

30-015-41210

COG

COPPERHEAD FEE A #4H

ENSIGN #155

4/8/2017

**Please provide signature
page for directional survey**

Scientific Drilling

The

In Wellbore Placement

SURVEY REPORT

COPPERHEAD FEE A #4H

KEEPER GYRO SURVEY

CUSTOMER COG
PROJECT Eddy County, New Mexico
FIELD N/A

SDI JOB NO. OP.000489
SDI DISTRICT Midland
SDI KIT/UNIT

SITE INFORMATION

Site Name Eddy County, New Mexico
Lat/Long 32.000778° N, 104.02561° W
Northing 364,146.3 ft
Easting 595,392.1 ft

Section
Township
Range

MAP INFORMATION

North Reference Grid North
Grid Correction -0.16 deg
System US State Plane 1927
Datum North American Datum 1927 (Clarke 1866)
Map Zone New Mexico East: 3001

**WELL INFORMATION**

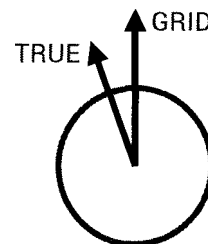
Lat/Long 32.000778° N, 104.02561° W
Northing 364,196.8 ft
Easting 595,491 ft
UWI 32-015-41210

DEPTH AND ELEVATION REFERENCE

Ground Level 2913 ft above Mean Sea Level
Reference Datum RKB
Reference Height 24 ft above G.L.
Reference Elevation 2937 ft

VERTICAL SECTION REFERENCE

+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 228.68°
Calculation Method Minimum Curvature

**LOCAL GRAVITY REFERENCE INFORMATION**

Local Gravity 998.529 mG [computed]
True to Grid subtract 0.16°

WELL NOTES

Wireline Survey

OPERATORS

Jeffrey Loyd

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 03 2017

RECEIVED

SDI Operator Name (Printed)

SIGNATURE

DATE

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.59	104.16	100.00	-0.29	-0.13	0.50	0.59	0.51	104.16
125.00	0.62	117.45	125.00	-0.41	-0.22	0.74	0.58	0.77	106.47
150.00	0.64	131.77	150.00	-0.48	-0.38	0.97	0.63	1.04	111.20
175.00	0.64	143.68	174.99	-0.48	-0.58	1.15	0.53	1.29	116.70
200.00	0.68	143.71	199.99	-0.46	-0.81	1.32	0.15	1.55	121.50
225.00	0.69	141.60	224.99	-0.44	-1.05	1.50	0.11	1.83	124.86
250.00	0.71	142.65	249.99	-0.42	-1.29	1.69	0.10	2.13	127.30
275.00	0.81	147.44	274.99	-0.38	-1.56	1.88	0.47	2.44	129.68
300.00	0.81	149.11	299.98	-0.32	-1.86	2.07	0.09	2.78	132.00
325.00	0.78	146.88	324.98	-0.27	-2.15	2.25	0.16	3.11	133.76
350.00	0.81	142.75	349.98	-0.23	-2.44	2.45	0.25	3.46	134.86
375.00	0.81	143.62	374.98	-0.20	-2.72	2.66	0.05	3.81	135.64
400.00	0.82	146.00	399.97	-0.16	-3.01	2.87	0.14	4.16	136.42
425.00	0.81	141.89	424.97	-0.13	-3.30	3.08	0.24	4.51	137.01
450.00	0.77	136.05	449.97	-0.13	-3.56	3.30	0.36	4.86	137.16
475.00	0.70	135.88	474.97	-0.14	-3.79	3.53	0.26	5.18	137.08
500.00	0.61	140.58	499.97	-0.15	-4.01	3.72	0.43	5.46	137.14
525.00	0.56	141.15	524.96	-0.14	-4.20	3.88	0.19	5.72	137.30
550.00	0.52	142.67	549.96	-0.12	-4.39	4.02	0.18	5.96	137.48
575.00	0.46	140.27	574.96	-0.11	-4.56	4.16	0.25	6.17	137.62
600.00	0.37	146.36	599.96	-0.10	-4.70	4.27	0.42	6.35	137.78
625.00	0.27	163.84	624.96	-0.06	-4.83	4.33	0.53	6.48	138.11
650.00	0.11	161.47	649.96	-0.03	-4.90	4.35	0.68	6.56	138.42
675.00	0.15	345.37	674.96	-0.04	-4.90	4.35	1.01	6.55	138.37
700.00	0.30	319.48	699.96	-0.05	-4.81	4.30	0.71	6.46	138.23
725.00	0.39	306.98	724.96	-0.03	-4.71	4.19	0.47	6.31	138.37
750.00	0.45	315.63	749.96	-0.01	-4.59	4.05	0.34	6.13	138.57
775.00	0.51	317.51	774.96	0.00	-4.44	3.91	0.27	5.92	138.64
800.00	0.51	315.58	799.96	0.00	-4.28	3.76	0.07	5.70	138.72
825.00	0.49	310.21	824.96	0.03	-4.13	3.60	0.20	5.48	138.95
850.00	0.48	305.48	849.96	0.07	-4.00	3.43	0.17	5.27	139.39

