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	200	5080	4470	810
BHL	9890	89.44	180.45	5447.96	-4736.69	146.91	4738.95	0.04	4937	343	4617	663
Miss Entry	5531	54.48	171.19	5355.76	-412.78	99.47	415.44	7.51	613	4667	4569	711
Top Perf	5600	61.06	171.89	5392.69	-470.34	108.15	473.23	10.82	670	4610	4578	702
Bottom Perf	9775	89.78	180.56	5447.46	-4621.69	148.01	4624.03	0.63	4822	458	4618	662

Survey Points		X	Y
	NW Corner XY Coord	0	5280
	SW Corner XY Coord	0	0
	NE Corner XY Coord	5280	5280
	SE Corner XY Coord	5280	0

	X	Y
Surface XY	4470	5080

m

North Line slope	0
East Line slope	0
South Line slope	0
West Line slope	0

	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	200	5080	4470	810
	222	0.90	0.15	221.99	1.74	0.00	-1.74	0.41	198	5082	4470	810
	471	1.10	0.15	470.95	6.09	0.02	-6.09	0.08	194	5086	4470	810
	744	0.40	0.14	743.93	9.66	0.03	-9.66	0.26	190	5090	4470	810
	866	0.40	0.14	865.92	10.51	0.03	-10.51	0.00	189	5091	4470	810
	1024	0.40	358.90	1023.92	11.62	0.02	-11.61	0.01	188	5092	4470	810
	1483	0.60	298.20	1482.91	14.35	-2.13	-14.41	0.12	186	5094	4468	812
	1960	0.30	287.80	1959.89	15.92	-5.52	-16.07	0.06	184	5096	4464	816
	2436	0.30	29.00	2435.89	17.39	-6.10	-17.55	0.10	183	5097	4464	816
	2913	0.30	41.00	2912.88	19.42	-4.68	-19.55	0.01	181	5099	4465	815
	3388	0.90	343.60	3387.86	23.94	-4.92	-24.07	0.16	176	5104	4465	815
	3865	1.50	306.90	3864.75	31.28	-10.97	-31.58	0.20	169	5111	4459	821
	4151	1.50	308.10	4150.66	35.84	-16.91	-36.31	0.01	164	5116	4453	827
	4246	1.50	288.50	4245.63	37.00	-19.06	-37.53	0.54	163	5117	4451	829
	4342	1.40	295.30	4341.59	37.90	-21.32	-38.49	0.21	162	5118	4449	831
	4438	1.50	298.40	4437.56	39.00	-23.48	-39.65	0.13	161	5119	4447	833
	4501	1.30	298.90	4500.54	39.74	-24.83	-40.43	0.32	160	5120	4445	835
	4533	1.10	303.10	4532.54	40.08	-25.41	-40.79	0.68	160	5120	4445	835
	4565	0.40	286.30	4564.53	40.28	-25.77	-41.00	2.27	160	5120	4444	836
	4597	1.30	143.80	4596.53	40.02	-25.66	-40.73	5.11	160	5120	4444	836
	4628	3.50	136.90	4627.50	39.04	-24.81	-39.73	7.14	161	5119	4445	835
	4660	5.80	140.40	4659.40	37.08	-23.11	-37.73	7.24	163	5117	4447	833
	4692	7.80	143.00	4691.17	34.10	-20.77	-34.68	6.32	166	5114	4449	831
	4724	10.10	145.90	4722.78	30.05	-17.89	-30.54	7.32	170	5110	4452	828
	4756	12.30	147.20	4754.17	24.86	-14.47	-25.26	6.92	175	5105	4456	824
	4787	14.00	149.30	4784.35	18.86	-10.77	-19.16	5.70	181	5099	4459	821
	4819	15.80	151.50	4815.28	11.70	-6.71	-11.89	5.90	188	5092	4463	817
	4851	17.90	151.30	4845.90	3.56	-2.27	-3.62	6.56	196	5084	4468	812
	4882	20.30	151.80	4875.19	-5.36	2.56	5.43	7.76	205	5075	4473	807
