

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
SHL	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7761	2889	654	4708
BHL	9216	91.30	357.70	4771.21	4747.86	-225.95	4753.19	0.37	3013	7640	483	4912
Miss Entry	4928	55.38	344.83	4740.60	484.91	-136.04	490.35	11.46	7276	3376	524	4842
Top Perf	4950	57.80	345.38	4752.83	502.57	-140.76	508.19	11.09	7258	3394	519	4846
Bottom Perf	9100	91.46	357.79	4774.04	4631.99	-221.24	4637.22	0.41	3129	7524	486	4908

Survey Points	X		Y		Surface XY		m			
	NW Corner XY Coord	2033831	145099	SW Corner XY Coord	2033953	134443	X	Y	North Line slope	0.00313943
	NE Corner XY Coord	2039246	145116	SE Corner XY Coord	2039295	134509	2034574	137340	East Line slope	-0.0046196
									South Line slope	0.01235492
									West Line slope	-0.0114489

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								FNL	FSL	FWL	FEL	
0	0.0	0	0	0	0	0	0	7761	2889	654	4708	
1060	0.20	226.80	1060.00	-1.27	-1.35	-1.21	0.02	7763	2888	653	4709	
1431	0.80	191.40	1430.98	-4.25	-2.33	-4.14	0.17	7766	2885	652	4710	
1908	0.90	216.20	1907.93	-10.54	-5.20	-10.30	0.08	7772	2879	649	4713	
2382	0.80	195.00	2381.88	-16.74	-8.26	-16.36	0.07	7778	2873	646	4716	
2856	0.90	190.40	2855.83	-23.59	-9.79	-23.15	0.03	7785	2866	644	4718	
3333	0.80	199.10	3332.78	-30.43	-11.55	-29.90	0.03	7792	2859	642	4720	
3777	0.40	153.00	3776.75	-34.74	-11.86	-34.19	0.13	7796	2855	642	4720	
3840	1.50	316.70	3839.75	-34.33	-12.33	-33.76	3.00	7796	2855	641	4720	
3871	3.30	330.90	3870.72	-33.26	-13.04	-32.66	6.07	7795	2856	641	4721	
3903	4.80	346.70	3902.64	-31.15	-13.80	-30.52	5.80	7792	2858	640	4722	
3934	6.60	343.90	3933.48	-28.17	-14.59	-27.52	5.87	7789	2861	639	4723	
3966	8.50	337.80	3965.21	-24.22	-15.99	-23.50	6.44	7785	2865	638	4724	
3997	10.20	334.70	3995.79	-19.61	-18.03	-18.81	5.72	7781	2870	636	4726	
4028	12.10	338.00	4026.21	-14.12	-20.42	-13.22	6.46	7775	2875	634	4728	
4060	14.80	347.30	4057.33	-7.02	-22.58	-6.04	10.79	7768	2883	632	4731	
4091	16.80	353.60	4087.16	1.30	-23.95	2.33	8.49	7760	2891	630	4732	
4123	17.90	355.90	4117.70	10.80	-24.82	11.86	4.05	7750	2900	629	4733	
4154	19.00	354.30	4147.11	20.57	-25.66	21.66	3.91	7741	2910	629	4733	
4186	20.30	352.90	4177.25	31.26	-26.86	32.40	4.32	7730	2921	628	4735	
4218	21.60	351.60	4207.13	42.60	-28.41	43.79	4.31	7719	2932	626	4736	
4250	23.40	350.20	4236.69	54.69	-30.35	55.95	5.87	7707	2944	624	4738	
4281	25.90	350.50	4264.87	67.43	-32.52	68.78	8.07	7694	2957	622	4740	
4312	28.90	350.30	4292.39	81.50	-34.90	82.93	9.68	7680	2971	620	4742	
4344	30.70	349.20	4320.15	97.15	-37.73	98.69	5.88	7664	2987	618	4745	
