

COG Production LLC

Lea County, NM
Cabo Blanco State
#9H

OH

Survey: MWD

Survey Report - Geographic

21 March, 2016

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IDS

Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #9H
Project:	Lea County, NM	TVD Reference:	WELL @ 3688.5usft (Original Well Elev)
Site:	Cabo Blanco State	MD Reference:	WELL @ 3688.5usft (Original Well Elev)
Well:	#9H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM		
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		Cabo Blanco State			
Site Position:		Northing:	456,399.40 usft	Latitude:	32° 15' 9.240 N
From:	Map	Easting:	730,079.70 usft	Longitude:	103° 35' 20.723 W
Position Uncertainty:	3.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#9H					
Well Position	+N/-S	0.0 usft	Northing:	456,399.40 usft	Latitude:	32° 15' 9.240 N
	+E/-W	0.0 usft	Easting:	730,079.70 usft	Longitude:	103° 35' 20.723 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	usft	Ground Level:	3,668.5 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/15/2016	7.11	60.10	48,089

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	179.58	

Survey Program	Date 3/21/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
84.0	13,830.0	MWD (OH)	MWD	MWD - Standard

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	456,399.40	730,079.70	32° 15' 9.240 N	103° 35' 20.723 W
84.0	0.30	90.70	84.0	0.0	0.2	456,399.40	730,079.92	32° 15' 9.240 N	103° 35' 20.721 W
First MWD Survey									
172.0	0.40	114.30	172.0	-0.1	0.7	456,399.27	730,080.43	32° 15' 9.239 N	103° 35' 20.715 W
262.0	0.40	116.70	262.0	-0.4	1.3	456,399.00	730,080.99	32° 15' 9.236 N	103° 35' 20.708 W
355.0	0.20	15.60	355.0	-0.4	1.6	456,399.01	730,081.33	32° 15' 9.236 N	103° 35' 20.704 W
447.0	0.40	327.90	447.0	0.0	1.5	456,399.44	730,081.20	32° 15' 9.240 N	103° 35' 20.706 W
536.0	0.40	300.90	536.0	0.5	1.1	456,399.86	730,080.77	32° 15' 9.245 N	103° 35' 20.711 W
624.0	0.70	288.80	624.0	0.8	0.3	456,400.19	730,080.00	32° 15' 9.248 N	103° 35' 20.720 W
710.0	0.70	308.20	710.0	1.3	-0.6	456,400.68	730,079.09	32° 15' 9.253 N	103° 35' 20.730 W
805.0	0.70	305.50	805.0	2.0	-1.5	456,401.38	730,078.16	32° 15' 9.260 N	103° 35' 20.741 W
901.0	0.90	296.90	901.0	2.7	-2.7	456,402.06	730,077.01	32° 15' 9.267 N	103° 35' 20.754 W

