



NM OIL CONSERVATION

ARTESIA DISTRICT

OCT 19 2017

RECEIVED

COG OPERATING LLC

EDDY COUNTY, NM

ATLAS

GRAHAM CRACKER 2 STATE #1H

OWB

Plan: PWP0

Survey Report - Geographic

19 October, 2017



COG Operating LLC

Survey Report - Geographic

Company: COG OPERATING LLC
Project: EDDY COUNTY, NM
Site: ATLAS
Well: GRAHAM CRACKER 2 STATE #1H
Wellbore: OWB
Design: PWP0

Local Co-ordinate Reference: Well GRAHAM CRACKER 2 STATE #1H
TVD Reference: RKB=2949.4+25 @ 2974.4usft (PRECISION 595)
MD Reference: RKB=2949.4+25 @ 2974.4usft (PRECISION 595)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

Project	EDDY 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	ATLAS		
Site Position:		Northing:	371,480.80 usft
From:	Map	Easting:	573,599.60 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 1' 15.933 N
		Longitude:	104° 5' 45.086 W
		Grid Convergence:	0.13 °

Well	GRAHAM CRACKER 2 STATE #1H		
Well Position	+N/-S	0.0 usft	Northing: 387,981.70 usf
	+E/-W	0.0 usft	Easting: 587,303.70 usf
Position Uncertainty	3.0 usft	Wellhead Elevation:	usf
		Latitude:	32° 3' 58.909 N
		Longitude:	104° 3' 5.404 W
		Ground Level:	2,949.4 usf

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM2015	10/18/2017	7.15	59.82	47,749.13127228

Design	PWP0				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	5.59	

Survey Tool Program	Date 10/18/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	14,981.4	PWP0 (OWB)	MWD	OWSG MWD - Standard

Planned 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	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
100.0	0.00	0.00	100.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
200.0	0.00	0.00	200.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
300.0	0.00	0.00	300.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
400.0	0.00	0.00	400.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
500.0	0.00	0.00	500.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
600.0	0.00	0.00	600.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
700.0	0.00	0.00	700.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
800.0	0.00	0.00	800.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
900.0	0.00	0.00	900.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W



