

**McVAY DRILLING COMPANY**

P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

RECEIVED

JAN 12 15

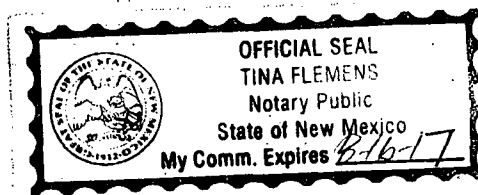
COG
ARTESIA WEST

Well Name and Num: Mossy Federal #1H
Location: Sec 12, T20S, R29E
Operator: COG
Drilling Contractor: McVay Drilling Company

3001542735

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
0.60	365	0.08	4463	79.30	9535
0.50	583	1.30	4879	82.90	9724
2.40	846	1.00	5421	93.90	10160
2.70	909	0.90	5843	91.30	10571
3.20	1094	0.50	6376	91.20	10947
2.80	1251	0.70	6657	90.50	11230
3.20	1314	1.10	7144	89.10	11418
3.90	1446	1.50	7644	90.90	11888
3.80	1597	2.70	7783	88.40	12128
3.30	1628	24.00	8065	88.20	12558
4.30	1722	31.20	8159	89.30	12933
3.70	1785	60.40	8379	89.60	13310
3.50	2162	74.40	8525	91.70	13593
0.50	2633	89.10	8777		
3.50	3103	88.60	9062		
0.40	3457	86.70	9157		
0.60	3960	84.60	9252		

By: Mario A. Carran S.Subscribed and sworn to before me this 8th day of January 2015Tina Flemens
Notary Public, Lea County, New Mexico



January 13, 2015

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: **Mossy Federal No 001H**

Please find enclosed a copy of the survey from 0.00' to 7651.00' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

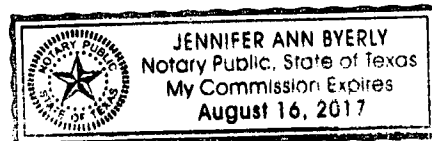
A handwritten signature in black ink, appearing to read "K. Havelka", written over a horizontal line.

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 13 day of January A.D., 2015, by Keith Havelka.

A handwritten signature in black ink, appearing to read "Jennifer Ann Byerly", written over a horizontal line.
Jennifer Ann Byerly
Notary Public, State of Texas





Company: COG Operating
Lease/Well: Mossy Federal/No 001H
Location: Sec12 T20S R29E
Rig Name: McVay 6
State/County: New Mexico/Eddy
Latitude: 32.59, Longitude: -104.02
GRID North is 0.17 Degrees East of True North
VS-Azi: 172.36 Degrees



Depth Reference : RKB = 19 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 1/13/2015 / 14:32

VES Survey International
West Texas
(432) 563-5444
Surveyor: Noe Garza
Mossy Federal No 001H / API 30-015-42735

