

30.015-44319

RECEIVED

COG

P.C.D.

COPPERHEAD 31 FEE #020H

PRECISION 155

11/21/2017

This survey is correct to the best of my knowledge and is supported by actual field data.

Kolton Cotton

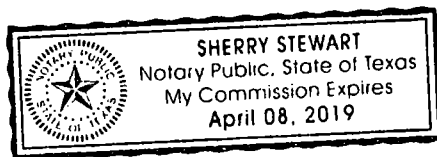
Notarized this date 9 of February, 2018.

Sherry Stewart

Notary Signature

County of Midland

State of Texas



Scientific Drilling

The Ultimate Partner In Wellbore Placement

SURVEY REPORT

COPPERHEAD 31 FEE #020H

KEEPER GYRO SURVEY

CUSTOMER
PROJECT
FIELD

COG
Eddy County, New Mexico
N/A

SDI JOB NO.
SDI DISTRICT
SDI KIT/UNIT

OP:006057
Midland

SITE INFORMATION

Site Name
Lat/Long
Northing
Easting

Eddy County, New Mexico
32.0017875° N, 104.0306919° W
364,508.9 ft
593,815.6 ft

Section
Township
Range

MAP INFORMATION

North Reference
Grid Correction
System
Datum
Map Zone

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

**WELL INFORMATION**

Lat/Long
Northing
Easting
UWI

32.0017875° N, 104.0306919° W
364,508.9 ft
593,815.6 ft
30-015-44319

DEPTH AND ELEVATION REFERENCE

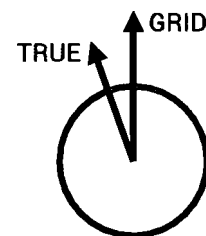
Ground Level
Reference Datum
Reference Height
Reference Elevation

2928 ft above Mean Sea Level
RKB
24 ft above G.L.
2952 ft

VERTICAL SECTION REFERENCE

+N/-S
+E/-W
Proposal Direction
Calculation Method

0 ft
0 ft
0.19°
Minimum Curvature

**LOCAL GRAVITY REFERENCE INFORMATION**

Local Gravity
True to Grid

998.528 mG [computed]
subtract 0.16°

WELL NOTES

Keeper Gyro survey

OPERATORS

Jeffrey Loyd

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	0.57	3.95	100.00	0.49	0.49	0.03	0.57	0.49	3.95
125.00	0.81	12.21	125.00	0.79	0.79	0.08	1.05	0.79	5.78
150.00	1.09	22.66	149.99	1.18	1.18	0.21	1.30	1.20	10.02
175.00	1.41	28.40	174.99	1.67	1.67	0.45	1.37	1.73	14.96
200.00	1.60	28.94	199.98	2.24	2.24	0.76	0.76	2.37	18.72
225.00	1.65	27.63	224.97	2.87	2.87	1.09	0.25	3.07	20.92
250.00	1.82	25.99	249.96	3.54	3.54	1.44	0.73	3.82	22.07
275.00	1.60	25.49	274.95	4.22	4.21	1.76	0.90	4.56	22.67
300.00	1.66	24.76	299.94	4.86	4.86	2.06	0.28	5.28	23.00
325.00	1.66	22.78	324.93	5.53	5.52	2.35	0.23	6.00	23.10
350.00	1.31	17.81	349.92	6.13	6.12	2.58	1.49	6.65	22.85
375.00	1.16	12.14	374.91	6.65	6.64	2.72	0.78	7.18	22.28
400.00	1.11	11.23	399.91	7.14	7.13	2.82	0.20	7.67	21.60
425.00	1.10	9.67	424.90	7.61	7.60	2.91	0.13	8.14	20.94
450.00	1.12	8.48	449.90	8.09	8.08	2.99	0.13	8.62	20.28
475.00	1.16	5.63	474.89	8.59	8.58	3.05	0.26	9.10	19.56
500.00	1.07	2.82	499.89	9.07	9.06	3.08	0.42	9.57	18.79
525.00	0.97	0.88	524.88	9.52	9.51	3.10	0.42	10.00	18.05
550.00	0.95	359.70	549.88	9.94	9.93	3.10	0.11	10.40	17.35
575.00	1.19	2.28	574.88	10.40	10.39	3.11	0.98	10.85	16.66
600.00	1.19	2.78	599.87	10.92	10.91	3.13	0.04	11.35	16.02
625.00	1.19	358.03	624.86	11.44	11.43	3.14	0.40	11.85	15.34
650.00	1.25	359.73	649.86	11.97	11.96	3.13	0.27	12.36	14.64
675.00	1.10	357.01	674.85	12.48	12.47	3.11	0.64	12.86	14.01
700.00	1.11	2.67	699.85	12.97	12.96	3.11	0.44	13.32	13.50
725.00	1.16	1.28	724.84	13.46	13.45	3.13	0.21	13.81	13.09
750.00	1.13	359.39	749.84	13.96	13.95	3.13	0.20	14.30	12.65
775.00	1.14	358.51	774.83	14.45	14.44	3.12	0.08	14.78	12.20
800.00	1.23	356.06	799.83	14.97	14.96	3.10	0.43	15.28	11.70
825.00	1.12	357.76	824.82	15.48	15.47	3.07	0.46	15.77	11.22
850.00	1.15	0.20	849.82	15.98	15.97	3.06	0.23	16.26	10.85

