

51-01766



GASTAR EXPLORATION USA, INC.

Location: Marshall County, WV
Field: Marshall
Facility: Blake Unit

Slot: Slot #U-7
Well: Blake U-7H
Wellbore: Blake U-7H PWB



Location Information

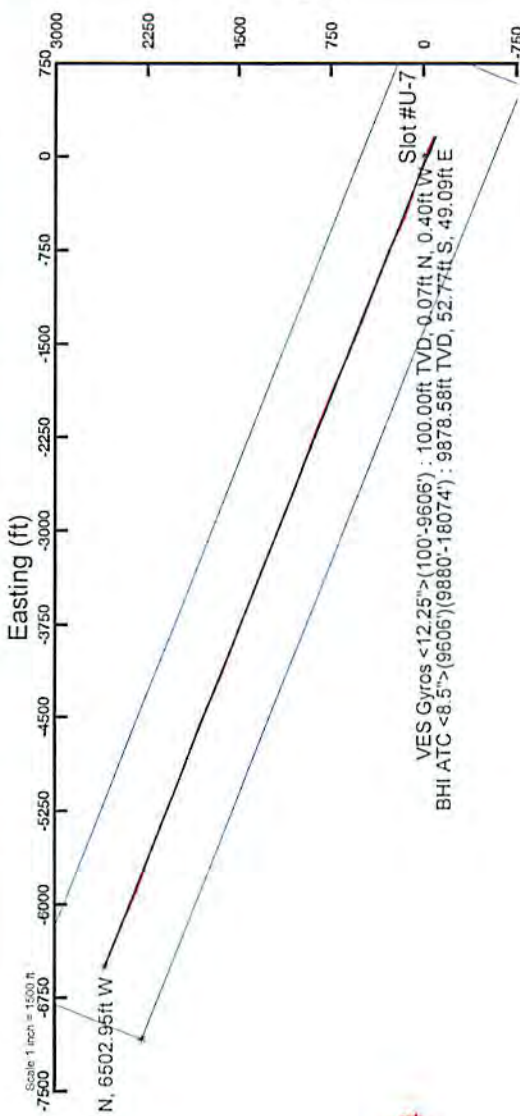
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Blake Unit	1695207.000	14440891.700	39°45'50.736"N	80°48'18.091"W
Slot	Local N (ft)	Grid East (US ft)	Latitude	Longitude
Slot #U-7	-93.10	1695170.450	39°45'49.817"N	80°48'18.562"W
Nomac 323 (RT) to Mud line (At Slot: Slot #U-7)			29.4ft	
Mean Sea Level to Mud line (At Slot: Slot #U-7)			-1326ft	
Nomac 323 (RT) to Mean Sea Level			1355.4ft	

Plot reference wellpath is Blake U-7H Rev-D 0

True vertical depths are referenced to Nomac 323 (RT)	Grid System: NAD83 / UTM Zone 17 North, US feet
Measured depths are referenced to Nomac 323 (RT)	North Reference: Grid north
Nomac 323 (RT) to Mean Sea Level: 1355.4 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #U-7): -1326 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: kroschr on 12/16/2014



VES Gyros <12.25°>(100°-9606') : 0.66° Inc, 100.00ft MD, 100.00ft TVD, 0.40ft VS



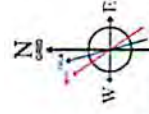
MD Projected to TD: 18102' : 11066.03ft TVD, 2592.63ft N, 6502.95ft W

API: 47-051-01766-0000
Rig: Nomac 323
BHI Job #: 6602848
Duration: 12.04.2014 + 12.11.2014

VES Gyros <12.25°>(100°-9606') : 100.00ft TVD, 0.07ft N, 0.40ft VS
BHI ATC <8.5°>(9606)(9880°-18074') : 9878.58ft TVD, 52.77ft S, 49.09ft E

Received
Office of Oil & Gas

JUL 30 2015



BGCM 11645 6/5 2016 01 Dec 07 2014 Field 52435-1 FT
Magnetic North 0.12 degrees East of True North
Grid North 0.12 degrees East of True North
To correct azimuth from True to Grid subtract 0.12 degrees
To correct azimuth from Magnetic to Grid subtract 0.07 degrees

MD Projected to TD: 18102' : 90.89° Inc, 18102.00ft MD, 11066.03ft TVD, 7000.68ft VS

BHI ATC <8.5°>(9606)(9880°-18074') : 6.19° Inc, 9880.00ft MD, 9878.58ft TVD, -65.24ft VS

Scale 1 inch = 2000 ft
Vertical Section (ft)
Azimuth 291.92° with reference 0.00 N, 0.00 E

10/30/2015

REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION INC.	Slot	Slot #U-7H
Area	Marshall County, WV	Well	Blake U-7H
Field	Marshall	Wellbore	Blake U-7H (AWB)
Facility	Blake	Wellpath	Blake U-7H (AWP) Proj: 18,102'
		Sidetrack	(None)

