



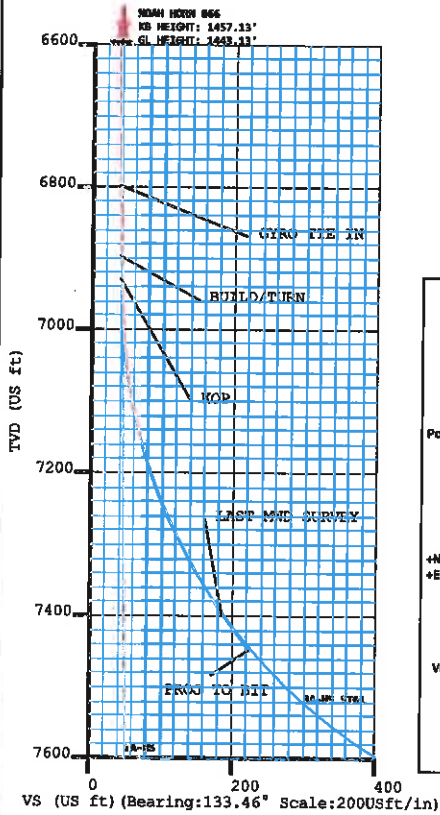
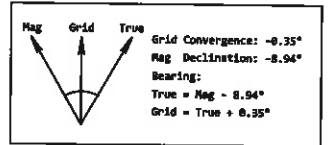
CONSOL ENERGY
 PHL-A-HS ST01 PLAN 1
 BARBOUR COUNTY, WV
 FINAL PVA



Plan Data for 3A-HS ST01

Plan Point Information:
 DogLeg Severity Unit: %/100.00ft Position offsets from Slot centre

MD (USft)	Inc (°)	Az (°)	TVD (USft)	+N/-S (USft)	+E/-W (USft)	VSec (USft)	DLS (DLSU)	Build (DLSU)	Turn (DLSU)
6800.00	1.41	100.50	6799.52	-16.02	38.24	38.77	0.24	0.22	3.99
6900.00	1.11	94.25	6899.50	-16.31	40.42	40.56	0.33	-0.30	-6.25
6931.23	1.70	272.20	6930.72	-16.32	40.25	40.44	9.00	1.89	569.87
8178.02	92.00	133.46	7713.02	-572.84	604.51	832.81	7.48	7.24	-11.13
16383.15	92.00	133.46	7426.67	-6212.99	6556.89	9032.94	0.00	0.00	0.00



Plan Data for 3A-HS ST01

Target Set Information:
 Name: PHL 3A-HS TARGETS

Position offsets from Slot centre

Name	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)	Lat (°/'/'")	Long (°/'/'")
3A-HS LP P1	7713.02	-572.84	604.51	253259.20	1843169.84	39°11'38.5"	-80°3'12.0"
3A-HS PBHL P1	7425.23	-6212.95	6556.85	247619.09	1849122.18	39°10'43.1"	-80°1'56.0"

Plan Data for 3A-HS ST01

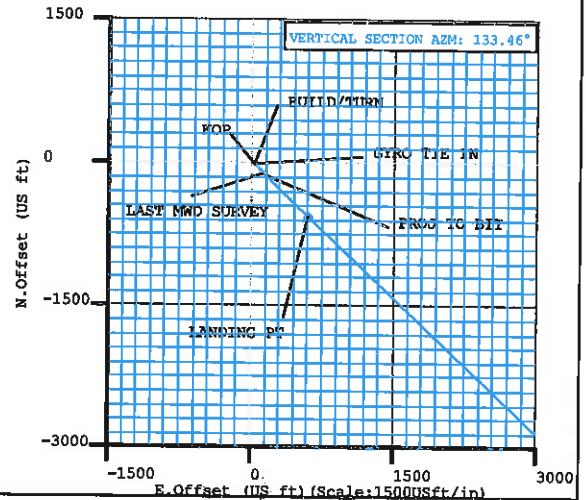
Field: CONSOL ENERGY BARBOUR COUNTY, WV, MAD 27 (WV NORTH)
 Map Unit: USFT Vertical Reference Datum (VRD):
 Projected Coordinate System: NAD27 / West Virginia North

Site: PHL PAD
 Unit: USFeet TVD Reference:
 Company Name:
 Position: Northing: 253820.23USft Latitude: 39°11'44.0"
 Easting: 1842549.33USft Longitude: -80°3'19.9"
 North Reference: Grid Grid Convergence: -0.35°
 Elevation Above VRD: 1443.13USft

Slot: 3A-HS
 Position:
 Offset is from Site centre
 +N/-S: 11.81USft Northing: 253832.04USft Latitude: 39°11'44.1"
 +E/-W: 16.00USft Easting: 1842565.33USft Longitude: -80°3'19.7"
 Elevation Above VRD: 1443.09USft

Well: 3A-HS ST01
 Type: Side-Track
 File Number:
 Vertical Section: Position offset of origin from Slot centre:
 +N/-S: 0.00USft Azimuth: 133.46°
 +E/-W: 0.00USft

Magnetic Parameters:
 Model: Field Strength: Declination: Dip: Date:
 BGM 52110(nT) -8.94° 66.68° 2014-08-15



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3A-HS ST01

Field: CONSOL ENERGY BARBOUR COUNTY, WV_NAD 27 (WV NORTH)

Map Units:	US ft								
Vertical Reference Datum (VRD):									
Projected Coordinate System:	NAD27 / West Virginia North								
Site: PHL PAD									
Company Name:									
Units:	US ft								
TVD Reference:									
Position:									
	<table border="1"> <tr> <td>Northing:</td> <td>253820.23US ft</td> <td>Latitude:</td> <td>39.19555</td> </tr> <tr> <td>Easting:</td> <td>1842549.33US ft</td> <td>Longitude:</td> <td>-80.055539</td> </tr> </table>	Northing:	253820.23US ft	Latitude:	39.19555	Easting:	1842549.33US ft	Longitude:	-80.055539
Northing:	253820.23US ft	Latitude:	39.19555						
Easting:	1842549.33US ft	Longitude:	-80.055539						
North Reference:	Grid								
Elevation above:	1443.13US ft								
Convergence Angle:	-0.35								
Comment:									

