

30-015-39768

Chesapeake Operating Inc.

Eddy County, New Mexico (NAD 1983)

PLU Pierce Canyon 21 24 30 USA 1H

Job # 1210204

Rig: Latshaw 14

Survey: Phoenix MWD STK 1 Surveys

Chesapeake Energy, Survey Report

31 March, 2012

Chesapeake Energy, Survey Report

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210204
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3375.00usft (Latshaw 14)
Site:	PLU Pierce Canyon 21'24'30" USA 1H	MD Reference:	WELL @ 3375.00usft (Latshaw 14)
Well:	Job # 1210204	North Reference:	Grid
Wellbore:	Rig: Latshaw 14	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Latshaw 14	Database:	Compass5000

Project	Eddy County, New Mexico (NAD 1983)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	PLU Pierce Canyon 21'24'30" USA 1H		
Site Position:		Northing:	440,467.50 usft
From:	Map	Easting:	680,350.41 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 12' 36.4430 N
		Longitude:	103° 53' 1.9006 W
		Grid Convergence:	0.24 °

Well	Job # 1210204		
Well Position	+N/-S	0.00 usft	Northing: 440,467.50 usft
	+E/-W	0.00 usft	Easting: 680,350.41 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	22.00 usft
		Latitude:	32° 12' 36.4430 N
		Longitude:	103° 53' 1.9006 W
		Ground Level:	3,353.00 usft

Wellbore	Rig: Latshaw 14		
Magnetics	Model Name	Sample Date	Declination
			(°)
			Dip Angle
			(°)
			Field Strength
			(nT)
	IGRF2010_14	03/05/12	7.64
			60.10
			48,502

Design	Rig: Latshaw 14		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			182.37

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Site:	PLU: Pierce Canyon 21.24.30 USA 1H	MD Reference:	WELL @ 3375.00usft (Latshaw 14)
Well:	Job # 1210204	North Reference:	Grd
Wellbore:	Rig: Latshaw 14	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Latshaw 14	Database:	Compass5000

Survey Program		Date	03/31/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
496.00	7,470.00	Phoenix MWD Surveys (Rig: Latshaw 14)	MWD	MWD - Standard	
7,557.00	12,995.00	Phoenix MWD STK 1 Surveys (Rig: Latsha	MWD	MWD - Standard	

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,470.00	0.80	167.50	-4,093.00	7,468.00	52.71	-70.68	-49.74	0.00	440,520.21	680,279.73
Tie In From Surveys @ 7470' MD										
7,557.00	0.50	130.30	-4,179.99	7,554.99	51.87	-70.26	-48.92	0.58	440,519.37	680,280.15
First Phoenix MWD Surveys @ 7557' MD										
7,589.00	1.20	231.10	-4,211.99	7,586.99	51.57	-70.41	-48.61	4.32	440,519.07	680,280.00
7,621.00	6.40	243.00	-4,243.91	7,618.91	50.55	-72.26	-47.52	16.35	440,518.05	680,278.14
7,652.00	10.70	230.60	-4,274.56	7,649.56	47.94	-76.03	-44.75	15.01	440,515.44	680,274.38
7,684.00	13.80	229.50	-4,305.83	7,680.83	43.57	-81.23	-40.18	9.71	440,511.07	680,269.18
7,716.00	16.70	224.60	-4,336.70	7,711.70	37.82	-87.36	-34.17	9.91	440,505.32	680,263.05
7,747.00	20.00	220.60	-4,366.12	7,741.12	30.62	-93.94	-26.71	11.39	440,498.12	680,256.47
7,779.00	24.00	222.60	-4,395.78	7,770.78	21.67	-101.91	-17.44	12.72	440,489.17	680,248.50
7,811.00	27.60	219.20	-4,424.59	7,799.59	11.13	-111.00	-6.53	12.16	440,478.63	680,239.41
7,842.00	30.10	214.70	-4,451.74	7,826.74	-0.83	-119.97	5.79	10.68	440,466.67	680,230.44
7,874.00	32.70	210.40	-4,479.06	7,854.06	-14.89	-128.91	20.20	10.72	440,452.62	680,221.49
7,906.00	35.90	205.80	-4,505.49	7,880.49	-30.79	-137.37	36.45	12.86	440,436.71	680,213.03
7,937.00	39.10	202.60	-4,530.09	7,905.09	-48.01	-145.09	53.97	12.08	440,419.50	680,205.32
7,969.00	42.90	199.40	-4,554.24	7,929.24	-67.61	-152.59	73.86	13.56	440,399.90	680,197.82
8,001.00	46.70	197.60	-4,576.94	7,951.94	-88.99	-159.73	95.52	12.52	440,378.52	680,190.68
8,032.00	50.20	195.80	-4,597.50	7,972.50	-111.21	-166.39	117.99	12.10	440,356.30	680,184.02
8,063.00	53.80	193.90	-4,616.58	7,991.58	-134.82	-172.64	141.84	12.58	440,332.69	680,177.77
8,095.00	57.10	192.70	-4,634.73	8,009.73	-160.46	-178.69	167.71	10.76	440,307.04	680,171.72
8,127.00	60.50	192.10	-4,651.30	8,026.30	-187.19	-184.57	194.66	10.75	440,280.31	680,165.84