Received
Office of Oil & Gas
JUL 30 2015

WELL PATH DATA + = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [M]	Grid North [M]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
0.00	0.00	280.27	0.00	0.00	0.00	0.00	516689.0	4401564.2	39°45'49.817"N	80°48'18.562"W	0.00	0.00	0.00
29.40	0.00	280.27	29.40	0.00	0.00	0.00	516689.0	4401564.2	39°45'49.817"N	80°48'18.562"W	0.00	0.00	0.00
100.00	0.66	280.27	100.00	0.40	0.07	-0.40	516688.9	4401564.3	39°45'49.817"N	80°48'18.567"W	0.41	280.27	0.93
200.00	0.47	280.29	199.99	1.36	0.25	-1.37	516688.6	4401564.3	39°45'49.819"N	80°48'18.579"W	1.39	280.28	0.19
300.00	0.41	270.78	299.99	2.10	0.33	-2.13	516688.3	4401564.3	39°45'49.820"N	80°48'18.589"W	2.16	278.71	0.09
400.00	0.40	276.84	399.99	2.77	0.37	-2.84	516688.1	4401564.3	39°45'49.820"N	80°48'18.598"W	2.86	277.49	0.04
500.00	0.43	268.88	499.99	3.45	0.41	-3.56	516687.9	4401564.4	39°45'49.821"N	80°48'18.607"W	3.58	276.53	0.06
600.00	0.39	283.77	599.98	4.13	0.48	-4.26	516687.7	4401564.4	39°45'49.822"N	80°48'18.616"W	4.29	276.44	0.11
700.00	0.31	312.80	699.98	4.72	0.75	-4.79	516687.5	4401564.5	39°45'49.824"N	80°48'18.623"W	4.85	278.85	0.19
800.00	0.18	74.09	799.98	4.85	0.97	-4.84	516687.5	4401564.5	39°45'49.826"N	80°48'18.624"W	4.94	281.36	0.43
900.00	0.31	106.31	899.98	4.46	0.94	-4.43	516687.6	4401564.5	39°45'49.826"N	80°48'18.618"W	4.53	281.98	0.18
1000.00	0.38	138.02	999.98	3.89	0.62	-3.95	516687.8	4401564.4	39°45'49.823"N	80°48'18.612"W	4.00	278.89	0.20
1100.00	0.33	153.12	1099.98	3.38	0.11	-3.60	516687.9	4401564.3	39°45'49.818"N	80°48'18.608"W	3.60	271.81	0.11
1200.00	0.17	127.87	1199.98	3.02	-0.23	-3.35	516688.0	4401564.2	39°45'49.814"N	80°48'18.604"W	3.36	266.00	0.19
1300.00	1.46	149.40	1299.96	1.87	-1.42	-2.58	516688.2	4401563.8	39°45'49.803"N	80°48'18.595"W	2.95	241.17	1.30
1400.00	1.39	132.58	1399.93	-0.28	-3.34	-1.04	516688.7	4401563.2	39°45'49.784"N	80°48'18.575"W	3.50	197.32	0.42
1500.00	1.21	111.30	1499.91	-2.47	-4.54	0.84	516689.2	4401562.8	39°45'49.772"N	80°48'18.551"W	4.62	169.58	0.51
1600.00	1.27	92.32	1599.88	-4.57	-4.97	2.93	516689.9	4401562.7	39°45'49.767"N	80°48'18.524"W	5.77	149.52	0.41
1700.00	0.95	76.17	1699.87	-6.29	-4.82	4.84	516690.5	4401562.8	39°45'49.769"N	80°48'18.500"W	6.83	134.88	0.44
1800.00	0.65	63.87	1799.86	-7.34	-4.37	6.15	516690.9	4401562.9	39°45'49.773"N	80°48'18.483"W	7.55	125.39	0.34
1900.00	0.48	63.20	1899.85	-8.00	-3.93	7.04	516691.1	4401563.0	39°45'49.778"N	80°48'18.472"W	8.06	119.20	0.17
2000.00	0.34	59.03	1999.85	-8.45	-3.59	7.66	516691.3	4401563.1	39°45'49.781"N	80°48'18.464"W	8.46	115.10	0.14
2100.00	0.29	30.81	2099.85	-8.67	-3.22	8.05	516691.4	4401563.2	39°45'49.785"N	80°48'18.459"W	8.67	111.81	0.16
2200.00	0.32	14.31	2199.85	-8.67	-2.73	8.25	516691.5	4401563.4	39°45'49.789"N	80°48'18.456"W	8.69	108.33	0.09
2300.00	0.37	53.59	2299.84	-8.80	-2.27	8.58	516691.6	4401563.5	39°45'49.794"N	80°48'18.452"W	8.87	104.83	0.24

