



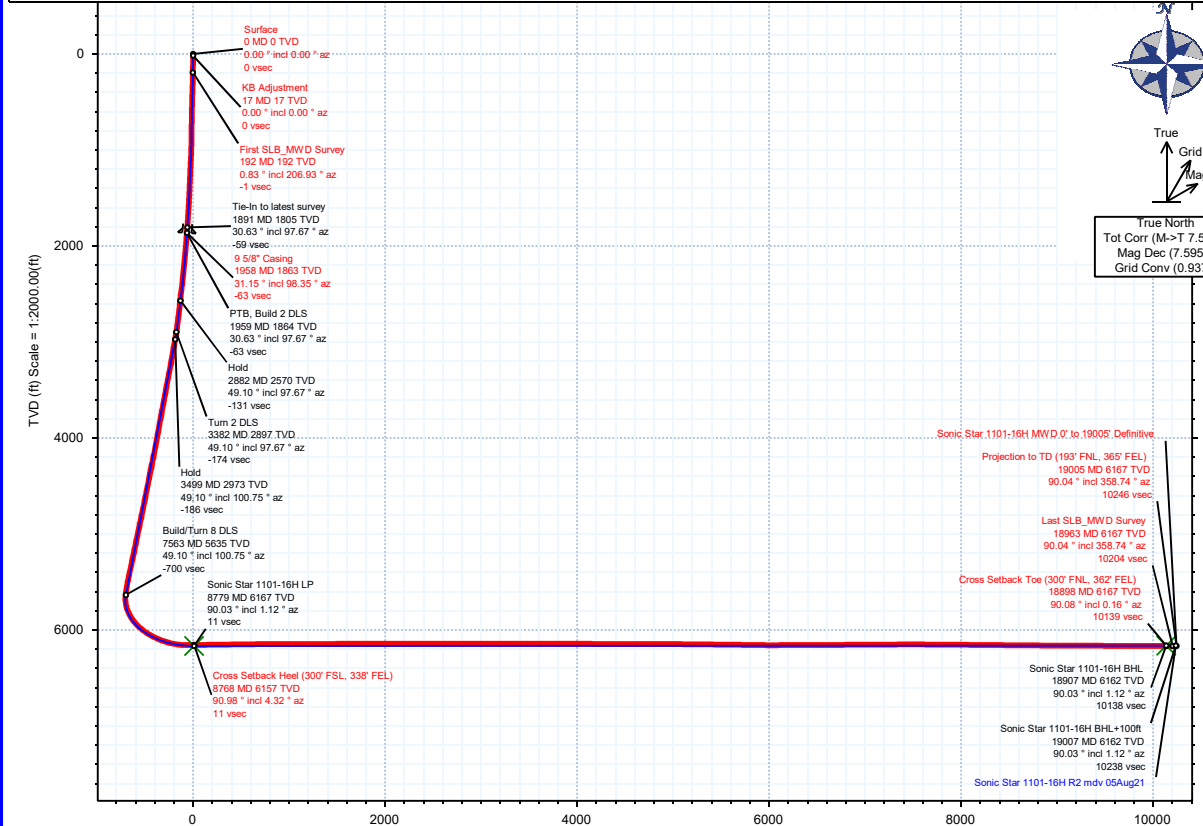
Verdad Resources



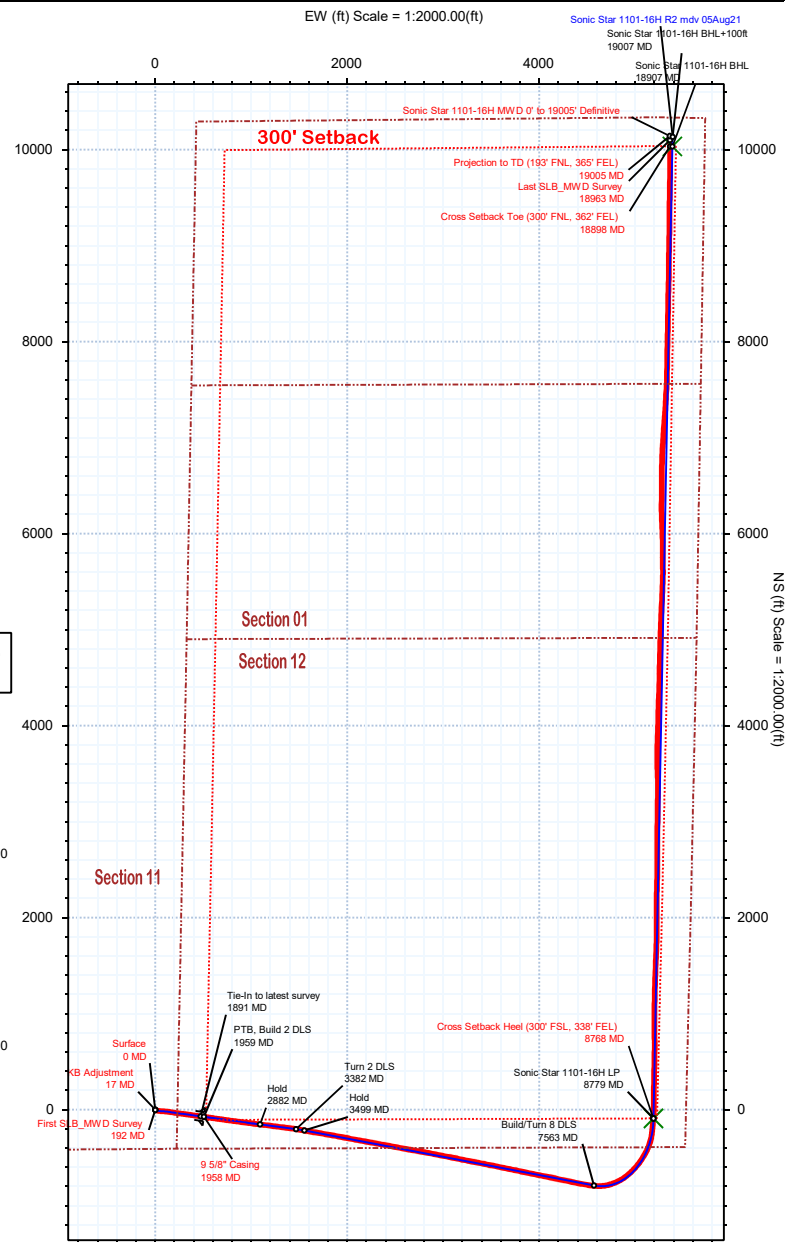
Borehole:	Well:	Field:	Structure:
Original Hole	Sonic Star 1101-16H	CO, Weld County (NAD 83 NZ) - 2019	Verdad 11-08N-60W (Sonic Star 1101 Pad)

Gravity & Magnetic Parameters	Surface Location	NAD83 Colorado State Plane, Northern Zone, US Feet	Miscellaneous
Model: HDGM 2021 Dip: 66.857° Date: 16-Aug-2021	Lat: N 40 40 15.45 Northing: 1490565.78ftUS Grid Conv: 0.9375°		Slot: Sonic Star 1101-16H TVD Ref: KB 21ft(4903ft above MSL)
MagDec: 7.595° FS: 52151.213mT Gravity FS: 999.077mgn (9.80665 Based)	Lon: W 104 2 56.77 Easting: 3402457.02ftUS Scale Fact: 0.9999837		Plan: Sonic Star 1101-16H MWD 0' to 19005' Definitive

Surface Location									
Northing: 1490565.78076841		Easting: 3402457.02103298		Latitude: N 40 40 15.45		Longitude: W 104 2 56.77		VSec Azimuth: 1.12	
Target Description		Grid Coord						Local Coord	
Target Name	Latitude	Longitude	Northing	Easting	TVD	VSec	N(+)/S(-)	E(+)/W(-)	
Sonic Star 1101 Pad Sec 12-01 - 300' SB	N 40 40 14.42	W 104 2 56.80	1490460.83	3402456.52	4903.00	-104.95	-104.93	-2.22	
Sonic Star 1101 Pad Sec 01 - Mid	N 40 40 14.42	W 104 2 56.80	1490460.83	3402456.52	4903.00	-104.95	-104.93	-2.22	
Sonic Star 1101 Pad Sec 12-01 - CL	N 40 40 14.42	W 104 2 56.80	1490460.83	3402456.52	4903.00	-104.95	-104.93	-2.22	
Sonic Star 1101 Pad Sec 12-01	N 40 40 14.42	W 104 2 56.80	1490460.83	3402456.52	4903.00	-104.95	-104.93	-2.22	
Sonic Star 1101-16H BHL	N 40 41 54.60	W 104 1 46.83	1500687.49	3407678.91	6162.00	10138.47	10035.10	5386.89	
Sonic Star 1101-16H LP	N 40 40 14.55	W 104 1 49.42	1490560.24	3407647.51	6167.00	11.00	-90.46	5189.80	
Critical Points									
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS	
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
KB Adjustment	17.00	0.00	0.00	17.00	0.00	0.00	0.00	0.00	0.00
First SLB_MWD Survey	192.00	0.83	206.93	191.99	-1.14	-1.13	-0.57		0.47
9 5/8" Casing	1958.00	31.15	98.35	1862.97	-63.48	-73.39	506.24		0.94
Cross Setback Heel (300' FSL, 338' FEL)	8767.81	90.98	4.32	6156.72	11.41	-90.00	5187.41		2.29
Cross Setback Toe (300' FNL, 362' FEL)	18897.90	90.08	0.16	6166.64	10138.63	10035.76	5361.09		2.18
Last SLB_MWD Survey	18963.00	90.04	358.74	6166.57	10203.70	10100.86	5360.46		2.18
Projection to TD (193' FNL, 365' FEL)	19005.00	90.04	358.74	6166.54	10245.67	10142.85	5359.54		0.00



Vertical Section (ft) Azim = 1.12° Scale = 1:2000.00(ft) Origin = 0N/-S, 0E/-W



SHL: 408' FSL, 230' FEL - Sec 11

Sonic Star 1101-16H MWD 0' to 19005' Definitive Survey Geodetic Report

(Def Survey)

Report Date: August 26, 2021 - 08:27 AM
Client: Verdad Resources
Field: CO, Weld County (NAD 83 NZ) - 2019
Structure / Slot: Verdad 11-08N-60W (Sonic Star 1101 Pad) / Sonic Star 1101-16H
Well: Sonic Star 1101-16H
Borehole: Original Hole
UWI / API#: Unknown / 05-123-49003
Survey Name: Sonic Star 1101-16H MWD 0' to 19005' Definitive
Survey Date: August 16, 2021
Tort / AHD / DDI / ERD Ratio: 273.860 ° / 15927.862 ft / 7.129 / 2.583
Coordinate Reference System: NAD83 Colorado State Plane, Northern Zone, US Feet
Location Lat / Long: N 40° 40' 15.45240", W 104° 2' 56.76720"
Location Grid N/E Y/X: N 1490565.781 ftUS, E 3402457.021 ftUS
CRS Grid Convergence Angle: 0.9375 °
Grid Scale Factor: 0.9999837
Version / Patch: 2.10.824.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 1.120 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB 21ft