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Site:	PLU Pierce Canyon 21 24 30 USA 1H	MD Reference:	WELL @ 3375.00usft (Latshaw 14)
Well:	Job # 1210204	North Reference:	Grid
Wellbore:	Rig: Latshaw 14	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Latshaw 14	Database:	Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,158.00	64.60	189.90	-4,665.59	8,040.59	-214.19	-189.80	221.86	14.65	440,253.31	680,160.60	
8,190.00	68.40	187.50	-4,678.35	8,053.35	-243.19	-194.23	251.01	13.72	440,224.31	680,156.17	
8,221.00	71.10	184.50	-4,689.08	8,064.08	-272.11	-197.27	280.03	12.58	440,195.39	680,153.14	
8,253.00	75.60	181.40	-4,698.25	8,073.25	-302.72	-198.83	310.68	16.85	440,164.79	680,151.57	
8,285.00	79.80	180.30	-4,705.07	8,080.07	-333.97	-199.29	341.93	13.55	440,133.53	680,151.11	
8,316.00	84.40	180.20	-4,709.33	8,084.33	-364.67	-199.43	372.60	14.84	440,102.84	680,150.98	
8,348.00	90.00	179.90	-4,710.89	8,085.89	-396.62	-199.46	404.53	17.53	440,070.89	680,150.95	
8,379.00	91.20	180.40	-4,710.56	8,085.56	-427.61	-199.54	435.50	4.19	440,039.89	680,150.87	
8,411.00	91.60	180.00	-4,709.78	8,084.78	-459.60	-199.65	467.47	1.77	440,007.90	680,150.76	
8,504.00	91.70	180.10	-4,707.10	8,082.10	-552.57	-199.73	560.35	0.15	439,914.94	680,150.68	
8,597.00	91.00	180.30	-4,704.91	8,079.91	-645.54	-200.05	653.26	0.78	439,821.96	680,150.35	
8,692.00	91.10	180.60	-4,703.17	8,078.17	-740.52	-200.80	748.19	0.33	439,726.98	680,149.61	
8,785.00	91.30	180.70	-4,701.22	8,076.22	-833.49	-201.86	841.13	0.24	439,634.01	680,148.55	
8,879.00	89.50	180.50	-4,700.57	8,075.57	-927.48	-202.84	935.08	1.93	439,540.02	680,147.57	
8,973.00	89.10	180.50	-4,701.72	8,076.72	-1,021.47	-203.66	1,029.02	0.43	439,446.03	680,146.75	
9,067.00	89.40	181.00	-4,702.95	8,077.95	-1,115.45	-204.89	1,122.97	0.62	439,352.05	680,145.52	
9,161.00	88.50	180.80	-4,704.67	8,079.67	-1,209.43	-206.37	1,216.93	0.98	439,258.08	680,144.04	
9,256.00	88.30	179.80	-4,707.32	8,082.32	-1,304.39	-206.86	1,311.82	1.07	439,163.12	680,143.54	
9,350.00	90.20	179.70	-4,708.55	8,083.55	-1,398.37	-206.45	1,405.71	2.02	439,069.13	680,143.95	
9,445.00	91.00	178.80	-4,707.56	8,082.56	-1,493.36	-205.21	1,500.57	1.27	438,974.15	680,145.20	
9,541.00	90.50	178.30	-4,706.30	8,081.30	-1,589.32	-202.78	1,596.34	0.74	438,878.18	680,147.63	
9,636.00	91.70	179.10	-4,704.48	8,079.48	-1,684.27	-200.63	1,691.13	1.52	438,783.23	680,149.78	
9,731.00	92.10	179.10	-4,701.33	8,076.33	-1,779.21	-199.14	1,785.92	0.42	438,688.29	680,151.27	
9,826.00	90.80	179.60	-4,698.92	8,073.92	-1,874.17	-198.06	1,880.76	1.47	438,593.33	680,152.35	
9,921.00	90.50	179.30	-4,697.85	8,072.85	-1,969.16	-197.15	1,975.63	0.45	438,498.34	680,153.26	
10,017.00	90.20	179.40	-4,697.26	8,072.26	-2,065.15	-196.06	2,071.49	0.33	438,402.35	680,154.35	
10,112.00	90.90	179.80	-4,696.35	8,071.35	-2,160.14	-195.39	2,166.38	0.85	438,307.36	680,155.01	