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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,000.0	0.00	0.00	1,000.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,600.0	0.00	0.00	2,600.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,700.0	0.00	0.00	2,700.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,800.0	0.00	0.00	2,800.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
2,900.0	0.00	0.00	2,900.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
3,000.0	0.00	0.00	3,000.0	0.0	0.0	387,981.70	587,303.70	32° 3' 58.909 N	104° 3' 5.404 W
3,100.0	2.00	132.00	3,100.0	-1.2	1.3	387,980.53	587,305.00	32° 3' 58.898 N	104° 3' 5.389 W
3,200.0	4.00	132.00	3,199.8	-4.7	5.2	387,977.03	587,308.89	32° 3' 58.863 N	104° 3' 5.343 W
3,225.0	4.50	132.00	3,224.8	-5.9	6.6	387,975.79	587,310.27	32° 3' 58.851 N	104° 3' 5.327 W
3,300.0	4.50	132.00	3,299.5	-9.8	10.9	387,971.85	587,314.64	32° 3' 58.812 N	104° 3' 5.277 W
3,400.0	4.50	132.00	3,399.2	-15.1	16.8	387,966.60	587,320.47	32° 3' 58.759 N	104° 3' 5.209 W
3,500.0	4.50	132.00	3,498.9	-20.3	22.6	387,961.35	587,326.30	32° 3' 58.707 N	104° 3' 5.142 W
3,600.0	4.50	132.00	3,598.6	-25.6	28.4	387,956.10	587,332.13	32° 3' 58.655 N	104° 3' 5.074 W
3,700.0	4.50	132.00	3,698.3	-30.8	34.3	387,950.85	587,337.96	32° 3' 58.603 N	104° 3' 5.006 W
3,800.0	4.50	132.00	3,798.0	-36.1	40.1	387,945.60	587,343.79	32° 3' 58.551 N	104° 3' 4.939 W
3,900.0	4.50	132.00	3,897.7	-41.3	45.9	387,940.35	587,349.62	32° 3' 58.499 N	104° 3' 4.871 W
4,000.0	4.50	132.00	3,997.4	-46.6	51.8	387,935.10	587,355.45	32° 3' 58.447 N	104° 3' 4.804 W
4,100.0	4.50	132.00	4,097.1	-51.8	57.6	387,929.85	587,361.28	32° 3' 58.395 N	104° 3' 4.736 W
4,200.0	4.50	132.00	4,196.8	-57.1	63.4	387,924.60	587,367.11	32° 3' 58.343 N	104° 3' 4.668 W
4,300.0	4.50	132.00	4,296.5	-62.3	69.2	387,919.35	587,372.95	32° 3' 58.290 N	104° 3' 4.601 W
4,400.0	4.50	132.00	4,396.1	-67.6	75.1	387,914.10	587,378.78	32° 3' 58.238 N	104° 3' 4.533 W
4,500.0	4.50	132.00	4,495.8	-72.8	80.9	387,908.85	587,384.61	32° 3' 58.186 N	104° 3' 4.466 W
4,600.0	4.50	132.00	4,595.5	-78.1	86.7	387,903.60	587,390.44	32° 3' 58.134 N	104° 3' 4.398 W
4,700.0	4.50	132.00	4,695.2	-83.3	92.6	387,898.35	587,396.27	32° 3' 58.082 N	104° 3' 4.330 W
4,800.0	4.50	132.00	4,794.9	-88.6	98.4	387,893.10	587,402.10	32° 3' 58.030 N	104° 3' 4.263 W
4,900.0	4.50	132.00	4,894.6	-93.8	104.2	387,887.85	587,407.93	32° 3' 57.978 N	104° 3' 4.195 W
5,000.0	4.50	132.00	4,994.3	-99.1	110.1	387,882.60	587,413.76	32° 3' 57.926 N	104° 3' 4.128 W
5,100.0	4.50	132.00	5,094.0	-104.3	115.9	387,877.35	587,419.59	32° 3' 57.874 N	104° 3' 4.060 W
5,200.0	4.50	132.00	5,193.7	-109.6	121.7	387,872.10	587,425.42	32° 3' 57.822 N	104° 3' 3.992 W
5,300.0	4.50	132.00	5,293.4	-114.8	127.5	387,866.85	587,431.25	32° 3' 57.769 N	104° 3' 3.925 W
5,400.0	4.50	132.00	5,393.1	-120.1	133.4	387,861.60	587,437.08	32° 3' 57.717 N	104° 3' 3.857 W
5,500.0	4.50	132.00	5,492.8	-125.3	139.2	387,856.35	587,442.91	32° 3' 57.665 N	104° 3' 3.790 W
5,600.0	4.50	132.00	5,592.4	-130.6	145.0	387,851.10	587,448.74	32° 3' 57.613 N	104° 3' 3.722 W
5,700.0	4.50	132.00	5,692.1	-135.8	150.9	387,845.85	587,454.57	32° 3' 57.561 N	104° 3' 3.654 W
5,800.0	4.50	132.00	5,791.8	-141.1	156.7	387,840.60	587,460.41	32° 3' 57.509 N	104° 3' 3.587 W
5,900.0	4.50	132.00	5,891.5	-146.3	162.5	387,835.35	587,466.24	32° 3' 57.457 N	104° 3' 3.519 W
6,000.0	4.50	132.00	5,991.2	-151.6	168.4	387,830.10	587,472.07	32° 3' 57.405 N	104° 3' 3.452 W
6,100.0	4.50	132.00	6,090.9	-156.8	174.2	387,824.85	587,477.90	32° 3' 57.353 N	104° 3' 3.384 W



