

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	5505	3760	1505
SHL	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-250	5505	3760	1505
BHL	10454	90.50	180.70	5526.48	-5169.90	-513.05	5195.23	0.00	4921	334	3264	2005
Miss Entry	5628	58.04	214.81	5418.00	-401.08	-350.56	432.22	7.23	152	5103	3411	1854
Top Perf	5858	71.99	199.11	5515.69	-585.23	-444.91	624.42	9.93	337	4919	3317	1948
Bottom Perf	10308	90.37	180.83	5527.62	-5023.92	-511.14	5049.71	0.23	4775	480	3265	2003

Survey Points	NW Corner XY Coord	X	Y	Surface XY	X	Y	m					
							North Line slope	-0.0032289	East Line slope	0.0024757	South Line slope	-0.0009489
	SW Corner XY Coord	1738343	161096		1742121	166597						
	NE Corner XY Coord	1743625	166342									
	SE Corner XY Coord	1743612	161091									

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									-250	5505	3760	1505
	0	0.0	0	0	0	0	0	0	-250	5505	3760	1505
	1060	0.30	197.10	1060.00	-3	-1	2.72	0.03	-247	5502	3759	1505
	1520	1.50	208.90	1519.93	-9	-4	9.42	0.26	-241	5496	3756	1509
	1995	1.40	202.80	1994.78	-20	-9	20.66	0.04	-230	5485	3751	1514
	2470	0.40	319.00	2469.73	-24	-13	25.05	0.34	-226	5481	3748	1517
	2944	0.60	4.10	2943.72	-20	-14	21.43	0.09	-230	5484	3747	1518
	3417	0.80	52.50	3416.68	-16	-11	16.70	0.13	-234	5489	3750	1515
	3888	0.40	19.00	3887.66	-12	-8	12.87	0.11	-238	5492	3753	1512
	4362	0.50	41.30	4361.65	-9	-6	9.58	0.04	-241	5495	3755	1510
	4554	0.40	342.70	4553.64	-8	-5	8.29	0.23	-242	5497	3755	1510
	4582	0.40	332.80	4581.64	-8	-5	8.11	0.25	-242	5497	3755	1510
	4614	0.70	248.40	4613.64	-8	-6	8.11	2.41	-243	5497	3755	1510
	4646	2.20	223.20	4645.63	-8	-6	8.68	4.98	-242	5496	3754	1511
	4678	3.60	227.60	4677.59	-9	-7	9.91	4.43	-241	5495	3753	1512
	4709	4.90	225.50	4708.50	-11	-9	11.65	4.22	-239	5494	3751	1514
	4741	6.50	225.30	4740.34	-13	-11	14.08	5.00	-237	5492	3749	1516
	4772	8.30	225.90	4771.08	-16	-14	17.13	5.81	-234	5489	3746	1519
	4804	9.80	226.40	4802.68	-19	-18	20.94	4.69	-231	5485	3742	1522
	4836	11.50	226.70	4834.13	-23	-22	25.39	5.32	-227	5481	3738	1527
	4867	14.30	227.30	4864.34	-28	-27	30.56	9.04	-222	5476	3733	1532
	4899	16.70	228.10	4895.18	-34	-34	36.88	7.53	-216	5471	3727	1538
	4930	19.20	228.30	4924.67	-40	-41	43.89	8.07	-210	5464	3720	1545
	4962	22.30	228.40	4954.59	-48	-49	52.18	9.69	-202	5457	3711	1554
	4994	25.20	230.20	4983.87	-56	-59	61.46	9.34	-194	5448	3701	1563
	5025	28.20	229.60	5011.57	-65	-70	71.39	9.72	-185	5439	3691	1574
	5057	31.30	227.10	5039.35	-76	-81	83.02	10.43	-174	5429	3679	1586
	5088	34.50	224.80	5065.37	-87	-94	95.82	11.08	-162	5417	3667	1598
	5120	37.90	221.80	5091.19	-101	-106	110.74	11.98	-149	5403	3654	1611
	5151	41.20	219.30	5115.09	-116	-119	126.88	11.82	-134	5388	3641	1624
	5183	43.50	218.50	5138.74	-133	-133	144.85	7.38	-117	5371	3628	1637
	5215	45.10	218.00	5161.64	-151	-147	163.62	5.12	-99	5354	3614	1651
	5246	46.60	218.70	5183.24	-168	-160	182.28	5.10	-82	5336	3600	1665
	5278	48.80	219.50	5204.77	-186	-175	201.97	7.12	-63	5318	3585	1680
	5310	50.50	219.90	5225.49	-205	-191	222.11	5.40	-44	5299	3570	1695
Top of Tangent @ 5303'	5341	51.00	220.30	5245.10	-223	-206	241.85	1.90	-26	5281	3555	1710
