

30.15-44993

COG

ROADRUNNER FEDERAL COM 13Y

MCVAY 8

6/11/2018

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

Kolton Cotton

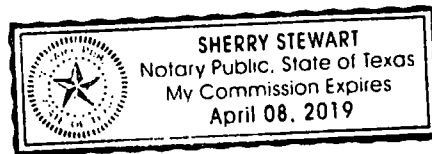
Notarized this date 1st of August, 2018.

Sherry Stewart

Notary Signature

County of Midland

State of Texas



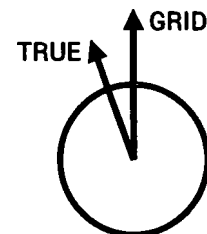
Scientific Drilling

The Ultimate Partner In Wellbore Placement

SURVEY REPORT

ROADRUNNER FEDERAL COM 13Y

KEEPER GYRO SURVEY

CUSTOMER
PROJECT
FIELDCOG
Roadrunner Federal Com 13Y
Roadrunner Federal Com 13YSDI JOB NO.
SDI DISTRICT
SDI KIT/UNITOP:010835
Midland**SITE INFORMATION**Site Name Roadrunner Federal Com 13Y
Lat/Long 32.0939245° N, 104.2386997° W
Northing 397,906.1 ft
Easting 529,306 ftSection
Township
Range**MAP INFORMATION**North Reference Grid North
Grid Correction -0.05 deg
System US State Plane 1927
Datum North American Datum 1927 (Clarke 1866)
Map Zone New Mexico East: 3001**WELL INFORMATION**Lat/Long 32.0939212° N, 104.2479764° W
Northing 397,902.5 ft
Easting 526,433.2 ft
UWI 30-015-44993**DEPTH AND ELEVATION REFERENCE**Ground Level 3242.1 ft above Mean Sea
Level
Reference Datum RKB
Reference Height 26 ft above G.L.
Reference Elevation 3268.1 ft**VERTICAL SECTION REFERENCE**+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 359.09°
Calculation Method Minimum Curvature**LOCAL GRAVITY REFERENCE INFORMATION**Local Gravity 998.505 mG [computed]
True to Grid subtract 0.05°**WELL NOTES**

Keeper Gyro Survey

OPERATORS

T. Morgan/C. Booher

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	0.32	302.53	100.00	0.15	0.15	-0.23	0.32	0.28	302.53
125.00	0.40	307.55	125.00	0.25	0.24	-0.36	0.34	0.43	303.53
150.00	0.52	307.00	150.00	0.37	0.36	-0.52	0.47	0.63	304.70
175.00	0.62	312.46	175.00	0.53	0.52	-0.71	0.48	0.88	306.19
200.00	0.66	322.58	200.00	0.74	0.73	-0.90	0.48	1.15	308.94
225.00	0.79	323.46	224.99	1.00	0.98	-1.09	0.53	1.46	311.97
250.00	0.78	321.30	249.99	1.27	1.25	-1.30	0.13	1.80	313.95
275.00	0.76	319.69	274.99	1.53	1.51	-1.51	0.11	2.14	314.98
300.00	0.74	315.26	299.99	1.78	1.75	-1.73	0.25	2.47	315.31
325.00	0.75	313.64	324.98	2.01	1.98	-1.97	0.09	2.79	315.21
350.00	0.69	315.34	349.98	2.24	2.20	-2.19	0.25	3.10	315.14
375.00	0.69	317.13	374.98	2.46	2.42	-2.40	0.09	3.41	315.23
400.00	0.78	318.45	399.98	2.70	2.66	-2.61	0.35	3.73	315.46
425.00	0.70	320.14	424.98	2.94	2.90	-2.82	0.33	4.05	315.76
450.00	0.71	324.04	449.97	3.19	3.14	-3.01	0.20	4.35	316.21
475.00	0.78	321.46	474.97	3.45	3.40	-3.21	0.31	4.68	316.66
500.00	0.81	316.25	499.97	3.72	3.66	-3.44	0.31	5.03	316.81
525.00	0.70	313.88	524.97	3.96	3.90	-3.67	0.46	5.35	316.70
550.00	0.58	311.33	549.97	4.15	4.09	-3.88	0.51	5.63	316.51
575.00	0.28	234.66	574.97	4.20	4.13	-4.02	2.33	5.77	315.79
600.00	0.61	189.74	599.97	4.03	3.97	-4.09	1.82	5.70	314.10
625.00	0.89	179.97	624.96	3.71	3.64	-4.12	1.23	5.50	311.50
650.00	1.13	182.42	649.96	3.27	3.20	-4.13	0.98	5.22	307.81
675.00	1.11	177.80	674.95	2.78	2.71	-4.13	0.37	4.94	303.32
700.00	1.20	180.12	699.95	2.28	2.21	-4.12	0.42	4.67	298.21
725.00	1.26	178.13	724.94	1.74	1.67	-4.11	0.29	4.44	292.15
750.00	1.27	175.72	749.94	1.19	1.12	-4.08	0.22	4.23	285.36
775.00	1.23	174.06	774.93	0.64	0.58	-4.03	0.23	4.07	278.15
800.00	1.23	176.51	799.93	0.10	0.04	-3.99	0.21	3.99	270.60
825.00	1.25	178.95	824.92	-0.44	-0.50	-3.97	0.22	4.00	262.81
850.00	1.29	178.72	849.91	-0.99	-1.05	-3.96	0.15	4.09	255.07

