



COG Operating LLC

Eddy County, NM (NAD27 NME)

Myox 21 State Com

4H

30-015-41743

NM OIL CONSERVATION

ARTESIA DISTRICT

MAR 28 2018

OH / Job #61260

RECEIVED

Design: Surveys (Ensign 155)

Survey Report - Geographic

10 July, 2017





Phoenix Technology Services LP
Survey Report - Geographic



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 4H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	GL + KB @ 2983.20usft (Ensign 155)
Site:	Myox 21 State Com	MD Reference:	GL + KB @ 2983.20usft (Ensign 155)
Well:	4H	North Reference:	Grid
Wellbore:	OH / Job #61260	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 155)	Database:	Compass 5000 GCR

Project	Eddy 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	Myox 21 State Com				
Site Position:		Northing:	403,335.40 usft	Latitude:	32° 6' 31.10711 N
From:	Map	Easting:	577,031.40 usft	Longitude:	104° 5' 4.37007 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well	4H					
Well Position	+N/-S	0.00 usft	Northing:	403,335.40 usft	Latitude:	32° 6' 31.10711 N
	+E/-W	0.00 usft	Easting:	577,031.40 usft	Longitude:	104° 5' 4.37007 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	2,959.20 usft	

Wellbore OH / Job #61260

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	7/15/2017	7.25	59.90	48,068

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		0.00

Survey Program Date 6/24/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	7,544.00	Scientific Gyro Surveys (OH / Job #61260)	NS-GYRO-MS	North sensing gyrocompassing m/s
7,660.00	18,059.00	Phoenix MWD Surveys (OH / Job #61260)	MWD+IFR1+MS	OWSG Rev. 2 MWD + IFR1 + Multi-Station Correction

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	403,335.40	577,031.40	32° 6' 31.10711 N	104° 5' 4.37007 W
100.00	0.58	247.22	100.00	-0.20	-0.47	403,335.20	577,030.94	32° 6' 31.10518 N	104° 5' 4.37550 W
125.00	0.65	255.70	125.00	-0.28	-0.72	403,335.12	577,030.68	32° 6' 31.10436 N	104° 5' 4.37846 W
150.00	0.72	234.34	150.00	-0.41	-0.99	403,334.99	577,030.42	32° 6' 31.10311 N	104° 5' 4.38154 W
175.00	0.83	232.20	174.99	-0.61	-1.26	403,334.79	577,030.15	32° 6' 31.10111 N	104° 5' 4.38469 W
200.00	0.89	224.92	199.99	-0.86	-1.54	403,334.54	577,029.87	32° 6' 31.09866 N	104° 5' 4.38796 W
225.00	0.91	219.47	224.99	-1.15	-1.80	403,334.25	577,029.60	32° 6' 31.09579 N	104° 5' 4.39103 W
250.00	1.02	218.55	249.98	-1.48	-2.06	403,333.92	577,029.34	32° 6' 31.09256 N	104° 5' 4.39411 W
275.00	0.95	218.79	274.98	-1.81	-2.33	403,333.59	577,029.07	32° 6' 31.08924 N	104° 5' 4.39725 W
300.00	1.08	217.75	299.98	-2.16	-2.61	403,333.24	577,028.80	32° 6' 31.08581 N	104° 5' 4.40044 W
325.00	1.10	214.54	324.97	-2.54	-2.89	403,332.86	577,028.52	32° 6' 31.08201 N	104° 5' 4.40371 W



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Survey Report - Geographic



Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Myox 21 State Com
Well: 4H
Wellbore: OH / Job #61260
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
350.00	1.05	222.61	349.97	-2.91	-3.18	403,332.49	577,028.22	32° 6' 31.07839 N	104° 5' 4.40711 W	
375.00	1.19	217.27	374.96	-3.28	-3.49	403,332.11	577,027.91	32° 6' 31.07469 N	104° 5' 4.41075 W	
400.00	1.23	222.20	399.96	-3.69	-3.83	403,331.71	577,027.57	32° 6' 31.07068 N	104° 5' 4.41468 W	
425.00	1.23	218.92	424.95	-4.10	-4.18	403,331.30	577,027.23	32° 6' 31.06666 N	104° 5' 4.41875 W	
450.00	1.20	220.64	449.95	-4.50	-4.52	403,330.89	577,026.89	32° 6' 31.06264 N	104° 5' 4.42270 W	
475.00	1.24	225.40	474.94	-4.89	-4.88	403,330.51	577,026.52	32° 6' 31.05880 N	104° 5' 4.42693 W	
500.00	1.23	230.19	499.93	-5.26	-5.28	403,330.14	577,026.12	32° 6' 31.05523 N	104° 5' 4.43158 W	
525.00	1.22	226.71	524.93	-5.61	-5.68	403,329.79	577,025.72	32° 6' 31.05173 N	104° 5' 4.43624 W	
550.00	1.22	227.35	549.92	-5.97	-6.07	403,329.43	577,025.34	32° 6' 31.04815 N	104° 5' 4.44077 W	
575.00	1.20	226.13	574.92	-6.33	-6.45	403,329.07	577,024.95	32° 6' 31.04458 N	104° 5' 4.44525 W	
600.00	0.97	231.33	599.91	-6.65	-6.81	403,328.75	577,024.60	32° 6' 31.04148 N	104° 5' 4.44938 W	
625.00	0.92	232.72	624.91	-6.90	-7.13	403,328.50	577,024.27	32° 6' 31.03898 N	104° 5' 4.45316 W	
650.00	0.74	230.95	649.91	-7.12	-7.42	403,328.27	577,023.99	32° 6' 31.03677 N	104° 5' 4.45648 W	
675.00	0.67	238.18	674.90	-7.30	-7.67	403,328.10	577,023.74	32° 6' 31.03501 N	104° 5' 4.45939 W	
700.00	0.59	249.71	699.90	-7.43	-7.91	403,327.97	577,023.49	32° 6' 31.03381 N	104° 5' 4.46224 W	
725.00	0.60	247.58	724.90	-7.52	-8.15	403,327.88	577,023.25	32° 6' 31.03288 N	104° 5' 4.46505 W	
750.00	0.61	254.01	749.90	-7.61	-8.40	403,327.79	577,023.00	32° 6' 31.03203 N	104° 5' 4.46795 W	
775.00	0.66	251.65	774.90	-7.69	-8.67	403,327.71	577,022.74	32° 6' 31.03123 N	104° 5' 4.47103 W	
800.00	0.66	257.53	799.90	-7.76	-8.94	403,327.63	577,022.46	32° 6' 31.03048 N	104° 5' 4.47425 W	
825.00	0.66	257.14	824.90	-7.83	-9.22	403,327.57	577,022.18	32° 6' 31.02986 N	104° 5' 4.47752 W	
850.00	0.54	255.77	849.89	-7.89	-9.48	403,327.51	577,021.92	32° 6' 31.02926 N	104° 5' 4.48048 W	
875.00	0.65	259.07	874.89	-7.94	-9.73	403,327.45	577,021.67	32° 6' 31.02871 N	104° 5' 4.48343 W	
900.00	0.56	270.03	899.89	-7.97	-9.99	403,327.43	577,021.41	32° 6' 31.02845 N	104° 5' 4.48647 W	
925.00	0.40	279.84	924.89	-7.96	-10.20	403,327.44	577,021.20	32° 6' 31.02861 N	104° 5' 4.48889 W	
950.00	0.28	344.32	949.89	-7.88	-10.30	403,327.52	577,021.10	32° 6' 31.02934 N	104° 5' 4.49008 W	
975.00	0.38	8.90	974.89	-7.74	-10.31	403,327.66	577,021.10	32° 6' 31.03073 N	104° 5' 4.49012 W	
1,000.00	0.59	21.23	999.89	-7.54	-10.25	403,327.86	577,021.15	32° 6' 31.03273 N	104° 5' 4.48942 W	
1,025.00	0.54	40.24	1,024.89	-7.33	-10.13	403,328.07	577,021.28	32° 6' 31.03480 N	104° 5' 4.48799 W	
1,050.00	0.50	29.35	1,049.89	-7.15	-10.00	403,328.25	577,021.41	32° 6' 31.03663 N	104° 5' 4.48648 W	
1,075.00	0.46	34.42	1,074.89	-6.97	-9.89	403,328.43	577,021.52	32° 6' 31.03839 N	104° 5' 4.48519 W	
1,100.00	0.38	43.37	1,099.88	-6.82	-9.77	403,328.57	577,021.63	32° 6' 31.03980 N	104° 5' 4.48387 W	
1,125.00	0.50	39.01	1,124.88	-6.68	-9.65	403,328.72	577,021.76	32° 6' 31.04123 N	104° 5' 4.48240 W	
1,150.00	0.45	26.77	1,149.88	-6.51	-9.53	403,328.89	577,021.87	32° 6' 31.04294 N	104° 5' 4.48109 W	
1,175.00	0.49	28.45	1,174.88	-6.33	-9.44	403,329.07	577,021.96	32° 6' 31.04473 N	104° 5' 4.47998 W	
1,200.00	0.44	49.85	1,199.88	-6.17	-9.31	403,329.23	577,022.09	32° 6' 31.04627 N	104° 5' 4.47853 W	
1,225.00	0.50	39.21	1,224.88	-6.02	-9.17	403,329.38	577,022.23	32° 6' 31.04772 N	104° 5' 4.47687 W	
1,250.00	0.39	20.55	1,249.88	-5.86	-9.07	403,329.54	577,022.33	32° 6' 31.04934 N	104° 5' 4.47572 W	
1,275.00	0.35	39.21	1,274.88	-5.72	-8.99	403,329.68	577,022.41	32° 6' 31.05071 N	104° 5' 4.47480 W	
1,300.00	0.35	40.47	1,299.88	-5.60	-8.90	403,329.80	577,022.51	32° 6' 31.05187 N	104° 5' 4.47366 W	
1,325.00	0.33	27.66	1,324.88	-5.48	-8.81	403,329.92	577,022.59	32° 6' 31.05307 N	104° 5' 4.47269 W	
1,350.00	0.29	46.25	1,349.88	-5.37	-8.73	403,330.03	577,022.67	32° 6' 31.05414 N	104° 5' 4.47177 W	
1,375.00	0.27	36.50	1,374.88	-5.28	-8.65	403,330.12	577,022.75	32° 6' 31.05504 N	104° 5' 4.47083 W	
1,400.00	0.26	26.12	1,399.88	-5.18	-8.59	403,330.22	577,022.81	32° 6' 31.05601 N	104° 5' 4.47013 W	
1,425.00	0.24	0.28	1,424.88	-5.08	-8.57	403,330.32	577,022.83	32° 6' 31.05703 N	104° 5' 4.46983 W	
1,450.00	0.14	354.84	1,449.88	-5.00	-8.57	403,330.40	577,022.83	32° 6' 31.05785 N	104° 5' 4.46986 W	
1,475.00	0.14	346.87	1,474.88	-4.94	-8.58	403,330.46	577,022.82	32° 6' 31.05844 N	104° 5' 4.46997 W	
1,500.00	0.19	324.67	1,499.88	-4.87	-8.61	403,330.52	577,022.79	32° 6' 31.05907 N	104° 5' 4.47033 W	
1,525.00	0.16	330.76	1,524.88	-4.81	-8.65	403,330.59	577,022.75	32° 6' 31.05971 N	104° 5' 4.47080 W	
1,550.00	0.15	308.30	1,549.88	-4.76	-8.70	403,330.64	577,022.71	32° 6' 31.06021 N	104° 5' 4.47130 W	
1,575.00	0.19	338.98	1,574.88	-4.70	-8.74	403,330.70	577,022.67	32° 6' 31.06080 N	104° 5' 4.47177 W	
1,600.00	0.16	330.39	1,599.88	-4.63	-8.77	403,330.77	577,022.63	32° 6' 31.06148 N	104° 5' 4.47214 W	
1,625.00	0.12	303.53	1,624.88	-4.59	-8.81	403,330.81	577,022.60	32° 6' 31.06193 N	104° 5' 4.47259 W	
1,650.00	0.11	355.37	1,649.88	-4.55	-8.83	403,330.85	577,022.57	32° 6' 31.06231 N	104° 5' 4.47287 W	
1,675.00	0.02	356.81	1,674.88	-4.52	-8.83	403,330.88	577,022.57	32° 6' 31.06259 N	104° 5' 4.47289 W	
1,700.00	0.01	228.47	1,699.88	-4.52	-8.84	403,330.88	577,022.57	32° 6' 31.06262 N	104° 5' 4.47292 W	