TVD Reference Elevation: 4903.000 ft above MSL
Seabed / Ground Elevation: 4882.000 ft above MSL
Magnetic Declination: 7.595 °
Total Gravity Field Strength: 999.0768mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 52151.213 nT
Magnetic Dip Angle: 66.857 °
Declination Date: August 16, 2021
Magnetic Declination Model: HDGM 2021
North Reference: True North
Grid Convergence Used: 0.0000 °
Total Corr Mag North→True North: 7.5954 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	1490565.78	3402457.02	40.670959	-104.049102
KB Adjustment	17.00	0.00	0.00	17.00	0.00	0.00	0.00	0.00	1490565.78	3402457.02	40.670959	-104.049102
First SLB_MWD Survey	192.00	0.83	206.93	191.99	-1.14	-1.13	-0.57	0.47	1490564.64	3402456.47	40.670956	-104.049104
	220.00	0.75	176.78	219.99	-1.51	-1.49	-0.66	1.49	1490564.28	3402456.39	40.670955	-104.049104
	248.00	1.25	143.22	247.99	-1.93	-1.92	-0.46	2.68	1490563.85	3402456.59	40.670954	-104.049104
	279.00	2.17	126.13	278.97	-2.53	-2.54	0.21	3.36	1490563.25	3402457.28	40.670952	-104.049101
	307.00	3.46	117.62	306.94	-3.21	-3.24	1.39	4.83	1490562.56	3402458.46	40.670950	-104.049097
	338.00	4.79	114.63	337.86	-4.15	-4.22	3.40	4.34	1490561.62	3402460.49	40.670947	-104.049090
	368.00	5.59	112.15	367.73	-5.17	-5.29	5.89	2.77	1490560.59	3402462.99	40.670944	-104.049081
	398.00	6.32	109.65	397.57	-6.22	-6.39	8.80	2.58	1490559.53	3402465.92	40.670941	-104.049070
	428.00	7.11	107.61	427.37	-7.27	-7.51	12.12	2.75	1490558.47	3402469.26	40.670938	-104.049058
	458.00	8.08	104.16	457.10	-8.28	-8.59	15.94	3.57	1490557.45	3402473.09	40.670935	-104.049045
	488.00	8.79	101.10	486.78	-9.15	-9.55	20.23	2.80	1490556.57	3402477.40	40.670933	-104.049029
	518.00	9.37	98.08	516.40	-9.84	-10.33	24.90	2.50	1490555.86	3402482.08	40.670931	-104.049012
	548.00	10.05	96.59	545.97	-10.39	-10.97	29.91	2.42	1490555.30	3402487.11	40.670929	-104.048994
	578.00	10.77	96.17	575.48	-10.88	-11.58	35.30	2.41	1490554.78	3402492.51	40.670927	-104.048975
	608.00	11.45	96.27	604.92	-11.40	-12.20	41.05	2.27	1490554.25	3402498.26	40.670926	-104.048954
	638.00	11.95	96.31	634.29	-11.95	-12.87	47.10	1.67	1490553.68	3402504.32	40.670924	-104.048932
	668.00	12.26	96.57	663.63	-12.53	-13.58	53.35	1.05	1490553.08	3402510.58	40.670922	-104.048910
	698.00	12.60	95.82	692.92	-13.10	-14.27	59.77	1.25	1490552.49	3402517.01	40.670920	-104.048887
	728.00	12.81	94.84	722.19	-13.58	-14.88	66.34	1.00	1490551.98	3402523.59	40.670918	-104.048863
	758.00	13.07	94.10	751.43	-13.98	-15.41	73.03	1.03	1490551.57	3402530.30	40.670917	-104.048839
	788.00	13.28	93.84	780.64	-14.32	-15.88	79.85	0.73	1490551.21	3402537.12	40.670915	-104.048814
	818.00	13.64	93.86	809.81	-14.65	-16.35	86.82	1.20	1490550.85	3402544.10	40.670914	-104.048789
	848.00	13.87	93.73	838.95	-14.98	-16.82	93.94	0.77	1490550.50	3402551.22	40.670913	-104.048763
	878.00	14.20	94.00	868.06	-15.33	-17.31	101.20	1.12	1490550.13	3402558.49	40.670911	-104.048737
	908.00	14.80	94.19	897.10	-15.72	-17.85	108.69	2.01	1490549.71	3402565.99	40.670910	-104.048710
	938.00	15.07	95.68	926.09	-16.24	-18.51	116.39	1.56	1490549.17	3402573.70	40.670908	-104.048682
	968.00	15.45	96.89	955.03	-16.95	-19.38	124.24	1.65	1490548.44	3402581.56	40.670906	-104.048654
	998.00	15.84	97.26	983.92	-17.79	-20.38	132.27	1.34	1490547.57	3402589.60	40.670903	-104.048625
	1028.00	16.37	98.11	1012.74	-18.74	-21.49	140.52	1.93	1490546.59	3402597.87	40.670900	-104.048595