4376	32.50	349.50	4347.41	113.62	-40.83	115.29	5.65	7648	3003	615	4748	
4407	34.30	349.50	4373.29	130.40	-43.94	132.18	5.81	7631	3020	612	4751	
4439	35.80	348.70	4399.48	148.45	-47.41	150.36	4.90	7613	3038	608	4755	
4471	37.30	347.30	4425.19	167.08	-51.38	169.15	5.36	7594	3057	605	4759	
4503	39.00	345.90	4450.35	186.31	-55.96	188.56	5.96	7575	3076	600	4763	
4534	40.90	346.50	4474.12	205.64	-60.71	208.08	6.25	7556	3096	596	4768	
4567	42.10	348.00	4498.83	226.97	-65.53	229.59	4.72	7534	3117	591	4772	
4599	44.30	348.30	4522.16	248.40	-70.03	251.21	6.90	7513	3139	587	4777	
4631	46.50	347.30	4544.63	270.67	-74.85	273.66	7.23	7490	3161	582	4782	
Top of Tangent @ 4,675'	4662	48.90	346.20	4565.49	292.99	-80.11	296.18	8.17	7468	3183	577	4787
	4757	48.20	343.40	4628.38	361.69	-98.76	365.63	2.33	7399	3252	560	4805
	4789	47.10	342.50	4649.94	384.30	-105.70	388.52	4.02	7377	3275	553	4812
Btm of Tangent @ 4,839'	4820	46.20	342.10	4671.22	405.78	-112.55	410.27	3.05	7355	3296	546	4819
	4852	47.10	342.90	4693.18	427.97	-119.54	432.75	3.35	7333	3319	540	4825
	4884	50.40	343.50	4714.28	451.00	-126.49	456.06	10.41	7310	3342	533	4832
	4915	54.00	344.50	4733.28	474.54	-133.24	479.87	11.89	7286	3366	526	4839
	4947	57.40	345.30	4751.31	500.06	-140.12	505.66	10.82	7261	3391	520	4846
	4979	61.70	346.20	4767.52	526.79	-146.91	532.66	13.65	7234	3418	513	4852
	5010	65.80	346.90	4781.23	553.83	-153.37	559.95	13.38	7207	3445	507	4859
	5042	69.50	347.90	4793.40	582.71	-159.82	589.08	11.92	7178	3474	501	4865
	5074	72.20	349.40	4803.89	612.34	-165.76	618.95	9.53	7148	3504	495	4871
	5106	75.50	350.70	4812.79	642.61	-171.07	649.42	11.03	7118	3534	490	4876
	5138	78.50	352.30	4819.99	673.44	-175.68	680.43	10.56	7087	3565	486	4880
	5168	81.30	352.50	4825.25	702.72	-179.58	709.84	9.36	7058	3594	483	4884
	5200	83.00	354.30	4829.62	734.20	-183.23	741.46	7.70	7027	3626	479	4888
	5232	85.70	356.00	4832.77	765.93	-185.92	773.27	9.96	6995	3658	477	4890
	5264	89.00	357.10	4834.25	797.83	-187.84	805.23	10.87	6963	3689	475	4892
	5280	89.90	357.10	4834.41	813.81	-188.65	821.22	5.63	6947	3705	475	4893
	5441	90.00	356.00	4834.55	974.52	-198.34	982.20	0.69	6786	3866	467	4902
	5533	91.30	357.80	4833.50	1066.37	-203.31	1074.18	2.41	6694	3958	463	4906
	5624	91.40	0.40	4831.36	1157.33	-204.74	1165.11	2.86	6603	4049	463	4907
	5717	90.70	359.00	4829.65	1250.31	-205.23	1258.03	1.68	6510	4142	463	4907
	5810	91.30	359.30	4828.03	1343.28	-206.61	1350.98	0.72	6417	4235	463	4908
	5903	91.80	360.00	4825.52	1436.25	-207.18	1443.88	0.92	6324	4328	463	4908
	5997	91.00	359.50	4823.22	1530.22	-207.59	1537.78	1.00	6230	4422	464	4908