Phoenix Technology Services LP
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Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,725.00	0.18	28.98	1,724.88	-4.48	-8.82	403,330.92	577,022.58	32° 6' 31.06294 N	104° 5' 4.47271 W
1,750.00	0.25	66.77	1,749.88	-4.43	-8.75	403,330.97	577,022.65	32° 6' 31.06349 N	104° 5' 4.47191 W
1,775.00	0.40	80.67	1,774.88	-4.39	-8.61	403,331.01	577,022.79	32° 6' 31.06384 N	104° 5' 4.47032 W
1,800.00	0.71	86.30	1,799.87	-4.37	-8.37	403,331.03	577,023.03	32° 6' 31.06408 N	104° 5' 4.46752 W
1,825.00	0.99	85.69	1,824.87	-4.34	-8.00	403,331.06	577,023.40	32° 6' 31.06433 N	104° 5' 4.46322 W
1,850.00	1.22	91.49	1,849.87	-4.33	-7.52	403,331.07	577,023.88	32° 6' 31.06441 N	104° 5' 4.45762 W
1,875.00	1.38	96.69	1,874.86	-4.37	-6.96	403,331.02	577,024.45	32° 6' 31.06398 N	104° 5' 4.45106 W
1,900.00	1.51	96.05	1,899.85	-4.44	-6.33	403,330.95	577,025.07	32° 6' 31.06327 N	104° 5' 4.44377 W
1,925.00	1.53	89.81	1,924.84	-4.48	-5.67	403,330.92	577,025.74	32° 6' 31.06293 N	104° 5' 4.43608 W
1,950.00	1.39	95.90	1,949.84	-4.51	-5.03	403,330.89	577,026.37	32° 6' 31.06262 N	104° 5' 4.42870 W
1,975.00	1.12	99.50	1,974.83	-4.58	-4.49	403,330.82	577,026.91	32° 6' 31.06190 N	104° 5' 4.42239 W
2,000.00	0.88	108.47	1,999.83	-4.68	-4.07	403,330.72	577,027.34	32° 6' 31.06088 N	104° 5' 4.41748 W
2,025.00	0.65	119.25	2,024.82	-4.81	-3.76	403,330.59	577,027.64	32° 6' 31.05959 N	104° 5' 4.41392 W
2,050.00	0.48	127.98	2,049.82	-4.94	-3.55	403,330.45	577,027.85	32° 6' 31.05826 N	104° 5' 4.41153 W
2,075.00	0.47	150.58	2,074.82	-5.10	-3.42	403,330.30	577,027.98	32° 6' 31.05674 N	104° 5' 4.40999 W
2,100.00	0.35	148.83	2,099.82	-5.25	-3.33	403,330.15	577,028.07	32° 6' 31.05520 N	104° 5' 4.40895 W
2,125.00	0.34	143.02	2,124.82	-5.38	-3.25	403,330.02	577,028.16	32° 6' 31.05397 N	104° 5' 4.40797 W
2,150.00	0.39	151.65	2,149.82	-5.51	-3.16	403,329.89	577,028.24	32° 6' 31.05264 N	104° 5' 4.40699 W
2,175.00	0.41	130.01	2,174.82	-5.64	-3.05	403,329.76	577,028.35	32° 6' 31.05133 N	104° 5' 4.40572 W
2,200.00	0.53	123.78	2,199.82	-5.77	-2.89	403,329.63	577,028.51	32° 6' 31.05012 N	104° 5' 4.40381 W
2,225.00	0.84	115.91	2,224.82	-5.91	-2.63	403,329.49	577,028.77	32° 6' 31.04868 N	104° 5' 4.40078 W
2,250.00	0.98	103.85	2,249.81	-6.04	-2.26	403,329.36	577,029.15	32° 6' 31.04738 N	104° 5' 4.39646 W
2,275.00	1.01	103.56	2,274.81	-6.14	-1.83	403,329.25	577,029.57	32° 6' 31.04635 N	104° 5' 4.39156 W
2,300.00	1.05	105.63	2,299.81	-6.26	-1.40	403,329.14	577,030.00	32° 6' 31.04522 N	104° 5' 4.38650 W
2,325.00	0.90	101.29	2,324.80	-6.36	-0.99	403,329.04	577,030.42	32° 6' 31.04422 N	104° 5' 4.38170 W
2,350.00	0.49	93.52	2,349.80	-6.40	-0.69	403,329.00	577,030.72	32° 6' 31.04376 N	104° 5' 4.37823 W
2,375.00	0.38	78.86	2,374.80	-6.39	-0.50	403,329.01	577,030.90	32° 6' 31.04385 N	104° 5' 4.37604 W
2,400.00	0.14	57.31	2,399.80	-6.36	-0.39	403,329.04	577,031.01	32° 6' 31.04417 N	104° 5' 4.37479 W
2,425.00	0.12	99.69	2,424.80	-6.35	-0.34	403,329.05	577,031.06	32° 6' 31.04429 N	104° 5' 4.37419 W
2,450.00	0.04	191.77	2,449.80	-6.36	-0.32	403,329.04	577,031.09	32° 6' 31.04416 N	104° 5' 4.37391 W
2,475.00	0.05	194.24	2,474.80	-6.38	-0.32	403,329.02	577,031.08	32° 6' 31.04397 N	104° 5' 4.37397 W
2,500.00	0.06	106.63	2,499.80	-6.40	-0.31	403,329.00	577,031.09	32° 6' 31.04383 N	104° 5' 4.37385 W
2,525.00	0.04	348.60	2,524.80	-6.39	-0.30	403,329.01	577,031.10	32° 6' 31.04388 N	104° 5' 4.37373 W
2,550.00	0.09	48.02	2,549.80	-6.37	-0.29	403,329.03	577,031.12	32° 6' 31.04409 N	104° 5' 4.37358 W
2,575.00	0.03	189.73	2,574.80	-6.36	-0.27	403,329.04	577,031.13	32° 6' 31.04416 N	104° 5' 4.37342 W
2,600.00	0.10	152.37	2,599.80	-6.39	-0.26	403,329.01	577,031.14	32° 6' 31.04390 N	104° 5' 4.37332 W
2,625.00	0.09	144.33	2,624.80	-6.42	-0.24	403,328.98	577,031.16	32° 6' 31.04355 N	104° 5' 4.37307 W
2,650.00	0.08	170.37	2,649.80	-6.46	-0.23	403,328.94	577,031.17	32° 6' 31.04323 N	104° 5' 4.37290 W
2,675.00	0.06	144.13	2,674.80	-6.48	-0.22	403,328.92	577,031.18	32° 6' 31.04295 N	104° 5' 4.37278 W
2,700.00	0.05	73.72	2,699.80	-6.49	-0.20	403,328.91	577,031.20	32° 6' 31.04287 N	104° 5' 4.37257 W
2,725.00	0.03	300.88	2,724.80	-6.49	-0.20	403,328.91	577,031.21	32° 6' 31.04294 N	104° 5' 4.37251 W
2,750.00	0.06	266.56	2,749.80	-6.48	-0.21	403,328.92	577,031.19	32° 6' 31.04296 N	104° 5' 4.37273 W
2,775.00	0.17	291.54	2,774.80	-6.47	-0.26	403,328.93	577,031.14	32° 6' 31.04309 N	104° 5' 4.37328 W
2,800.00	0.14	270.06	2,799.80	-6.46	-0.33	403,328.94	577,031.08	32° 6' 31.04323 N	104° 5' 4.37404 W
2,825.00	0.18	278.10	2,824.80	-6.45	-0.40	403,328.95	577,031.01	32° 6' 31.04329 N	104° 5' 4.37484 W
2,850.00	0.19	293.31	2,849.80	-6.43	-0.47	403,328.97	577,030.93	32° 6' 31.04350 N	104° 5' 4.37574 W
2,875.00	0.18	289.70	2,874.80	-6.40	-0.55	403,329.00	577,030.86	32° 6' 31.04380 N	104° 5' 4.37661 W
2,900.00	0.17	290.80	2,899.80	-6.37	-0.62	403,329.03	577,030.78	32° 6' 31.04406 N	104° 5' 4.37744 W
2,925.00	0.17	268.67	2,924.80	-6.36	-0.69	403,329.04	577,030.71	32° 6' 31.04419 N	104° 5' 4.37827 W
2,950.00	0.20	277.17	2,949.80	-6.36	-0.77	403,329.04	577,030.63	32° 6' 31.04423 N	104° 5' 4.37921 W
2,975.00	0.15	286.57	2,974.80	-6.34	-0.85	403,329.06	577,030.56	32° 6' 31.04438 N	104° 5' 4.38008 W
3,000.00	0.19	299.77	2,999.80	-6.31	-0.91	403,329.09	577,030.49	32° 6' 31.04468 N	104° 5' 4.38086 W
3,025.00	0.21	294.33	3,024.80	-6.27	-0.99	403,329.13	577,030.41	32° 6' 31.04507 N	104° 5' 4.38176 W
3,050.00	0.20	287.66	3,049.80	-6.24	-1.07	403,329.16	577,030.33	32° 6' 31.04539 N	104° 5' 4.38273 W
3,075.00	0.22	292.81	3,074.80	-6.21	-1.16	403,329.19	577,030.24	32° 6' 31.04571 N	104° 5' 4.38373 W



