

Directional Survey Calculations	Measured Depth (ft)	Sub-Sea Incl. (deg)	Vertical Azim. (ft)	True Vert Depth (ft)	Northings (+) Southings (-) (ft)	Eastings (+) Westings (-) (ft)	Vert Section (ft)	DLS deg/100' (deg)	FNL	FSL	FWL	FEL
									-250	5486	4598	810
SHL	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-250	5486	4598	810
BHL	9152	89.80	178.30	4658.93	-4936.89	195.03	4940.72	0.00	4690	549	4783	681
Miss Entry	4928	75.08	179.28	4614.88	-722.10	42.49	723.26	3.94	473	4764	4639	777
Top Perf	4948	76.09	179.57	4619.78	-741.49	42.68	742.63	4.02	492	4745	4639	777
Bottom Perf	9044	90.05	179.04	4658.66	-4828.94	192.10	4832.73	1.54	4582	657	4780	682

Survey Points	NW Corner XY Coord	X	Y	Surface XY	X	Y	m	
							North Line slope	0.0160813
	SW Corner XY Coord	2139919	150880		2144506	156377	East Line slope	-0.013341
	NE Corner XY Coord	2145319	156140				South Line slope	0.0023766
	SE Corner XY Coord	2145389	150893				West Line slope	-0.0019331

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									-250	5486	4598	810
	0	0.0	0	0	0	0	0	0	-250	5486	4598	810
	933	1.00	159.10	932.95	-8	3	7.72	0.11	-242	5478	4601	807
	1394	0.70	171.10	1393.90	-14	5	14.34	0.08	-236	5472	4602	805
	1868	0.50	131.00	1867.88	-18	7	18.64	0.10	-232	5468	4604	803
	2343	0.20	338.60	2342.87	-19	8	19.28	0.14	-231	5467	4606	802
	2818	0.30	60.40	2817.87	-18	9	17.93	0.07	-232	5469	4606	801
	3293	0.30	128.50	3292.86	-18	11	18.17	0.07	-232	5468	4608	799
	3673	1.60	175.90	3672.81	-24	12	24.13	0.37	-226	5462	4610	798
	3703	1.70	177.70	3702.79	-24	12	24.99	0.38	-225	5462	4610	798
	3735	2.00	167.90	3734.78	-26	12	26.02	1.36	-224	5461	4610	798
	3767	4.30	167.00	3766.73	-27	13	27.75	7.19	-223	5459	4610	798
	3798	6.80	169.10	3797.58	-30	13	30.71	8.09	-220	5456	4611	797
	3830	9.00	170.90	3829.27	-35	14	35.07	6.92	-215	5452	4612	796
	3862	11.00	170.30	3860.79	-40	15	40.58	6.26	-210	5446	4612	795
	3893	12.30	173.00	3891.15	-46	16	46.81	4.55	-204	5440	4613	795
	3925	13.30	179.00	3922.35	-53	16	53.89	5.19	-197	5433	4614	794
	3957	13.20	179.10	3953.50	-61	16	61.22	0.32	-189	5425	4614	794
	3988	16.30	180.50	3983.48	-68	16	69.10	10.07	-181	5418	4614	794
	4020	19.60	181.20	4013.91	-78	16	78.95	10.33	-171	5408	4614	795
	4051	22.60	180.80	4042.83	-89	16	90.08	9.69	-160	5397	4614	795
	4083	25.50	179.80	4072.05	-103	16	103.11	9.15	-147	5384	4613	795
	4115	28.30	180.50	4100.59	-117	16	117.57	8.81	-133	5369	4613	795
	4146	30.00	181.00	4127.66	-132	16	132.65	5.54	-118	5354	4613	796
	4178	31.60	181.20	4155.14	-148	15	149.00	5.01	-101	5338	4613	796
	4210	33.40	181.50	4182.13	-166	15	166.15	5.65	-84	5320	4612	797
	4241	35.20	182.20	4207.74	-183	14	183.57	5.94	-67	5303	4612	798
	4273	37.50	180.90	4233.51	-202	14	202.49	7.58	-48	5284	4611	799
	4305	40.10	180.00	4258.45	-222	14	222.52	8.31	-28	5264	4611	799
	4336	42.40	179.20	4281.75	-243	14	242.94	7.61	-7	5243	4611	799
	4368	44.90	178.40	4304.91	-265	14	265.02	8.00	15	5221	4612	799
	4400	46.80	177.60	4327.20	-288	15	287.98	6.20	38	5198	4612	798
	4463	50.90	177.20	4368.64	-335	17	335.41	6.53	85	5151	4614	797
	4526	51.30	176.60	4408.20	-384	20	384.43	0.98	134	5102	4617	795
	4558	51.10	175.80	4428.26	-409	22	409.37	2.05	159	5077	4619	794