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	1.29	177.11	874.91	-1.55	-1.62	-3.94	0.15	4.25	247.66
900.00	1.26	175.42	899.90	-2.11	-2.17	-3.90	0.19	4.46	240.85
925.00	1.26	174.72	924.89	-2.66	-2.72	-3.85	0.07	4.72	234.75
950.00	1.27	176.67	949.89	-3.21	-3.27	-3.81	0.18	5.02	229.35
975.00	1.33	178.84	974.88	-3.78	-3.84	-3.79	0.29	5.39	224.63
1000.00	1.38	174.59	999.88	-4.37	-4.43	-3.75	0.47	5.81	220.30
1025.00	1.33	172.67	1024.87	-4.96	-5.02	-3.69	0.28	6.23	216.33
1050.00	1.26	174.28	1049.86	-5.52	-5.58	-3.62	0.30	6.65	213.01
1075.00	1.28	175.88	1074.86	-6.07	-6.13	-3.58	0.15	7.10	210.27
1100.00	1.27	170.91	1099.85	-6.62	-6.68	-3.51	0.44	7.55	207.74
1125.00	1.24	153.14	1124.84	-7.14	-7.19	-3.35	1.55	7.94	204.95
1150.00	1.38	127.54	1149.84	-7.57	-7.62	-2.99	2.39	8.18	201.41
1175.00	1.59	119.26	1174.83	-7.93	-7.97	-2.45	1.19	8.34	197.06
1200.00	1.70	115.84	1199.82	-8.27	-8.30	-1.81	0.59	8.50	192.30
1225.00	1.97	114.38	1224.81	-8.62	-8.64	-1.09	1.09	8.71	187.17
1250.00	2.09	114.89	1249.79	-9.00	-9.01	-0.28	0.52	9.01	181.79
1275.00	2.19	115.04	1274.77	-9.41	-9.40	0.57	0.40	9.42	176.56
1300.00	2.31	114.12	1299.75	-9.83	-9.81	1.46	0.48	9.92	171.55
1325.00	2.35	113.93	1324.73	-10.26	-10.23	2.39	0.18	10.50	166.87
1350.00	2.22	113.31	1349.71	-10.68	-10.63	3.30	0.53	11.13	162.75
1375.00	2.00	108.86	1374.70	-11.02	-10.96	4.16	1.09	11.72	159.23
1400.00	1.72	92.19	1399.68	-11.19	-11.11	4.94	2.43	12.16	156.01
1425.00	1.74	86.12	1424.67	-11.19	-11.10	5.70	0.74	12.48	152.83
1450.00	1.93	82.85	1449.66	-11.13	-11.02	6.49	0.85	12.79	149.50
1475.00	1.94	81.76	1474.64	-11.03	-10.91	7.33	0.16	13.15	146.11
1500.00	1.97	80.92	1499.63	-10.91	-10.78	8.17	0.14	13.53	142.84
1525.00	2.21	84.20	1524.61	-10.81	-10.67	9.08	1.08	14.01	139.61
1550.00	2.28	86.25	1549.59	-10.74	-10.59	10.05	0.43	14.60	136.48
1575.00	2.28	84.85	1574.57	-10.68	-10.51	11.04	0.22	15.24	133.58
1600.00	1.77	80.04	1599.56	-10.58	-10.40	11.92	2.12	15.81	131.10
1625.00	1.15	57.97	1624.55	-10.39	-10.20	12.51	3.33	16.14	129.18
1650.00	0.95	43.49	1649.55	-10.12	-9.91	12.86	1.32	16.24	127.62