Phoenix Technology Services LP

Survey Report - Geographic



Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Myox 21 State Com
Well: 4H
Wellbore: OH / Job #61260
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,100.00	0.17	299.30	3,099.80	-6.17	-1.24	403,329.23	577,030.17	32° 6' 31.04607 N	104° 5' 4.38462 W
3,125.00	0.18	306.16	3,124.80	-6.13	-1.30	403,329.27	577,030.10	32° 6' 31.04648 N	104° 5' 4.38536 W
3,150.00	0.10	307.92	3,149.80	-6.09	-1.35	403,329.31	577,030.05	32° 6' 31.04685 N	104° 5' 4.38593 W
3,175.00	0.15	299.42	3,174.80	-6.06	-1.40	403,329.34	577,030.01	32° 6' 31.04714 N	104° 5' 4.38646 W
3,200.00	0.25	292.50	3,199.80	-6.03	-1.47	403,329.37	577,029.93	32° 6' 31.04751 N	104° 5' 4.38737 W
3,225.00	0.21	303.62	3,224.80	-5.98	-1.56	403,329.42	577,029.84	32° 6' 31.04797 N	104° 5' 4.38840 W
3,250.00	0.16	287.12	3,249.80	-5.94	-1.63	403,329.45	577,029.77	32° 6' 31.04832 N	104° 5' 4.38923 W
3,275.00	0.18	288.96	3,274.80	-5.92	-1.71	403,329.48	577,029.70	32° 6' 31.04855 N	104° 5' 4.39005 W
3,300.00	0.24	310.29	3,299.80	-5.87	-1.78	403,329.52	577,029.62	32° 6' 31.04901 N	104° 5' 4.39095 W
3,325.00	0.27	278.12	3,324.80	-5.83	-1.88	403,329.57	577,029.52	32° 6' 31.04943 N	104° 5' 4.39209 W
3,350.00	0.28	282.40	3,349.80	-5.81	-2.00	403,329.59	577,029.40	32° 6' 31.04965 N	104° 5' 4.39346 W
3,375.00	0.28	277.13	3,374.80	-5.79	-2.12	403,329.61	577,029.28	32° 6' 31.04986 N	104° 5' 4.39486 W
3,400.00	0.32	280.82	3,399.80	-5.77	-2.25	403,329.63	577,029.16	32° 6' 31.05006 N	104° 5' 4.39636 W
3,425.00	0.28	278.50	3,424.80	-5.75	-2.38	403,329.65	577,029.03	32° 6' 31.05029 N	104° 5' 4.39786 W
3,450.00	0.29	280.68	3,449.79	-5.73	-2.50	403,329.67	577,028.90	32° 6' 31.05049 N	104° 5' 4.39928 W
3,475.00	0.33	291.80	3,474.79	-5.69	-2.63	403,329.71	577,028.77	32° 6' 31.05088 N	104° 5' 4.40078 W
3,500.00	0.26	292.79	3,499.79	-5.64	-2.75	403,329.76	577,028.66	32° 6' 31.05136 N	104° 5' 4.40217 W
3,525.00	0.32	289.45	3,524.79	-5.59	-2.87	403,329.80	577,028.54	32° 6' 31.05181 N	104° 5' 4.40354 W
3,550.00	0.33	284.82	3,549.79	-5.55	-3.00	403,329.85	577,028.40	32° 6' 31.05223 N	104° 5' 4.40511 W
3,575.00	0.32	270.52	3,574.79	-5.53	-3.14	403,329.87	577,028.26	32° 6' 31.05242 N	104° 5' 4.40673 W
3,600.00	0.37	286.94	3,599.79	-5.51	-3.29	403,329.89	577,028.12	32° 6' 31.05266 N	104° 5' 4.40844 W
3,625.00	0.33	274.18	3,624.79	-5.48	-3.44	403,329.92	577,027.97	32° 6' 31.05295 N	104° 5' 4.41017 W
3,650.00	0.37	276.90	3,649.79	-5.47	-3.59	403,329.93	577,027.81	32° 6' 31.05310 N	104° 5' 4.41194 W
3,675.00	0.34	282.54	3,674.79	-5.44	-3.74	403,329.96	577,027.66	32° 6' 31.05336 N	104° 5' 4.41371 W
3,700.00	0.32	283.27	3,699.79	-5.41	-3.88	403,329.99	577,027.52	32° 6' 31.05368 N	104° 5' 4.41534 W
3,725.00	0.38	278.38	3,724.79	-5.38	-4.03	403,330.02	577,027.37	32° 6' 31.05396 N	104° 5' 4.41708 W
3,750.00	0.33	272.62	3,749.79	-5.36	-4.19	403,330.03	577,027.22	32° 6' 31.05412 N	104° 5' 4.41887 W
3,775.00	0.31	267.32	3,774.79	-5.36	-4.32	403,330.03	577,027.08	32° 6' 31.05412 N	104° 5' 4.42050 W
3,800.00	0.32	277.66	3,799.79	-5.36	-4.46	403,330.04	577,026.94	32° 6' 31.05419 N	104° 5' 4.42209 W
3,825.00	0.32	273.01	3,824.79	-5.35	-4.60	403,330.05	577,026.80	32° 6' 31.05432 N	104° 5' 4.42370 W
3,850.00	0.32	276.32	3,849.79	-5.33	-4.74	403,330.07	577,026.66	32° 6' 31.05443 N	104° 5' 4.42532 W
3,875.00	0.29	257.38	3,874.79	-5.34	-4.87	403,330.06	577,026.53	32° 6' 31.05438 N	104° 5' 4.42684 W
3,900.00	0.32	280.55	3,899.79	-5.34	-5.00	403,330.06	577,026.40	32° 6' 31.05437 N	104° 5' 4.42836 W
3,925.00	0.31	271.66	3,924.79	-5.33	-5.14	403,330.07	577,026.27	32° 6' 31.05452 N	104° 5' 4.42994 W
3,950.00	0.31	279.43	3,949.79	-5.31	-5.27	403,330.09	577,026.13	32° 6' 31.05465 N	104° 5' 4.43150 W
3,975.00	0.36	252.43	3,974.79	-5.33	-5.41	403,330.07	577,025.99	32° 6' 31.05453 N	104° 5' 4.43315 W
4,000.00	0.31	281.16	3,999.79	-5.34	-5.55	403,330.06	577,025.85	32° 6' 31.05443 N	104° 5' 4.43479 W
4,025.00	0.32	270.65	4,024.79	-5.32	-5.69	403,330.08	577,025.71	32° 6' 31.05457 N	104° 5' 4.43637 W
4,050.00	0.29	262.50	4,049.79	-5.33	-5.82	403,330.07	577,025.58	32° 6' 31.05450 N	104° 5' 4.43792 W
4,075.00	0.27	263.24	4,074.79	-5.35	-5.94	403,330.05	577,025.46	32° 6' 31.05435 N	104° 5' 4.43933 W
4,100.00	0.27	268.21	4,099.78	-5.35	-6.06	403,330.04	577,025.34	32° 6' 31.05426 N	104° 5' 4.44069 W
4,125.00	0.25	283.34	4,124.78	-5.34	-6.17	403,330.06	577,025.23	32° 6' 31.05437 N	104° 5' 4.44199 W
4,150.00	0.30	277.24	4,149.78	-5.32	-6.29	403,330.08	577,025.11	32° 6' 31.05458 N	104° 5' 4.44336 W
4,175.00	0.30	263.71	4,174.78	-5.32	-6.42	403,330.08	577,024.98	32° 6' 31.05460 N	104° 5' 4.44487 W
4,200.00	0.27	278.45	4,199.78	-5.32	-6.54	403,330.08	577,024.86	32° 6' 31.05461 N	104° 5' 4.44631 W
4,225.00	0.26	273.62	4,224.78	-5.31	-6.66	403,330.09	577,024.74	32° 6' 31.05474 N	104° 5' 4.44764 W
4,250.00	0.28	267.38	4,249.78	-5.31	-6.78	403,330.09	577,024.63	32° 6' 31.05475 N	104° 5' 4.44901 W
4,275.00	0.27	255.98	4,274.78	-5.32	-6.90	403,330.07	577,024.51	32° 6' 31.05458 N	104° 5' 4.45039 W
4,300.00	0.35	239.73	4,299.78	-5.38	-7.02	403,330.02	577,024.38	32° 6' 31.05406 N	104° 5' 4.45182 W
4,325.00	0.33	265.39	4,324.78	-5.42	-7.16	403,329.98	577,024.25	32° 6' 31.05363 N	104° 5' 4.45342 W
4,350.00	0.30	278.51	4,349.78	-5.42	-7.29	403,329.98	577,024.11	32° 6' 31.05367 N	104° 5' 4.45501 W
4,375.00	0.28	257.51	4,374.78	-5.42	-7.42	403,329.98	577,023.99	32° 6' 31.05364 N	104° 5' 4.45645 W
4,400.00	0.31	236.74	4,399.78	-5.47	-7.53	403,329.93	577,023.87	32° 6' 31.05314 N	104° 5' 4.45781 W
4,425.00	0.25	226.51	4,424.78	-5.55	-7.63	403,329.85	577,023.77	32° 6' 31.05240 N	104° 5' 4.45892 W
4,450.00	0.39	213.32	4,449.78	-5.65	-7.72	403,329.74	577,023.69	32° 6' 31.05133 N	104° 5' 4.45993 W