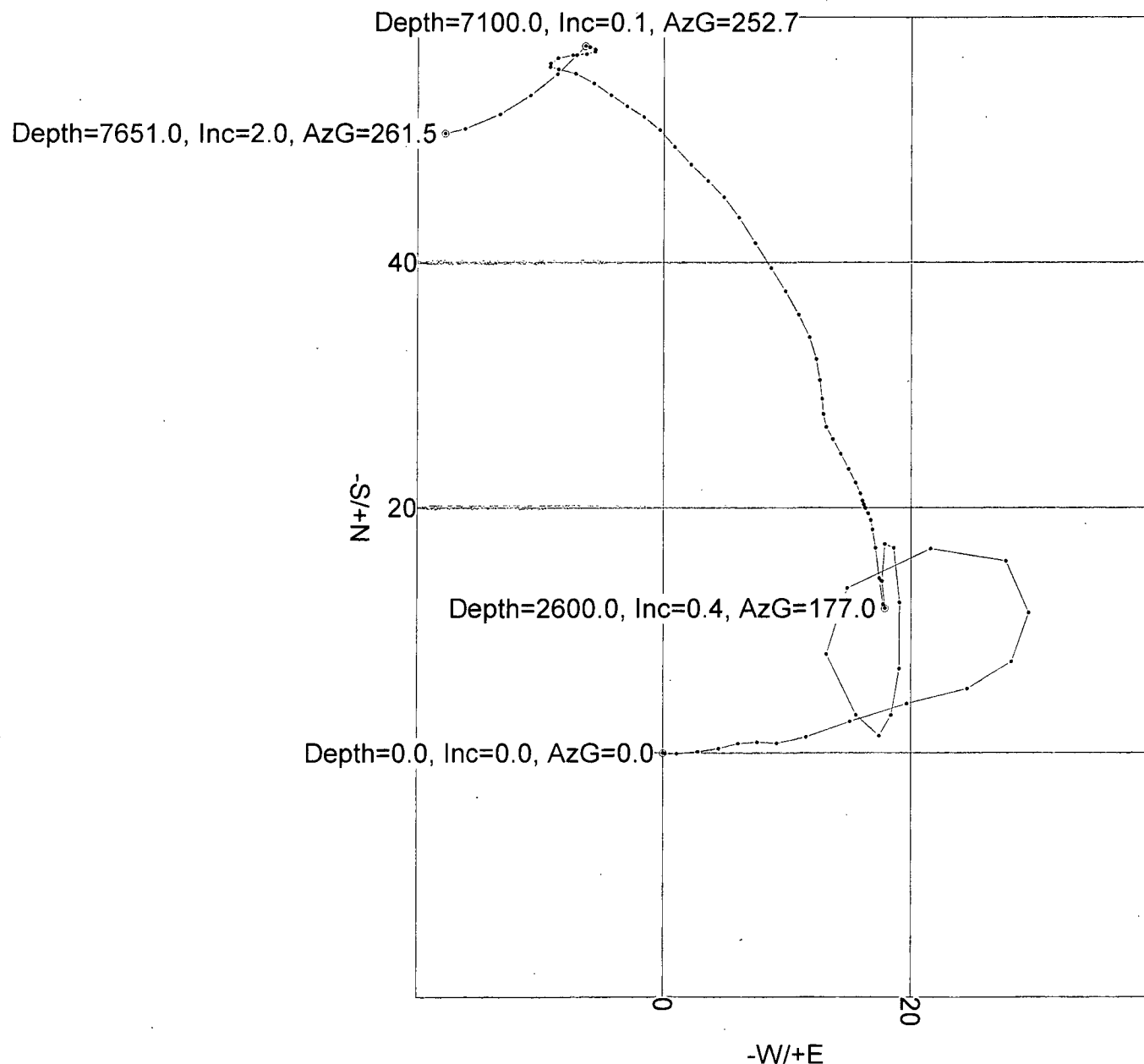
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.20	108.47	100.00	-0.06	0.17	0.08	0.18	108.47	0.20
200.00	0.88	86.69	199.99	-0.07	1.11	0.21	1.11	93.53	0.70
300.00	1.11	82.62	299.98	0.10	2.83	0.28	2.83	87.97	0.24
400.00	0.85	79.08	399.97	0.36	4.52	0.24	4.53	85.38	0.27
500.00	1.03	72.33	499.95	0.78	6.10	0.04	6.15	82.74	0.21
600.00	0.81	104.44	599.94	0.87	7.64	0.15	7.69	83.47	0.55
700.00	1.03	83.51	699.93	0.80	9.21	0.43	9.25	85.04	0.40
800.00	1.78	75.10	799.90	1.30	11.60	0.25	11.68	83.61	0.78
900.00	2.52	67.34	899.83	2.55	15.13	-0.51	15.35	80.45	0.80
1000.00	2.96	76.33	999.71	4.00	19.68	-1.35	20.08	78.50	0.62
1100.00	2.81	75.58	1099.58	5.23	24.56	-1.91	25.11	77.99	0.16
1200.00	2.29	36.45	1199.49	7.44	28.13	-3.64	29.10	75.18	1.78
1300.00	2.72	5.09	1299.40	11.42	29.52	-7.39	31.65	68.86	1.42
1400.00	3.18	311.78	1399.29	15.63	27.67	-11.81	31.78	60.54	2.68
1500.00	4.70	258.20	1499.08	16.64	21.59	-13.62	27.26	52.39	3.80
1600.00	4.13	228.56	1598.79	13.41	14.88	-11.32	20.04	47.97	2.32
1700.00	3.60	160.54	1698.61	8.07	13.23	-6.24	15.50	58.61	4.34
1800.00	2.77	146.38	1798.46	3.10	15.61	-0.99	15.92	78.79	1.13