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	1.08	357.25	874.81	16.46	16.45	3.05	0.38	16.73	10.50
900.00	1.10	359.08	899.81	16.94	16.93	3.03	0.17	17.20	10.16
925.00	1.10	355.68	924.80	17.42	17.41	3.01	0.26	17.67	9.82
950.00	1.25	359.06	949.80	17.93	17.92	2.99	0.63	18.17	9.47
975.00	1.18	357.01	974.79	18.46	18.45	2.97	0.33	18.69	9.15
1000.00	1.14	359.26	999.79	18.96	18.95	2.96	0.24	19.18	8.86
1025.00	1.14	358.29	1024.78	19.46	19.45	2.94	0.08	19.67	8.61
1050.00	1.15	357.62	1049.78	19.96	19.95	2.93	0.06	20.16	8.35
1075.00	1.27	356.48	1074.77	20.49	20.48	2.90	0.47	20.68	8.06
1100.00	1.25	355.30	1099.77	21.03	21.03	2.86	0.11	21.22	7.75
1125.00	1.24	355.63	1124.76	21.58	21.57	2.82	0.07	21.75	7.44
1150.00	1.11	351.95	1149.76	22.09	22.08	2.76	0.60	22.25	7.13
1175.00	1.11	353.54	1174.75	22.57	22.56	2.70	0.12	22.72	6.83
1200.00	1.08	351.37	1199.75	23.04	23.03	2.64	0.22	23.18	6.54
1225.00	1.04	346.82	1224.74	23.49	23.49	2.55	0.36	23.62	6.20
1250.00	1.08	339.36	1249.74	23.94	23.93	2.42	0.57	24.05	5.77
1275.00	1.00	330.31	1274.73	24.34	24.34	2.23	0.74	24.44	5.23
1300.00	1.04	321.70	1299.73	24.71	24.70	1.98	0.64	24.78	4.58
1325.00	1.00	315.02	1324.73	25.04	25.04	1.68	0.50	25.09	3.84
1350.00	1.10	309.33	1349.72	25.35	25.34	1.34	0.58	25.38	3.03
1375.00	1.22	304.16	1374.72	25.65	25.65	0.94	0.62	25.66	2.09
1400.00	1.36	298.62	1399.71	25.94	25.94	0.46	0.76	25.94	1.01
1425.00	1.44	297.28	1424.70	26.22	26.22	-0.08	0.33	26.22	359.82
1450.00	1.63	287.75	1449.69	26.47	26.48	-0.70	1.29	26.48	358.48
1475.00	1.65	282.54	1474.68	26.66	26.66	-1.39	0.60	26.70	357.01
1500.00	1.77	282.65	1499.67	26.82	26.82	-2.12	0.47	26.91	355.48
1525.00	1.88	284.67	1524.66	27.00	27.01	-2.89	0.53	27.17	353.88
1550.00	1.96	285.13	1549.65	27.22	27.23	-3.71	0.32	27.48	352.25
1575.00	2.04	282.29	1574.63	27.42	27.44	-4.55	0.49	27.81	350.58
1600.00	2.16	280.68	1599.61	27.60	27.62	-5.45	0.53	28.15	348.84
1625.00	2.20	277.85	1624.60	27.75	27.77	-6.39	0.46	28.49	347.05
1650.00	2.13	277.90	1649.58	27.87	27.90	-7.32	0.27	28.84	345.30

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	2.15	278.43	1674.56	28.00	28.03	-8.25	0.11	29.22	343.61
1700.00	2.16	280.17	1699.54	28.15	28.18	-9.17	0.27	29.64	341.97
1725.00	2.09	279.42	1724.53	28.31	28.34	-10.09	0.28	30.08	340.41
1750.00	1.87	272.17	1749.51	28.40	28.43	-10.94	1.33	30.47	338.95
1775.00	1.50	260.68	1774.50	28.36	28.39	-11.68	2.01	30.70	337.65
1800.00	1.41	249.13	1799.49	28.19	28.23	-12.29	1.23	30.79	336.48
1825.00	1.26	249.21	1824.49	27.98	28.02	-12.83	0.60	30.82	335.40
1850.00	1.14	239.43	1849.48	27.76	27.80	-13.30	0.95	30.82	334.43
1875.00	1.19	238.31	1874.47	27.49	27.54	-13.74	0.20	30.77	333.49
1900.00	1.25	238.75	1899.47	27.21	27.26	-14.19	0.25	30.73	332.50
1925.00	1.25	235.27	1924.46	26.92	26.96	-14.65	0.30	30.69	331.49
1950.00	1.21	234.49	1949.46	26.61	26.66	-15.08	0.18	30.63	330.49
1975.00	0.96	226.96	1974.45	26.31	26.36	-15.45	1.13	30.55	329.62
2000.00	0.72	222.35	1999.45	26.05	26.10	-15.71	1.02	30.46	328.95
2025.00	0.75	211.77	2024.45	25.79	25.84	-15.90	0.55	30.35	328.39
2050.00	0.62	198.60	2049.45	25.53	25.58	-16.03	0.82	30.19	327.92
2075.00	0.59	192.16	2074.45	25.27	25.33	-16.10	0.29	30.01	327.55
2100.00	0.52	177.81	2099.44	25.03	25.09	-16.13	0.63	29.82	327.27
2125.00	0.56	176.40	2124.44	24.80	24.85	-16.11	0.19	29.62	327.04
2150.00	0.60	174.28	2149.44	24.54	24.60	-16.09	0.19	29.39	326.80
2175.00	0.49	168.77	2174.44	24.31	24.36	-16.06	0.50	29.18	326.61
2200.00	0.48	182.13	2199.44	24.10	24.15	-16.04	0.45	28.99	326.40
2225.00	0.48	175.91	2224.44	23.89	23.94	-16.04	0.21	28.81	326.18
2250.00	0.60	161.99	2249.44	23.66	23.71	-15.99	0.69	28.60	326.00
2275.00	0.72	146.38	2274.44	23.40	23.45	-15.86	0.86	28.32	325.93
2300.00	0.91	132.17	2299.43	23.14	23.19	-15.63	1.11	27.97	326.02
2325.00	1.16	116.70	2324.43	22.89	22.94	-15.26	1.50	27.55	326.38
2350.00	1.30	113.83	2349.42	22.67	22.71	-14.77	0.60	27.09	326.97
2375.00	1.44	113.51	2374.42	22.43	22.48	-14.22	0.55	26.60	327.67
2400.00	1.50	114.05	2399.41	22.17	22.22	-13.64	0.25	26.07	328.46
2425.00	1.69	106.31	2424.40	21.94	21.98	-12.98	1.15	25.53	329.43
2450.00	1.78	106.03	2449.39	21.73	21.77	-12.26	0.35	24.98	330.62

