

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	5096	210	660	4626
BHL	9720	91.01	354.70	5336.67	4748.49	-117.24	4749.75	3.94	348	4958	617	4660
Miss Entry	5696	81.15	2.20	5356.58	730.16	-46.81	730.80	6.52	4366	940	625	4660
Top Perf	5890	84.69	2.55	5380.60	922.47	-39.27	922.98	2.32	4173	1132	635	4649
Bottom Perf	9590	91.03	357.96	5338.97	4618.65	-111.23	4619.83	1.69	478	4828	621	4656

Survey Points	NW Corner XY Coord	X	Y	Surface XY	X	Y	m					
							North Line slope	East Line slope	South Line slope	West Line slope		
	1748729	1748729	179571				-0.0073906					
	1748812	1748812	174264		1749469	174470	-0.0175505					
	1754006	1754006	179532				-0.0058634					
	1754099	1754099	174233				-0.0156397					

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	0	0.0	0	0	0	0	0	0	5096	210	660	4626
	256	1.20	0.15	255.98	2.68	0.01	2.68	0.47	5093	213	660	4626
	505	0.80	0.15	504.94	7.03	0.02	7.03	0.16	5089	217	660	4626
	750	1.10	0.15	749.91	11.09	0.03	11.09	0.12	5084	221	660	4626
	990	0.90	0.15	989.87	15.28	0.04	15.27	0.08	5080	225	661	4626
	1220	1.10	298.60	1219.84	18.14	-1.89	18.17	0.45	5077	228	659	4627
	1689	1.10	265.90	1688.76	19.97	-10.34	20.13	0.13	5076	230	650	4636
	2164	1.00	257.70	2163.68	18.76	-18.93	19.06	0.04	5077	229	642	4644
	2639	0.70	235.90	2638.63	16.25	-25.39	16.65	0.09	5079	226	635	4651
	3113	0.20	185.00	3112.62	13.81	-27.86	14.25	0.13	5082	223	633	4653
	3588	0.30	163.30	3587.61	11.79	-27.57	12.22	0.03	5084	221	633	4653
	4063	0.30	249.70	4062.61	10.17	-28.38	10.61	0.09	5086	220	632	4654
	4158	0.10	248.00	4157.61	10.05	-28.69	10.50	0.21	5086	220	632	4654
	4253	0.10	178.30	4252.61	9.94	-28.76	10.39	0.12	5086	220	632	4654
	4348	0.30	159.30	4347.60	9.62	-28.67	10.07	0.22	5086	219	632	4654
	4380	0.30	194.70	4379.60	9.46	-28.67	9.91	0.57	5086	219	632	4654
	4411	0.10	6.80	4410.60	9.41	-28.68	9.86	1.29	5086	219	632	4654
	4442	0.50	327.30	4441.60	9.55	-28.75	10.00	1.38	5086	219	632	4654
	4474	2.30	343.00	4473.59	10.28	-29.02	10.74	5.70	5085	220	631	4655
	4506	4.60	351.30	4505.53	12.16	-29.40	12.63	7.34	5084	222	631	4655
	4537	6.60	350.20	4536.38	15.15	-29.89	15.62	6.46	5081	225	631	4655
	4569	8.60	353.60	4568.10	19.34	-30.47	19.82	6.40	5076	229	630	4656
	4601	11.30	355.00	4599.62	24.84	-31.01	25.33	8.47	5071	235	630	4656
	4632	13.10	358.40	4629.92	31.38	-31.37	31.87	6.25	5064	241	629	4657
	4664	13.80	1.50	4661.04	38.82	-31.37	39.31	3.14	5057	248	629	4657
	4696	14.10	4.90	4692.10	46.52	-30.94	47.00	2.73	5049	256	630	4656
	4727	15.90	2.60	4722.04	54.52	-30.43	55.00	6.11	5041	264	631	4655
	4759	18.20	357.80	4752.63	63.90	-30.42	64.37	8.42	5032	274	631	4655
	4791	21.00	356.10	4782.77	74.61	-31.00	75.09	8.93	5021	284	630	4656
	4822	23.50	355.80	4811.46	86.32	-31.83	86.81	8.07	5009	296	630	4656
	4854	25.50	356.80	4840.58	99.56	-32.68	100.07	6.38	4996	309	629	4657