	1058.00	16.60	98.79	1041.51	-19.83	-22.74	148.94	1.00	1490545.48	3402606.31	40.670897	-104.048565
	1088.00	16.98	99.59	1070.23	-21.04	-24.13	157.49	1.48	1490544.23	3402614.88	40.670893	-104.048534
	1118.00	17.45	100.43	1098.89	-22.42	-25.67	166.23	1.77	1490542.83	3402623.65	40.670889	-104.048503
	1148.00	17.96	100.22	1127.46	-23.88	-27.31	175.21	1.71	1490541.35	3402632.65	40.670884	-104.048470
	1178.00	18.68	99.67	1155.94	-25.32	-28.93	184.50	2.47	1490539.87	3402641.96	40.670880	-104.048437
	1208.00	19.14	98.97	1184.32	-26.71	-30.51	194.09	1.71	1490538.45	3402651.58	40.670875	-104.048402
	1238.00	19.49	98.22	1212.64	-28.00	-31.99	203.90	1.43	1490537.13	3402661.42	40.670871	-104.048367
	1268.00	19.71	97.97	1240.90	-29.22	-33.41	213.87	0.78	1490535.88	3402671.40	40.670867	-104.048331
	1298.00	19.68	97.71	1269.14	-30.40	-34.79	223.88	0.31	1490534.66	3402681.44	40.670864	-104.048295
	1328.00	19.84	98.20	1297.38	-31.61	-36.19	233.93	0.77	1490533.42	3402691.50	40.670860	-104.048259
	1358.00	20.41	97.74	1325.54	-32.84	-37.62	244.15	1.97	1490532.16	3402701.75	40.670856	-104.048222
	1388.00	20.94	97.14	1353.61	-34.01	-38.99	254.65	1.90	1490530.96	3402712.27	40.670852	-104.048184
	1418.00	21.75	97.10	1381.55	-35.15	-40.34	265.49	2.70	1490529.79	3402723.13	40.670848	-104.048145
	1448.00	22.44	96.86	1409.35	-36.30	-41.71	276.69	2.32	1490528.60	3402734.35	40.670844	-104.048105
	1478.00	23.12	96.77	1437.01	-37.45	-43.09	288.22	2.27	1490527.41	3402745.90	40.670841	-104.048063
	1508.00	23.54	97.27	1464.56	-38.67	-44.55	300.01	1.55	1490526.15	3402757.72	40.670837	-104.048020
	1538.00	23.90	97.28	1492.02	-39.97	-46.07	311.98	1.20	1490524.82	3402769.71	40.670833	-104.047977
	1568.00	24.18	97.15	1519.42	-41.26	-47.61	324.11	0.95	1490523.48	3402781.86	40.670828	-104.047934
	1598.00	24.67	97.83	1546.74	-42.64	-49.23	336.41	1.88	1490522.07	3402794.18	40.670824	-104.047889
	1628.00	25.19	98.18	1573.94	-44.16	-50.99	348.93	1.80	1490520.51	3402806.73	40.670819	-104.047844
	1658.00	25.88	98.69	1601.01	-45.80	-52.89	361.72	2.41	1490518.82	3402819.55	40.670814	-104.047798
	1688.00	26.57	98.84	1627.92	-47.57	-54.91	374.82	2.31	1490517.02	3402832.69	40.670808	-104.047751
	1718.00	27.37	98.62	1654.66	-49.37	-56.97	388.27	2.69	1490515.17	3402846.16	40.670803	-104.047702
	1748.00	28.18	98.04	1681.20	-51.12	-58.99	402.10	2.85	1490513.37	3402860.03	40.670797	-104.047652
	1778.00	29.05	97.79	1707.54	-52.82	-60.97	416.33	2.93	1490511.63	3402874.29	40.670792	-104.047601
	1808.00	29.70	97.71	1733.68	-54.52	-62.96	430.92	2.17	1490509.88	3402888.90	40.670786	-104.047549
	1838.00	30.03	97.78	1759.70	-56.25	-64.97	445.72	1.11	1490508.11	3402903.73	40.670781	-104.047495
	1868.00	30.23	97.89	1785.64	-58.01	-67.02	460.64	0.69	1490506.30	3402918.68	40.670775	-104.047441
	1891.00	30.63	97.67	1805.47	-59.36	-68.60	472.18	1.81	1490504.92	3402930.25	40.670771	-104.047400
	1958.00	31.15	98.35	1862.97	-63.48	-73.39	506.24	0.94	1490500.68	3402964.38	40.670758	-104.047277
	1971.00	31.25	98.48	1874.09	-64.34	-74.38	512.90	0.94	1490499.81	3402971.06	40.670755	-104.047253
	2061.00	33.00	98.14	1950.31	-70.33	-81.29	560.26	1.95	1490493.67	3403018.53	40.670736	-104.047082
	2150.00	34.80	98.23	2024.17	-76.43	-88.36	609.39	2.03	1490487.40	3403067.77	40.670716	-104.046905
	2240.00	37.08	98.06	2097.03	-82.89	-95.84	661.68	2.53	1490480.78	3403120.17	40.670696	-104.046717