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
1675.00	0.91	33.26	1674.54	-9.81	-9.60	13.11	0.68	16.25	126.20
1700.00	0.85	35.14	1699.54	-9.49	-9.28	13.33	0.24	16.24	124.85
1725.00	0.95	36.83	1724.54	-9.18	-8.96	13.56	0.40	16.26	123.46
1750.00	1.02	38.13	1749.53	-8.84	-8.62	13.82	0.29	16.29	121.95
1775.00	1.09	45.08	1774.53	-8.50	-8.28	14.13	0.57	16.38	120.37
1800.00	1.14	41.09	1799.52	-8.15	-7.93	14.46	0.38	16.49	118.73
1825.00	1.09	40.12	1824.52	-7.79	-7.56	14.78	0.22	16.60	117.09
1850.00	1.05	42.03	1849.52	-7.44	-7.21	15.08	0.21	16.72	115.54
1875.00	1.03	35.69	1874.51	-7.10	-6.85	15.37	0.46	16.83	114.04
1900.00	1.00	33.81	1899.51	-6.74	-6.49	15.62	0.17	16.91	112.56
1925.00	1.02	33.08	1924.50	-6.37	-6.12	15.86	0.07	17.00	111.10
1950.00	1.05	36.26	1949.50	-6.01	-5.75	16.12	0.27	17.11	109.63
1975.00	1.08	33.17	1974.50	-5.63	-5.37	16.38	0.25	17.24	108.14
2000.00	1.10	31.89	1999.49	-5.23	-4.97	16.64	0.12	17.36	106.62
2025.00	1.12	27.25	2024.49	-4.81	-4.55	16.88	0.37	17.48	105.07
2050.00	1.09	26.42	2049.48	-4.39	-4.11	17.10	0.14	17.58	103.53
2075.00	1.04	27.23	2074.48	-3.97	-3.70	17.31	0.23	17.70	102.07
2100.00	1.08	29.73	2099.47	-3.57	-3.30	17.53	0.24	17.83	100.65
2125.00	1.14	31.75	2124.47	-3.16	-2.88	17.77	0.29	18.00	99.20
2150.00	1.12	25.33	2149.46	-2.73	-2.45	18.01	0.51	18.17	97.74
2175.00	1.14	25.01	2174.46	-2.29	-2.00	18.22	0.07	18.33	96.27
2200.00	1.11	27.03	2199.45	-1.86	-1.56	18.43	0.20	18.50	94.85
2225.00	1.10	27.44	2224.45	-1.43	-1.13	18.65	0.05	18.69	93.48
2250.00	1.16	30.63	2249.44	-1.01	-0.71	18.89	0.34	18.90	92.14
2275.00	1.17	28.97	2274.44	-0.57	-0.27	19.14	0.14	19.14	90.80
2300.00	1.22	27.05	2299.43	-0.11	0.19	19.39	0.26	19.39	89.43
2325.00	1.18	28.86	2324.43	0.34	0.66	19.63	0.21	19.64	88.09
2350.00	1.22	29.26	2349.42	0.80	1.11	19.89	0.15	19.92	86.79
2375.00	1.24	28.77	2374.42	1.26	1.58	20.15	0.08	20.21	85.51
2400.00	1.29	34.47	2399.41	1.73	2.05	20.44	0.55	20.54	84.27
2425.00	1.23	36.73	2424.40	2.17	2.50	20.76	0.30	20.91	83.13
2450.00	1.31	40.87	2449.40	2.60	2.93	21.10	0.46	21.31	82.09