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.68	59.17	1898.42	1.38	17.46	0.95	17.52	85.47	2.82
2000.00	1.67	17.91	1998.40	3.07	18.41	-0.60	18.67	80.53	1.24
2100.00	2.77	4.90	2098.32	6.87	19.07	-4.27	20.27	70.19	1.21
2200.00	3.42	356.29	2198.17	12.26	19.08	-9.61	22.68	57.29	0.79
2300.00	1.72	349.41	2298.07	16.70	18.62	-14.08	25.01	48.10	1.72
2400.00	1.41	201.26	2398.06	17.03	17.89	-14.50	24.70	46.41	3.01
2500.00	2.18	173.25	2498.01	13.99	17.67	-11.52	22.54	51.62	1.14
2600.00	0.37	176.96	2597.98	11.78	17.91	-9.30	21.44	56.66	1.81
2700.00	0.77	346.17	2697.98	12.11	17.77	-9.64	21.50	55.73	1.14
2800.00	1.68	353.83	2797.95	14.21	17.45	-11.77	22.51	50.83	0.92
2900.00	1.20	352.58	2897.92	16.70	17.16	-14.28	23.95	45.77	0.48
3000.00	0.56	346.79	2997.91	18.21	16.91	-15.80	24.85	42.88	0.65
3100.00	0.35	354.07	3097.90	18.99	16.77	-16.59	25.34	41.44	0.21
3200.00	0.35	324.97	3197.90	19.55	16.56	-17.18	25.62	40.27	0.18
3300.00	0.21	341.75	3297.90	19.97	16.33	-17.62	25.80	39.27	0.16
3400.00	0.14	330.96	3397.90	20.25	16.21	-17.92	25.94	38.67	0.07
3500.00	0.24	347.84	3497.90	20.57	16.11	-18.25	26.12	38.06	0.11
3600.00	0.46	341.06	3597.90	21.16	15.93	-18.85	26.48	36.98	0.22
3700.00	0.65	334.66	3697.89	22.05	15.56	-19.78	26.98	35.21	0.20
3800.00	0.78	332.38	3797.89	23.16	15.00	-20.96	27.59	32.93	0.14
3900.00	0.82	333.56	3897.88	24.41	14.37	-22.28	28.32	30.48	0.04
4000.00	0.72	329.56	3997.87	25.59	13.73	-23.54	29.04	28.21	0.11
4100.00	0.58	333.71	4097.86	26.59	13.18	-24.60	29.68	26.37	0.15
4200.00	0.67	359.80	4197.86	27.64	12.95	-25.67	30.52	25.11	0.30
4300.00	0.76	351.89	4297.85	28.88	12.86	-26.92	31.61	24.00	0.13
4400.00	0.99	353.26	4397.84	30.39	12.66	-28.44	32.93	22.62	0.22
4500.00	1.01	348.53	4497.82	32.12	12.39	-30.18	34.42	21.09	0.09
4600.00	1.12	338.50	4597.80	33.89	11.85	-32.01	35.90	19.28	0.21
4700.00	1.25	330.76	4697.78	35.75	10.96	-33.97	37.39	17.05	0.21
4800.00	1.25	330.11	4797.76	37.65	9.89	-36.00	38.93	14.71	0.01
4900.00	1.29	326.47	4897.73	39.53	8.72	-38.02	40.48	12.44	0.09
5000.00	1.48	328.30	4997.70	41.57	7.42	-40.21	42.22	10.12	0.20
5100.00	1.34	327.37	5097.67	43.65	6.11	-42.45	44.08	7.97	0.14
5200.00	1.03	318.86	5197.65	45.32	4.89	-44.26	45.58	6.16	0.35
5300.00	1.07	312.17	5297.64	46.62	3.60	-45.73	46.76	4.42	0.13
5400.00	1.15	315.63	5397.62	47.97	2.20	-47.25	48.02	2.63	0.10
5500.00	1.09	319.67	5497.60	49.41	0.89	-48.86	49.42	1.03	0.10
5600.00	1.00	317.21	5597.58	50.78	-0.33	-50.38	50.78	359.63	0.10
5700.00	0.95	300.65	5697.57	51.85	-1.63	-51.61	51.87	358.19	0.29

