

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	5039	200	3103	1980
BHL	9485	94.55	-323.55	5215.98	4708.64	-23.50	4708.70	3.44	330	4909	3021	1985
Miss Entry	5517	74.10	0.34	5211.75	744.76	-2.61	744.77	13.72	4294	945	3092	1980
Top Perf	5824	90.16	2.08	5239.11	1049.09	2.83	1049.07	2.23	3990	1249	3093	1973
Bottom Perf	9370	91.68	359.49	5220.87	4593.75	-22.99	4593.81	1.74	445	4794	3023	1985

Survey Points	NW Corner XY Coord	X	Y	Surface XY	X	Y	m		
							North Line slope	East Line slope	South Line slope
		1727854	240479				-0.0126		
	SW Corner XY Coord	1727788	235201		1730894	235402	-0.0040276		
	NE Corner XY Coord	1732854	240416				0.0001966		
	SE Corner XY Coord	1732875	235202				0.0125047		

	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	5039	200	3103	1980
	220	0.80	0.15	219.99	1.54	0.00	1.54	0.36	5037	202	3103	1980
	443	1.30	0.16	442.95	5.62	0.02	5.62	0.22	5033	206	3103	1980
	746	1.30	0.16	745.88	12.50	0.03	12.50	0.00	5026	213	3103	1980
	1011	0.90	0.15	1010.83	17.58	0.05	17.58	0.15	5021	218	3103	1980
	1209	0.90	294.70	1208.81	19.79	-1.36	19.79	0.49	5019	220	3102	1981
	1678	0.40	25.10	1677.78	22.81	-4.01	22.83	0.21	5016	223	3099	1984
	2155	0.30	11.10	2154.78	25.54	-3.07	25.56	0.03	5013	226	3100	1983
	2631	0.90	6.50	2630.75	30.48	-2.40	30.49	0.13	5008	231	3101	1982
	3108	0.70	352.90	3107.70	37.09	-2.34	37.10	0.06	5002	237	3101	1982
	3585	0.70	3.50	3584.67	42.89	-2.52	42.90	0.03	4996	243	3100	1983
	4061	0.90	13.50	4060.62	49.43	-1.47	49.44	0.05	4989	250	3101	1981
	4252	0.20	112.00	4251.61	50.77	-0.81	50.77	0.50	4988	251	3102	1981
	4283	0.10	159.70	4282.61	50.72	-0.75	50.72	0.49	4988	251	3102	1981
	4314	0.70	35.10	4313.61	50.85	-0.63	50.85	2.46	4988	251	3102	1981
	4346	2.70	17.30	4345.60	51.73	-0.30	51.73	6.39	4987	252	3103	1980
	4378	5.80	12.90	4377.50	54.02	0.29	54.02	9.73	4985	254	3103	1980
	4409	8.10	8.50	4408.27	57.71	0.96	57.71	7.61	4981	258	3104	1979
	4441	10.00	4.20	4439.87	62.71	1.50	62.71	6.30	4976	263	3104	1978
	4473	10.30	0.80	4471.37	68.34	1.74	68.34	2.09	4970	269	3104	1978
	4504	10.90	2.10	4501.84	74.05	1.89	74.04	2.08	4965	274	3104	1978
	4536	12.90	1.80	4533.16	80.64	2.11	80.63	6.25	4958	281	3105	1978
	4568	17.00	2.50	4564.07	88.89	2.43	88.88	12.82	4950	289	3105	1977
	4600	20.80	3.10	4594.33	99.24	2.94	99.22	11.89	4939	300	3105	1977
	4632	23.60	3.50	4623.96	111.31	3.64	111.29	8.76	4927	312	3106	1976
	4664	25.90	3.50	4653.02	124.68	4.45	124.66	7.19	4914	325	3106	1975
	4695	27.60	2.60	4680.70	138.61	5.19	138.59	5.64	4900	339	3107	1974
	4727	29.30	1.70	4708.83	153.84	5.76	153.82	5.48	4885	354	3107	1974
	4759	32.10	0.70	4736.35	170.18	6.10	170.15	8.89	4868	371	3107	1973
	4790	34.10	0.00	4762.32	187.10	6.20	187.08	6.57	4852	387	3107	1973
	4822	35.90	0.10	4788.53	205.46	6.22	205.43	5.63	4833	406	3107	1973
	4854	38.10	359.80	4814.08	224.71	6.20	224.69	6.90	4814	425	3107	1973
	4886	39.20	0.30	4839.07	244.70	6.22	244.67	3.57	4794	445	3107	1973
	4917	39.30	0.00	4863.08	264.31	6.27	264.29	0.69	4774	465	3106	1973
	4949	41.40	0.00	4887.46	285.03	6.27	285.00	6.56	4754	485	3106	1973
	4981	45.20	0.00	4910.75	306.97	6.27	306.94	11.88	4732	507	3106	1973