	6091	90.60	358.70	4821.91	1624.20	-209.06	1631.73	0.95	6136	4516	464	4909
	6182	90.30	358.60	4821.19	1715.17	-211.21	1722.71	0.35	6046	4607	463	4911
	6277	90.60	0.70	4820.45	1810.16	-211.79	1817.63	2.23	5951	4702	463	4911
	6372	90.80	0.50	4819.29	1905.14	-210.79	1912.49	0.30	5856	4797	465	4910
	6467	90.80	0.50	4817.96	2000.13	-209.96	2007.35	0.00	5761	4892	467	4909
	6563	91.30	0.50	4816.20	2096.11	-209.12	2103.20	0.52	5665	4988	469	4907
	6658	90.40	359.90	4814.79	2191.10	-208.79	2198.09	1.14	5570	5083	470	4907
	6754	90.20	360.00	4814.29	2287.10	-208.88	2294.00	0.23	5474	5179	471	4906
	6848	89.60	359.10	4814.45	2381.09	-209.61	2387.94	1.15	5380	5273	472	4907

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								FNL	FSL	FWL	FEL	
6943	90.20	359.60	4814.62	2476.09	-210.69	2482.89	0.82	5285	5368	472	4907	
7038	90.00	359.00	4814.45	2571.08	-211.85	2577.84	0.67	5190	5463	472	4908	
7134	90.50	359.30	4814.03	2667.07	-213.28	2673.80	0.61	5094	5559	471	4909	
7228	91.90	0.60	4812.06	2761.04	-213.36	2767.69	2.03	5000	5653	472	4909	
7323	92.20	0.70	4808.67	2855.97	-212.28	2862.49	0.33	4905	5748	475	4907	
7444	91.50	1.20	4804.76	2976.89	-210.28	2983.21	0.71	4784	5869	478	4904	
7540	91.00	1.10	4802.67	3072.85	-208.35	3078.99	0.53	4688	5965	481	4902	
7634	90.60	1.20	4801.35	3166.82	-206.46	3172.80	0.44	4594	6059	484	4900	
7730	90.80	1.30	4800.18	3262.79	-204.37	3268.58	0.23	4498	6155	487	4897	
7825	90.00	1.10	4799.52	3357.77	-202.38	3363.38	0.87	4403	6250	490	4895	
7920	90.00	1.30	4799.52	3452.75	-200.39	3458.19	0.21	4308	6345	493	4892	
8015	89.40	359.60	4800.01	3547.74	-199.65	3553.06	1.90	4213	6440	495	4891	
8110	90.10	359.60	4800.43	3642.74	-200.31	3647.99	0.74	4118	6535	496	4891	
8205	89.90	359.70	4800.43	3737.73	-200.89	3742.93	0.24	4023	6630	496	4892	
8300	91.80	359.60	4799.02	3832.72	-201.47	3837.85	2.00	3928	6725	497	4892	
8396	92.30	359.10	4795.59	3928.65	-202.56	3933.74	0.74	3832	6820	497	4892	
8491	92.80	358.80	4791.36	4023.54	-204.30	4028.61	0.61	3737	6915	496	4894	
8586	93.30	358.70	4786.30	4118.38	-206.37	4123.46	0.54	3642	7010	495	4895	
8681	91.50	358.40	4782.33	4213.26	-208.77	4218.35	1.92	3547	7105	494	4897	
8776	90.70	358.60	4780.50	4308.21	-211.25	4313.32	0.87	3452	7200	492	4899	
8871	90.70	358.30	4779.34	4403.17	-213.82	4408.30	0.32	3357	7295	491	4901	
8966	91.50	358.30	4777.52	4498.11	-216.64	4503.27	0.84	3263	7390	489	4904	
9061	91.50	358.00	4775.03	4593.03	-219.71	4598.23	0.32	3168	7485	487	4906	
9156	91.40	357.50	4772.63	4687.92	-223.44	4693.20	0.54	3073	7580	484	4910	
TD	9216	91.30	357.70	4771.21	4747.86	-225.95	4753.19	0.37	3013	7640	483	4912