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,200.0	4.50	132.00	6,190.6	-162.1	180.0	387,819.60	587,483.73	32° 3' 57.300 N	104° 3' 3.316 W
6,300.0	4.50	132.00	6,290.3	-167.3	185.9	387,814.35	587,489.56	32° 3' 57.248 N	104° 3' 3.249 W
6,400.0	4.50	132.00	6,390.0	-172.6	191.7	387,809.10	587,495.39	32° 3' 57.196 N	104° 3' 3.181 W
6,500.0	4.50	132.00	6,489.7	-177.8	197.5	387,803.85	587,501.22	32° 3' 57.144 N	104° 3' 3.114 W
6,600.0	4.50	132.00	6,589.4	-183.1	203.3	387,798.60	587,507.05	32° 3' 57.092 N	104° 3' 3.046 W
6,700.0	4.50	132.00	6,689.1	-188.3	209.2	387,793.35	587,512.88	32° 3' 57.040 N	104° 3' 2.978 W
6,800.0	4.50	132.00	6,788.7	-193.6	215.0	387,788.10	587,518.71	32° 3' 56.988 N	104° 3' 2.911 W
6,900.0	4.50	132.00	6,888.4	-198.8	220.8	387,782.85	587,524.54	32° 3' 56.936 N	104° 3' 2.843 W
7,000.0	4.50	132.00	6,988.1	-204.1	226.7	387,777.60	587,530.37	32° 3' 56.884 N	104° 3' 2.776 W
7,100.0	4.50	132.00	7,087.8	-209.3	232.5	387,772.35	587,536.20	32° 3' 56.831 N	104° 3' 2.708 W
7,200.0	4.50	132.00	7,187.5	-214.6	238.3	387,767.10	587,542.03	32° 3' 56.779 N	104° 3' 2.640 W
7,300.0	4.50	132.00	7,287.2	-219.8	244.2	387,761.85	587,547.86	32° 3' 56.727 N	104° 3' 2.573 W
7,400.0	4.50	132.00	7,386.9	-225.1	250.0	387,756.60	587,553.70	32° 3' 56.675 N	104° 3' 2.505 W
7,500.0	4.50	132.00	7,486.6	-230.3	255.8	387,751.35	587,559.53	32° 3' 56.623 N	104° 3' 2.438 W
7,600.0	4.50	132.00	7,586.3	-235.6	261.7	387,746.10	587,565.36	32° 3' 56.571 N	104° 3' 2.370 W
7,700.0	4.50	132.00	7,686.0	-240.8	267.5	387,740.85	587,571.19	32° 3' 56.519 N	104° 3' 2.302 W
7,800.0	4.50	132.00	7,785.7	-246.1	273.3	387,735.60	587,577.02	32° 3' 56.467 N	104° 3' 2.235 W
7,900.0	4.50	132.00	7,885.4	-251.3	279.1	387,730.35	587,582.85	32° 3' 56.415 N	104° 3' 2.167 W
8,000.0	4.50	132.00	7,985.0	-256.6	285.0	387,725.10	587,588.68	32° 3' 56.363 N	104° 3' 2.100 W
8,100.0	4.50	132.00	8,084.7	-261.8	290.8	387,719.85	587,594.51	32° 3' 56.310 N	104° 3' 2.032 W
8,200.0	4.50	132.00	8,184.4	-267.1	296.6	387,714.61	587,600.34	32° 3' 56.258 N	104° 3' 1.964 W
8,300.0	4.50	132.00	8,284.1	-272.3	302.5	387,709.36	587,606.17	32° 3' 56.206 N	104° 3' 1.897 W
8,400.0	4.50	132.00	8,383.8	-277.6	308.3	387,704.11	587,612.00	32° 3' 56.154 N	104° 3' 1.829 W
8,500.0	4.50	132.00	8,483.5	-282.8	314.1	387,698.86	587,617.83	32° 3' 56.102 N	104° 3' 1.762 W
8,600.0	4.50	132.00	8,583.2	-288.1	320.0	387,693.61	587,623.66	32° 3' 56.050 N	104° 3' 1.694 W
8,700.0	4.50	132.00	8,682.9	-293.3	325.8	387,688.36	587,629.49	32° 3' 55.998 N	104° 3' 1.626 W