	5013	47.40	358.60	4932.86	330.10	5.98	330.08	7.57	4709	530	3105	1973
	5044	48.50	357.60	4953.62	353.11	5.21	353.09	4.28	4686	553	3104	1974
	5076	50.20	358.30	4974.47	377.37	4.35	377.35	5.57	4661	578	3103	1974
Top of Tangent @ 5080'	5108	50.70	357.60	4994.84	402.03	3.46	402.01	2.30	4637	602	3102	1975
	5140	50.70	357.20	5015.11	426.77	2.34	426.75	0.97	4612	627	3100	1976
	5171	51.10	357.10	5034.66	450.79	1.14	450.79	1.31	4588	651	3099	1977
	5203	51.20	356.90	5054.73	475.68	-0.16	475.68	0.58	4563	676	3097	1978
Btm of Tangent @ 5280'	5235	51.20	356.40	5074.78	500.58	-1.62	500.58	1.22	4538	701	3096	1980
	5267	51.60	357.10	5094.75	525.55	-3.03	525.55	2.12	4513	726	3094	1981
	5298	53.80	357.90	5113.53	550.18	-4.11	550.19	7.39	4489	751	3092	1982
	5330	56.70	359.00	5131.77	576.46	-4.81	576.47	9.49	4462	777	3091	1983
	5362	59.60	360.00	5148.66	603.64	-5.05	603.65	9.44	4435	804	3091	1983
	5393	62.10	1.00	5163.76	630.71	-4.81	630.72	8.54	4408	831	3091	1982
	5425	64.10	1.00	5178.23	659.24	-4.31	659.25	6.25	4380	860	3091	1982
	5457	66.60	1.20	5191.58	688.31	-3.75	688.32	7.83	4350	889	3091	1981
	5489	70.40	1.60	5203.30	718.07	-3.02	718.08	11.93	4321	918	3091	1980
	5520	74.50	0.20	5212.65	747.62	-2.56	747.62	13.91	4291	948	3092	1980
	5552	77.90	359.90	5220.28	778.69	-2.54	778.70	10.66	4260	979	3091	1980
	5584	79.60	359.20	5226.53	810.07	-2.78	810.08	5.73	4229	1010	3091	1980
	5616	80.60	359.80	5232.03	841.60	-3.06	841.60	3.63	4197	1042	3090	1980
	5647	83.60	0.70	5236.29	872.30	-2.92	872.30	10.10	4166	1073	3090	1980
	5679	87.90	1.50	5238.66	904.20	-2.31	904.20	13.67	4135	1105	3090	1979
	5744	90.30	2.20	5239.68	969.15	-0.21	969.14	3.85	4070	1170	3091	1977
	5775	90.40	2.20	5239.49	1000.13	0.98	1000.11	0.32	4039	1201	3092	1975
	5806	90.70	2.20	5239.19	1031.10	2.17	1031.08	0.97	4008	1231	3093	1974
	5836	89.80	2.00	5239.06	1061.08	3.27	1061.06	3.07	3978	1261	3093	1973
	5867	88.20	1.30	5239.60	1092.06	4.16	1092.04	5.63	3947	1292	3094	1972

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
5898	87.90	1.20	5240.66	1123.04	4.84	1123.01	1.02	3916	1323	3094	1971
5929	88.00	0.80	5241.77	1154.01	5.38	1153.98	1.33	3885	1354	3094	1970
5960	88.30	0.60	5242.77	1184.99	5.75	1184.96	1.16	3854	1385	3094	1970
5990	88.20	0.70	5243.68	1214.98	6.10	1214.94	0.47	3824	1415	3094	1969
6021	88.10	1.00	5244.68	1245.96	6.55	1245.92	1.02	3793	1446	3094	1969
6052	88.10	1.00	5245.71	1276.94	7.10	1276.90	0.00	3762	1477	3095	1968
6083	88.80	0.40	5246.55	1307.92	7.47	1307.88	2.97	3731	1508	3095	1967
6113	89.50	0.10	5247.00	1337.92	7.60	1337.88	2.54	3701	1538	3094	1967
6144	89.50	359.90	5247.27	1368.92	7.60	1368.88	0.65	3670	1569	3094	1967
6175	89.30	359.40	5247.59	1399.91	7.42	1399.87	1.74	3639	1600	3093	1967
6206	88.70	358.70	5248.13	1430.91	6.90	1430.87	2.97	3608	1631	3092	1968
6237	88.60	358.70	5248.86	1461.89	6.20	1461.85	0.32	3577	1662	3091	1968
6267	89.50	359.00	5249.36	1491.88	5.60	1491.84	3.16	3547	1692	3090	1969
6298	90.70	359.40	5249.31	1522.87	5.16	1522.84	4.08	3516	1723	3090	1969
6329	91.40	359.50	5248.74	1553.87	4.87	1553.84	2.28	3485	1754	3089	1969
6360	91.50	359.40	5247.95	1584.86	4.57	1584.83	0.46	3454	1785	3088	1969