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Well:	#9H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
995.0	0.70	303.30	995.0	3.3	-3.8	456,402.71	730,075.87	32° 15' 9.273 N	103° 35' 20.768 W
1,090.0	0.40	317.10	1,090.0	3.9	-4.5	456,403.27	730,075.16	32° 15' 9.279 N	103° 35' 20.776 W
1,206.0	0.40	17.70	1,205.9	4.6	-4.7	456,403.95	730,075.01	32° 15' 9.285 N	103° 35' 20.778 W
1,278.0	0.40	59.40	1,277.9	4.9	-4.4	456,404.32	730,075.30	32° 15' 9.289 N	103° 35' 20.774 W
1,404.0	0.10	43.20	1,403.9	5.2	-3.9	456,404.62	730,075.75	32° 15' 9.292 N	103° 35' 20.769 W
1,499.0	0.30	10.80	1,498.9	5.5	-3.8	456,404.93	730,075.86	32° 15' 9.295 N	103° 35' 20.768 W
1,689.0	0.20	12.30	1,688.9	6.3	-3.7	456,405.74	730,076.02	32° 15' 9.303 N	103° 35' 20.766 W
1,783.0	0.40	18.80	1,782.9	6.8	-3.5	456,406.21	730,076.16	32° 15' 9.308 N	103° 35' 20.764 W
1,878.0	0.40	12.60	1,877.9	7.5	-3.4	456,406.85	730,076.34	32° 15' 9.314 N	103° 35' 20.762 W
1,972.0	0.40	6.40	1,971.9	8.1	-3.2	456,407.50	730,076.45	32° 15' 9.320 N	103° 35' 20.761 W
2,067.0	0.40	355.70	2,066.9	8.8	-3.2	456,408.16	730,076.46	32° 15' 9.327 N	103° 35' 20.760 W
2,161.0	0.60	353.80	2,160.9	9.6	-3.3	456,408.97	730,076.38	32° 15' 9.335 N	103° 35' 20.761 W
2,256.0	0.70	344.70	2,255.9	10.6	-3.5	456,410.03	730,076.17	32° 15' 9.345 N	103° 35' 20.763 W
2,350.0	0.70	346.40	2,349.9	11.7	-3.8	456,411.14	730,075.89	32° 15' 9.356 N	103° 35' 20.767 W
2,444.0	0.60	345.40	2,443.9	12.8	-4.1	456,412.17	730,075.63	32° 15' 9.367 N	103° 35' 20.770 W
2,538.0	0.40	338.80	2,537.9	13.6	-4.3	456,412.96	730,075.39	32° 15' 9.374 N	103° 35' 20.772 W
2,633.0	0.40	339.70	2,632.9	14.2	-4.5	456,413.58	730,075.15	32° 15' 9.381 N	103° 35' 20.775 W
2,728.0	0.00	159.60	2,727.9	14.5	-4.7	456,413.89	730,075.04	32° 15' 9.384 N	103° 35' 20.776 W
2,823.0	0.20	107.00	2,822.9	14.4	-4.5	456,413.84	730,075.20	32° 15' 9.383 N	103° 35' 20.775 W
2,918.0	0.10	82.80	2,917.9	14.4	-4.3	456,413.80	730,075.44	32° 15' 9.383 N	103° 35' 20.772 W
3,012.0	0.40	29.20	3,011.9	14.7	-4.0	456,414.10	730,075.68	32° 15' 9.386 N	103° 35' 20.769 W
3,107.0	0.60	80.40	3,106.9	15.1	-3.4	456,414.47	730,076.33	32° 15' 9.389 N	103° 35' 20.761 W
3,201.0	0.70	127.90	3,200.9	14.8	-2.4	456,414.20	730,077.27	32° 15' 9.387 N	103° 35' 20.750 W
3,296.0	0.90	120.50	3,295.9	14.1	-1.3	456,413.46	730,078.37	32° 15' 9.379 N	103° 35' 20.738 W
3,391.0	1.00	190.00	3,390.9	12.9	-0.8	456,412.27	730,078.87	32° 15' 9.367 N	103° 35' 20.732 W
3,486.0	0.90	191.60	3,485.9	11.3	-1.1	456,410.72	730,078.57	32° 15' 9.352 N	103° 35' 20.736 W
3,581.0	0.90	190.90	3,580.9	9.9	-1.4	456,409.26	730,078.28	32° 15' 9.338 N	103° 35' 20.739 W
