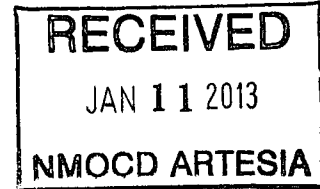


# CRESCENT DIRECTIONAL DRILLING

December 18, 2012

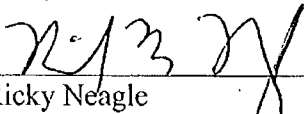
STATE OF NEW MEXICO

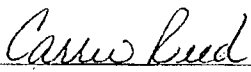
COUNTY OF ~~LEA~~ *Eddy*



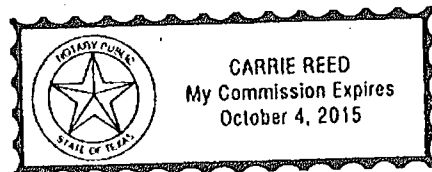
*30-015-40735*

I, Ricky Neagle, certify that; I am employed by Crescent Directional Drilling, L.P.; that on the day(s) of October 06, 2012-October 26, 2012 we conducted and or supervised the taking of a MWD survey for Baby Buddha 13 Fed #1H from a depth of 7632 feet to a depth of 12821 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Crescent Directional Drilling Services, L.P.; that I am authorized and qualified to make this report; that this survey was conducted at the request of Concho; that I reviewed this report and find it conforms to the principles and procedures as set forth by Crescent Directional.

  
\_\_\_\_\_  
Ricky Neagle  
Coordinator of MWD Operations  
Crescent Directional Drilling, L.P.

  
\_\_\_\_\_  
NOTARY

*1-7-13*  
\_\_\_\_\_  
DATE





## **COG Operating LLC**

Eddy County, NM (NAD 83)

Baby Buddha 13 Fed

#1H

OH

Design: OH

## **Survey Report - Geographic**

26 October, 2012



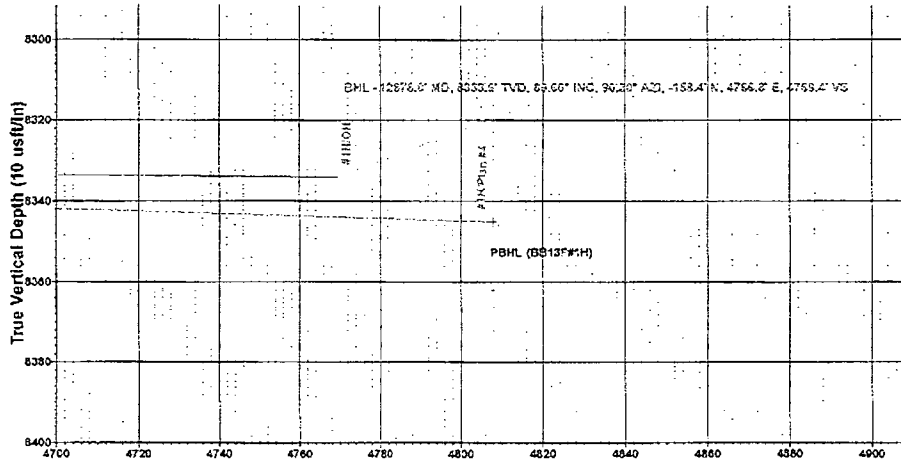
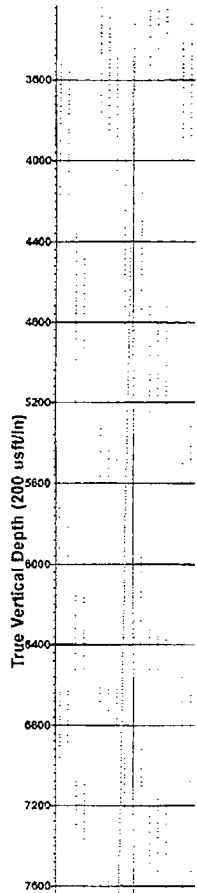
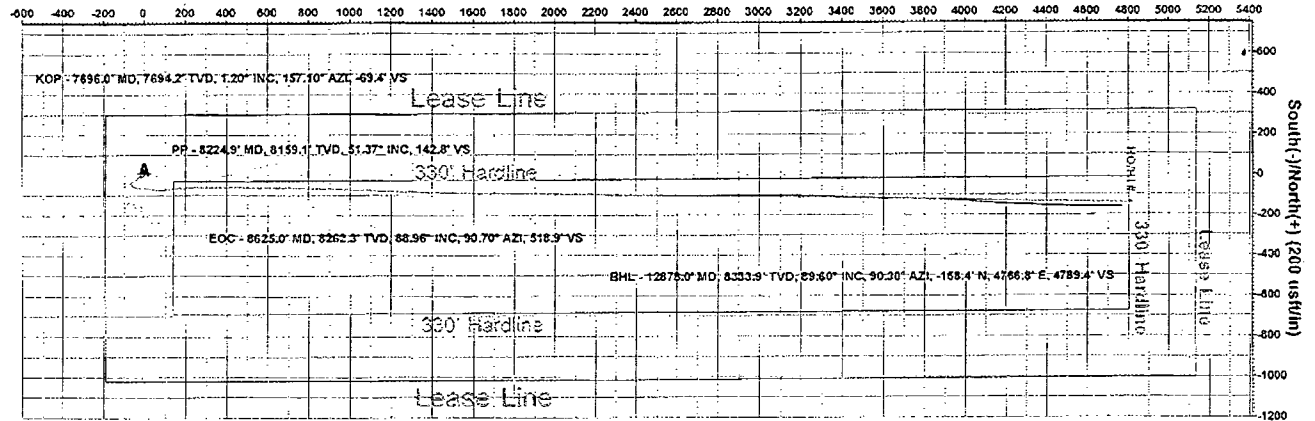
COG Operating LLC  
 Project: Eddy County, NM (NAD 83)  
 Site: Baby Buddha 13 Fed  
 Well: #1H  
 Wellbore: OH  
 Plan: Plan #4 (#1H/OH)