Phoenix Technology Services LP

Survey Report - Geographic



Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Myox 21 State Com
Well: 4H
Wellbore: OH / Job #61260
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,475.00	0.30	222.38	4,474.78	-5.77	-7.81	403,329.63	577,023.60	32° 6' 31.05015 N	104° 5' 4.46099 W
4,500.00	0.33	220.77	4,499.78	-5.88	-7.90	403,329.52	577,023.50	32° 6' 31.04914 N	104° 5' 4.46205 W
4,525.00	0.36	208.42	4,524.78	-6.00	-7.98	403,329.40	577,023.42	32° 6' 31.04791 N	104° 5' 4.46304 W
4,550.00	0.40	209.00	4,549.78	-6.15	-8.06	403,329.25	577,023.34	32° 6' 31.04648 N	104° 5' 4.46397 W
4,575.00	0.46	203.12	4,574.78	-6.31	-8.14	403,329.08	577,023.26	32° 6' 31.04481 N	104° 5' 4.46492 W
4,600.00	0.43	199.89	4,599.78	-6.49	-8.22	403,328.90	577,023.19	32° 6' 31.04303 N	104° 5' 4.46576 W
4,625.00	0.47	201.72	4,624.78	-6.68	-8.28	403,328.72	577,023.12	32° 6' 31.04121 N	104° 5' 4.46657 W
4,650.00	0.33	202.80	4,649.78	-6.84	-8.35	403,328.56	577,023.05	32° 6' 31.03961 N	104° 5' 4.46734 W
4,675.00	0.55	204.14	4,674.77	-7.02	-8.43	403,328.38	577,022.98	32° 6' 31.03787 N	104° 5' 4.46824 W
4,700.00	0.44	218.35	4,699.77	-7.20	-8.54	403,328.20	577,022.87	32° 6' 31.03605 N	104° 5' 4.46951 W
4,725.00	0.55	203.19	4,724.77	-7.39	-8.64	403,328.01	577,022.76	32° 6' 31.03421 N	104° 5' 4.47076 W
4,750.00	0.40	209.09	4,749.77	-7.57	-8.73	403,327.83	577,022.67	32° 6' 31.03237 N	104° 5' 4.47181 W
4,775.00	0.26	183.16	4,774.77	-7.71	-8.78	403,327.69	577,022.62	32° 6' 31.03108 N	104° 5' 4.47234 W
4,800.00	0.06	146.75	4,799.77	-7.77	-8.77	403,327.63	577,022.63	32° 6' 31.03039 N	104° 5' 4.47229 W
4,825.00	0.22	90.41	4,824.77	-7.78	-8.72	403,327.61	577,022.68	32° 6' 31.03027 N	104° 5' 4.47165 W
4,850.00	0.18	87.91	4,849.77	-7.78	-8.63	403,327.62	577,022.77	32° 6' 31.03028 N	104° 5' 4.47064 W
4,875.00	0.23	87.50	4,874.77	-7.78	-8.54	403,327.62	577,022.86	32° 6' 31.03032 N	104° 5' 4.46960 W
4,900.00	0.10	99.65	4,899.77	-7.78	-8.47	403,327.62	577,022.93	32° 6' 31.03030 N	104° 5' 4.46877 W
4,925.00	0.11	81.05	4,924.77	-7.78	-8.43	403,327.62	577,022.98	32° 6' 31.03030 N	104° 5' 4.46824 W
4,950.00	0.13	66.42	4,949.77	-7.77	-8.38	403,327.63	577,023.03	32° 6' 31.03045 N	104° 5' 4.46766 W
4,975.00	0.14	60.03	4,974.77	-7.74	-8.32	403,327.66	577,023.08	32° 6' 31.03071 N	104° 5' 4.46705 W
5,000.00	0.09	157.99	4,999.77	-7.74	-8.29	403,327.66	577,023.11	32° 6' 31.03068 N	104° 5' 4.46666 W
5,025.00	0.12	85.67	5,024.77	-7.76	-8.26	403,327.64	577,023.15	32° 6' 31.03052 N	104° 5' 4.46627 W
5,050.00	0.15	55.38	5,049.77	-7.74	-8.20	403,327.66	577,023.20	32° 6' 31.03072 N	104° 5' 4.46565 W
5,075.00	0.11	97.05	5,074.77	-7.72	-8.15	403,327.68	577,023.25	32° 6' 31.03088 N	104° 5' 4.46506 W
5,100.00	0.11	48.48	5,099.77	-7.71	-8.11	403,327.69	577,023.29	32° 6' 31.03100 N	104° 5' 4.46458 W
5,125.00	0.07	119.08	5,124.77	-7.70	-8.08	403,327.70	577,023.32	32° 6' 31.03109 N	104° 5' 4.46421 W
5,150.00	0.07	24.48	5,149.77	-7.69	-8.06	403,327.70	577,023.34	32° 6' 31.03115 N	104° 5' 4.46398 W
5,175.00	0.12	123.83	5,174.77	-7.70	-8.03	403,327.70	577,023.37	32° 6' 31.03114 N	104° 5' 4.46366 W
5,200.00	0.12	83.00	5,199.77	-7.71	-7.98	403,327.69	577,023.42	32° 6' 31.03103 N	104° 5' 4.46310 W
5,225.00	0.16	95.14	5,224.77	-7.71	-7.92	403,327.69	577,023.48	32° 6' 31.03103 N	104° 5' 4.46240 W
5,250.00	0.18	107.56	5,249.77	-7.72	-7.85	403,327.68	577,023.55	32° 6' 31.03088 N	104° 5' 4.46156 W
5,275.00	0.25	87.34	5,274.77	-7.73	-7.76	403,327.67	577,023.64	32° 6' 31.03078 N	104° 5' 4.46049 W
5,300.00	0.22	104.89	5,299.77	-7.74	-7.66	403,327.66	577,023.74	32° 6' 31.03068 N	104° 5' 4.45932 W
5,325.00	0.28	90.21	5,324.77	-7.75	-7.55	403,327.65	577,023.85	32° 6' 31.03056 N	104° 5' 4.45807 W
5,350.00	0.35	108.57	5,349.77	-7.78	-7.42	403,327.62	577,023.99	32° 6' 31.03031 N	104° 5' 4.45652 W
5,375.00	0.33	101.70	5,374.77	-7.82	-7.27	403,327.58	577,024.13	32° 6' 31.02992 N	104° 5' 4.45485 W
5,400.00	0.36	103.32	5,399.77	-7.85	-7.13	403,327.55	577,024.28	32° 6' 31.02960 N	104° 5' 4.45315 W
5,425.00	0.40	98.06	5,424.77	-7.88	-6.96	403,327.52	577,024.44	32° 6' 31.02929 N	104° 5' 4.45126 W
5,450.00	0.46	109.88	5,449.77	-7.93	-6.78	403,327.47	577,024.62	32° 6' 31.02883 N	104° 5' 4.44915 W
5,475.00	0.40	122.87	5,474.77	-8.01	-6.62	403,327.39	577,024.79	32° 6' 31.02802 N	104° 5' 4.44721 W
5,500.00	0.42	127.69	5,499.77	-8.11	-6.47	403,327.29	577,024.93	32° 6' 31.02699 N	104° 5' 4.44551 W
5,525.00	0.48	124.47	5,524.77	-8.23	-6.31	403,327.17	577,025.09	32° 6' 31.02585 N	104° 5' 4.44387 W
5,550.00	0.49	131.13	5,549.76	-8.36	-6.14	403,327.04	577,025.26	32° 6' 31.02456 N	104° 5' 4.44173 W
5,575.00	0.57	132.40	5,574.76	-8.51	-5.97	403,326.89	577,025.43	32° 6' 31.02303 N	104° 5' 4.43973 W
5,600.00	0.66	139.76	5,599.76	-8.70	-5.79	403,326.70	577,025.62	32° 6' 31.02111 N	104° 5' 4.43759 W
5,625.00	0.62	130.56	5,624.76	-8.90	-5.59	403,326.50	577,025.81	32° 6' 31.01915 N	104° 5' 4.43532 W
5,650.00	0.76	123.19	5,649.76	-9.08	-5.35	403,326.32	577,026.05	32° 6' 31.01737 N	104° 5' 4.43252 W
5,675.00	0.75	132.11	5,674.76	-9.28	-5.09	403,326.12	577,026.31	32° 6' 31.01538 N	104° 5' 4.42950 W
5,700.00	0.79	133.11	5,699.75	-9.51	-4.84	403,325.89	577,026.56	32° 6' 31.01313 N	104° 5' 4.42663 W
5,725.00	0.79	129.04	5,724.75	-9.73	-4.58	403,325.66	577,026.82	32° 6' 31.01088 N	104° 5' 4.42362 W
5,750.00	0.82	139.47	5,749.75	-9.98	-4.33	403,325.42	577,027.07	32° 6' 31.00846 N	104° 5' 4.42072 W
5,775.00	0.74	143.73	5,774.75	-10.25	-4.12	403,325.15	577,027.28	32° 6' 31.00582 N	104° 5' 4.41826 W
5,800.00	0.74	163.25	5,799.74	-10.53	-3.98	403,324.87	577,027.42	32° 6' 31.00300 N	104° 5' 4.41662 W
5,825.00	0.61	170.92	5,824.74	-10.82	-3.91	403,324.58	577,027.49	32° 6' 31.00016 N	104° 5' 4.41584 W