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	1.90	106.04	2474.37	21.51	21.55	-11.49	0.51	24.42	331.94
2500.00	1.91	106.64	2499.36	21.28	21.31	-10.69	0.08	23.85	333.36
2525.00	1.85	108.50	2524.35	21.03	21.07	-9.91	0.34	23.28	334.81
2550.00	1.89	104.41	2549.33	20.81	20.84	-9.13	0.55	22.75	336.34
2575.00	1.85	105.43	2574.32	20.60	20.63	-8.34	0.18	22.25	337.99
2600.00	1.79	101.48	2599.31	20.42	20.44	-7.57	0.56	21.80	339.69
2625.00	1.72	101.55	2624.30	20.27	20.29	-6.82	0.28	21.40	341.43
2650.00	1.66	105.92	2649.28	20.09	20.11	-6.10	0.57	21.02	343.13
2675.00	1.72	102.77	2674.27	19.91	19.93	-5.38	0.44	20.65	344.88
2700.00	1.72	101.55	2699.26	19.76	19.77	-4.65	0.15	20.31	346.77
2725.00	1.73	100.68	2724.25	19.62	19.63	-3.91	0.12	20.01	348.73
2750.00	1.75	98.78	2749.24	19.49	19.50	-3.16	0.24	19.75	350.79
2775.00	1.75	102.64	2774.23	19.35	19.36	-2.41	0.47	19.51	352.89
2800.00	1.70	99.14	2799.22	19.21	19.22	-1.67	0.46	19.29	355.02
2825.00	1.69	98.41	2824.21	19.10	19.10	-0.94	0.10	19.13	357.17
2850.00	1.66	100.95	2849.20	18.98	18.98	-0.22	0.31	18.98	359.32
2875.00	1.47	110.92	2874.19	18.80	18.80	0.43	1.34	18.80	1.31
2900.00	1.26	151.18	2899.18	18.44	18.44	0.86	3.83	18.46	2.68
2925.00	1.54	172.97	2924.17	17.87	17.87	1.04	2.38	17.90	3.32
2950.00	1.62	177.37	2949.16	17.19	17.18	1.09	0.57	17.22	3.64
2975.00	1.55	180.16	2974.15	16.50	16.49	1.11	0.42	16.53	3.85
3000.00	1.58	181.40	2999.14	15.81	15.81	1.10	0.21	15.85	3.98
3025.00	1.64	178.81	3024.13	15.11	15.11	1.10	0.35	15.15	4.16
3050.00	1.70	183.26	3049.12	14.39	14.38	1.08	0.58	14.42	4.31
3075.00	1.59	177.42	3074.11	13.67	13.67	1.08	0.81	13.71	4.52
3100.00	1.63	179.25	3099.10	12.97	12.97	1.10	0.27	13.01	4.85
3125.00	1.57	182.02	3124.09	12.27	12.27	1.09	0.39	12.32	5.09
3150.00	1.57	179.94	3149.08	11.59	11.58	1.08	0.23	11.63	5.33
3175.00	1.63	182.18	3174.07	10.89	10.88	1.07	0.34	10.94	5.60
3200.00	1.70	183.22	3199.06	10.16	10.16	1.03	0.29	10.21	5.81
3225.00	1.63	180.39	3224.05	9.44	9.43	1.01	0.43	9.49	6.11
3250.00	1.71	185.94	3249.04	8.71	8.71	0.97	0.72	8.76	6.35