Slot: 3A-HS

Position (Relative to Site centre)

+N/-S: 11.81US ft	Northing:	253832.04US ft	Latitude:	39.195582
+E/-W: 16.00US ft	Easting:	1842565.33US ft	Longitude:	-80.055483
Elevation above:	1443.09US ft			
Comment:				

Well: 3A-HS ST01

Type:	Sidetrack	Rig Height (Drill Floor):	14.00US ft	Relative To:
File Number:				
Parent: 3A-HS	Tie Point Method: MD	Tie Point: 6800.00 US ft		
Plan Folder:	P1	Plan:	PLAN 1	
Closure Distance:	9032.94US ft	Closure Azimuth:	133.457°	
Comment:				

Vertical Section:

Position of Origin (Relative to Slot centre)	+N/-S: 0.00US ft	+E/-W: 0.00US ft
Vertical Section Azimuth:	133.46°	
Magnetic Parameters:		
Model: BGGM	Field Strength: 52110.0 nT	Declination: -8.94°
	Dip: 66.68°	Date: 15/Aug/2014 (dd/mm/yyyy)

Plan Archive:

Plan Folder	Date	Comment	Plans	Date	Comment
P1	15/Aug/2014		PLAN 1	15/Aug/2014	

Target Set: PHL 3A-HS TARGETS

Number of Targets: 2

Target: 3A-HS LP P1

Position: (Relative to Slot centre)

+N/-S: -572.84	Northing: 253259.20	Latitude: 39°11'38.471258"
+E/-W: 604.51	Easting: 1843169.84	Longitude: -80°3'12.016287"
TVD (Drill Floor):	7713.02 US ft	
Elevation:	-6255.93 US ft	
Shape: Cuboid		
Orientation	Inclination: 0.00°	Azimuth: 0.00°
Dimensions	Length: 20.00	Breadth: 20.00
	Height: 20.00	

Target: 3A-HS PBHL P1

Position: (Relative to Slot centre)

+N/-S: -6212.95	Northing: 247619.09	Latitude: 39°10'43.079636"
+E/-W: 6556.85	Easting: 1849122.18	Longitude: -80°1'55.988563"
TVD (Drill Floor):	7425.23 US ft	
Elevation:	-5968.14 US ft	
Shape: Cuboid		
Orientation	Inclination: 0.00°	Azimuth: 0.00°
Dimensions	Length: 20.00	Breadth: 20.00
	Height: 20.00	

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Casing Points: (Relative to Slot Centre, TVD Relative to Drill Floor)

Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	Elevation (US ft)	N. Offset (US ft)	E. Offset (US ft)
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Wellpath created using minimum curvature

Salient Points: (Relative to Slot Centre, TVD Relative to Drill Floor)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	D1S (°/100 US ft)	B. Rate (°/100 US ft)	T. Rate (°/100 US ft)	CL (US ft)	VS (US ft)	Comment
0	0	0	0	0	0	0	0	0	0	0	
14	0	0	14	0	0	0	0	0	14	0	
100	0.25	40.92	100	0.14	0.12	0.29	0.29	0	86	-0.01	
200	0.09	53.59	200	0.35	0.33	0.16	-0.16	12.67	100	0	
300	0.35	82.03	300	0.44	0.69	0.27	0.26	28.44	100	0.2	
400	0.53	90.83	400	0.48	1.46	0.19	0.18	8.8	100	0.73	
500	0.66	101.65	499.99	0.35	2.49	0.17	0.13	10.82	100	1.56	
600	0.63	102.17	599.98	0.12	3.59	0.03	-0.03	0.52	100	2.52	
700	0.67	102.73	699.98	-0.12	4.7	0.04	0.04	0.56	100	3.49	
800	0.65	104.01	799.97	-0.39	5.82	0.02	-0.02	1.28	100	4.49	
900	0.68	104.09	899.96	-0.67	6.94	0.03	0.03	0.08	100	5.5	