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2400.00	0.37	42.97	2399.84	-9.09	-1.84	9.06	516691.7	4401563.7	39°45'49.798"N	80°48'18.446"W	9.24	101.50	30.07
2500.00	0.28	35.02	2499.84	-9.26	-1.41	9.42	516691.9	4401563.8	39°45'49.803"N	80°48'18.441"W	9.52	98.49	0.10
2600.00	0.25	260.10	2599.84	-9.13	-1.24	9.34	516691.8	4401563.9	39°45'49.804"N	80°48'18.442"W	9.42	97.58	0.49
2700.00	0.72	227.71	2699.84	-8.67	-1.70	8.66	516691.6	4401563.7	39°45'49.800"N	80°48'18.451"W	8.83	101.13	0.53
2800.00	0.59	222.83	2799.83	-8.21	-2.50	7.85	516691.4	4401563.5	39°45'49.792"N	80°48'18.461"W	8.24	107.70	0.14
2900.00	0.61	235.07	2899.82	-7.74	-3.19	7.06	516691.1	4401563.3	39°45'49.785"N	80°48'18.471"W	7.75	114.29	0.13
3000.00	0.58	235.04	2999.82	-7.17	-3.78	6.21	516690.9	4401563.1	39°45'49.779"N	80°48'18.482"W	7.27	121.34	0.03
3100.00	0.62	229.98	3099.81	-6.64	-4.42	5.38	516690.6	4401562.9	39°45'49.773"N	80°48'18.493"W	6.96	129.40	0.07
3200.00	0.58	220.37	3199.81	-6.23	-5.15	4.64	516690.4	4401562.7	39°45'49.766"N	80°48'18.502"W	6.93	138.01	0.11
3300.00	0.57	209.75	3299.80	-6.00	-5.97	4.06	516690.2	4401562.4	39°45'49.758"N	80°48'18.510"W	7.22	145.76	0.11
3400.00	0.50	208.63	3399.80	-5.88	-6.78	3.61	516690.1	4401562.2	39°45'49.750"N	80°48'18.516"W	7.68	152.00	0.07
3500.00	0.33	194.23	3499.80	-5.87	-7.45	3.33	516690.0	4401562.0	39°45'49.743"N	80°48'18.519"W	8.16	155.92	0.20
3600.00	0.14	170.73	3599.79	-5.97	-7.85	3.28	516690.0	4401561.8	39°45'49.739"N	80°48'18.520"W	8.50	157.34	0.21
3700.00	0.07	160.38	3699.79	-6.07	-8.02	3.32	516690.0	4401561.8	39°45'49.737"N	80°48'18.519"W	8.68	157.54	0.07
3800.00	0.14	353.07	3799.79	-6.05	-7.96	3.32	516690.0	4401561.8	39°45'49.738"N	80°48'18.519"W	8.63	157.35	0.21
3900.00	0.30	309.42	3899.79	-5.75	-7.67	3.11	516689.9	4401561.9	39°45'49.741"N	80°48'18.522"W	8.28	157.97	0.22
4000.00	0.27	266.91	3999.79	-5.28	-7.52	2.67	516689.8	4401561.9	39°45'49.742"N	80°48'18.528"W	7.98	160.47	0.21
4100.00	0.30	195.72	4099.79	-5.10	-7.78	2.36	516689.7	4401561.9	39°45'49.740"N	80°48'18.532"W	8.13	163.12	0.33
4200.00	0.37	102.87	4199.79	-5.44	-8.11	2.61	516689.8	4401561.8	39°45'49.736"N	80°48'18.528"W	8.52	162.19	0.49
4300.00	0.48	63.84	4299.79	-6.04	-8.00	3.30	516690.0	4401561.8	39°45'49.738"N	80°48'18.520"W	8.65	157.60	0.30
4400.00	0.37	36.27	4399.79	-6.40	-7.55	3.86	516690.2	4401561.9	39°45'49.742"N	80°48'18.512"W	8.48	152.90	0.23
4500.00	0.22	94.95	4499.78	-6.67	-7.31	4.25	516690.3	4401562.0	39°45'49.744"N	80°48'18.507"W	8.45	149.84	0.32
4600.00	0.89	92.15	4599.78	-7.58	-7.35	5.21	516690.6	4401562.0	39°45'49.744"N	80°48'18.495"W	9.01	144.66	0.67
4700.00	0.84	83.36	4699.77	-8.96	-7.30	6.72	516691.0	4401562.0	39°45'49.744"N	80°48'18.476"W	9.92	137.37	0.14
4800.00	0.46	82.27	4799.76	-9.95	-7.16	7.84	516691.4	4401562.0	39°45'49.746"N	80°48'18.461"W	10.62	132.39	0.38
4900.00	0.65	122.25	4899.76	-10.86	-7.41	8.72	516691.6	4401562.0	39°45'49.743"N	80°48'18.450"W	11.44	130.34	0.42
5000.00	0.88	102.57	4999.75	-12.17	-7.88	9.95	516692.0	4401561.8	39°45'49.739"N	80°48'18.434"W	12.69	128.37	0.35
5100.00	0.61	114.83	5099.74	-13.46	-8.27	11.18	516692.4	4401561.7	39°45'49.735"N	80°48'18.419"W	13.91	126.48	0.31
5200.00	0.26	124.47	5199.74	-14.21	-8.62	11.85	516692.6	4401561.6	39°45'49.731"N	80°48'18.410"W	14.66	126.03	0.36
5300.00	0.56	110.32	5299.73	-14.92	-8.92	12.50	516692.8	4401561.5	39°45'49.728"N	80°48'18.402"W	15.35	125.51	0.31
5400.00	0.52	109.09	5399.73	-15.87	-9.24	13.38	516693.1	4401561.4	39°45'49.725"N	80°48'18.390"W	16.26	124.61	0.04