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
875.00	0.48	306.07	874.95	0.11	-3.88	3.26	0.02	5.07	139.95
900.00	0.52	293.92	899.95	0.18	-3.77	3.07	0.45	4.87	140.83
925.00	0.57	277.75	924.95	0.31	-3.71	2.85	0.64	4.68	142.48
950.00	0.60	276.57	949.95	0.48	-3.68	2.60	0.15	4.50	144.79
975.00	0.70	282.19	974.95	0.66	-3.63	2.32	0.45	4.31	147.46
1000.00	0.81	281.77	999.95	0.85	-3.56	2.00	0.46	4.08	150.74
1025.00	0.86	284.89	1024.95	1.06	-3.48	1.64	0.26	3.85	154.73
1050.00	0.92	293.66	1049.94	1.25	-3.35	1.28	0.61	3.59	159.14
1075.00	1.01	298.37	1074.94	1.41	-3.16	0.90	0.46	3.29	164.15
1100.00	1.09	296.45	1099.93	1.58	-2.95	0.49	0.34	3.00	170.53
1125.00	1.19	293.19	1124.93	1.78	-2.75	0.04	0.50	2.75	179.12
1150.00	1.25	290.73	1149.92	2.02	-2.55	-0.45	0.30	2.59	190.04
1175.00	1.24	287.39	1174.92	2.29	-2.37	-0.96	0.29	2.56	202.11
1200.00	1.20	284.66	1199.91	2.58	-2.22	-1.47	0.28	2.67	213.54
1225.00	1.17	287.55	1224.91	2.85	-2.08	-1.97	0.26	2.87	223.44
1250.00	1.13	292.39	1249.90	3.10	-1.91	-2.44	0.42	3.10	231.98
1275.00	1.11	291.84	1274.90	3.31	-1.73	-2.90	0.11	3.37	239.21
1300.00	1.17	288.41	1299.89	3.55	-1.56	-3.36	0.37	3.71	245.18
1325.00	1.28	279.50	1324.89	3.86	-1.43	-3.88	0.87	4.13	249.79
1350.00	1.26	268.08	1349.88	4.25	-1.39	-4.43	1.01	4.64	252.56
1375.00	1.22	258.51	1374.87	4.69	-1.45	-4.96	0.84	5.17	253.68
1400.00	1.26	247.24	1399.87	5.18	-1.61	-5.48	0.99	5.71	253.59
1425.00	1.26	233.60	1424.86	5.72	-1.88	-5.95	1.20	6.25	252.45
1450.00	1.27	220.11	1449.86	6.26	-2.26	-6.35	1.19	6.74	250.44
1475.00	1.24	211.30	1474.85	6.79	-2.70	-6.67	0.79	7.20	247.96
1500.00	1.13	206.02	1499.85	7.28	-3.15	-6.92	0.60	7.61	245.51
1525.00	1.10	201.44	1524.84	7.72	-3.60	-7.12	0.38	7.98	243.18
1550.00	1.06	202.00	1549.84	8.14	-4.04	-7.29	0.15	8.33	241.03
1575.00	1.01	201.02	1574.83	8.54	-4.46	-7.46	0.21	8.69	239.13
1600.00	1.07	208.77	1599.83	8.96	-4.87	-7.65	0.60	9.07	237.53
1625.00	1.10	212.20	1624.82	9.41	-5.27	-7.89	0.29	9.49	236.24
1650.00	1.15	208.99	1649.82	9.87	-5.70	-8.14	0.32	9.93	235.01

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
1675.00	1.19	205.89	1674.81	10.35	-6.15	-8.37	0.31	10.39	233.71
1700.00	1.12	203.20	1699.81	10.81	-6.61	-8.58	0.36	10.83	232.41
1725.00	1.05	198.95	1724.80	11.23	-7.05	-8.75	0.43	11.24	231.16
1750.00	0.95	193.96	1749.80	11.59	-7.46	-8.88	0.54	11.60	229.94
1775.00	0.86	193.30	1774.80	11.92	-7.85	-8.97	0.34	11.92	228.82
1800.00	0.81	196.28	1799.79	12.22	-8.20	-9.06	0.27	12.22	227.87
1825.00	0.80	198.45	1824.79	12.52	-8.53	-9.17	0.13	12.52	227.05
1850.00	0.87	209.83	1849.79	12.85	-8.86	-9.32	0.72	12.86	226.43
1875.00	1.10	219.58	1874.79	13.27	-9.21	-9.56	1.12	13.28	226.07
1900.00	1.30	226.29	1899.78	13.79	-9.59	-9.92	0.99	13.80	225.96
1925.00	1.54	231.84	1924.77	14.41	-10.00	-10.39	1.11	14.42	226.11
1950.00	1.70	233.62	1949.76	15.11	-10.43	-10.95	0.66	15.12	226.42
1975.00	1.72	234.10	1974.75	15.85	-10.87	-11.56	0.09	15.86	226.77
2000.00	1.76	235.30	1999.74	16.61	-11.30	-12.18	0.22	16.61	227.13
2025.00	1.62	234.50	2024.73	17.34	-11.73	-12.78	0.57	17.34	227.46
2050.00	1.05	230.35	2049.72	17.92	-12.08	-13.24	2.30	17.92	227.63
2075.00	0.43	189.49	2074.72	18.22	-12.32	-13.44	3.12	18.23	227.49
2100.00	0.76	109.07	2099.72	18.21	-12.46	-13.29	3.22	18.22	226.85
2125.00	1.55	95.92	2124.71	17.90	-12.55	-12.80	3.33	17.93	225.56
2150.00	2.44	91.83	2149.70	17.28	-12.60	-11.93	3.61	17.36	223.43
2175.00	3.09	90.87	2174.67	16.39	-12.63	-10.72	2.60	16.57	220.33
2200.00	3.65	92.83	2199.63	15.32	-12.68	-9.25	2.28	15.70	216.12
2225.00	4.22	94.33	2224.57	14.11	-12.79	-7.54	2.29	14.85	210.53
2250.00	4.39	92.98	2249.50	12.78	-12.91	-5.67	0.81	14.10	203.71
2275.00	4.40	92.49	2274.42	11.40	-13.00	-3.75	0.16	13.53	196.11
2300.00	4.24	94.38	2299.35	10.07	-13.11	-1.88	0.87	13.25	188.14
2325.00	3.92	98.74	2324.29	8.87	-13.31	-0.11	1.78	13.31	180.48
2350.00	3.47	104.26	2349.24	7.90	-13.63	1.47	2.28	13.71	173.86
2375.00	2.97	107.78	2374.20	7.14	-14.01	2.82	2.14	14.29	168.63
2400.00	2.57	112.20	2399.17	6.55	-14.42	3.95	1.84	14.95	164.67
2425.00	2.25	118.11	2424.15	6.13	-14.86	4.90	1.62	15.65	161.75
2450.00	2.03	123.02	2449.13	5.84	-15.34	5.71	1.13	16.36	159.59