1000	0.57	105.09	999.96	-0.94	8	0.11	-0.11	1	100	6.45
1100	0.74	97.87	1099.95	-1.16	9.12	0.19	0.17	-7.22	100	7.42
1200	0.88	93.3	1199.94	-1.29	10.52	0.15	0.14	-4.57	100	8.53
1300	0.82	94.15	1299.99	-1.39	12	0.06	-0.06	0.85	100	9.67
1400	0.8	90.64	1399.92	-1.45	13.42	0.05	-0.02	-3.51	100	10.74
1500	0.62	94.88	1499.91	-1.5	14.65	0.19	-0.18	4.24	100	11.67
1600	0.78	99.24	1599.91	-1.66	15.86	0.17	0.16	4.96	100	12.66
1700	0.61	94.77	1699.9	-1.81	17.07	0.18	-0.17	-4.47	100	13.63
1800	0.84	99.45	1799.89	-1.98	18.32	0.24	0.23	4.68	100	14.66
1900	0.84	94.92	1899.88	-2.16	19.77	0.07	0	-4.53	100	15.84
2000	0.85	104.88	1999.87	-2.41	21.22	0.15	0.01	9.96	100	17.06
2100	0.89	110.91	2099.86	-2.88	22.66	0.1	0.04	6.03	100	18.43
2200	0.64	117.85	2199.85	-3.42	23.88	0.27	-0.25	6.94	100	19.69
2300	0.54	111.4	2299.84	-3.85	24.81	0.12	-0.1	-6.45	100	20.66
2400	0.38	100.15	2399.84	-4.08	25.58	0.18	-0.16	-11.25	100	21.38
2500	0.46	97.65	2499.84	-4.19	26.3	0.08	0.08	-2.5	100	21.98
2600	0.5	105.59	2599.83	-4.37	27.12	0.08	0.04	7.88	100	22.69
2700	0.31	133.13	2699.83	-4.67	27.74	0.77	-0.19	27.6	100	23.35
2800	0.39	169.26	2799.83	-5.19	28	0.23	0.08	36.13	100	23.85
2900	0.42	146.57	2899.83	-5.83	28.27	0.16	0.03	-22.69	100	24.52
3000	0.36	146.13	2999.82	-6.39	28.64	0.06	-0.06	-9.44	100	25.19
3100	0.21	135.58	3099.82	-6.78	28.95	0.16	-0.15	-10.55	100	25.68
3200	0.16	137.87	3199.82	-7.02	29.17	0.05	-0.05	2.29	100	26
3300	0.18	132.35	3299.82	-7.23	29.38	0.03	0.02	-5.52	100	26.3
3400	0.49	139.5	3399.82	-7.66	29.77	0.31	0.31	7.15	100	26.88
3500	0.34	149.21	3499.82	-8.24	30.2	0.17	-0.15	9.71	100	27.59
3600	0.67	128.86	3599.81	-8.86	30.81	0.37	0.33	-20.35	100	28.46
3700	0.75	127.46	3699.81	-9.63	31.78	0.08	0.08	-1.4	100	29.69
3800	0.85	128.66	3799.8	-10.49	32.88	0.1	0.1	1.2	100	31.08
3900	0.83	130.82	3899.79	-11.42	34.01	0.04	-0.02	2.16	100	32.54
4000	0.78	123.67	3999.78	-12.28	35.17	0.11	-0.05	-7.15	100	33.94
4100	0.61	146.26	4099.77	-13.1	35.99	0.32	-0.17	22.59	100	35.13
4200	0.7	136.53	4199.76	-13.98	36.7	0.14	0.09	-9.73	100	36.26
4300	0.53	149.92	4299.76	-14.82	37.35	0.22	-0.17	13.99	100	37.31
4400	0.56	152.57	4399.75	-15.66	37.81	0.04	0.03	2.65	100	38.22
4500	0.32	160.13	4499.75	-16.36	38.13	0.25	-0.24	7.56	100	38.93
4600	0.38	162.97	4599.75	-16.93	38.32	0.06	0.06	2.84	100	39.47
4700	0.48	159.87	4699.74	-17.65	38.56	0.1	0.1	-3.1	100	40.13
4800	0.39	180.89	4799.74	-18.38	38.7	0.18	-0.09	21.02	100	40.74
4900	0.22	219.98	4899.74	-18.87	38.57	0.26	-0.17	39.09	100	40.98
5000	0.72	248.1	4999.74	-19.25	37.87	0.54	0.5	28.12	100	40.73
5100	1.18	267.84	5099.72	-19.52	36.26	0.56	0.46	19.74	100	39.74
5200	0.9	257.92	5199.71	-19.72	34.46	0.33	-0.28	-9.92	100	38.58
5300	1.17	254.01	5299.69	-20.17	32.71	0.28	0.27	-9.91	100	37.62
5400	1	258.11	5399.67	-20.63	30.88	0.19	-0.17	4.1	100	36.6
5500	0.84	278	5499.66	-20.71	29.3	0.35	-0.16	19.89	100	35.51
5600	0.63	298.86	5599.65	-20.34	28.09	0.34	-0.21	20.86	100	34.38
5700	0.65	296.52	5699.64	-19.82	27.1	0.03	0.02	-2.34	100	33.3
5800	0.44	300.27	5799.64	-19.38	26.26	0.21	-0.21	3.75	100	32.39
5900	0.54	356.2	5899.64	-18.71	25.9	0.47	0.1	55.93	100	31.67
6000	0.45	32.2	5999.63	-17.91	26.07	0.32	-0.09	96	100	31.25
6100	0.61	58.27	6099.63	-17.3	26.74	0.29	0.16	26.07	100	31.3
6200	0.52	42.29	6199.62	-16.68	27.49	0.12	-0.09	-15.98	100	31.43
6300	0.93	70.04	6299.62	-16.07	28.56	0.53	0.41	27.75	100	31.79
6400	1.01	95.62	6399.6	-15.88	30.2	0.44	0.08	25.58	100	32.84
6500	1.24	85.24	6499.58	-15.87	32.16	0.31	0.23	-10.38	100	34.26
6600	1	82.5	6599.56	-15.67	34.1	0.25	-0.24	-2.74	100	35.53
6700	1.19	96.51	6699.55	-15.67	36	0.33	0.19	14.01	100	36.91
6800	1.41	100.5	6799.52	-16.02	38.24	0.24	0.22	3.99	100	38.77
6900	1.11	94.25	6899.5	-16.31	40.42	0.33	-0.3	-6.25	100	40.56
6931.23	1.7	272.2	6930.72	-16.32	40.25	9	1.89	569.87	31.23	40.44
8178.02	92	133.46	7713.02	-572.84	604.51	7.48	7.24	-11.13	1246.79	40.44
16383.15	92	133.46	7426.67	-6212.99	6556.89	0	0	0	25.25	40.44

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Interpolated Points: (Relative to Slot Centre, TVD Relative to Drill Floor)