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.90	304.79	5797.55	52.72	-2.99	-52.65	52.80	356.75	0.08
5900.00	0.93	306.32	5897.54	53.65	-4.29	-53.74	53.82	355.42	0.04
6000.00	1.00	302.80	5997.53	54.60	-5.68	-54.87	54.90	354.06	0.09
6100.00	0.92	292.34	6097.51	55.38	-7.15	-55.84	55.84	352.64	0.19
6200.00	0.77	276.17	6197.50	55.75	-8.55	-56.40	56.41	351.28	0.28
6300.00	0.14	356.47	6297.50	55.95	-9.23	-56.68	56.70	350.64	0.75
6400.00	0.17	18.17	6397.50	56.21	-9.19	-56.93	56.96	350.72	0.07
6500.00	0.72	62.40	6497.50	56.64	-8.58	-57.28	57.29	351.38	0.61
6600.00	0.72	91.70	6597.49	56.92	-7.40	-57.39	57.39	352.59	0.36
6700.00	0.60	77.88	6697.48	57.01	-6.26	-57.33	57.35	353.73	0.20
6800.00	0.21	65.67	6797.48	57.19	-5.58	-57.43	57.46	354.43	0.39
6900.00	0.22	299.68	6897.48	57.36	-5.58	-57.60	57.63	354.45	0.38
7000.00	0.33	293.39	6997.48	57.57	-6.01	-57.86	57.88	354.04	0.12
7100.00	0.10	252.74	7097.48	57.66	-6.36	-57.99	58.01	353.71	0.26
7200.00	1.09	221.17	7197.47	56.92	-7.07	-57.35	57.36	352.92	1.00
7300.00	1.46	227.60	7297.45	55.35	-8.63	-56.00	56.02	351.14	0.39
7400.00	1.74	234.64	7397.41	53.61	-10.81	-54.57	54.69	348.60	0.35
7500.00	1.60	241.99	7497.36	52.07	-13.28	-53.38	53.74	345.69	0.26
7600.00	1.89	251.31	7597.32	50.89	-16.07	-52.58	53.37	342.47	0.41
7651.00	1.96	261.48	7648.29	50.49	-17.74	-52.40	53.52	340.64	0.68



VES Survey International
West Texas
(432) 563-5444
Surveyor: Noe Garza
Mossy Federal No 001H / API 30-015-42735



VES Survey Date: 12/23/2014

Fax (432) 563-7966
Archer, DDS

10600 County Road 128 W
Odessa, Texas 79765
Tel. (432) 563-7962

Archer

February 12, 2015

COG Operating, LLC
550 West Texas Ave., Suite 100
Midland, Texas 79701

RE: COG Operating, LLC
Mossy Federal 1H
Eddy County, New Mexico
API Well No. 30-015-42735
Rig: McVay 6

Dear Sir or Madam:

We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was performed.

