
 North Reference: Grid Grid Convergence: -0.80°
 Elevation Above VRD: 1152.00USft

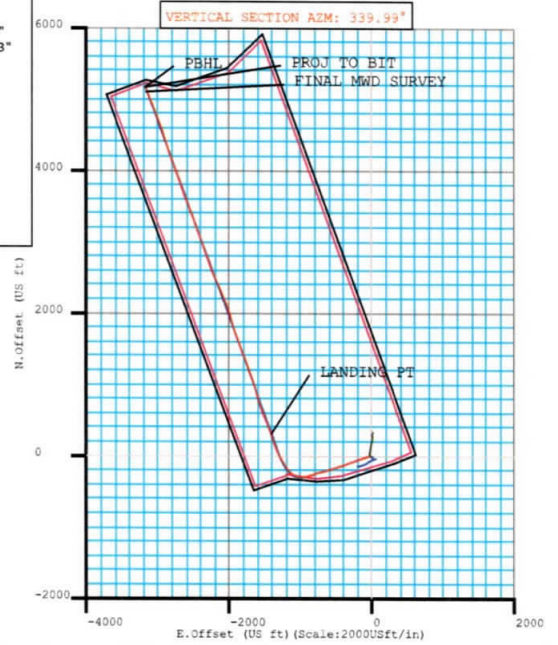
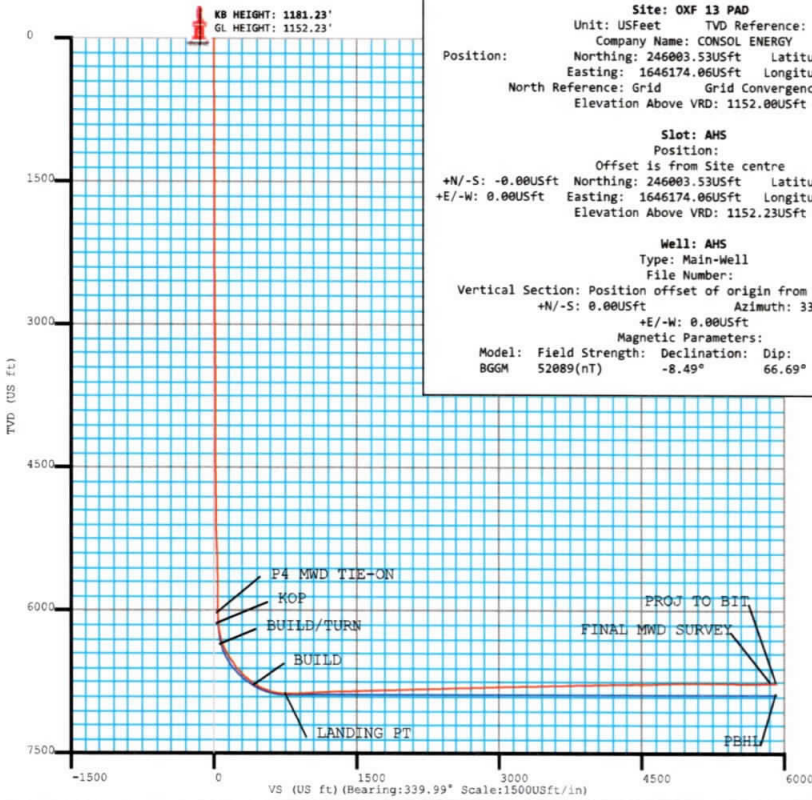
Slot: AHS
 Position:
 Offset is from Site centre
 +N/-S: -0.00USft Northing: 246003.53USft Latitude: 39°10'7.237"
 +E/-W: 0.00USft Easting: 1646174.06USft Longitude: -80°44'52.693"
 Elevation Above VRD: 1152.23USft

Well: AHS
 Type: Main-Well
 File Number:
 Vertical Section: Position offset of origin from Slot centre:
 +N/-S: 0.00USft Azimuth: 339.99°
 +E/-W: 0.00USft
 Magnetic Parameters:
 Model: Field Strength: Declination: Dip: Date:
 BGM 52089(nT) -8.49° 66.69° 2015-05-06

Plan Data for AHS

Target Set Information:
 Name: OXF 13 AHS TARGETS
 Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)
AHS LP	6884.00	203.58	-1352.92	246207.11	1644821.14
AHS LP +100	6884.00	297.55	-1387.13	246301.08	1644786.93
AHS PBHL	6884.00	5150.75	-3154.15	251154.28	1643019.91



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SURVEY REPORT

Report Date: 6/19/2015
 Customer: Consol Energy
 Job Name: 11048462
 Well Name: OXFD13AHS