MD (US ft)	Inc (")	Az (")	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (/100 US ft)	B.Rate (/100 US ft)	T.Rate (/100 US ft)	VS (US ft)	Comment
6800	1.41	100.5	6799.52	-16.02	38.24	0	0	0	38.77	GYRO TIE IN
6830	1.32	98.92	6829.51	-16.14	38.94	0.33	-0.3	-5.25	39.37	
6860	1.23	97.12	6859.5	-16.23	39.6	0.33	-0.3	-6.03	39.91	
6890	1.14	95.02	6889.5	-16.3	40.22	0.33	-0.3	-6.98	40.4	
6900	1.11	94.25	6899.5	-16.31	40.42	0.33	-0.29	-7.72	40.56	BUILD/TURN
6920	0.69	271.02	6919.49	-16.32	40.49	9	-2.1	883.86	40.62	
6931.23	1.7	272.2	6930.72	-16.32	40.25	9	9	10.53	40.44	KOP
6950	1.13	217.06	6949.49	-16.45	39.86	7.48	-3.04	-293.74	40.25	
6980	2.62	158.82	6979.47	-17.33	39.93	7.48	4.98	-194.14	40.91	
7010	4.75	147.14	7009.41	-19.01	40.86	7.48	7.09	-38.94	42.73	
7040	6.95	142.75	7039.25	-21.5	42.63	7.48	7.34	-14.64	45.73	
7070	9.17	140.47	7068.95	-24.79	45.25	7.48	7.41	-7.6	49.9	
7100	11.4	139.07	7098.47	-28.88	48.72	7.48	7.44	-4.65	55.22	
7130	13.64	138.13	7127.75	-33.75	53.02	7.48	7.45	-3.14	61.7	
7160	15.88	137.45	7156.76	-39.41	58.16	7.48	7.46	-2.27	69.32	
7190	18.12	136.93	7185.45	-45.84	64.12	7.48	7.46	-1.72	78.07	
7220	20.36	136.52	7213.77	-53.04	70.89	7.48	7.47	-1.35	87.94	
7250	22.6	136.19	7241.69	-60.98	78.47	7.48	7.47	-1.1	98.91	
7280	24.84	135.92	7269.15	-69.67	86.85	7.48	7.47	-0.91	110.96	
7310	27.08	135.69	7296.12	-79.08	96	7.48	7.47	-0.77	124.08	
7340	29.32	135.5	7322.56	-89.21	105.92	7.48	7.48	-0.66	138.25	
7370	31.57	135.32	7348.42	-100.04	116.6	7.48	7.48	-0.57	153.44	
7400	33.81	135.17	7373.67	-111.54	128	7.48	7.48	-0.5	169.63	
7430	36.05	135.04	7398.26	-123.71	140.13	7.48	7.48	-0.45	186.8	
7460	38.3	134.92	7422.17	-136.52	152.95	7.48	7.48	-0.4	204.92	
7490	40.54	134.81	7445.34	-149.96	166.45	7.48	7.48	-0.36	223.97	
7520	42.78	134.71	7467.75	-164	180.61	7.48	7.48	-0.33	243.9	
7550	45.03	134.62	7489.37	-178.62	195.4	7.48	7.48	-0.3	264.7	
7580	47.27	134.53	7510.15	-193.8	210.81	7.48	7.48	-0.28	286.32	
7610	49.51	134.45	7530.07	-209.52	226.81	7.48	7.48	-0.26	308.75	
7640	51.76	134.38	7549.09	-225.75	243.38	7.48	7.48	-0.25	331.94	