	4914	23.00	153.10	4904.93	-15.83	8.01	16.05	8.57	216	5064	4478	802
	4946	25.10	156.30	4934.15	-27.62	13.57	28.00	7.72	228	5052	4484	796
	4978	27.00	157.40	4962.90	-40.55	19.09	41.07	6.13	241	5039	4489	791
	5009	29.20	159.10	4990.25	-54.11	24.49	54.79	7.55	254	5026	4494	786
	5041	31.80	160.70	5017.82	-69.36	30.06	70.19	8.51	269	5011	4500	780
	5073	34.60	162.20	5044.59	-85.97	35.63	86.95	9.12	286	4994	4506	774
	5104	37.10	163.40	5069.72	-103.32	40.99	104.44	8.38	303	4977	4511	769
	5136	39.30	164.50	5094.86	-122.33	46.45	123.61	7.20	322	4958	4516	764
	5168	41.30	165.10	5119.27	-142.31	51.88	143.73	6.37	342	4938	4522	758
	5200	43.70	165.90	5142.86	-163.24	57.29	164.80	7.69	363	4917	4527	753
	5231	46.80	167.80	5164.68	-184.67	62.29	186.37	10.91	385	4895	4532	748
	5263	48.50	169.20	5186.24	-207.85	67.00	209.67	6.22	408	4872	4537	743
Top of Tangent	5295	49.80	170.20	5207.17	-231.66	71.32	233.60	4.70	432	4848	4541	739
@ 5,310'	5327	50.50	171.60	5227.67	-255.92	75.21	257.96	4.01	456	4824	4545	735
	5359	50.60	171.50	5248.01	-280.36	78.84	282.49	0.39	480	4800	4549	731
	5390	50.50	171.10	5267.70	-304.02	82.46	306.25	1.05	504	4776	4552	728
	5422	50.60	171.20	5288.04	-328.44	86.26	330.76	0.39	528	4752	4556	724
Btm of Tangent	5454	50.30	170.90	5308.41	-352.81	90.10	355.23	1.18	553	4727	4560	720
@ 5,484'	5486	51.20	171.20	5328.66	-377.29	93.95	379.81	2.90	577	4703	4564	716
	5518	53.40	171.10	5348.23	-402.30	97.85	404.93	6.88	602	4678	4568	712
	5547	55.80	171.30	5365.02	-425.66	101.46	428.38	8.29	626	4654	4571	709
	5581	58.80	171.30	5383.39	-453.94	105.79	456.77	8.82	654	4626	4576	704
	5613	62.60	172.30	5399.05	-481.56	109.77	484.49	12.18	682	4598	4580	700
	5645	66.50	172.50	5412.80	-510.19	113.59	513.22	12.20	710	4570	4584	696
	5676	69.50	172.30	5424.41	-538.68	117.39	541.81	9.70	739	4541	4587	693
	5708	71.50	172.10	5435.09	-568.56	121.48	571.79	6.28	769	4511	4591	689
	5740	73.40	171.10	5444.74	-598.75	125.94	602.09	6.64	799	4481	4596	684
	5772	76.60	170.60	5453.02	-629.26	130.86	632.73	10.11	829	4451	4601	679
	5804	80.00	169.60	5459.51	-660.12	136.24	663.73	11.06	860	4420	4606	674
	5836	83.40	169.40	5464.13	-691.25	142.01	695.02	10.64	891	4389	4612	668
	5867	86.90	168.80	5466.75	-721.58	147.85	725.50	11.45	922	4358	4618	662
	5893	90.20	168.70	5467.41	-747.07	152.92	751.12	12.70	947	4333	4623	657
	5962	92.40	166.40	5465.84	-814.42	167.79	818.87	4.61	1014	4266	4638	642
	5993	92.00	166.50	5464.65	-844.53	175.05	849.18	1.33	1045	4235	4645	635
	6024	91.40	167.30	5463.73	-874.71	182.07	879.54	3.22	1075	4205	4652	628