Oil & Gas
2015
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MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [M]	Grid North [M]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DPS [°/100ft]
5500.00	0.06	122.32	5499.73	-16.37	-9.41	13.86	516693.2	4401561.4	39°45'49.723"N	80°48'18.384"W	16.75	126.18	0.46
5600.00	0.45	126.19	5599.73	-16.80	-9.67	14.22	516693.3	4401561.3	39°45'49.721"N	80°48'18.380"W	17.20	126.22	0.39
5700.00	0.47	129.36	5699.72	-17.57	-10.16	14.85	516693.5	4401561.1	39°45'49.716"N	80°48'18.372"W	18.00	124.38	0.03
5800.00	0.19	133.65	5799.72	-18.12	-10.54	15.29	516693.6	4401561.0	39°45'49.712"N	80°48'18.366"W	18.57	124.58	0.28
5900.00	0.73	136.74	5899.72	-18.85	-11.12	15.85	516693.8	4401560.8	39°45'49.706"N	80°48'18.359"W	19.36	125.05	0.54
6000.00	0.59	120.35	5999.71	-19.94	-11.84	16.73	516694.1	4401560.6	39°45'49.699"N	80°48'18.348"W	20.49	125.29	0.23
6100.00	0.67	167.80	6099.71	-20.78	-12.67	17.30	516694.3	4401560.4	39°45'49.691"N	80°48'18.340"W	21.44	126.23	0.51
6200.00	1.08	169.35	6199.69	-21.61	-14.17	17.59	516694.3	4401559.9	39°45'49.676"N	80°48'18.337"W	22.59	128.85	0.41
6300.00	0.83	168.20	6299.68	-22.52	-15.81	17.92	516694.4	4401559.4	39°45'49.660"N	80°48'18.333"W	23.89	131.42	0.25
6400.00	1.13	178.41	6399.67	-23.32	-17.50	18.09	516694.5	4401558.9	39°45'49.643"N	80°48'18.330"W	25.17	134.05	0.35
6500.00	1.65	172.72	6499.64	-24.41	-19.91	18.30	516694.6	4401558.2	39°45'49.619"N	80°48'18.328"W	27.05	137.42	0.54
6600.00	1.31	174.13	6599.60	-25.65	-22.48	18.60	516694.7	4401557.4	39°45'49.594"N	80°48'18.324"W	29.18	140.39	0.34
6700.00	1.41	183.32	6699.57	-26.57	-24.84	18.65	516694.7	4401556.7	39°45'49.571"N	80°48'18.323"W	31.06	143.11	0.24
6800.00	1.17	163.13	6799.55	-27.60	-27.05	18.87	516694.7	4401556.0	39°45'49.549"N	80°48'18.321"W	32.98	145.10	0.51
6900.00	0.90	194.04	6899.53	-28.35	-28.79	18.98	516694.8	4401555.5	39°45'49.532"N	80°48'18.319"W	34.48	146.61	0.61
7000.00	1.40	183.34	6999.51	-28.85	-30.77	18.71	516694.7	4401554.9	39°45'49.512"N	80°48'18.323"W	36.01	148.69	0.54
7100.00	1.02	174.63	7099.49	-29.65	-32.88	18.73	516694.7	4401554.2	39°45'49.491"N	80°48'18.323"W	37.84	150.33	0.42
7200.00	1.24	175.10	7199.47	-30.54	-34.84	18.90	516694.7	4401553.6	39°45'49.472"N	80°48'18.320"W	39.64	151.52	0.22
7300.00	1.16	174.62	7299.45	-31.49	-36.93	19.09	516694.8	4401553.0	39°45'49.451"N	80°48'18.318"W	41.57	152.66	0.08
7400.00	0.59	169.15	7399.44	-32.24	-38.44	19.28	516694.9	4401552.5	39°45'49.436"N	80°48'18.316"W	43.00	153.36	0.58
7500.00	0.93	174.25	7499.43	-32.89	-39.75	19.46	516694.9	4401552.1	39°45'49.423"N	80°48'18.313"W	44.26	153.92	0.35
7600.00	0.63	177.43	7599.42	-33.50	-41.11	19.57	516694.9	4401551.7	39°45'49.410"N	80°48'18.312"W	45.53	154.55	0.30
7700.00	0.75	176.14	7699.41	-34.01	-42.31	19.63	516695.0	4401551.3	39°45'49.398"N	80°48'18.311"W	46.65	155.11	0.12
7800.00	0.91	133.87	7799.40	-35.03	-43.51	20.25	516695.2	4401551.0	39°45'49.386"N	80°48'18.303"W	48.00	155.04	0.62
7900.00	0.40	138.66	7899.40	-36.06	-44.33	21.05	516695.4	4401550.7	39°45'49.378"N	80°48'18.293"W	49.07	154.59	0.51
8000.00	0.67	130.86	7999.39	-36.94	-44.97	21.73	516695.6	4401550.5	39°45'49.372"N	80°48'18.285"W	49.95	154.21	0.28
8100.00	0.51	113.02	8099.39	-37.94	-45.53	22.58	516695.9	4401550.4	39°45'49.366"N	80°48'18.274"W	50.82	153.62	0.24
8200.00	0.80	145.99	8199.38	-38.97	-46.28	23.38	516696.1	4401550.1	39°45'49.359"N	80°48'18.263"W	51.85	153.20	0.46
8300.00	0.38	100.36	8299.37	-39.87	-46.92	24.10	516696.3	4401549.9	39°45'49.352"N	80°48'18.254"W	52.74	152.82	0.60
8400.00	0.08	296.05	8399.37	-40.12	-46.95	24.36	516696.4	4401549.9	39°45'49.352"N	80°48'18.251"W	52.89	152.58	0.46
8500.00	0.53	24.97	8499.37	-40.08	-46.50	24.49	516696.4	4401550.1	39°45'49.357"N	80°48'18.249"W	52.55	152.22	0.53