3,676.0	1.00	188.90	3,675.8	8.3	-1.7	456,407.71	730,078.01	32° 15' 9.322 N	103° 35' 20.742 W
3,771.0	0.80	205.00	3,770.8	6.9	-2.1	456,406.29	730,077.60	32° 15' 9.308 N	103° 35' 20.747 W
3,866.0	0.60	204.30	3,865.8	5.8	-2.6	456,405.23	730,077.12	32° 15' 9.298 N	103° 35' 20.753 W
3,960.0	0.50	192.80	3,959.8	5.0	-2.9	456,404.38	730,076.83	32° 15' 9.290 N	103° 35' 20.756 W
4,055.0	0.50	224.20	4,054.8	4.3	-3.3	456,403.68	730,076.45	32° 15' 9.283 N	103° 35' 20.761 W
4,151.0	0.40	248.80	4,150.8	3.9	-3.9	456,403.26	730,075.84	32° 15' 9.279 N	103° 35' 20.768 W
4,245.0	0.30	250.80	4,244.8	3.7	-4.4	456,403.06	730,075.30	32° 15' 9.277 N	103° 35' 20.774 W
4,340.0	0.20	233.60	4,339.8	3.5	-4.8	456,402.88	730,074.93	32° 15' 9.275 N	103° 35' 20.779 W
4,435.0	0.40	159.60	4,434.8	3.1	-4.8	456,402.47	730,074.92	32° 15' 9.271 N	103° 35' 20.779 W
4,530.0	1.00	144.80	4,529.8	2.1	-4.2	456,401.48	730,075.51	32° 15' 9.261 N	103° 35' 20.772 W
4,625.0	1.10	128.30	4,624.8	0.8	-3.0	456,400.24	730,076.70	32° 15' 9.249 N	103° 35' 20.758 W
4,720.0	1.50	134.00	4,719.8	-0.6	-1.4	456,398.81	730,078.31	32° 15' 9.234 N	103° 35' 20.739 W
4,816.0	1.50	140.30	4,815.7	-2.4	0.3	456,396.97	730,080.02	32° 15' 9.216 N	103° 35' 20.720 W
4,911.0	1.40	141.70	4,910.7	-4.3	1.8	456,395.11	730,081.53	32° 15' 9.197 N	103° 35' 20.702 W
5,005.0	1.50	136.50	5,004.7	-6.1	3.4	456,393.31	730,083.09	32° 15' 9.180 N	103° 35' 20.684 W
5,095.0	1.30	135.20	5,094.6	-7.7	4.9	456,391.73	730,084.62	32° 15' 9.164 N	103° 35' 20.667 W
5,187.0	1.50	135.50	5,186.6	-9.3	6.5	456,390.13	730,086.20	32° 15' 9.148 N	103° 35' 20.648 W
5,282.0	1.60	126.00	5,281.6	-10.9	8.4	456,388.47	730,088.15	32° 15' 9.131 N	103° 35' 20.626 W
5,471.0	1.80	121.40	5,470.5	-14.0	13.1	456,385.37	730,092.81	32° 15' 9.100 N	103° 35' 20.572 W
5,660.0	0.10	2.80	5,659.5	-15.4	15.7	456,383.99	730,095.36	32° 15' 9.086 N	103° 35' 20.542 W
5,849.0	0.30	356.40	5,848.5	-14.8	15.6	456,384.65	730,095.33	32° 15' 9.093 N	103° 35' 20.542 W
6,038.0	0.30	347.10	6,037.5	-13.8	15.5	456,385.62	730,095.19	32° 15' 9.103 N	103° 35' 20.544 W
6,228.0	0.30	291.60	6,227.5	-13.1	14.9	456,386.29	730,094.62	32° 15' 9.109 N	103° 35' 20.551 W
6,417.0	0.30	297.10	6,416.5	-12.7	14.0	456,386.70	730,093.72	32° 15' 9.113 N	103° 35' 20.561 W
6,606.0	0.40	314.70	6,605.4	-12.0	13.1	456,387.39	730,092.81	32° 15' 9.120 N	103° 35' 20.572 W
6,795.0	0.40	304.00	6,794.4	-11.2	12.1	456,388.22	730,091.79	32° 15' 9.129 N	103° 35' 20.583 W
6,985.0	0.40	322.50	6,984.4	-10.3	11.1	456,389.12	730,090.84	32° 15' 9.138 N	103° 35' 20.594 W
7,174.0	0.40	284.80	7,173.4	-9.6	10.1	456,389.81	730,089.80	32° 15' 9.144 N	103° 35' 20.606 W

