



PHOENIX
TECHNOLOGY SERVICES

COG Operating LLC

Lea County, NM (NAD27 NME)

Little Bear Federal Com

9H

OH / 63527 / 63529

Survey: Phoenix MWD Surveys

Standard Survey Report

27 December, 2018

HOBBS OCD
AUG 15 2019
RECEIVED





Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Little Bear Federal Com
Well: 9H
Wellbore: OH / 63527 / 63529
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 9H
TVD Reference: RKB @ 3828.50usft (Ensign 155)
MD Reference: RKB @ 3828.50usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Project Lea County, NM (NAD27 NME)

Map System: US State Plane 1927 (Exact solution)

System Datum:

Mean Sea Level

Geo Datum: NAD 1927 (NADCON CONUS)

Map Zone: New Mexico East 3001

Site Little Bear Federal Com

Site Position: Northing: 555,243.20 usft Latitude: 32° 31' 26.81346 N
From: Map Easting: 737,377.40 usft Longitude: 103° 33' 47.46075 W
Position Uncertainty: 0.00 usft Slot Radius: 13-3/16 " Grid Convergence: 0.41 °

Well 9H

Well Position +N/-S 0.00 usft Northing: 554,915.70 usft Latitude: 32° 31' 23.71601 N
+E/-W 0.00 usft Easting: 735,367.00 usft Longitude: 103° 34' 10.96759 W
Position Uncertainty 0.00 usft Wellhead Elevation: usft Ground Level: 3,804.50 usft

Wellbore OH / 63527 / 63529

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	11/30/2018	6.70	60.42	48,187.08925111

Design Surveys (Ensign 155)

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	15.58

Survey Program Date 12/27/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
99.72	10,915.33	Scientific Gyro Surveys (OH / 63527 / 635	Scientific Keeper	Scientific Drilling Intl. Standard Wireline Keeper
11,000.00	18,868.00	Phoenix MWD Surveys (OH / 63527 / 6352	MWD+HDGM	OWSG Rev.2 MWD + HDGM

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,915.33	1.33	259.85	10,906.22	-235.10	-96.99	-252.51	0.00	0.00	0.00
Tie In									
10,943.00	0.79	258.31	10,933.89	-235.20	-97.49	-252.74	1.95	-1.95	-5.57
First Phoenix MWD Survey									
11,032.00	4.71	0.33	11,022.79	-231.66	-98.07	-249.49	5.55	4.40	114.63
11,079.00	12.77	3.92	11,069.20	-224.54	-97.71	-242.53	17.18	17.15	7.64
11,127.00	18.71	2.67	11,115.38	-211.55	-96.98	-229.82	12.39	12.38	-2.60
11,175.00	21.87	1.00	11,160.40	-194.91	-96.47	-213.66	6.69	6.58	-3.48
11,222.00	25.40	0.72	11,203.45	-176.07	-96.19	-195.44	7.51	7.51	-0.60



Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Little Bear Federal Com
Well: 9H
Wellbore: OH / 63527 / 63529
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 9H
TVD Reference: RKB @ 3828.50usft (Ensign 155)
MD Reference: RKB @ 3828.50usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,270.00	31.83	357.11	11,245.57	-153.11	-96.70	-173.46	13.87	13.40	-7.52
11,317.00	38.11	353.49	11,284.07	-126.30	-98.97	-148.24	14.07	13.36	-7.70
11,366.00	44.02	352.34	11,321.00	-94.37	-102.96	-118.55	12.16	12.06	-2.35
11,413.00	48.88	353.61	11,353.37	-60.57	-107.11	-87.11	10.52	10.34	2.70
11,420.49	49.43	353.79	11,358.27	-54.94	-107.73	-81.85	7.59	7.37	2.44
FTP: 11420.49' MD									
11,461.00	52.42	354.73	11,383.80	-23.65	-110.87	-52.56	7.59	7.38	2.31
11,508.00	53.97	355.22	11,411.96	13.83	-114.16	-17.33	3.40	3.30	1.04
11,555.00	59.35	357.25	11,437.78	53.00	-116.72	19.71	12.00	11.45	4.32
11,602.00	66.05	354.53	11,459.33	94.62	-119.74	58.99	15.15	14.26	-5.79
11,649.00	69.61	353.32	11,477.06	137.90	-124.35	99.43	7.94	7.57	-2.57
11,697.00	72.59	352.67	11,492.61	182.96	-129.89	141.36	6.34	6.21	-1.35
11,744.00	75.59	354.15	11,505.49	227.86	-135.07	183.21	7.06	6.38	3.15
11,793.00	76.85	356.40	11,517.16	275.28	-138.99	227.84	5.15	2.57	4.59
11,840.00	82.23	358.18	11,525.69	321.43	-141.17	271.71	12.04	11.45	3.79
11,888.00	90.39	1.61	11,528.78	369.28	-141.25	317.78	18.43	17.00	7.15
11,979.00	91.18	1.63	11,527.53	460.24	-138.68	406.09	0.87	0.87	0.02
12,075.00	90.53	1.28	11,526.10	556.20	-136.24	499.17	0.77	-0.68	-0.36
12,170.00	94.32	4.36	11,522.08	650.97	-131.58	591.72	5.14	3.99	3.24
12,266.00	93.53	2.36	11,515.51	746.57	-125.96	685.32	2.24	-0.82	-2.08
12,361.00	90.87	0.51	11,511.86	841.46	-123.59	777.36	3.41	-2.80	-1.95
12,456.00	90.39	356.69	11,510.82	936.41	-125.91	868.19	4.05	-0.51	-4.02
12,551.00	91.48	357.12	11,509.27	1,031.26	-131.04	958.18	1.23	1.15	0.45
12,646.00	90.50	356.72	11,507.63	1,126.10	-136.14	1,048.17	1.11	-1.03	-0.42
12,740.00	91.40	357.20	11,506.07	1,219.96	-141.12	1,137.24	1.09	0.96	0.51
12,835.00	91.32	357.64	11,503.81	1,314.83	-145.40	1,227.48	0.47	-0.08	0.46
12,930.00	90.62	355.88	11,502.20	1,409.66	-150.77	1,317.38	1.99	-0.74	-1.85
13,025.00	92.35	357.21	11,499.74	1,504.45	-156.49	1,407.15	2.30	1.82	1.40
13,120.00	93.28	357.84	11,495.08	1,599.25	-160.59	1,497.37	1.18	0.98	0.66
13,215.00	91.88	359.00	11,490.80	1,694.11	-163.21	1,588.04	1.91	-1.47	1.22
13,310.00	93.84	0.28	11,486.06	1,788.99	-163.80	1,679.27	2.46	2.06	1.35
13,406.00	90.48	359.80	11,482.44	1,884.90	-163.74	1,771.68	3.54	-3.50	-0.50
13,501.00	90.25	359.40	11,481.84	1,979.90	-164.40	1,863.01	0.49	-0.24	-0.42
13,596.00	88.54	359.30	11,482.84	2,074.88	-165.48	1,954.22	1.80	-1.80	-0.11
13,691.00	87.26	357.14	11,486.32	2,169.77	-168.42	2,044.82	2.64	-1.35	-2.27
13,786.00	91.40	358.96	11,487.43	2,264.68	-171.66	2,135.38	4.76	4.36	1.92
13,882.00	92.44	0.12	11,484.22	2,360.62	-172.43	2,227.59	1.62	1.08	1.21
13,977.00	92.86	359.32	11,479.82	2,455.52	-172.89	2,318.87	0.95	0.44	-0.84
14,072.00	91.90	356.69	11,475.88	2,550.37	-176.19	2,409.35	2.94	-1.01	-2.77
14,166.00	89.41	357.67	11,474.80	2,644.24	-180.82	2,498.53	2.85	-2.65	1.04
14,261.00	87.96	358.14	11,476.98	2,739.15	-184.29	2,589.02	1.60	-1.53	0.49
14,357.00	89.83	1.97	11,478.84	2,835.11	-184.20	2,681.48	4.44	1.95	3.99
14,452.00	90.53	2.10	11,478.54	2,930.05	-180.82	2,773.84	0.75	0.74	0.14
14,547.00	90.64	2.52	11,477.57	3,024.96	-176.99	2,866.30	0.46	0.12	0.44



Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Little Bear Federal Com
Well: 9H
Wellbore: OH / 63527 / 63529
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 9H
TVD Reference: RKB @ 3828.50usft (Ensign 155)
MD Reference: RKB @ 3828.50usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,641.00	91.12	0.47	11,476.12	3,118.92	-174.54	2,957.46	2.24	0.51	-2.18
14,736.00	92.75	0.46	11,472.92	3,213.86	-173.77	3,049.12	1.72	1.72	-0.01
14,830.00	93.64	0.72	11,467.68	3,307.70	-172.81	3,139.78	0.99	0.95	0.28
14,925.00	91.54	359.47	11,463.38	3,402.60	-172.65	3,231.23	2.57	-2.21	-1.32
15,020.00	92.58	359.72	11,459.97	3,497.53	-173.32	3,322.49	1.13	1.09	0.26
15,114.00	92.44	359.14	11,455.85	3,591.44	-174.25	3,412.70	0.63	-0.15	-0.62
15,208.00	93.33	359.04	11,451.12	3,685.31	-175.75	3,502.72	0.95	0.95	-0.11
15,302.00	90.92	358.71	11,447.64	3,779.22	-177.59	3,592.68	2.59	-2.56	-0.35
15,397.00	91.18	358.93	11,445.90	3,874.18	-179.55	3,683.63	0.36	0.27	0.23
15,491.00	92.10	358.85	11,443.21	3,968.12	-181.37	3,773.63	0.98	0.98	-0.09
15,586.00	91.57	358.02	11,440.16	4,063.04	-183.96	3,864.37	1.04	-0.56	-0.87
15,680.00	89.97	358.75	11,438.90	4,156.99	-186.61	3,954.15	1.87	-1.70	0.78
15,774.00	88.91	1.30	11,439.82	4,250.98	-186.57	4,044.70	2.94	-1.13	2.71
15,868.00	88.99	1.73	11,441.54	4,344.93	-184.08	4,135.86	0.47	0.09	0.46
15,963.00	89.44	0.51	11,442.84	4,439.90	-182.23	4,227.85	1.37	0.47	-1.28
16,057.00	91.43	1.10	11,442.13	4,533.88	-180.91	4,318.73	2.21	2.12	0.63
16,152.00	93.39	1.65	11,438.14	4,628.76	-178.63	4,410.74	2.14	2.06	0.58
16,247.00	92.63	0.60	11,433.15	4,723.61	-176.77	4,502.60	1.36	-0.80	-1.11
16,342.00	90.87	359.16	11,430.25	4,818.56	-176.97	4,594.01	2.39	-1.85	-1.52
16,436.00	90.00	357.89	11,429.53	4,912.52	-179.38	4,683.87	1.64	-0.93	-1.35
16,531.00	88.04	358.41	11,431.16	5,007.46	-182.45	4,774.49	2.13	-2.06	0.55
16,625.00	87.82	358.27	11,434.55	5,101.36	-185.17	4,864.21	0.28	-0.23	-0.15
16,719.00	90.06	0.21	11,436.29	5,195.32	-186.42	4,954.39	3.15	2.38	2.06
16,813.00	88.32	359.45	11,437.62	5,289.31	-186.70	5,044.85	2.02	-1.85	-0.81
16,907.00	86.64	358.04	11,441.75	5,383.19	-188.75	5,134.73	2.33	-1.79	-1.50
16,970.00	88.63	358.71	11,444.35	5,446.11	-190.54	5,194.86	3.33	3.16	1.06
17,002.00	90.39	359.09	11,444.63	5,478.10	-191.15	5,225.51	5.63	5.50	1.19
17,065.00	94.12	1.88	11,442.15	5,541.03	-190.62	5,286.27	7.39	5.92	4.43
17,096.00	94.71	2.10	11,439.76	5,571.92	-189.55	5,316.31	2.03	1.90	0.71
17,191.00	95.33	1.98	11,431.45	5,666.49	-186.18	5,408.32	0.66	0.65	-0.13
17,285.00	94.23	1.78	11,423.61	5,760.11	-183.11	5,499.32	1.19	-1.17	-0.21
17,380.00	89.94	0.46	11,420.16	5,855.01	-181.25	5,591.23	4.72	-4.52	-1.39
17,475.00	88.57	359.36	11,421.39	5,950.00	-181.40	5,682.69	1.85	-1.44	-1.16
17,569.00	90.53	358.75	11,422.13	6,043.98	-182.95	5,772.80	2.18	2.09	-0.65
17,664.00	90.64	357.94	11,421.16	6,138.93	-185.70	5,863.53	0.86	0.12	-0.85
17,759.00	92.33	358.28	11,418.70	6,233.84	-188.83	5,954.11	1.81	1.78	0.36
17,853.00	91.04	355.94	11,415.94	6,327.67	-193.56	6,043.22	2.84	-1.37	-2.49
17,947.00	89.41	357.00	11,415.57	6,421.49	-199.35	6,132.04	2.07	-1.73	1.13
18,041.00	91.26	358.73	11,415.02	6,515.42	-202.85	6,221.57	2.69	1.97	1.84
18,136.00	94.29	0.82	11,410.42	6,610.29	-203.23	6,312.86	3.87	3.19	2.20
18,230.00	93.03	0.64	11,404.42	6,704.09	-202.03	6,403.53	1.35	-1.34	-0.19
18,325.00	91.71	0.95	11,400.49	6,798.99	-200.72	6,495.31	1.43	-1.39	0.33
18,421.00	92.27	1.47	11,397.16	6,894.91	-198.69	6,588.25	0.80	0.58	0.54



Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Little Bear Federal Com
Well: 9H
Wellbore: OH / 63527 / 63529
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 9H
TVD Reference: RKB @ 3828.50usft (Ensign 155)
MD Reference: RKB @ 3828.50usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,468.00	89.86	2.01	11,396.28	6,941.88	-197.26	6,633.87	5.25	-5.13	1.15
18,515.00	91.93	2.43	11,395.55	6,988.84	-195.44	6,679.59	4.49	4.40	0.89
18,610.00	85.91	2.22	11,397.34	7,083.70	-191.59	6,772.00	6.34	-6.34	-0.22
18,704.00	84.81	1.17	11,404.94	7,177.35	-188.82	6,862.96	1.62	-1.17	-1.12
18,739.10	87.06	2.70	11,407.43	7,212.34	-187.64	6,896.98	7.74	6.41	4.35
LTP: 18739.10' MD									
18,799.00	90.90	5.29	11,408.50	7,272.06	-183.47	6,955.63	7.74	6.41	4.33
Final Phoenix MWD Survey									
18,868.00	90.90	5.29	11,407.41	7,340.76	-177.11	7,023.51	0.00	0.00	0.00
Projection to TD									

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LTP v5 - Little Bear Fed	0.00	0.00	11,407.98	7,212.33	-184.76	562,128.03	735,182.23	32° 32' 35.09520 N	103° 34' 12.52200 W
- survey misses target center by 2.92usft at 18739.31usft MD (11407.44 TVD, 7212.54 N, -187.63 E)									
- Point									
FTP v3 - Little Bear Fed	0.00	0.00	11,529.00	-54.94	-130.55	554,860.76	735,236.45	32° 31' 23.18160 N	103° 34' 12.49680 W
- survey misses target center by 136.19usft at 11515.90usft MD (11416.55 TVD, 20.24 N, -114.68 E)									
- Point									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,915.33	10,906.22	-235.10	-96.99	Tie In
10,943.00	10,933.89	-235.20	-97.49	First Phoenix MWD Survey
11,420.49	11,358.27	-54.94	-107.73	FTP: 11420.49' MD
18,739.10	11,407.43	7,212.34	-187.64	LTP: 18739.10' MD
18,799.00	11,408.50	7,272.06	-183.47	Final Phoenix MWD Survey
18,868.00	11,407.41	7,340.76	-177.11	Projection to TD

OBBS OCCURRED
15 2019

COG

LITTLE BEAR FEDERAL COM #9H

ENSIGN 155

12/19/2018

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

JAKE ELGER

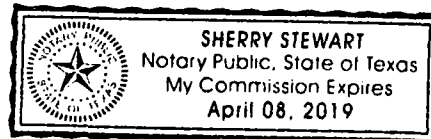
Notarized this date 11th of JANUARY, 2019.

Sherry Stewart

Notary Signature

County of Midland

State of Texas



Scientific Drilling

The

In Wellbore Placement

SURVEY REPORT

LITTLE BEAR FEDERAL COM #9H

KEEPER GYRO SURVEY

CUSTOMER COG
PROJECT Little Bear Federal Com #9H
FIELD Wildcat/Wolfcamp

SDI JOB NO. OP.015264
SDI DISTRICT Midland
SDI KIT/UNIT

SITE INFORMATION

Site Name Little Bear FED COM #9H
Lat/Long 32.523254° N, 103.569713° W
Northing 554,915.7 ft
Easting 735,367 ft

Section
Township
Range

MAP INFORMATION

North Reference Grid North
Grid Correction -0.41 deg
System US State Plane 1927
Datum North American Datum 1927 (Clarke 1866)
Map Zone New Mexico East: 3001

**WELL INFORMATION**

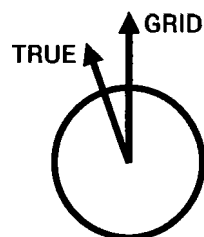
Lat/Long 32.523254° N, 103.569713° W
Northing 554,915.7 ft
Easting 735,367 ft
UWI 30-025-45105

DEPTH AND ELEVATION REFERENCE

Ground Level 3804.5 ft above Mean Sea
Level
Reference Datum RKB
Reference Height 24 ft above G.L.
Reference Elevation 3828.5 ft

VERTICAL SECTION REFERENCE

+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 358.55°
Calculation Method Minimum Curvature