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MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [M]	Grid North [M]	Latitude	Longitude	Closure Dist [ft]	Closure Angle [°]	PLS [ft]
8600.00	0.68	307.95	8599.37	-39.53	-45.71	24.22	516696.4	4401550.3	39°45'49.364"N	80°48'18.253"W	51.73	152.09	0.76
8700.00	0.37	5.27	8699.36	-38.87	-45.03	23.78	516696.2	4401550.5	39°45'49.371"N	80°48'18.258"W	50.92	152.16	0.57
8800.00	0.53	322.98	8799.36	-38.38	-44.34	23.53	516696.2	4401550.7	39°45'49.378"N	80°48'18.261"W	50.19	152.04	0.36
8900.00	0.18	89.78	8899.36	-38.13	-43.97	23.41	516696.1	4401550.8	39°45'49.382"N	80°48'18.263"W	49.81	151.97	0.65
9000.00	0.42	77.19	8999.36	-38.58	-43.88	23.93	516696.3	4401550.9	39°45'49.382"N	80°48'18.256"W	49.98	151.40	0.25
9100.00	0.26	75.14	9099.36	-39.06	-43.75	24.50	516696.5	4401550.9	39°45'49.384"N	80°48'18.249"W	50.14	150.75	0.16
9200.00	0.44	110.68	9199.36	-39.63	-43.82	25.08	516696.6	4401550.9	39°45'49.383"N	80°48'18.242"W	50.49	150.22	0.27
9300.00	0.54	112.85	9299.35	-40.48	-44.14	25.87	516696.9	4401550.8	39°45'49.380"N	80°48'18.231"W	51.17	149.62	0.10
9400.00	1.25	101.34	9399.34	-42.03	-44.54	27.38	516697.3	4401550.7	39°45'49.376"N	80°48'18.212"W	52.28	148.42	0.73
9500.00	1.18	119.40	9499.32	-44.12	-45.26	29.34	516697.9	4401550.4	39°45'49.369"N	80°48'18.187"W	53.94	147.04	0.39
9606.00	1.60	116.36	9605.29	-46.68	-46.45	31.62	516698.6	4401550.1	39°45'49.357"N	80°48'18.158"W	56.19	145.76	0.40
9880.00	6.19	108.20	9878.58	-65.24	-52.77	49.09	516703.9	4401548.2	39°45'49.294"N	80°48'17.934"W	72.07	137.07	1.68
9974.00	10.40	107.23	9971.58	-78.76	-56.87	62.01	516707.9	4401546.9	39°45'49.253"N	80°48'17.769"W	84.14	132.52	4.48
10070.00	11.95	108.74	10065.75	-97.32	-62.63	79.70	516713.3	4401545.1	39°45'49.196"N	80°48'17.543"W	101.36	128.16	1.64
10164.00	12.24	111.24	10157.67	-117.00	-69.36	98.21	516718.9	4401543.1	39°45'49.129"N	80°48'17.306"W	120.23	125.23	0.64
10260.00	11.11	112.91	10251.68	-136.43	-76.65	116.21	516724.4	4401540.9	39°45'49.057"N	80°48'17.076"W	139.21	123.41	1.23
10354.00	11.21	105.89	10343.91	-154.57	-82.68	133.34	516729.6	4401539.0	39°45'48.997"N	80°48'16.856"W	156.89	121.80	1.45
10449.00	8.20	107.18	10437.54	-170.51	-87.21	148.70	516734.3	4401537.7	39°45'48.952"N	80°48'16.660"W	172.39	120.39	3.18
10544.00	3.25	49.37	10532.09	-178.51	-87.46	157.23	516736.9	4401537.6	39°45'48.949"N	80°48'16.551"W	179.91	119.08	7.40
10640.00	7.37	311.35	10627.79	-173.95	-81.60	154.67	516736.1	4401539.4	39°45'49.007"N	80°48'16.583"W	174.87	117.82	8.81
10734.00	14.63	299.19	10720.02	-156.46	-71.82	139.76	516731.6	4401542.3	39°45'49.104"N	80°48'16.774"W	157.13	117.20	8.07
10829.00	22.61	297.02	10809.97	-126.32	-57.65	112.97	516723.4	4401546.7	39°45'49.245"N	80°48'17.117"W	126.83	117.04	8.43
10925.00	32.04	290.79	10895.18	-82.37	-40.18	72.62	516711.1	4401552.0	39°45'49.418"N	80°48'17.633"W	83.00	118.96	10.25
11020.00	42.78	289.78	10970.53	-24.77	-20.26	18.55	516694.6	4401558.1	39°45'49.616"N	80°48'18.325"W	27.47	137.53	11.32
11114.00	57.27	290.79	11030.76	47.04	4.71	-48.81	516674.1	4401565.7	39°45'49.864"N	80°48'19.187"W	49.04	275.51	15.44
11210.00	62.33	289.77	11079.04	129.95	33.44	-126.62	516650.4	4401574.4	39°45'50.150"N	80°48'20.182"W	130.96	284.79	5.35
11305.00	69.65	287.89	11117.67	216.54	61.39	-208.71	516625.4	4401582.9	39°45'50.428"N	80°48'21.232"W	217.55	286.39	7.91
11400.00	74.45	288.06	11146.94	306.67	89.27	-294.65	516599.2	4401591.4	39°45'50.705"N	80°48'22.332"W	307.87	286.86	5.06
11495.00	80.17	288.79	11167.80	399.14	118.56	-382.54	516572.4	4401600.4	39°45'50.997"N	80°48'23.457"W	400.49	287.22	6.07
11590.00	83.49	291.32	11181.30	493.11	150.81	-470.85	516545.5	4401610.2	39°45'51.317"N	80°48'24.587"W	494.41	287.76	4.38
11685.00	85.75	295.69	11190.21	587.62	188.52	-557.55	516519.1	4401621.7	39°45'51.692"N	80°48'25.696"W	588.56	288.68	5.16