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3275.00	1.58	182.29	3274.03	8.00	7.99	0.92	0.65	8.05	6.54
3300.00	1.59	182.69	3299.02	7.31	7.30	0.89	0.04	7.36	6.92
3325.00	1.69	181.17	3324.01	6.59	6.59	0.86	0.47	6.64	7.46
3350.00	1.65	181.04	3349.00	5.86	5.86	0.85	0.17	5.92	8.24
3375.00	1.68	179.62	3373.99	5.13	5.13	0.84	0.20	5.20	9.34
3400.00	1.54	179.57	3398.98	4.43	4.43	0.85	0.54	4.51	10.86
3425.00	1.52	181.11	3423.97	3.76	3.76	0.85	0.18	3.85	12.67
3450.00	1.08	178.52	3448.97	3.19	3.19	0.85	1.79	3.30	14.83
3475.00	0.69	180.01	3473.96	2.81	2.80	0.85	1.55	2.93	16.88
3500.00	0.61	182.31	3498.96	2.52	2.52	0.85	0.37	2.66	18.55
3525.00	0.56	176.71	3523.96	2.27	2.27	0.85	0.28	2.42	20.51
3550.00	0.43	176.63	3548.96	2.05	2.05	0.86	0.54	2.22	22.76
3575.00	0.38	180.26	3573.96	1.88	1.87	0.87	0.23	2.06	24.78
3600.00	0.43	174.61	3598.96	1.70	1.70	0.87	0.27	1.91	27.23
3625.00	0.46	177.49	3623.96	1.51	1.50	0.89	0.15	1.75	30.54
3650.00	0.43	177.84	3648.96	1.31	1.31	0.89	0.14	1.59	34.35
3675.00	0.39	178.17	3673.96	1.13	1.13	0.90	0.14	1.45	38.56
3700.00	0.43	183.45	3698.96	0.95	0.95	0.90	0.22	1.31	43.37
3725.00	0.35	170.47	3723.95	0.78	0.78	0.91	0.48	1.20	49.21
3750.00	0.42	176.02	3748.95	0.62	0.61	0.92	0.32	1.11	56.41
3775.00	0.55	176.73	3773.95	0.41	0.40	0.94	0.51	1.02	66.77
3800.00	0.41	174.34	3798.95	0.20	0.19	0.95	0.55	0.97	78.53
3825.00	0.46	179.75	3823.95	0.01	0.00	0.96	0.26	0.96	89.83
3850.00	0.38	164.81	3848.95	-0.18	-0.18	0.98	0.54	1.00	100.30
3875.00	0.42	173.63	3873.95	-0.35	-0.35	1.02	0.29	1.08	109.07
3900.00	0.41	175.35	3898.95	-0.53	-0.53	1.03	0.08	1.16	117.22
3925.00	0.44	173.56	3923.95	-0.71	-0.72	1.05	0.12	1.27	124.20
3950.00	0.39	178.90	3948.95	-0.89	-0.89	1.06	0.25	1.39	130.02
3975.00	0.40	180.39	3973.95	-1.06	-1.07	1.07	0.08	1.51	135.03
4000.00	0.34	172.53	3998.95	-1.23	-1.23	1.07	0.32	1.63	138.83
4025.00	0.35	177.13	4023.95	-1.38	-1.38	1.09	0.11	1.76	141.72
4050.00	0.45	182.50	4048.95	-1.55	-1.55	1.09	0.45	1.90	144.98

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	0.40	183.73	4073.95	-1.73	-1.74	1.08	0.20	2.05	148.20
4100.00	0.47	190.58	4098.94	-1.92	-1.93	1.05	0.35	2.20	151.35
4125.00	0.32	171.22	4123.94	-2.09	-2.10	1.04	0.81	2.34	153.52
4150.00	0.39	186.83	4148.94	-2.25	-2.25	1.05	0.48	2.48	155.09
4175.00	0.46	182.73	4173.94	-2.43	-2.44	1.03	0.30	2.64	157.07
4200.00	0.42	182.53	4198.94	-2.62	-2.63	1.02	0.16	2.82	158.75
4225.00	0.42	184.91	4223.94	-2.81	-2.81	1.01	0.07	2.99	160.24
4250.00	0.38	171.96	4248.94	-2.98	-2.98	1.01	0.41	3.15	161.25
4275.00	0.49	178.06	4273.94	-3.17	-3.17	1.03	0.48	3.33	162.04
4300.00	0.45	192.91	4298.94	-3.37	-3.37	1.01	0.51	3.52	163.33
4325.00	0.48	180.22	4323.94	-3.57	-3.57	0.99	0.43	3.71	164.55
4350.00	0.47	183.58	4348.94	-3.78	-3.78	0.98	0.11	3.91	165.46
4375.00	0.41	188.79	4373.94	-3.97	-3.97	0.96	0.31	4.09	166.40
4400.00	0.42	192.27	4398.94	-4.15	-4.15	0.93	0.12	4.25	167.40
4425.00	0.49	183.86	4423.94	-4.34	-4.35	0.90	0.37	4.44	168.29
4450.00	0.40	184.46	4448.93	-4.54	-4.54	0.89	0.36	4.62	168.94
4475.00	0.49	188.15	4473.93	-4.73	-4.73	0.87	0.38	4.81	169.63
4500.00	0.59	186.28	4498.93	-4.96	-4.96	0.84	0.42	5.03	170.44
4525.00	0.51	193.01	4523.93	-5.20	-5.20	0.80	0.41	5.26	171.29
4550.00	0.54	189.60	4548.93	-5.42	-5.42	0.75	0.18	5.48	172.11
4575.00	0.49	193.73	4573.93	-5.64	-5.65	0.71	0.25	5.69	172.86
4600.00	0.51	199.61	4598.93	-5.85	-5.86	0.64	0.23	5.89	173.72
4625.00	0.57	198.90	4623.93	-6.08	-6.08	0.57	0.23	6.11	174.68
4650.00	0.53	196.54	4648.93	-6.31	-6.31	0.49	0.20	6.33	175.54
4675.00	0.54	199.64	4673.93	-6.53	-6.53	0.42	0.13	6.54	176.32
4700.00	0.60	199.20	4698.92	-6.76	-6.76	0.34	0.22	6.77	177.14
4725.00	0.64	192.39	4723.92	-7.02	-7.02	0.26	0.34	7.03	177.84
4750.00	0.64	196.64	4748.92	-7.29	-7.29	0.19	0.19	7.29	178.47
4775.00	0.60	202.60	4773.92	-7.55	-7.55	0.10	0.32	7.55	179.20
4800.00	0.68	200.31	4798.92	-7.81	-7.81	0.00	0.36	7.81	179.98
4825.00	0.72	203.66	4823.92	-8.09	-8.09	-0.11	0.23	8.09	180.79
4850.00	0.75	203.89	4848.91	-8.39	-8.38	-0.24	0.09	8.39	181.65