Please see the attached Directional Survey Report, and the Directional Survey Certification Letter.

We appreciate the opportunity to work with you and we look forward to your business support. If you have any questions, I can be reached at (432) 563-7962.

Sincerely,



Juan Alcocer
MWD Coordinator
Archer Directional Drilling Services

Archer

DIRECTIONAL SURVEY REPORT

COG Operating, LLC

Mossy Federal 1H

Eddy County, New Mexico

Fax (432) 563-7966

Archer, DDS

10600 County Road 128 W

Odessa, Texas 79765

Tel. (432) 563-7962

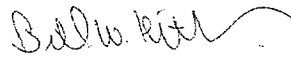
Archer

MWD Survey Certification

State of New Mexico

County of Eddy

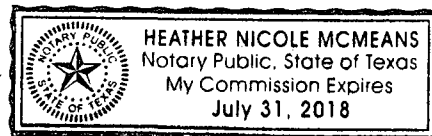
I, Bill Kitchens, certify that; I am employed by Archer Directional Drilling Services; that I did on the day(s) of 12/14/14 through 1/04/15, conduct or supervise the taking of MWD surveys from a depth of 7689 feet to a depth of 13593 feet; that the data is true, correct, complete, and within the limitations of the tool as set forth by Archer Directional Drilling Services; that I am authorized and qualified to make this report; that these surveys were conducted at the request of COG Operating, LLC for the Mossy Federal 1H, (API# 30-015-42735), Well located in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Archer Directional Drilling Services.



Bill Kitchens

MWD Operator

Cc: COG Operating, LLC




02/20/2015

Archer Survey Report

Company: COG Operating, LLC

Location: Lat, 32 1 32.39 N; Long, 104 1 16.34 W

Well: Mossy Federal 1H

Rig: McVay 6

API or UWI: 30-015-42735

Job Number: 433-1-14-0161

State: NM

Operator: COG Operating, LLC

County: Eddy

Magnetic Declination: 7.53

Comment

Proposed Azimuth: 83.59

North Reference: GRID

Tiein Survey Data:

MD	Inclination	Azimuth	TVD	NS	EW
7651.00	1.96	261.48	7648.29	50.48	-17.74

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
7689.00	1.50	260.70	7686.27	50.30	-18.87	339.43	53.73	-13.14	1.21
7720.00	1.10	267.60	7717.27	50.23	-19.57	338.71	53.90	-13.84	1.38
7751.00	0.30	317.40	7748.26	50.27	-19.92	338.38	54.08	-14.19	3.02
7783.00	2.70	68.80	7780.25	50.61	-19.28	339.15	54.15	-13.51	8.82
7814.00	4.30	77.60	7811.19	51.12	-17.46	341.14	54.02	-11.65	5.43
7846.00	5.70	86.50	7843.07	51.48	-14.70	344.06	53.53	-8.86	4.99
7877.00	8.00	78.50	7873.85	52.00	-11.05	348.00	53.16	-5.18	8.01
7909.00	11.00	72.80	7905.41	53.35	-5.95	353.63	53.68	0.04	9.81
7941.00	14.20	71.20	7936.63	55.51	0.68	0.70	55.52	6.87	10.06
7972.00	17.40	72.50	7966.46	58.13	8.70	8.51	58.78	15.14	10.38
8003.00	19.70	75.90	7995.84	60.80	18.19	16.66	63.47	24.87	8.20
8034.00	21.50	78.20	8024.86	63.24	28.82	24.50	69.50	35.70	6.37
8065.00	24.00	78.10	8053.45	65.70	40.55	31.69	77.21	47.63	8.07
8096.00	27.10	79.80	8081.41	68.25	53.68	38.18	86.83	60.96	10.27
8128.00	29.20	80.50	8109.63	70.83	68.55	44.06	98.57	76.03	6.64
8159.00	31.20	81.50	8136.42	73.26	83.95	48.89	111.42	91.60	6.65
8190.00	33.40	82.10	8162.62	75.62	100.35	53.00	125.65	108.16	7.17
8222.00	36.70	82.80	8188.81	78.03	118.56	56.65	141.94	126.53	10.39