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11780.00	86.15	295.94	11196.92	682.17	229.79	-642.86	516493.1	4401634.2	39°45'52.101"N	80°48'26.787"W	682.69	289.67	0.50
11875.00	87.81	294.58	11201.92	776.87	270.27	-728.65	516467.0	4401646.6	39°45'52.503"N	80°48'27.885"W	777.16	290.35	1.26
11969.00	91.23	292.60	11202.71	870.80	307.88	-814.77	516440.7	4401658.0	39°45'52.877"N	80°48'28.987"W	871.00	290.90	2.40
12064.00	91.32	291.35	11200.60	965.78	343.42	-902.85	516413.9	4401668.9	39°45'53.230"N	80°48'30.114"W	965.96	290.83	1.32
12158.00	91.35	291.26	11198.41	1059.75	377.56	-990.40	516387.2	4401679.3	39°45'53.569"N	80°48'31.234"W	1059.93	290.87	0.10
12254.00	91.29	288.96	11196.20	1155.67	410.56	-1080.52	516359.8	4401689.3	39°45'53.897"N	80°48'32.387"W	1155.89	290.81	2.40
12349.00	91.45	289.53	11193.92	1250.54	441.86	-1170.18	516332.5	4401698.9	39°45'54.208"N	80°48'33.534"W	1250.83	290.69	0.62
12445.00	91.57	291.40	11191.39	1346.47	475.41	-1260.09	516305.1	4401709.1	39°45'54.542"N	80°48'34.685"W	1346.79	290.67	1.95
12539.00	91.45	291.75	11188.92	1440.43	509.97	-1347.47	516278.4	4401719.6	39°45'54.885"N	80°48'35.803"W	1440.75	290.73	0.39
12634.00	91.72	292.62	11186.29	1535.40	545.82	-1435.40	516251.6	4401730.5	39°45'55.241"N	80°48'36.928"W	1535.68	290.82	0.96
12727.00	91.42	292.23	11183.74	1628.36	581.29	-1521.34	516225.5	4401741.3	39°45'55.594"N	80°48'38.027"W	1628.61	290.91	0.53
12821.00	91.45	293.99	11181.39	1722.30	618.17	-1607.77	516199.1	4401752.6	39°45'55.960"N	80°48'39.133"W	1722.51	291.03	1.87
12916.00	91.42	294.98	11179.01	1817.18	657.53	-1694.19	516172.8	4401764.6	39°45'56.351"N	80°48'40.239"W	1817.32	291.21	1.04
13010.00	91.51	294.29	11176.60	1911.04	696.70	-1779.61	516146.8	4401776.5	39°45'56.740"N	80°48'41.332"W	1911.13	291.38	0.74
13106.00	91.32	293.22	11174.23	2006.96	735.36	-1867.45	516120.0	4401788.3	39°45'57.123"N	80°48'42.456"W	2007.02	291.49	1.13
13200.00	91.45	290.99	11171.96	2100.93	770.72	-1954.51	516093.5	4401799.1	39°45'57.475"N	80°48'43.570"W	2100.98	291.52	2.38
13295.00	91.20	292.86	11169.76	2195.90	806.18	-2042.61	516066.6	4401809.9	39°45'57.827"N	80°48'44.697"W	2195.95	291.54	1.99
13391.00	91.20	292.96	11167.75	2291.86	843.54	-2131.02	516039.7	4401821.2	39°45'58.198"N	80°48'45.828"W	2291.90	291.60	0.10
13485.00	91.23	289.88	11165.76	2385.83	877.86	-2218.49	516013.1	4401831.7	39°45'58.539"N	80°48'46.947"W	2385.87	291.59	3.28
13580.00	91.20	291.55	11163.75	2480.78	911.45	-2307.33	515986.0	4401841.9	39°45'58.873"N	80°48'48.084"W	2480.83	291.56	1.76
13675.00	91.08	291.26	11161.86	2575.76	946.12	-2395.76	515959.1	4401852.5	39°45'59.217"N	80°48'49.215"W	2575.81	291.55	0.33
13769.00	91.11	289.56	11160.06	2669.70	978.89	-2483.84	515932.2	4401862.5	39°45'59.543"N	80°48'50.343"W	2669.77	291.51	1.81
13862.00	91.42	289.95	11158.01	2762.61	1010.32	-2571.34	515905.6	4401872.1	39°45'59.855"N	80°48'51.462"W	2762.71	291.45	0.54
13956.00	91.88	290.62	11155.30	2856.54	1042.89	-2659.48	515878.7	4401882.0	39°46'00.179"N	80°48'52.590"W	2856.65	291.41	0.86
14050.00	92.00	292.80	11152.12	2950.48	1077.64	-2746.75	515852.1	4401892.6	39°46'00.524"N	80°48'53.707"W	2950.59	291.42	2.32
14145.00	92.00	291.79	11148.80	3045.42	1113.66	-2834.60	515825.3	4401903.5	39°46'00.882"N	80°48'54.831"W	3045.52	291.45	1.06
14240.00	92.06	292.73	11145.44	3140.35	1149.63	-2922.46	515798.6	4401914.5	39°46'01.239"N	80°48'55.955"W	3140.45	291.47	0.99
14335.00	92.03	292.59	11142.05	3235.28	1186.20	-3010.07	515771.9	4401925.6	39°46'01.602"N	80°48'57.076"W	3235.37	291.51	0.15
14429.00	92.09	292.41	11138.67	3329.22	1222.15	-3096.86	515745.4	4401936.6	39°46'01.960"N	80°48'58.187"W	3329.29	291.54	0.20
14523.00	92.06	293.30	11135.26	3423.14	1258.64	-3183.42	515719.1	4401947.7	39°46'02.322"N	80°48'59.294"W	3423.21	291.57	0.95
14617.00	91.45	291.55	11132.38	3517.09	1294.48	-3270.27	515692.6	4401958.6	39°46'02.678"N	80°49'00.405"W	3517.15	291.60	1.97