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
2475.00	1.92	130.43	2474.11	5.66	-15.85	6.40	1.10	17.09	158.02
2500.00	1.81	140.12	2499.10	5.61	-16.42	6.97	1.35	17.84	157.01
2525.00	1.64	150.45	2524.09	5.69	-17.04	7.40	1.40	18.57	156.53
2550.00	1.55	160.26	2549.08	5.89	-17.67	7.69	1.15	19.27	156.48
2575.00	1.51	168.24	2574.07	6.18	-18.31	7.87	0.86	19.93	156.74
2600.00	1.48	170.87	2599.06	6.51	-18.95	7.99	0.30	20.56	157.14
2625.00	1.44	175.01	2624.05	6.87	-19.58	8.07	0.46	21.18	157.61
2650.00	1.39	186.03	2649.05	7.28	-20.19	8.06	1.10	21.74	158.24
2675.00	1.33	190.45	2674.04	7.73	-20.78	7.98	0.48	22.26	159.00
2700.00	1.41	187.71	2699.03	8.19	-21.37	7.88	0.43	22.78	159.75
2725.00	1.46	186.08	2724.02	8.66	-21.99	7.81	0.26	23.34	160.45
2750.00	1.51	184.09	2749.02	9.13	-22.64	7.75	0.27	23.93	161.10
2775.00	1.48	181.96	2774.01	9.58	-23.29	7.72	0.25	24.53	161.67
2800.00	1.41	183.68	2799.00	10.02	-23.92	7.68	0.32	25.12	162.19
2825.00	1.37	186.20	2823.99	10.46	-24.52	7.63	0.30	25.68	162.71
2850.00	1.38	187.93	2848.98	10.91	-25.12	7.56	0.17	26.23	163.25
2875.00	1.46	184.56	2873.98	11.36	-25.73	7.49	0.46	26.80	163.77
2900.00	1.50	181.18	2898.97	11.81	-26.37	7.46	0.39	27.41	164.21
2925.00	1.41	181.67	2923.96	12.24	-27.01	7.44	0.35	28.02	164.59
2950.00	1.34	185.51	2948.95	12.67	-27.61	7.41	0.47	28.59	164.98
2975.00	1.42	189.98	2973.95	13.12	-28.21	7.33	0.53	29.14	165.44
3000.00	1.47	187.97	2998.94	13.61	-28.83	7.23	0.30	29.72	165.93
3025.00	1.46	183.98	3023.93	14.08	-29.47	7.16	0.41	30.32	166.34
3050.00	1.41	183.70	3048.92	14.52	-30.09	7.12	0.22	30.92	166.69
3075.00	1.39	188.39	3073.91	14.97	-30.70	7.05	0.46	31.50	167.06
3100.00	1.43	190.03	3098.91	15.45	-31.30	6.96	0.21	32.07	167.47
3125.00	1.44	184.86	3123.90	15.92	-31.93	6.88	0.52	32.66	167.85
3150.00	1.44	181.76	3148.89	16.36	-32.55	6.84	0.31	33.26	168.14
3175.00	1.29	181.78	3173.88	16.77	-33.15	6.82	0.60	33.85	168.37
3200.00	1.15	184.80	3198.88	17.14	-33.68	6.79	0.62	34.36	168.60
3225.00	1.29	186.19	3223.87	17.53	-34.22	6.74	0.56	34.87	168.86
3250.00	1.39	183.52	3248.87	17.95	-34.80	6.69	0.46	35.44	169.12