Phoenix Technology Services LP

Survey Report - Geographic



Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Myox 21 State Com
Well: 4H
Wellbore: OH / Job #61260
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,850.00	0.67	187.73	5,849.74	-11.09	-3.91	403,324.31	577,027.49	32° 6' 30.99743 N	104° 5' 4.41583 W
5,875.00	0.60	193.04	5,874.74	-11.36	-3.96	403,324.03	577,027.44	32° 6' 30.99474 N	104° 5' 4.41641 W
5,900.00	0.62	193.76	5,899.74	-11.62	-4.02	403,323.78	577,027.38	32° 6' 30.99217 N	104° 5' 4.41713 W
5,925.00	0.73	188.66	5,924.74	-11.91	-4.08	403,323.49	577,027.33	32° 6' 30.98932 N	104° 5' 4.41780 W
5,950.00	0.81	194.19	5,949.73	-12.24	-4.14	403,323.16	577,027.26	32° 6' 30.98607 N	104° 5' 4.41859 W
5,975.00	0.66	192.64	5,974.73	-12.55	-4.22	403,322.85	577,027.18	32° 6' 30.98298 N	104° 5' 4.41946 W
6,000.00	0.63	189.25	5,999.73	-12.83	-4.27	403,322.57	577,027.13	32° 6' 30.98025 N	104° 5' 4.42010 W
6,025.00	0.80	194.50	6,024.73	-13.13	-4.34	403,322.27	577,027.06	32° 6' 30.97724 N	104° 5' 4.42087 W
6,050.00	0.77	196.14	6,049.73	-13.46	-4.43	403,321.94	577,026.97	32° 6' 30.97397 N	104° 5' 4.42193 W
6,075.00	0.65	189.54	6,074.72	-13.77	-4.50	403,321.63	577,026.90	32° 6' 30.97099 N	104° 5' 4.42275 W
6,100.00	0.31	196.89	6,099.72	-13.97	-4.54	403,321.43	577,026.86	32° 6' 30.96897 N	104° 5' 4.42326 W
6,125.00	0.17	227.85	6,124.72	-14.06	-4.59	403,321.34	577,026.81	32° 6' 30.96808 N	104° 5' 4.42381 W
6,150.00	0.31	159.01	6,149.72	-14.15	-4.59	403,321.25	577,026.81	32° 6' 30.96721 N	104° 5' 4.42385 W
6,175.00	0.50	140.78	6,174.72	-14.29	-4.50	403,321.10	577,026.90	32° 6' 30.96575 N	104° 5' 4.42277 W
6,200.00	0.68	156.16	6,199.72	-14.52	-4.37	403,320.88	577,027.03	32° 6' 30.96356 N	104° 5' 4.42128 W
6,225.00	1.02	154.51	6,224.72	-14.85	-4.22	403,320.55	577,027.19	32° 6' 30.96023 N	104° 5' 4.41948 W
6,250.00	1.07	156.34	6,249.71	-15.27	-4.03	403,320.13	577,027.38	32° 6' 30.95612 N	104° 5' 4.41729 W
6,275.00	1.32	150.79	6,274.71	-15.73	-3.79	403,319.67	577,027.61	32° 6' 30.95151 N	104° 5' 4.41457 W
6,300.00	1.47	145.27	6,299.70	-16.25	-3.47	403,319.15	577,027.93	32° 6' 30.94641 N	104° 5' 4.41083 W
6,325.00	1.54	144.47	6,324.69	-16.78	-3.09	403,318.62	577,028.31	32° 6' 30.94109 N	104° 5' 4.40645 W
6,350.00	1.34	143.77	6,349.69	-17.29	-2.72	403,318.11	577,028.68	32° 6' 30.93604 N	104° 5' 4.40219 W
6,375.00	0.82	139.14	6,374.68	-17.66	-2.43	403,317.74	577,028.97	32° 6' 30.93236 N	104° 5' 4.39883 W
6,400.00	0.46	121.92	6,399.68	-17.85	-2.23	403,317.55	577,029.17	32° 6' 30.93049 N	104° 5' 4.39648 W
6,425.00	0.34	127.18	6,424.68	-17.95	-2.09	403,317.45	577,029.32	32° 6' 30.92952 N	104° 5' 4.39481 W
6,450.00	0.17	153.42	6,449.68	-18.03	-2.01	403,317.37	577,029.39	32° 6' 30.92875 N	104° 5' 4.39393 W
6,475.00	0.12	207.78	6,474.68	-18.08	-2.01	403,317.31	577,029.40	32° 6' 30.92819 N	104° 5' 4.39388 W
6,500.00	0.30	281.78	6,499.68	-18.09	-2.08	403,317.31	577,029.32	32° 6' 30.92809 N	104° 5' 4.39477 W
6,525.00	0.48	280.57	6,524.68	-18.06	-2.25	403,317.34	577,029.15	32° 6' 30.92842 N	104° 5' 4.39671 W
6,550.00	0.59	270.43	6,549.68	-18.04	-2.48	403,317.36	577,028.92	32° 6' 30.92863 N	104° 5' 4.39940 W
6,575.00	0.60	278.34	6,574.67	-18.02	-2.74	403,317.38	577,028.66	32° 6' 30.92883 N	104° 5' 4.40240 W
6,600.00	0.70	262.39	6,599.67	-18.02	-3.02	403,317.38	577,028.38	32° 6' 30.92882 N	104° 5' 4.40567 W
6,625.00	0.81	267.89	6,624.67	-18.05	-3.35	403,317.35	577,028.05	32° 6' 30.92857 N	104° 5' 4.40948 W
6,650.00	0.95	265.67	6,649.67	-18.07	-3.73	403,317.33	577,027.67	32° 6' 30.92836 N	104° 5' 4.41394 W
6,675.00	1.23	263.49	6,674.66	-18.12	-4.20	403,317.28	577,027.20	32° 6' 30.92791 N	104° 5' 4.41944 W
6,700.00	1.47	277.76	6,699.66	-18.10	-4.79	403,317.29	577,026.61	32° 6' 30.92805 N	104° 5' 4.42623 W
6,725.00	1.61	267.73	6,724.65	-18.08	-5.46	403,317.32	577,025.95	32° 6' 30.92836 N	104° 5' 4.43401 W
6,750.00	1.69	283.86	6,749.64	-18.00	-6.17	403,317.40	577,025.24	32° 6' 30.92911 N	104° 5' 4.44225 W
6,775.00	1.80	290.12	6,774.63	-17.78	-6.89	403,317.62	577,024.51	32° 6' 30.93134 N	104° 5' 4.45069 W
6,800.00	2.03	293.49	6,799.61	-17.47	-7.67	403,317.93	577,023.74	32° 6' 30.93444 N	104° 5' 4.45969 W
6,825.00	2.21	296.83	6,824.59	-17.07	-8.50	403,318.33	577,022.90	32° 6' 30.93836 N	104° 5' 4.46940 W
6,850.00	2.34	300.60	6,849.58	-16.59	-9.37	403,318.80	577,022.03	32° 6' 30.94310 N	104° 5' 4.47950 W
6,875.00	2.37	306.04	6,874.55	-16.03	-10.23	403,319.37	577,021.17	32° 6' 30.94870 N	104° 5' 4.48945 W
6,900.00	2.34	307.68	6,899.53	-15.41	-11.05	403,319.98	577,020.35	32° 6' 30.95482 N	104° 5' 4.49899 W
6,925.00	2.27	311.90	6,924.51	-14.77	-11.83	403,320.63	577,019.58	32° 6' 30.96119 N	104° 5' 4.50795 W
6,950.00	1.70	323.60	6,949.50	-14.14	-12.41	403,321.26	577,018.99	32° 6' 30.96743 N	104° 5' 4.51478 W
6,975.00	1.50	336.02	6,974.49	-13.55	-12.77	403,321.85	577,018.64	32° 6' 30.97335 N	104° 5' 4.51887 W
7,000.00	1.24	337.38	6,999.48	-13.00	-13.00	403,322.40	577,018.40	32° 6' 30.97879 N	104° 5' 4.52161 W
7,025.00	0.78	0.19	7,024.48	-12.58	-13.11	403,322.82	577,018.30	32° 6' 30.98295 N	104° 5' 4.52280 W
7,050.00	0.66	68.16	7,049.48	-12.35	-12.97	403,323.05	577,018.43	32° 6' 30.98516 N	104° 5' 4.52123 W
7,075.00	0.80	77.40	7,074.47	-12.26	-12.67	403,323.14	577,018.73	32° 6' 30.98606 N	104° 5' 4.51770 W
7,100.00	0.78	82.99	7,099.47	-12.20	-12.33	403,323.20	577,019.07	32° 6' 30.98663 N	104° 5' 4.51375 W
7,125.00	0.78	85.47	7,124.47	-12.17	-11.99	403,323.23	577,019.41	32° 6' 30.98696 N	104° 5' 4.50981 W
7,150.00	0.80	93.83	7,149.47	-12.17	-11.65	403,323.23	577,019.76	32° 6' 30.98697 N	104° 5' 4.50582 W
7,175.00	0.73	84.53	7,174.46	-12.16	-11.31	403,323.24	577,020.09	32° 6' 30.98700 N	104° 5' 4.50195 W
7,200.00	0.63	86.16	7,199.46	-12.14	-11.02	403,323.26	577,020.38	32° 6' 30.98724 N	104° 5' 4.49851 W