Field: Marcellus Shale
 Rig: Patterson / UTI #
 Rig Loc: Doddridge Co., WV

Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
Grid North	339.99 deg	52271 nT	66.65 deg	-7.77 deg	-0.80 deg	-6.97 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	0.00 ft	0.00 deg	0.00 deg	0.00 ft	0.00 ft	0.00 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head			Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)			
29.00	0.00	360.00	29.00	0.00	0.00	0.00	0.00	
100.00	0.81	53.76	100.00	0.30	0.40	0.14	1.14	
200.00	0.20	170.89	199.99	0.54	1.00	0.17	0.92	
300.00	0.19	279.68	299.99	0.40	0.87	0.08	0.32	
400.00	0.30	341.87	399.99	0.67	0.62	0.42	0.27	
500.00	0.48	346.88	499.99	1.33	0.45	1.10	0.18	
600.00	0.03	263.34	599.99	1.74	0.32	1.52	0.48	
700.00	0.17	281.32	699.99	1.76	0.15	1.60	0.14	
800.00	0.60	298.67	799.99	2.04	-0.45	2.07	0.44	
900.00	0.58	330.30	899.98	2.73	-1.16	2.97	0.32	
1000.00	0.14	41.20	999.98	3.26	-1.33	3.52	0.55	
1100.00	0.21	29.41	1099.98	3.52	-1.16	3.70	0.08	
1200.00	0.17	323.84	1199.98	3.80	-1.16	3.96	0.21	
1300.00	0.32	8.01	1299.98	4.19	-1.21	4.35	0.23	
1400.00	0.16	350.89	1399.98	4.61	-1.19	4.74	0.17	
1500.00	0.46	305.41	1499.98	4.98	-1.54	5.20	0.37	
1600.00	0.40	299.54	1599.97	5.38	-2.17	5.80	0.07	
1700.00	0.51	254.47	1699.97	5.43	-2.90	6.10	0.36	
1800.00	0.34	240.78	1799.97	5.17	-3.59	6.09	0.20	
1900.00	0.48	287.66	1899.96	5.15	-4.25	6.30	0.35	
2000.00	0.22	326.27	1999.96	5.44	-4.76	6.74	0.34	
2100.00	0.22	256.16	2099.96	5.55	-5.05	6.95	0.25	
2200.00	0.24	288.46	2199.96	5.57	-5.43	7.10	0.13	
2300.00	0.22	301.53	2299.96	5.74	-5.80	7.38	0.06	
2400.00	0.36	302.94	2399.96	6.01	-6.22	7.78	0.14	
2500.00	0.48	279.40	2499.96	6.25	-6.90	8.23	0.21	
2600.00	0.49	299.11	2599.95	6.53	-7.69	8.76	0.17	
2700.00	0.50	276.89	2699.95	6.79	-8.49	9.28	0.19	
2800.00	0.52	315.79	2799.95	7.17	-9.24	9.90	0.34	
2975.00	0.83	282.09	2974.93	8.00	-11.04	11.29	0.28	
3069.00	4.25	249.48	3068.83	6.92	-14.97	11.62	3.81	
3162.00	7.02	252.78	3161.37	4.03	-23.62	11.87	3.00	
3256.00	10.26	252.70	3254.29	-0.16	-37.11	12.55	3.45	
3350.00	13.39	252.42	3346.29	-5.94	-55.48	13.40	3.33	
3444.00	16.36	254.38	3437.13	-12.79	-78.61	14.88	3.20	
3537.00	17.48	252.15	3526.10	-20.60	-104.52	16.41	1.39	
3631.00	17.82	251.39	3615.68	-29.52	-131.59	17.29	0.44	
3725.00	16.86	249.77	3705.40	-38.82	-158.01	17.59	1.14	
3818.00	17.94	249.41	3794.15	-48.52	-184.08	17.39	1.17	