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
3275.00	1.34	179.95	3273.86	18.36	-35.39	6.67	0.39	36.02	169.32
3300.00	1.25	176.53	3298.85	18.72	-35.96	6.69	0.48	36.58	169.46
3325.00	1.15	179.94	3323.85	19.05	-36.48	6.71	0.50	37.09	169.59
3350.00	1.21	184.17	3348.84	19.41	-37.00	6.69	0.43	37.60	169.76
3375.00	1.35	185.03	3373.84	19.81	-37.55	6.64	0.56	38.14	169.97
3400.00	1.35	181.22	3398.83	20.22	-38.14	6.61	0.36	38.71	170.17
3425.00	1.27	177.83	3423.82	20.60	-38.71	6.61	0.45	39.28	170.31
3450.00	1.19	178.74	3448.82	20.94	-39.25	6.63	0.35	39.81	170.41
3475.00	1.23	183.62	3473.81	21.29	-39.78	6.62	0.44	40.32	170.55
3500.00	1.35	182.86	3498.80	21.69	-40.34	6.59	0.49	40.87	170.73
3525.00	1.34	178.09	3523.80	22.08	-40.92	6.58	0.45	41.45	170.86
3550.00	1.26	176.87	3548.79	22.43	-41.49	6.61	0.32	42.01	170.95
3575.00	1.21	182.36	3573.79	22.79	-42.03	6.61	0.52	42.55	171.06
3600.00	1.27	184.80	3598.78	23.17	-42.57	6.58	0.32	43.07	171.22
3625.00	1.34	181.88	3623.77	23.56	-43.13	6.54	0.39	43.63	171.37
3650.00	1.21	180.55	3648.77	23.94	-43.69	6.53	0.51	44.17	171.50
3675.00	1.14	182.17	3673.76	24.29	-44.20	6.52	0.30	44.68	171.61
3700.00	1.17	181.02	3698.76	24.63	-44.71	6.51	0.14	45.18	171.72
3725.00	1.21	178.95	3723.75	24.97	-45.22	6.51	0.24	45.69	171.81
3750.00	1.20	177.79	3748.75	25.31	-45.75	6.52	0.11	46.21	171.89
3775.00	1.16	181.00	3773.74	25.65	-46.26	6.53	0.32	46.72	171.97
3800.00	1.24	186.18	3798.73	26.01	-46.78	6.49	0.54	47.23	172.10
3825.00	1.31	183.06	3823.73	26.41	-47.34	6.45	0.40	47.78	172.24
3850.00	1.30	179.90	3848.72	26.80	-47.91	6.44	0.29	48.34	172.35
3875.00	1.22	182.58	3873.72	27.17	-48.45	6.42	0.38	48.88	172.45
3900.00	1.22	184.70	3898.71	27.55	-48.99	6.39	0.18	49.40	172.57
3925.00	1.28	180.69	3923.70	27.92	-49.53	6.36	0.43	49.94	172.68
3950.00	1.23	178.04	3948.70	28.28	-50.08	6.37	0.30	50.48	172.75
3975.00	1.15	182.98	3973.69	28.63	-50.60	6.37	0.53	51.00	172.83
4000.00	1.17	188.08	3998.69	29.00	-51.10	6.32	0.42	51.49	172.95
4025.00	1.03	196.21	4023.68	29.38	-51.57	6.22	0.83	51.94	173.12
4050.00	0.82	215.90	4048.68	29.74	-51.93	6.05	1.52	52.28	173.35

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
4075.00	0.80	227.55	4073.68	30.09	-52.19	5.82	0.66	52.51	173.64
4100.00	0.83	236.57	4098.68	30.45	-52.41	5.54	0.52	52.70	173.97
4125.00	0.91	238.78	4123.67	30.82	-52.61	5.22	0.34	52.87	174.34
4150.00	0.94	233.77	4148.67	31.22	-52.84	4.88	0.35	53.06	174.72
4175.00	0.87	229.43	4173.67	31.61	-53.08	4.57	0.39	53.28	175.08
4200.00	0.88	228.92	4198.66	32.00	-53.33	4.28	0.06	53.50	175.41
4225.00	0.85	229.15	4223.66	32.38	-53.58	4.00	0.16	53.73	175.73
4250.00	0.78	231.94	4248.66	32.73	-53.80	3.72	0.31	53.93	176.04
4275.00	0.83	236.35	4273.66	33.08	-54.01	3.44	0.33	54.12	176.36
4300.00	1.27	236.89	4298.65	33.53	-54.26	3.06	1.73	54.35	176.78
4325.00	1.85	233.73	4323.64	34.21	-54.65	2.50	2.36	54.71	177.38
4350.00	2.10	231.47	4348.63	35.07	-55.18	1.81	1.03	55.21	178.12
4375.00	2.23	233.36	4373.61	36.01	-55.75	1.07	0.59	55.76	178.90
4400.00	2.42	235.27	4398.59	37.02	-56.34	0.24	0.83	56.34	179.75
4425.00	2.47	233.22	4423.57	38.08	-56.96	-0.62	0.40	56.97	180.62
4450.00	2.41	231.87	4448.54	39.14	-57.61	-1.46	0.34	57.63	181.46
4475.00	2.33	233.61	4473.52	40.17	-58.23	-2.29	0.42	58.28	182.25
4500.00	2.36	236.11	4498.50	41.19	-58.82	-3.12	0.43	58.91	183.04
4525.00	2.51	235.75	4523.48	42.24	-59.42	-4.00	0.59	59.55	183.85
4550.00	2.47	233.01	4548.45	43.32	-60.05	-4.89	0.50	60.25	184.65
4575.00	2.35	232.59	4573.43	44.37	-60.69	-5.72	0.51	60.96	185.39
4600.00	2.42	235.26	4598.41	45.41	-61.30	-6.57	0.54	61.65	186.11
4625.00	2.53	235.91	4623.39	46.48	-61.91	-7.46	0.43	62.36	186.87
4650.00	2.54	234.22	4648.36	47.58	-62.54	-8.36	0.31	63.10	187.62
4675.00	2.48	237.46	4673.34	48.67	-63.16	-9.27	0.62	63.84	188.35
4700.00	2.54	247.37	4698.31	49.72	-63.66	-10.24	1.75	64.48	189.14
4725.00	2.74	250.04	4723.29	50.80	-64.08	-11.31	0.94	65.07	190.01
4750.00	2.64	249.09	4748.26	51.90	-64.49	-12.41	0.41	65.67	190.89
4775.00	2.58	251.04	4773.23	52.96	-64.88	-13.48	0.43	66.26	191.74
4800.00	2.71	252.13	4798.21	54.03	-65.24	-14.58	0.54	66.85	192.59
4825.00	2.75	250.68	4823.18	55.12	-65.62	-15.70	0.33	67.48	193.46
4850.00	2.56	249.23	4848.15	56.20	-66.02	-16.79	0.79	68.12	194.27