7670	54	134.31	7567.2	-242.47	260.48	7.48	7.48	-0.23	355.86
7700	56.24	134.25	7584.35	-259.66	278.1	7.48	7.48	-0.22	380.47
7730	58.49	134.18	7600.53	-277.27	296.21	7.48	7.48	-0.21	405.73
7760	60.79	134.13	7615.7	-295.3	314.77	7.48	7.48	-0.2	431.6
7790	62.98	134.07	7629.85	-313.7	333.77	7.48	7.48	-0.19	458.05
7820	65.22	134.01	7642.96	-332.46	353.17	7.48	7.48	-0.18	485.03
7850	67.46	133.96	7655	-351.55	372.94	7.48	7.48	-0.17	512.51
7880	69.71	133.91	7665.95	-370.92	393.05	7.48	7.48	-0.17	540.46
7910	71.95	133.86	7675.8	-390.57	413.47	7.48	7.48	-0.16	568.77
7940	74.2	133.81	7684.53	-410.44	434.17	7.48	7.48	-0.16	597.47
7970	76.44	133.77	7692.13	-430.53	455.12	7.48	7.48	-0.16	626.49
8000	78.68	133.72	7698.6	-450.78	476.28	7.48	7.48	-0.15	655.78
8030	80.93	133.68	7703.9	-471.18	497.63	7.48	7.48	-0.15	685.3
8060	83.17	133.63	7708.05	-491.69	519.12	7.48	7.48	-0.15	715.01
8090	85.42	133.59	7711.04	-512.27	540.74	7.48	7.48	-0.15	744.86
8120	87.66	133.54	7712.85	-532.91	562.43	7.46	7.48	-0.15	774.81
8150	89.9	133.5	7713.49	-553.56	584.18	7.48	7.48	-0.15	804.8
8178.02	92	133.46	7713.02	-572.84	604.51	7.48	7.48	-0.15	832.81
8180	92	133.46	7712.95	-574.2	605.94	0	0	0	834.79
8210	92	133.46	7711.9	-594.82	627.71	0	0	0	864.77
8240	92	133.46	7710.86	-615.44	649.47	0	0	0	894.75
8270	92	133.46	7709.81	-636.07	671.24	0	0	0	924.74
8300	92	133.46	7708.76	-656.69	693	0	0	0	954.72
8330	92	133.46	7707.72	-677.31	714.76	0	0	0	984.7
8360	92	133.46	7706.67	-697.93	736.53	0	0	0	1014.68
8390	92	133.46	7705.62	-718.55	758.29	0	0	0	1044.66
8420	92	133.46	7704.58	-739.17	780.05	0	0	0	1074.64
8450	92	133.46	7703.53	-759.8	801.82	0	0	0	1104.63
8480	92	133.46	7702.48	-780.42	823.58	0	0	0	1134.61
8510	92	133.46	7701.43	-801.04	845.34	0	0	0	1164.59
8540	92	133.46	7700.39	-821.66	867.11	0	0	0	1194.57
8570	92	133.46	7699.34	-842.28	888.87	0	0	0	1224.55
8600	92	133.46	7698.29	-862.9	910.63	0	0	0	1254.53
8630	92	133.46	7697.25	-883.53	932.4	0	0	0	1284.52
8660	92	133.46	7696.2	-904.15	954.16	0	0	0	1314.5
8690	92	133.46	7695.15	-924.77	975.92	0	0	0	1344.48
8720	92	133.46	7694.11	-945.39	997.69	0	0	0	1374.46
8750	92	133.46	7693.06	-966.01	1019.45	0	0	0	1404.44
8780	92	133.46	7692.01	-986.64	1041.21	0	0	0	1434.42
8810	92	133.46	7690.96	-1007.26	1062.98	0	0	0	1464.41
8840	92	133.46	7689.92	-1027.88	1084.74	0	0	0	1494.39
8870	92	133.46	7688.87	-1048.5	1106.5	0	0	0	1524.37
8900	92	133.46	7687.82	-1069.12	1128.27	0	0	0	1554.35
8930	92	133.46	7686.78	-1089.74	1150.03	0	0	0	1584.33
8960	92	133.46	7685.73	-1110.37	1171.79	0	0	0	1614.32
8990	92	133.46	7684.68	-1130.99	1193.56	0	0	0	1644.3
9020	92	133.46	7683.64	-1151.61	1215.32	0	0	0	1674.28
9050	92	133.46	7682.59	-1172.23	1237.08	0	0	0	1704.26
