

HEADER INFORMATION

Company: Oasis Petroleum
 Field: Winkler Co., TX
 Site Name: UL Mag Dec.C 8.64 TO GRID
 Well Name Sugarloaf E 20-37-48 #5205H
 Wellpath N Wellbore # AFE / OCS:
 Survey Nar Wellbore # Survey Dat ##### Survey Typ H 38 - 4903 SURVEY #2 VES GYRO : VES GYROFLEX
 H 4903 - 21947 SURVEY #3 NDS : MWD+HRGM
 Depth Unit ft

SURFACE LOCATION

Site Northi 740632.7
 Site Easting 1090262

BOTTOM HOLE LOCATION

BHL MD 21947
 BHL TVD 11622.23

WELL INFORMATION

Well North 743211.1
 Well Eastin 1089555
 Rig K.B: 2794.2
 Vsec Angle 163.71
 Vsec North 0
 Vsec East: 0

SURVEY LIST

MD	INC	AZI	TVD	NS	EW	VSEC	DLS	S/STVD	LeaseN/S	LeaseE/W	Northing	Easting	Latitude	Longitude
0	0	0	0	0	0	0	0	-2794.2	2578.38	-706.56	743211.1	1089555	31° 40' E	103° 15' 37.12 W
37.88	0.28	332.11	37.88	0.08	-0.04	-0.09	0.74	-2756.32	2578.46	-706.6	743211.2	1089555	31° 40' E	103° 15' 37.12 W
131.44	0.37	335.55	131.44	0.56	-0.28	-0.61	0.1	-2662.76	2578.93	-706.84	743211.6	1089555	31° 40' E	103° 15' 37.12 W
225	0.36	326.29	225	1.08	-0.56	-1.19	0.06	-2569.2	2579.45	-707.12	743212.2	1089555	31° 40' E	103° 15' 37.13 W
318.56	0.37	334.38	318.55	1.6	-0.86	-1.77	0.06	-2475.65	2579.97	-707.42	743212.7	1089554	31° 40' E	103° 15' 37.13 W
412.12	0.33	321.9	412.11	2.08	-1.15	-2.32	0.09	-2382.09	2580.45	-707.72	743213.2	1089554	31° 40' E	103° 15' 37.14 W
505.68	0.56	314.92	505.67	2.61	-1.64	-2.97	0.25	-2288.53	2580.99	-708.21	743213.7	1089554	31° 40' E	103° 15' 37.14 W
599.24	0.59	294.01	599.23	3.13	-2.41	-3.68	0.23	-2194.97	2581.51	-708.97	743214.2	1089553	31° 40' E	103° 15' 37.15 W
692.8	0.42	296.69	692.78	3.48	-3.15	-4.23	0.18	-2101.42	2581.86	-709.72	743214.6	1089552	31° 40' E	103° 15' 37.16 W
786.36	0.36	291.79	786.34	3.75	-3.73	-4.64	0.07	-2007.86	2582.12	-710.29	743214.8	1089551	31° 40' E	103° 15' 37.17 W
879.92	0.48	284.5	879.9	3.95	-4.39	-5.03	0.14	-1914.3	2582.33	-710.95	743215	1089551	31° 40' E	103° 15' 37.17 W
973.48	0.43	281.64	973.45	4.12	-5.11	-5.39	0.06	-1820.75	2582.5	-711.67	743215.2	1089550	31° 40' E	103° 15' 37.18 W