8,800.0	4.50	132.00	8,782.6	-298.6	331.6	387,683.11	587,635.32	32° 3' 55.946 N	104° 3' 1.559 W
8,900.0	4.50	132.00	8,882.3	-303.8	337.5	387,677.86	587,641.16	32° 3' 55.894 N	104° 3' 1.491 W
9,000.0	4.50	132.00	8,982.0	-309.1	343.3	387,672.61	587,646.99	32° 3' 55.841 N	104° 3' 1.424 W
9,100.0	4.50	132.00	9,081.7	-314.3	349.1	387,667.36	587,652.82	32° 3' 55.789 N	104° 3' 1.356 W
9,200.0	4.50	132.00	9,181.3	-319.6	354.9	387,662.11	587,658.65	32° 3' 55.737 N	104° 3' 1.288 W
9,300.0	4.50	132.00	9,281.0	-324.8	360.8	387,656.86	587,664.48	32° 3' 55.685 N	104° 3' 1.221 W
9,400.0	4.50	132.00	9,380.7	-330.1	366.6	387,651.61	587,670.31	32° 3' 55.633 N	104° 3' 1.153 W
9,500.0	4.50	132.00	9,480.4	-335.3	372.4	387,646.36	587,676.14	32° 3' 55.581 N	104° 3' 1.086 W
9,600.0	4.50	132.00	9,580.1	-340.6	378.3	387,641.11	587,681.97	32° 3' 55.529 N	104° 3' 1.018 W
9,700.0	4.50	132.00	9,679.8	-345.8	384.1	387,635.86	587,687.80	32° 3' 55.477 N	104° 3' 0.950 W
9,800.0	4.50	132.00	9,779.5	-351.1	389.9	387,630.61	587,693.63	32° 3' 55.425 N	104° 3' 0.883 W
9,900.0	4.50	132.00	9,879.2	-356.3	395.8	387,625.36	587,699.46	32° 3' 55.372 N	104° 3' 0.815 W
9,986.0	4.50	132.00	9,964.9	-360.9	400.8	387,620.84	587,704.48	32° 3' 55.328 N	104° 3' 0.757 W
10,000.0	3.68	111.21	9,978.9	-361.4	401.6	387,620.31	587,705.30	32° 3' 55.322 N	104° 3' 0.747 W
10,100.0	11.39	20.55	10,078.2	-353.3	408.1	387,628.42	587,711.79	32° 3' 55.403 N	104° 3' 0.672 W
10,200.0	23.10	11.13	10,173.5	-324.7	415.4	387,657.02	587,719.07	32° 3' 55.685 N	104° 3' 0.586 W
10,300.0	35.00	7.90	10,260.8	-276.8	423.1	387,704.85	587,726.83	32° 3' 56.158 N	104° 3' 0.495 W
10,400.0	46.95	6.17	10,336.2	-211.9	431.0	387,769.83	587,734.73	32° 3' 56.801 N	104° 3' 0.401 W
10,500.0	58.92	5.01	10,396.3	-132.6	438.7	387,849.10	587,742.42	32° 3' 57.586 N	104° 3' 0.309 W
10,600.0	70.89	4.11	10,438.6	-42.5	445.9	387,939.21	587,749.57	32° 3' 58.477 N	104° 3' 0.223 W
10,700.0	82.87	3.34	10,461.3	54.5	452.2	388,036.22	587,755.87	32° 3' 59.437 N	104° 3' 0.147 W
10,759.5	90.00	2.90	10,465.0	113.8	455.4	388,095.48	587,759.10	32° 4' 0.024 N	104° 3' 0.108 W
10,800.0	90.00	1.28	10,465.0	154.3	456.9	388,135.95	587,760.58	32° 4' 0.424 N	104° 3' 0.089 W
10,843.5	90.00	359.54	10,465.0	197.7	457.2	388,179.41	587,760.89	32° 4' 0.854 N	104° 3' 0.084 W
10,900.0	90.00	359.54	10,465.0	254.2	456.7	388,235.95	587,760.44	32° 4' 1.414 N	104° 3' 0.088 W
11,000.0	90.00	359.54	10,465.0	354.2	455.9	388,335.94	587,759.64	32° 4' 2.403 N	104° 3' 0.094 W
11,100.0	90.00	359.54	10,465.0	454.2	455.1	388,435.94	587,758.84	32° 4' 3.393 N	104° 3' 0.100 W



