

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	5474	-200	2132	3205
BHL	12255	93.80	1.60	4736.02	7782.17	-175.88	7783.10	0.00	-2310	7584	1965	3379
Miss Entry	4963	62.34	347.09	4750.57	511.84	-136.53	512.67	8.39	4961	313	1996	3341
Top Perf	5310	89.63	353.66	4837.00	841.09	-175.23	842.14	6.91	4631	643	1958	3380
Bottom Perf	12140	93.06	1.32	4743.03	7667.43	-178.86	7668.38	1.21	-2195	7469	1962	3382

Survey Points	NW Corner XY Coord	X	Y	Surface XY	X	Y	m	
							North Line slope	0.0123549
	SW Corner XY Coord	2033953	134443		2036091	128995	East Line slope	-0.0001894
	NE Corner XY Coord	2039295	134509				South Line slope	0.0103054
	SE Corner XY Coord	2039296	129228				West Line slope	-0.0011385

	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
	0	0.0	0	0	0	0	0	0	5474	-200	2132	3205
	970	0.40	256.80	969.99	-1	-3	-0.75	0.04	5475	-201	2128	3208
	1433	0.60	272.00	1432.97	-1	-7	-1.01	0.05	5475	-201	2125	3212
	1910	0.40	344.20	1909.96	1	-10	0.69	0.13	5474	-199	2122	3215
	2387	0.50	84.20	2386.95	2	-9	2.50	0.15	5472	-197	2123	3214
	2864	0.60	164.20	2863.93	0	-6	0.29	0.15	5474	-200	2126	3211
	3339	0.70	164.50	3338.90	-5	-4	-4.91	0.02	5479	-205	2127	3209
	3817	0.50	123.40	3816.88	-9	-2	-8.89	0.10	5483	-209	2130	3207
	3848	0.90	151.20	3847.88	-9	-2	-9.18	1.66	5484	-209	2130	3207
	3912	0.80	5.10	3911.87	-9	-1	-9.17	2.54	5484	-209	2130	3206
	3943	2.20	352.60	3942.86	-8	-1	-8.37	4.61	5483	-208	2130	3206
	3975	4.00	350.10	3974.82	-7	-2	-6.66	5.64	5481	-207	2130	3207
	4007	5.90	347.50	4006.69	-4	-2	-3.95	5.98	5478	-204	2130	3207
	4039	7.80	343.60	4038.46	0	-3	-0.25	6.11	5475	-200	2129	3208
	4071	9.70	346.50	4070.09	4	-4	4.46	6.09	5470	-195	2127	3210
	4102	11.30	348.30	4100.57	10	-6	9.98	5.27	5464	-190	2126	3211
	4134	12.90	348.20	4131.86	17	-7	16.55	5.00	5458	-183	2125	3212
	4166	14.40	347.60	4162.95	24	-9	23.95	4.71	5450	-176	2123	3214
	4197	16.40	348.00	4192.84	32	-10	32.00	6.46	5442	-168	2121	3215
	4229	18.40	347.70	4223.37	41	-12	41.37	6.26	5433	-159	2119	3217
	4261	20.50	346.90	4253.55	52	-15	51.78	6.61	5423	-148	2117	3220
	4292	22.40	346.70	4282.40	63	-17	62.83	6.13	5411	-137	2115	3222
	4324	25.20	346.60	4311.67	75	-20	75.41	8.75	5399	-124	2112	3225
	4356	28.00	345.10	4340.28	89	-24	89.32	9.00	5385	-111	2108	3229
	4384	30.70	344.60	4364.69	102	-27	102.59	9.68	5372	-97	2104	3232
	4419	32.40	344.10	4394.51	120	-32	120.25	4.91	5354	-80	2100	3237
	4450	34.90	344.90	4420.32	137	-37	136.83	8.19	5337	-63	2095	3242
	4478	37.30	345.20	4442.94	153	-41	152.79	8.59	5321	-47	2091	3246
	4513	40.50	345.80	4470.17	174	-47	174.10	9.21	5300	-26	2085	3252
	4545	43.20	345.40	4494.01	194	-52	194.81	8.48	5279	-5	2080	3257
	4576	45.70	345.30	4516.14	216	-58	215.85	8.07	5258	16	2075	3263
	4608	48.40	345.80	4537.94	238	-63	238.56	8.51	5235	39	2069	3268
Top of Tangent @ 4656'	4656	51.80	345.60	4568.72	274	-72	274.29	7.09	5200	75	2060	3277
	4671	51.70	346.00	4578.01	285	-75	285.73	2.20	5188	86	2057	3280
	4766	50.40	344.40	4637.73	357	-94	357.27	1.89	5117	158	2038	3299