	6055	91.00	169.30	5463.08	-905.06	188.36	910.06	6.58	1105	4175	4658	622
	6085	90.80	170.80	5462.61	-934.60	193.54	939.74	5.04	1135	4145	4664	616
	6116	90.30	172.80	5462.31	-965.28	197.96	970.53	6.65	1165	4115	4668	612
	6147	90.00	174.90	5462.23	-996.10	201.28	1001.43	6.84	1196	4084	4671	609
	6177	89.30	176.10	5462.41	-1026.01	203.64	1031.40	4.63	1226	4054	4674	606

	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
	6208	87.80	177.60	5463.20	-1056.95	205.34	1062.37	6.84	1257	4023	4675	605
	6239	86.00	178.20	5464.87	-1087.88	206.47	1093.33	6.12	1288	3992	4676	604
	6270	86.20	178.50	5466.98	-1118.80	207.36	1124.25	1.16	1319	3961	4677	603
	6300	87.30	180.50	5468.68	-1148.75	207.63	1154.20	7.60	1349	3931	4678	602
	6331	88.30	181.30	5469.87	-1179.72	207.14	1185.14	4.13	1380	3900	4677	603
	6362	88.50	181.40	5470.74	-1210.70	206.41	1216.09	0.72	1411	3869	4676	604
	6393	88.50	180.90	5471.55	-1241.68	205.79	1247.04	1.61	1442	3838	4676	604
	6423	88.50	180.80	5472.34	-1271.67	205.34	1277.00	0.33	1472	3808	4675	605
	6454	88.70	181.20	5473.09	-1302.66	204.80	1307.96	1.44	1503	3777	4675	605
	6485	89.10	180.60	5473.69	-1333.65	204.31	1338.93	2.33	1534	3746	4674	606
	6515	89.40	181.00	5474.08	-1363.64	203.90	1368.90	1.67	1564	3716	4674	606
	6546	89.70	180.00	5474.33	-1394.64	203.63	1399.87	3.37	1595	3685	4674	606
	6577	90.00	180.50	5474.41	-1425.64	203.49	1430.86	1.88	1626	3654	4673	607
	6607	90.20	180.50	5474.35	-1455.64	203.23	1460.84	0.67	1656	3624	4673	607
	6638	90.60	180.20	5474.14	-1486.63	203.04	1491.82	1.61	1687	3593	4673	607
	6668	90.90	179.90	5473.75	-1516.63	203.01	1521.80	1.41	1717	3563	4673	607
	6699	91.30	180.30	5473.15	-1547.63	202.96	1552.78	1.82	1748	3532	4673	607
	6730	91.20	181.40	5472.47	-1578.62	202.50	1583.74	3.56	1779	3501	4672	608
	6760	91.20	181.40	5471.85	-1608.60	201.77	1613.69	0.00	1809	3471	4672	608
	6822	90.90	181.60	5470.71	-1670.57	200.14	1675.59	0.58	1871	3409	4670	610
	6883	90.70	181.80	5469.86	-1731.54	198.33	1736.48	0.46	1932	3348	4668	612
	6944	91.30	182.20	5468.79	-1792.49	196.21	1797.35	1.18	1992	3288	4666	614
	7006	92.10	182.80	5466.95	-1854.40	193.50	1859.16	1.61	2054	3226	4664	616
	7067	90.10	182.20	5465.78	-1915.33	190.84	1919.99	3.42	2115	3165	4661	619
	7129	91.30	182.60	5465.03	-1977.27	188.25	1981.83	2.04	2177	3103	4658	622
	7193	93.20	182.90	5462.51	-2041.14	185.18	2045.59	3.01	2241	3039	4655	625
	7257	92.60	183.10	5459.27	-2104.97	181.83	2109.30	0.99	2305	2975	4652	628
	7320	91.80	182.80	5456.86	-2167.84	178.59	2172.05	1.36	2368	2912	4649	631
	7384	91.80	182.40	5454.85	-2231.74	175.69	2235.84	0.62	2432	2848	4646	634