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2475.00	1.37	44.03	2474.39	3.02	3.36	21.50	0.39	21.76	81.11
2500.00	1.38	46.36	2499.38	3.43	3.78	21.92	0.23	22.25	80.21
2525.00	1.30	46.54	2524.38	3.83	4.19	22.35	0.32	22.73	79.39
2550.00	0.85	53.28	2549.37	4.13	4.49	22.70	1.85	23.14	78.81
2575.00	0.39	74.81	2574.37	4.26	4.63	22.93	2.04	23.39	78.60
2600.00	0.27	147.24	2599.37	4.23	4.60	23.05	1.60	23.50	78.72
2625.00	0.42	174.90	2624.37	4.09	4.46	23.09	0.88	23.51	79.07
2650.00	0.44	182.56	2649.37	3.90	4.27	23.09	0.25	23.48	79.52
2675.00	0.39	176.98	2674.37	3.72	4.09	23.09	0.25	23.45	79.96
2700.00	0.39	180.28	2699.37	3.55	3.92	23.09	0.09	23.42	80.37
2725.00	0.45	172.87	2724.37	3.37	3.73	23.11	0.31	23.41	80.82
2750.00	0.47	170.35	2749.37	3.17	3.53	23.13	0.13	23.40	81.31
2775.00	0.46	172.93	2774.37	2.97	3.33	23.16	0.11	23.40	81.81
2800.00	0.41	165.90	2799.37	2.78	3.15	23.20	0.28	23.41	82.27
2825.00	0.38	181.27	2824.37	2.61	2.98	23.22	0.45	23.41	82.69
2850.00	0.41	191.47	2849.37	2.44	2.81	23.20	0.32	23.37	83.10
2875.00	0.50	187.62	2874.36	2.24	2.61	23.17	0.37	23.31	83.57
2900.00	0.45	191.32	2899.36	2.04	2.41	23.13	0.23	23.26	84.06
2925.00	0.43	182.55	2924.36	1.85	2.22	23.11	0.29	23.22	84.52
2950.00	0.40	185.02	2949.36	1.67	2.04	23.10	0.14	23.19	84.96
2975.00	0.44	192.02	2974.36	1.49	1.85	23.07	0.27	23.14	85.40
3000.00	0.45	188.52	2999.36	1.30	1.66	23.03	0.12	23.09	85.87
3025.00	0.47	183.94	3024.36	1.10	1.46	23.01	0.16	23.06	86.37
3050.00	0.41	177.38	3049.36	0.90	1.27	23.01	0.31	23.04	86.85
3075.00	0.45	181.76	3074.36	0.71	1.08	23.01	0.20	23.04	87.31
3100.00	0.46	180.65	3099.36	0.52	0.88	23.01	0.06	23.02	87.81
3125.00	0.45	180.74	3124.36	0.32	0.68	23.00	0.05	23.01	88.30
3150.00	0.45	181.33	3149.36	0.12	0.48	23.00	0.02	23.01	88.79
3175.00	0.41	187.03	3174.36	-0.07	0.30	22.99	0.22	22.99	89.26
3200.00	0.40	188.60	3199.35	-0.24	0.12	22.96	0.06	22.96	89.70
3225.00	0.48	190.93	3224.35	-0.43	-0.07	22.93	0.31	22.93	90.18
3250.00	0.48	194.20	3249.35	-0.64	-0.27	22.88	0.11	22.89	90.69