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
4875.00	2.56	252.39	4873.13	57.24	-66.39	-17.85	0.57	68.74	195.05
4900.00	2.77	253.00	4898.10	58.30	-66.73	-18.96	0.88	69.37	195.86
4925.00	2.73	251.74	4923.07	59.40	-67.10	-20.10	0.29	70.04	196.68
4950.00	2.65	250.43	4948.04	60.48	-67.48	-21.21	0.42	70.73	197.45
4975.00	2.64	251.44	4973.02	61.55	-67.85	-22.30	0.19	71.42	198.19
5000.00	2.71	252.18	4997.99	62.62	-68.22	-23.41	0.32	72.12	198.94
5025.00	2.63	250.47	5022.96	63.70	-68.59	-24.51	0.47	72.84	199.67
5050.00	2.57	252.85	5047.94	64.74	-68.95	-25.59	0.49	73.54	200.36
5075.00	2.68	251.58	5072.91	65.79	-69.30	-26.68	0.51	74.25	201.06
5100.00	2.63	249.12	5097.88	66.87	-69.68	-27.77	0.51	75.01	201.73
5125.00	2.46	250.71	5122.86	67.90	-70.07	-28.81	0.72	75.76	202.35
5150.00	2.47	250.50	5147.84	68.90	-70.42	-29.82	0.06	76.48	202.95
5175.00	2.59	250.44	5172.81	69.92	-70.79	-30.87	0.47	77.23	203.56
5200.00	2.55	249.68	5197.79	70.97	-71.18	-31.92	0.20	78.00	204.15
5225.00	2.38	246.78	5222.76	71.98	-71.57	-32.92	0.85	78.78	204.70
5250.00	2.25	245.83	5247.74	72.95	-71.98	-33.85	0.53	79.54	205.18
5275.00	2.24	246.65	5272.72	73.88	-72.38	-34.74	0.14	80.28	205.64
5300.00	2.30	247.38	5297.70	74.82	-72.76	-35.66	0.27	81.03	206.11
5325.00	2.32	246.09	5322.68	75.78	-73.16	-36.58	0.21	81.80	206.57
5350.00	2.27	245.18	5347.66	76.74	-73.57	-37.50	0.23	82.58	207.00
5375.00	2.17	246.39	5372.65	77.66	-73.97	-38.38	0.46	83.33	207.42
5400.00	2.17	242.86	5397.63	78.57	-74.38	-39.23	0.53	84.09	207.81
5425.00	2.19	239.20	5422.61	79.50	-74.84	-40.06	0.56	84.88	208.16
5450.00	2.12	243.46	5447.59	80.42	-75.29	-40.89	0.70	85.67	208.50
5475.00	2.16	246.62	5472.57	81.31	-75.68	-41.73	0.50	86.42	208.87
5500.00	2.19	246.52	5497.56	82.21	-76.06	-42.60	0.14	87.17	209.25
5525.00	2.44	242.56	5522.54	83.19	-76.49	-43.51	1.19	88.00	209.63
5550.00	2.76	240.94	5547.51	84.29	-77.03	-44.51	1.30	88.97	210.02
5575.00	3.09	242.15	5572.48	85.53	-77.64	-45.63	1.36	90.06	210.45
5600.00	3.29	242.08	5597.44	86.89	-78.29	-46.86	0.80	91.24	210.90
5625.00	3.34	239.71	5622.40	88.30	-78.99	-48.13	0.59	92.50	211.35
5650.00	3.35	238.36	5647.35	89.74	-79.74	-49.38	0.31	93.79	211.77