**LOCAL GRAVITY REFERENCE INFORMATION**

Local Gravity 998.487 mG [computed]
True to Grid subtract 0.41°

WELL NOTES

Little Bear Federal Com #9H 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
99.72	0.63	5.45	99.72	0.55	0.55	0.05	0.63	0.55	5.45
100.00	0.63	5.51	100.00	0.55	0.55	0.05	0.24	0.55	5.45
125.00	0.63	10.86	125.00	0.82	0.82	0.09	0.24	0.83	6.36
150.00	0.60	4.49	149.99	1.09	1.09	0.13	0.30	1.10	6.70
175.00	0.60	350.26	174.99	1.35	1.35	0.12	0.60	1.35	4.91
200.00	0.66	351.96	199.99	1.62	1.62	0.07	0.23	1.62	2.60
225.00	0.75	359.50	224.99	1.92	1.93	0.05	0.51	1.93	1.55
250.00	0.85	6.59	249.99	2.27	2.27	0.07	0.56	2.27	1.82
275.00	0.95	10.51	274.98	2.66	2.66	0.13	0.48	2.66	2.82
300.00	0.94	8.51	299.98	3.06	3.07	0.20	0.13	3.07	3.72
325.00	0.86	8.00	324.98	3.45	3.46	0.26	0.34	3.47	4.23
350.00	0.84	8.62	349.98	3.81	3.82	0.31	0.08	3.84	4.63
375.00	0.86	9.83	374.97	4.18	4.19	0.37	0.12	4.21	5.03
400.00	0.89	7.40	399.97	4.56	4.57	0.43	0.18	4.59	5.33
425.00	0.92	4.80	424.97	4.95	4.96	0.47	0.22	4.98	5.39
450.00	0.94	1.50	449.96	5.35	5.37	0.49	0.22	5.39	5.22
475.00	0.97	4.04	474.96	5.77	5.78	0.51	0.20	5.80	5.05
500.00	1.01	12.12	499.96	6.19	6.21	0.57	0.58	6.23	5.26
525.00	1.00	16.59	524.95	6.61	6.63	0.68	0.32	6.67	5.85
550.00	1.04	16.32	549.95	7.04	7.06	0.81	0.17	7.10	6.52
575.00	0.98	18.18	574.94	7.45	7.48	0.94	0.28	7.54	7.14
600.00	0.90	19.10	599.94	7.84	7.87	1.07	0.31	7.94	7.73
625.00	0.79	21.82	624.94	8.18	8.22	1.20	0.49	8.30	8.29
650.00	0.68	25.96	649.94	8.47	8.51	1.33	0.47	8.61	8.86
675.00	0.46	28.36	674.94	8.69	8.73	1.44	0.89	8.85	9.36
700.00	0.31	30.86	699.93	8.84	8.88	1.52	0.62	9.01	9.72
725.00	0.31	30.72	724.93	8.95	8.99	1.59	0.01	9.13	10.03
750.00	0.30	40.66	749.93	9.06	9.10	1.67	0.22	9.25	10.38
775.00	0.25	59.75	774.93	9.13	9.18	1.76	0.41	9.35	10.84
800.00	0.31	76.99	799.93	9.17	9.22	1.87	0.41	9.41	11.47
825.00	0.28	75.52	824.93	9.20	9.25	2.00	0.11	9.47	12.18

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
850.00	0.22	79.40	849.93	9.22	9.28	2.10	0.28	9.51	12.77
875.00	0.17	74.58	874.93	9.24	9.29	2.18	0.20	9.55	13.23
900.00	0.11	47.81	899.93	9.26	9.32	2.24	0.34	9.59	13.50
925.00	0.10	352.69	924.93	9.30	9.36	2.25	0.39	9.63	13.54
950.00	0.21	60.45	949.93	9.34	9.40	2.29	0.78	9.68	13.69
975.00	0.25	72.59	974.93	9.38	9.44	2.38	0.25	9.74	14.17
1000.00	0.18	99.20	999.93	9.39	9.45	2.47	0.49	9.77	14.67
1025.00	0.07	129.30	1024.93	9.37	9.44	2.52	0.50	9.77	14.97
1050.00	0.05	179.96	1049.93	9.35	9.42	2.53	0.21	9.75	15.07
1075.00	0.12	86.34	1074.93	9.34	9.41	2.56	0.54	9.75	15.23
1100.00	0.10	98.83	1099.93	9.33	9.40	2.61	0.12	9.76	15.51
1125.00	0.12	150.63	1124.93	9.31	9.38	2.65	0.40	9.74	15.75
1150.00	0.11	116.11	1149.93	9.27	9.34	2.68	0.27	9.72	16.00
1175.00	0.05	133.43	1174.93	9.26	9.33	2.71	0.23	9.71	16.19
1200.00	0.06	263.40	1199.93	9.25	9.32	2.70	0.41	9.70	16.17
1225.00	0.04	343.36	1224.93	9.25	9.32	2.69	0.27	9.70	16.07
1250.00	0.07	18.36	1249.93	9.27	9.35	2.69	0.17	9.72	16.05
1275.00	0.10	242.88	1274.93	9.28	9.35	2.67	0.61	9.72	15.96
1300.00	0.14	265.02	1299.93	9.27	9.34	2.63	0.25	9.70	15.71
1325.00	0.19	287.29	1324.93	9.28	9.35	2.56	0.32	9.69	15.29
1350.00	0.23	290.41	1349.93	9.31	9.38	2.47	0.15	9.70	14.76
1375.00	0.23	319.87	1374.93	9.37	9.43	2.39	0.46	9.73	14.23
1400.00	0.21	337.15	1399.93	9.45	9.51	2.34	0.27	9.80	13.84
1425.00	0.17	312.58	1424.93	9.52	9.58	2.30	0.35	9.85	13.49
1450.00	0.15	296.02	1449.93	9.56	9.62	2.24	0.19	9.88	13.12
1475.00	0.18	296.24	1474.93	9.59	9.65	2.18	0.10	9.89	12.70
1500.00	0.24	273.81	1499.93	9.61	9.67	2.09	0.42	9.89	12.18
1525.00	0.23	283.78	1524.93	9.63	9.69	1.99	0.18	9.89	11.58
1550.00	0.19	292.67	1549.93	9.66	9.71	1.90	0.20	9.90	11.06
1575.00	0.31	267.78	1574.93	9.68	9.73	1.79	0.62	9.89	10.44
1600.00	0.31	279.82	1599.93	9.69	9.74	1.66	0.26	9.88	9.67
1625.00	0.29	296.00	1624.93	9.73	9.78	1.53	0.35	9.90	8.92

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
1650.00	0.24	289.66	1649.93	9.78	9.82	1.43	0.26	9.93	8.27
1675.00	0.34	272.44	1674.93	9.81	9.84	1.30	0.55	9.93	7.55
1700.00	0.45	272.75	1699.93	9.82	9.85	1.13	0.42	9.92	6.55
1725.00	0.42	282.27	1724.93	9.85	9.87	0.94	0.31	9.92	5.46
1750.00	0.31	302.46	1749.93	9.91	9.93	0.80	0.67	9.96	4.60
1775.00	0.32	298.73	1774.93	9.98	10.00	0.68	0.09	10.02	3.89
1800.00	0.32	294.72	1799.93	10.05	10.06	0.56	0.09	10.08	3.16
1825.00	0.31	279.01	1824.93	10.09	10.10	0.43	0.34	10.11	2.41
1850.00	0.35	273.44	1849.93	10.11	10.12	0.28	0.19	10.12	1.60
1875.00	0.28	291.03	1874.92	10.14	10.14	0.15	0.47	10.14	0.84
1900.00	0.18	13.87	1899.92	10.20	10.20	0.10	1.26	10.20	0.57
1925.00	0.33	46.02	1924.92	10.29	10.29	0.16	0.81	10.29	0.91
1950.00	0.44	43.18	1949.92	10.40	10.41	0.28	0.43	10.42	1.54
1975.00	0.66	50.18	1974.92	10.56	10.57	0.46	0.93	10.58	2.47
2000.00	1.05	56.12	1999.92	10.77	10.79	0.76	1.60	10.82	4.01
2025.00	1.38	59.04	2024.91	11.04	11.08	1.21	1.36	11.14	6.21
2050.00	1.56	59.79	2049.91	11.36	11.40	1.76	0.72	11.54	8.77
2075.00	1.77	59.78	2074.90	11.71	11.77	2.39	0.83	12.01	11.47
2100.00	1.90	61.09	2099.88	12.08	12.17	3.09	0.53	12.55	14.23
2125.00	1.92	60.50	2124.87	12.47	12.57	3.81	0.12	13.14	16.87
2150.00	1.94	60.31	2149.85	12.87	12.99	4.55	0.08	13.76	19.29
2175.00	1.96	60.90	2174.84	13.27	13.41	5.29	0.12	14.41	21.53
2200.00	2.20	62.06	2199.82	13.68	13.84	6.09	0.94	15.12	23.74
2225.00	2.13	63.62	2224.81	14.09	14.27	6.93	0.34	15.86	25.89
2250.00	2.01	63.34	2249.79	14.47	14.67	7.74	0.49	16.59	27.80
2275.00	2.08	62.09	2274.77	14.86	15.08	8.53	0.32	17.33	29.49
2300.00	2.21	62.71	2299.76	15.28	15.52	9.36	0.55	18.12	31.10
2325.00	2.30	64.63	2324.74	15.69	15.95	10.24	0.44	18.96	32.70
2350.00	2.39	66.93	2349.72	16.08	16.37	11.17	0.55	19.82	34.31
2375.00	2.57	68.29	2374.69	16.47	16.78	12.17	0.73	20.73	35.95
2400.00	2.56	68.81	2399.67	16.85	17.19	13.22	0.10	21.69	37.55
2425.00	2.60	68.42	2424.64	17.24	17.60	14.26	0.15	22.66	39.02