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Depth (ft)	Inc (deg)	Azimuth (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
3911.00	19.82	247.93	3882.14	-59.49	-212.10	16.68	2.09
4005.00	19.28	247.55	3970.72	-71.40	-241.21	15.45	0.59
4099.00	18.08	252.82	4059.77	-81.64	-269.49	15.51	2.20
4192.00	17.11	251.22	4148.42	-90.30	-296.23	16.51	1.17
4286.00	17.44	249.06	4238.18	-99.79	-322.48	16.58	0.77
4379.00	18.77	248.51	4326.58	-110.25	-349.42	15.97	1.44
4473.00	19.74	250.23	4415.32	-121.16	-378.43	15.65	1.20
4567.00	17.74	255.82	4504.34	-130.04	-407.26	17.17	2.86
4661.00	18.23	253.31	4593.74	-137.77	-435.23	19.47	0.98
4754.00	18.24	249.86	4682.08	-146.96	-462.83	20.28	1.16
4848.00	18.78	254.32	4771.22	-156.12	-491.21	21.39	1.61
4942.00	17.37	252.44	4860.58	-164.44	-519.15	23.13	1.62
5035.00	18.07	250.88	4949.17	-173.35	-546.02	23.95	0.91
5129.00	19.00	248.56	5038.29	-183.72	-574.03	23.80	1.26
5223.00	18.67	252.45	5127.26	-193.85	-602.62	24.06	1.38
5316.00	18.37	254.86	5215.44	-202.17	-630.96	25.94	0.88
5410.00	18.45	257.14	5304.64	-209.35	-659.76	29.05	0.77
5503.00	17.65	258.22	5393.06	-215.50	-687.91	32.90	0.93
5597.00	18.36	254.72	5482.46	-222.31	-716.14	36.16	1.38
5691.00	17.83	252.25	5571.81	-230.60	-744.13	37.95	0.99
5785.00	18.20	250.73	5661.20	-239.83	-771.70	38.71	0.64
5879.00	17.96	249.39	5750.56	-249.78	-799.12	38.75	0.51
5972.00	18.39	251.80	5838.92	-259.41	-826.48	39.06	0.93
6066.00	19.42	251.50	5927.85	-269.00	-855.38	39.94	1.10
6160.00	20.13	255.31	6016.31	-278.06	-885.85	41.85	1.57
6188.00	19.45	255.44	6042.66	-280.45	-895.02	42.74	2.43
6242.00	19.08	256.35	6093.63	-284.80	-912.30	44.57	0.88
6304.00	18.42	262.57	6152.35	-288.45	-931.86	47.83	3.39
6335.00	20.22	266.29	6181.60	-289.43	-942.07	50.40	7.03
6381.00	24.51	272.99	6224.14	-289.45	-959.54	56.36	10.83
6428.00	29.35	275.75	6266.03	-287.79	-980.75	65.18	10.63
6474.00	34.63	277.37	6305.03	-284.98	-1004.95	76.10	11.63
6522.00	37.24	280.11	6343.90	-280.68	-1032.78	89.66	6.39
6568.00	35.44	289.03	6380.97	-273.88	-1059.11	105.06	12.13
6616.00	34.51	298.84	6420.34	-262.78	-1084.19	124.08	11.86
6662.00	35.29	307.32	6458.09	-248.43	-1106.19	145.09	10.68
6710.00	36.11	313.63	6497.08	-230.25	-1127.46	169.45	7.86
6756.00	35.35	317.77	6534.43	-211.04	-1146.22	193.91	5.51
6803.00	35.99	320.71	6572.61	-190.29	-1164.10	219.54	3.89
6849.00	39.58	323.37	6608.96	-168.06	-1181.41	246.35	8.57
6897.00	43.95	326.60	6644.76	-141.86	-1199.72	277.22	10.15
6943.00	47.65	329.27	6676.83	-113.91	-1217.20	309.47	9.05
6991.00	50.95	330.57	6708.12	-82.43	-1235.43	345.29	7.17
7037.00	52.84	329.79	6736.51	-51.03	-1253.43	380.96	4.32
7085.00	54.30	329.41	6765.01	-17.72	-1272.97	418.94	3.11
7131.00	58.62	333.77	6790.43	16.00	-1291.17	456.85	12.27
7178.00	63.75	337.90	6813.08	53.57	-1307.98	497.90	13.35
7224.00	69.57	338.30	6831.30	92.74	-1323.73	540.10	12.68
7263.00	72.09	337.48	6844.11	126.86	-1337.59	576.91	6.76
7310.00	75.92	340.03	6857.06	168.96	-1353.95	622.06	9.67
7356.00	80.21	341.41	6866.57	211.44	-1368.80	667.05	9.78
7403.00	85.19	341.34	6872.54	255.60	-1383.69	713.64	10.60
7450.00	89.63	341.44	6874.66	300.09	-1398.67	760.57	9.45