COG Operating LLC

Survey Report - Geographic

Company: COG OPERATING LLC
Project: EDDY COUNTY, NM

Site: ATLAS

Well: GRAHAM CRACKER 2 STATE #1H
Wellbore: OWB
Design: PWP0

Local Co-ordinate Reference: Well GRAHAM CRACKER 2 STATE #1H
TVD Reference: RKB=2949.4+25 @ 2974.4usft (PRECISION 595)

MD Reference: RKB=2949.4+25 @ 2974.4usft (PRECISION 595)

North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,200.0	90.00	359.54	10,465.0	554.2	454.3	388,535.94	587,758.04	32° 4' 4.383 N	104° 3' 0.107 W
11,300.0	90.00	359.54	10,465.0	654.2	453.5	388,635.93	587,757.24	32° 4' 5.372 N	104° 3' 0.113 W
11,400.0	90.00	359.54	10,465.0	754.2	452.7	388,735.93	587,756.44	32° 4' 6.362 N	104° 3' 0.119 W
11,500.0	90.00	359.54	10,465.0	854.2	451.9	388,835.93	587,755.64	32° 4' 7.351 N	104° 3' 0.125 W
11,600.0	90.00	359.54	10,465.0	954.2	451.1	388,935.93	587,754.84	32° 4' 8.341 N	104° 3' 0.132 W
11,700.0	90.00	359.54	10,465.0	1,054.2	450.3	389,035.92	587,754.04	32° 4' 9.331 N	104° 3' 0.138 W
11,800.0	90.00	359.54	10,465.0	1,154.2	449.5	389,135.92	587,753.24	32° 4' 10.320 N	104° 3' 0.144 W
11,900.0	90.00	359.54	10,465.0	1,254.2	448.7	389,235.92	587,752.44	32° 4' 11.310 N	104° 3' 0.150 W
12,000.0	90.00	359.54	10,465.0	1,354.2	447.9	389,335.91	587,751.64	32° 4' 12.300 N	104° 3' 0.157 W
12,100.0	90.00	359.54	10,465.0	1,454.2	447.1	389,435.91	587,750.84	32° 4' 13.289 N	104° 3' 0.163 W
12,200.0	90.00	359.54	10,465.0	1,554.2	446.3	389,535.91	587,750.04	32° 4' 14.279 N	104° 3' 0.169 W
12,300.0	90.00	359.54	10,465.0	1,654.2	445.5	389,635.90	587,749.24	32° 4' 15.269 N	104° 3' 0.175 W
12,400.0	90.00	359.54	10,465.0	1,754.2	444.7	389,735.90	587,748.44	32° 4' 16.258 N	104° 3' 0.182 W
12,500.0	90.00	359.54	10,465.0	1,854.2	443.9	389,835.90	587,747.65	32° 4' 17.248 N	104° 3' 0.188 W
12,600.0	90.00	359.54	10,465.0	1,954.2	443.1	389,935.89	587,746.85	32° 4' 18.237 N	104° 3' 0.194 W
12,700.0	90.00	359.54	10,465.0	2,054.2	442.3	390,035.89	587,746.05	32° 4' 19.227 N	104° 3' 0.200 W
12,800.0	90.00	359.54	10,465.0	2,154.2	441.5	390,135.89	587,745.25	32° 4' 20.217 N	104° 3' 0.207 W
12,900.0	90.00	359.54	10,465.0	2,254.2	440.7	390,235.88	587,744.45	32° 4' 21.206 N	104° 3' 0.213 W