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2450.00	2.83	66.34	2449.61	17.67	18.06	15.36	1.03	23.71	40.37
2475.00	2.88	67.65	2474.58	18.12	18.55	16.50	0.32	24.83	41.66
2500.00	2.60	68.57	2499.55	18.54	18.99	17.61	1.13	25.90	42.84
2525.00	2.62	67.05	2524.53	18.94	19.42	18.66	0.29	26.94	43.86
2550.00	2.68	66.67	2549.50	19.37	19.88	19.73	0.27	28.01	44.78
2575.00	2.71	67.96	2574.47	19.80	20.33	20.81	0.26	29.09	45.67
2600.00	2.71	66.68	2599.45	20.22	20.79	21.90	0.24	30.20	46.50
2625.00	2.71	64.84	2624.42	20.68	21.27	22.98	0.35	31.31	47.21
2650.00	2.61	64.69	2649.39	21.15	21.77	24.03	0.38	32.42	47.83
2675.00	2.51	63.50	2674.37	21.61	22.25	25.04	0.48	33.50	48.37
2700.00	2.34	59.40	2699.34	22.09	22.76	25.96	0.96	34.53	48.77
2725.00	2.18	54.70	2724.32	22.61	23.29	26.79	0.99	35.50	49.00
2750.00	2.02	53.85	2749.31	23.12	23.83	27.53	0.65	36.41	49.13
2775.00	1.72	49.17	2774.29	23.61	24.33	28.17	1.33	37.22	49.19
2800.00	1.56	41.35	2799.28	24.10	24.83	28.68	1.10	37.94	49.12
2825.00	1.58	36.92	2824.27	24.62	25.36	29.11	0.49	38.61	48.94
2850.00	1.53	30.32	2849.27	25.17	25.93	29.49	0.74	39.26	48.68
2875.00	1.47	20.48	2874.26	25.75	26.51	29.77	1.06	39.86	48.31
2900.00	1.55	5.50	2899.25	26.38	27.15	29.91	1.60	40.40	47.77
2925.00	1.75	352.29	2924.24	27.10	27.86	29.90	1.72	40.87	47.01
2950.00	1.90	346.11	2949.22	27.88	28.65	29.74	0.99	41.30	46.08
2975.00	1.91	343.34	2974.21	28.69	29.45	29.53	0.37	41.70	45.08
3000.00	1.89	344.57	2999.20	29.49	30.24	29.30	0.19	42.11	44.09
3025.00	1.84	343.41	3024.18	30.28	31.03	29.07	0.24	42.52	43.14
3050.00	1.87	341.16	3049.17	31.06	31.80	28.83	0.30	42.92	42.19
3075.00	1.80	341.87	3074.16	31.82	32.56	28.57	0.27	43.32	41.27
3100.00	1.52	340.66	3099.15	32.52	33.24	28.34	1.13	43.68	40.45
3125.00	1.33	337.64	3124.14	33.10	33.82	28.12	0.85	43.99	39.74
3150.00	1.15	337.56	3149.13	33.61	34.32	27.91	0.68	44.24	39.12
3175.00	0.97	338.46	3174.13	34.04	34.75	27.74	0.76	44.47	38.60
3200.00	0.80	338.20	3199.13	34.40	35.11	27.60	0.66	44.66	38.17
3225.00	0.55	339.00	3224.13	34.68	35.39	27.49	1.02	44.81	37.84

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3250.00	0.38	328.55	3249.12	34.86	35.57	27.40	0.74	44.90	37.61
3275.00	0.32	321.18	3274.12	34.99	35.69	27.32	0.30	44.95	37.43
3300.00	0.32	319.18	3299.12	35.10	35.80	27.23	0.05	44.98	37.25
3325.00	0.30	315.99	3324.12	35.20	35.90	27.13	0.10	45.00	37.08
3350.00	0.36	317.00	3349.12	35.31	36.01	27.03	0.21	45.03	36.90
3375.00	0.35	324.39	3374.12	35.43	36.13	26.94	0.18	45.06	36.71
3400.00	0.33	316.39	3399.12	35.55	36.24	26.84	0.21	45.10	36.52
3425.00	0.39	311.86	3424.12	35.66	36.35	26.73	0.25	45.12	36.33
3450.00	0.35	326.41	3449.12	35.79	36.47	26.62	0.41	45.15	36.13
3475.00	0.35	339.53	3474.12	35.92	36.60	26.55	0.32	45.22	35.96
3500.00	0.49	7.05	3499.12	36.10	36.78	26.54	0.98	45.36	35.81
3525.00	0.75	19.35	3524.12	36.36	37.04	26.61	1.15	45.61	35.69
3550.00	0.75	21.22	3549.12	36.66	37.35	26.72	0.10	45.92	35.58
3575.00	0.76	23.07	3574.11	36.96	37.65	26.85	0.10	46.24	35.49
3600.00	0.81	22.20	3599.11	37.27	37.97	26.98	0.22	46.58	35.39
3625.00	0.86	26.80	3624.11	37.60	38.30	27.13	0.33	46.93	35.31
3650.00	0.90	27.68	3649.11	37.94	38.64	27.30	0.20	47.31	35.25
3675.00	0.96	30.35	3674.10	38.29	39.00	27.50	0.29	47.72	35.19
3700.00	1.07	34.70	3699.10	38.65	39.37	27.74	0.52	48.16	35.17
3725.00	1.14	39.73	3724.09	39.03	39.75	28.03	0.48	48.64	35.19
3750.00	1.12	45.04	3749.09	39.38	40.11	28.36	0.43	49.13	35.26
3775.00	1.12	46.87	3774.08	39.71	40.45	28.71	0.14	49.61	35.37
3800.00	1.14	55.23	3799.08	40.01	40.76	29.10	0.67	50.08	35.52
3825.00	1.12	57.65	3824.07	40.28	41.04	29.51	0.21	50.54	35.72
3850.00	1.08	59.63	3849.07	40.51	41.28	29.92	0.22	50.98	35.93
3875.00	1.08	59.78	3874.07	40.74	41.52	30.32	0.01	51.42	36.14
3900.00	1.07	58.72	3899.06	40.97	41.76	30.73	0.09	51.85	36.34
3925.00	1.04	59.70	3924.06	41.20	42.00	31.12	0.14	52.27	36.54
3950.00	1.03	61.93	3949.05	41.41	42.22	31.52	0.17	52.68	36.74
3975.00	0.93	64.35	3974.05	41.59	42.41	31.90	0.44	53.07	36.95
4000.00	0.83	66.23	3999.05	41.74	42.57	32.24	0.40	53.40	37.14
4025.00	0.85	67.21	4024.04	41.88	42.72	32.58	0.09	53.72	37.33

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4050.00	0.92	68.95	4049.04	42.01	42.86	32.94	0.29	54.06	37.54
4075.00	0.93	73.93	4074.04	42.13	42.99	33.32	0.32	54.39	37.78
4100.00	0.75	80.74	4099.03	42.20	43.07	33.68	0.82	54.67	38.02
4125.00	0.69	92.15	4124.03	42.22	43.09	33.99	0.62	54.88	38.27
4150.00	0.68	99.50	4149.03	42.18	43.06	34.29	0.36	55.04	38.53
4175.00	0.64	106.10	4174.03	42.11	43.00	34.57	0.34	55.17	38.80
4200.00	0.70	115.08	4199.03	42.00	42.90	34.84	0.49	55.26	39.08
4225.00	0.94	133.74	4224.03	41.79	42.69	35.13	1.42	55.28	39.45
4250.00	1.39	148.84	4249.02	41.38	42.29	35.43	2.15	55.17	39.96
4275.00	1.60	152.66	4274.01	40.80	41.72	35.75	0.93	54.94	40.59
4300.00	1.77	154.65	4299.00	40.14	41.06	36.07	0.73	54.66	41.30
4325.00	1.90	159.12	4323.99	39.39	40.33	36.38	0.78	54.31	42.06
4350.00	2.14	171.11	4348.97	38.54	39.48	36.60	1.94	53.84	42.84
4375.00	2.53	181.96	4373.95	37.52	38.46	36.66	2.35	53.13	43.62
4400.00	2.75	186.20	4398.93	36.38	37.32	36.57	1.17	52.25	44.42
4425.00	2.84	188.81	4423.90	35.17	36.11	36.41	0.63	51.28	45.24
4450.00	2.98	191.40	4448.86	33.93	34.86	36.19	0.74	50.25	46.08
4475.00	3.23	194.77	4473.83	32.62	33.54	35.88	1.24	49.12	46.93
4500.00	3.58	199.35	4498.78	31.22	32.12	35.45	1.78	47.84	47.81
4525.00	3.88	203.20	4523.73	29.72	30.61	34.85	1.57	46.39	48.71
4550.00	3.89	204.04	4548.67	28.18	29.06	34.17	0.23	44.86	49.63
4575.00	3.87	203.33	4573.61	26.65	27.51	33.50	0.21	43.34	50.61
4600.00	3.88	205.17	4598.56	25.13	25.97	32.80	0.50	41.84	51.63
4625.00	3.63	210.48	4623.50	23.70	24.52	32.04	1.71	40.35	52.57
4650.00	3.47	214.02	4648.46	22.41	23.21	31.22	1.10	38.90	53.37
4675.00	3.37	216.15	4673.41	21.22	21.99	30.36	0.64	37.49	54.08
4700.00	3.40	217.52	4698.37	20.06	20.81	29.47	0.35	36.08	54.78
4725.00	3.55	219.19	4723.32	18.89	19.62	28.53	0.72	34.63	55.48
4750.00	3.63	222.57	4748.27	17.74	18.44	27.51	0.90	33.12	56.17
4775.00	3.57	224.28	4773.22	16.62	17.30	26.43	0.48	31.59	56.79
4800.00	3.60	224.23	4798.17	15.53	16.18	25.34	0.10	30.06	57.44
4825.00	3.63	224.59	4823.12	14.44	15.05	24.24	0.18	28.53	58.16