1067.04	0.32	266.83	1067.01	4.18	-5.71	-5.61	0.16	-1727.19	2582.55	-712.28	743215.3	1089549	31° 40' E	103° 15' 37.19 W
1160.6	0.4	267.99	1160.57	4.15	-6.3	-5.75	0.09	-1633.63	2582.53	-712.86	743215.2	1089549	31° 40' E	103° 15' 37.20 W
1254.16	0.42	262.24	1254.13	4.1	-6.97	-5.89	0.05	-1540.07	2582.47	-713.53	743215.2	1089548	31° 40' E	103° 15' 37.20 W
1347.72	0.3	259.58	1347.69	4	-7.55	-5.96	0.13	-1446.51	2582.38	-714.11	743215.1	1089548	31° 40' E	103° 15' 37.21 W
1441.28	0.18	226.8	1441.25	3.86	-7.9	-5.92	0.19	-1352.95	2582.24	-714.46	743214.9	1089547	31° 40' E	103° 15' 37.21 W
1534.84	0.17	102.05	1534.8	3.73	-7.87	-5.79	0.33	-1259.4	2582.11	-714.43	743214.8	1089547	31° 40' E	103° 15' 37.21 W
1628.4	0.25	74.15	1628.36	3.76	-7.54	-5.72	0.14	-1165.84	2582.13	-714.1	743214.8	1089548	31° 40' E	103° 15' 37.21 W
1721.96	0.5	73.21	1721.92	3.93	-6.95	-5.72	0.27	-1072.28	2582.31	-713.51	743215	1089548	31° 40' E	103° 15' 37.20 W
1815.52	0.83	69.95	1815.48	4.28	-5.92	-5.77	0.35	-978.72	2582.66	-712.48	743215.4	1089549	31° 40' E	103° 15' 37.19 W
1909.08	0.88	72.42	1909.03	4.73	-4.6	-5.83	0.07	-885.17	2583.11	-711.16	743215.8	1089551	31° 40' E	103° 15' 37.18 W
2002.64	1.05	70.42	2002.57	5.23	-3.11	-5.9	0.19	-791.63	2583.61	-709.67	743216.3	1089552	31° 40' E	103° 15' 37.16 W
2096.2	1.34	75.42	2096.11	5.8	-1.24	-5.91	0.33	-698.09	2584.17	-707.8	743216.9	1089554	31° 40' E	103° 15' 37.14 W
2189.76	1.37	72.52	2189.65	6.41	0.89	-5.9	0.08	-604.55	2584.78	-705.68	743217.5	1089556	31° 40' E	103° 15' 37.11 W
2283.32	1.44	71.96	2283.18	7.11	3.07	-5.96	0.08	-511.02	2585.48	-703.49	743218.2	1089558	31° 40' E	103° 15' 37.09 W
2376.88	1.54	50.69	2376.71	8.27	5.16	-6.49	0.6	-417.49	2586.64	-701.4	743219.3	1089560	31° 40' E	103° 15' 37.06 W
2470.44	1.64	48.16	2470.23	9.96	7.13	-7.56	0.13	-323.97	2588.33	-699.43	743221	1089562	31° 40' E	103° 15' 37.04 W
2564	1.75	352.57	2563.76	12.27	7.94	-9.55	1.69	-230.44	2590.64	-698.62	743223.3	1089563	31° 40' E	103° 15' 37.03 W
2657.56	2.8	292.53	2657.25	14.56	5.65	-12.39	2.62	-136.95	2592.94	-700.91	743225.6	1089561	31° 40' E	103° 15' 37.06 W
2751.12	3.88	287.23	2750.65	16.37	0.51	-15.57	1.2	-43.55	2594.75	-706.05	743227.4	1089556	31° 40' E	103° 15' 37.12 W
2844.68	6.21	272.88	2843.85	17.57	-7.57	-18.98	2.81	49.65	2595.94	-714.13	743228.6	1089548	31° 40' E	103° 15' 37.21 W
2938.24	7.06	267.39	2936.78	17.56	-18.36	-22	1.13	142.58	2595.93	-724.92	743228.6	1089537	31° 40' E	103° 15' 37.34 W
3031.8	7.15	264.03	3029.62	16.69	-29.9	-24.41	0.45	235.42	2595.07	-736.46	743227.8	1089525	31° 40' E	103° 15' 37.47 W
3125.36	7.53	267.11	3122.42	15.78	-41.81	-26.87	0.58	328.22	2594.15	-748.37	743226.9	1089513	31° 40' E	103° 15' 37.61 W
3218.92	7.78	265.56	3215.14	14.98	-54.25	-29.59	0.35	420.94	2593.35	-760.81	743226.1	1089501	31° 40' E	103° 15' 37.75 W
3312.48	7.97	262.66	3307.82	13.66	-66.99	-31.9	0.47	513.62	2592.03	-773.56	743224.7	1089488	31° 40' E	103° 15' 37.90 W
3406.04	8.15	260.71	3400.46	11.76	-79.97	-33.72	0.35	606.26	2590.13	-786.53	743222.8	1089475	31° 40' E	103° 15' 38.05 W
3499.6	7.28	261.41	3493.17	9.8	-92.38	-35.32	0.94	698.97	2588.18	-798.94	743220.9	1089463	31° 40' E	103° 15' 38.19 W
3593.16	7.49	260.84	3585.95	7.95	-104.26	-36.87	0.24	791.75	2586.32	-810.82	743219	1089451	31° 40' E	103° 15' 38.33 W
3686.72	8.08	260.24	3678.65	5.86	-116.76	-38.38	0.64	884.45	2584.24	-823.32	743216.9	1089438	31° 40' E	103° 15' 38.47 W
3780.28	8.24	261.96	3771.26	3.81	-129.88	-40.09	0.31	977.06	2582.18	-836.44	743214.9	1089425	31° 40' E	103° 15' 38.63 W
3873.84	7.8	260.4	3863.91	1.81	-142.78	-41.79	0.52	1069.71	2580.19	-849.34	743212.9	1089412	31° 40' E	103° 15' 38.77 W
3967.4	7.3	262.85	3956.66	0.01	-154.94	-43.47	0.64	1162.46	2578.39	-861.5	743211.1	1089400	31° 40' E	103° 15' 38.91 W
4060.96	7.29	261.77	4049.46	-1.58	-166.71	-45.25	0.15	1255.26	2576.8	-873.27	743209.5	1089388	31° 40' E	103° 15' 39.05 W
4154.52	7.39	260.99	4142.25	-3.37	-178.53	-46.84	0.15	1348.05	2575.01	-885.09	743207.7	1089377	31° 40' E	103° 15' 39.19 W
4248.08	6.97	262.2	4235.08	-5.08	-190.09	-48.44	0.48	1440.88	2573.3	-896.65	743206	1089365	31° 40' E	103° 15' 39.32 W
4341.64	7.18	261.98	4327.93	-6.67	-201.51	-50.12	0.23	1533.73	2571.71	-908.07	743204.4	1089354	31° 40' E	103° 15' 39.45 W
4435.2	7.29	260.78	4420.74	-8.43	-213.16	-51.7	0.2	1626.54	2569.94	-919.72	743202.6	1089342	31° 40' E	103° 15' 39.58 W
4528.76	8.04	260.53	4513.46	-10.46	-225.47	-53.2	0.8	1719.26	2567.91	-932.03	743200.6	1089330	31° 40' E	103° 15' 39.73 W
4622.32	8.25	261.56	4606.08	-12.52	-238.56	-54.9	0.27	1811.88	2565.85	-945.12	743198.6	1089317	31° 40' E	103° 15' 39.88 W
4715.88	8.24	261.54	4698.67	-14.49	-251.83	-56.73	0.01	1904.47	2563.88	-958.4	743196.6	1089303	31° 40' E	103° 15' 40.03 W
4809.44	8.18	264.41	4791.27	-16.13	-265.09	-58.88	0.44	1997.07	2562.25	-971.65	743194.9	1089290	31° 40' E	103° 15' 40.18 W