	4885	27.80	357.90	4868.29	113.45	-33.32	113.96	7.59	4982	323	629	4657
	4917	29.20	356.90	4896.41	128.71	-34.02	129.23	4.62	4967	338	628	4658
	4949	31.50	357.20	4924.02	144.85	-34.85	145.38	7.20	4951	354	628	4658
	4980	33.70	356.80	4950.13	161.53	-35.72	162.07	7.13	4934	371	627	4659
	5012	36.20	356.60	4976.36	179.83	-36.78	180.39	7.82	4916	389	626	4659
	5044	38.90	356.30	5001.73	199.29	-37.99	199.87	8.46	4897	409	625	4660
	5075	40.80	355.90	5025.53	219.11	-39.34	219.70	6.18	4877	429	624	4661
	5107	43.00	355.90	5049.34	240.42	-40.87	241.04	6.88	4855	450	623	4662
	5139	45.80	356.10	5072.21	262.76	-42.43	263.39	8.76	4833	472	622	4664
	5170	49.00	356.50	5093.19	285.52	-43.90	286.18	10.37	4810	495	621	4665
<b>Top of Tangent @ 5,187'</b>	5202	50.30	356.70	5113.90	309.87	-45.34	310.55	4.09	4786	519	620	4666
	5233	50.40	356.80	5133.68	333.70	-46.70	334.39	0.41	4762	543	619	4667
	5265	50.40	356.80	5154.08	358.32	-48.07	359.03	0.00	4738	568	618	4668
	5297	50.20	357.00	5174.52	382.90	-49.41	383.63	0.79	4713	592	617	4669
	5328	50.10	357.40	5194.39	406.67	-50.57	407.42	1.04	4689	616	616	4669
<b>Btm of Tangent @ 5,400'</b>	5360	49.80	357.30	5214.98	431.14	-51.70	431.90	0.97	4665	641	615	4670
	5392	51.10	357.70	5235.35	455.79	-52.78	456.57	4.18	4640	665	615	4671
	5423	53.90	358.30	5254.22	480.37	-53.63	481.16	9.16	4616	690	614	4671
	5455	56.80	359.00	5272.42	506.68	-54.25	507.48	9.24	4589	716	614	4671
	5487	59.90	359.70	5289.20	533.92	-54.56	534.71	9.86	4562	743	614	4671
	5518	63.40	0.50	5303.92	561.20	-54.50	561.99	11.52	4535	771	614	4670
	5550	66.30	2.40	5317.52	590.15	-53.77	590.92	10.54	4506	800	616	4669
	5581	69.70	3.30	5329.13	618.85	-52.33	619.60	11.29	4477	828	618	4667
	5613	73.50	3.40	5339.23	649.16	-50.56	649.87	11.88	4447	859	620	4665
	5645	77.00	2.80	5347.38	680.05	-48.89	680.74	11.09	4416	890	622	4663
	5676	80.40	2.20	5353.45	710.42	-47.56	711.08	11.13	4385	920	624	4661
	5708	81.60	2.20	5358.46	742.00	-46.35	742.64	3.75	4354	952	625	4659
	5740	82.20	2.20	5362.97	773.66	-45.13	774.27	1.87	4322	983	627	4657
	5771	82.30	2.20	5367.15	804.35	-43.96	804.94	0.32	4292	1014	629	4656
	5803	82.30	1.90	5371.43	836.04	-42.82	836.61	0.93	4260	1046	630	4654
	5835	85.60	2.80	5384.08	868.26	-37.93	868.74	2.85	4141	1165	637	4647
	5867	85.90	2.90	5386.38	896.13	-36.39	896.58	1.02	4110	1196	639	4645
	5899	85.50	2.60	5388.70	924.00	-34.91	924.43	1.61	4079	1227	641	4643
	6015	86.20	2.80	5390.87	952.00	-33.50	952.30	2.43	4049	1257	643	4641
	6046	88.10	2.60	5392.42	980.00	-32.04	980.19	6.16	4018	1287	645	4639
	6077	89.20	2.10	5393.15	1008.00	-30.77	1008.13	3.90	3987	1318	647	4637
	6169	89.80	1.30	5393.95	1036.00	-28.04	1036.04	1.09	3895	1410	651	4633
	6261	90.80	0.70	5393.47	1064.00	-26.43	1064.00	1.27	3803	1502	654	4630