	4589	50.50	175.00	4447.85	-433	24	433.37	2.78	183	5053	4620	792
	4621	50.10	174.80	4468.29	-457	26	457.97	1.34	208	5029	4623	790
	4653	49.40	173.90	4488.97	-482	28	482.35	3.06	232	5004	4625	788
	4684	50.90	173.50	4508.83	-505	31	506.10	4.94	256	4981	4627	786
	4716	53.90	173.80	4528.35	-530	34	531.39	9.40	281	4956	4630	783
	4748	57.10	175.10	4546.48	-557	36	557.72	10.55	307	4929	4633	781
	4779	61.00	176.50	4562.42	-583	38	584.28	13.16	334	4903	4635	780
	4811	65.00	177.50	4576.94	-612	40	612.79	12.81	362	4874	4636	778
	4843	68.60	178.20	4589.54	-641	41	642.20	11.43	392	4845	4637	778
	4874	71.90	178.50	4600.02	-670	42	671.37	10.68	421	4816	4638	777
	4906	74.80	179.00	4609.19	-701	42	702.01	9.19	451	4785	4638	777
	4937	75.20	179.40	4617.21	-731	43	731.94	1.79	481	4755	4639	777
	4969	77.80	179.90	4624.68	-762	43	763.04	8.27	513	4724	4639	777
	5001	80.50	180.10	4630.70	-793	43	794.43	8.46	544	4693	4639	778
	5032	81.30	179.90	4635.61	-824	43	825.01	2.66	575	4662	4639	778
	5064	82.80	179.90	4640.03	-856	43	856.68	4.69	606	4630	4639	778
	5096	85.10	179.80	4643.40	-887	43	888.47	7.19	638	4599	4639	779
	5127	87.80	179.80	4645.32	-918	43	919.39	8.71	669	4568	4639	779
	5142	88.80	179.90	4645.77	-933	43	934.37	6.70	684	4553	4639	779
	5206	89.90	179.90	4646.49	-997	43	998.31	1.72	748	4489	4639	780
	5269	89.50	179.00	4646.82	-1060	44	1061.27	1.56	811	4426	4639	780
	5361	88.90	178.90	4648.11	-1152	45	1153.24	0.66	903	4334	4641	780
	5453	89.60	177.10	4649.31	-1244	49	1245.22	2.10	995	4242	4644	778
	5545	91.50	175.40	4648.43	-1336	55	1337.19	2.77	1087	4150	4650	773
	5637	91.10	176.90	4646.34	-1428	61	1429.13	1.69	1179	4058	4656	768
	5729	90.70	177.10	4644.90	-1520	66	1521.12	0.49	1271	3966	4660	764
	5821	92.10	178.30	4642.65	-1612	69	1613.08	2.00	1363	3874	4664	762
	5913	87.20	178.30	4643.21	-1704	72	1705.05	5.33	1455	3782	4666	760
	5944	87.40	178.60	4644.67	-1734	73	1736.01	1.16	1486	3751	4667	760
	6005	88.30	179.60	4646.96	-1795	74	1796.94	2.20	1547	3690	4668	760
	6097	90.90	181.70	4647.60	-1887	73	1888.79	3.63	1638	3599	4667	762

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6189	89.80	180.70	4647.04	-1979	71	1980.60	1.62	1730	3507	4665	765
6220	90.00	181.30	4647.09	-2010	70	2011.54	2.04	1761	3476	4664	766
6281	88.90	180.40	4647.68	-2071	70	2072.44	2.33	1822	3415	4663	768
6373	88.80	179.40	4649.53	-2163	70	2164.34	1.09	1914	3323	4663	769
6465	88.40	179.10	4651.77	-2255	71	2256.27	0.54	2006	3231	4664	769
6557	89.70	178.30	4653.30	-2347	73	2348.24	1.66	2098	3139	4666	768
6588	90.00	178.70	4653.38	-2378	74	2379.24	1.61	2129	3108	4667	768
6649	89.90	177.90	4653.43	-2439	76	2440.23	1.32	2190	3047	4668	767
6681	89.70	177.30	4653.55	-2471	77	2472.23	1.98	2222	3015	4670	766
6744	89.70	177.30	4653.88	-2534	80	2535.23	0.00	2285	2952	4673	764
6839	89.70	176.80	4654.37	-2629	85	2630.22	0.53	2380	2857	4677	760
6934	89.40	176.30	4655.12	-2724	90	2725.20	0.61	2475	2762	4683	756
7029	85.70	173.50	4659.18	-2818	99	2819.99	4.88	2570	2668	4691	749
7060	85.70	173.80	4661.50	-2849	102	2850.83	0.97	2601	2637	4694	746
7124	87.70	174.70	4665.19	-2913	109	2914.62	3.43	2664	2573	4701	740
7155	88.40	174.80	4666.24	-2943	112	2945.56	2.28	2695	2542	4704	738