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
7477.00	91.36	341.10	6874.43	325.65	-1407.33	787.56	6.53
7544.00	91.85	338.87	6872.55	388.58	-1430.26	854.53	3.41
7637.00	92.59	337.82	6868.95	474.95	-1464.55	947.42	1.38
7731.00	93.33	338.35	6864.10	562.04	-1499.58	1041.24	0.97
7824.00	93.21	339.65	6858.79	648.72	-1532.86	1134.08	1.40
7918.00	92.16	343.39	6854.39	737.76	-1562.61	1227.92	4.13
8012.00	91.60	343.87	6851.30	827.90	-1589.09	1321.68	0.78
8106.00	91.60	343.35	6848.68	918.04	-1615.61	1415.46	0.55
8200.00	91.85	342.19	6845.85	1007.78	-1643.44	1509.30	1.26
8293.00	91.60	340.82	6843.05	1095.93	-1672.92	1602.22	1.50
8387.00	91.54	339.04	6840.47	1184.19	-1705.17	1696.19	1.89
8480.00	91.54	339.17	6837.97	1271.04	-1738.32	1789.14	0.14
8574.00	91.36	340.42	6835.59	1359.23	-1770.78	1883.11	1.34
8667.00	91.60	339.11	6833.19	1446.46	-1802.93	1976.07	1.43
8761.00	91.54	339.14	6830.62	1534.25	-1836.42	2070.03	0.07
8855.00	91.60	340.13	6828.04	1622.34	-1869.12	2163.99	1.05
8948.00	91.91	340.55	6825.19	1709.88	-1900.39	2256.94	0.56
9042.00	91.79	343.26	6822.16	1799.18	-1929.57	2350.83	2.88
9135.00	91.79	344.44	6819.25	1888.46	-1955.42	2443.58	1.27
9229.00	91.91	342.95	6816.22	1978.63	-1981.80	2537.33	1.59
9323.00	91.42	341.34	6813.49	2068.06	-2010.61	2631.22	1.79
9416.00	91.60	338.85	6811.04	2155.47	-2042.26	2724.18	2.68
9510.00	91.42	337.29	6808.56	2242.64	-2077.35	2818.09	1.67
9604.00	91.54	335.80	6806.13	2328.84	-2114.75	2911.89	1.59
9697.00	91.60	335.87	6803.58	2413.66	-2152.81	3004.61	0.10
9791.00	91.36	336.04	6801.15	2499.47	-2191.10	3098.34	0.31
9885.00	91.29	338.60	6798.98	2586.17	-2227.33	3192.21	2.72
9978.00	91.29	340.34	6796.89	2673.24	-2259.93	3285.18	1.87
10072.00	91.23	340.15	6794.82	2761.69	-2291.70	3379.15	0.21
10166.00	91.42	341.95	6792.65	2850.56	-2322.21	3473.11	1.93
10259.00	91.23	341.48	6790.50	2938.84	-2351.38	3566.04	0.54
10353.00	91.23	340.17	6788.48	3027.61	-2382.25	3660.01	1.39
10447.00	91.30	338.84	6786.40	3115.63	-2415.15	3753.98	1.42
10540.00	91.48	339.74	6784.15	3202.60	-2448.03	3846.94	0.99
10634.00	91.23	340.55	6781.92	3290.98	-2479.95	3940.92	0.90
10727.00	91.17	340.54	6779.98	3378.65	-2510.92	4033.89	0.07
10821.00	91.36	338.89	6777.90	3466.80	-2543.50	4127.86	1.77
10914.00	90.56	337.58	6776.34	3553.16	-2577.98	4220.80	1.65
11008.00	90.80	338.62	6775.23	3640.36	-2613.03	4314.75	1.14
11102.00	90.37	343.01	6774.27	3729.12	-2643.91	4408.71	4.69
11195.00	90.74	340.89	6773.37	3817.53	-2672.73	4501.64	2.31
11289.00	91.48	340.58	6771.54	3906.25	-2703.74	4595.62	0.85
11378.00	92.77	339.46	6768.24	3989.83	-2734.12	4684.55	1.92
11471.00	91.05	340.55	6765.14	4077.17	-2765.90	4777.50	2.19
11565.00	90.49	340.64	6763.88	4165.83	-2797.13	4871.48	0.60
11658.00	90.06	340.87	6763.43	4253.63	-2827.79	4964.47	0.52
11752.00	90.99	342.86	6762.57	4342.95	-2857.04	5058.41	2.34
11846.00	89.88	341.40	6761.86	4432.41	-2885.88	5152.34	1.95
11939.00	90.86	342.41	6761.26	4520.80	-2914.77	5245.28	1.51
12033.00	89.20	339.81	6761.21	4609.73	-2945.20	5339.25	3.28
12127.00	89.03	339.46	6762.66	4697.84	-2977.90	5433.24	0.41
12220.00	88.83	339.36	6764.40	4784.89	-3010.60	5526.22	0.24
12314.00	89.82	338.39	6765.51	4872.56	-3044.48	5620.00	0.47

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
12408.00	90.62	339.58	6765.15	4960.31	-3078.19	5714.18	1.53
12502.00	90.80	338.91	6763.98	5048.20	-3111.50	5808.16	0.74
12548.00	90.68	338.79	6763.39	5091.10	-3128.09	5854.15	0.37

Vertical Section is 5919.38 ft along the target direction of 339.99 deg at a measured depth of 12613.25 ft.
Horizontal Displacement is 6039.50 ft along the well bore azimuth of 328.54 deg.
The total correction is -6.97 deg relative to Grid North.

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