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6353	90.40	0.50	5392.50	1384.72	-25.47	1384.94	0.49	3711	1594	656	4627
6445	93.10	0.00	5389.69	1476.66	-25.07	1476.87	2.98	3619	1686	658	4625
6537	92.70	359.80	5385.04	1568.54	-25.23	1568.75	0.49	3527	1778	660	4624
6629	91.70	1.30	5381.51	1660.47	-24.34	1660.65	1.96	3435	1870	662	4621
6721	90.50	1.70	5379.74	1752.42	-21.94	1752.55	1.37	3343	1962	666	4617
6816	91.10	0.60	5378.41	1847.39	-20.03	1847.47	1.32	3248	2057	669	4613
6911	91.50	359.80	5376.26	1942.36	-19.70	1942.43	0.94	3153	2152	671	4611
7006	90.30	0.50	5374.77	2037.35	-19.45	2037.40	1.46	3058	2247	673	4610
7100	91.30	359.10	5373.45	2131.33	-19.78	2131.38	1.83	2964	2341	674	4608
7195	90.30	359.50	5372.13	2226.32	-20.94	2226.37	1.13	2869	2436	674	4608
7290	90.30	359.60	5371.63	2321.31	-21.68	2321.37	0.11	2774	2531	675	4607
7385	89.60	359.30	5371.71	2416.31	-22.60	2416.36	0.80	2679	2626	675	4606
7480	90.80	358.70	5371.38	2511.29	-24.25	2511.36	1.41	2584	2721	675	4606
7575	89.90	359.10	5370.80	2606.27	-26.08	2606.36	1.04	2489	2816	675	4606
7670	90.50	358.40	5370.47	2701.25	-28.15	2701.35	0.97	2394	2911	674	4607
7765	89.70	358.50	5370.30	2796.21	-30.72	2796.35	0.85	2300	3006	673	4607
7860	90.00	358.40	5370.55	2891.17	-33.29	2891.34	0.33	2205	3101	672	4608
7954	89.60	358.70	5370.88	2985.14	-35.67	2985.33	0.53	2111	3195	671	4609
8049	90.50	358.10	5370.80	3080.10	-38.32	3080.33	1.14	2016	3290	670	4610
8144	89.90	357.80	5370.47	3175.04	-41.72	3175.31	0.71	1921	3385	668	4612
8239	89.10	357.70	5371.30	3269.97	-45.45	3270.28	0.85	1826	3480	666	4614
8334	90.00	358.70	5372.04	3364.91	-48.43	3365.26	1.42	1731	3574	664	4615
8429	89.10	358.20	5372.79	3459.87	-51.00	3460.25	1.08	1636	3669	663	4616
8454	89.20	358.20	5373.16	3484.86	-51.79	3485.24	0.40	1611	3694	663	4616
8549	90.10	356.80	5373.74	3579.76	-55.93	3580.20	1.75	1516	3789	660	4619
8644	91.70	356.50	5372.25	3674.59	-61.48	3675.10	1.71	1421	3884	656	4623
8739	91.90	356.80	5369.26	3769.38	-67.03	3769.97	0.38	1327	3979	652	4627
8834	90.90	356.70	5366.94	3864.19	-72.41	3864.86	1.06	1232	4074	648	4630
8929	92.50	357.10	5364.12	3959.01	-77.55	3959.74	1.74	1137	4168	645	4634
9024	92.60	357.00	5359.90	4053.79	-82.43	4054.59	0.15	1042	4263	641	4637
9119	92.40	357.10	5355.75	4148.57	-87.32	4149.44	0.24	948	4358	638	4640
9214	92.40	357.20	5351.78	4243.37	-92.04	4244.30	0.11	853	4453	635	4643
9308	92.50	357.00	5347.76	4337.17	-96.79	4338.16	0.24	759	4546	631	4647
9403	91.60	357.00	5344.36	4431.98	-101.76	4433.03	0.95	664	4641	628	4650
9498	92.00	356.70	5341.37	4526.79	-106.98	4527.91	0.53	570	4736	624	4653
9593	91.00	358.00	5338.89	4621.65	-111.37	4622.83	1.73	475	4831	621	4656
9643	91.00	356.70	5338.02	4671.59	-113.68	4672.80	2.60	425	4881	620	4658
9693	91.00	355.40	5337.14	4721.52	-115.99	4722.77	3.47	375	4931	618	4659
9720	91.01	354.70	5336.67	4748.49	-117.24	4749.75	3.94	348	4958	617	4660

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