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4850.00	3.57	224.81	4848.08	13.35	13.94	23.13	0.26	27.01	58.93
4875.00	3.56	225.87	4873.03	12.28	12.84	22.03	0.27	25.50	59.75
4900.00	3.38	226.89	4897.98	11.27	11.80	20.93	0.76	24.03	60.59
4925.00	3.06	227.71	4922.94	10.34	10.85	19.90	1.31	22.66	61.40
4950.00	2.77	228.72	4947.91	9.52	10.00	18.95	1.15	21.43	62.18
4975.00	2.73	227.70	4972.88	8.74	9.20	18.06	0.26	20.27	63.00
5000.00	2.76	229.56	4997.85	7.97	8.41	17.16	0.37	19.11	63.89
5025.00	2.72	229.39	5022.82	7.22	7.63	16.25	0.15	17.95	64.84
5050.00	2.62	228.11	5047.80	6.47	6.87	15.38	0.46	16.84	65.94
5075.00	2.59	230.01	5072.77	5.75	6.12	14.52	0.37	15.76	67.14
5100.00	2.52	231.23	5097.75	5.07	5.41	13.66	0.34	14.69	68.37
5125.00	2.48	230.86	5122.72	4.40	4.73	12.81	0.19	13.65	69.74
5150.00	2.43	229.56	5147.70	3.74	4.04	11.98	0.29	12.65	71.36
5175.00	2.45	229.48	5172.68	3.07	3.35	11.17	0.06	11.67	73.31
5200.00	2.49	230.24	5197.65	2.39	2.66	10.35	0.22	10.69	75.60
5225.00	2.48	232.42	5222.63	1.74	1.98	9.50	0.38	9.71	78.24
5250.00	2.40	233.23	5247.61	1.12	1.34	8.66	0.37	8.76	81.22
5275.00	2.32	233.14	5272.59	0.52	0.72	7.83	0.31	7.87	84.74
5300.00	2.28	233.13	5297.57	-0.06	0.12	7.03	0.17	7.03	89.03
5325.00	2.22	232.32	5322.55	-0.63	-0.47	6.25	0.26	6.27	94.34
5350.00	2.09	232.03	5347.53	-1.19	-1.05	5.51	0.52	5.61	100.80
5375.00	2.00	232.42	5372.51	-1.72	-1.60	4.80	0.37	5.06	108.39
5400.00	2.00	231.70	5397.50	-2.24	-2.13	4.12	0.10	4.64	117.40
5425.00	1.97	230.38	5422.48	-2.76	-2.68	3.44	0.23	4.36	127.87
5450.00	1.96	230.63	5447.47	-3.29	-3.22	2.78	0.04	4.26	139.20
5475.00	1.95	230.57	5472.45	-3.82	-3.76	2.12	0.05	4.32	150.59
5500.00	1.97	233.53	5497.44	-4.33	-4.29	1.45	0.41	4.53	161.35
5525.00	1.96	235.33	5522.42	-4.81	-4.79	0.75	0.25	4.85	171.09
5550.00	1.88	232.90	5547.41	-5.28	-5.28	0.07	0.46	5.28	179.21
5575.00	1.79	233.42	5572.40	-5.74	-5.76	-0.57	0.37	5.79	185.62
5600.00	1.71	238.36	5597.39	-6.15	-6.19	-1.20	0.69	6.30	190.94
5625.00	1.65	240.94	5622.37	-6.51	-6.56	-1.83	0.38	6.81	195.57

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
5650.00	1.55	239.32	5647.36	-6.84	-6.90	-2.43	0.43	7.32	199.41
5675.00	1.49	237.62	5672.36	-7.17	-7.25	-3.00	0.29	7.84	202.47
5700.00	1.49	242.25	5697.35	-7.48	-7.58	-3.56	0.48	8.37	205.18
5725.00	1.43	245.06	5722.34	-7.75	-7.86	-4.13	0.38	8.88	207.74
5750.00	1.35	242.93	5747.33	-8.00	-8.12	-4.68	0.39	9.38	209.94
5775.00	1.35	243.40	5772.33	-8.26	-8.39	-5.20	0.05	9.87	211.81
5800.00	1.30	245.51	5797.32	-8.49	-8.64	-5.73	0.28	10.36	213.53
5825.00	1.16	244.09	5822.31	-8.71	-8.87	-6.21	0.56	10.83	215.01
5850.00	1.10	240.83	5847.31	-8.92	-9.09	-6.65	0.37	11.27	216.16
5875.00	1.24	244.17	5872.30	-9.15	-9.33	-7.10	0.62	11.72	217.27
5900.00	1.39	241.49	5897.30	-9.40	-9.59	-7.61	0.64	12.24	218.42
5925.00	1.72	232.74	5922.29	-9.75	-9.96	-8.17	1.62	12.88	219.36
5950.00	2.17	229.82	5947.27	-10.27	-10.49	-8.83	1.87	13.71	220.08
5975.00	2.38	230.59	5972.25	-10.88	-11.13	-9.59	0.85	14.69	220.76
6000.00	2.41	230.99	5997.23	-11.52	-11.79	-10.40	0.13	15.72	221.42
6025.00	2.30	228.24	6022.21	-12.17	-12.45	-11.19	0.62	16.74	221.93
6050.00	2.31	226.07	6047.19	-12.83	-13.14	-11.92	0.35	17.74	222.22
6075.00	2.37	225.33	6072.17	-13.53	-13.85	-12.65	0.29	18.76	222.41
6100.00	2.56	224.24	6097.15	-14.27	-14.62	-13.41	0.77	19.84	222.54
6125.00	2.97	223.06	6122.12	-15.12	-15.49	-14.24	1.67	21.04	222.60
6150.00	3.10	221.84	6147.08	-16.08	-16.47	-15.14	0.56	22.37	222.59
6175.00	3.03	219.34	6172.05	-17.07	-17.48	-16.01	0.60	23.70	222.48
6200.00	2.95	210.89	6197.01	-18.11	-18.54	-16.76	1.79	24.99	222.10
6225.00	3.02	201.58	6221.98	-19.26	-19.71	-17.33	1.96	26.24	221.32
6250.00	3.01	199.33	6246.94	-20.48	-20.94	-17.79	0.48	27.48	220.35
6275.00	2.91	198.47	6271.91	-21.69	-22.16	-18.21	0.46	28.68	219.40
6300.00	2.88	196.22	6296.88	-22.89	-23.37	-18.58	0.47	29.85	218.50
6325.00	2.88	197.15	6321.85	-24.08	-24.57	-18.94	0.19	31.02	217.63
6350.00	2.72	198.55	6346.82	-25.23	-25.73	-19.32	0.69	32.17	216.90
6375.00	2.57	198.71	6371.79	-26.31	-26.82	-19.68	0.59	33.27	216.28
6400.00	2.44	197.58	6396.77	-27.34	-27.86	-20.03	0.58	34.31	215.71
6425.00	2.42	195.92	6421.74	-28.35	-28.87	-20.33	0.29	35.31	215.15

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
6450.00	2.35	196.94	6446.72	-29.34	-29.87	-20.62	0.35	36.30	214.62
6475.00	2.18	199.06	6471.70	-30.27	-30.81	-20.93	0.73	37.25	214.19
6500.00	2.12	198.86	6496.69	-31.15	-31.70	-21.23	0.24	38.15	213.82
6525.00	2.08	197.59	6521.67	-32.02	-32.57	-21.52	0.24	39.04	213.46
6550.00	2.14	196.60	6546.65	-32.89	-33.45	-21.79	0.27	39.92	213.08
6575.00	2.38	197.29	6571.63	-33.82	-34.39	-22.08	0.97	40.87	212.70
6600.00	2.59	197.99	6596.61	-34.85	-35.43	-22.41	0.86	41.92	212.31
6625.00	2.65	198.27	6621.58	-35.93	-36.51	-22.76	0.22	43.03	211.94
6650.00	2.70	197.73	6646.55	-37.03	-37.62	-23.12	0.24	44.16	211.58
6675.00	3.14	192.20	6671.52	-38.25	-38.85	-23.45	2.09	45.38	211.11
6700.00	3.72	186.00	6696.48	-39.72	-40.33	-23.68	2.74	46.77	210.42
6725.00	3.87	183.29	6721.42	-41.36	-41.98	-23.81	0.93	48.26	209.56
6750.00	3.89	184.09	6746.37	-43.05	-43.66	-23.92	0.23	49.79	208.71
6775.00	3.84	184.69	6771.31	-44.72	-45.34	-24.05	0.24	51.33	207.94
6800.00	3.76	183.40	6796.25	-46.37	-47.00	-24.17	0.46	52.85	207.21
6825.00	3.73	183.47	6821.20	-48.00	-48.63	-24.26	0.16	54.35	206.52
6850.00	3.66	182.16	6846.15	-49.60	-50.23	-24.34	0.44	55.82	205.85
6875.00	3.58	180.83	6871.10	-51.18	-51.81	-24.38	0.45	57.26	205.20
6900.00	3.54	180.65	6896.05	-52.73	-53.36	-24.40	0.19	58.68	204.58
6925.00	3.48	181.73	6921.00	-54.26	-54.89	-24.44	0.35	60.09	204.00
6950.00	3.45	182.80	6945.96	-55.76	-56.40	-24.50	0.29	61.49	203.48
6975.00	3.41	183.21	6970.91	-57.25	-57.89	-24.57	0.19	62.89	203.00
7000.00	3.41	182.96	6995.87	-58.74	-59.38	-24.65	0.07	64.29	202.55
7025.00	3.44	183.00	7020.82	-60.23	-60.87	-24.73	0.12	65.70	202.11
7050.00	3.37	183.23	7045.78	-61.71	-62.36	-24.81	0.28	67.11	201.70
7075.00	3.34	183.46	7070.74	-63.17	-63.82	-24.90	0.17	68.50	201.31
7100.00	3.32	184.23	7095.70	-64.61	-65.26	-25.00	0.19	69.89	200.96
7125.00	3.18	187.51	7120.65	-66.02	-66.67	-25.14	0.93	71.26	200.66
7150.00	2.93	192.81	7145.62	-67.32	-67.98	-25.37	1.51	72.56	200.47
7175.00	2.79	198.45	7170.59	-68.51	-69.18	-25.71	1.26	73.80	200.38
7200.00	2.77	200.09	7195.56	-69.64	-70.33	-26.11	0.32	75.02	200.36
7225.00	2.73	199.35	7220.53	-70.76	-71.46	-26.51	0.24	76.22	200.35