Btm of Tangent @ 4798'	4798	49.70	343.70	4658.28	380	-101	380.90	2.76	5093	181	2031	3306
	4830	51.50	343.70	4678.59	404	-108	404.67	5.62	5069	205	2024	3313
	4859	53.80	344.40	4696.18	426	-114	426.88	8.16	5047	227	2018	3319
	4894	57.20	344.90	4716.00	454	-122	454.74	9.79	5019	255	2010	3327
	4926	59.70	345.30	4732.75	480	-129	481.13	7.88	4992	282	2003	3334
	4957	62.10	346.70	4747.82	507	-135	507.45	8.69	4966	308	1997	3340
	4989	63.40	348.80	4762.48	534	-141	535.28	7.11	4938	336	1991	3346
	5021	64.80	351.10	4776.45	563	-146	563.66	7.81	4910	364	1986	3351
	5053	67.00	352.20	4789.52	592	-151	592.58	7.56	4881	393	1982	3356
	5084	70.20	353.60	4800.83	620	-154	621.24	11.15	4852	422	1978	3359
	5116	73.30	354.50	4810.85	651	-157	651.48	10.05	4822	452	1975	3362
	5148	76.20	355.50	4819.27	681	-160	682.25	9.55	4791	483	1972	3365
	5180	78.80	355.10	4826.19	712	-163	713.40	8.22	4760	514	1970	3368
	5212	81.80	354.90	4831.58	744	-165	744.83	9.40	4729	546	1967	3370
	5242	85.30	354.70	4834.95	774	-168	774.53	11.69	4699	575	1965	3373
	5260	87.20	354.20	4836.13	791	-170	792.42	10.91	4681	593	1963	3375
	5334	90.80	353.40	4837.42	865	-178	866.01	4.98	4607	667	1955	3383
	5429	91.40	352.70	4835.60	959	-189	960.36	0.97	4513	761	1944	3394
	5524	90.50	357.30	4834.02	1054	-198	1055.01	4.93	4418	856	1935	3402
	5620	92.20	0.10	4831.76	1150	-200	1150.95	3.41	4322	952	1933	3405
	5714	92.20	1.80	4828.15	1244	-198	1244.86	1.81	4228	1046	1935	3403
	5810	90.70	1.30	4825.72	1340	-196	1340.77	1.65	4132	1142	1938	3400
	5904	91.40	0.90	4824.00	1434	-194	1434.72	0.86	4038	1236	1940	3399
	6000	92.10	0.90	4821.07	1530	-192	1530.66	0.73	3943	1332	1941	3397
	6095	89.50	0.30	4819.74	1624	-191	1625.63	2.81	3848	1426	1942	3396
	6191	89.10	0.50	4820.91	1720	-191	1721.61	0.47	3752	1522	1943	3395
	6287	90.10	0.90	4821.58	1816	-189	1817.59	1.12	3656	1618	1944	3394
	6382	91.70	1.30	4820.09	1911	-188	1912.54	1.74	3561	1713	1946	3392
	6477	90.00	359.30	4818.68	2006	-187	2007.52	2.76	3466	1808	1947	3392
	6574	91.30	359.60	4817.58	2103	-188	2104.51	1.38	3369	1905	1946	3393

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
6669	90.90	359.30	4815.76	2198	-189	2199.49	0.53	3274	2000	1945	3394
6765	91.70	0.40	4813.58	2294	-189	2295.46	1.42	3178	2096	1945	3394
6860	92.30	1.20	4810.27	2389	-188	2390.39	1.05	3083	2191	1947	3393
6954	92.70	0.50	4806.17	2483	-187	2484.28	0.86	2989	2285	1948	3391
7049	91.60	0.10	4802.60	2578	-186	2579.20	1.23	2894	2380	1949	3391
7144	89.90	359.70	4801.36	2673	-186	2674.19	1.84	2799	2475	1949	3391
7240	88.40	0.00	4802.78	2769	-186	2770.17	1.59	2703	2571	1949	3391
7335	89.90	358.90	4804.19	2864	-187	2865.16	1.96	2608	2666	1948	3392
7432	89.40	0.20	4804.78	2961	-188	2962.15	1.44	2511	2763	1947	3393
7527	90.10	359.70	4805.20	3056	-188	3057.15	0.91	2416	2858	1947	3393
7622	88.90	0.50	4806.03	3151	-188	3152.14	1.52	2321	2953	1947	3392
7717	89.60	0.20	4807.27	3246	-187	3247.13	0.80	2226	3048	1948	3392
7813	91.10	0.40	4806.68	3342	-187	3343.12	1.58	2130	3144	1949	3391