	2329.00	38.82	97.86	2167.21	-89.41	-103.42	715.88	1.96	1490474.09	3403174.49	40.670675	-104.046521
	2418.00	41.37	98.02	2235.30	-96.21	-111.34	772.65	2.87	1490467.10	3403231.37	40.670653	-104.046317
	2508.00	43.03	97.55	2301.97	-103.22	-119.52	832.54	1.88	1490459.90	3403291.39	40.670631	-104.046101
	2598.00	44.96	97.30	2366.71	-110.08	-127.59	894.52	2.15	1490452.84	3403353.50	40.670609	-104.045877
	2687.00	44.88	97.46	2429.73	-116.94	-135.67	956.85	0.16	1490445.79	3403415.94	40.670587	-104.045653
	2777.00	47.18	97.47	2492.21	-124.10	-144.08	1021.07	2.55	1490438.43	3403480.29	40.670563	-104.045421
	2867.00	47.00	97.17	2553.49	-131.21	-152.48	1086.45	0.32	1490431.10	3403545.80	40.670540	-104.045186
	2956.00	47.19	96.75	2614.08	-137.84	-160.37	1151.16	0.40	1490424.27	3403610.63	40.670519	-104.044952
	3046.00	46.97	97.37	2675.37	-144.66	-168.47	1216.57	0.56	1490417.24	3403676.16	40.670496	-104.044716
	3135.00	49.65	97.39	2734.56	-151.91	-177.01	1282.47	3.02	1490409.78	3403742.19	40.670473	-104.044479
	3224.00	49.46	97.39	2792.30	-159.31	-185.72	1349.64	0.22	14			

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
	3403.00	49.06	100.23	2909.64	-175.27	-204.30	1483.50	2.74	1490385.78	3403943.64	40.670398	-104.043754
	3493.00	49.19	99.64	2968.54	-185.69	-216.04	1550.53	0.52	1490375.14	3404010.85	40.670366	-104.043513
	3582.00	48.95	99.74	3026.85	-195.71	-227.36	1616.81	0.28	1490364.91	3404077.31	40.670335	-104.043274
	3671.00	49.28	99.60	3085.11	-205.71	-238.66	1683.14	0.39	1490354.69	3404143.81	40.670304	-104.043035
	3760.00	49.20	100.35	3143.22	-216.09	-250.34	1749.53	0.65	1490344.10	3404210.38	40.670272	-104.042795
	3849.00	49.28	99.56	3201.32	-226.45	-261.99	1815.93	0.68	1490333.54	3404276.96	40.670240	-104.042556
	3939.00	48.81	100.12	3260.31	-236.75	-273.61	1882.90	0.70	1490323.02	3404344.11	40.670208	-104.042314
	4028.00	49.26	100.90	3318.66	-247.71	-285.86	1948.98	0.83	1490311.85	3404410.38	40.670174	-104.042076
	4118.00	49.24	101.13	3377.41	-259.43	-298.89	2015.91	0.20	1490299.92	3404477.51	40.670138	-104.041835
	4207.00	49.26	100.15	3435.50	-270.58	-311.33	2082.17	0.83	1490288.56	3404543.97	40.670104	-104.041596
	4297.00	48.97	100.00	3494.41	-281.17	-323.24	2149.16	0.35	1490277.75	3404611.15	40.670072	-104.041355
	4386.00	49.06	100.41	3552.78	-291.78	-335.14	2215.29	0.36	1490266.93	3404677.45	40.670039	-104.041116
	4475.00	49.16	100.50	3611.04	-302.70	-347.36	2281.45	0.13	1490255.80	3404743.81	40.670005	-104.040878
	4565.00	49.05	100.47	3669.96	-313.77	-359.74	2348.35	0.13	1490244.52	3404810.90	40.669971	-104.040637
	4654.00	49.36	100.79	3728.11	-324.90	-372.17	2414.56	0.44	1490233.17	3404877.31	40.669937	-104.040398
	4743.00	48.80	100.70	3786.41	-336.15	-384.71	2480.63	0.63	1490221.72	3404943.57	40.669903	-104.040160
	4833.00	48.92	99.95	3845.63	-346.98	-396.85	2547.31	0.64	1490210.67	3405010.44	40.669869	-104.039919
	4922.00	49.13	100.31	3903.99	-357.50	-408.66	2613.46	0.39	1490199.94	3405076.77	40.669837	-104.039681
	5012.00	49.33	100.17	3962.76	-368.30	-420.78	2680.53	0.25	1490188.92	3405144.03	40.669804	-104.039439
	5101.00	49.47	100.12	4020.68	-378.90	-432.68	2747.05	0.17	1490178.11	3405210.73	40.669771	-104.039199
	5190.00	49.28	100.07	4078.63	-389.44	-444.52	2813.55	0.22	1490167.36	3405277.42	40.669738	-104.038960
	5280.00	48.76	100.78	4137.65	-400.42	-456.81	2880.38	0.83	1490156.17	3405344.44	40.669705	-104.038719
	5369.00	49.05	101.51	4196.15	-412.09	-469.77	2946.19	0.70	1490144.28	3405410.44	40.669669	-104.038482