4903	8.05	263.69	4883.9	-17.5	-278.23	-61.25	0.18	2089.7	2560.88	-984.79	743193.6	1089277	31° 40' E	103° 15' 40.33 W
5049	8.13	262.29	5028.44	-20.01	-298.62	-64.56	0.15	2234.24	2558.37	-1005.18	743191.1	1089257	31° 40' E	103° 15' 40.57 W
5237	8.44	260.36	5214.48	-24.1	-325.39	-68.14	0.22	2420.28	2554.28	-1031.95	743187	1089230	31° 40' E	103° 15' 40.88 W
5426	8.5	257.37	5401.42	-29.48	-352.7	-70.64	0.24	2607.22	2548.9	-1059.26	743181.6	1089202	31° 40' E	103° 15' 41.19 W
5615	8.31	266.34	5588.4	-33.4	-379.96	-74.52	0.7	2794.2	2544.97	-1086.52	743177.7	1089175	31° 40' E	103° 15' 41.51 W
5804	7.81	263.17	5775.53	-35.8	-406.34	-79.61	0.35	2981.33	2542.57	-1112.9	743175.3	1089149	31° 40' E	103° 15' 41.81 W
5993	7.56	260.53	5962.84	-39.37	-431.35	-83.2	0.23	3168.64	2539	-1137.91	743171.7	1089124	31° 40' E	103° 15' 42.10 W
6181	7.44	270.03	6149.24	-41.4	-455.72	-88.09	0.66	3355.04	2536.97	-1162.29	743169.7	1089099	31° 40' E	103° 15' 42.38 W
6370	7.44	267.74	6336.64	-41.88	-480.19	-94.49	0.16	3542.44	2536.5	-1186.75	743169.2	1089075	31° 40' E	103° 15' 42.66 W
6559	7.19	265.81	6524.11	-43.23	-504.21	-99.94	0.19	3729.91	2535.15	-1210.77	743167.8	1089051	31° 40' E	103° 15' 42.94 W
6748	7.19	263.7	6711.62	-45.39	-527.76	-104.47	0.14	3917.42	2532.99	-1234.32	743165.7	1089027	31° 40' E	103° 15' 43.21 W
6936	7	262.12	6898.18	-48.25	-550.8	-108.19	0.14	4103.98	2530.13	-1257.37	743162.8	1089004	31° 40' E	103° 15' 43.48 W
7125	6.88	261.77	7085.8	-51.45	-573.42	-111.46	0.07	4291.6	2526.93	-1279.98	743159.6	1088982	31° 40' E	103° 15' 43.74 W
7313	6.31	269.85	7272.56	-53.09	-594.89	-115.91	0.58	4478.36	2525.29	-1301.45	743158	1088960	31° 40' E	103° 15' 43.99 W
7501	5.44	269.5	7459.57	-53.19	-614.14	-121.21	0.46	4665.37	2525.18	-1320.7	743157.9	1088941	31° 40' E	103° 15' 44.21 W
7690	3.63	270.38	7647.97	-53.23	-629.08	-125.36	0.96	4853.77	2525.14	-1335.64	743157.8	1088926	31° 40' E	103° 15' 44.38 W
7879	3.13	267.39	7836.64	-53.43	-640.22	-128.3	0.28	5042.44	2524.95	-1346.78	743157.6	1088915	31° 40' E	103° 15' 44.51 W
8068	2.5	269.85	8025.41	-53.67	-649.49	-130.66	0.34	5231.21	2524.7	-1356.05	743157.4	1088906	31° 40' E	103° 15' 44.62 W
8256	2.31	270.38	8213.24	-53.66	-657.38	-132.89	0.1	5419.04	2524.72	-1363.94	743157.4	1088898	31° 40' E	103° 15' 44.71 W
8445	2.19	260.18	8402.1	-54.25	-664.75	-134.39	0.22	5607.9	2524.13	-1371.31	743156.8	1088890	31° 40' E	103° 15' 44.79 W
8632	2.25	265.81	8588.96	-55.13	-671.93	-135.56	0.12	5794.76	2523.25	-1378.49	743155.9	1088883	31° 40' E	103° 15' 44.88 W
8821	2.38	263.87	8777.8	-55.82	-679.53	-137.03	0.08	5983.6	2522.56	-1386.09	743155.3	1088876	31° 40' E	103° 15' 44.97 W
9010	2.88	253.15	8966.61	-57.61	-687.98	-137.68	0.37	6172.41	2520.76	-1394.54	743153.5	1088867	31° 40' E	103° 15' 45.06 W
9198	2.5	258.25	9154.4	-59.82	-696.51	-137.96	0.24	6360.2	2518.56	-1403.07	743151.3	1088859	31° 40' E	103° 15' 45.16 W
9387	2	251.04	9343.25	-61.73	-703.67	-138.13	0.3	6549.05	2516.65	-1410.23	743149.3	1088851	31° 40' E	103° 15' 45.24 W
9575	1.88	245.07	9531.14	-64.09	-709.57	-137.51	0.12	6736.94	2514.28	-1416.13	743147	1088846	31° 40' E	103° 15' 45.31 W
9764	1.44	208.68	9720.07	-67.48	-713.52	-135.37	0.59	6925.87	2510.89	-1420.08	743143.6	1088842	31° 40' E	103° 15' 45.36 W
9953	1.38	194.79	9909.01	-71.77	-715.24	-131.74	0.18	7114.81	2506.61	-1421.8	743139.3	1088840	31° 40' E	103° 15' 45.37 W
10140	1.38	106.73	10095.98	-74.59	-713.66	-128.58	1.03	7301.78	2503.78	-1420.22	743136.5	1088842	31° 40' E	103° 15' 45.35 W
10328	1.81	104.44	10283.9	-75.98	-708.61	-125.83	0.23	7489.7	2502.39	-1415.17	743135.1	1088847	31° 40' E	103° 15' 45.30 W
10515	2.06	93.37	10470.8	-76.92	-702.4	-123.19	0.24	7676.6	2501.46	-1408.96	743134.2	1088853	31° 40' E	103° 15' 45.22 W
10704	1.44	64.01	10659.71	-76.08	-696.87	-122.45	0.57	7865.51	2502.3	-1403.43	743135	1088858	31° 40' E	103° 15' 45.16 W
10892	0.38	94.95	10847.69	-75.1	-694.13	-122.62	0.6	8053.49	2503.28	-1400.69	743136	1088861	31° 40' E	103° 15' 45.13 W
10977	0.5	138.19	10932.68	-75.4	-693.6	-122.18	0.4	8138.48	2502.98	-1400.16	743135.7	1088862	31° 40' E	103° 15' 45.12 W
11071	0.94	183.72	11026.68	-76.47	-693.38	-121.09	0.73	8232.48	2501.9	-1399.94	743134.6	1088862	31° 40' E	103° 15' 45.12 W
11103	0.69	207.8	11058.67	-76.9	-693.48	-120.71	1.31	8264.47	2501.47	-1400.04	743134.2	1088862	31° 40' E	103° 15' 45.12 W
11134	1.75	183.37	11089.67	-77.54	-693.6	-120.13	3.73	8295.47	2500.83	-1400.16	743133.5	1088862	31° 40' E	103° 15' 45.12 W
11166	6.44	174.93	11121.58	-79.82	-693.47	-117.9	14.74	8327.38	2498.56	-1400.03	743131.3	1088862	31° 40' E	103° 15' 45.12 W
11197	9.69	175.98	11152.27	-84.15	-693.13	-113.65	10.49	8358.07	2494.22	-1399.69	743126.9	1088862	31° 40' E	103° 15' 45.11 W
11229	13	172.82	11183.64	-90.41	-692.49	-107.46	10.52	8389.44	2487.96	-1399.05	743120.7	1088863	31° 40' E	103° 15' 45.10 W
11260	15.56	171.06	11213.68	-97.98	-691.41	-99.89	8.38	8419.48	2480.39	-1397.97	743113.1	1088864	31° 40' E	103° 15' 45.09 W