13,000.0	90.00	359.54	10,465.0	2,354.2	439.9	390,335.88	587,743.65	32° 4' 22.196 N	104° 3' 0.219 W
13,100.0	90.00	359.54	10,465.0	2,454.2	439.1	390,435.88	587,742.85	32° 4' 23.186 N	104° 3' 0.225 W
13,200.0	90.00	359.54	10,465.0	2,554.2	438.3	390,535.87	587,742.05	32° 4' 24.175 N	104° 3' 0.231 W
13,300.0	90.00	359.54	10,465.0	2,654.2	437.5	390,635.87	587,741.25	32° 4' 25.165 N	104° 3' 0.238 W
13,400.0	90.00	359.54	10,465.0	2,754.2	436.7	390,735.87	587,740.45	32° 4' 26.155 N	104° 3' 0.244 W
13,500.0	90.00	359.54	10,465.0	2,854.2	435.9	390,835.86	587,739.65	32° 4' 27.144 N	104° 3' 0.250 W
13,600.0	90.00	359.54	10,465.0	2,954.2	435.1	390,935.86	587,738.85	32° 4' 28.134 N	104° 3' 0.256 W
13,700.0	90.00	359.54	10,465.0	3,054.2	434.3	391,035.86	587,738.05	32° 4' 29.124 N	104° 3' 0.263 W
13,800.0	90.00	359.54	10,465.0	3,154.2	433.5	391,135.85	587,737.25	32° 4' 30.113 N	104° 3' 0.269 W
13,900.0	90.00	359.54	10,465.0	3,254.2	432.7	391,235.85	587,736.45	32° 4' 31.103 N	104° 3' 0.275 W
14,000.0	90.00	359.54	10,465.0	3,354.1	431.9	391,335.85	587,735.65	32° 4' 32.092 N	104° 3' 0.281 W
14,100.0	90.00	359.54	10,465.0	3,454.1	431.1	391,435.85	587,734.85	32° 4' 33.082 N	104° 3' 0.288 W
14,200.0	90.00	359.54	10,465.0	3,554.1	430.3	391,535.84	587,734.05	32° 4' 34.072 N	104° 3' 0.294 W
14,300.0	90.00	359.54	10,465.0	3,654.1	429.5	391,635.84	587,733.25	32° 4' 35.061 N	104° 3' 0.300 W
14,400.0	90.00	359.54	10,465.0	3,754.1	428.7	391,735.84	587,732.45	32° 4' 36.051 N	104° 3' 0.306 W
14,500.0	90.00	359.54	10,465.0	3,854.1	427.9	391,835.83	587,731.65	32° 4' 37.041 N	104° 3' 0.313 W
14,600.0	90.00	359.54	10,465.0	3,954.1	427.2	391,935.83	587,730.85	32° 4' 38.030 N	104° 3' 0.319 W
14,700.0	90.00	359.54	10,465.0	4,054.1	426.4	392,035.83	587,730.05	32° 4' 39.020 N	104° 3' 0.325 W
14,800.0	90.00	359.54	10,465.0	4,154.1	425.6	392,135.82	587,729.25	32° 4' 40.010 N	104° 3' 0.331 W
14,900.0	90.00	359.54	10,465.0	4,254.1	424.8	392,235.82	587,728.45	32° 4' 40.999 N	104° 3' 0.338 W
14,981.5	90.00	359.54	10,465.0	4,335.6	424.1	392,317.30	587,727.80	32° 4' 41.806 N	104° 3' 0.343 W