	5458.00	49.69	101.12	4254.11	-424.05	-483.02	3012.41	0.79	1490132.12	3405476.88	40.669633	-104.038243
	5548.00	48.71	101.21	4312.91	-435.93	-496.22	3079.26	1.08	1490120.02	3405543.93	40.669596	-104.038002
	5637.00	48.79	101.46	4371.59	-447.80	-509.37	3144.87	0.23	1490107.94	3405609.74	40.669560	-104.037765
	5727.00	48.80	100.74	4430.88	-459.54	-522.41	3211.31	0.60	1490095.99	3405676.39	40.669525	-104.037526
	5816.00	49.02	101.14	4489.37	-470.98	-535.14	3277.17	0.41	1490084.34	3405742.45	40.669490	-104.037288
	5906.00	48.84	101.19	4548.50	-482.81	-548.27	3343.74	0.21	1490072.30	3405809.22	40.669453	-104.037049
	5996.00	49.17	101.30	4607.54	-494.75	-561.51	3410.37	0.38	1490060.15	3405876.05	40.669417	-104.036808
	6085.00	48.52	100.87	4666.11	-506.34	-574.40	3476.12	0.82	1490048.34	3405942.01	40.669382	-104.036571
	6174.00	49.11	101.37	4724.72	-517.98	-587.32	3541.84	0.79	1490036.49	3406007.93	40.669346	-104.036334
	6263.00	48.88	102.17	4783.12	-530.39	-601.02	3607.59	0.72	1490023.87	3406073.90	40.669309	-104.036097
	6353.00	48.76	101.71	4842.38	-543.11	-615.04	3673.86	0.40	1490010.94	3406140.39	40.669270	-104.035859
	6442.00	48.75	101.10	4901.05	-555.06	-628.27	3739.46	0.52	1489998.79	3406206.19	40.669234	-104.035622
	6532.00	48.79	101.75	4960.37	-567.16	-641.68	3805.80	0.55	1489986.47	3406272.74	40.669197	-104.035383
	6621.00	48.54	101.76	5019.15	-579.50	-655.29	3871.23	0.28	1489973.92	3406338.38	40.669160	-104.035147
	6711.00	48.88	101.44	5078.53	-591.80	-668.89	3937.48	0.47	1489961.41	3406404.84	40.669122	-104.034908
	6800.00	49.36	101.20	5136.78	-603.71	-682.10	4003.46	0.58	1489949.29	3406471.03	40.669086	-104.034670
	6890.00	49.18	101.59	5195.50	-615.88	-695.57	4070.32	0.38	1489936.91	3406538.10	40.669049	-104.034429
	6979.00	49.03	101.74	5253.76	-628.18	-709.17	4136.21	0.21	1489924.39	3406604.21	40.669012	-104.034192
	7069.00	49.10	102.05	5312.73	-640.90	-723.18	4202.75	0.28	1489911.47	3406670.96	40.668973	-104.033952
	7158.00	48.88	101.86	5371.13	-653.52	-737.10	4268.45	0.31	1489898.63	3406736.88	40.668935	-104.033715
	7248.00	48.77	101.75	5430.38	-666.08	-750.95	4334.76	0.15	1489885.86	3406803.41	40.668897	-104.033476
	7337.00	49.42	101.49	5488.66	-678.33	-764.50	4400.64	0.76	1489873.40	3406869.50	40.668860	-104.033239
	7427.00	49.10	99.36	5547.41	-689.36	-776.83	4467.70	1.83	1489862.16	3406936.75	40.668826	-104.032997
	7516.00	48.93	98.76	5605.78	-698.64	-787.41	4534.04	0.54	1489852.67	3407003.26	40.668797	-104.032758
	7606.00	49.15	92.61	5664.81	-704.04	-794.14	4601.61	5.16	1489847.05	3407070.93	40.668778	-104.032514
	7695.00	48.95	83.77	5723.21	-700.62	-792.03	4668.67	7.50	1489850.26	3407137.94	40.668784	-104.032273
	7784.00	50.18	73.68	5781.01	-686.06	-778.76	4734.94	8.74	1489864.60	3407203.99	40.668820	-104.032034
	7874.00	50.04	66.11	5838.78	-661.10	-755.06	4799.71	6.45	1489889.36	3407268.35	40.668885	-104.031800
	7963.00	52.17	58.03	5894.72	-627.46	-722.60	4860.78	7.46	1489922.81	3407328.88	40.668974	-104.031580
	8053.00	56.30	50.80	5947.36	-583.77	-680.07	4920.02	7.97	1489966.31	3407387.42	40.669091	-104.031366
	8142.00	59.85	44.06	5994.45	-531.59	-628.96	4975.53	7.56	1490018.32	3407442.09	40.669231	-104.031166
	8231.00	63.16	38.66	6036.93	-471.88	-570.25	5027.14	6.50	1490077.86	3407492.72	40.669392	-104.030980
	8321.00	67.01	32.24	6074.87	-404.50	-503.78	5074.38	7.75	1490145.10	3407538.87	40.669575	-104.030810