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	0.46	197.74	3274.35	-0.83	-0.47	22.83	0.13	22.83	91.18
3300.00	0.48	194.16	3299.35	-1.03	-0.67	22.77	0.13	22.78	91.68
3325.00	0.54	209.46	3324.35	-1.23	-0.87	22.69	0.60	22.71	92.20
3350.00	0.51	216.89	3349.35	-1.42	-1.06	22.56	0.29	22.59	92.70
3375.00	0.57	215.11	3374.35	-1.61	-1.26	22.42	0.25	22.46	93.21
3400.00	0.70	214.13	3399.35	-1.84	-1.49	22.27	0.50	22.32	93.82
3425.00	0.67	209.27	3424.34	-2.09	-1.74	22.11	0.26	22.18	94.50
3450.00	0.76	181.51	3449.34	-2.38	-2.03	22.03	1.41	22.13	95.27
3475.00	0.67	217.12	3474.34	-2.66	-2.31	21.94	1.78	22.06	96.02
3500.00	0.74	218.98	3499.34	-2.90	-2.56	21.75	0.28	21.90	96.70
3525.00	0.73	226.65	3524.34	-3.13	-2.79	21.53	0.40	21.71	97.39
3550.00	0.80	224.76	3549.33	-3.36	-3.03	21.29	0.29	21.51	98.09
3575.00	0.75	223.33	3574.33	-3.60	-3.27	21.06	0.22	21.31	98.83
3600.00	0.69	218.30	3599.33	-3.84	-3.51	20.85	0.35	21.14	99.55
3625.00	0.72	220.64	3624.33	-4.07	-3.74	20.66	0.16	20.99	100.27
3650.00	0.72	222.81	3649.33	-4.30	-3.98	20.45	0.11	20.83	101.01
3675.00	0.74	220.41	3674.32	-4.54	-4.22	20.23	0.15	20.67	101.77
3700.00	0.77	222.76	3699.32	-4.78	-4.46	20.02	0.18	20.51	102.57
3725.00	0.73	220.37	3724.32	-5.02	-4.71	19.80	0.20	20.35	103.38
3750.00	0.72	216.91	3749.32	-5.27	-4.96	19.60	0.19	20.22	104.19
3775.00	0.74	216.90	3774.32	-5.52	-5.21	19.41	0.07	20.10	105.03
3800.00	0.76	219.31	3799.31	-5.77	-5.47	19.21	0.17	19.97	105.89
3825.00	0.76	218.78	3824.31	-6.03	-5.73	19.00	0.03	19.84	106.78
3850.00	0.75	222.50	3849.31	-6.27	-5.98	18.78	0.21	19.71	107.65
3875.00	0.74	220.94	3874.31	-6.51	-6.22	18.57	0.09	19.58	108.52
3900.00	0.77	222.85	3899.31	-6.75	-6.46	18.35	0.18	19.45	109.41
3925.00	0.74	217.49	3924.30	-7.00	-6.72	18.13	0.32	19.34	110.32
3950.00	0.73	225.92	3949.30	-7.24	-6.95	17.92	0.43	19.22	111.21
3975.00	0.68	216.54	3974.30	-7.47	-7.19	17.72	0.51	19.12	112.08
4000.00	0.67	220.50	3999.30	-7.69	-7.42	17.53	0.19	19.04	112.93
4025.00	0.69	219.09	4024.30	-7.92	-7.64	17.34	0.10	18.95	113.79
4050.00	0.77	224.87	4049.29	-8.15	-7.88	17.13	0.44	18.86	114.70