11292	17.94	170.18	11244.32	-107.08	-689.9	-90.74	7.48	8450.12	2471.3	-1396.46	743104	1088865	31° 40' 3	103° 15' 45.07 W
11323	18.63	172.29	11273.75	-116.69	-688.42	-81.1	3.08	8479.55	2461.69	-1394.99	743094.4	1088867	31° 40' 3	103° 15' 45.05 W
11355	19.75	170.36	11303.97	-127.09	-686.83	-70.67	4.02	8509.77	2451.29	-1393.39	743084	1088868	31° 40' 3	103° 15' 45.03 W
11386	21.81	168.95	11332.95	-137.9	-684.85	-59.73	6.84	8538.75	2440.47	-1391.41	743073.2	1088870	31° 40' 3	103° 15' 45.00 W
11417	25.25	168.43	11361.37	-150.04	-682.42	-47.41	11.12	8567.17	2428.34	-1388.98	743061	1088873	31° 40' 3	103° 15' 44.97 W
11449	27.69	167.72	11390.02	-163.99	-679.47	-33.19	7.69	8595.82	2414.39	-1386.03	743047.1	1088876	31° 40' 3	103° 15' 44.93 W
11480	32.44	167.02	11416.84	-179.14	-676.07	-17.69	15.36	8622.64	2399.24	-1382.63	743031.9	1088879	31° 40' 3	103° 15' 44.89 W
11512	36.06	167.37	11443.28	-196.7	-672.08	0.28	11.33	8649.08	2381.68	-1378.64	743014.4	1088883	31° 40' 3	103° 15' 44.84 W
11543	39	165.26	11467.87	-215.04	-667.6	19.14	10.35	8673.67	2363.34	-1374.16	742996	1088888	31° 40' 3	103° 15' 44.78 W
11575	42.56	163.85	11492.09	-235.18	-662.03	40.04	11.49	8697.89	2343.2	-1368.59	742975.9	1088893	31° 40' 3	103° 15' 44.71 W
11606	45.94	163.5	11514.3	-255.93	-655.95	61.67	10.93	8720.1	2322.44	-1362.51	742955.1	1088899	31° 40' 3	103° 15' 44.63 W
11638	50.13	162.98	11535.69	-278.71	-649.08	85.45	13.15	8741.49	2299.67	-1355.65	742932.4	1088906	31° 40' 3	103° 15' 44.55 W
11669	54.63	162.8	11554.61	-302.17	-641.86	110	14.52	8760.41	2276.2	-1348.42	742908.9	1088913	31° 40' 3	103° 15' 44.45 W
11700	58.75	162.98	11571.63	-326.93	-634.24	135.9	13.3	8777.43	2251.45	-1340.8	742884.1	1088921	31° 40' 3	103° 15' 44.36 W
11732	60.5	163.33	11587.81	-353.35	-626.24	163.5	5.55	8793.61	2225.03	-1332.8	742857.7	1088929	31° 40' 3	103° 15' 44.26 W
11763	63.19	163.5	11602.43	-379.54	-618.44	190.83	8.69	8808.23	2198.83	-1325	742831.5	1088937	31° 40' 3	103° 15' 44.16 W
11795	67.56	163.33	11615.77	-407.41	-610.14	219.91	13.66	8821.57	2170.96	-1316.7	742803.7	1088945	31° 40' 3	103° 15' 44.06 W
11826	70.19	164.38	11626.94	-435.19	-602.1	248.83	9.05	8832.74	2143.19	-1308.66	742775.9	1088953	31° 40' 3	103° 15' 43.95 W
11837	70.31	164.21	11630.65	-445.15	-599.3	259.18	1.82	8836.45	2133.22	-1305.86	742765.9	1088956	31° 40' 3	103° 15' 43.92 W
11918	70.27	164.47	11657.97	-518.58	-578.72	335.43	0.31	8863.77	2059.8	-1285.28	742692.5	1088976	31° 40' 3	103° 15' 43.66 W
11949	74.24	163.25	11667.42	-546.93	-570.51	364.95	13.34	8873.22	2031.44	-1277.07	742664.1	1088985	31° 40' 3	103° 15' 43.55 W
11981	77.82	163.07	11675.14	-576.65	-561.51	395.99	11.2	8880.94	2001.73	-1268.07	742634.4	1088994	31° 40' 3	103° 15' 43.44 W
12012	81.08	162.71	11680.82	-605.77	-552.55	426.46	10.58	8886.62	1972.6	-1259.11	742605.3	1089003	31° 40' 3	103° 15' 43.33 W
12043	80.97	162.62	11685.65	-635	-543.42	457.08	0.46	8891.45	1943.37	-1249.99	742576.1	1089012	31° 40' 3	103° 15' 43.21 W
12074	82.53	161.77	11690.1	-664.21	-534.04	487.75	5.72	8895.9	1914.17	-1240.6	742546.9	1089021	31° 40' 3	103° 15' 43.10 W
12105	83.84	162.13	11693.78	-693.48	-524.51	518.51	4.38	8899.58	1884.9	-1231.07	742517.6	1089031	31° 40' 3	103° 15' 42.98 W
12137	84.24	161.69	11697.1	-723.73	-514.62	550.32	1.85	8902.9	1854.65	-1221.18	742487.3	1089041	31° 40' 3	103° 15' 42.85 W
12168	84.36	161.82	11700.18	-753.03	-504.97	581.15	0.57	8905.98	1825.35	-1211.53	742458.1	1089050	31° 40' 3	103° 15' 42.73 W
12262	87.15	161.86	11707.14	-842.09	-475.75	674.83	2.97	8912.94	1736.29	-1182.31	742369	1089079	31° 40' 2	103° 15' 42.37 W
12356	89.37	161.58	11709.99	-931.3	-446.28	768.73	2.38	8915.79	1647.08	-1152.84	742279.8	1089109	31° 40' 2	103° 15' 42.00 W
12450	89.83	162	11710.65	-1020.59	-416.91	862.67	0.66	8916.45	1557.79	-1123.47	742190.5	1089138	31° 40' 2	103° 15' 41.63 W
12544	90.12	162.09	11710.69	-1110.01	-387.93	956.63	0.32	8916.49	1468.37	-1094.49	742101.1	1089167	31° 40' 2	103° 15' 41.27 W
12638	90	161.85	11710.59	-1199.39	-358.84	1050.59	0.29	8916.39	1378.98	-1065.4	742011.7	1089196	31° 40' 2	103° 15' 40.91 W
12732	89.45	161.47	11711.04	-1288.62	-329.26	1144.53	0.71	8916.84	1289.76	-1035.82	741922.5	1089226	31° 40' 2	103° 15' 40.54 W
12826	92.19	162.13	11709.7	-1377.9	-299.91	1238.46	3	8915.5	1200.48	-1006.47	741833.2	1089255	31° 40' 2	103° 15' 40.17 W
12920	92.19	161.88	11706.11	-1467.23	-270.89	1332.35	0.27	8911.91	1111.14	-977.45	741743.8	1089284	31° 40' 2	103° 15' 39.81 W
13014	92.41	161.71	11702.33	-1556.46	-241.54	1426.22	0.3	8908.13	1021.92	-948.11	741654.6	1089314	31° 40' 2	103° 15' 39.44 W
13108	89.14	160.6	11701.06	-1645.4	-211.19	1520.1	3.67	8906.86	932.98	-917.75	741565.7	1089344	31° 40' 2	103° 15' 39.06 W
13202	88.39	161.42	11703.09	-1734.26	-180.61	1613.97	1.18	8908.89	844.12	-887.17	741476.8	1089375	31° 40' 2	103° 15' 38.68 W
13296	87.7	161.85	11706.3	-1823.42	-151.01	1707.86	0.86	8912.1	754.96	-857.57	741387.7	1089404	31° 40' 1	103° 15' 38.31 W
13390	88.56	163.52	11709.36	-1913.11	-123.05	1801.79	2	8915.16	665.27	-829.61	741298	1089432	31° 40' 1	103° 15' 37.96 W