9080	92	133.46	7681.54	-1192.85	1258.85	0	0	0	1734.24
9110	92	133.46	7680.49	-1213.48	1280.61	0	0	0	1764.22
9140	92	133.46	7679.45	-1234.1	1302.37	0	0	0	1794.21
9170	92	133.46	7678.4	-1254.72	1324.14	0	0	0	1824.19
9200	92	133.46	7677.35	-1275.34	1345.9	0	0	0	1854.17
9230	92	133.46	7676.31	-1295.96	1367.66	0	0	0	1884.15
9260	92	133.46	7675.26	-1316.58	1389.43	0	0	0	1914.13
9290	92	133.46	7674.21	-1337.21	1411.19	0	0	0	1944.11
9320	92	133.46	7673.17	-1357.83	1432.95	0	0	0	1974.1
9350	92	133.46	7672.12	-1378.45	1454.72	0	0	0	2004.08
9380	92	133.46	7671.07	-1399.07	1476.48	0	0	0	2034.06
9410	92	133.46	7670.02	-1419.69	1498.24	0	0	0	2064.04
9440	92	133.46	7668.98	-1440.32	1520.01	0	0	0	2094.02
9470	92	133.46	7667.93	-1460.94	1541.77	0	0	0	2124
9500	92	133.46	7666.88	-1481.56	1563.53	0	0	0	2153.99
9530	92	133.46	7665.84	-1502.18	1585.3	0	0	0	2183.97
9560	92	133.46	7664.79	-1522.8	1607.06	0	0	0	2213.95
9590	92	133.46	7663.74	-1543.42	1628.82	0	0	0	2243.93
9620	92	133.46	7662.7	-1564.05	1650.59	0	0	0	2273.91
9650	92	133.46	7661.65	-1584.67	1672.35	0	0	0	2303.89
9680	92	133.46	7660.6	-1605.29	1694.11	0	0	0	2333.88
9710	92	133.46	7659.55	-1625.91	1715.88	0	0	0	2363.86
9740	92	133.46	7658.51	-1646.53	1737.64	0	0	0	2393.82
9770	92	133.46	7657.46	-1667.15	1759.4	0	0	0	2423.8
9800	92	133.46	7656.41	-1687.78	1781.17	0	0	0	2453.8
9830	92	133.46	7655.37	-1708.4	1802.93	0	0	0	2483.79
9860	92	133.46	7654.32	-1729.02	1824.7	0	0	0	2513.77
9890	92	133.46	7653.27	-1749.64	1846.46	0	0	0	2543.75
9920	92	133.46	7652.23	-1770.26	1868.22	0	0	0	2573.73
9950	92	133.46	7651.18	-1790.89	1889.99	0	0	0	2603.71
9980	92	133.46	7650.13	-1811.51	1911.75	0	0	0	2633.69
10010	92	133.46	7649.08	-1832.13	1933.51	0	0	0	2663.68
10040	92	133.46	7648.04	-1852.75	1955.28	0	0	0	2693.66
10070	92	133.46	7646.99	-1873.37	1977.04	0	0	0	2723.64
10100	92	133.46	7645.94	-1893.99	1998.8	0	0	0	2753.62
10130	92	133.46	7644.9	-1914.62	2020.57	0	0	0	2783.6
10160	92	133.46	7643.85	-1935.24	2042.33	0	0	0	2813.58
10190	92	133.46	7642.8	-1955.86	2064.09	0	0	0	2843.57
10220	92	133.46	7641.76	-1976.48	2085.86	0	0	0	2873.55
10250	92	133.46	7640.71	-1997.1	2107.62	0	0	0	2903.53
10280	92	133.46	7639.66	-2017.73	2129.38	0	0	0	2933.51
10310	92	133.46	7638.62	-2038.35	2151.15	0	0	0	2963.49
10340	92	133.46	7637.57	-2058.97	2172.91	0	0	0	2993.47
10370	92	133.46	7636.52	-2079.59	2194.67	0	0	0	3023.46
10400	92	133.46	7635.47	-2100.21	2216.44	0	0	0	3053.44
10430	92	133.46	7634.42	-2120.83	2238.2	0	0	0	3083.42
10460	92	133.46	7633.38	-2141.46	2259.96	0	0	0	3113.4
10490	92	133.46	7632.33	-2162.08	2281.73	0	0	0	3143.38
10520	92	133.46	7631.29	-2182.7	2303.49	0	0	0	3173.36
10550	92	133.46	7630.24	-2203.32	2325.25	0	0	0	3203.35