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	0.67	218.01	4074.29	-8.38	-8.11	16.92	0.54	18.77	115.62
4100.00	0.68	223.27	4099.29	-8.60	-8.34	16.73	0.26	18.69	116.49
4125.00	0.79	224.09	4124.29	-8.83	-8.57	16.51	0.41	18.60	117.44
4150.00	0.77	217.20	4149.29	-9.08	-8.83	16.29	0.38	18.52	118.46
4175.00	0.72	214.45	4174.28	-9.34	-9.09	16.10	0.26	18.49	119.45
4200.00	0.77	215.91	4199.28	-9.61	-9.35	15.91	0.22	18.46	120.45
4225.00	0.74	218.66	4224.28	-9.86	-9.62	15.71	0.18	18.42	121.47
4250.00	0.74	214.11	4249.28	-10.12	-9.88	15.52	0.24	18.40	122.47
4275.00	0.70	217.53	4274.28	-10.37	-10.13	15.34	0.23	18.38	123.45
4300.00	0.63	214.38	4299.27	-10.61	-10.37	15.16	0.30	18.37	124.35
4325.00	0.60	216.29	4324.27	-10.82	-10.59	15.01	0.16	18.37	125.19
4350.00	0.66	222.10	4349.27	-11.03	-10.80	14.84	0.34	18.35	126.05
4375.00	0.63	221.50	4374.27	-11.24	-11.01	14.65	0.11	18.32	126.92
4400.00	0.65	218.31	4399.27	-11.45	-11.22	14.47	0.16	18.31	127.79
4425.00	0.66	218.26	4424.27	-11.67	-11.45	14.29	0.07	18.31	128.69
4450.00	0.65	215.53	4449.26	-11.90	-11.67	14.12	0.14	18.32	129.58
4475.00	0.66	204.27	4474.26	-12.14	-11.92	13.98	0.51	18.37	130.46
4500.00	0.60	206.81	4499.26	-12.39	-12.17	13.86	0.27	18.44	131.28
4525.00	0.54	201.44	4524.26	-12.61	-12.39	13.76	0.30	18.52	132.02
4550.00	0.48	195.40	4549.26	-12.82	-12.61	13.69	0.33	18.61	132.65
4575.00	0.40	191.85	4574.26	-13.01	-12.79	13.64	0.36	18.70	133.16
4600.00	0.45	191.12	4599.26	-13.19	-12.97	13.61	0.20	18.80	133.64
4625.00	0.37	186.45	4624.26	-13.36	-13.15	13.58	0.35	18.90	134.08
4650.00	0.42	182.33	4649.26	-13.53	-13.32	13.56	0.23	19.01	134.48
4675.00	0.42	177.96	4674.26	-13.72	-13.50	13.56	0.13	19.14	134.87
4700.00	0.49	167.14	4699.25	-13.91	-13.70	13.59	0.45	19.30	135.23
4725.00	0.51	171.14	4724.25	-14.13	-13.91	13.63	0.15	19.48	135.58
4750.00	0.53	165.39	4749.25	-14.35	-14.13	13.68	0.23	19.67	135.94
4775.00	0.48	166.30	4774.25	-14.56	-14.35	13.73	0.21	19.86	136.25
4800.00	0.52	159.34	4799.25	-14.77	-14.56	13.80	0.30	20.06	136.53
4825.00	0.56	160.03	4824.25	-15.00	-14.78	13.88	0.17	20.27	136.80
4850.00	0.53	158.43	4849.25	-15.22	-15.00	13.96	0.15	20.49	137.05