13484	88.25	163.08	11711.98	-2003.11	-96.05	1895.75	0.57	8917.78	575.27	-802.61	741208	1089459	31° 40' 1	103° 15' 37.62 W
13578	89.34	164.08	11713.96	-2093.25	-69.48	1989.73	1.57	8919.76	485.13	-776.04	741117.8	1089486	31° 40' 1	103° 15' 37.29 W
13672	90.81	166.56	11713.83	-2184.17	-45.66	2083.68	3.07	8919.63	394.2	-752.23	741026.9	1089510	31° 40' 1	103° 15' 36.98 W
13765	91.06	166.81	11712.32	-2274.66	-24.25	2176.54	0.38	8918.12	303.72	-730.81	740936.4	1089531	31° 40' 1	103° 15' 36.71 W
13859	91.67	168.37	11710.08	-2366.43	-4.05	2270.29	1.78	8915.88	211.94	-710.61	740844.6	1089551	31° 40' 1	103° 15' 36.45 W
13953	89.94	167.23	11708.76	-2458.3	15.81	2364.04	2.2	8914.56	120.08	-690.75	740752.8	1089571	31° 40' 1	103° 15' 36.19 W
14047	93.08	172.87	11706.28	-2550.8	32.04	2457.38	6.86	8912.08	27.57	-674.52	740660.3	1089587	31° 40' 1	103° 15' 35.97 W
14141	90.35	172.26	11703.46	-2643.96	44.2	2550.21	2.98	8909.26	-65.58	-662.36	740567.1	1089599	31° 40' 1	103° 15' 35.81 W
14234	90.09	171.91	11703.11	-2736.07	57	2642.22	0.47	8908.91	-157.7	-649.56	740475	1089612	31° 40' 1	103° 15' 35.63 W
14328	90.92	169.01	11702.28	-2828.76	72.58	2735.55	3.21	8908.08	-250.38	-633.98	740382.3	1089628	31° 40' 1	103° 15' 35.42 W
14422	89.37	167.54	11702.04	-2920.79	91.68	2829.25	2.27	8907.84	-342.42	-614.88	740290.3	1089647	31° 40'	103° 15' 35.17 W
14516	89.08	166.06	11703.31	-3012.3	113.14	2923.1	1.6	8909.11	-433.92	-593.42	740198.8	1089668	31° 40'	103° 15' 34.90 W
14610	87.73	165.72	11705.93	-3103.42	136.05	3017	1.48	8911.73	-525.05	-570.51	740107.7	1089691	31° 40'	103° 15' 34.60 W
14704	88.36	165.15	11709.14	-3194.35	159.67	3110.9	0.9	8914.94	-615.97	-546.89	740016.7	1089715	31° 40'	103° 15' 34.30 W
14798	87.81	162.02	11712.28	-3284.46	186.22	3204.83	3.38	8918.08	-706.08	-520.34	739926.6	1089741	31° 40'	103° 15' 33.97 W
14892	91.61	162.75	11712.75	-3374.03	214.66	3298.79	4.12	8918.55	-795.65	-491.9	739837.1	1089770	31° 40'	103° 15' 33.61 W
14986	88.19	162.74	11712.92	-3463.79	242.54	3392.76	3.64	8918.72	-885.41	-464.02	739747.3	1089798	31° 40'	103° 15' 33.26 W
15080	90.14	160.38	11714.29	-3552.94	272.27	3486.67	3.26	8920.09	-974.56	-434.3	739658.1	1089827	31° 40'	103° 15' 32.89 W
15174	93.13	159.85	11711.61	-3641.29	304.22	3580.44	3.23	8917.41	-1062.91	-402.34	739569.8	1089859	31° 40'	103° 15' 32.49 W
15268	93.97	159.34	11705.78	-3729.22	336.93	3674.02	1.04	8911.58	-1150.85	-369.63	739481.9	1089892	31° 40'	103° 15' 32.09 W
15363	92.65	159.71	11700.3	-3818.07	370.11	3768.6	1.44	8906.1	-1239.69	-336.46	739393	1089925	31° 40'	103° 15' 31.68 W
15457	94.86	159.43	11694.14	-3905.96	402.84	3862.15	2.37	8899.94	-1327.59	-303.72	739305.1	1089958	31° 39' 5	103° 15' 31.27 W
15550	94.98	160.85	11686.17	-3993.11	434.32	3954.63	1.53	8891.97	-1414.73	-272.24	739218	1089989	31° 39' 5	103° 15' 30.88 W
15645	92.47	161.48	11680	-4082.82	464.92	4049.32	2.72	8885.8	-1504.45	-241.64	739128.3	1090020	31° 39' 5	103° 15' 30.50 W
15739	91.06	162.71	11677.1	-4172.22	493.81	4143.24	1.99	8882.9	-1593.85	-212.75	739038.9	1090049	31° 39' 5	103° 15' 30.14 W
15833	89.08	162.65	11676.99	-4261.96	521.79	4237.22	2.11	8882.79	-1683.58	-184.77	738949.1	1090077	31° 39' 5	103° 15' 29.79 W
15927	89.2	163.71	11678.4	-4351.92	548.99	4331.2	1.13	8884.2	-1773.55	-157.57	738859.2	1090104	31° 39' 5	103° 15' 29.45 W
16021	89.31	164.36	11679.62	-4442.29	574.84	4425.19	0.7	8885.42	-1863.91	-131.72	738768.8	1090130	31° 39' 5	103° 15' 29.12 W
16114	88.56	164.38	11681.35	-4531.83	599.89	4518.17	0.81	8887.15	-1953.46	-106.67	738679.3	1090155	31° 39' 5	103° 15' 28.80 W
16208	89	164.38	11683.35	-4622.34	625.2	4612.14	0.47	8889.15	-2043.97	-81.36	738588.7	1090180	31° 39' 5	103° 15' 28.48 W
16302	91.06	165.26	11683.3	-4713.06	649.81	4706.12	2.38	8889.1	-2134.68	-56.75	738498	1090205	31° 39' 5	103° 15' 28.17 W
16395	92.31	165.61	11680.57	-4803.03	673.19	4799.03	1.4	8886.37	-2224.65	-33.38	738408.1	1090228	31° 39' 5	103° 15' 27.87 W
16489	91.31	164.21	11677.6	-4893.74	697.64	4892.96	1.83	8883.4	-2315.36	-8.92	738317.3	1090253	31° 39' 4	103° 15' 27.56 W
16584	89.5	164.03	11676.92	-4985.1	723.64	4987.95	1.91	8882.72	-2406.73	17.08	738226	1090279	31° 39' 4	103° 15' 27.23 W
16678	89.69	164.56	11677.59	-5075.59	749.08	5081.95	0.6	8883.39	-2497.22	42.52	738135.5	1090304	31° 39' 4	103° 15' 26.91 W
16772	90.88	165.96	11677.12	-5166.49	773	5175.91	1.95	8882.92	-2588.12	66.43	738044.6	1090328	31° 39' 4	103° 15' 26.61 W
16866	89.5	166.32	11676.81	-5257.75	795.51	5269.82	1.52	8882.61	-2679.38	88.95	737953.3	1090351	31° 39' 4	103° 15' 26.32 W
16960	90.19	166.14	11677.06	-5349.05	817.89	5363.73	0.76	8882.86	-2770.68	111.33	737862	1090373	31° 39' 4	103° 15' 26.03 W
17053	90.38	164.91	11676.6	-5439.1	841.13	5456.68	1.34	8882.4	-2860.72	134.57	737772	1090396	31° 39' 4	103° 15' 25.74 W
17148	89	164.21	11677.12	-5530.66	866.42	5551.66	1.63	8882.92	-2952.29	159.86	737680.4	1090422	31° 39' 4	103° 15' 25.42 W
17242	89.06	162.45	11678.71	-5620.7	893.38	5645.64	1.87	8884.51	-3042.32	186.82	737590.4	1090449	31° 39' 4	103° 15' 25.08 W