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Well:	#9H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,365.0	0.60	267.90	7,364.4	-9.5	8.5	456,389.94	730,088.16	32° 15' 9.146 N	103° 35' 20.626 W
7,555.0	0.40	262.90	7,554.4	-9.6	6.8	456,389.82	730,086.50	32° 15' 9.145 N	103° 35' 20.645 W
7,744.0	1.10	251.70	7,743.4	-10.2	4.4	456,389.17	730,084.13	32° 15' 9.139 N	103° 35' 20.673 W
7,933.0	1.10	253.50	7,932.4	-11.3	1.0	456,388.09	730,080.66	32° 15' 9.128 N	103° 35' 20.713 W
8,123.0	1.10	250.30	8,122.3	-12.4	-2.5	456,386.96	730,077.20	32° 15' 9.117 N	103° 35' 20.753 W
8,313.0	1.40	154.70	8,312.3	-15.2	-3.2	456,384.24	730,076.47	32° 15' 9.090 N	103° 35' 20.762 W
8,503.0	1.30	162.00	8,502.3	-19.3	-1.6	456,380.09	730,078.13	32° 15' 9.049 N	103° 35' 20.743 W
8,692.0	1.00	123.40	8,691.2	-22.3	0.5	456,377.15	730,080.17	32° 15' 9.020 N	103° 35' 20.720 W
8,881.0	0.90	125.20	8,880.2	-24.0	3.1	456,375.38	730,082.76	32° 15' 9.002 N	103° 35' 20.690 W
9,000.0	1.10	125.50	8,999.2	-25.2	4.8	456,374.18	730,084.45	32° 15' 8.990 N	103° 35' 20.670 W
9,063.0	0.80	135.60	9,062.2	-25.9	5.6	456,373.52	730,085.25	32° 15' 8.984 N	103° 35' 20.661 W
9,095.0	1.40	173.90	9,094.2	-26.4	5.8	456,372.97	730,085.45	32° 15' 8.978 N	103° 35' 20.658 W
9,126.0	5.00	168.10	9,125.1	-28.1	6.1	456,371.27	730,085.77	32° 15' 8.961 N	103° 35' 20.655 W
9,158.0	8.90	168.90	9,156.9	-31.9	6.8	456,367.47	730,086.54	32° 15' 8.924 N	103° 35' 20.646 W
9,189.0	12.40	175.20	9,187.3	-37.6	7.6	456,361.80	730,087.28	32° 15' 8.867 N	103° 35' 20.638 W
9,221.0	14.90	174.40	9,218.4	-45.1	8.3	456,354.28	730,087.96	32° 15' 8.793 N	103° 35' 20.631 W
9,253.0	16.50	172.40	9,249.2	-53.7	9.3	456,345.68	730,088.97	32° 15' 8.708 N	103° 35' 20.620 W
9,284.0	19.40	172.00	9,278.7	-63.2	10.6	456,336.22	730,090.27	32° 15' 8.614 N	103° 35' 20.605 W
9,316.0	22.80	170.00	9,308.6	-74.6	12.4	456,324.85	730,092.08	32° 15' 8.501 N	103° 35' 20.585 W
9,347.0	26.00	170.50	9,336.8	-87.2	14.6	456,312.23	730,094.25	32° 15' 8.376 N	103° 35' 20.561 W
9,378.0	29.30	171.90	9,364.2	-101.4	16.7	456,298.01	730,096.44	32° 15' 8.236 N	103° 35' 20.537 W
9,410.0	32.50	171.00	9,391.7	-117.6	19.2	456,281.76	730,098.89	32° 15' 8.075 N	103° 35' 20.509 W
9,441.0	35.70	171.10	9,417.4	-134.8	21.9	456,264.60	730,101.59	32° 15' 7.905 N	103° 35' 20.479 W
9,472.0	39.30	171.40	9,442.0	-153.5	24.8	456,245.95	730,104.46	32° 15' 7.720 N	103° 35' 20.447 W
9,504.0	43.70	171.30	9,465.9	-174.4	28.0	456,224.99	730,107.65	32° 15' 7.512 N	103° 35' 20.412 W
9,535.0	48.00	171.50	9,487.5	-196.4	31.3	456,203.00	730,110.97	32° 15' 7.294 N	103° 35' 20.375 W
9,567.0	51.90	172.90	9,508.1	-220.7	34.6	456,178.74	730,114.29	32° 15' 7.054 N	103° 35' 20.338 W
