

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	-210	5495	685
BHL	10160	91.30	177.60	5334.40	-5164.60	-1.40	5164.50	0.00	4955	330	695	4521
Miss Entry	5382	50.48	186.74	5239.03	-428.29	-76.44	428.81	2.95	219	5066	609	4608
Top Perf	5512	60.49	181.75	5314.83	-533.20	-85.30	533.80	12.22	324	4961	600	4617
Bottom Perf	10051	91.02	176.75	5336.62	-5055.79	-6.41	5055.69	1.24	4846	439	690	4527

Survey Points	X	Y	North Line slope	East Line slope	South Line slope	West Line slope
NW Corner XY Coord	1727844	161114	-0.0051754	0.0024589	-0.0055598	0.0022706
SW Corner XY Coord	1727832	155829				
NE Corner XY Coord	1733061	161087				
SE Corner XY Coord	1733048	155800				
Surface XY	1728529	161320				

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		0	0.0	0	0	0	0	0	0	-210	5495	685
	982	0.10	240.70	982.00	0	-1	0.40	0.00	-209	5494	684	4533
	1439	0.20	78.50	1439.00	-1	0	0.50	0.10	-209	5494	684	4533
	1914	0.20	178.90	1914.00	-1	1	1.10	0.10	-208	5494	685	4532
	2389	0.80	230.20	2389.00	-4	-2	4.10	0.10	-205	5491	683	4535
	2864	0.80	242.10	2863.90	-8	-8	7.80	0.00	-202	5487	677	4540
	3339	0.40	268.60	3338.90	-9	-12	9.40	0.10	-200	5486	672	4545
	3814	0.40	75.00	3813.90	-9	-12	9.00	0.20	-201	5486	672	4545
	4289	0.20	266.80	4288.90	-9	-11	8.60	0.10	-201	5486	673	4544
	4426	0.30	245.60	4425.90	-9	-12	8.80	0.10	-201	5486	673	4544
	4458	0.70	247.10	4457.90	-9	-12	8.90	1.30	-201	5486	672	4545
	4490	1.90	225.50	4489.90	-9	-13	9.40	4.00	-200	5486	672	4545
	4521	4.60	205.20	4520.80	-11	-14	10.90	9.30	-199	5484	671	4546
	4553	6.90	201.90	4552.70	-14	-15	13.80	7.30	-196	5481	670	4547
	4585	9.10	197.70	4584.40	-18	-16	18.00	7.10	-192	5477	668	4549
	4616	11.30	193.90	4614.90	-23	-18	23.30	7.40	-186	5472	667	4550
	4648	12.30	193.50	4646.20	-30	-19	29.70	3.10	-180	5465	665	4552
	4680	12.70	191.90	4677.40	-36	-21	36.50	1.70	-173	5458	664	4553
	4711	15.00	189.30	4707.50	-44	-22	43.80	7.70	-166	5451	662	4555
	4743	18.00	185.20	4738.20	-53	-23	52.80	10.10	-157	5442	661	4556
	4775	20.70	183.70	4768.40	-63	-24	63.40	8.60	-146	5432	660	4557
	4806	22.50	185.60	4797.20	-75	-25	74.70	6.20	-135	5420	660	4558
	4838	24.30	185.90	4826.60	-87	-26	87.40	5.60	-122	5408	658	4559
	4870	25.80	186.90	4855.60	-101	-28	100.90	4.90	-109	5394	657	4560
	4901	26.90	188.60	4883.40	-114	-30	114.50	4.30	-95	5380	655	4562
	4933	28.20	187.20	4911.70	-129	-32	129.20	4.50	-80	5366	653	4564
	4965	30.60	186.20	4939.60	-145	-34	144.80	7.70	-65	5350	651	4566
	4996	33.10	187.80	4965.90	-161	-36	161.00	8.50	-49	5334	649	4568
	5028	35.80	188.30	4992.30	-179	-38	179.00	8.50	-31	5316	647	4570
	5060	38.50	187.30	5017.80	-198	-41	198.10	8.65	-11	5297	644	4573
	5091	40.40	189.90	5041.80	-217	-44	217.60	8.12	8	5277	641	4576
	5123	43.20	190.10	5065.60	-238	-48	238.70	8.76	29	5256	638	4579
	5154	44.70	190.30	5087.90	-260	-51	259.90	4.86	50	5235	634	4583
Top of Tangent @ 5218'	5186	46.90	189.50	5110.20	-282	-55	282.50	7.10	73	5212	630	4587
	5218	48.40	188.20	5131.80	-306	-59	305.90	5.57	96	5189	626	4591