	8410.00	70.99	27.24	6106.78	-331.58	-431.65	5115.52	6.89	1490217.89	3407578.83	40.669773	-104.030662
	8500.00	75.72	18.40	6132.60	-251.55	-352.26	5148.84	10.78	1490297.82	3407610.84	40.669991	-104.030541
	8589.00	81.90	8.57	6149.91	-166.40	-267.49	5169.08	12.86	1490382.90	3407629.69	40.670223	-104.030468
	8679.00	89.22	5.34	6156.87	-77.21	-178.49	5179.93	8.89	1490472.07	3407639.08	40.670468	-104.030429
Cross Setback Heel (300' FSL, 338' FEL)	8767.81	90.98	4.32	6156.72	11.41	-90.00	5187.41	2.29	1490560.67	3407645.11	40.670710	-104.030402
	8768.00	90.98	4.32	6156.72	11.60	-89.81	5187.42	2.29	1490560.85	3407645.12	40.670711	-104.030402
	8858.00	90.96	1.10	6155.19	101.54	0.06	5191.67	3.58	1490650.79	3407647.90	40.670958	-104.030387
	8947.00	90.69	0.00	6153.91	190.53	89.05	5192.52	1.27	1490739.77	3407647.29	40.671202	-104.030384
	9037.00	90.85	0.39	6152.70	280.51	179.04	5192.83	0.47	1490829.75	3407646.13	40.671449	-104.030382
	9126.00	90.59	1.19	6151.59	369.50	268.02	5194.06	0.94	1490918.74	3407645.90	40.671693	-104.030378
	9216.00	90.61	1.29	6150.64	459.49	358.00	5196.01	0.11	1491008.74	3407646.38	40.671940	-104.030371
	9305.00	90.77	0.79	6149.56	548.49	446.98	5197.62	0.59	1491097.73	3407646.54	40.672184	-104.030365
	9394.00	91.04	1.21	6148.16	637.47	535.95	5199.17	0.56	1491186.71	3407646.63	40.672429	-104.030359
	9484.00	90.19	1.33	6147.19	727.47	625.92	5201.16	0.95	1491276.71	3407647.15	40.672676	-104.030352
	9573.00	90.03	358.20	6147.02	816.43	714.91	5200.79	3.52	1491365.67	3407645.33	40.672920	-104.030353
	9663.00	90.15	359.02	6146.89	906.34	804.88	5198.61	0.93	1491455.60	3407641.67	40.673167	-104.030361
	9752.00	90.26	0.10	6146.57	995.31	893.88	5197.92	1.21	1491544.57	3407639.53	40.673411	-104.030363
	9842.00	90.22	0.70	6146.19	1085.30	983.88	5198.55	0.68	1491634.56	3407638.68	40.673658	-104.030361
	9932.00	90.35	0.96	6145.74	1175.30	1073.87	5199.86	0.32	1491724.56	3407638.52	40.673905	-104.030356
	10021.00	90.05	1.18	6145.43	1264.30	1162.85	5201.53	0.42	1491813.56	3407638.73	40.674149	-104.030350
	10111.00	90.23	1.56	6145.22	1354.30	1252.82	5203.68	0.47	1491903.55	3407639.41	40.674396	-104.030342
	10200.00	90.23	1.57	6144.86	1443.29	1341.79	5206.11	0.01	1491992.54	3407640.39	40.674640	-104.030334
	10290.00	90.23	2.15	6144.50	1533.28	1431.74</						

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
	12883.00	90.01	2.02	6144.62	4125.74	4024.11	5238.33	0.44	1494674.99	3407628.71	40.682003	-104.030215
	12973.00	89.89	0.01	6144.70	4215.73	4114.10	5239.92	2.24	1494764.98	3407628.83	40.682250	-104.030210
	13062.00	89.79	2.04	6144.94	4304.73	4203.08	5241.51	2.29	1494853.97	3407628.97	40.682494	-104.030204
	13152.00	90.02	2.59	6145.09	4394.71	4293.00	5245.15	0.66	1494943.95	3407631.14	40.682741	-104.030191
	13242.00	90.00	2.08	6145.07	4484.69	4382.93	5248.82	0.57	1495033.92	3407633.34	40.682988	-104.030177
	13331.00	89.89	1.90	6145.16	4573.68	4471.87	5251.91	0.25	1495122.90	3407634.97	40.683232	-104.030166
	13421.00	89.75	0.11	6145.44	4663.67	4561.86	5253.49	1.99	1495212.89	3407635.07	40.683479	-104.030160
	13510.00	89.63	1.02	6145.92	4752.66	4650.85	5254.36	1.04	1495301.89	3407634.49	40.683723	-104.030157
	13599.00	89.82	1.77	6146.34	4841.66	4739.82	5256.53	0.87	1495390.88	3407635.20	40.683967	-104.030149
	13689.00	89.56	1.65	6146.83	4931.66	4829.78	5259.21	0.32	1495480.87	3407636.41	40.684214	-104.030139
	13778.00	89.66	1.62	6147.43	5020.65	4918.74	5261.75	0.12	1495569.86	3407637.49	40.684458	-104.030130