9,598.0	55.80	174.60	9,526.4	-245.5	37.3	456,153.86	730,117.00	32° 15' 6.808 N	103° 35' 20.309 W
9,629.0	59.80	175.50	9,542.9	-271.7	39.6	456,127.73	730,119.26	32° 15' 6.549 N	103° 35' 20.285 W
9,661.0	64.40	175.90	9,557.9	-299.9	41.7	456,099.54	730,121.38	32° 15' 6.270 N	103° 35' 20.262 W
9,692.0	69.10	176.50	9,570.1	-328.3	43.6	456,071.13	730,123.26	32° 15' 5.989 N	103° 35' 20.243 W
9,724.0	73.90	177.80	9,580.2	-358.6	45.1	456,040.83	730,124.77	32° 15' 5.689 N	103° 35' 20.227 W
9,756.0	78.50	179.60	9,587.9	-389.6	45.8	456,009.77	730,125.47	32° 15' 5.381 N	103° 35' 20.222 W
9,786.0	82.50	182.10	9,592.8	-419.2	45.3	455,980.19	730,125.02	32° 15' 5.089 N	103° 35' 20.229 W
9,817.0	86.90	183.40	9,595.7	-450.0	43.8	455,949.37	730,123.54	32° 15' 4.784 N	103° 35' 20.249 W
9,849.0	88.20	184.10	9,597.1	-481.9	41.8	455,917.47	730,121.45	32° 15' 4.468 N	103° 35' 20.276 W
9,975.0	88.80	182.30	9,600.4	-607.7	34.7	455,791.71	730,114.42	32° 15' 3.224 N	103° 35' 20.368 W
10,070.0	87.20	179.30	9,603.7	-702.6	33.4	455,696.79	730,113.09	32° 15' 2.285 N	103° 35' 20.391 W
10,164.0	88.00	177.90	9,607.6	-796.5	35.7	455,602.91	730,115.39	32° 15' 1.356 N	103° 35' 20.372 W
10,258.0	88.90	179.60	9,610.2	-890.4	37.7	455,508.97	730,117.44	32° 15' 0.426 N	103° 35' 20.356 W
10,353.0	90.20	179.20	9,610.9	-985.4	38.7	455,413.98	730,118.43	32° 14' 59.486 N	103° 35' 20.352 W
10,447.0	89.50	179.30	9,611.1	-1,079.4	40.0	455,319.99	730,119.66	32° 14' 58.556 N	103° 35' 20.345 W
10,543.0	88.70	180.60	9,612.7	-1,175.4	40.1	455,224.00	730,119.75	32° 14' 57.606 N	103° 35' 20.352 W
10,638.0	89.60	180.60	9,614.1	-1,270.4	39.1	455,129.02	730,118.75	32° 14' 56.666 N	103° 35' 20.371 W
10,732.0	88.80	180.40	9,615.4	-1,364.4	38.2	455,035.03	730,117.93	32° 14' 55.736 N	103° 35' 20.388 W
10,826.0	87.70	180.90	9,618.2	-1,458.3	37.2	454,941.08	730,116.87	32° 14' 54.807 N	103° 35' 20.408 W
10,921.0	89.60	181.10	9,620.5	-1,553.3	35.5	454,846.13	730,115.21	32° 14' 53.867 N	103° 35' 20.435 W
11,014.0	89.00	180.20	9,621.6	-1,646.3	34.5	454,753.14	730,114.15	32° 14' 52.947 N	103° 35' 20.455 W
11,108.0	89.70	180.40	9,622.7	-1,740.2	34.0	454,659.15	730,113.66	32° 14' 52.017 N	103° 35' 20.468 W
11,203.0	88.10	179.30	9,624.5	-1,835.2	34.2	454,564.17	730,113.91	32° 14' 51.077 N	103° 35' 20.473 W
11,298.0	88.80	179.20	9,627.1	-1,930.2	35.5	454,469.22	730,115.15	32° 14' 50.137 N	103° 35' 20.466 W
11,392.0	90.20	179.60	9,627.9	-2,024.2	36.4	454,375.23	730,116.14	32° 14' 49.207 N	103° 35' 20.462 W
11,487.0	88.70	179.40	9,628.8	-2,119.2	37.3	454,280.24	730,116.97	32° 14' 48.267 N	103° 35' 20.460 W
11,582.0	89.10	179.20	9,630.6	-2,214.1	38.4	454,185.26	730,118.13	32° 14' 47.327 N	103° 35' 20.455 W
11,676.0	90.00	178.40	9,631.4	-2,308.1	40.4	454,091.29	730,120.10	32° 14' 46.397 N	103° 35' 20.439 W