Azimuths to Grid North  
 True North: -0.15°  
 Magnetic North: 7.59°

Magnetic Field  
 Strength: 48392.0snT  
 Dip Angle: 59.93°  
 Date: 7/11/2012  
 Model: IGRF200510

West(-)/East(+) (200 usft/in)



Vertical Section at 91.63° (10 usft/in)

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	10685.0	90.70	90.60	8281.8	-102.0	2575.9	0.00	0.00	2577.8	
2	10805.4	88.31	90.91	8282.9	-103.6	2696.2	2.00	172.56	2698.1	
3	12916.2	88.31	90.91	8345.0	-137.1	4805.9	0.00	0.00	4807.9	PBHL (BB13F#1H)

WELL DETAILS: #1H

Ground Elevation:: 2948.0  
 RKB Elevation: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 Rig Name: Silver Oak #7 - 17.5' KB

Surface Hole Location			
Northing	Easting	Latitude	Longitude
379063.53	629518.08	32° 2' 30.502 N	104° 2' 55.465 W

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (BB13F#1H)	8345.0	-137.1	4805.9	378926.40	634324.01

PROJECT DETAILS: Eddy County, NM (NAD 83)  
 Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: New Mexico Eastom Zone  
 System Datum: Mean Sea Level  
 Local North: Grid



Crescent Directional Drilling  
 7715 West Industrial Ave. Midland, Tx 79706  
 Phone: 432-618-1135

Plan: Plan #4 (#1H/OH)  
 Created By: Matt Higgins Date: 11:00, October 26 2012



Survey Report - Geographic



Company: COG Operating LLC  
 Project: Eddy County, NM (NAD 83)  
 Site: Baby Buddha 13 Fed  
 Well: #1H  
 Wellbore: OH  
 Design: OH

Local Co-ordinate Reference: Site Baby Buddha 13 Fed  
 TVD Reference: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 MD Reference: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Houston R5000 Database

Project	Eddy County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Baby Buddha 13 Fed				
Site Position:		Northing:	379,063.53 usft	Latitude:	32° 2' 30.502 N
From:	Map	Easting:	629,518.08 usft	Longitude:	104° 2' 55.465 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well	#1H					
Well Position	+N/-S	0.0 usft	Northing:	379,063.53 usft	Latitude:	32° 2' 30.502 N
	+E/-W	0.0 usft	Easting:	629,518.08 usft	Longitude:	104° 2' 55.465 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,948.0 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/11/2012	7.65	59.93	48,392