	13868.00	89.27	1.86	6148.27	5110.64	5008.70	5264.48	0.51	1495659.85	3407638.75	40.684705	-104.030120
	13957.00	89.25	2.37	6149.41	5199.62	5097.63	5267.76	0.57	1495748.82	3407640.58	40.684949	-104.030108
	14046.00	89.46	2.72	6150.42	5288.59	5186.53	5271.71	0.46	1495837.78	3407643.07	40.685193	-104.030094
	14136.00	89.72	2.91	6151.06	5378.54	5276.42	5276.13	0.36	1495927.72	3407646.02	40.685440	-104.030078
	14225.00	89.28	2.39	6151.84	5467.51	5365.32	5280.24	0.77	1496016.68	3407648.68	40.685684	-104.030063
	14315.00	89.31	1.81	6152.95	5557.49	5455.26	5283.54	0.64	1496106.65	3407650.50	40.685931	-104.030051
	14404.00	89.47	2.19	6153.90	5646.47	5544.20	5286.65	0.46	1496195.63	3407652.15	40.686175	-104.030040
	14494.00	89.14	358.61	6154.98	5736.44	5634.17	5287.27	4.00	1496285.60	3407651.31	40.686422	-104.030038
	14583.00	89.03	0.09	6156.40	5825.39	5723.15	5286.26	1.67	1496374.55	3407648.84	40.686666	-104.030041
	14673.00	89.37	359.23	6157.66	5915.35	5813.14	5285.73	1.03	1496464.52	3407646.84	40.686913	-104.030043
	14762.00	89.83	359.33	6158.29	6004.30	5902.13	5284.61	0.53	1496553.48	3407644.26	40.687157	-104.030047
	14852.00	90.56	358.34	6157.98	6094.23	5992.11	5282.77	1.37	1496643.41	3407640.95	40.687404	-104.030054
	14941.00	90.31	356.99	6157.31	6183.06	6081.03	5279.15	1.54	1496732.26	3407635.87	40.687648	-104.030067
	15031.00	90.16	358.03	6156.94	6272.88	6170.95	5275.24	1.17	1496822.10	3407630.49	40.687895	-104.030081
	15120.00	90.39	0.10	6156.51	6361.82	6259.93	5273.78	2.34	1496911.04	3407627.58	40.688139	-104.030086
	15210.00	90.23	0.35	6156.02	6451.80	6349.93	5274.14	0.33	1497001.03	3407626.47	40.688386	-104.030084
	15299.00	90.20	0.15	6155.68	6540.79	6438.93	5274.53	0.23	1497090.02	3407625.40	40.688631	-104.030083
	15388.00	90.25	0.22	6155.33	6629.78	6527.92	5274.82	0.10	1497179.01	3407624.24	40.688875	-104.030082
	15478.00	90.18	0.86	6154.99	6719.77	6617.92	5275.67	0.71	1497269.01	3407623.61	40.689122	-104.030079
	15567.00	90.31	0.85	6154.60	6808.77	6706.91	5277.00	0.14	1497358.01	3407623.49	40.689366	-104.030074
	15657.00	90.43	2.06	6154.02	6898.77	6796.88	5279.29	1.35	1497448.00	3407624.31	40.689613	-104.030066
	15746.00	91.02	3.85	6152.90	6987.71	6885.75	5283.88	2.11	1497536.93	3407627.44	40.689857	-104.030049
	15836.00	90.22	3.98	6151.92	7077.60	6975.53	5290.01	0.90	1497626.80	3407632.10	40.690104	-104.030027
	15925.00	89.71	3.10	6151.98	7166.52	7064.36	5295.51	1.14	1497715.71	3407636.14	40.690347	-104.030007
	16014.00	89.94	4.42	6152.25	7255.42	7153.17	5301.34	1.51	1497804.59	3407640.52	40.690591	-104.029986
	16104.00	92.07	4.13	6150.68	7345.27	7242.90	5308.05	2.40	1497894.42	3407645.77	40.690837	-104.029962
	16193.00	90.00	3.56	6149.06	7434.15	7331.68	5314.02	2.41	1497983.28	3407650.28	40.691081	-104.029940
	16283.00	88.84	2.86	6149.97	7524.08	7421.53	5319.06	1.51	1498073.20	3407653.85	40.691328	-104.029922
	16372.00	89.48	3.66	6151.28	7613.01	7510.37	5324.12	1.16	1498162.12	3407657.45	40.691572	-104.029903
	16462.00	89.72	1.78	6151.91	7702.96	7600.27	5328.39	2.10	1498252.07	3407660.25	40.691818	-104.029888
	16552.00	89.44	0.95	6152.57	7792.96	7690.24	5330.54	0.98	1498342.06	3407660.93	40.692065	-104.029880
	16641.00	89.64	0.93	6153.29	7881.96	7779.22	5332.00	0.23	1498431.06	3407660.93	40.692310	-104.029875
	16731.00	89.59	0.77	6153.89	7971.95	7869.21	5333.33	0.19	1498521.05	3407660.80	40.692557	-104.029870