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Site:	PLU Pierce Canyon 21 24' 30" USA 1H	MD Reference:	WELL @ 3375.00usft (Latshaw 14)
Well:	Job # 1210204	North Reference:	Grid
Wellbore:	Rig Latshaw 14	Survey Calculation Method:	Minimum Curvature
Design:	Rig Latshaw 14	Database:	Compass5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,207.00	90.90	181.20	-4,694.86	8,069.86	-2,255.13	-196.22	2,261.31	1.47	438,212.38	680,154.19
10,302.00	92.00	183.80	-4,692.45	8,067.45	-2,350.00	-200.36	2,356.27	2.97	438,117.51	680,150.04
10,398.00	88.90	179.80	-4,691.70	8,066.70	-2,445.91	-203.38	2,452.23	5.27	438,021.59	680,147.03
10,493.00	89.90	180.40	-4,692.69	8,067.69	-2,540.91	-203.54	2,547.15	1.23	437,926.60	680,146.86
10,588.00	89.90	181.40	-4,692.86	8,067.86	-2,635.89	-205.04	2,642.12	1.05	437,831.61	680,145.37
10,682.00	90.60	180.90	-4,692.45	8,067.45	-2,729.87	-206.92	2,736.10	0.92	437,737.63	680,143.49
10,776.00	89.50	180.70	-4,692.37	8,067.37	-2,823.86	-208.23	2,830.06	1.19	437,643.64	680,142.17
10,872.00	90.20	178.40	-4,692.62	8,067.62	-2,919.85	-207.48	2,925.94	2.50	437,547.65	680,142.93
10,967.00	90.20	179.70	-4,692.28	8,067.28	-3,014.84	-205.91	3,020.77	1.37	437,452.67	680,144.50
11,062.00	91.90	178.40	-4,690.54	8,065.54	-3,109.80	-204.33	3,115.59	2.25	437,357.70	680,146.08
11,157.00	91.80	178.80	-4,687.48	8,062.48	-3,204.72	-202.01	3,210.34	0.43	437,262.78	680,148.40
11,252.00	91.20	178.60	-4,684.99	8,059.99	-3,299.67	-199.86	3,305.11	0.67	437,167.84	680,150.55
11,347.00	89.50	178.00	-4,684.41	8,059.41	-3,394.62	-197.04	3,399.86	1.90	437,072.88	680,153.37
11,441.00	90.10	179.50	-4,684.74	8,059.74	-3,488.59	-194.99	3,493.67	1.72	436,978.91	680,155.42
11,537.00	91.00	179.70	-4,683.82	8,058.82	-3,584.59	-194.32	3,589.56	0.96	436,882.92	680,156.09
11,631.00	91.30	179.30	-4,681.93	8,056.93	-3,678.56	-193.50	3,683.42	0.53	436,788.94	680,156.91
11,727.00	91.90	179.80	-4,679.25	8,054.25	-3,774.52	-192.74	3,779.26	0.81	436,692.98	680,157.66
11,822.00	92.40	179.40	-4,675.69	8,050.69	-3,869.45	-192.08	3,874.09	0.67	436,598.05	680,158.33
11,917.00	91.10	179.60	-4,672.78	8,047.78	-3,964.40	-191.25	3,968.92	1.38	436,503.10	680,159.15
12,012.00	89.80	177.80	-4,672.04	8,047.04	-4,059.37	-189.10	4,063.72	2.34	436,408.13	680,161.31
12,108.00	91.00	178.30	-4,671.37	8,046.37	-4,155.31	-185.83	4,159.44	1.35	436,312.19	680,164.58
12,203.00	90.50	177.40	-4,670.12	8,045.12	-4,250.23	-182.27	4,254.13	1.08	436,217.27	680,168.14
12,298.00	89.90	177.20	-4,669.79	8,044.79	-4,345.13	-177.79	4,348.76	0.67	436,122.38	680,172.62
12,393.00	88.80	177.20	-4,670.87	8,045.87	-4,440.01	-173.15	4,443.37	1.16	436,027.50	680,177.26
12,488.00	88.60	176.60	-4,673.03	8,048.03	-4,534.84	-168.02	4,537.91	0.67	435,932.66	680,182.39
12,582.00	89.40	178.70	-4,674.67	8,049.67	-4,628.74	-164.16	4,631.57	2.39	435,838.76	680,186.25
12,678.00	89.30	182.10	-4,675.76	8,050.76	-4,724.72	-164.83	4,727.49	3.54	435,742.78	680,185.58