6391	90.80	359.20	5247.33	1615.85	4.19	1615.82	2.35	3423	1816	3087	1969
6421	90.70	359.10	5246.94	1645.84	3.75	1645.81	0.47	3393	1846	3087	1970
6452	90.20	359.20	5246.69	1676.84	3.29	1676.81	1.64	3362	1877	3086	1970
6483	90.30	358.90	5246.56	1707.83	2.77	1707.81	1.02	3331	1908	3085	1971
6514	90.40	359.00	5246.37	1738.83	2.20	1738.80	0.46	3300	1939	3084	1971
6545	89.00	359.10	5246.53	1769.82	1.69	1769.80	4.53	3269	1970	3083	1971
6575	88.70	359.10	5247.13	1799.81	1.22	1799.79	1.00	3239	2000	3082	1972
6606	88.70	359.10	5247.84	1830.80	0.73	1830.78	0.00	3208	2031	3081	1972
6637	88.00	358.50	5248.73	1861.78	0.08	1861.76	2.97	3177	2062	3080	1973
6668	88.20	358.50	5249.76	1892.75	-0.73	1892.74	0.65	3146	2093	3079	1973
6700	89.10	359.00	5250.51	1924.74	-1.43	1924.73	3.22	3114	2125	3078	1974
6732	89.50	359.60	5250.90	1956.73	-1.82	1956.72	2.25	3082	2157	3077	1974
6763	89.50	359.30	5251.17	1987.73	-2.11	1987.72	0.97	3051	2188	3077	1974
6795	90.00	359.20	5251.31	2019.72	-2.53	2019.72	1.59	3019	2220	3076	1975
6859	91.40	359.70	5250.53	2083.71	-3.15	2083.71	2.32	2955	2284	3074	1975
6955	92.20	359.80	5247.52	2179.67	-3.57	2179.66	0.84	2859	2380	3073	1975
7019	91.60	359.80	5245.39	2243.63	-3.79	2243.63	0.94	2795	2444	3072	1975
7082	90.80	359.60	5244.07	2306.61	-4.12	2306.61	1.31	2732	2507	3071	1975
7146	89.80	359.30	5243.74	2370.61	-4.73	2370.61	1.63	2668	2571	3069	1975
7210	90.10	359.10	5243.79	2434.60	-5.63	2434.61	0.56	2604	2635	3067	1976
7242	90.40	359.10	5243.66	2466.60	-6.13	2466.60	0.94	2572	2667	3067	1976
7338	90.70	359.00	5242.73	2562.58	-7.72	2562.59	0.33	2476	2763	3064	1978
7433	90.70	359.10	5241.57	2657.56	-9.30	2657.58	0.11	2381	2858	3061	1979
7529	90.90	358.60	5240.23	2753.53	-11.22	2753.56	0.56	2285	2954	3058	1980
7624	91.90	358.70	5237.91	2848.48	-13.46	2848.51	1.06	2190	3049	3054	1982
7688	90.20	358.90	5236.74	2912.45	-14.80	2912.49	2.67	2126	3113	3052	1983
7752	90.20	359.50	5236.52	2976.44	-15.69	2976.48	0.94	2062	3177	3051	1984
7816	89.30	359.60	5236.79	3040.44	-16.20	3040.48	1.41	1998	3241	3049	1984
7912	89.20	0.00	5238.05	3136.43	-16.53	3136.47	0.43	1902	3337	3048	1984
8007	90.80	0.60	5238.05	3231.43	-16.03	3231.46	1.80	1807	3432	3047	1983
8103	91.40	0.50	5236.21	3327.40	-15.11	3327.44	0.63	1711	3528	3047	1982
8198	93.80	0.50	5231.90	3422.29	-14.29	3422.32	2.53	1617	3623	3046	1981
8262	91.80	360.00	5228.77	3486.21	-14.01	3486.24	3.22	1553	3687	3046	1980
8326	88.40	0.30	5228.66	3550.20	-13.84	3550.23	5.33	1489	3751	3045	1980
8390	88.70	359.30	5230.28	3614.18	-14.06	3614.21	1.63	1425	3815	3044	1980
8453	88.80	359.00	5231.66	3677.16	-15.00	3677.19	0.50	1362	3878	3043	1980
8517	89.80	358.80	5232.44	3741.14	-16.23	3741.18	1.59	1298	3942	3040	1981
8607	87.80	358.50	5234.32	3831.09	-18.35	3831.14	2.25	1208	4031	3037	1983
8638	89.10	358.00	5235.16	3862.07	-19.29	3862.11	4.49	1177	4062	3036	1984
8701	89.80	358.50	5235.77	3925.03	-21.22	3925.09	1.37	1114	4125	3033	1986
8765	90.10	359.10	5235.82	3989.02	-22.56	3989.08	1.05	1050	4189	3031	1987
8829	91.20	359.50	5235.09	4053.01	-23.34	4053.07	1.83	986	4253	3029	1987
8893	91.80	0.10	5233.42	4116.99	-23.56	4117.05	1.33	922	4317	3028	1987