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	0.80	207.08	4873.91	-8.69	-8.69	-0.39	0.28	8.70	182.55
4900.00	0.74	207.58	4898.91	-8.99	-8.99	-0.54	0.25	9.00	183.45
4925.00	0.78	211.34	4923.91	-9.28	-9.28	-0.70	0.24	9.30	184.34
4950.00	0.61	209.99	4948.91	-9.54	-9.54	-0.86	0.68	9.57	185.14
4975.00	0.55	216.33	4973.90	-9.75	-9.75	-1.00	0.33	9.80	185.83
5000.00	0.75	205.64	4998.90	-9.99	-9.99	-1.14	0.91	10.06	186.50
5025.00	0.80	206.67	5023.90	-10.30	-10.29	-1.29	0.23	10.38	187.13
5050.00	0.84	212.82	5048.90	-10.61	-10.61	-1.47	0.39	10.71	187.87
5075.00	0.63	201.34	5073.90	-10.89	-10.89	-1.62	1.02	11.01	188.44
5100.00	0.53	201.46	5098.89	-11.13	-11.13	-1.71	0.42	11.26	188.73
5125.00	0.62	212.60	5123.89	-11.35	-11.35	-1.82	0.57	11.49	189.13
5150.00	0.69	212.77	5148.89	-11.59	-11.59	-1.98	0.26	11.76	189.69
5175.00	0.69	216.42	5173.89	-11.84	-11.83	-2.15	0.18	12.03	190.29
5200.00	0.76	218.74	5198.89	-12.09	-12.08	-2.34	0.29	12.31	190.96
5225.00	0.69	212.08	5223.89	-12.35	-12.34	-2.52	0.42	12.60	191.56
5250.00	0.65	208.77	5248.88	-12.60	-12.59	-2.67	0.23	12.87	191.98
5275.00	0.63	210.63	5273.88	-12.85	-12.84	-2.81	0.11	13.14	192.35
5300.00	0.63	208.03	5298.88	-13.09	-13.08	-2.95	0.12	13.40	192.70
5325.00	0.70	210.71	5323.88	-13.34	-13.33	-3.09	0.31	13.68	193.05
5350.00	0.75	214.94	5348.88	-13.60	-13.59	-3.26	0.31	13.98	193.49
5375.00	0.75	217.58	5373.88	-13.87	-13.86	-3.45	0.14	14.28	194.00
5400.00	0.69	214.99	5398.87	-14.12	-14.11	-3.64	0.27	14.57	194.46
5425.00	0.69	209.96	5423.87	-14.38	-14.36	-3.80	0.24	14.86	194.82
5450.00	0.77	212.53	5448.87	-14.65	-14.64	-3.97	0.36	15.17	195.17
5475.00	0.78	210.86	5473.87	-14.94	-14.93	-4.15	0.10	15.49	195.52
5500.00	0.74	210.55	5498.86	-15.23	-15.21	-4.32	0.16	15.81	195.84
5525.00	0.79	216.32	5523.86	-15.51	-15.49	-4.50	0.35	16.13	196.20
5550.00	0.77	207.58	5548.86	-15.79	-15.78	-4.68	0.48	16.46	196.52
5575.00	0.73	205.93	5573.86	-16.09	-16.07	-4.83	0.18	16.78	196.72
5600.00	0.78	203.57	5598.86	-16.39	-16.37	-4.96	0.25	17.11	196.87
5625.00	0.85	195.84	5623.85	-16.72	-16.71	-5.08	0.52	17.46	196.93
5650.00	0.86	195.11	5648.85	-17.08	-17.07	-5.18	0.06	17.84	196.90