	5373	51.60	219.90	5265.11	-243	-222	262.37	2.11	-7	5262	3539	1727
	5404	51.60	220.30	5284.37	-261	-238	282.34	1.01	12	5243	3523	1742
	5436	51.50	220.20	5304.26	-280	-254	302.91	0.40	31	5224	3507	1758
Btm of Tangent @ 5542'	5468	51.60	220.50	5324.16	-299	-271	323.45	0.80	50	5205	3491	1774
	5500	51.80	220.30	5344.00	-318	-287	344.01	0.79	69	5186	3474	1791
	5532	52.80	218.80	5363.57	-338	-303	364.96	4.85	89	5166	3458	1807
	5563	54.60	218.00	5381.92	-358	-318	385.91	6.17	108	5147	3443	1822
	5594	56.10	216.60	5399.54	-378	-334	407.56	6.10	129	5126	3428	1838
	5626	57.90	214.90	5416.97	-400	-350	430.72	7.18	151	5105	3412	1853
	5658	60.20	213.50	5433.43	-422	-365	454.76	8.11	173	5082	3397	1869
	5689	62.10	211.30	5448.39	-445	-380	478.95	8.73	196	5059	3382	1883
	5721	63.60	209.30	5462.99	-470	-394	504.78	7.27	221	5034	3368	1897
	5752	65.30	206.80	5476.36	-495	-407	530.58	9.11	246	5010	3355	1910
	5784	66.30	204.20	5489.48	-521	-420	557.99	8.04	272	4983	3342	1923
	5815	68.60	201.90	5501.37	-547	-431	585.27	10.10	298	4957	3331	1934
	5847	71.30	199.90	5512.34	-575	-442	614.23	10.28	327	4929	3321	1945
	5879	73.30	197.60	5522.07	-604	-451	643.89	9.27	355	4900	3311	1954
	5910	74.90	195.50	5530.56	-633	-460	673.13	8.31	384	4871	3302	1963
	5942	76.40	192.80	5538.50	-663	-467	703.77	9.42	414	4841	3295	1970
	5974	78.80	190.50	5545.37	-693	-474	734.83	10.27	445	4811	3289	1977
	6006	81.70	188.00	5550.79	-725	-479	766.29	11.89	476	4780	3284	1982
	6037	84.30	186.00	5554.57	-755	-483	797.05	10.55	506	4749	3280	1985
	6069	86.20	183.70	5557.22	-787	-485	828.93	9.30	538	4717	3278	1988
	6110	87.60	182.90	5559.43	-828	-488	869.84	3.93	579	4676	3275	1990
	6174	88.90	182.60	5561.39	-892	-491	933.74	2.08	643	4613	3272	1993
	6205	88.80	182.90	5562.01	-923	-492	964.70	1.02	674	4582	3271	1994
	6235	88.50	182.20	5562.72	-953	-493	994.66	2.54	704	4552	3270	1996
	6266	88.10	182.10	5563.64	-983	-495	1025.60	1.33	735	4521	3269	1997
	6296	88.30	180.70	5564.58	-1013	-495	1055.51	4.71	765	4491	3268	1997
	6326	88.20	180.30	5565.49	-1043	-496	1085.38	1.37	795	4461	3268	1998

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6357	89.50	179.80	5566.12	-1074	-496	1116.24	4.49	826	4430	3268	1998
6387	90.10	179.00	5566.22	-1104	-495	1146.08	3.33	856	4400	3268	1997
6417	89.80	179.30	5566.25	-1134	-495	1175.90	1.41	886	4370	3269	1997
6447	89.70	178.90	5566.38	-1164	-494	1205.72	1.37	916	4340	3270	1996
6478	90.40	179.20	5566.35	-1195	-494	1236.53	2.46	947	4309	3270	1996
6508	91.40	179.40	5565.88	-1225	-494	1266.36	3.40	977	4279	3271	1995
6539	91.40	179.30	5565.12	-1256	-493	1297.18	0.32	1008	4248	3271	1995
6570	91.80	179.00	5564.26	-1287	-493	1327.98	1.61	1039	4217	3272	1994
6600	92.00	179.10	5563.26	-1317	-492	1357.78	0.75	1069	4187	3272	1994
6631	92.40	179.40	5562.07	-1348	-492	1388.58	1.61	1100	4156	3273	1993
6662	91.60	179.40	5560.99	-1379	-492	1419.39	2.58	1131	4125	3273	1993
6692	91.60	179.80	5560.15	-1409	-491	1449.23	1.33	1161	4095	3273	1992
6723	91.70	179.90	5559.26	-1440	-491	1480.07	0.46	1192	4064	3274	1992
6753	91.90	180.00	5558.32	-1470	-491	1509.92	0.75	1222	4034	3274	1992