IDS
Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #9H
Project:	Lea County, NM	TVD Reference:	WELL @ 3688.5usft (Original Well Elev)
Site:	Cabo Blanco State	MD Reference:	WELL @ 3688.5usft (Original Well Elev)
Well:	#9H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,770.0	89.30	179.20	9,632.0	-2,402.1	42.4	453,997.31	730,122.06	32° 14' 45.467 N	103° 35' 20.424 W
11,864.0	87.90	180.20	9,634.2	-2,496.1	42.9	453,903.35	730,122.56	32° 14' 44.537 N	103° 35' 20.426 W
11,958.0	88.80	179.60	9,637.0	-2,590.0	43.0	453,809.39	730,122.72	32° 14' 43.608 N	103° 35' 20.431 W
12,053.0	88.60	179.60	9,639.1	-2,685.0	43.7	453,714.41	730,123.38	32° 14' 42.668 N	103° 35' 20.431 W
12,148.0	89.50	179.00	9,640.7	-2,780.0	44.8	453,619.44	730,124.54	32° 14' 41.728 N	103° 35' 20.426 W
12,242.0	88.00	179.30	9,642.7	-2,873.9	46.2	453,525.47	730,125.94	32° 14' 40.798 N	103° 35' 20.417 W
12,337.0	88.70	179.20	9,645.5	-2,968.9	47.5	453,430.52	730,127.18	32° 14' 39.858 N	103° 35' 20.410 W
12,432.0	90.00	179.70	9,646.5	-3,063.9	48.4	453,335.53	730,128.09	32° 14' 38.918 N	103° 35' 20.407 W
12,527.0	91.30	179.60	9,645.5	-3,158.9	49.0	453,240.54	730,128.67	32° 14' 37.978 N	103° 35' 20.408 W
12,622.0	90.30	180.30	9,644.1	-3,253.8	49.1	453,145.55	730,128.76	32° 14' 37.038 N	103° 35' 20.415 W
12,717.0	88.90	181.30	9,644.8	-3,348.8	47.7	453,050.57	730,127.43	32° 14' 36.098 N	103° 35' 20.438 W
12,812.0	89.40	181.10	9,646.2	-3,443.8	45.7	452,955.60	730,125.44	32° 14' 35.159 N	103° 35' 20.469 W
12,907.0	88.90	180.10	9,647.6	-3,538.8	44.7	452,860.62	730,124.45	32° 14' 34.219 N	103° 35' 20.488 W
13,002.0	88.80	179.80	9,649.5	-3,633.8	44.8	452,765.64	730,124.53	32° 14' 33.279 N	103° 35' 20.495 W
13,097.0	90.80	180.50	9,649.9	-3,728.8	44.6	452,670.64	730,124.28	32° 14' 32.339 N	103° 35' 20.505 W
13,192.0	90.70	181.30	9,648.6	-3,823.7	43.1	452,575.66	730,122.79	32° 14' 31.399 N	103° 35' 20.530 W
13,286.0	89.70	180.60	9,648.3	-3,917.7	41.5	452,481.68	730,121.23	32° 14' 30.469 N	103° 35' 20.556 W
13,381.0	87.50	180.50	9,650.6	-4,012.7	40.6	452,386.72	730,120.32	32° 14' 29.530 N	103° 35' 20.574 W
13,475.0	87.70	180.50	9,654.6	-4,106.6	39.8	452,292.80	730,119.50	32° 14' 28.600 N	103° 35' 20.591 W
13,569.0	89.50	180.20	9,656.8	-4,200.6	39.2	452,198.84	730,118.92	32° 14' 27.671 N	103° 35' 20.606 W
13,665.0	90.80	179.50	9,656.6	-4,296.6	39.5	452,102.84	730,119.18	32° 14' 26.721 N	103° 35' 20.610 W
13,775.0	92.40	179.20	9,653.5	-4,406.5	40.7	451,992.89	730,120.42	32° 14' 25.633 N	103° 35' 20.605 W
Final MWD Survey									
13,830.0	92.40	179.20	9,651.2	-4,461.5	41.5	451,937.95	730,121.19	32° 14' 25.089 N	103° 35' 20.600 W
Projection to TD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
84.0	84.0	0.0	0.2	First MWD Survey
13,775.0	9,653.5	-4,406.5	40.7	Final MWD Survey
13,830.0	9,651.2	-4,461.5	41.5	Projection to TD

Checked By: _____ Approved By: _____ Date: _____