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Project:	Eddy County, New Mexico (NAD:1983)	TVD Reference:	WELL @ 3375.00usft (Latshaw,14)
Site:	PLU Pierce Canyon 21.24.30 USA 1H	MD Reference:	WELL @ 3375.00usft (Latshaw 14)
Well:	Job # 1210204	North Reference:	Grid
Wellbore:	Rig: Latshaw 14	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Latshaw 14	Database:	Compass5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
12,773.00	89.30	181.40	-4,676.92	8,051.92	-4,819.67	-167.73	4,822.48	0.74	435,647.84	680,182.67
12,868.00	88.70	180.90	-4,678.57	8,053.57	-4,914.63	-169.64	4,917.44	0.82	435,552.87	680,180.77
12,949.00	87.60	180.80	-4,681.19	8,056.19	-4,995.58	-170.84	4,998.37	1.36	435,471.92	680,179.57
Last Phoenix MWD Surveys @ 12949' MD										
12,995.00	87.60	180.80	-4,683.12	8,058.12	-5,041.54	-171.48	5,044.31	0.00	435,425.97	680,178.93
Projection to TD @ 12995' MD										

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,470.00	7,468.00	52.71	-70.68	Tie In From Surveys @ 7470' MD
7,557.00	7,554.99	51.87	-70.26	First Phoenix MWD Surveys @ 7557' MD
12,949.00	8,056.19	-4,995.58	-170.84	Last Phoenix MWD Surveys @ 12949' MD
12,995.00	8,058.12	-5,041.54	-171.48	Projection to TD @ 12995' MD