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
7250.00	2.71	200.18	7245.50	-71.87	-72.57	-26.91	0.16	77.40	200.35
7275.00	2.73	200.80	7270.47	-72.97	-73.68	-27.33	0.13	78.59	200.35
7300.00	2.68	202.60	7295.45	-74.05	-74.78	-27.76	0.39	79.77	200.37
7325.00	2.62	203.07	7320.42	-75.11	-75.85	-28.21	0.26	80.92	200.40
7350.00	2.64	201.36	7345.39	-76.16	-76.91	-28.65	0.32	82.07	200.43
7375.00	2.67	202.13	7370.37	-77.22	-77.98	-29.07	0.19	83.23	200.45
7400.00	2.60	203.25	7395.34	-78.27	-79.04	-29.52	0.36	84.37	200.48
7425.00	2.48	201.01	7420.32	-79.29	-80.07	-29.93	0.60	85.48	200.50
7450.00	2.50	199.37	7445.29	-80.30	-81.09	-30.31	0.29	86.57	200.50
7475.00	2.52	199.53	7470.27	-81.32	-82.12	-30.67	0.07	87.66	200.48
7500.00	2.44	199.34	7495.24	-82.33	-83.14	-31.03	0.29	88.75	200.47
7525.00	2.28	197.74	7520.22	-83.30	-84.12	-31.36	0.72	89.77	200.45
7550.00	2.16	194.80	7545.20	-84.22	-85.05	-31.63	0.64	90.74	200.40
7575.00	2.27	195.67	7570.19	-85.15	-85.98	-31.89	0.43	91.70	200.35
7600.00	2.22	196.43	7595.17	-86.08	-86.92	-32.16	0.22	92.68	200.30
7625.00	2.12	195.16	7620.15	-86.98	-87.83	-32.42	0.46	93.62	200.26
7650.00	2.17	196.02	7645.13	-87.88	-88.73	-32.67	0.26	94.55	200.21
7675.00	2.18	197.00	7670.11	-88.78	-89.64	-32.94	0.15	95.50	200.18
7700.00	2.19	197.20	7695.09	-89.68	-90.55	-33.22	0.06	96.45	200.15
7725.00	2.38	199.97	7720.07	-90.62	-91.50	-33.54	0.86	97.45	200.13
7750.00	2.60	203.04	7745.05	-91.62	-92.51	-33.94	1.04	98.53	200.15
7775.00	2.71	203.34	7770.02	-92.67	-93.57	-34.39	0.46	99.69	200.18
7800.00	2.96	203.51	7794.99	-93.79	-94.71	-34.88	0.98	100.93	200.22
7825.00	3.43	202.75	7819.95	-95.06	-95.99	-35.43	1.90	102.32	200.26
7850.00	3.90	201.27	7844.90	-96.53	-97.47	-36.03	1.91	103.92	200.29
7875.00	4.09	200.66	7869.84	-98.14	-99.10	-36.65	0.77	105.66	200.30
7900.00	4.13	200.90	7894.78	-99.79	-100.77	-37.29	0.17	107.45	200.31
7925.00	4.13	201.02	7919.71	-101.46	-102.45	-37.93	0.04	109.25	200.32
7950.00	4.11	200.21	7944.65	-103.12	-104.13	-38.56	0.25	111.04	200.32
7975.00	4.04	199.11	7969.59	-104.78	-105.81	-39.16	0.41	112.82	200.31
8000.00	4.04	200.41	7994.52	-106.42	-107.47	-39.76	0.37	114.58	200.30
8025.00	4.07	201.17	8019.46	-108.06	-109.12	-40.39	0.23	116.35	200.31

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8050.00	3.98	198.93	8044.40	-109.69	-110.76	-40.99	0.72	118.10	200.31
8075.00	3.99	198.38	8069.34	-111.32	-112.41	-41.54	0.17	119.84	200.28
8100.00	3.96	199.63	8094.28	-112.95	-114.05	-42.11	0.38	121.57	200.26
8125.00	3.97	199.82	8119.22	-114.56	-115.68	-42.69	0.08	123.30	200.26
8150.00	3.95	199.41	8144.16	-116.17	-117.30	-43.27	0.14	125.03	200.25
8175.00	3.89	200.22	8169.10	-117.76	-118.91	-43.85	0.34	126.74	200.24
8200.00	3.75	200.17	8194.05	-119.31	-120.47	-44.42	0.56	128.40	200.24
8225.00	3.67	200.05	8218.99	-120.81	-121.99	-44.98	0.31	130.02	200.24
8250.00	3.65	199.54	8243.94	-122.30	-123.49	-45.52	0.14	131.61	200.23
8275.00	3.72	199.54	8268.89	-123.80	-125.01	-46.06	0.28	133.22	200.23
8300.00	3.72	200.35	8293.84	-125.31	-126.53	-46.61	0.21	134.84	200.22
8325.00	3.60	199.96	8318.79	-126.80	-128.03	-47.16	0.50	136.44	200.22
8350.00	3.62	199.70	8343.74	-128.26	-129.51	-47.69	0.11	138.01	200.22
8375.00	3.63	200.47	8368.69	-129.73	-130.99	-48.24	0.20	139.59	200.22
8400.00	3.59	200.61	8393.64	-131.19	-132.47	-48.79	0.17	141.17	200.22
8425.00	3.51	201.40	8418.59	-132.62	-133.91	-49.34	0.35	142.71	200.23
8450.00	3.38	201.99	8443.54	-134.00	-135.31	-49.90	0.56	144.22	200.24
8475.00	3.32	200.95	8468.50	-135.35	-136.67	-50.43	0.35	145.68	200.26
8500.00	3.39	200.51	8493.46	-136.70	-138.04	-50.95	0.30	147.14	200.26
8525.00	3.41	200.81	8518.41	-138.08	-139.42	-51.47	0.13	148.62	200.26
8550.00	3.31	201.38	8543.37	-139.43	-140.79	-52.00	0.43	150.09	200.27
8575.00	3.26	201.39	8568.33	-140.75	-142.13	-52.53	0.21	151.52	200.28
8600.00	3.23	200.13	8593.29	-142.06	-143.45	-53.03	0.30	152.94	200.29
8625.00	3.24	199.25	8618.25	-143.38	-144.78	-53.50	0.20	154.35	200.28
8650.00	3.29	199.67	8643.21	-144.71	-146.12	-53.98	0.21	155.77	200.27
8675.00	3.28	200.51	8668.17	-146.04	-147.47	-54.47	0.19	157.20	200.27
8700.00	3.20	201.33	8693.13	-147.35	-148.78	-54.97	0.36	158.62	200.28
8725.00	3.04	201.24	8718.09	-148.60	-150.05	-55.47	0.64	159.98	200.29
8750.00	2.75	198.64	8743.06	-149.78	-151.24	-55.90	1.27	161.24	200.28
8775.00	2.55	196.68	8768.03	-150.87	-152.34	-56.25	0.88	162.39	200.27
8800.00	2.72	199.06	8793.01	-151.95	-153.43	-56.60	0.80	163.54	200.25
8825.00	2.54	200.30	8817.98	-153.02	-154.52	-56.99	0.74	164.69	200.25