7187	89.50	175.30	4666.83	-2975	114	2977.52	3.78	2727	2510	4706	735
7219	89.00	175.10	4667.25	-3007	117	3009.49	1.68	2759	2479	4709	733
7250	88.40	174.60	4667.95	-3038	120	3040.45	2.52	2790	2448	4712	731
7275	89.20	174.00	4668.48	-3063	122	3065.41	4.00	2815	2423	4714	728
7307	89.90	173.90	4668.73	-3095	126	3097.34	2.21	2847	2391	4717	725
7339	90.70	174.00	4668.56	-3127	129	3129.28	2.52	2879	2359	4721	723
7370	91.50	174.70	4667.96	-3157	132	3160.22	3.43	2910	2328	4724	720
7402	93.10	175.20	4666.68	-3189	135	3192.16	5.24	2941	2296	4726	717
7434	93.50	175.30	4664.84	-3221	138	3224.08	1.29	2973	2265	4729	715
7465	92.20	175.20	4663.30	-3252	140	3255.02	4.21	3004	2234	4731	713
7497	93.50	175.40	4661.71	-3284	143	3286.96	4.11	3036	2202	4734	711
7528	94.60	175.80	4659.52	-3315	145	3317.86	3.77	3067	2171	4736	709
7560	95.10	175.70	4656.81	-3346	147	3349.73	1.59	3099	2139	4739	707
7592	94.40	175.70	4654.16	-3378	150	3381.60	2.19	3131	2107	4741	705
7623	93.90	176.70	4651.92	-3409	152	3412.51	3.60	3162	2077	4743	703
7655	92.90	176.70	4650.02	-3441	154	3444.45	3.12	3193	2045	4745	702
7687	91.70	177.20	4648.74	-3473	155	3476.42	4.06	3225	2013	4746	701
7718	90.50	178.00	4648.14	-3504	157	3507.42	4.65	3256	1982	4748	700
7750	88.00	178.60	4648.56	-3536	158	3539.41	8.03	3288	1950	4748	699
7782	85.80	178.60	4650.29	-3568	158	3571.36	6.88	3320	1918	4749	699
7813	85.40	178.70	4652.67	-3599	159	3602.26	1.33	3351	1887	4750	699
7845	85.40	178.40	4655.23	-3631	160	3634.15	0.93	3383	1855	4751	698
7908	88.00	177.90	4658.86	-3693	162	3697.04	4.20	3446	1792	4753	697
7940	90.00	177.70	4659.42	-3725	163	3729.03	6.28	3478	1760	4754	696
8003	90.30	177.40	4659.25	-3788	166	3792.03	0.67	3541	1697	4756	694
8035	90.00	177.60	4659.17	-3820	167	3824.03	1.13	3573	1665	4758	693
8098	90.30	178.10	4659.01	-3883	170	3887.03	0.93	3636	1602	4760	692
8130	89.80	178.10	4658.98	-3915	171	3919.03	1.56	3668	1570	4761	691
8193	90.30	178.10	4658.92	-3978	173	3982.02	0.79	3731	1507	4763	690
8225	91.10	177.80	4658.53	-4010	174	4014.02	2.67	3763	1475	4764	689
8288	90.50	178.00	4657.65	-4073	176	4077.01	1.00	3826	1412	4766	688
8320	90.40	178.60	4657.40	-4105	177	4109.01	1.90	3858	1380	4767	687
8383	90.20	178.00	4657.07	-4168	179	4172.00	1.00	3921	1318	4769	686
8415	90.40	178.50	4656.90	-4200	180	4204.00	1.68	3953	1286	4770	686
8446	90.00	178.80	4656.80	-4231	181	4234.99	1.61	3984	1255	4770	685
8478	89.20	178.80	4657.02	-4263	182	4266.98	2.50	4016	1223	4771	685
8510	89.10	178.20	4657.49	-4295	182	4298.98	1.90	4048	1191	4772	685
8573	89.50	177.70	4658.26	-4358	185	4361.97	1.02	4111	1128	4774	683
8605	89.80	178.40	4658.46	-4390	186	4393.97	2.38	4143	1096	4775	683
8668	88.90	178.60	4659.17	-4453	187	4456.95	1.46	4206	1033	4776	682
8700	88.80	178.60	4659.82	-4485	188	4488.94	0.31	4238	1001	4777	682
8763	89.30	178.60	4660.86	-4548	190	4551.92	0.79	4301	938	4778	681
8858	90.50	179.80	4661.03	-4643	191	4646.88	1.79	4396	843	4780	681
8953	91.20	179.90	4659.62	-4738	191	4741.79	0.74	4491	748	4780	682
9048	90.00	179.00	4658.62	-4833	192	4836.73	1.58	4586	653	4780	682
9080	89.80	178.30	4658.68	-4865	193	4868.73	2.28	4618	621	4781	682
9152	89.80	178.30	4658.93	-4937	195	4940.72	0.00	4690	549	4783	681