7908	92.80	0.00	4803.45	3437	-187	3438.05	1.84	2035	3239	1949	3391
8004	91.00	359.60	4800.27	3533	-187	3534.00	1.92	1939	3335	1949	3391
8098	91.10	359.50	4798.55	3627	-188	3627.98	0.15	1845	3429	1948	3392
8194	90.40	359.30	4797.29	3723	-189	3723.97	0.76	1749	3525	1947	3393
8289	91.20	0.40	4795.96	3818	-189	3818.96	1.43	1654	3620	1947	3393
8384	90.60	1.00	4794.47	3913	-188	3913.93	0.89	1559	3715	1948	3392
8480	89.60	1.60	4794.30	4009	-186	4009.89	1.21	1463	3811	1951	3390
8576	90.60	1.20	4794.14	4105	-183	4105.84	1.12	1367	3907	1953	3388
8670	89.90	359.60	4793.73	4199	-183	4199.83	1.86	1273	4001	1954	3387
8766	90.70	0.60	4793.22	4295	-182	4295.82	1.33	1177	4097	1954	3387
8890	90.50	359.40	4791.92	4419	-182	4419.81	0.98	1053	4221	1954	3387
8983	90.70	0.40	4790.95	4512	-183	4512.80	1.10	960	4314	1954	3387
9077	90.50	1.80	4789.97	4606	-181	4606.77	1.50	866	4408	1956	3385
9171	91.30	1.80	4788.49	4700	-178	4700.69	0.85	773	4502	1959	3382
9266	90.30	1.30	4787.16	4795	-175	4795.62	1.18	678	4596	1962	3379
9361	91.40	1.30	4785.75	4890	-173	4890.57	1.16	583	4691	1964	3377
9456	90.90	1.10	4783.85	4985	-171	4985.52	0.57	488	4786	1966	3375
9550	90.50	0.50	4782.70	5079	-170	5079.49	0.77	394	4880	1968	3374
9644	91.20	359.60	4781.30	5173	-170	5173.48	1.21	300	4974	1968	3374
9740	91.10	0.00	4779.38	5269	-170	5269.46	0.43	204	5070	1968	3374
9835	90.10	359.50	4778.38	5364	-170	5364.45	1.18	109	5165	1967	3375
9930	91.30	0.80	4777.22	5458	-170	5459.44	1.86	14	5260	1968	3374
10025	90.80	359.90	4775.48	5553	-170	5554.41	1.08	-81	5355	1968	3374
10119	91.00	359.70	4774.01	5647	-170	5648.40	0.30	-175	5449	1968	3374
10214	90.40	359.20	4772.84	5742	-171	5743.39	0.82	-270	5544	1967	3375
10311	90.90	359.00	4771.74	5839	-172	5840.38	0.56	-367	5641	1966	3376
10406	90.10	358.40	4770.92	5934	-175	5935.36	1.05	-462	5736	1964	3379
10503	91.40	358.90	4769.65	6031	-177	6032.34	1.44	-559	5833	1962	3381
10598	90.40	358.00	4768.15	6126	-179	6127.30	1.42	-654	5928	1959	3383
10694	91.70	357.10	4766.39	6222	-184	6223.22	1.65	-750	6024	1955	3387
10790	91.90	356.40	4763.38	6318	-189	6319.05	0.76	-846	6120	1950	3393
10885	90.20	358.50	4761.64	6413	-193	6413.95	2.84	-941	6215	1946	3397
10979	90.10	0.50	4761.39	6507	-194	6507.95	2.13	-1035	6309	1945	3398
11075	90.20	0.10	4761.14	6603	-194	6603.94	0.43	-1131	6405	1946	3397
11169	89.90	359.80	4761.06	6697	-194	6697.94	0.45	-1225	6499	1946	3397
11234	89.40	359.60	4761.46	6762	-194	6762.94	0.83	-1290	6564	1946	3398
11329	90.10	0.00	4761.87	6857	-194	6857.94	0.85	-1385	6659	1945	3398
11424	90.80	0.80	4761.12	6952	-194	6952.92	1.12	-1480	6754	1946	3397
11518	91.30	0.30	4759.40	7046	-193	7046.90	0.75	-1574	6848	1947	3396
11614	90.70	0.70	4757.73	7142	-192	7142.87	0.75	-1670	6944	1948	3396
11708	91.20	1.80	4756.17	7236	-190	7236.82	1.29	-1764	7038	1950	3393
11804	91.30	1.70	4754.07	7332	-187	7332.73	0.15	-1860	7134	1953	3391
11899	91.40	1.40	4751.83	7427	-184	7427.65	0.33	-1955	7229	1956	3388
11994	91.90	1.40	4749.10	7522	-182	7522.57	0.53	-2049	7324	1958	3386