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
8253.00	41.00	83.70	8212.95	80.31	137.87	59.78	159.55	145.97	13.99
8285.00	45.80	84.00	8236.19	82.66	159.72	62.64	179.85	167.95	15.01
8316.00	50.50	83.60	8256.87	85.16	182.67	65.01	201.55	191.04	15.19
8347.00	55.50	83.60	8275.52	87.92	207.27	67.01	225.14	215.79	16.13
8379.00	60.40	82.80	8292.50	91.13	234.19	68.74	251.30	242.90	15.46
8411.00	64.60	83.60	8307.27	94.49	262.37	70.19	278.87	271.28	13.31
8442.00	68.30	84.30	8319.65	97.48	290.62	71.46	306.54	299.69	12.11
8473.00	72.10	86.50	8330.15	99.81	319.69	72.66	334.91	328.83	13.96
8505.00	76.40	85.80	8338.84	101.88	350.41	73.79	364.92	359.60	13.60
8525.00	79.40	86.10	8343.03	103.26	369.92	74.40	384.06	379.13	15.07
8597.00	90.30	86.00	8349.48	108.20	441.35	76.23	454.42	450.67	15.14
8683.00	90.20	86.20	8349.11	114.05	527.15	77.79	539.34	536.58	0.26
8777.00	89.60	86.20	8349.27	120.28	620.94	79.04	632.48	630.49	0.64
8872.00	89.60	86.10	8349.94	126.66	715.72	79.96	726.84	725.39	0.11
8967.00	89.10	85.80	8351.01	133.36	810.48	80.66	821.38	820.30	0.61
9062.00	88.60	85.10	8352.92	140.90	905.16	81.15	916.06	915.23	0.91
9157.00	86.70	84.60	8356.81	149.42	999.69	81.50	1010.80	1010.12	2.07
9252.00	84.10	83.00	8364.43	159.64	1093.82	81.70	1105.41	1104.81	3.21
9347.00	80.90	81.60	8376.83	172.26	1187.15	81.74	1199.58	1198.96	3.67
9441.00	78.50	82.20	8393.64	185.29	1278.70	81.76	1292.06	1291.39	2.63
9535.00	79.30	83.70	8411.74	196.61	1370.24	81.83	1384.27	1383.63	1.78
9630.00	80.60	84.70	8428.32	206.06	1463.30	81.98	1477.74	1477.16	1.72
9724.00	82.90	85.50	8441.80	214.00	1555.98	82.17	1570.63	1570.15	2.59
9818.00	89.80	87.00	8447.78	220.13	1649.53	82.40	1664.16	1663.80	7.51
9912.00	92.90	87.00	8445.57	225.05	1743.37	82.64	1757.83	1757.59	3.30
10006.00	93.00	87.70	8440.73	229.39	1837.14	82.88	1851.41	1851.26	0.75
10100.00	93.90	87.80	8435.08	233.07	1930.90	83.12	1944.91	1944.85	0.96
10194.00	94.10	87.90	8428.52	236.59	2024.60	83.33	2038.38	2038.36	0.24
10288.00	93.40	88.20	8422.37	239.78	2118.35	83.54	2131.87	2131.87	0.81
10383.00	93.70	88.30	8416.49	242.68	2213.12	83.74	2226.38	2226.38	0.33
10477.00	93.60	89.00	8410.50	244.89	2306.90	83.94	2319.86	2319.82	0.75
10571.00	91.30	89.00	8406.49	246.52	2400.79	84.14	2413.42	2413.31	2.45
10665.00	88.90	87.40	8406.32	249.48	2494.74	84.29	2507.18	2506.99	3.07
10759.00	89.30	85.60	8407.80	255.21	2588.55	84.37	2601.10	2600.86	1.96
10853.00	90.00	84.80	8408.37	263.08	2682.21	84.40	2695.09	2694.82	1.13