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	0.93	189.41	5673.85	-17.46	-17.45	-5.27	0.44	18.22	196.79
5700.00	1.05	179.57	5698.84	-17.89	-17.88	-5.30	0.84	18.64	196.51
5725.00	1.20	185.00	5723.84	-18.38	-18.37	-5.32	0.73	19.12	196.15
5750.00	1.33	181.40	5748.83	-18.93	-18.92	-5.35	0.61	19.66	195.79
5775.00	1.41	184.47	5773.83	-19.53	-19.51	-5.38	0.44	20.24	195.41
5800.00	1.45	183.46	5798.82	-20.16	-20.14	-5.42	0.19	20.86	195.07
5825.00	1.42	182.66	5823.81	-20.78	-20.76	-5.46	0.14	21.47	194.72
5850.00	1.59	187.78	5848.80	-21.44	-21.42	-5.52	0.85	22.12	194.45
5875.00	1.64	184.55	5873.79	-22.14	-22.12	-5.59	0.41	22.81	194.19
5900.00	1.81	189.37	5898.78	-22.88	-22.86	-5.69	0.90	23.56	193.96
5925.00	1.93	193.01	5923.77	-23.68	-23.66	-5.84	0.69	24.37	193.87
5950.00	1.97	193.42	5948.75	-24.51	-24.49	-6.04	0.15	25.22	193.85
5975.00	2.10	193.06	5973.74	-25.37	-25.35	-6.24	0.52	26.11	193.83
6000.00	2.34	194.51	5998.72	-26.31	-26.29	-6.47	1.00	27.08	193.83
6025.00	2.49	195.91	6023.70	-27.33	-27.31	-6.75	0.65	28.13	193.88
6050.00	2.59	197.48	6048.67	-28.40	-28.37	-7.07	0.48	29.24	193.99
6075.00	2.59	197.93	6073.65	-29.47	-29.45	-7.41	0.08	30.37	194.13
6100.00	2.65	198.71	6098.62	-30.56	-30.53	-7.77	0.26	31.51	194.28
6125.00	2.56	195.14	6123.59	-31.65	-31.62	-8.10	0.74	32.64	194.37
6150.00	2.57	194.99	6148.57	-32.73	-32.70	-8.39	0.06	33.76	194.40
6175.00	2.63	196.12	6173.54	-33.82	-33.79	-8.70	0.31	34.89	194.43
6200.00	2.65	197.63	6198.52	-34.92	-34.89	-9.03	0.29	36.04	194.51
6225.00	2.65	196.69	6223.49	-36.03	-36.00	-9.37	0.17	37.20	194.59
6250.00	2.72	196.36	6248.46	-37.16	-37.12	-9.71	0.26	38.37	194.65
6275.00	2.77	197.31	6273.43	-38.30	-38.27	-10.05	0.29	39.57	194.72
6300.00	2.79	196.81	6298.40	-39.46	-39.43	-10.41	0.12	40.78	194.79
6325.00	2.85	194.76	6323.37	-40.65	-40.61	-10.74	0.45	42.01	194.82
6350.00	2.99	194.78	6348.34	-41.88	-41.84	-11.07	0.57	43.28	194.82
6375.00	3.07	197.74	6373.31	-43.15	-43.11	-11.44	0.71	44.60	194.86
6400.00	3.06	196.12	6398.27	-44.43	-44.39	-11.83	0.35	45.94	194.92
6425.00	3.19	196.46	6423.23	-45.74	-45.70	-12.21	0.54	47.30	194.96
6450.00	3.15	195.69	6448.20	-47.07	-47.03	-12.59	0.24	48.68	194.99

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	3.17	195.26	6473.16	-48.39	-48.35	-12.96	0.13	50.06	195.00
6500.00	3.17	195.81	6498.12	-49.73	-49.68	-13.33	0.12	51.44	195.02
6525.00	3.12	195.54	6523.08	-51.05	-51.00	-13.70	0.19	52.81	195.04
6550.00	3.23	195.95	6548.04	-52.39	-52.34	-14.08	0.44	54.20	195.05
6575.00	3.24	195.28	6573.00	-53.75	-53.70	-14.46	0.15	55.61	195.07
6600.00	3.16	195.78	6597.96	-55.09	-55.04	-14.83	0.34	57.00	195.08
6625.00	3.16	197.14	6622.93	-56.41	-56.36	-15.22	0.30	58.38	195.11
6650.00	3.19	196.48	6647.89	-57.74	-57.68	-15.62	0.19	59.76	195.15
6675.00	3.22	197.88	6672.85	-59.07	-59.02	-16.03	0.34	61.16	195.20
6700.00	3.09	196.99	6697.81	-60.39	-60.33	-16.44	0.57	62.53	195.25
6725.00	3.04	194.73	6722.78	-61.67	-61.62	-16.81	0.52	63.87	195.26
6750.00	3.09	196.74	6747.74	-62.96	-62.90	-17.17	0.48	65.21	195.27
6775.00	3.10	196.38	6772.70	-64.26	-64.20	-17.56	0.08	66.56	195.30
6800.00	3.02	196.47	6797.67	-65.54	-65.48	-17.94	0.30	67.89	195.32
6825.00	3.06	196.02	6822.63	-66.81	-66.75	-18.31	0.17	69.22	195.34
6850.00	3.00	193.85	6847.60	-68.09	-68.03	-18.65	0.51	70.54	195.33
6875.00	3.00	194.18	6872.56	-69.36	-69.30	-18.96	0.07	71.85	195.30
6900.00	3.05	195.32	6897.53	-70.64	-70.58	-19.30	0.30	73.17	195.29
6925.00	3.06	194.66	6922.49	-71.93	-71.86	-19.64	0.15	74.50	195.29
6950.00	3.04	193.37	6947.46	-73.22	-73.15	-19.97	0.29	75.83	195.27
6975.00	3.05	193.36	6972.42	-74.51	-74.45	-20.27	0.06	77.16	195.23
7000.00	3.18	194.51	6997.38	-75.83	-75.76	-20.60	0.56	78.52	195.21
7025.00	3.16	195.02	7022.35	-77.17	-77.10	-20.95	0.14	79.90	195.20
7050.00	3.19	195.26	7047.31	-78.51	-78.44	-21.32	0.15	81.28	195.20
7075.00	3.32	194.66	7072.27	-79.88	-79.81	-21.68	0.54	82.70	195.20
7100.00	3.39	194.75	7097.22	-81.30	-81.23	-22.05	0.27	84.17	195.19
7125.00	3.42	195.68	7122.18	-82.74	-82.66	-22.44	0.25	85.65	195.19
7150.00	3.39	197.20	7147.14	-84.16	-84.09	-22.86	0.38	87.14	195.21
7175.00	3.47	197.53	7172.09	-85.59	-85.51	-23.31	0.35	88.63	195.25
7200.00	3.46	196.73	7197.05	-87.04	-86.96	-23.76	0.20	90.14	195.28
7225.00	3.21	196.33	7222.00	-88.43	-88.35	-24.17	1.00	91.60	195.30
7250.00	3.06	198.61	7246.97	-89.74	-89.65	-24.58	0.76	92.96	195.33