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10580	92	133.46	7629.19	-2223.94	2347.02	0	0	0	3233.33
10610	92	133.46	7628.15	-2244.57	2368.78	0	0	0	3263.31
10640	92	133.46	7627.1	-2265.19	2390.54	0	0	0	3293.29
10670	92	133.46	7626.05	-2285.81	2412.31	0	0	0	3323.27
10700	92	133.46	7625	-2306.43	2434.07	0	0	0	3353.26
10730	92	133.46	7623.96	-2327.05	2455.83	0	0	0	3383.24
10760	92	133.46	7622.91	-2347.67	2477.6	0	0	0	3413.22
10790	92	133.46	7621.86	-2368.3	2499.36	0	0	0	3443.2
10820	92	133.46	7620.82	-2388.92	2521.12	0	0	0	3473.18
10850	92	133.46	7619.77	-2409.54	2542.89	0	0	0	3503.16
10880	92	133.46	7618.72	-2430.16	2564.65	0	0	0	3533.15
10910	92	133.46	7617.68	-2450.78	2586.41	0	0	0	3563.13
10940	92	133.46	7616.63	-2471.4	2608.18	0	0	0	3593.11
10970	92	133.46	7615.58	-2492.03	2629.94	0	0	0	3623.09
11000	92	133.46	7614.53	-2512.65	2651.7	0	0	0	3653.07
11030	92	133.46	7613.49	-2533.27	2673.47	0	0	0	3683.05
11060	92	133.46	7612.44	-2553.89	2695.23	0	0	0	3713.04
11090	92	133.46	7611.39	-2574.51	2716.99	0	0	0	3743.02
11120	92	133.46	7610.35	-2595.14	2738.76	0	0	0	3773
11150	92	133.46	7609.3	-2615.76	2760.52	0	0	0	3802.98
11180	92	133.46	7608.25	-2636.38	2782.28	0	0	0	3832.96
11210	92	133.46	7607.21	-2657	2804.05	0	0	0	3862.94
11240	92	133.46	7606.16	-2677.62	2825.81	0	0	0	3892.95
11270	92	133.46	7605.11	-2698.24	2847.57	0	0	0	3922.91
11300	92	133.46	7604.06	-2718.87	2869.34	0	0	0	3952.89
11330	92	133.46	7603.02	-2739.49	2891.1	0	0	0	3982.87
11360	92	133.46	7601.97	-2760.11	2912.86	0	0	0	4012.85
11390	92	133.46	7600.92	-2780.73	2934.63	0	0	0	4042.83
11420	92	133.46	7599.88	-2801.35	2956.39	0	0	0	4072.82
11450	92	133.46	7598.83	-2821.98	2978.15	0	0	0	4102.8
11480	92	133.46	7597.78	-2842.6	2999.92	0	0	0	4132.78
11510	92	133.46	7596.74	-2863.22	3021.68	0	0	0	4162.76
11540	92	133.46	7595.69	-2883.84	3043.45	0	0	0	4192.74
11570	92	133.46	7594.64	-2904.46	3065.21	0	0	0	4222.73
11600	92	133.46	7593.59	-2925.08	3086.97	0	0	0	4252.71
11630	92	133.46	7592.55	-2945.71	3108.74	0	0	0	4282.69
11660	92	133.46	7591.5	-2966.33	3130.5	0	0	0	4312.67
11690	92	133.46	7590.45	-2986.95	3152.26	0	0	0	4342.65
11720	92	133.46	7589.41	-3007.57	3174.03	0	0	0	4372.63
11750	92	133.46	7588.36	-3028.19	3195.79	0	0	0	4402.62
11780	92	133.46	7587.31	-3048.82	3217.55	0	0	0	4432.6
11810	92	133.46	7586.27	-3069.44	3239.32	0	0	0	4462.58
11840	92	133.46	7585.22	-3090.06	3261.08	0	0	0	4492.56
11870	92	133.46	7584.17	-3110.68	3282.84	0	0	0	4522.54
11900	92	133.46	7583.12	-3131.3	3304.61	0	0	0	4552.52
11930	92	133.46	7582.08	-3151.92	3326.37	0	0	0	4582.51
11960	92	133.46	7581.03	-3172.55	3348.13	0	0	0	4612.49
11990	92	133.46	7579.98	-3193.17	3369.9	0	0	0	4642.47
12020	92	133.46	7578.94	-3213.79	3391.66	0	0	0	4672.45
12050	92	133.46	7577.89	-3234.41	3413.42	0	0	0	4702.43
12080	92	133.46	7576.84	-3255.03	3435.19	0	0	0	4732.41
12110	92	133.46	7575.8	-3275.66	3456.95	0	0	0	4762.4
12140	92	133.46	7574.75	-3296.28	3478.71	0	0	0	4792.38
12170	92	133.46	7573.7	-3316.9	3500.48	0	0	0	4822.36
12200	92	133.46	7572.65	-3337.52	3522.24	0	0	0	4852.34
12230	92	133.46	7571.61	-3358.14	3544	0	0	0	4882.32
12260	92	133.46	7570.56	-3378.76	3565.77	0	0	0	4912.3
12290	92	133.46	7569.51	-3399.39	3587.53	0	0	0	4942.29
12320	92	133.46	7568.47	-3420.01	3609.29	0	0	0	4972.27
12350	92	133.46	7567.42	-3440.63	3631.06	0	0	0	5002.25
12380	92	133.46	7566.37	-3461.25	3652.82	0	0	0	5032.23
12410	92	133.46	7565.33	-3481.87	3674.58	0	0	0	5062.21
12440	92	133.46	7564.28	-3502.49	3696.35	0	0	0	5092.2
12470	92	133.46	7563.23	-3523.12	3718.11	0	0	0	5122.18
12500	92	133.46	7562.19	-3543.74	3739.87	0	0	0	5152.16
12530	92	133.46	7561.14	-3564.36	3761.64	0	0	0	5182.14
12560	92	133.46	7560.09	-3584.98	3783.4	0	0	0	5212.12
12590	92	133.46	7559.04	-3605.6	3805.16	0	0	0	5242.1
12620	92	133.46	7558	-3626.23	3826.93	0	0	0	5272.09
12650	92	133.46	7556.95	-3646.85	3848.69	0	0	0	5302.07
12680	92	133.46	7555.9	-3667.47	3870.45	0	0	0	5332.05
12710	92	133.46	7554.86	-3688.09	3892.22	0	0	0	5362.03
12740	92	133.46	7553.81	-3708.71	3913.98	0	0	0	5392.01
12770	92	133.46	7552.76	-3729.33	3935.74	0	0	0	5421.99
12800	92	133.46	7551.72	-3749.96	3957.51	0	0	0	5451.97
12830	92	133.46	7550.67	-3770.58	3979.27	0	0	0	5481.96
12860	92	133.46	7549.62	-3791.2	4001.03	0	0	0	5511.94
12890	92	133.46	7548.57	-3811.82	4022.8	0	0	0	5541.92
12920	92	133.46	7547.53	-3832.44	4044.56	0	0	0	5571.9
12950	92	133.46	7546.48	-3853.07	4066.32	0	0	0	5601.88
12980	92	133.46	7545.43	-3873.69	4088.09	0	0	0	5631.87
13010	92	133.46	7544.39	-3894.31	4109.85	0	0	0	5661.85
13040	92	133.46	7543.34	-3914.93	4131.61	0	0	0	5691.83
13070	92	133.46	7542.29	-3935.55	4153.38	0	0	0	5721.81
13100	92	133.46	7541.25	-3956.17	4175.14	0	0	0	5751.79
13130	92	133.46	7540.2	-3976.8	4196.91	0	0	0	5781.77
13160	92	133.46	7539.15	-3997.42	4218.67	0	0	0	5811.76
13190	92	133.46	7538.1	-4018.04	4240.43	0	0	0	5841.74
13220	92	133.46	7537.06	-4038.66	4262.2	0	0	0	5871.72
13250	92	133.46	7536.01	-4059.28	4283.96	0	0	0	5901.7
13280	92	133.46	7534.96	-4079.91	4305.72	0	0	0	5931.68
13310	92	133.46	7533.92	-4100.53	4327.49	0	0	0	5961.67
13340	92	133.46	7532.87	-4121.15	4349.25	0	0	0	5991.65
13370	92	133.46	7531.82	-4141.77	4371.01	0	0	0	6021.63
13400	92	133.46	7530.78	-4162.39	4392.78	0	0	0	6051.61
13430	92	133.46	7529.73	-4183.01	4414.54	0	0	0	6081.59
13460	92	133.46	7528.68	-4203.64	4436.3	0	0	0	6111.57
13490	92	133.46	7527.63	-4224.26	4458.07	0	0	0	6141.56