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8850.00	2.39	201.40	8842.96	-154.02	-155.52	-57.37	0.66	165.76	200.25
8875.00	2.26	201.70	8867.94	-154.95	-156.46	-57.74	0.52	166.78	200.26
8900.00	2.26	202.98	8892.92	-155.85	-157.37	-58.12	0.20	167.76	200.27
8925.00	2.36	204.33	8917.90	-156.76	-158.30	-58.52	0.44	168.77	200.29
8950.00	2.32	203.15	8942.88	-157.69	-159.23	-58.93	0.24	169.79	200.31
8975.00	2.52	205.76	8967.85	-158.64	-160.19	-59.37	0.90	170.84	200.34
9000.00	2.72	206.84	8992.83	-159.65	-161.22	-59.88	0.80	171.98	200.38
9025.00	2.79	206.55	9017.80	-160.71	-162.29	-60.42	0.28	173.17	200.42
9050.00	2.81	207.54	9042.77	-161.78	-163.37	-60.97	0.21	174.38	200.47
9075.00	2.62	208.95	9067.74	-162.81	-164.42	-61.53	0.79	175.56	200.52
9100.00	2.49	210.25	9092.72	-163.76	-165.39	-62.08	0.56	176.66	200.58
9125.00	2.46	210.30	9117.69	-164.68	-166.32	-62.63	0.14	177.72	200.63
9150.00	2.33	211.79	9142.67	-165.57	-167.22	-63.17	0.57	178.75	200.69
9175.00	2.22	212.67	9167.65	-166.39	-168.06	-63.70	0.48	179.72	200.76
9200.00	2.02	212.52	9192.63	-167.16	-168.84	-64.19	0.79	180.63	200.82
9225.00	1.85	209.63	9217.62	-167.87	-169.56	-64.63	0.78	181.46	200.87
9250.00	1.80	208.35	9242.61	-168.56	-170.25	-65.02	0.27	182.25	200.90
9275.00	1.69	206.41	9267.60	-169.22	-170.93	-65.37	0.50	183.00	200.93
9300.00	1.66	202.70	9292.58	-169.88	-171.59	-65.67	0.45	183.73	200.94
9325.00	1.97	195.20	9317.57	-170.62	-172.34	-65.92	1.55	184.52	200.93
9350.00	2.54	188.04	9342.55	-171.58	-173.31	-66.11	2.56	185.49	200.88
9375.00	2.87	185.05	9367.52	-172.75	-174.48	-66.25	1.43	186.63	200.79
9400.00	2.78	185.11	9392.49	-173.97	-175.71	-66.35	0.37	187.82	200.69
9425.00	2.55	188.59	9417.47	-175.12	-176.86	-66.49	1.12	188.95	200.60
9450.00	2.31	192.21	9442.44	-176.16	-177.90	-66.68	1.13	189.99	200.55
9475.00	2.18	193.61	9467.43	-177.11	-178.86	-66.90	0.57	190.96	200.51
9500.00	2.14	196.02	9492.41	-178.01	-179.77	-67.14	0.39	191.90	200.48
9525.00	2.33	199.08	9517.39	-178.94	-180.70	-67.44	0.90	192.87	200.47
9550.00	2.54	203.27	9542.37	-179.91	-181.69	-67.82	1.08	193.93	200.47
9575.00	2.58	206.11	9567.34	-180.92	-182.70	-68.29	0.53	195.05	200.49
9600.00	2.63	206.93	9592.32	-181.92	-183.72	-68.79	0.25	196.18	200.53
9625.00	2.62	206.38	9617.29	-182.93	-184.74	-69.31	0.11	197.31	200.56

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
9650.00	2.46	205.98	9642.26	-183.91	-185.74	-69.80	0.63	198.42	200.60
9675.00	2.31	206.45	9667.24	-184.83	-186.67	-70.26	0.64	199.45	200.62
9700.00	2.19	207.21	9692.22	-185.70	-187.55	-70.70	0.46	200.43	200.66
9725.00	1.99	208.05	9717.21	-186.49	-188.35	-71.12	0.83	201.33	200.69
9750.00	1.85	209.53	9742.19	-187.22	-189.09	-71.52	0.59	202.16	200.72
9775.00	1.89	207.85	9767.18	-187.92	-189.80	-71.92	0.28	202.97	200.75
9800.00	2.31	202.88	9792.16	-188.74	-190.63	-72.30	1.81	203.88	200.77
9825.00	2.95	198.74	9817.14	-189.80	-191.70	-72.71	2.69	205.03	200.77
9850.00	3.25	197.75	9842.10	-191.08	-192.99	-73.13	1.20	206.38	200.75
9875.00	3.29	198.09	9867.06	-192.42	-194.34	-73.57	0.19	207.80	200.73
9900.00	3.28	198.41	9892.02	-193.77	-195.70	-74.02	0.08	209.23	200.72
9925.00	3.29	198.92	9916.98	-195.11	-197.06	-74.48	0.12	210.67	200.70
9950.00	3.35	199.62	9941.94	-196.47	-198.43	-74.95	0.30	212.11	200.69
9975.00	3.29	200.81	9966.89	-197.82	-199.79	-75.45	0.37	213.56	200.69
10000.00	3.20	202.20	9991.85	-199.12	-201.11	-75.97	0.48	214.98	200.70
10025.00	3.23	201.82	10016.81	-200.41	-202.41	-76.50	0.13	216.38	200.70
10050.00	3.23	201.82	10041.77	-201.70	-203.71	-77.02	0.01	217.79	200.71
10075.00	3.14	202.64	10066.74	-202.97	-205.00	-77.55	0.41	219.17	200.72
10100.00	3.12	204.29	10091.70	-204.21	-206.25	-78.09	0.36	220.54	200.74
10125.00	3.08	205.28	10116.66	-205.42	-207.48	-78.66	0.27	221.89	200.76
10150.00	2.98	206.28	10141.63	-206.60	-208.67	-79.23	0.45	223.21	200.79
10175.00	2.92	207.68	10166.59	-207.73	-209.82	-79.82	0.40	224.48	200.83
10200.00	2.81	208.16	10191.56	-208.82	-210.92	-80.40	0.43	225.72	200.87
10225.00	2.63	209.59	10216.53	-209.84	-211.96	-80.97	0.79	226.90	200.91
10250.00	2.46	209.63	10241.51	-210.79	-212.92	-81.52	0.68	227.99	200.95
10275.00	2.38	209.28	10266.49	-211.69	-213.84	-82.04	0.33	229.04	200.99
10300.00	2.21	211.37	10291.47	-212.54	-214.70	-82.54	0.74	230.02	201.03
10325.00	1.98	214.63	10316.45	-213.30	-215.47	-83.04	1.02	230.92	201.08
10350.00	1.81	215.46	10341.44	-213.97	-216.15	-83.51	0.70	231.72	201.13
10375.00	1.72	213.01	10366.42	-214.59	-216.78	-83.95	0.49	232.47	201.17
10400.00	1.72	210.86	10391.41	-215.22	-217.42	-84.34	0.26	233.21	201.20
10425.00	1.82	211.08	10416.40	-215.87	-218.08	-84.74	0.39	233.97	201.23

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
10450.00	1.84	212.07	10441.39	-216.54	-218.76	-85.16	0.17	234.75	201.27
10475.00	1.96	213.73	10466.38	-217.22	-219.46	-85.61	0.53	235.56	201.31
10500.00	2.33	217.51	10491.36	-217.97	-220.22	-86.16	1.57	236.47	201.37
10525.00	2.51	220.13	10516.34	-218.77	-221.04	-86.82	0.84	237.48	201.44
10550.00	2.69	222.38	10541.31	-219.60	-221.89	-87.57	0.84	238.54	201.54
10575.00	2.86	220.84	10566.28	-220.49	-222.79	-88.37	0.74	239.68	201.64
10600.00	2.98	216.17	10591.25	-221.46	-223.79	-89.16	1.06	240.90	201.72
10625.00	3.12	211.30	10616.21	-222.55	-224.90	-89.90	1.17	242.20	201.79
10650.00	3.20	206.37	10641.17	-223.74	-226.10	-90.56	1.14	243.56	201.83
10675.00	3.39	204.27	10666.13	-225.02	-227.40	-91.18	0.89	245.00	201.85
10700.00	3.47	203.00	10691.09	-226.38	-228.77	-91.77	0.43	246.49	201.86
10725.00	3.44	203.36	10716.04	-227.74	-230.16	-92.37	0.15	248.00	201.87
10750.00	3.29	205.57	10741.00	-229.06	-231.49	-92.97	0.79	249.46	201.88
10775.00	2.89	210.10	10765.96	-230.24	-232.68	-93.60	1.87	250.80	201.91
10800.00	2.33	218.48	10790.94	-231.17	-233.63	-94.23	2.70	251.92	201.97
10825.00	1.81	231.70	10815.92	-231.80	-234.27	-94.86	2.82	252.75	202.04
10850.00	1.54	244.80	10840.91	-232.17	-234.66	-95.47	1.87	253.34	202.14
10875.00	1.40	253.18	10865.90	-232.38	-234.89	-96.07	1.04	253.78	202.24
10900.00	1.31	258.45	10890.90	-232.52	-235.04	-96.64	0.59	254.13	202.35
10915.33	1.33	259.85	10906.22	-232.57	-235.10	-96.99	0.22	254.32	202.42

		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots
From Bottom to Top	18,770	20	4	18,560	73	4	18,375	27	4	18,175	32	4	17,986	32	4	
	18,750	19	4	18,550	25	4	18,354	29	4	18,158	25	4	17,962	25	4	
	18,731	20	4	18,525	24	4	18,325	20	4	18,133	24	4	17,937	24	4	
	18,711	19	4	18,501	25	4	18,305	25	4	18,109	25	4	17,913	24	4	
	18,692	20	4	18,476	24	4	18,280		4	18,084	19	4	17,889	25	4	
	18,672	19	4	18,452	25	4	18,256	25	4	18,065	30	4	17,864	24	4	
	18,653	20	3	18,427	24	3	18,231	24	3	18,035	17	3	17,840	25	3	
	18,633		3	18,403		3	18,207		3	18,018		3	17,815		3	
	Plug to Plug	78	30	Plug to Plug	70	30	Plug to Plug	85	30	Plug to Plug	79	30	Plug to Plug	86	30	
	Frac Plug	18,789	Total Shots	Frac Plug	18,571	Total Shots	Frac Plug	18,390	Total Shots	Frac Plug	18,168	Total Shots	Frac Plug	17,999	Total Shots	