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL-Graham	0.00	0.00	10,465.0	4,335.6	424.1	392,317.30	587,727.80	32° 4' 41.806 N	104° 3' 0.343 W
- plan hits target center									
- Point									

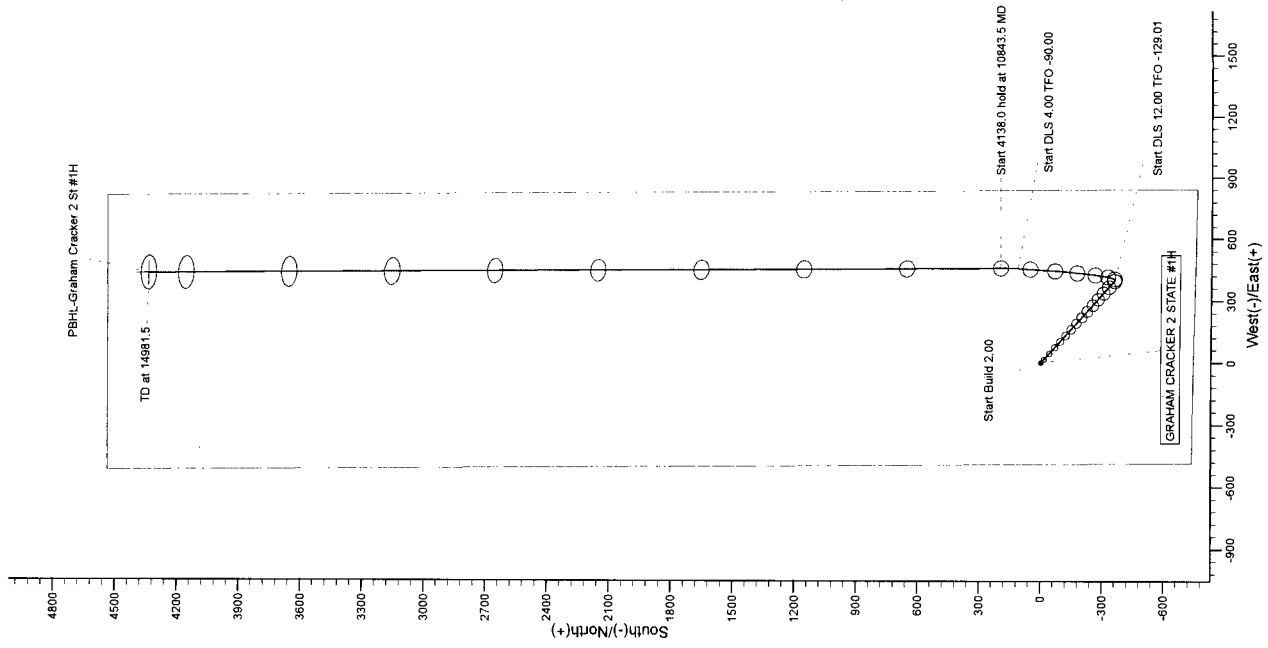
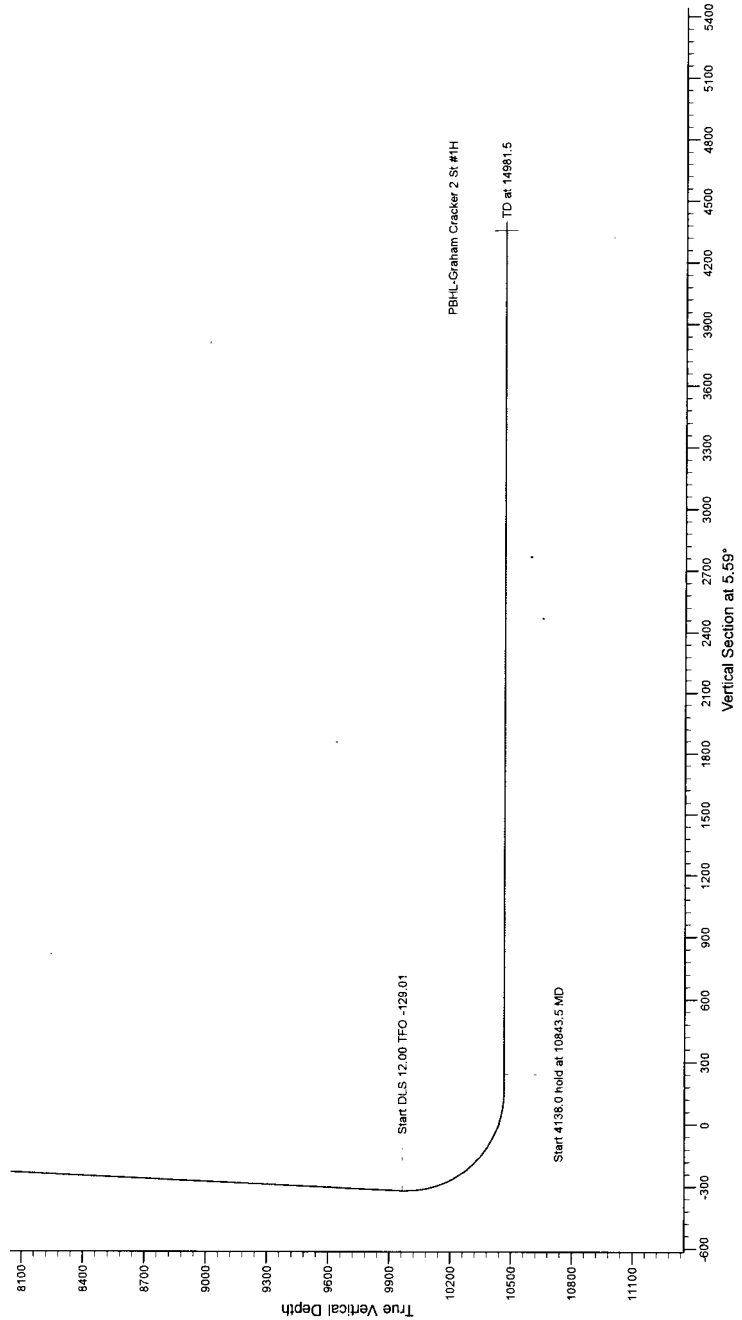
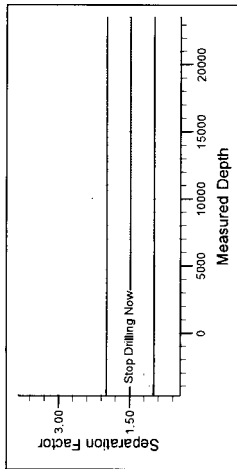
Checked By: _____ Approved By: _____ Date: _____