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4875.00	0.62	162.53	4874.25	-15.46	-15.24	14.05	0.39	20.72	137.33
4900.00	0.56	157.19	4899.25	-15.70	-15.48	14.14	0.31	20.96	137.60
4925.00	0.56	159.25	4924.24	-15.93	-15.71	14.23	0.08	21.19	137.83
4950.00	0.57	165.66	4949.24	-16.17	-15.94	14.30	0.25	21.42	138.11
4975.00	0.66	169.06	4974.24	-16.43	-16.20	14.36	0.38	21.65	138.45
5000.00	0.68	162.03	4999.24	-16.71	-16.48	14.43	0.34	21.91	138.80
5025.00	0.73	162.09	5024.24	-17.01	-16.78	14.53	0.19	22.19	139.11
5050.00	0.74	162.45	5049.24	-17.31	-17.08	14.62	0.07	22.49	139.43
5075.00	0.78	156.83	5074.23	-17.63	-17.39	14.74	0.33	22.80	139.72
5100.00	0.68	166.57	5099.23	-17.93	-17.69	14.84	0.62	23.09	140.01
5125.00	0.76	160.84	5124.23	-18.23	-18.00	14.93	0.43	23.38	140.32
5150.00	0.77	163.05	5149.23	-18.55	-18.32	15.03	0.12	23.70	140.62
5175.00	0.77	167.14	5174.23	-18.88	-18.64	15.12	0.22	24.00	140.95
5200.00	0.71	181.36	5199.22	-19.20	-18.96	15.15	0.77	24.27	141.36
5225.00	0.58	221.95	5224.22	-19.45	-19.21	15.07	1.85	24.41	141.89
5250.00	0.65	242.48	5249.22	-19.60	-19.37	14.85	0.92	24.41	142.51
5275.00	0.71	238.82	5274.22	-19.74	-19.51	14.60	0.30	24.37	143.20
5300.00	0.69	231.28	5299.22	-19.91	-19.69	14.35	0.38	24.36	143.92
5325.00	0.62	238.91	5324.22	-20.07	-19.85	14.11	0.44	24.36	144.59
5350.00	0.65	242.36	5349.21	-20.21	-19.99	13.87	0.21	24.33	145.24
5375.00	0.64	250.80	5374.21	-20.31	-20.10	13.61	0.39	24.28	145.89
5400.00	0.54	277.31	5399.21	-20.34	-20.13	13.37	1.14	24.16	146.42
5425.00	0.69	311.66	5424.21	-20.22	-20.02	13.14	1.55	23.94	146.72
5450.00	0.73	324.42	5449.21	-19.99	-19.79	12.93	0.65	23.64	146.83
5475.00	0.81	323.81	5474.21	-19.72	-19.52	12.74	0.36	23.30	146.87
5500.00	0.84	320.79	5499.20	-19.43	-19.23	12.52	0.20	22.95	146.94
5525.00	0.89	310.11	5524.20	-19.16	-18.97	12.25	0.67	22.58	147.14
5550.00	1.00	307.06	5549.20	-18.90	-18.71	11.93	0.49	22.19	147.48
5575.00	0.90	298.94	5574.19	-18.66	-18.48	11.58	0.66	21.81	147.92
5600.00	0.90	289.43	5599.19	-18.50	-18.32	11.23	0.60	21.49	148.50
5625.00	0.89	280.27	5624.19	-18.39	-18.22	10.85	0.57	21.21	149.23
5650.00	0.90	276.14	5649.18	-18.33	-18.17	10.46	0.26	20.96	150.06

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	0.98	273.51	5674.18	-18.29	-18.13	10.05	0.35	20.73	151.00
5700.00	0.96	272.61	5699.18	-18.26	-18.11	9.63	0.10	20.51	152.00
5725.00	1.14	270.24	5724.17	-18.24	-18.10	9.17	0.74	20.29	153.12
5750.00	1.20	268.82	5749.17	-18.24	-18.10	8.66	0.27	20.07	154.43
5775.00	1.28	268.58	5774.16	-18.24	-18.12	8.12	0.33	19.85	155.85
5800.00	1.29	268.70	5799.16	-18.25	-18.13	7.56	0.02	19.64	157.36
5825.00	1.26	267.18	5824.15	-18.26	-18.15	7.00	0.17	19.45	158.89
5850.00	0.98	252.83	5849.14	-18.33	-18.23	6.53	1.57	19.36	160.30
5875.00	1.23	261.68	5874.14	-18.42	-18.33	6.05	1.19	19.30	161.72
5900.00	1.08	248.23	5899.14	-18.54	-18.45	5.57	1.23	19.28	163.21
5925.00	1.10	245.04	5924.13	-18.72	-18.64	5.13	0.26	19.34	164.61
5950.00	1.08	246.33	5949.13	-18.91	-18.84	4.70	0.13	19.42	166.00
5975.00	0.91	247.97	5974.12	-19.08	-19.01	4.30	0.71	19.49	167.26
6000.00	0.84	251.96	5999.12	-19.20	-19.14	3.94	0.36	19.54	168.37
6025.00	0.47	238.76	6024.12	-19.31	-19.25	3.68	1.60	19.60	169.19
6050.00	0.34	194.75	6049.12	-19.43	-19.37	3.57	1.30	19.70	169.56
6075.00	0.70	151.55	6074.12	-19.64	-19.58	3.62	2.04	19.91	169.51
6100.00	1.13	145.27	6099.11	-19.98	-19.92	3.84	1.76	20.28	169.09
6125.00	1.51	145.09	6124.11	-20.45	-20.39	4.17	1.50	20.81	168.45
6150.00	1.51	142.92	6149.10	-20.99	-20.92	4.55	0.23	21.41	167.72
6175.00	1.51	140.66	6174.09	-21.52	-21.44	4.96	0.24	22.01	166.97
6200.00	1.58	131.15	6199.08	-22.01	-21.92	5.43	1.06	22.58	166.09
6225.00	1.54	115.64	6224.07	-22.39	-22.29	5.99	1.69	23.08	164.96
6250.00	1.43	96.02	6249.06	-22.57	-22.47	6.61	2.07	23.42	163.62
6275.00	1.03	55.07	6274.06	-22.49	-22.38	7.10	3.76	23.48	162.39
6300.00	1.12	34.88	6299.05	-22.16	-22.05	7.43	1.55	23.26	161.38
6325.00	1.28	30.31	6324.05	-21.72	-21.60	7.71	0.74	22.94	160.37
6350.00	1.25	29.07	6349.04	-21.25	-21.12	7.98	0.17	22.58	159.31
6375.00	1.25	30.36	6374.04	-20.78	-20.65	8.25	0.11	22.24	158.23
6400.00	1.26	30.06	6399.03	-20.31	-20.18	8.53	0.06	21.91	157.10
6425.00	1.16	35.81	6424.02	-19.87	-19.73	8.81	0.64	21.61	155.94
6450.00	1.16	47.98	6449.02	-19.50	-19.36	9.15	0.98	21.41	154.71