Phoenix Technology Services LP
Survey Report - Geographic



Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Myox 21 State Com
Well: 4H
Wellbore: OH / Job #61260
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,225.00	0.56	93.25	7,224.46	-12.14	-10.76	403,323.26	577,020.64	32° 6' 30.98725 N	104° 5' 4.49550 W
7,250.00	0.51	110.23	7,249.46	-12.18	-10.53	403,323.22	577,020.87	32° 6' 30.98680 N	104° 5' 4.49287 W
7,275.00	0.40	116.69	7,274.46	-12.26	-10.35	403,323.14	577,021.05	32° 6' 30.98602 N	104° 5' 4.49075 W
7,300.00	0.37	128.00	7,299.46	-12.35	-10.21	403,323.05	577,021.19	32° 6' 30.98514 N	104° 5' 4.48911 W
7,325.00	0.26	151.48	7,324.46	-12.45	-10.12	403,322.95	577,021.28	32° 6' 30.98415 N	104° 5' 4.48805 W
7,350.00	0.23	140.59	7,349.46	-12.54	-10.06	403,322.86	577,021.34	32° 6' 30.98328 N	104° 5' 4.48737 W
7,375.00	0.15	178.93	7,374.46	-12.61	-10.03	403,322.79	577,021.38	32° 6' 30.98257 N	104° 5' 4.48700 W
7,400.00	0.37	200.30	7,399.46	-12.72	-10.06	403,322.68	577,021.35	32° 6' 30.98150 N	104° 5' 4.48732 W
7,425.00	0.49	208.99	7,424.46	-12.89	-10.13	403,322.51	577,021.27	32° 6' 30.97982 N	104° 5' 4.48825 W
7,450.00	0.59	226.93	7,449.46	-13.07	-10.28	403,322.33	577,021.12	32° 6' 30.97803 N	104° 5' 4.48995 W
7,475.00	0.64	268.67	7,474.45	-13.16	-10.51	403,322.24	577,020.89	32° 6' 30.97713 N	104° 5' 4.49267 W
7,500.00	1.04	262.05	7,499.45	-13.19	-10.88	403,322.21	577,020.52	32° 6' 30.97680 N	104° 5' 4.49690 W
7,525.00	1.15	252.50	7,524.45	-13.30	-11.34	403,322.10	577,020.06	32° 6' 30.97575 N	104° 5' 4.50230 W
7,544.00	1.31	258.92	7,543.44	-13.40	-11.74	403,322.00	577,019.67	32° 6' 30.97478 N	104° 5' 4.50690 W
Tie In									
7,660.00	2.05	255.28	7,659.39	-14.18	-15.05	403,321.22	577,016.36	32° 6' 30.96712 N	104° 5' 4.54538 W
First Phoenix MWD Survey									
7,716.00	2.78	296.09	7,715.35	-13.84	-17.23	403,321.56	577,014.17	32° 6' 30.97056 N	104° 5' 4.57082 W
7,810.00	14.96	346.66	7,808.12	-0.97	-22.10	403,334.43	577,009.30	32° 6' 31.09800 N	104° 5' 4.62708 W
7,856.00	21.49	353.22	7,851.79	13.19	-24.47	403,348.59	577,006.93	32° 6' 31.23820 N	104° 5' 4.65422 W
7,904.00	26.48	354.54	7,895.63	32.58	-26.53	403,367.98	577,004.88	32° 6' 31.43020 N	104° 5' 4.67763 W
7,951.00	30.41	358.00	7,936.95	54.91	-27.94	403,390.31	577,003.46	32° 6' 31.65121 N	104° 5' 4.69345 W
7,998.00	35.36	359.30	7,976.41	80.42	-28.52	403,415.82	577,002.88	32° 6' 31.90361 N	104° 5' 4.69953 W
8,045.00	41.91	359.43	8,013.11	109.74	-28.84	403,445.14	577,002.56	32° 6' 32.19385 N	104° 5' 4.70250 W
8,089.00	45.53	0.00	8,044.90	140.15	-28.99	403,475.55	577,002.41	32° 6' 32.49475 N	104° 5' 4.70338 W
First Take Point									
8,093.00	45.86	0.05	8,047.69	143.01	-28.99	403,478.41	577,002.41	32° 6' 32.52308 N	104° 5' 4.70328 W
8,139.00	50.15	359.74	8,078.46	177.19	-29.06	403,512.59	577,002.35	32° 6' 32.86134 N	104° 5' 4.70313 W
8,186.00	55.07	359.84	8,106.99	214.52	-29.19	403,549.92	577,002.21	32° 6' 33.23078 N	104° 5' 4.70371 W
8,233.00	60.06	0.47	8,132.20	254.18	-29.08	403,589.58	577,002.33	32° 6' 33.62322 N	104° 5' 4.70133 W
8,281.00	65.07	2.34	8,154.31	296.75	-28.02	403,632.15	577,003.39	32° 6' 34.04451 N	104° 5' 4.68786 W
8,327.00	69.35	3.20	8,172.12	339.10	-25.96	403,674.50	577,005.44	32° 6' 34.46357 N	104° 5' 4.66284 W
8,376.00	73.08	2.12	8,187.90	385.43	-23.82	403,720.83	577,007.59	32° 6' 34.92204 N	104° 5' 4.63663 W
8,423.00	76.87	1.98	8,200.08	430.78	-22.19	403,766.18	577,009.21	32° 6' 35.37086 N	104° 5' 4.61654 W
8,470.00	82.02	2.23	8,208.68	476.94	-20.50	403,812.34	577,010.91	32° 6' 35.82762 N	104° 5' 4.59557 W
8,497.00	84.76	2.42	8,211.79	503.74	-19.41	403,839.14	577,012.00	32° 6' 36.09278 N	104° 5' 4.58220 W
8,592.00	88.74	1.46	8,217.18	598.51	-16.20	403,933.91	577,015.20	32° 6' 37.03063 N	104° 5' 4.54235 W
8,682.00	90.70	1.22	8,217.62	688.48	-14.09	404,023.88	577,017.31	32° 6' 37.92096 N	104° 5' 4.51547 W
8,776.00	91.01	1.45	8,216.21	782.44	-11.90	404,117.84	577,019.50	32° 6' 38.85082 N	104° 5' 4.48749 W
8,870.00	91.07	2.05	8,214.51	876.38	-9.03	404,211.78	577,022.37	32° 6' 39.78043 N	104° 5' 4.45159 W
8,965.00	91.23	1.87	8,212.60	971.31	-5.79	404,306.71	577,025.62	32° 6' 40.71978 N	104° 5' 4.41128 W
9,058.00	90.84	2.01	8,210.92	1,064.24	-2.64	404,399.64	577,028.76	32° 6' 41.63940 N	104° 5' 4.37218 W
9,152.00	91.74	2.09	8,208.81	1,158.16	0.72	404,493.56	577,032.13	32° 6' 42.56875 N	104° 5' 4.33058 W
9,247.00	91.31	0.49	8,206.28	1,253.10	2.86	404,588.49	577,034.26	32° 6' 43.50827 N	104° 5' 4.30317 W
9,341.00	91.54	359.81	8,203.94	1,347.07	3.11	404,682.46	577,034.51	32° 6' 44.43823 N	104° 5' 4.29779 W
9,435.00	91.62	359.51	8,201.35	1,441.03	2.55	404,776.43	577,033.95	32° 6' 45.36814 N	104° 5' 4.30175 W
9,529.00	91.79	359.88	8,198.55	1,534.98	2.05	404,870.38	577,033.45	32° 6' 46.29799 N	104° 5' 4.30504 W
9,623.00	91.26	359.89	8,196.05	1,628.95	1.86	404,964.35	577,033.26	32° 6' 47.22793 N	104° 5' 4.30472 W
9,718.00	91.31	359.95	8,193.92	1,723.93	1.73	405,059.33	577,033.13	32° 6' 48.16786 N	104° 5' 4.30371 W
9,812.00	91.31	359.98	8,191.77	1,817.90	1.67	405,153.30	577,033.07	32° 6' 49.09789 N	104° 5' 4.30185 W
9,906.00	89.69	0.11	8,190.95	1,911.90	1.74	405,247.29	577,033.15	32° 6' 50.02808 N	104° 5' 4.29847 W
10,000.00	89.47	359.96	8,191.64	2,005.89	1.80	405,341.29	577,033.20	32° 6' 50.95832 N	104° 5' 4.29528 W
10,094.00	89.47	0.18	8,192.51	2,099.89	1.92	405,435.29	577,033.32	32° 6' 51.88855 N	104° 5' 4.29142 W
10,188.00	89.58	0.72	8,193.29	2,193.88	2.66	405,529.28	577,034.06	32° 6' 52.81874 N	104° 5' 4.28032 W
10,282.00	89.30	0.64	8,194.21	2,287.87	3.77	405,623.27	577,035.17	32° 6' 53.74887 N	104° 5' 4.26482 W