WELL DETAILS: GRAHAM CRACKER 2 STATE #1H

+N/-S		+E/-W		Northing	Easting	Latitude		Longitude		Slot
0.0		0.0		387981.70	587303.70	32° 3' 58.909 N	104° 3' 5.404 W			
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	THUS	FWLW	Dleg	TFace	VSeet	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3225.0	4.50	132.00	3224.8	-5.9	6.6	2.00	132.00	-5.2	
4	9985.0	4.50	132.00	9984.9	-360.9	400.8	0.00	0.00	-320.1	
5	10759.5	90.00	2.90	10465.0	113.8	455.4	12.00	-129.01	157.6	
6	10843.5	90.00	359.54	10465.0	197.7	457.2	4.00	-90.00	241.3	
7	14981.5	90.00	359.54	10465.0	4335.6	424.1	0.00	0.00	4356.3	

Project: EDDY COUNTY, NM
Site: ATLAS
Well: GRAHAM CRACKER 2 STATE #1H
Wellbore: OWB
Design: PWP0



Graham Cracker 2 State 1H

Casing and Cement

<u>String</u>	<u>Hole Size</u>	<u>Csg OD</u>	<u>PPF</u>	<u>Depth</u>	<u>Sx Cement</u>	<u>TOC</u>
Surface	12-1/4"	9-5/8"	40#	800'	500	0'
Intermediate	8-3/4"	7"	29#	9,700'	700	0'
Production	6-1/8"	4-1/2"	13.5#	14,981'	600	9200'

Well Plan

Drill 12-1/4" hole to ~800' w/ fresh water spud mud. Run 9-5/8" 40# J55 casing to TD and cement to surface in one stage.

Drill 8-3/4" hole to ~9500' with a brine-diesel emulsion water based mud. Run 7" 29# P110 casing to TD and cement to surface in one stage.

Drill 6-1/8" vertical hole, curve & lateral to 14,981' with OBM. Run 4-1/2" 13.5# P110 LTC Liner to TD and cement to top of liner.

Well Control

After setting 9-5/8" casing and installing 3000 psi casing head, NU 13-5/8" Cameron BOP. Test annular and casing to 1000 psi and other BOP equipment to 2000 psi.

After setting 7" casing and installing 5000 psi casing spool, NU 13-5/8" Cameron BOP. Test annular to 1500 psi and other BOP equipment to 3000 psi.