Checked By: _____	Approved By: _____	Date: _____
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MD	Inc	Az	TVDSS	TVD	N/S	E/W
	0	0	0	-3375	0	0 N
\	496	0.67	0.13	-2879.01	495.99	2.9 N
	942	2.1	321.1	-2433.15	941.85	11.87 N
	1131	1.2	294.8	-2244.22	1130.78	15.39 N
	1321	1	216.5	-2054.25	1320.75	14.89 N
	1511	2	137.2	-1864.3	1510.7	11.13 N
	1701	2.3	130.3	-1674.44	1700.56	6.23 N
	1891	2.4	123.6	-1484.59	1890.41	1.56 N
	2082	0.1	95.7	-1293.65	2081.35	0.67 S
	2272	0.7	297.1	-1103.66	2271.34	0.15 S
	2462	0.9	282.6	-913.68	2461.32	0.7 N
	2652	0.8	321.4	-723.69	2651.31	2.06 N
	2874	1	351.1	-501.72	2873.28	5.19 N
	2968	1.7	354.9	-407.75	2967.25	7.39 N
	3063	2.2	338.2	-312.8	3062.2	10.48 N
	3158	2.5	343.1	-217.88	3157.12	14.16 N
	3348	2.8	335.7	-28.08	3346.92	22.35 N
	3443	2.6	323.5	66.81	3441.81	26.2 N
	3697	1.3	310.9	320.66	3695.66	32.72 N
	3856	1.2	303.1	479.62	3854.62	34.81 N
	4046	1.5	301.2	669.57	4044.57	37.18 N
	4236	1.4	285.4	859.51	4234.51	39.09 N
	4426	1	297.7	1049.47	4424.47	40.47 N
	4617	1	289.7	1240.44	4615.44	41.81 N
	4807	1.1	295	1430.41	4805.41	43.14 N
	4997	1.3	301.9	1620.36	4995.36	45.05 N
	5188	1.4	309.2	1811.31	5186.31	47.67 N
	5377	1.5	290.7	2000.25	5375.25	50 N
	5566	1.3	298.4	2189.19	5564.19	51.9 N
	5756	1.2	288.7	2379.15	5754.15	53.56 N
	5947	0.9	272.2	2570.12	5945.12	54.26 N
	6137	1	258.5	2760.09	6135.09	53.99 N
	6328	1.2	283.4	2951.06	6326.06	54.12 N
	6519	0.9	284.9	3142.03	6517.03	54.97 N
	6709	0.2	289.6	3332.02	6707.02	55.46 N
	6899	0.2	300.8	3522.01	6897.01	55.74 N
	7089	0.3	105.1	3712.01	7087.01	55.78 N
	7280	0.5	172.4	3903.01	7278.01	54.83 N
	7470	0.8	167.5	4093	7468	52.71 N
	7557	0.5	130.3	4179.99	7554.99	51.87 N
	7589	1.2	231.1	4211.99	7586.99	51.57 N
	7621	6.4	243	4243.91	7618.91	50.55 N
	7652	10.7	230.6	4274.56	7649.56	47.94 N
	7684	13.8	229.5	4305.83	7680.83	43.57 N
	7716	16.7	224.6	4336.7	7711.7	37.82 N
	7747	20	220.6	4366.12	7741.12	30.62 N