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13520	92	133.46	7526.59	-4244.88	4479.83	0	0	0	6171.54
13550	92	133.46	7525.54	-4265.5	4501.59	0	0	0	6201.52
13580	92	133.46	7524.49	-4286.12	4523.36	0	0	0	6231.5
13610	92	133.46	7523.45	-4306.74	4545.12	0	0	0	6261.48
13640	92	133.46	7522.4	-4327.37	4566.88	0	0	0	6291.46
13670	92	133.46	7521.35	-4347.95	4588.65	0	0	0	6321.45
13700	92	133.46	7520.31	-4368.61	4610.41	0	0	0	6351.43
13730	92	133.46	7519.26	-4389.23	4632.17	0	0	0	6381.41
13760	92	133.46	7518.21	-4409.85	4653.94	0	0	0	6411.39
13790	92	133.46	7517.16	-4430.48	4675.7	0	0	0	6441.37
13820	92	133.46	7516.12	-4451.1	4697.46	0	0	0	6471.35
13850	92	133.46	7515.07	-4471.72	4719.23	0	0	0	6501.34
13880	92	133.46	7514.02	-4492.34	4740.99	0	0	0	6531.32
13910	92	133.46	7512.96	-4512.96	4762.75	0	0	0	6561.3
13940	92	133.46	7511.93	-4533.58	4784.52	0	0	0	6591.28
13970	92	133.46	7510.88	-4554.21	4806.28	0	0	0	6621.26
14000	92	133.46	7509.84	-4574.83	4828.04	0	0	0	6651.24
14030	92	133.46	7508.79	-4595.45	4849.81	0	0	0	6681.23
14060	92	133.46	7507.74	-4616.07	4871.57	0	0	0	6711.21
14090	92	133.46	7506.69	-4636.69	4893.33	0	0	0	6741.19
14120	92	133.46	7505.65	-4657.32	4915.1	0	0	0	6771.17
14150	92	133.46	7504.6	-4677.94	4936.86	0	0	0	6801.15
14180	92	133.46	7503.55	-4698.56	4958.62	0	0	0	6831.14
14210	92	133.46	7502.51	-4719.18	4980.39	0	0	0	6861.12
14240	92	133.46	7501.46	-4739.8	5002.15	0	0	0	6891.1
14270	92	133.46	7500.41	-4760.42	5023.91	0	0	0	6921.08
14300	92	133.46	7499.37	-4781.05	5045.68	0	0	0	6951.06
14330	92	133.46	7498.32	-4801.67	5067.44	0	0	0	6981.04
14360	92	133.46	7497.27	-4822.29	5089.2	0	0	0	7011.03
14390	92	133.46	7496.23	-4842.91	5110.97	0	0	0	7041.01
14420	92	133.46	7495.18	-4863.53	5132.73	0	0	0	7070.99
14450	92	133.46	7494.13	-4884.16	5154.49	0	0	0	7100.97
14480	92	133.46	7493.08	-4904.78	5176.26	0	0	0	7130.95
14510	92	133.46	7492.04	-4925.4	5198.02	0	0	0	7160.93
14540	92	133.46	7490.99	-4946.02	5219.78	0	0	0	7190.92
14570	92	133.46	7489.94	-4966.64	5241.55	0	0	0	7220.9
14600	92	133.46	7488.9	-4987.26	5263.31	0	0	0	7250.88
14630	92	133.46	7487.85	-5007.89	5285.07	0	0	0	7280.86
14660	92	133.46	7486.8	-5028.51	5306.84	0	0	0	7310.84
14690	92	133.46	7485.76	-5049.13	5328.6	0	0	0	7340.82
14720	92	133.46	7484.71	-5069.75	5350.37	0	0	0	7370.81
14750	92	133.46	7483.66	-5090.37	5372.13	0	0	0	7400.79
14780	92	133.46	7482.61	-5110.99	5393.89	0	0	0	7430.77
14810	92	133.46	7481.57	-5131.62	5415.66	0	0	0	7460.75
14840	92	133.46	7480.52	-5152.24	5437.42	0	0	0	7490.73
14870	92	133.46	7479.47	-5172.86	5459.18	0	0	0	7520.71
14900	92	133.46	7478.43	-5193.48	5480.95	0	0	0	7550.7
14930	92	133.46	7477.38	-5214.1	5502.71	0	0	0	7580.68
14960	92	133.46	7476.33	-5234.73	5524.47	0	0	0	7610.66
14990	92	133.46	7475.29	-5255.35	5546.24	0	0	0	7640.64
15020	92	133.46	7474.24	-5275.97	5568	0	0	0	7670.62
15050	92	133.46	7473.19	-5296.59	5589.76	0	0	0	7700.61
15080	92	133.46	7472.14	-5317.21	5611.53	0	0	0	7730.59
15110	92	133.46	7471.1	-5337.83	5633.29	0	0	0	7760.57
15140	92	133.46	7470.05	-5358.46	5655.05	0	0	0	7790.55
15170	92	133.46	7469	-5379.08	5676.82	0	0	0	7820.53
15200	92	133.46	7467.96	-5399.7	5698.58	0	0	0	7850.51
15230	92	133.46	7466.91	-5420.32	5720.34	0	0	0	7880.5
15260	92	133.46	7465.86	-5440.94	5742.11	0	0	0	7910.48
15290	92	133.46	7464.82	-5461.57	5763.87	0	0	0	7940.46
15320	92	133.46	7463.77	-5482.19	5785.63	0	0	0	7970.44
15350	92	133.46	7462.72	-5502.81	5807.4	0	0	0	8000.42
15380	92	133.46	7461.67	-5523.43	5829.16	0	0	0	8030.4
15410	92	133.46	7460.63	-5544.05	5850.92	0	0	0	8060.39
15440	92	133.46	7459.58	-5564.67	5872.69	0	0	0	8090.37
15470	92	133.46	7458.53	-5585.3	5894.45	0	0	0	8120.35
15500	92	133.46	7457.49	-5605.92	5916.21	0	0	0	8150.33
15530	92	133.46	7456.44	-5626.54	5937.98	0	0	0	8180.31
15560	92	133.46	7455.39	-5647.16	5959.74	0	0	0	8210.29
15590	92	133.46	7454.35	-5667.78	5981.5	0	0	0	8240.28
15620	92	133.46	7453.3	-5688.41	6003.27	0	0	0	8270.26
15650	92	133.46	7452.25	-5709.03	6025.03	0	0	0	8300.24
15680	92	133.46	7451.2	-5729.65	6046.79	0	0	0	8330.22
15710	92	133.46	7450.16	-5750.27	6068.56	0	0	0	8360.2
15740	92	133.46	7449.11	-5770.89	6090.32	0	0	0	8390.18
15770	92	133.46	7448.06	-5791.51	6112.08	0	0	0	8420.16
15800	92	133.46	7447.02	-5812.14	6133.85	0	0	0	8450.15
15830	92	133.46	7445.97	-5832.76	6155.61	0	0	0	8480.13
15860	92	133.46	7444.92	-5853.38	6177.37	0	0	0	8510.11
15890	92	133.46	7443.88	-5874	6199.14	0	0	0	8540.09
15920	92	133.46	7442.82	-5894.62	6220.9	0	0	0	8570.08
15950	92	133.46	7441.78	-5915.24	6242.66	0	0	0	8600.06
15980	92	133.46	7440.73	-5935.87	6264.43	0	0	0	8630.04
16010	92	133.46	7439.69	-5956.49	6286.19	0	0	0	8660.02
16040	92	133.46	7438.64	-5977.11	6307.95	0	0	0	8690
16070	92	133.46	7437.59	-5997.73	6329.72	0	0	0	8719.98
16100	92	133.46	7436.55	-6018.35	6351.48	0	0	0	8749.97
16130	92	133.46	7435.5	-6038.98	6373.24	0	0	0	8779.95
16160	92	133.46	7434.45	-6059.6	6395.01	0	0	0	8809.93
16190	92	133.46	7433.41	-6080.22	6416.77	0	0	0	8839.91
16220	92	133.46	7432.36	-6100.84	6438.53	0	0	0	8869.89
16250	92	133.46	7431.31	-6121.46	6460.3	0	0	0	8899.87
16280	92	133.46	7430.27	-6142.08	6482.06	0	0	0	8929.86
16310	92	133.46	7429.22	-6162.71	6503.82	0	0	0	8959.84
16340	92	133.46	7428.17	-6183.33	6525.59	0	0	0	8989.82
16370	92	133.46	7427.12	-6203.95	6547.35	0	0	0	9019.8
16383.15	92	133.46	7426.67	-6212.99	6556.89	0	0	0	9032.94

Received
Office of Oil & Gas
JUN 29 2015

Formation Points: (Relative to Slot Centre, TVD Relative to Drill Floor)

Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	F.Dip (°)	F.Dir (°)
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