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
5675.00	3.29	239.04	5672.31	91.16	-80.49	-50.61	0.29	95.09	212.16
5700.00	3.25	240.59	5697.27	92.56	-81.21	-51.85	0.38	96.35	212.55
5725.00	3.40	241.17	5722.23	93.98	-81.92	-53.11	0.62	97.63	212.96
5750.00	3.39	239.65	5747.19	95.43	-82.65	-54.40	0.36	98.95	213.35
5775.00	3.23	238.38	5772.14	96.85	-83.39	-55.64	0.69	100.25	213.71
5800.00	3.23	239.40	5797.10	98.24	-84.12	-56.85	0.23	101.53	214.05
5825.00	3.29	240.45	5822.06	99.63	-84.83	-58.08	0.34	102.81	214.40
5850.00	3.34	239.44	5847.02	101.05	-85.56	-59.33	0.30	104.12	214.74
5875.00	3.19	237.26	5871.98	102.45	-86.30	-60.54	0.78	105.42	215.05
5900.00	3.02	235.76	5896.94	103.79	-87.05	-61.67	0.74	106.68	215.32
5925.00	3.02	237.35	5921.91	105.10	-87.78	-62.77	0.33	107.91	215.57
5950.00	3.12	237.03	5946.87	106.42	-88.50	-63.89	0.43	109.16	215.83
5975.00	3.10	234.73	5971.84	107.77	-89.26	-65.02	0.51	110.43	216.07
6000.00	2.98	235.60	5996.80	109.08	-90.02	-66.11	0.49	111.68	216.29
6025.00	3.03	236.68	6021.77	110.38	-90.75	-67.19	0.29	112.92	216.52
6050.00	3.12	235.00	6046.73	111.72	-91.50	-68.30	0.52	114.19	216.74
6075.00	3.21	233.66	6071.69	113.09	-92.31	-69.42	0.45	115.50	216.95
6100.00	3.25	232.55	6096.65	114.49	-93.15	-70.55	0.31	116.85	217.14
6125.00	3.45	232.51	6121.61	115.95	-94.04	-71.71	0.79	118.26	217.33
6150.00	3.56	232.90	6146.56	117.47	-94.97	-72.92	0.48	119.74	217.52
6175.00	3.70	232.41	6171.51	119.05	-95.93	-74.18	0.57	121.27	217.72
6200.00	3.78	230.81	6196.46	120.68	-96.94	-75.46	0.51	122.85	217.90
6225.00	3.67	230.41	6221.41	122.30	-97.97	-76.72	0.45	124.43	218.06
6250.00	3.66	232.32	6246.36	123.90	-98.97	-77.96	0.49	125.99	218.23
6275.00	3.87	232.76	6271.30	125.54	-99.97	-79.27	0.85	127.58	218.41
6300.00	4.03	231.45	6296.24	127.25	-101.02	-80.62	0.73	129.25	218.59
6325.00	4.02	230.61	6321.18	129.00	-102.12	-81.99	0.24	130.96	218.76
6350.00	4.04	232.36	6346.12	130.76	-103.22	-83.36	0.51	132.68	218.92
6375.00	4.12	234.00	6371.06	132.53	-104.29	-84.79	0.56	134.40	219.11
6400.00	4.23	233.16	6395.99	134.35	-105.37	-86.25	0.50	136.17	219.30
6425.00	4.24	231.04	6420.92	136.19	-106.50	-87.71	0.63	137.97	219.47
6450.00	4.11	229.50	6445.86	138.01	-107.66	-89.11	0.67	139.75	219.61

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
6475.00	3.99	228.61	6470.79	139.78	-108.82	-90.44	0.53	141.50	219.73
6500.00	4.05	227.52	6495.73	141.53	-109.99	-91.75	0.38	143.23	219.83
6525.00	3.99	224.69	6520.67	143.28	-111.21	-93.01	0.83	144.98	219.91
6550.00	3.93	224.10	6545.61	145.00	-112.44	-94.22	0.31	146.70	219.96
6575.00	3.91	225.32	6570.55	146.71	-113.66	-95.42	0.34	148.40	220.01
6600.00	3.95	226.88	6595.49	148.42	-114.85	-96.65	0.45	150.11	220.08
6625.00	4.01	225.83	6620.43	150.15	-116.04	-97.91	0.37	151.83	220.16
6650.00	3.95	225.52	6645.37	151.88	-117.25	-99.15	0.23	153.56	220.22
6675.00	3.90	229.50	6670.31	153.60	-118.41	-100.41	1.11	155.25	220.30
6700.00	3.90	233.08	6695.26	155.29	-119.47	-101.74	0.98	156.92	220.42
6725.00	3.85	233.74	6720.20	156.97	-120.48	-103.09	0.26	158.57	220.55
6750.00	3.71	231.47	6745.15	158.62	-121.48	-104.40	0.81	160.18	220.68
6775.00	3.39	229.78	6770.10	160.17	-122.46	-105.60	1.35	161.70	220.77
6800.00	3.19	230.34	6795.06	161.60	-123.38	-106.70	0.83	163.12	220.85
6825.00	3.12	232.27	6820.02	162.98	-124.24	-107.77	0.50	164.47	220.94
6850.00	3.21	234.82	6844.98	164.35	-125.06	-108.88	0.65	165.82	221.04
6875.00	3.25	235.17	6869.94	165.75	-125.87	-110.04	0.19	167.19	221.16
6900.00	3.10	235.41	6894.90	167.13	-126.66	-111.18	0.60	168.53	221.28
6925.00	3.12	237.02	6919.87	168.47	-127.41	-112.30	0.36	169.84	221.39
6950.00	3.38	236.42	6944.83	169.87	-128.19	-113.49	1.02	171.21	221.52
6975.00	3.73	232.75	6969.78	171.42	-129.09	-114.75	1.68	172.72	221.63
7000.00	4.01	232.65	6994.72	173.10	-130.11	-116.09	1.12	174.38	221.74
7025.00	4.15	234.63	7019.66	174.87	-131.17	-117.52	0.80	176.12	221.86
7050.00	4.36	233.09	7044.59	176.72	-132.26	-119.02	0.93	177.93	221.98
7075.00	4.32	233.23	7069.52	178.60	-133.40	-120.53	0.15	179.79	222.10
7100.00	4.37	234.29	7094.44	180.49	-134.51	-122.06	0.38	181.64	222.22
7125.00	4.35	233.89	7119.37	182.38	-135.63	-123.60	0.14	183.50	222.34
7150.00	4.02	233.45	7144.31	184.20	-136.71	-125.07	1.31	185.29	222.45
7175.00	3.72	233.91	7169.25	185.88	-137.71	-126.43	1.23	186.95	222.56
7200.00	3.70	233.96	7194.20	187.49	-138.66	-127.74	0.09	188.53	222.65
7225.00	3.70	232.60	7219.14	189.10	-139.63	-129.03	0.35	190.12	222.74
7250.00	3.68	233.12	7244.09	190.70	-140.60	-130.31	0.15	191.70	222.83