7779	24	222.6	4395.78	7770.78	21.67 N	101.91 W
7811	27.6	219.2	4424.59	7799.59	11.13 N	111 W
7842	30.1	214.7	4451.74	7826.74	0.83 S	119.97 W
7874	32.7	210.4	4479.06	7854.06	14.89 S	128.91 W
7906	35.9	205.8	4505.49	7880.49	30.79 S	137.37 W
7937	39.1	202.6	4530.09	7905.09	48.01 S	145.09 W
7969	42.9	199.4	4554.24	7929.24	67.61 S	152.59 W
8001	46.7	197.6	4576.94	7951.94	88.99 S	159.73 W
8032	50.2	195.8	4597.5	7972.5	111.21 S	166.39 W
8063	53.8	193.9	4616.58	7991.58	134.82 S	172.64 W
8095	57.1	192.7	4634.73	8009.73	160.46 S	178.69 W
8127	60.5	192.1	4651.3	8026.3	187.19 S	184.57 W
8158	64.6	189.9	4665.59	8040.59	214.19 S	189.8 W
8190	68.4	187.5	4678.35	8053.35	243.19 S	194.23 W
8221	71.1	184.5	4689.08	8064.08	272.11 S	197.27 W
8253	75.6	181.4	4698.25	8073.25	302.72 S	198.83 W
8285	79.8	180.3	4705.07	8080.07	333.97 S	199.29 W
8316	84.4	180.2	4709.33	8084.33	364.67 S	199.43 W
8348	90	179.9	4710.89	8085.89	396.62 S	199.46 W
8379	91.2	180.4	4710.56	8085.56	427.61 S	199.54 W
8411	91.6	180	4709.78	8084.78	459.6 S	199.65 W
8504	91.7	180.1	4707.1	8082.1	552.57 S	199.73 W
8597	91	180.3	4704.91	8079.91	645.54 S	200.05 W
8692	91.1	180.6	4703.17	8078.17	740.52 S	200.8 W
8785	91.3	180.7	4701.22	8076.22	833.49 S	201.86 W
8879	89.5	180.5	4700.57	8075.57	927.48 S	202.84 W
8973	89.1	180.5	4701.72	8076.72	1021.47 S	203.66 W
9067	89.4	181	4702.95	8077.95	1115.45 S	204.89 W
9161	88.5	180.8	4704.67	8079.67	1209.43 S	206.37 W
9256	88.3	179.8	4707.32	8082.32	1304.39 S	206.86 W
9350	90.2	179.7	4708.55	8083.55	1398.37 S	206.45 W
9445	91	178.8	4707.56	8082.56	1493.36 S	205.21 W
9541	90.5	178.3	4706.3	8081.3	1589.32 S	202.78 W
9636	91.7	179.1	4704.48	8079.48	1684.27 S	200.63 W
9731	92.1	179.1	4701.33	8076.33	1779.21 S	199.14 W
9826	90.8	179.6	4698.92	8073.92	1874.17 S	198.06 W
9921	90.5	179.3	4697.85	8072.85	1969.16 S	197.15 W
10017	90.2	179.4	4697.26	8072.26	2065.15 S	196.06 W
10112	90.9	179.8	4696.35	8071.35	2160.14 S	195.39 W
10207	90.9	181.2	4694.86	8069.86	2255.13 S	196.22 W
10302	92	183.8	4692.45	8067.45	2350 S	200.36 W
10398	88.9	179.8	4691.7	8066.7	2445.91 S	203.38 W
10493	89.9	180.4	4692.69	8067.69	2540.91 S	203.54 W
10588	89.9	181.4	4692.86	8067.86	2635.89 S	205.04 W
10682	90.6	180.9	4692.45	8067.45	2729.87 S	206.92 W
10776	89.5	180.7	4692.37	8067.37	2823.86 S	208.23 W
10872	90.2	178.4	4692.62	8067.62	2919.85 S	207.48 W