	16820.00	89.63	0.88	6154.49	8060.95	7958.20	5334.61	0.13	1498610.05	3407660.62	40.692801	-104.029865
	16909.00	89.65	1.35	6155.04	8149.95	8047.18	5336.34	0.53	1498699.04	3407660.89	40.693045	-104.029859
	16999.00	89.26	0.99	6155.90	8239.94	8137.16	5338.18	0.59	1498789.04	3407661.26	40.693292	-104.029852
	17088.00	89.57	0.84	6156.81	8328.94	8226.14	5339.61	0.40	1498878.03	3407661.23	40.693536	-104.029847
	17178.00	89.29	0.78	6157.70	8418.93	8316.13	5340.88	0.32	1498968.02	3407661.03	40.693783	-104.029842
	17267.00	89.34	0.99	6158.76	8507.93	8405.11	5342.26	0.24	1499057.02	3407660.95	40.694027	-104.029837
	17357.00	89.69	1.03	6159.52	8597.92	8495.09	5343.84	0.40	1499147.01	3407661.06	40.694274	-104.029831
	17446.00	89.51	2.03	6160.14	8686.92	8584.06	5346.22	1.15	1499236.00	3407661.98	40.694519	-104.029823
	17536.00	89.51	1.12	6160.91	8776.91	8674.02	5348.69	1.01	1499325.99	3407662.99	40.694766	-104.029814
	17625.00	89.27	0.59	6161.86	8865.90	8763.00	5350.03	0.65	1499414.98	3407662.86	40.695010	-104.029809
	17715.00	89.60	359.29	6162.75	8955.88	8853.00	5349.94	1.49	1499504.96	3407661.30	40.695257	-104.029809
	17804.00	90.14	2.17	6162.95	9044.87	8941.98	5351.07	3.29	1499593.95	3407660.98	40.695501	-104.029805
	17894.00	90.00	0.74	6162.84	9134.86	9031.95	5353.35	1.60	1499683.94	3407661.78	40.695748	-104.029797
	17983.00	89.81	0.30	6162.99	9223.86	9120.94	5354.16	0.53	1499772.94	3407661.14	40.695992	-104.029794
	18073.00	89.96	0.22	6163.17	9313.85	9210.94	5354.57	0.20	1499862.93	3407660.08	40.696239	-104.029792
	18163.00	89.69	0.71	6163.44	9403.84	9300.94	5355.30	0.62	1499952.92	3407659.34	40.696486	-104.029790
	18252.00	88.23	0.68	6165.06	9492.82	9389.92	5356.38	1.63	1500041.90	3407658.96	40.696730	-104.029786
	18342.00	90.12	1.01	6166.35	9582.81	9479.89	5357.70	2.13	1500131.89	3407658.80	40.696977	-104.029781
	18432.00	89.96	0.99	6166.28	9672.81	9569.88	5359.27	0.19	1500221.89	3407658.90	40.697224	-104.029775
	18521.00	89.97	0.40	6166.34	9761.80	9658.87	5360.34	0.66	1500310.88	3407658.52	40.697469	-104.029771
	18611.00	90.09	0.68	6166.28	9851.80	9748.87	5361.19	0.34	1500400.88	3407657.89	40.697716	-104.029768
	18700.00	90.16	359.72	6166.08	9940.79	9837.87	5361.50	1.08	1500489.87	3407656.75	40.697960	-104.029767
	18790.00	89.50	359.51	6166.34	10030.75	9927.86	5360.90	0.77	1500579.84	3407654.67	40.698207	-104.029769
	18879.00	90.09	0.57	6166.66	10119.74	10016.86	5360.97	1.36	1500668.83	3407653.29	40.698451	-104.029769
Cross Setback Toe (300' FNL, 362' FEL)	18897.90	90.08	0.16	6166.64	10138.63	10035.76	5361.09	2.18	1500687.73	3407653.10	40.698503	-104.029768
Last SLB_MWD Survey	18963.00	90.04	358.74	6166.57	10203.70	10100.86	5360.46	2.18	1500752.80	3407651.41	40.698682	-104.029770
Projection to TD (193' FNL, 365' FEL)	19005.00	90.04	358.74	6166.54	10245.67	10142.85	5359.54	0.00	1500794.77	3407649.80	40.698797	-104.029774

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	17.000	1/98.425	13.500	9.625	NAL_MWD_PLUS_0.5_DEG- Depth Only	Original Hole / Sonic Star 1101- 16H MWD 0' to 19005' Definitive
	1	17.000	21.000	Act Stns	13.500	9.625	NAL_MWD_PLUS_0.5_DEG- Depth Only	Original Hole / Sonic Star 1101- 16H MWD 0' to 19005' Definitive
	1	21.000	1891.000	Act Stns	13.500	9.625	NAL_MWD_PLUS_0.5_DEG	Original Hole / Sonic Star 1101- 16H MWD 0' to 19005' Definitive
	1	1891.000	19005.000	Act Stns	8.500	5.500	NAL_MWD_PLUS_0.5_DEG	Original Hole / Sonic Star 1101- 16H MWD 0' to 19005' Definitive