		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots
From Bottom to Top	17,791	24	4	17,590	29	4	17,399	24	4	17,196	32	4	17,004	28	4	
	17,766	20	4	17,570	24	4	17,347	-3	4	17,179	25	4	16,983	25	4	
	17,746	29	4	17,546	25	4	17,350	25	4	17,154	24	4	16,958	24	4	
	17,717	27	4	17,521	24	4	17,325	24	4	17,130	25	4	16,934	20	4	
	17,690	22	4	17,497	25	4	17,301	24	4	17,105	24	4	16,914	29	4	
	17,668	24	4	17,472	24	4	17,277	25	4	17,081	25	4	16,885	25	4	
	17,644	25	3	17,448	25	3	17,252	24	3	17,056	24	3	16,860	24	3	
	17,619		3	17,423		3	17,228		3	17,032		3	16,836		3	
	Plug to Plug	86	30	Plug to Plug	85	30	Plug to Plug	86	30	Plug to Plug	80	30	Plug to Plug	82	30	
	Frac Plug	17,803	Total Shots	Frac Plug	17,606	Total Shots	Frac Plug	17,411	Total Shots	Frac Plug	17,210	Total Shots	Frac Plug	17,016	Total Shots	

		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots
From Bottom to Top	16,798	38	4	16,616	24	4	16,412	32	4	16,224	24	4	16,028	24	4	
	16,780	18	4	16,595	28	4	16,395	24	4	16,199	24	4	16,003	24	4	
	16,762	24	4	16,567	27	4	16,371	25	4	16,175	25	4	15,979	29	4	
	16,738	25	4	16,540	22	4	16,346	24	4	16,150	24	4	15,950	20	4	
	16,713	24	4	16,518	25	4	16,322	25	4	16,126	25	4	15,930	25	4	
	16,689	25	4	16,493	24	4	16,297	27	4	16,101	24	4	15,905	24	4	
	16,664	24	3	16,469	25	3	16,270	22	3	16,077	25	3	15,881	24	3	
	16,640		3	16,444		3	16,248		3	16,052		3	15,857		3	
	Plug to Plug	72	30	Plug to Plug	88	30	Plug to Plug	84	30	Plug to Plug	86	30	Plug to Plug	90	30	
	Frac Plug	16,810	Total Shots	Frac Plug	16,628	Total Shots	Frac Plug	16,430	Total Shots	Frac Plug	16,236	Total Shots	Frac Plug	16,040	Total Shots	

		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots
From Bottom to Top	15,825	32	4	15,636	25	4	15,430	38	4	15,245	28	4	15,046	27	4	
	15,808	25	4	15,612	34	4	15,412	21	4	15,220	24	4	15,024	24	4	
	15,783	24	4	15,578	15	4	15,391	24	4	15,196	25	4	15,000	25	4	
	15,759	25	4	15,563	26	4	15,367	24	4	15,171	24	4	14,975	24	4	
	15,734	24	4	15,537	23	4	15,343	25	4	15,147	25	4	14,951	25	4	
	15,710	25	4	15,514	25	4	15,318	24	4	15,122	24	4	14,926	20	4	
	15,685	24	3	15,489	21	3	15,294	21	3	15,098	25	3	14,906	29	3	
	15,661		3	15,468		3	15,273		3	15,073		3	14,877		3	
	Plug to Plug	81	30	Plug to Plug	86	30	Plug to Plug	76	30	Plug to Plug	86	30	Plug to Plug	85	30	
	Frac Plug	15,840	Total Shots	Frac Plug	15,649	Total Shots	Frac Plug	15,443	Total Shots	Frac Plug	15,257	Total Shots	Frac Plug	15,060	Total Shots	

		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots
From Bottom to Top	14,853	24	4	14,646	36	4	14,461	31	4	14,265	25	4	14,069	25	4	
	14,828	24	4	14,630	22	4	14,437	25	4	14,241	25	4	14,045	24	4	
	14,804	25	4	14,608	24	4	14,412	24	4	14,216	24	4	14,021	25	4	
	14,779	24	4	14,584	25	4	14,388	25	4	14,192	23	4	13,996	24	4	
	14,755	25	4	14,559	21	4	14,363	24	4	14,169	26	4	13,972	25	4	
	14,730	24	4	14,538	28	4	14,339	25	4	14,143	25	4	13,947	24	4	
	14,706	24	3	14,510	18	3	14,314	24	3	14,118	24	3	13,923	25	3	
	14,682		3	14,492		3	14,290		3	14,094		3	13,898		3	
	Plug to Plug	86	30	Plug to Plug	76	30	Plug to Plug	85	30	Plug to Plug	86	30	Plug to Plug	86	30	
	Frac Plug	14,865	Total Shots	Frac Plug	14,660	Total Shots	Frac Plug	14,473	Total Shots	Frac Plug	14,278	Total Shots	Frac Plug	14,082	Total Shots	

		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots		Distance Between Perfs		Shots
From Bottom to Top	13,870	28	4	13,678	24	4	13,482	24	4	13,280	31	4	13,090	25	4	
	13,849	24	4	13,653	24	4	13,457	24	4	13,262	25	4	13,066	25	4	
	13,825	28	4	13,629	25	4	13,433	24	4	13,237	24	4	13,041	24	4	
	13,797	21	4	13,604	24	4	13,409	25	4	13,213	25	4	13,017	25	4	
	13,776	25	4	13,580	25	4	13,384	24	4	13,188	28	4	12,992	24	4	
	13,751	24	4	13,555	21	4	13,360	25	4	13,160	21	4	12,968	25	4	
	13,727	25	3	13,534	28	3	13,335	24	3	13,139	24	3	12,943	24	3	
	13,702		3	13,506		3	13,311		3	13,115		3	12,919		3	
	Plug to Plug	85	30	Plug to Plug	86	30	Plug to Plug	85	30	Plug to Plug	52	30	Plug to Plug	85	30	
	Frac Plug	13,882	Total Shots	Frac Plug	13,690	Total Shots	Frac Plug	13,494	Total Shots	Frac Plug	13,265	Total Shots	Frac Plug	13,102	Total Shots	

HOBBS OGD

AUG 15 2019

RECEIVED

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	12,894	25	4	12,699	24	4	12,503	24	4	12,307	24	4	12,111	24	4
	12,870	25	4	12,674	24	4	12,480	26	4	12,282	24	4	12,087	25	4
	12,845	24	4	12,660	25	4	12,454	25	4	12,258	25	4	12,062	24	4
	12,821	28	4	12,625	24	4	12,429	24	4	12,233	20	4	12,038	25	4
	12,793	21	4	12,601	25	4	12,405	25	4	12,213	29	4	12,013	24	4
	12,772	25	4	12,576	24	4	12,380	24	4	12,184	28	4	11,989	25	4
	12,747	24	3	12,552	25	3	12,356	25	3	12,158	21	3	11,964	21	3
	12,723		3	12,527		3	12,331		3	12,135		3	11,943		3
	Plug to Plug	86	30	Plug to Plug	86	30	Plug to Plug	86	30	Plug to Plug	86	30	Plug to Plug	85	30
	Frac Plug	12,907	Total Shots	Frac Plug	12,711	Total Shots	Frac Plug	12,515	Total Shots	Frac Plug	12,319	Total Shots	Frac Plug	12,123	Total Shots

From Bottom to Top		Distance Between Perfs	Shots	Stage 37	Distance Between Perfs	Shots	Stage 38	Distance Between Perfs	Shots	Stage 39	Distance Between Perfs	Shots	Stage 40	Distance Between Perfs	Shots
	11,915	28	4		11744			0			0			0	
	11,889	23	4												
	11,866	24	4												
	11,842	25	4												
	11,817	24	4												
	11,793	25	4												
	11,768	24	3												
	11,744		3												
	Plug to Plug	85	30	Plug to Plug	0	0	Plug to Plug	0	0	Plug to Plug	0	0	Plug to Plug	0	0
	Frac Plug	11,927	Total Shots	Frac Plug		Total Shots	Frac Plug		Total Shots	Frac Plug		Total Shots	Frac Plug		Total Shots

Little Bear Federal Com #9H

<u>Perfs</u>	<u>7 1/2% Acid (Gal)</u>	<u>Sand (#)</u>	<u>Fluid (Gal)</u>
1	1008	401520	367500
2	3024	399080	404166
3	3024	400990	355572
4	3024	398950	435120
5	3024	401070	365988
6	3024	400550	355236
7	3024	399490	361998
8	3024	402150	356034
9	3024	399390	475944
10	3024	400750	353556
11	3024	399200	369810
12	3024	398850	343020
13	3024	401780	396102
14	3024	401250	343560
15	3024	404192	358386
16	3024	399770	336462
17	3024	400600	364014
18	3024	400660	352674
19	3024	394760	352590
20	3024	398520	358386
21	3024	401090	332976
22	3024	402930	334446
23	3024	400480	350154
24	3024	408960	345954
25	3024	401487	352086
26	3024	401490	335202
27	3024	400770	347760
28	3024	399820	339192
29	3024	400780	355866
30	3024	400549	321468
31	3024	400070	332808
32	3024	400250	340284
33	3024	400520	326466
34	3024	401146	337218
35	3024	400250	355488
36	3780	406130	334236
Totals	107,604	14,430,244	12,847,722