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	1.14	58.87	6474.01	-19.21	-19.06	9.55	0.88	21.32	153.40
6500.00	1.24	66.90	6499.01	-18.98	-18.83	10.01	0.79	21.32	152.00
6525.00	1.29	68.49	6524.00	-18.78	-18.62	10.52	0.24	21.39	150.53
6550.00	1.35	72.25	6549.00	-18.60	-18.42	11.06	0.42	21.49	149.02
6575.00	1.40	70.78	6573.99	-18.42	-18.23	11.63	0.23	21.63	147.46
6600.00	1.39	71.02	6598.98	-18.23	-18.04	12.21	0.03	21.78	145.91
6625.00	1.28	67.81	6623.97	-18.03	-17.83	12.75	0.54	21.92	144.42
6650.00	1.05	59.05	6648.97	-17.82	-17.61	13.21	1.17	22.01	143.12
6675.00	0.94	50.21	6673.97	-17.57	-17.36	13.56	0.74	22.03	142.00
6700.00	0.96	47.45	6698.96	-17.30	-17.08	13.88	0.20	22.01	140.91
6725.00	1.02	47.42	6723.96	-17.01	-16.79	14.20	0.23	21.99	139.79
6750.00	1.08	38.76	6748.95	-16.68	-16.46	14.51	0.68	21.94	138.60
6775.00	0.95	33.10	6773.95	-16.33	-16.10	14.77	0.66	21.85	137.47
6800.00	0.98	26.29	6798.95	-15.97	-15.73	14.98	0.48	21.72	136.41
6825.00	1.02	23.38	6823.94	-15.58	-15.34	15.16	0.24	21.57	135.33
6850.00	1.15	28.22	6848.94	-15.15	-14.91	15.37	0.66	21.41	134.14
6875.00	1.40	30.47	6873.93	-14.67	-14.43	15.64	1.00	21.28	132.69
6900.00	1.54	44.54	6898.92	-14.18	-13.93	16.03	1.56	21.23	130.98
6925.00	1.70	51.21	6923.91	-13.71	-13.45	16.56	0.99	21.33	129.09
6950.00	1.54	49.61	6948.90	-13.27	-13.00	17.10	0.68	21.48	127.24
6958.00	1.37	50.39	6956.90	-13.14	-12.87	17.26	2.13	21.53	126.71