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	2.93	197.14	7271.93	-90.98	-90.90	-24.98	0.62	94.27	195.37
7300.00	2.90	194.43	7296.90	-92.21	-92.12	-25.33	0.57	95.54	195.37
7325.00	2.73	187.92	7321.87	-93.41	-93.32	-25.57	1.44	96.76	195.32
7350.00	2.70	184.55	7346.84	-94.59	-94.50	-25.70	0.65	97.93	195.21
7375.00	2.76	183.94	7371.81	-95.77	-95.69	-25.78	0.27	99.10	195.08
7400.00	2.66	181.59	7396.79	-96.96	-96.87	-25.84	0.60	100.26	194.94
7425.00	2.68	179.85	7421.76	-98.12	-98.03	-25.86	0.33	101.39	194.77
7450.00	2.69	181.30	7446.73	-99.29	-99.20	-25.87	0.28	102.52	194.61
7475.00	2.70	181.04	7471.70	-100.46	-100.38	-25.89	0.06	103.66	194.46
7500.00	2.61	181.08	7496.68	-101.62	-101.53	-25.91	0.35	104.79	194.32
7525.00	2.57	179.24	7521.65	-102.75	-102.66	-25.92	0.37	105.88	194.17
7550.00	2.47	177.27	7546.63	-103.84	-103.76	-25.88	0.53	106.94	194.01
7575.00	2.35	177.71	7571.60	-104.89	-104.81	-25.84	0.45	107.95	193.85
7600.00	2.22	178.61	7596.58	-105.89	-105.81	-25.80	0.54	108.91	193.71
7625.00	2.11	177.84	7621.57	-106.84	-106.75	-25.78	0.46	109.82	193.57
7650.00	1.98	178.90	7646.55	-107.73	-107.64	-25.75	0.56	110.68	193.45
7675.00	1.94	178.62	7671.54	-108.58	-108.50	-25.73	0.16	111.51	193.34
7700.00	1.88	178.95	7696.52	-109.42	-109.33	-25.71	0.24	112.31	193.23
7725.00	1.91	176.50	7721.51	-110.24	-110.16	-25.68	0.35	113.11	193.12
7750.00	1.87	178.55	7746.49	-111.07	-110.98	-25.64	0.32	113.91	193.01
7775.00	1.87	180.57	7771.48	-111.88	-111.80	-25.64	0.26	114.70	192.92
7800.00	1.91	179.32	7796.47	-112.71	-112.62	-25.64	0.22	115.50	192.82
7825.00	1.94	181.52	7821.45	-113.55	-113.46	-25.64	0.32	116.32	192.74
7850.00	1.96	183.46	7846.44	-114.40	-114.31	-25.68	0.28	117.16	192.66
7875.00	2.20	185.51	7871.42	-115.30	-115.22	-25.75	1.01	118.06	192.60
7900.00	2.43	184.63	7896.40	-116.31	-116.22	-25.84	0.92	119.06	192.54
7925.00	2.62	185.68	7921.38	-117.41	-117.32	-25.94	0.79	120.16	192.47
7950.00	2.67	185.22	7946.35	-118.56	-118.47	-26.05	0.20	121.30	192.40
7975.00	2.74	185.27	7971.32	-119.73	-119.65	-26.16	0.27	122.47	192.33
8000.00	2.73	183.35	7996.30	-120.92	-120.83	-26.25	0.37	123.65	192.26
8025.00	2.72	181.65	8021.27	-122.11	-122.02	-26.30	0.33	124.82	192.16
8050.00	2.76	179.03	8046.24	-123.30	-123.22	-26.31	0.54	125.99	192.05

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	2.75	181.10	8071.21	-124.50	-124.42	-26.31	0.40	127.17	191.94
8100.00	2.75	180.54	8096.18	-125.70	-125.62	-26.33	0.11	128.34	191.84
8125.00	2.76	178.62	8121.15	-126.90	-126.82	-26.32	0.37	129.52	191.72
8150.00	2.64	180.40	8146.12	-128.08	-128.00	-26.31	0.59	130.67	191.61
8175.00	2.70	179.51	8171.10	-129.25	-129.16	-26.31	0.28	131.81	191.51
8200.00	2.62	179.06	8196.07	-130.41	-130.32	-26.29	0.30	132.95	191.41
8225.00	2.58	182.23	8221.04	-131.54	-131.46	-26.30	0.60	134.06	191.31
8250.00	2.60	179.34	8246.02	-132.67	-132.59	-26.32	0.53	135.17	191.23
8275.00	2.62	179.77	8270.99	-133.81	-133.72	-26.31	0.10	136.29	191.13
8300.00	2.50	178.98	8295.97	-134.93	-134.84	-26.30	0.50	137.38	191.04
8325.00	2.57	179.90	8320.94	-136.03	-135.95	-26.29	0.33	138.46	190.94
8350.00	2.68	178.84	8345.92	-137.18	-137.09	-26.27	0.47	139.59	190.85
8375.00	2.66	180.13	8370.89	-138.34	-138.25	-26.26	0.25	140.73	190.76
8400.00	2.58	178.25	8395.86	-139.48	-139.40	-26.25	0.47	141.85	190.66
8425.00	2.49	181.02	8420.84	-140.59	-140.50	-26.24	0.61	142.93	190.58
8450.00	2.34	181.19	8445.82	-141.64	-141.55	-26.26	0.59	143.97	190.51
8475.00	2.30	183.38	8470.80	-142.65	-142.57	-26.30	0.39	144.97	190.45
8500.00	2.44	186.70	8495.78	-143.68	-143.60	-26.39	0.76	146.00	190.41
8525.00	2.36	185.60	8520.75	-144.73	-144.64	-26.51	0.35	147.05	190.38
8550.00	2.42	185.66	8545.73	-145.76	-145.68	-26.61	0.25	148.09	190.35
8575.00	2.48	185.04	8570.71	-146.83	-146.74	-26.71	0.26	149.15	190.31
8600.00	2.69	186.11	8595.68	-147.95	-147.87	-26.82	0.86	150.28	190.28
8625.00	2.79	185.27	8620.65	-149.14	-149.06	-26.94	0.42	151.47	190.24
8650.00	2.77	187.04	8645.62	-150.35	-150.26	-27.07	0.35	152.68	190.21
8675.00	2.73	187.36	8670.60	-151.54	-151.45	-27.22	0.19	153.88	190.19
8700.00	2.64	186.23	8695.57	-152.71	-152.62	-27.35	0.42	155.05	190.16
8725.00	2.57	187.28	8720.54	-153.83	-153.74	-27.49	0.33	156.18	190.14
8750.00	2.61	187.87	8745.52	-154.95	-154.86	-27.64	0.19	157.31	190.12
8775.00	2.51	189.25	8770.49	-156.06	-155.97	-27.80	0.48	158.42	190.11
8800.00	2.49	189.43	8795.47	-157.13	-157.04	-27.98	0.06	159.51	190.10
8825.00	2.41	188.96	8820.45	-158.19	-158.10	-28.15	0.34	160.58	190.10
8850.00	2.54	188.39	8845.42	-159.26	-159.16	-28.31	0.51	161.66	190.09