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14712.00	91.48	291.60	11129.96	3612.06	1329.40	-3358.59	515665.7	4401969.3	39°46'03.025"N	80°49'01.536"W	3612.12	291.60	0.06
14807.00	91.48	291.57	11127.50	3707.03	1364.33	-3446.89	515638.8	4401979.9	39°46'03.372"N	80°49'02.666"W	3707.09	291.59	0.03
14901.00	91.51	291.88	11125.05	3800.99	1399.12	-3534.19	515612.2	4401990.5	39°46'03.717"N	80°49'03.783"W	3801.05	291.60	0.33
14994.00	91.48	291.74	11122.62	3893.96	1433.66	-3620.50	515585.9	4402001.0	39°46'04.060"N	80°49'04.887"W	3894.02	291.60	0.15
15090.00	91.51	291.62	11120.12	3989.93	1469.11	-3709.68	515558.7	4402011.8	39°46'04.413"N	80°49'06.028"W	3989.99	291.61	0.13
15184.00	91.08	290.60	11117.99	4083.89	1502.96	-3797.35	515532.0	4402022.1	39°46'04.749"N	80°49'07.150"W	4083.96	291.59	1.18
15278.00	91.14	290.38	11116.17	4177.85	1535.85	-3885.38	515505.2	4402032.2	39°46'05.076"N	80°49'08.277"W	4177.92	291.57	0.24
15373.00	91.11	291.92	11114.31	4272.82	1570.12	-3973.96	515478.2	4402042.6	39°46'05.416"N	80°49'09.410"W	4272.90	291.56	1.62
15467.00	91.14	291.13	11112.46	4366.80	1604.61	-4061.39	515451.6	4402053.1	39°46'05.759"N	80°49'10.529"W	4366.88	291.56	0.84
15563.00	91.08	291.89	11110.60	4462.77	1639.80	-4150.69	515424.4	4402063.8	39°46'06.108"N	80°49'11.671"W	4462.86	291.56	0.79
15656.00	91.42	292.77	11108.57	4555.75	1675.12	-4236.69	515398.2	4402074.6	39°46'06.459"N	80°49'12.772"W	4555.83	291.57	1.01
15751.00	91.51	293.34	11106.15	4650.70	1712.32	-4324.08	515371.5	4402085.9	39°46'06.828"N	80°49'13.890"W	4650.77	291.60	0.61
15846.00	91.05	294.79	11104.02	4745.61	1751.04	-4410.79	515345.1	4402097.7	39°46'07.213"N	80°49'15.000"W	4745.66	291.65	1.60
15940.00	91.08	293.62	11102.28	4839.51	1789.58	-4496.51	515319.0	4402109.5	39°46'07.595"N	80°49'16.096"W	4839.55	291.70	1.24
16035.00	91.11	291.24	11100.46	4934.48	1825.81	-4584.30	515292.2	4402120.5	39°46'07.955"N	80°49'17.220"W	4934.52	291.72	2.51
16130.00	90.89	290.34	11098.80	5029.45	1859.53	-4673.10	515265.2	4402130.8	39°46'08.290"N	80°49'18.356"W	5029.49	291.70	0.98
16225.00	90.83	290.22	11097.38	5124.40	1892.45	-4762.21	515238.0	4402140.8	39°46'08.617"N	80°49'19.496"W	5124.45	291.67	0.14
16320.00	90.89	291.41	11095.95	5219.37	1926.21	-4850.99	515211.0	4402151.1	39°46'08.952"N	80°49'20.633"W	5219.43	291.66	1.25
16414.00	90.89	291.82	11094.49	5313.36	1960.83	-4938.37	515184.4	4402161.7	39°46'09.296"N	80°49'21.751"W	5313.41	291.66	0.44
16507.00	90.77	292.38	11093.14	5406.35	1995.81	-5024.53	515158.1	4402172.3	39°46'09.644"N	80°49'22.853"W	5406.40	291.66	0.62
16602.00	90.89	292.24	11091.77	5501.34	2031.87	-5112.41	515131.3	4402183.3	39°46'10.002"N	80°49'23.978"W	5501.39	291.68	0.19
16697.00	90.89	292.52	11090.29	5596.32	2068.04	-5200.24	515104.6	4402194.3	39°46'10.361"N	80°49'25.102"W	5596.37	291.69	0.29
16792.00	90.68	292.66	11088.99	5691.31	2104.53	-5287.95	515077.9	4402205.4	39°46'10.723"N	80°49'26.224"W	5691.35	291.70	0.27
16887.00	90.89	291.55	11087.69	5786.29	2140.27	-5375.95	515051.0	4402216.3	39°46'11.078"N	80°49'27.350"W	5786.33	291.71	1.19
16982.00	90.80	291.57	11086.29	5881.28	2175.18	-5464.30	515024.1	4402227.0	39°46'11.425"N	80°49'28.481"W	5881.32	291.71	0.10
17077.00	90.83	291.18	11084.94	5976.27	2209.80	-5552.75	514997.2	4402237.5	39°46'11.769"N	80°49'29.613"W	5976.31	291.70	0.41
17171.00	90.80	289.32	11083.60	6070.21	2242.33	-5640.93	514970.3	4402247.4	39°46'12.092"N	80°49'30.741"W	6070.27	291.68	1.98
17266.00	90.83	290.48	11082.25	6165.14	2274.66	-5730.25	514943.1	4402257.3	39°46'12.413"N	80°49'31.884"W	6165.21	291.65	1.22
17362.00	91.26	290.49	11080.50	6261.10	2308.26	-5820.16	514915.7	4402267.5	39°46'12.747"N	80°49'33.035"W	6261.18	291.63	0.45
17457.00	91.23	291.50	11078.43	6356.06	2342.28	-5908.83	514888.7	4402277.9	39°46'13.085"N	80°49'34.170"W	6356.15	291.62	1.06
17551.00	91.20	294.63	11076.44	6450.01	2379.10	-5995.29	514862.3	4402289.1	39°46'13.450"N	80°49'35.276"W	6450.08	291.65	3.33