Phoenix Technology Services LP

Survey Report - Geographic



Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Myox 21 State Com
Well: 4H
Wellbore: OH / Job #61260
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,376.00	89.66	359.67	8,195.06	2,381.87	4.02	405,717.26	577,035.43	32° 6' 54.67907 N	104° 5' 4.25934 W
10,470.00	89.83	359.90	8,195.48	2,475.86	3.67	405,811.26	577,035.08	32° 6' 55.60933 N	104° 5' 4.26092 W
10,564.00	89.64	0.27	8,195.91	2,569.86	3.81	405,905.26	577,035.21	32° 6' 56.53958 N	104° 5' 4.25678 W
10,658.00	90.19	359.37	8,196.05	2,663.86	3.52	405,999.26	577,034.92	32° 6' 57.46984 N	104° 5' 4.25769 W
10,753.00	90.39	359.25	8,195.57	2,758.85	2.37	406,094.25	577,033.78	32° 6' 58.40995 N	104° 5' 4.26844 W
10,847.00	91.32	359.91	8,194.17	2,852.84	1.68	406,188.24	577,033.09	32° 6' 59.34009 N	104° 5' 4.27393 W
10,941.00	91.04	359.17	8,192.23	2,946.81	0.93	406,282.21	577,032.33	32° 7' 0.27014 N	104° 5' 4.28018 W
11,035.00	91.23	359.42	8,190.37	3,040.79	-0.23	406,376.19	577,031.18	32° 7' 1.20017 N	104° 5' 4.29110 W
11,132.00	91.31	359.12	8,188.22	3,137.76	-1.46	406,473.16	577,029.94	32° 7' 2.15984 N	104° 5' 4.30286 W
11,226.00	91.51	359.50	8,185.91	3,231.72	-2.59	406,567.12	577,028.81	32° 7' 3.08979 N	104° 5' 4.31350 W
11,320.00	91.34	359.92	8,183.57	3,325.69	-3.07	406,661.09	577,028.33	32° 7' 4.01976 N	104° 5' 4.31651 W
11,415.00	90.87	0.31	8,181.74	3,420.67	-2.88	406,756.07	577,028.52	32° 7' 4.95974 N	104° 5' 4.31174 W
11,509.00	91.26	1.06	8,179.99	3,514.65	-1.76	406,850.05	577,029.65	32° 7' 5.88975 N	104° 5' 4.29615 W
11,603.00	90.11	0.31	8,178.87	3,608.63	-0.63	406,944.03	577,030.77	32° 7' 6.81983 N	104° 5' 4.28057 W
11,697.00	90.20	1.37	8,178.61	3,702.62	0.75	407,038.02	577,032.15	32° 7' 7.74995 N	104° 5' 4.26202 W
11,792.00	90.03	0.11	8,178.42	3,797.61	1.97	407,133.01	577,033.38	32° 7' 8.68999 N	104° 5' 4.24520 W
11,886.00	88.96	0.30	8,179.25	3,891.61	2.31	407,227.00	577,033.71	32° 7' 9.62019 N	104° 5' 4.23877 W
11,980.00	88.29	0.46	8,181.51	3,985.58	2.93	407,320.97	577,034.33	32° 7' 10.55015 N	104° 5' 4.22900 W
12,074.00	88.60	0.49	8,184.06	4,079.54	3.71	407,414.94	577,035.11	32° 7' 11.48002 N	104° 5' 4.21742 W
12,168.00	89.94	0.60	8,185.25	4,173.52	4.60	407,508.92	577,036.01	32° 7' 12.41013 N	104° 5' 4.20450 W
12,263.00	89.89	0.98	8,185.40	4,268.51	5.91	407,603.91	577,037.32	32° 7' 13.35017 N	104° 5' 4.18672 W
12,357.00	90.00	1.06	8,185.49	4,362.50	7.59	407,697.90	577,038.99	32° 7' 14.28025 N	104° 5' 4.16473 W
12,451.00	89.69	0.94	8,185.74	4,456.48	9.23	407,791.88	577,040.63	32° 7' 15.21033 N	104° 5' 4.14313 W
12,545.00	89.47	0.19	8,186.43	4,550.48	10.16	407,885.88	577,041.56	32° 7' 16.14050 N	104° 5' 4.12983 W
12,640.00	89.10	359.81	8,187.61	4,645.47	10.16	407,980.87	577,041.56	32° 7' 17.08059 N	104° 5' 4.12728 W
12,734.00	89.22	359.58	8,188.99	4,739.46	9.66	408,074.86	577,041.06	32° 7' 18.01075 N	104° 5' 4.13057 W
12,827.00	90.14	1.11	8,189.51	4,832.45	10.22	408,167.85	577,041.62	32° 7' 18.93104 N	104° 5' 4.12156 W
12,922.00	89.97	1.66	8,189.42	4,927.42	12.51	408,262.82	577,043.91	32° 7' 19.87087 N	104° 5' 4.09231 W
13,017.00	89.19	0.65	8,190.12	5,022.40	14.43	408,357.80	577,045.83	32° 7' 20.81076 N	104° 5' 4.06749 W
13,111.00	89.33	358.63	8,191.33	5,116.38	13.84	408,451.78	577,045.24	32° 7' 21.74089 N	104° 5' 4.07184 W
13,205.00	91.48	358.78	8,190.67	5,210.35	11.71	408,545.75	577,043.11	32° 7' 22.67089 N	104° 5' 4.09402 W
13,299.00	93.56	358.51	8,186.53	5,304.23	9.49	408,639.63	577,040.89	32° 7' 23.60000 N	104° 5' 4.11731 W
13,393.00	92.69	358.21	8,181.41	5,398.05	6.80	408,733.45	577,038.21	32° 7' 24.52855 N	104° 5' 4.14603 W
13,487.00	93.17	358.15	8,176.61	5,491.88	3.82	408,827.28	577,035.23	32° 7' 25.45720 N	104° 5' 4.17818 W
13,581.00	92.07	358.70	8,172.31	5,585.74	1.24	408,921.14	577,032.65	32° 7' 26.38618 N	104° 5' 4.20567 W
13,675.00	89.36	357.76	8,171.14	5,679.68	-1.66	409,015.08	577,029.74	32° 7' 27.31590 N	104° 5' 4.23691 W
13,769.00	90.08	358.66	8,171.59	5,773.63	-4.60	409,109.03	577,026.81	32° 7' 28.24575 N	104° 5' 4.26853 W
13,863.00	90.22	358.98	8,171.35	5,867.61	-6.53	409,203.01	577,024.87	32° 7' 29.17586 N	104° 5' 4.28852 W
13,957.00	90.59	359.81	8,170.68	5,961.60	-7.52	409,297.00	577,023.88	32° 7' 30.10606 N	104° 5' 4.29753 W
14,051.00	90.76	359.88	8,169.58	6,055.60	-7.78	409,391.00	577,023.62	32° 7' 31.03627 N	104° 5' 4.29797 W
14,146.00	91.04	0.24	8,168.08	6,150.59	-7.68	409,485.98	577,023.72	32° 7' 31.97631 N	104° 5' 4.29426 W
14,240.00	89.38	0.98	8,167.74	6,244.58	-6.68	409,579.97	577,024.72	32° 7' 32.90645 N	104° 5' 4.28010 W
14,334.00	89.52	1.51	8,168.64	6,338.55	-4.64	409,673.95	577,026.77	32° 7' 33.83641 N	104° 5' 4.25382 W
14,427.00	90.06	2.54	8,168.98	6,431.49	-1.35	409,766.89	577,030.05	32° 7' 34.75610 N	104° 5' 4.21311 W
14,521.00	88.66	0.78	8,170.03	6,525.44	1.37	409,860.84	577,032.78	32° 7' 35.68580 N	104° 5' 4.17893 W
14,616.00	88.38	0.80	8,172.49	6,620.40	2.68	409,955.80	577,034.08	32° 7' 36.62553 N	104° 5' 4.16115 W
14,710.00	88.04	1.06	8,175.42	6,714.34	4.21	410,049.74	577,035.61	32° 7' 37.55518 N	104° 5' 4.14089 W
14,804.00	89.08	1.30	8,177.79	6,808.29	6.14	410,143.69	577,037.54	32° 7' 38.48490 N	104° 5' 4.11586 W
14,898.00	89.44	0.09	8,179.00	6,902.27	7.28	410,237.67	577,038.68	32° 7' 39.41497 N	104° 5' 4.10008 W
14,992.00	89.72	359.48	8,179.69	6,996.27	6.93	410,331.67	577,038.33	32° 7' 40.34521 N	104° 5' 4.10166 W
15,086.00	89.80	359.16	8,180.08	7,090.26	5.81	410,425.66	577,037.22	32° 7' 41.27542 N	104° 5' 4.11211 W
15,180.00	90.78	0.25	8,179.61	7,184.25	5.33	410,519.65	577,036.73	32° 7' 42.20565 N	104° 5' 4.11521 W
15,274.00	87.62	358.36	8,180.92	7,278.22	4.19	410,613.62	577,035.59	32° 7' 43.13562 N	104° 5' 4.12594 W
15,368.00	88.60	357.32	8,184.02	7,372.10	0.65	410,707.50	577,032.05	32° 7' 44.06478 N	104° 5' 4.16460 W
15,462.00	89.86	358.26	8,185.28	7,466.02	-2.98	410,801.42	577,028.43	32° 7' 44.99432 N	104° 5' 4.20422 W