17336	89.25	161.22	11680.09	-5710	922.68	5739.58	1.32	8885.89	-3131.63	216.12	737501.1	1090478	31° 39' 4	103° 15' 24.71 W
17429	89.88	161.39	11680.8	-5798.09	952.49	5832.5	0.7	8886.6	-3219.72	245.93	737413	1090508	31° 39' 4	103° 15' 24.34 W
17523	89.44	162.1	11681.36	-5887.36	981.94	5926.44	0.89	8887.16	-3308.98	275.38	737323.7	1090537	31° 39' 4	103° 15' 23.97 W
17616	88.75	162.8	11682.83	-5976.02	1009.98	6019.4	1.06	8888.63	-3397.64	303.41	737235.1	1090565	31° 39' 3	103° 15' 23.62 W
17710	89.75	162.8	11684.06	-6065.8	1037.77	6113.38	1.06	8889.86	-3487.43	331.21	737145.3	1090593	31° 39' 3	103° 15' 23.27 W
17804	89.69	162.98	11684.52	-6155.64	1065.43	6207.37	0.2	8890.32	-3577.27	358.86	737055.4	1090621	31° 39' 3	103° 15' 22.92 W
17898	89.44	163.68	11685.23	-6245.69	1092.39	6301.37	0.79	8891.03	-3667.31	385.83	736965.4	1090648	31° 39' 3	103° 15' 22.59 W
17992	90.13	163.5	11685.58	-6335.86	1118.94	6395.36	0.76	8891.38	-3757.48	412.38	736875.2	1090674	31° 39' 3	103° 15' 22.25 W
18086	91.63	163.15	11684.14	-6425.89	1145.91	6489.35	1.64	8889.94	-3847.52	439.35	736785.2	1090701	31° 39' 3	103° 15' 21.91 W
18180	89.19	161.75	11683.47	-6515.51	1174.25	6583.31	2.99	8889.27	-3937.13	467.69	736695.6	1090729	31° 39' 3	103° 15' 21.56 W
18273	88.69	164.38	11685.19	-6604.45	1201.34	6676.28	2.88	8890.99	-4026.07	494.78	736606.6	1090756	31° 39' 3	103° 15' 21.22 W
18367	89.44	164.38	11686.72	-6694.96	1226.64	6770.26	0.8	8892.52	-4116.59	520.08	736516.1	1090782	31° 39' 3	103° 15' 20.90 W
18462	89.56	164.56	11687.55	-6786.49	1252.08	6865.25	0.23	8893.35	-4208.12	545.52	736424.6	1090807	31° 39' 3	103° 15' 20.57 W
18556	92	166.14	11686.27	-6877.42	1275.85	6959.19	3.09	8892.07	-4299.04	569.29	736333.7	1090831	31° 39' 3	103° 15' 20.27 W
18651	90.13	165.26	11684.5	-6969.45	1299.31	7054.12	2.18	8890.3	-4391.08	592.75	736241.6	1090854	31° 39' 2	103° 15' 19.97 W
18744	88.63	164.56	11685.51	-7059.24	1323.52	7147.09	1.78	8891.31	-4480.86	616.95	736151.9	1090879	31° 39' 2	103° 15' 19.67 W
18838	90.69	163.33	11686.07	-7149.56	1349.51	7241.08	2.55	8891.87	-4571.19	642.95	736061.5	1090905	31° 39' 2	103° 15' 19.34 W
18932	92.38	163.33	11683.55	-7239.58	1376.46	7335.04	1.8	8889.35	-4661.2	669.9	735971.5	1090932	31° 39' 2	103° 15' 19.00 W
19026	90.38	159.99	11681.29	-7328.76	1406.03	7428.93	4.14	8887.09	-4750.39	699.47	735882.3	1090961	31° 39' 2	103° 15' 18.63 W
19120	91.19	159.81	11680	-7417.03	1438.33	7522.71	0.88	8885.8	-4838.65	731.77	735794.1	1090993	31° 39' 2	103° 15' 18.23 W
19214	87.5	158.93	11681.07	-7504.98	1471.44	7616.42	4.04	8886.87	-4926.6	764.88	735706.1	1091027	31° 39' 2	103° 15' 17.82 W