6783	92.30	179.70	5557.22	-1500	-491	1539.76	1.67	1252	4004	3274	1992
6814	91.30	179.20	5556.24	-1531	-491	1570.58	3.61	1283	3973	3274	1992
6844	91.60	179.60	5555.49	-1561	-490	1600.40	1.67	1313	3943	3275	1991
6875	90.90	179.60	5554.81	-1592	-490	1631.24	2.26	1344	3912	3275	1991
6905	90.50	179.80	5554.44	-1622	-490	1661.09	1.49	1374	3882	3275	1991
6936	90.60	179.60	5554.15	-1653	-490	1691.94	0.72	1405	3851	3276	1991
6966	90.40	179.60	5553.88	-1683	-490	1721.78	0.67	1435	3821	3276	1990
7027	90.50	179.10	5553.40	-1744	-489	1782.44	0.84	1496	3760	3277	1989
7118	90.70	178.40	5552.45	-1835	-487	1872.82	0.80	1587	3669	3279	1987
7210	90.70	178.10	5551.33	-1927	-484	1964.11	0.33	1679	3577	3282	1984
7301	90.90	179.50	5550.06	-2018	-482	2054.49	1.55	1770	3486	3284	1982
7396	90.40	178.80	5548.98	-2113	-481	2148.92	0.91	1865	3391	3286	1980
7490	90.00	178.30	5548.65	-2207	-479	2242.25	0.68	1958	3297	3289	1978
7586	91.90	178.40	5547.06	-2303	-476	2337.51	1.98	2054	3201	3292	1975
7681	92.40	179.10	5543.50	-2398	-474	2431.81	0.91	2149	3106	3294	1972
7775	90.70	179.00	5540.95	-2492	-472	2525.20	1.81	2243	3012	3296	1971
7870	90.40	179.80	5540.04	-2587	-471	2619.67	0.90	2338	2917	3297	1969
7964	90.90	180.00	5538.97	-2681	-471	2713.24	0.57	2432	2823	3298	1969
8059	90.10	180.90	5538.15	-2776	-472	2807.88	1.27	2527	2728	3297	1970
8153	90.00	180.10	5538.06	-2870	-473	2901.54	0.86	2621	2634	3297	1970
8248	90.40	179.80	5537.73	-2965	-473	2996.11	0.53	2716	2539	3297	1970
8343	90.70	179.50	5536.82	-3060	-472	3090.63	0.45	2811	2444	3298	1969
8438	91.20	180.40	5535.24	-3155	-472	3185.18	1.08	2906	2349	3299	1969
8532	90.40	181.00	5533.93	-3249	-473	3278.86	1.06	3000	2255	3298	1970
8627	90.70	180.30	5533.02	-3344	-474	3373.53	0.80	3095	2160	3297	1970
8722	91.40	181.10	5531.28	-3439	-475	3468.19	1.12	3190	2065	3296	1971
8817	92.60	181.70	5527.96	-3534	-478	3562.90	1.41	3285	1970	3294	1973
8912	92.20	181.60	5523.99	-3629	-480	3657.62	0.43	3380	1876	3292	1976
9006	88.10	182.60	5523.74	-3722	-484	3751.44	4.49	3474	1782	3289	1979
9100	88.00	182.50	5526.94	-3816	-488	3845.27	0.15	3568	1688	3285	1983
9196	88.50	182.30	5529.87	-3912	-492	3941.10	0.56	3664	1592	3281	1987
9291	89.10	181.70	5531.86	-4007	-495	4035.91	0.89	3759	1497	3278	1990
9385	89.80	181.00	5532.76	-4101	-497	4129.67	1.05	3853	1403	3276	1992
9480	90.50	180.60	5532.51	-4196	-499	4224.37	0.85	3948	1308	3275	1993
9575	91.10	179.70	5531.19	-4291	-499	4318.96	1.14	4043	1213	3275	1993
9670	90.50	180.30	5529.86	-4386	-499	4413.53	0.89	4138	1118	3275	1993
9765	90.00	181.40	5529.45	-4481	-500	4508.23	1.27	4233	1023	3274	1994
9860	89.50	181.20	5529.86	-4576	-503	4602.99	0.57	4327	928	3272	1996
9955	90.10	181.10	5530.19	-4671	-504	4697.72	0.64	4422	833	3271	1998
10050	90.50	181.20	5529.69	-4766	-506	4792.46	0.43	4517	738	3269	1999
10144	90.60	181.20	5528.79	-4860	-508	4886.21	0.11	4611	644	3268	2001
10239	90.30	180.90	5528.05	-4955	-510	4980.93	0.45	4706	549	3266	2002
10335	90.40	180.80	5527.46	-5051	-512	5076.63	0.15	4802	453	3265	2004
10403	90.50	180.70	5526.93	-5119	-512	5144.40	0.21	4870	385	3264	2004
10454	90.50	180.70	5526.48	-5170	-513	5195.23	0.00	4921	334	3264	2005