Phoenix Technology Services LP
Survey Report - Geographic



Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Myox 21 State Com
Well: 4H
Wellbore: OH / Job #61260
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 2983.20usft (Ensign 155)
MD Reference: GL + KB @ 2983.20usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,556.00	91.01	358.43	8,184.57	7,559.98	-5.69	410,895.38	577,025.71	32° 7' 45.92422 N	104° 5' 4.23327 W
15,650.00	92.83	358.44	8,181.42	7,653.89	-8.26	410,989.28	577,023.15	32° 7' 46.85364 N	104° 5' 4.26058 W
15,744.00	93.73	358.16	8,176.04	7,747.69	-11.04	411,083.09	577,020.36	32° 7' 47.78202 N	104° 5' 4.29044 W
15,839.00	92.55	358.56	8,170.84	7,842.51	-13.75	411,177.90	577,017.65	32° 7' 48.72043 N	104° 5' 4.31946 W
15,933.00	90.98	359.65	8,167.94	7,936.44	-15.22	411,271.84	577,016.18	32° 7' 49.65013 N	104° 5' 4.33400 W
16,027.00	91.18	359.84	8,166.17	8,030.43	-15.64	411,365.83	577,015.76	32° 7' 50.58023 N	104° 5' 4.33634 W
16,121.00	91.01	359.93	8,164.37	8,124.41	-15.83	411,459.81	577,015.57	32° 7' 51.51033 N	104° 5' 4.33601 W
16,216.00	91.18	0.19	8,162.56	8,219.39	-15.73	411,554.79	577,015.67	32° 7' 52.45031 N	104° 5' 4.33230 W
16,310.00	89.69	0.76	8,161.84	8,313.38	-14.95	411,648.78	577,016.45	32° 7' 53.38047 N	104° 5' 4.32071 W
16,404.00	89.66	0.91	8,162.38	8,407.37	-13.58	411,742.77	577,017.82	32° 7' 54.31059 N	104° 5' 4.30226 W
16,498.00	89.80	1.58	8,162.82	8,501.35	-11.54	411,836.75	577,019.87	32° 7' 55.24057 N	104° 5' 4.27598 W
16,593.00	90.48	1.31	8,162.59	8,596.32	-9.14	411,931.72	577,022.26	32° 7' 56.18037 N	104° 5' 4.24557 W
16,687.00	90.25	1.30	8,161.99	8,690.29	-7.00	412,025.69	577,024.40	32° 7' 57.11033 N	104° 5' 4.21815 W
16,782.00	90.45	1.68	8,161.41	8,785.26	-4.53	412,120.66	577,026.87	32° 7' 58.05010 N	104° 5' 4.18687 W
16,876.00	90.20	2.06	8,160.88	8,879.20	-1.46	412,214.60	577,029.94	32° 7' 58.97978 N	104° 5' 4.14867 W
16,971.00	89.78	0.58	8,160.89	8,974.18	0.73	412,309.58	577,032.13	32° 7' 59.91961 N	104° 5' 4.12067 W
17,065.00	89.02	359.98	8,161.88	9,068.17	1.18	412,403.57	577,032.59	32° 8' 0.84979 N	104° 5' 4.11280 W
17,159.00	88.88	0.10	8,163.60	9,162.15	1.25	412,497.55	577,032.65	32° 8' 1.77990 N	104° 5' 4.10952 W
17,253.00	88.94	0.19	8,165.39	9,256.14	1.49	412,591.53	577,032.89	32° 8' 2.70998 N	104° 5' 4.10422 W
17,347.00	88.80	0.34	8,167.24	9,350.12	1.92	412,685.52	577,033.33	32° 8' 3.64005 N	104° 5' 4.09664 W
17,442.00	89.64	359.70	8,168.54	9,445.11	1.96	412,780.51	577,033.36	32° 8' 4.58011 N	104° 5' 4.09371 W
17,537.00	90.50	359.24	8,168.42	9,540.10	1.08	412,875.50	577,032.48	32° 8' 5.52024 N	104° 5' 4.10137 W
17,631.00	90.70	359.47	8,167.43	9,634.09	0.02	412,969.49	577,031.42	32° 8' 6.45041 N	104° 5' 4.11116 W
17,725.00	90.45	359.33	8,166.49	9,728.08	-0.97	413,063.48	577,030.44	32° 8' 7.38060 N	104° 5' 4.12008 W
17,819.00	90.20	359.41	8,165.96	9,822.07	-2.00	413,157.47	577,029.40	32° 8' 8.31082 N	104° 5' 4.12957 W
17,913.00	90.76	0.01	8,165.17	9,916.07	-2.47	413,251.47	577,028.93	32° 8' 9.24104 N	104° 5' 4.13258 W
17,995.00	90.98	0.42	8,163.93	9,998.06	-2.17	413,333.46	577,029.24	32° 8' 10.05244 N	104° 5' 4.12680 W
Final Phoenix MWD Survey									
18,059.00	90.98	0.42	8,162.83	10,062.05	-1.70	413,397.45	577,029.70	32° 8' 10.68569 N	104° 5' 4.11962 W
Projection to TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,544.00	7,543.44	-13.40	-11.74	Tie In
7,660.00	7,659.39	-14.18	-15.05	First Phoenix MWD Survey
8,089.00	8,044.90	140.15	-28.99	First Take Point
17,995.00	8,163.93	9,998.06	-2.17	Final Phoenix MWD Survey
18,059.00	8,162.83	10,062.05	-1.70	Projection to TD

Checked By: _____ Approved By: _____ Date: _____