	5250	48.60	188.60	5153.00	-329	-62	329.60	1.13	120	5165	623	4594
	5281	48.70	188.80	5173.50	-352	-66	352.60	0.58	143	5142	619	4598
	5313	49.20	188.50	5194.50	-376	-70	376.50	1.72	167	5118	616	4601
Btm of Tangent @ 5413'	5344	49.60	187.70	5214.70	-399	-73	399.80	2.35	190	5095	613	4604
	5376	50.40	186.80	5235.20	-424	-76	424.20	3.30	215	5071	610	4607
	5408	50.80	186.50	5255.60	-448	-79	448.80	1.44	239	5046	607	4610
	5439	52.80	186.10	5274.70	-472	-82	473.00	6.53	263	5022	604	4613
	5471	55.90	183.90	5293.40	-498	-84	498.90	11.18	289	4996	602	4615
	5503	59.30	182.10	5310.50	-525	-85	525.90	11.64	316	4969	601	4616
	5534	63.40	180.90	5325.40	-553	-86	553.10	13.65	343	4942	600	4617
	5566	67.00	179.40	5338.80	-582	-86	582.10	12.03	372	4913	600	4617
	5598	69.70	178.30	5350.60	-611	-85	611.90	9.02	402	4883	601	4616
	5629	72.80	177.50	5360.60	-641	-84	641.20	10.29	431	4854	602	4615
	5661	76.50	176.90	5369.00	-671	-83	672.00	11.70	462	4823	603	4614
	5693	80.10	176.60	5375.50	-703	-81	703.20	11.29	494	4792	605	4612
	5724	82.90	176.30	5380.10	-733	-79	733.80	9.08	524	4761	607	4610
	5790	87.00	176.40	5385.90	-799	-75	799.40	6.21	590	4696	612	4605
	5820	89.10	176.40	5386.90	-829	-73	829.30	7.00	620	4666	613	4604
	5851	90.50	177.00	5387.00	-860	-71	860.20	4.91	651	4635	615	4602
	5881	91.20	177.00	5386.60	-890	-70	890.20	2.33	681	4605	617	4600
	5912	91.40	176.90	5385.90	-921	-68	921.10	0.72	712	4574	619	4598
	5943	90.70	177.10	5385.30	-952	-66	952.10	2.35	742	4543	620	4597
	5973	91.00	177.30	5384.90	-982	-65	982.00	1.20	772	4513	622	4595
	6004	91.00	177.60	5384.30	-1013	-64	1013.00	0.97	803	4482	623	4594
	6034	90.00	176.80	5384.10	-1043	-62	1042.90	4.27	833	4452	625	4592
	6065	89.10	176.20	5384.30	-1073	-60	1073.80	3.49	864	4421	627	4590
	6095	88.70	175.80	5384.90	-1103	-58	1103.70	1.89	894	4391	629	4588
	6126	88.40	175.70	5385.70	-1134	-56	1134.60	1.02	925	4360	631	4585
	6156	89.10	175.70	5386.30	-1164	-54	1164.50	2.33	955	4330	634	4583
	6187	90.10	175.60	5386.60	-1195	-51	1195.40	3.24	986	4299	636	4581

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6217	90.40	175.70	5386.40	-1225	-49	1225.30	1.05	1016	4270	638	4578
6248	90.70	175.60	5386.10	-1256	-47	1256.20	1.02	1047	4239	641	4576
6278	90.90	175.70	5385.70	-1286	-44	1286.10	0.75	1076	4209	643	4574
6309	91.50	175.70	5385.10	-1317	-42	1317.00	1.94	1107	4178	646	4571
6339	91.80	175.40	5384.20	-1347	-40	1346.90	1.41	1137	4148	648	4569
6370	90.90	175.40	5383.50	-1378	-37	1377.70	2.90	1168	4117	651	4566
6400	90.50	175.10	5383.10	-1407	-35	1407.60	1.67	1198	4087	653	4564
6431	90.50	175.30	5382.80	-1438	-32	1438.50	0.65	1229	4056	656	4561
6461	90.60	175.80	5382.50	-1468	-30	1468.40	1.70	1259	4027	658	4559
6492	90.30	176.70	5382.30	-1499	-28	1499.30	3.06	1290	3996	660	4557
6522	90.20	176.60	5382.20	-1529	-26	1529.20	0.47	1320	3966	662	4555
6553	90.10	177.00	5382.10	-1560	-24	1560.20	1.33	1351	3935	664	4553
6584	89.70	176.40	5382.10	-1591	-22	1591.10	2.33	1382	3904	666	4551