	7415	91.80	182.50	5453.87	-2262.70	174.37	2266.75	0.32	2463	2817	4644	636
	7543	90.00	182.50	5451.86	-2390.56	168.78	2394.40	1.41	2591	2689	4639	641
	7606	89.80	182.20	5451.97	-2453.50	166.20	2457.24	0.57	2654	2626	4636	644
	7631	89.80	182.40	5452.06	-2478.48	165.20	2482.18	0.80	2678	2602	4635	645
	7694	89.50	182.50	5452.44	-2541.43	162.50	2545.02	0.50	2741	2539	4633	647
	7758	89.10	182.30	5453.23	-2605.36	159.82	2608.86	0.70	2805	2475	4630	650
	7822	88.90	182.00	5454.34	-2669.31	157.42	2672.71	0.56	2869	2411	4627	653
	7886	89.30	181.80	5455.35	-2733.27	155.30	2736.58	0.70	2933	2347	4625	655
	7950	89.50	181.90	5456.02	-2797.23	153.24	2800.46	0.35	2997	2283	4623	657
	8013	90.60	180.80	5455.96	-2860.21	151.75	2863.37	2.47	3060	2220	4622	658
	8077	91.30	180.70	5454.90	-2924.20	150.91	2927.31	1.10	3124	2156	4621	659
	8141	92.00	180.60	5453.06	-2988.16	150.19	2991.23	1.10	3188	2092	4620	660
	8204	91.90	180.30	5450.92	-3051.13	149.69	3054.15	0.50	3251	2029	4620	660
	8268	90.50	179.80	5449.58	-3115.11	149.64	3118.11	2.32	3315	1965	4620	660
	8300	89.50	179.60	5449.58	-3147.11	149.81	3150.10	3.19	3347	1933	4620	660
	8364	89.10	179.30	5450.36	-3211.10	150.42	3214.08	0.78	3411	1869	4620	660
	8428	89.60	178.70	5451.08	-3275.09	151.54	3278.07	1.22	3475	1805	4622	658
	8556	89.70	178.90	5451.87	-3403.06	154.22	3406.07	0.17	3603	1677	4624	656
	8587	89.90	179.40	5451.97	-3434.05	154.68	3437.07	1.74	3634	1646	4625	655
	8683	91.30	179.80	5450.97	-3530.04	155.35	3533.04	1.52	3730	1550	4625	655
	8875	87.60	178.90	5452.81	-3721.99	157.53	3724.96	1.98	3922	1358	4628	652
	8938	88.80	180.00	5454.79	-3784.95	158.13	3787.92	2.58	3985	1295	4628	652
	9002	91.60	180.30	5454.57	-3848.94	157.96	3851.88	4.40	4049	1231	4628	652
	9066	92.10	180.40	5452.50	-3912.91	157.57	3915.81	0.80	4113	1167	4628	652
	9194	92.50	181.20	5447.36	-4040.79	155.79	4043.59	0.70	4241	1039	4626	654
	9258	90.80	180.90	5445.52	-4104.75	154.61	4107.49	2.70	4305	975	4625	655
	9289	90.40	180.90	5445.20	-4135.75	154.13	4138.46	1.29	4336	944	4624	656
	9353	89.60	181.00	5445.20	-4199.74	153.07	4202.39	1.26	4400	880	4623	657
	9449	89.50	180.80	5445.95	-4295.72	151.56	4298.30	0.23	4496	784	4622	658
	9545	90.40	180.60	5446.03	-4391.71	150.38	4394.21	0.96	4592	688	4620	660
	9640	89.10	180.60	5446.45	-4486.71	149.39	4489.14	1.37	4687	593	4619	661
	9736	89.90	180.60	5447.29	-4582.70	148.38	4585.06	0.83	4783	497	4618	662
	9837	89.60	180.50	5447.73	-4683.69	147.42	4685.99	0.31	4884	396	4617	663
TD	9890	89.44	180.45	5447.96	-4736.69	146.91	4738.95	0.04	4937	343	4617	663