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17646.00	91.23	295.24	11074.42	6544.86	2419.14	-6081.41	514836.1	4402301.3	39°46'13.848"N	80°49'36.378"W	6544.91	291.69	0.64
17742.00	91.23	293.10	11072.36	6640.76	2458.44	-6168.97	514809.4	4402313.3	39°46'14.238"N	80°49'37.498"W	6640.79	291.73	2.23
17836.00	91.20	291.57	11070.37	6734.73	2494.15	-6255.90	514782.9	4402324.1	39°46'14.592"N	80°49'38.611"W	6734.76	291.74	1.63
17931.00	90.95	292.53	11068.59	6829.71	2529.81	-6343.93	514756.1	4402335.0	39°46'14.946"N	80°49'39.737"W	6829.74	291.74	1.04
18026.00	90.77	291.12	11067.16	6924.70	2565.12	-6432.11	514729.3	4402345.8	39°46'15.297"N	80°49'40.866"W	6924.73	291.74	1.50
18074.00	90.89	291.27	11066.47	6972.69	2582.47	-6476.86	514715.6	4402351.1	39°46'15.469"N	80°49'41.438"W	6972.72	291.74	0.40
18102.00	90.89	291.27	11066.03	7000.68	2592.63	-6502.95	514707.7	4402354.1	39°46'15.570"N	80°49'41.772"W	7000.72	291.74	0.00

10/30/2015