19308	89.94	159.99	11683.17	-7592.97	1504.41	7710.13	2.83	8888.97	-5014.6	797.85	735618.1	1091060	31° 39' 2	103° 15' 17.41 W
19401	90.31	161.39	11682.97	-7680.74	1535.16	7803	1.56	8888.77	-5102.36	828.6	735530.4	1091090	31° 39' 2	103° 15' 17.03 W
19494	90.94	161.92	11681.95	-7769	1564.43	7895.93	0.89	8887.75	-5190.63	857.87	735442.1	1091120	31° 39' 2	103° 15' 16.66 W
19588	91.69	162.27	11679.8	-7858.43	1593.32	7989.87	0.88	8885.6	-5280.05	886.76	735352.7	1091148	31° 39' 2	103° 15' 16.30 W
19682	92.56	162.1	11676.31	-7947.86	1622.06	8083.77	0.94	8882.11	-5369.48	915.5	735263.2	1091177	31° 39' 1	103° 15' 15.94 W
19776	92.06	162.27	11672.52	-8037.28	1650.8	8177.66	0.56	8878.32	-5458.9	944.23	735173.8	1091206	31° 39' 1	103° 15' 15.58 W
19869	94.69	163.5	11667.05	-8125.99	1678.12	8270.48	3.12	8872.85	-5547.62	971.55	735085.1	1091233	31° 39' 1	103° 15' 15.24 W
19963	90.88	162.45	11662.48	-8215.75	1705.6	8364.34	4.2	8868.28	-5637.38	999.04	734995.3	1091261	31° 39' 1	103° 15' 14.89 W
20057	90.25	160.34	11661.56	-8304.83	1735.59	8458.26	2.34	8867.36	-5726.45	1029.03	734906.3	1091291	31° 39' 1	103° 15' 14.52 W
20151	90	157.53	11661.35	-8392.54	1769.37	8551.92	3	8867.15	-5814.16	1062.81	734818.6	1091325	31° 39' 1	103° 15' 14.10 W
20245	91.88	159.46	11659.81	-8479.97	1803.82	8645.51	2.87	8865.61	-5901.6	1097.26	734731.1	1091359	31° 39' 1	103° 15' 13.68 W
20338	93.81	161.92	11655.19	-8567.62	1834.54	8738.25	3.36	8860.99	-5989.25	1127.97	734643.5	1091390	31° 39' 1	103° 15' 13.30 W
20432	92.25	160.67	11650.22	-8656.53	1864.64	8832.04	2.13	8856.02	-6078.15	1158.08	734554.6	1091420	31° 39' 1	103° 15' 12.92 W
20526	92	163.5	11646.74	-8745.9	1893.53	8925.92	3.02	8852.54	-6167.53	1186.97	734465.2	1091449	31° 39' 1	103° 15' 12.56 W
20620	91.25	164.38	11644.07	-8836.19	1919.52	9019.88	1.23	8849.87	-6257.82	1212.96	734374.9	1091475	31° 39' 1	103° 15' 12.23 W
20714	91.25	165.79	11642.02	-8927	1943.71	9113.83	1.5	8847.82	-6348.63	1237.15	734284.1	1091499	31° 39' 1	103° 15' 11.92 W
20808	91.13	167.55	11640.07	-9018.45	1965.38	9207.68	1.88	8845.87	-6440.07	1258.82	734192.6	1091521	31° 39'	103° 15' 11.65 W
20901	89.31	170.01	11639.71	-9109.66	1983.47	9300.31	3.29	8845.51	-6531.28	1276.91	734101.4	1091539	31° 39'	103° 15' 11.41 W
20995	89.13	166.32	11640.99	-9201.64	2002.75	9394	3.93	8846.79	-6623.26	1296.18	734009.5	1091558	31° 39'	103° 15' 11.16 W
21089	88.31	165.79	11643.09	-9292.84	2025.39	9487.89	1.04	8848.89	-6714.47	1318.83	733918.3	1091581	31° 39'	103° 15' 10.87 W