10967	90.2	179.7	4692.28	8067.28	3014.84 S	205.91 W
11062	91.9	178.4	4690.54	8065.54	3109.8 S	204.33 W
11157	91.8	178.8	4687.48	8062.48	3204.72 S	202.01 W
11252	91.2	178.6	4684.99	8059.99	3299.67 S	199.86 W
11347	89.5	178	4684.41	8059.41	3394.62 S	197.04 W
11441	90.1	179.5	4684.74	8059.74	3488.59 S	194.99 W
11537	91	179.7	4683.82	8058.82	3584.59 S	194.32 W
11631	91.3	179.3	4681.93	8056.93	3678.56 S	193.5 W
11727	91.9	179.8	4679.25	8054.25	3774.52 S	192.74 W
11822	92.4	179.4	4675.69	8050.69	3869.45 S	192.08 W
11917	91.1	179.6	4672.78	8047.78	3964.4 S	191.25 W
12012	89.8	177.8	4672.04	8047.04	4059.37 S	189.1 W
12108	91	178.3	4671.37	8046.37	4155.31 S	185.83 W
12203	90.5	177.4	4670.12	8045.12	4250.23 S	182.27 W
12298	89.9	177.2	4669.79	8044.79	4345.13 S	177.79 W
12393	88.8	177.2	4670.87	8045.87	4440.01 S	173.15 W
12488	88.6	176.6	4673.03	8048.03	4534.84 S	168.02 W
12582	89.4	178.7	4674.67	8049.67	4628.74 S	164.16 W
12678	89.3	182.1	4675.76	8050.76	4724.72 S	164.83 W
12773	89.3	181.4	4676.92	8051.92	4819.67 S	167.73 W
12868	88.7	180.9	4678.57	8053.57	4914.63 S	169.64 W
12949	87.6	180.8	4681.19	8056.19	4995.58 S	170.84 W
12995	87.6	180.8	4683.12	8058.12	5041.54 S	171.48 W

Northing	Easting	V Sec	D Leg
440467.5 N	680350.4 E	0	0
440470.4 N	680350.4 E	-2.9	0.14
440479.4 N	680345.3 E	-11.65	0.37
440482.9 N	680341.3 E	-15	0.61
440482.4 N	680338.5 E	-14.39	0.74
440478.6 N	680339.8 E	-10.68	1.09
440473.7 N	680345 E	-6	0.21
440469.1 N	680351.2 E	-1.59	0.15
440466.8 N	680354.7 E	0.49	1.21
440467.3 N	680353.8 E	0.01	0.42
440468.2 N	680351.3 E	-0.74	0.15
440469.6 N	680349 E	-2	0.3
440472.7 N	680347.8 E	-5.07	0.23
440474.9 N	680347.5 E	-7.26	0.75
440478 N	680346.7 E	-10.32	0.79
440481.7 N	680345.4 E	-13.94	0.38
440489.9 N	680342.3 E	-22	0.24
440493.7 N	680340.1 E	-25.75	0.64
440500.2 N	680334.5 E	-32.03	0.54
440502.3 N	680331.7 E	-34	0.12
440504.7 N	680327.9 E	-36.22	0.16
440506.6 N	680323.6 E	-37.94	0.22
440508 N	680319.9 E	-39.18	0.25
440509.3 N	680316.8 E	-40.39	0.07
440510.6 N	680313.6 E	-41.58	0.07
440512.6 N	680310.1 E	-43.34	0.13
440515.2 N	680306.5 E	-45.81	0.1
440517.5 N	680302.4 E	-47.97	0.25
440519.4 N	680298.2 E	-49.69	0.15
440521.1 N	680294.4 E	-51.2	0.12
440521.8 N	680291 E	-51.76	0.22
440521.5 N	680287.9 E	-51.35	0.13
440521.6 N	680284.3 E	-51.34	0.27
440522.5 N	680280.9 E	-52.04	0.16
440523 N	680279.1 E	-52.47	0.37
440523.2 N	680278.5 E	-52.72	0.02
440523.3 N	680278.7 E	-52.77	0.26
440522.3 N	680279.3 E	-51.84	0.25
440520.2 N	680279.7 E	-49.74	0
440519.4 N	680280.2 E	-48.92	0.58
440519.1 N	680280 E	-48.61	4.32
440518.1 N	680278.1 E	-47.52	16.35
440515.4 N	680274.4 E	-44.75	15.01
440511.1 N	680269.2 E	-40.18	9.71
440505.3 N	680263 E	-34.17	9.91
440498.1 N	680256.5 E	-26.71	11.39