6614	89.60	177.00	5382.30	-1621	-21	1621.00	2.03	1411	3874	668	4549
6645	90.00	178.00	5382.40	-1652	-19	1652.00	3.47	1442	3843	669	4548
6675	90.50	178.40	5382.30	-1682	-18	1682.00	2.13	1472	3813	670	4547
6706	90.30	178.80	5382.10	-1713	-18	1713.00	1.44	1503	3782	671	4546
6736	90.20	178.80	5382.00	-1743	-17	1743.00	0.33	1533	3752	671	4545
6767	89.80	179.30	5382.00	-1774	-17	1773.90	2.07	1564	3721	672	4545
6798	89.80	179.40	5382.10	-1805	-16	1804.90	0.32	1595	3690	673	4544
6828	90.00	179.30	5382.10	-1835	-16	1834.90	0.75	1625	3660	673	4544
6859	90.30	179.40	5382.00	-1866	-15	1865.90	1.02	1656	3629	673	4543
6889	90.70	179.00	5381.80	-1896	-15	1895.90	1.89	1686	3599	674	4543
6920	91.30	179.10	5381.20	-1927	-15	1926.90	1.96	1717	3568	674	4542
6950	91.20	179.50	5380.60	-1957	-14	1956.90	1.37	1747	3538	675	4542
6981	90.50	180.10	5380.10	-1988	-14	1987.90	2.97	1778	3507	675	4542
7011	90.10	181.10	5380.00	-2018	-14	2017.90	3.59	1808	3477	675	4542
7042	89.50	180.70	5380.10	-2049	-15	2048.90	2.33	1839	3446	674	4542
7072	89.40	180.40	5380.40	-2079	-15	2078.90	1.05	1869	3416	674	4543
7102	89.30	180.80	5380.70	-2109	-15	2108.90	1.37	1899	3386	674	4543
7134	89.50	180.30	5381.00	-2141	-16	2140.90	1.68	1931	3354	674	4543
7166	89.70	180.40	5381.30	-2173	-16	2172.90	0.70	1963	3322	674	4543
7197	90.00	180.10	5381.30	-2204	-16	2203.90	1.37	1994	3291	673	4543
7229	90.70	179.70	5380.80	-2236	-16	2229.90	0.85	2025	3196	674	4543
7260	91.50	179.50	5378.90	-2268	-15	2264.90	0.87	2056	3101	675	4542
7291	93.00	179.30	5375.20	-2300	-14	2288.80	1.59	2087	3006	676	4541
7322	93.10	178.10	5370.10	-2332	-12	2283.60	1.27	2074	2911	678	4538
7353	92.60	178.00	5365.40	-2364	-9	2278.40	0.54	2061	2816	682	4535
7384	92.90	178.20	5360.90	-2396	-6	2273.20	0.38	2048	2722	685	4531
7415	91.20	179.30	5357.50	-2428	-4	2268.10	2.13	2035	2627	687	4529
7446	90.90	180.80	5355.70	-2460	-4	2263.10	1.61	2022	2532	688	4529
7477	90.90	180.80	5354.20	-2492	-5	2258.10	0.00	2009	2437	686	4530
7508	88.00	181.70	5355.10	-2524	-7	2253.00	3.20	1996	2342	685	4532
7539	88.00	181.50	5358.50	-2556	-10	2248.00	0.21	1983	2247	682	4534
7570	89.20	181.70	5360.80	-2588	-12	2242.90	1.28	1970	2152	680	4537
7601	89.70	181.10	5361.70	-2620	-15	2237.90	0.82	1957	2057	678	4539
7632	90.60	181.30	5361.40	-2652	-17	2232.90	0.97	1944	1962	676	4541
7663	91.30	181.40	5359.90	-2684	-19	2227.80	0.74	1931	1867	674	4543
7694	87.10	181.50	5357.50	-2716	-21	2222.80	0.24	1918	1772	672	4545
7725	91.80	181.60	5354.80	-2748	-24	2217.70	0.33	1905	1677	669	4547
7756	91.60	181.30	5352.00	-2780	-26	2212.70	0.38	1892	1582	667	4549
7787	89.60	180.60	5351.00	-2812	-28	2207.70	2.23	1879	1487	666	4551
7818	88.70	180.10	5352.40	-2844	-29	2202.70	1.08	1866	1392	665	4551
7849	88.90	179.70	5354.40	-2876	-28	2197.60	0.47	1853	1297	666	4551
7880	88.90	179.40	5356.20	-2908	-28	2192.60	0.32	1840	1202	667	4550
7911	90.70	178.90	5356.60	-2940	-26	2187.60	1.97	1827	1107	668	4548
7942	93.30	178.60	5353.20	-2972	-24	2182.50	2.75	1814	1012	671	4546