21182	88.13	164.91	11645.98	-9382.77	2048.9	9580.81	0.97	8851.78	-6804.4	1342.34	733828.3	1091604	31° 39'	103° 15' 10.57 W
21271	88.13	164.38	11648.88	-9468.55	2072.46	9669.75	0.6	8854.68	-6890.18	1365.89	733742.5	1091628	31° 39'	103° 15' 10.27 W
21363	91.25	164.91	11649.38	-9557.25	2096.81	9761.73	3.44	8855.18	-6978.88	1390.25	733653.8	1091652	31° 39'	103° 15' 9.96 W
21457	91.69	165.61	11646.97	-9648.13	2120.72	9855.66	0.88	8852.77	-7069.75	1414.16	733563	1091676	31° 39'	103° 15' 9.66 W
21551	92	166.49	11643.94	-9739.31	2143.37	9949.53	0.99	8849.74	-7160.93	1436.81	733471.8	1091699	31° 39'	103° 15' 9.37 W
21644	92.75	166.67	11640.09	-9829.69	2164.94	10042.33	0.83	8845.89	-7251.32	1458.38	733381.4	1091720	31° 39'	103° 15' 9.09 W
21738	93.13	167.19	11635.27	-9921.13	2186.17	10136.06	0.68	8841.07	-7342.76	1479.61	733290	1091741	31° 39'	103° 15' 8.82 W
21832	93.5	167.37	11629.83	-10012.7	2206.83	10229.72	0.44	8835.63	-7434.3	1500.27	733198.4	1091762	31° 38' 5"	103° 15' 8.55 W
21887	93.88	166.49	11626.29	-10066.1	2219.24	10284.52	1.74	8832.09	-7487.76	1512.68	733145	1091774	31° 38' 5"	103° 15' 8.39 W
21947	93.88	166.49	11622.23	-10124.3	2233.23	10344.31	0	8828.03	-7545.97	1526.66	733086.8	1091788	31° 38' 5"	103° 15' 8.21 W