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
7275.00	3.81	234.30	7269.04	192.33	-141.56	-131.63	0.59	193.31	222.92
7300.00	4.06	234.08	7293.98	194.04	-142.57	-133.02	1.02	194.99	223.02
7325.00	4.42	234.22	7318.91	195.88	-143.65	-134.52	1.42	196.80	223.12
7350.00	4.75	236.04	7343.83	197.86	-144.79	-136.16	1.46	198.76	223.24
7375.00	5.21	237.94	7368.74	200.01	-145.97	-137.98	1.94	200.86	223.39
7400.00	5.68	238.35	7393.62	202.35	-147.22	-139.99	1.89	203.16	223.56
7425.00	5.90	238.44	7418.50	204.83	-148.54	-142.14	0.90	205.60	223.74
7450.00	5.92	238.61	7443.36	207.37	-149.89	-144.34	0.09	208.09	223.92
7475.00	5.87	238.05	7468.23	209.90	-151.24	-146.52	0.30	210.57	224.09
7500.00	5.69	238.34	7493.10	212.38	-152.56	-148.66	0.71	213.02	224.26
7525.00	5.49	240.86	7517.99	214.77	-153.80	-150.76	1.28	215.36	224.43
7550.00	5.41	242.13	7542.87	217.09	-154.93	-152.85	0.58	217.64	224.61
7575.00	5.27	241.24	7567.76	219.35	-156.03	-154.89	0.63	219.86	224.79
7600.00	4.96	241.98	7592.66	221.53	-157.09	-156.86	1.27	222.00	224.96
7625.00	4.79	244.34	7617.57	223.59	-158.05	-158.75	1.06	224.02	225.13
7650.00	4.70	246.33	7642.49	225.57	-158.92	-160.63	0.76	225.96	225.31
7675.00	4.37	246.50	7667.41	227.45	-159.71	-162.44	1.30	227.80	225.49
7700.00	4.00	246.39	7692.34	229.19	-160.44	-164.11	1.49	229.51	225.65
7725.00	4.00	248.62	7717.28	230.84	-161.10	-165.72	0.62	231.13	225.81
7750.00	3.96	248.47	7742.22	232.47	-161.74	-167.34	0.17	232.73	225.98
7775.00	3.79	244.28	7767.17	234.07	-162.41	-168.88	1.31	234.31	226.12
7800.00	3.55	243.38	7792.11	235.62	-163.12	-170.32	1.00	235.83	226.24
7825.00	3.40	243.61	7817.07	237.08	-163.79	-171.68	0.58	237.28	226.35
7850.00	3.43	241.75	7842.02	238.53	-164.48	-173.00	0.46	238.71	226.45
7875.00	3.34	239.70	7866.98	239.97	-165.20	-174.29	0.60	240.14	226.53
7900.00	3.16	238.94	7891.94	241.37	-165.92	-175.51	0.74	241.53	226.61
7925.00	2.92	239.51	7916.90	242.67	-166.60	-176.65	0.99	242.82	226.68
7950.00	2.86	239.83	7941.87	243.91	-167.24	-177.74	0.26	244.05	226.74
7975.00	2.81	236.95	7966.84	245.12	-167.89	-178.79	0.60	245.26	226.80
8000.00	2.68	233.83	7991.81	246.31	-168.56	-179.77	0.79	246.44	226.84
8025.00	2.60	230.31	8016.79	247.46	-169.27	-180.68	0.71	247.58	226.87
8050.00	2.70	226.55	8041.76	248.62	-170.04	-181.54	0.80	248.74	226.87

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
8075.00	2.83	222.33	8066.73	249.82	-170.90	-182.39	0.96	249.94	226.86
8100.00	2.82	220.95	8091.70	251.04	-171.82	-183.21	0.27	251.17	226.84
8125.00	2.81	221.73	8116.67	252.26	-172.74	-184.02	0.16	252.39	226.81
8150.00	2.91	221.40	8141.64	253.49	-173.67	-184.84	0.42	253.63	226.78
8175.00	2.97	226.59	8166.61	254.77	-174.59	-185.73	1.09	254.91	226.77
8200.00	3.17	232.87	8191.57	256.11	-175.46	-186.75	1.58	256.25	226.79
8225.00	3.30	233.34	8216.53	257.51	-176.30	-187.88	0.52	257.65	226.82
8250.00	3.31	233.49	8241.49	258.95	-177.16	-189.04	0.07	259.08	226.86
8275.00	3.32	233.10	8266.45	260.39	-178.03	-190.20	0.10	260.52	226.89
8300.00	3.21	234.25	8291.41	261.81	-178.87	-191.35	0.51	261.94	226.93
8325.00	3.10	235.50	8316.37	263.18	-179.67	-192.48	0.53	263.30	226.97
8350.00	2.91	234.36	8341.33	264.48	-180.42	-193.55	0.82	264.60	227.01
8375.00	2.69	233.92	8366.30	265.70	-181.13	-194.54	0.85	265.81	227.04
8400.00	2.51	230.30	8391.28	266.83	-181.83	-195.43	0.97	266.94	227.07
8425.00	2.32	225.65	8416.26	267.89	-182.53	-196.22	1.11	267.99	227.07
8450.00	2.19	228.09	8441.24	268.87	-183.21	-196.94	0.63	268.98	227.07
8475.00	2.14	230.39	8466.22	269.82	-183.82	-197.65	0.41	269.92	227.08
8500.00	2.07	228.40	8491.20	270.73	-184.42	-198.35	0.39	270.84	227.08
8525.00	2.09	229.07	8516.19	271.64	-185.02	-199.03	0.11	271.75	227.09
8550.00	2.19	229.90	8541.17	272.58	-185.63	-199.74	0.44	272.68	227.10
8575.00	2.43	239.73	8566.15	273.57	-186.20	-200.57	1.85	273.67	227.13
8600.00	2.72	240.92	8591.12	274.67	-186.76	-201.54	1.17	274.77	227.18
8625.00	2.79	240.50	8616.09	275.85	-187.35	-202.59	0.31	275.94	227.24
8650.00	2.69	241.37	8641.07	277.02	-187.93	-203.63	0.46	277.10	227.30
8675.00	2.67	240.82	8666.04	278.16	-188.49	-204.66	0.12	278.23	227.35
8700.00	2.63	241.58	8691.01	279.29	-189.05	-205.67	0.23	279.35	227.41
8725.00	2.47	240.67	8715.99	280.37	-189.58	-206.64	0.64	280.43	227.47
8750.00	2.43	239.97	8740.96	281.42	-190.11	-207.57	0.19	281.48	227.51
8775.00	2.33	238.85	8765.94	282.44	-190.64	-208.47	0.46	282.49	227.56
8800.00	2.28	238.81	8790.92	283.43	-191.16	-209.33	0.18	283.48	227.60
8825.00	2.17	239.93	8815.90	284.38	-191.66	-210.16	0.49	284.43	227.64
8850.00	2.17	240.16	8840.88	285.31	-192.13	-210.98	0.04	285.36	227.68