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	2.44	189.16	8870.40	-160.33	-160.24	-28.48	0.41	162.75	190.08
8900.00	2.42	192.09	8895.38	-161.38	-161.28	-28.67	0.50	163.81	190.08
8925.00	2.41	193.67	8920.35	-162.40	-162.31	-28.91	0.28	164.86	190.10
8950.00	2.30	193.42	8945.33	-163.40	-163.31	-29.15	0.41	165.89	190.12
8975.00	2.34	194.83	8970.31	-164.39	-164.29	-29.40	0.28	166.90	190.14
9000.00	2.32	197.88	8995.29	-165.36	-165.26	-29.68	0.51	167.91	190.18
9025.00	2.37	198.34	9020.27	-166.34	-166.24	-30.00	0.21	168.92	190.23
9050.00	2.31	197.87	9045.25	-167.30	-167.21	-30.32	0.26	169.93	190.28
9075.00	2.31	198.09	9070.23	-168.26	-168.16	-30.63	0.04	170.93	190.32
9100.00	2.23	197.75	9095.21	-169.21	-169.11	-30.93	0.30	171.91	190.37
9125.00	2.19	197.96	9120.19	-170.13	-170.02	-31.23	0.19	172.87	190.41
9150.00	2.24	199.80	9145.17	-171.04	-170.94	-31.54	0.36	173.82	190.45
9175.00	2.14	198.64	9170.15	-171.95	-171.84	-31.86	0.45	174.77	190.50
9200.00	2.32	200.64	9195.14	-172.86	-172.76	-32.19	0.77	175.73	190.55
9225.00	2.40	198.42	9220.11	-173.83	-173.73	-32.53	0.50	176.75	190.61
9250.00	2.47	198.51	9245.09	-174.84	-174.73	-32.87	0.27	177.80	190.65
9275.00	2.58	201.59	9270.07	-175.88	-175.77	-33.24	0.70	178.88	190.71
9300.00	2.68	204.11	9295.04	-176.94	-176.82	-33.69	0.59	180.00	190.79
9325.00	2.57	199.95	9320.02	-178.00	-177.88	-34.12	0.87	181.13	190.86
9350.00	2.56	198.80	9344.99	-179.05	-178.94	-34.49	0.21	182.23	190.91
9375.00	2.53	199.56	9369.97	-180.10	-179.99	-34.85	0.16	183.33	190.96
9400.00	2.58	196.69	9394.94	-181.16	-181.05	-35.20	0.56	184.44	191.00
9425.00	2.55	195.18	9419.92	-182.24	-182.12	-35.51	0.30	185.55	191.03
9450.00	2.65	195.59	9444.89	-183.33	-183.22	-35.81	0.39	186.68	191.06
9475.00	2.57	195.01	9469.86	-184.43	-184.31	-36.11	0.34	187.82	191.08
9500.00	2.60	195.80	9494.84	-185.52	-185.40	-36.41	0.18	188.94	191.11
9525.00	2.76	194.65	9519.81	-186.65	-186.53	-36.71	0.67	190.11	191.14
9550.00	2.56	190.24	9544.78	-187.78	-187.66	-36.97	1.12	191.27	191.14
9575.00	2.61	189.10	9569.76	-188.89	-188.77	-37.16	0.28	192.39	191.14
9600.00	2.50	188.64	9594.73	-190.00	-189.88	-37.33	0.44	193.51	191.12
9625.00	2.60	185.96	9619.71	-191.10	-190.98	-37.47	0.62	194.62	191.10
9650.00	2.88	188.96	9644.68	-192.29	-192.17	-37.63	1.25	195.81	191.08

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	2.76	186.12	9669.65	-193.51	-193.38	-37.79	0.75	197.04	191.06
9700.00	2.82	185.44	9694.62	-194.72	-194.59	-37.91	0.29	198.25	191.02
9725.00	2.75	181.20	9719.59	-195.93	-195.81	-37.98	0.87	199.46	190.98
9748.41	2.74	187.05	9742.97	-197.05	-196.92	-38.06	1.20	200.57	190.94