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
10947.00	91.20	83.30	8407.39	272.82	2775.70	84.39	2789.07	2788.81	2.04
11041.00	91.70	82.90	8405.01	284.11	2868.99	84.34	2883.02	2882.77	0.68
11135.00	91.60	83.40	8402.30	295.32	2962.28	84.31	2976.96	2976.73	0.54
11230.00	90.50	83.30	8400.56	306.32	3056.62	84.28	3071.93	3071.71	1.16
11324.00	89.50	82.70	8400.56	317.77	3149.92	84.24	3165.91	3165.70	1.24
11418.00	89.10	82.70	8401.71	329.72	3243.15	84.19	3259.87	3259.69	0.43
11512.00	88.70	82.90	8403.52	341.50	3336.39	84.16	3353.82	3353.66	0.48
11606.00	88.80	83.80	8405.57	352.38	3429.74	84.13	3447.79	3447.64	0.96
11700.00	89.70	84.30	8406.80	362.12	3523.22	84.13	3541.78	3541.62	1.10
11794.00	90.50	84.30	8406.63	371.46	3616.75	84.14	3635.78	3635.61	0.85
11888.00	90.90	84.30	8405.48	380.79	3710.28	84.14	3729.77	3729.60	0.43
11982.00	90.50	83.10	8404.34	391.11	3803.71	84.13	3823.76	3823.59	1.35
12086.00	89.50	80.30	8404.34	406.12	3906.61	84.07	3927.66	3927.52	2.86
12181.00	88.40	81.00	8406.08	421.55	4000.33	83.98	4022.48	4022.38	1.37
12275.00	88.70	80.30	8408.46	436.82	4093.05	83.91	4116.29	4116.23	0.81
12369.00	88.50	81.80	8410.75	451.44	4185.87	83.84	4210.14	4210.10	1.61
12464.00	89.20	81.50	8412.66	465.23	4279.84	83.80	4305.06	4305.03	0.80
12558.00	88.20	82.80	8414.79	478.06	4372.94	83.76	4398.99	4398.97	1.74
12651.00	88.70	82.90	8417.31	489.63	4465.18	83.74	4491.94	4491.93	0.55
12745.00	89.10	82.90	8419.11	501.25	4558.44	83.72	4585.92	4585.90	0.43
12839.00	90.00	83.50	8419.85	512.38	4651.77	83.71	4679.91	4679.90	1.15
12933.00	89.30	84.20	8420.42	522.45	4745.23	83.72	4773.91	4773.89	1.05
13028.00	88.10	84.30	8422.58	531.97	4839.73	83.73	4868.88	4868.86	1.27
13122.00	88.30	84.10	8425.53	541.46	4933.20	83.74	4962.83	4962.81	0.30
13216.00	88.60	84.30	8428.07	550.96	5026.68	83.75	5056.79	5056.77	0.38
13310.00	89.60	84.50	8429.55	560.13	5120.22	83.76	5150.77	5150.75	1.08
13405.00	90.90	85.20	8429.14	568.65	5214.84	83.78	5245.75	5245.72	1.55
13499.00	90.60	85.30	8427.91	576.44	5308.50	83.80	5339.71	5339.67	0.34
13593.00	91.70	85.40	8426.02	584.06	5402.17	83.83	5433.66	5433.61	1.18
13673.00	91.70	85.40	8423.65	590.47	5481.88	83.85	5513.59	5513.53	0.00