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
8875.00	2.16	240.33	8865.87	286.24	-192.60	-211.80	0.07	286.28	227.72
8900.00	2.15	238.64	8890.85	287.16	-193.08	-212.61	0.26	287.20	227.76
8925.00	2.09	238.48	8915.83	288.07	-193.56	-213.40	0.24	288.11	227.79
8950.00	1.99	235.98	8940.82	288.95	-194.04	-214.15	0.52	288.98	227.82
8975.00	1.98	237.91	8965.80	289.81	-194.51	-214.88	0.27	289.84	227.85
9000.00	2.02	237.78	8990.79	290.67	-194.98	-215.62	0.12	290.70	227.88
9025.00	2.07	238.33	9015.77	291.55	-195.45	-216.37	0.23	291.58	227.91
9050.00	2.02	237.30	9040.75	292.43	-195.92	-217.13	0.25	292.45	227.94
9075.00	1.99	232.76	9065.74	293.30	-196.42	-217.84	0.64	293.32	227.96
9100.00	2.06	232.58	9090.72	294.18	-196.96	-218.54	0.26	294.20	227.97
9125.00	2.01	232.75	9115.71	295.06	-197.50	-219.25	0.17	295.09	227.99
9150.00	2.00	229.05	9140.69	295.94	-198.05	-219.93	0.52	295.96	228.00
9175.00	2.09	232.25	9165.68	296.83	-198.61	-220.62	0.58	296.85	228.00
9200.00	2.07	231.34	9190.66	297.74	-199.18	-221.33	0.15	297.76	228.02
9225.00	1.98	227.78	9215.64	298.62	-199.75	-222.01	0.62	298.64	228.02
9250.00	2.02	228.56	9240.63	299.49	-200.33	-222.66	0.18	299.51	228.02
9275.00	2.06	230.12	9265.61	300.38	-200.91	-223.33	0.28	300.40	228.03
9300.00	2.10	232.49	9290.60	301.29	-201.48	-224.04	0.37	301.31	228.04
9325.00	2.24	237.43	9315.58	302.23	-202.02	-224.81	0.93	302.24	228.06
9350.00	2.32	243.80	9340.56	303.20	-202.50	-225.68	1.07	303.21	228.10
9375.00	2.43	245.44	9365.54	304.19	-202.95	-226.61	0.51	304.21	228.15
9400.00	2.53	245.46	9390.51	305.23	-203.40	-227.60	0.42	305.24	228.21
9425.00	2.58	245.57	9415.49	306.30	-203.86	-228.61	0.20	306.30	228.28
9450.00	2.53	245.19	9440.46	307.37	-204.32	-229.63	0.21	307.37	228.34
9475.00	2.55	242.69	9465.44	308.43	-204.81	-230.62	0.45	308.44	228.39
9500.00	2.47	242.77	9490.42	309.50	-205.31	-231.60	0.29	309.50	228.44
9525.00	2.44	240.89	9515.39	310.54	-205.82	-232.54	0.35	310.54	228.49
9550.00	2.45	237.41	9540.37	311.59	-206.37	-233.46	0.59	311.59	228.52
9575.00	2.32	236.56	9565.35	312.62	-206.93	-234.33	0.54	312.62	228.55
9600.00	2.40	233.93	9590.33	313.64	-207.52	-235.17	0.54	313.64	228.57
9625.00	2.67	232.71	9615.30	314.74	-208.18	-236.06	1.08	314.74	228.59
9650.00	2.78	233.18	9640.27	315.93	-208.90	-237.01	0.46	315.93	228.61

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
9675.00	2.92	232.90	9665.24	317.17	-209.64	-238.00	0.57	317.17	228.62
9700.00	2.84	233.18	9690.21	318.42	-210.40	-239.00	0.31	318.42	228.64
9725.00	2.55	233.16	9715.18	319.59	-211.10	-239.95	1.17	319.59	228.66
9750.00	2.49	233.02	9740.16	320.69	-211.76	-240.82	0.24	320.69	228.67
9758.20	2.49	232.70	9748.35	321.04	-211.98	-241.11	0.17	321.04	228.68