440489.2 N	680248.5 E	-17.44	12.72
440478.6 N	680239.4 E	-6.53	12.16
440466.7 N	680230.4 E	5.79	10.68
440452.6 N	680221.5 E	20.2	10.72
440436.7 N	680213 E	36.45	12.86
440419.5 N	680205.3 E	53.97	12.08
440399.9 N	680197.8 E	73.86	13.56
440378.5 N	680190.7 E	95.52	12.52
440356.3 N	680184 E	117.99	12.1
440332.7 N	680177.8 E	141.84	12.58
440307 N	680171.7 E	167.71	10.76
440280.3 N	680165.8 E	194.66	10.75
440253.3 N	680160.6 E	221.86	14.65
440224.3 N	680156.2 E	251.01	13.72
440195.4 N	680153.1 E	280.03	12.58
440164.8 N	680151.6 E	310.68	16.85
440133.5 N	680151.1 E	341.93	13.55
440102.8 N	680151 E	372.6	14.84
440070.9 N	680151 E	404.53	17.53
440039.9 N	680150.9 E	435.5	4.19
440007.9 N	680150.8 E	467.47	1.77
439914.9 N	680150.7 E	560.35	0.15
439822 N	680150.4 E	653.26	0.78
439727 N	680149.6 E	748.19	0.33
439634 N	680148.6 E	841.13	0.24
439540 N	680147.6 E	935.08	1.93
439446 N	680146.7 E	1029.02	0.43
439352 N	680145.5 E	1122.97	0.62
439258.1 N	680144 E	1216.93	0.98
439163.1 N	680143.5 E	1311.82	1.07
439069.1 N	680144 E	1405.71	2.02
438974.1 N	680145.2 E	1500.57	1.27
438878.2 N	680147.6 E	1596.34	0.74
438783.2 N	680149.8 E	1691.13	1.52
438688.3 N	680151.3 E	1785.92	0.42
438593.3 N	680152.4 E	1880.76	1.47
438498.3 N	680153.3 E	1975.63	0.45
438402.4 N	680154.4 E	2071.49	0.33
438307.4 N	680155 E	2166.38	0.85
438212.4 N	680154.2 E	2261.31	1.47
438117.5 N	680150 E	2356.27	2.97
438021.6 N	680147 E	2452.23	5.27
437926.6 N	680146.9 E	2547.15	1.23
437831.6 N	680145.4 E	2642.12	1.05
437737.6 N	680143.5 E	2736.1	0.92
437643.6 N	680142.2 E	2830.06	1.19
437547.7 N	680142.9 E	2925.94	2.5

437452.7 N	680144.5 E	3020.77	1.37
437357.7 N	680146.1 E	3115.59	2.25
437262.8 N	680148.4 E	3210.34	0.43
437167.8 N	680150.6 E	3305.11	0.67
437072.9 N	680153.4 E	3399.86	1.9
436978.9 N	680155.4 E	3493.67	1.72
436882.9 N	680156.1 E	3589.56	0.96
436788.9 N	680156.9 E	3683.42	0.53
436693 N	680157.7 E	3779.26	0.81
436598.1 N	680158.3 E	3874.09	0.67
436503.1 N	680159.2 E	3968.92	1.38
436408.1 N	680161.3 E	4063.72	2.34
436312.2 N	680164.6 E	4159.44	1.35
436217.3 N	680168.1 E	4254.13	1.08
436122.4 N	680172.6 E	4348.76	0.67
436027.5 N	680177.3 E	4443.37	1.16
435932.7 N	680182.4 E	4537.91	0.67
435838.8 N	680186.2 E	4631.57	2.39
435742.8 N	680185.6 E	4727.49	3.54
435647.8 N	680182.7 E	4822.48	0.74
435552.9 N	680180.8 E	4917.44	0.82
435471.9 N	680179.6 E	4998.37	1.36
435426 N	680178.9 E	5044.31	0