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	7,600.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	91.63	

Survey Program	Date 10/26/2012				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	7,600.0	Survey #1 - Gyro1 (Pilot)	CB-GYRO-MS	Camera based gyro multishot	
7,632.0	12,821.0	Crescent1 (OH)	MWD	MWD - Standard	
12,878.0	12,878.0	PTB (OH)	MWD	MWD - Standard	

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	379,063.53	629,518.08	32° 2' 30.502 N	104° 2' 55.465 W
100.0	0.22	222.39	100.0	-0.1	-0.1	379,063.39	629,517.95	32° 2' 30.501 N	104° 2' 55.466 W
200.0	0.39	224.79	200.0	-0.5	-0.5	379,063.01	629,517.58	32° 2' 30.497 N	104° 2' 55.471 W
300.0	0.47	233.76	300.0	-1.0	-1.1	379,062.52	629,517.01	32° 2' 30.492 N	104° 2' 55.477 W
400.0	0.55	242.73	400.0	-1.5	-1.8	379,062.06	629,516.25	32° 2' 30.488 N	104° 2' 55.486 W
500.0	0.52	228.89	500.0	-2.0	-2.6	379,061.54	629,515.48	32° 2' 30.483 N	104° 2' 55.495 W
600.0	0.51	215.05	600.0	-2.7	-3.2	379,060.88	629,514.89	32° 2' 30.476 N	104° 2' 55.502 W
700.0	0.47	202.98	700.0	-3.4	-3.6	379,060.14	629,514.47	32° 2' 30.469 N	104° 2' 55.507 W
800.0	0.52	190.92	800.0	-4.2	-3.9	379,059.31	629,514.23	32° 2' 30.461 N	104° 2' 55.510 W
900.0	0.54	206.98	900.0	-5.1	-4.2	379,058.45	629,513.93	32° 2' 30.452 N	104° 2' 55.513 W



Survey Report - Geographic



Company: COG Operating LLC  
 Project: Eddy County, NM (NAD 83)  
 Site: Baby Buddha 13 Fed  
 Well: #1H  
 Wellbore: OH  
 Design: OH

Local Co-ordinate Reference: Site Baby Buddha 13 Fed  
 TVD Reference: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 MD Reference: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Houston R5000 Database

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	0.57	223.04	1,000.0	-5.9	-4.7	379,057.66	629,513.37	32° 2' 30.444 N	104° 2' 55.520 W
1,100.0	0.67	222.01	1,100.0	-6.7	-5.4	379,056.87	629,512.64	32° 2' 30.437 N	104° 2' 55.528 W
1,200.0	0.73	220.98	1,200.0	-7.6	-6.2	379,055.95	629,511.83	32° 2' 30.427 N	104° 2' 55.538 W
1,300.0	1.06	238.49	1,299.9	-8.5	-7.5	379,054.99	629,510.63	32° 2' 30.418 N	104° 2' 55.552 W
1,400.0	1.39	256.00	1,399.9	-9.3	-9.4	379,054.21	629,508.66	32° 2' 30.410 N	104° 2' 55.575 W
1,500.0	1.58	262.50	1,499.9	-9.8	-12.0	379,053.74	629,506.12	32° 2' 30.406 N	104° 2' 55.604 W
1,600.0	1.77	269.00	1,599.8	-10.0	-14.9	379,053.53	629,503.21	32° 2' 30.404 N	104° 2' 55.638 W
1,700.0	1.61	269.87	1,699.8	-10.0	-17.8	379,053.50	629,500.26	32° 2' 30.404 N	104° 2' 55.672 W
1,800.0	1.45	280.73	1,799.8	-9.8	-20.5	379,053.73	629,497.61	32° 2' 30.406 N	104° 2' 55.703 W
1,900.0	1.03	322.66	1,899.7	-8.8	-22.3	379,054.68	629,495.82	32° 2' 30.415 N	104° 2' 55.724 W
2,000.0	0.60	14.58	1,999.7	-7.6	-22.7	379,055.90	629,495.41	32° 2' 30.427 N	104° 2' 55.728 W
2,100.0	1.03	49.15	2,099.7	-6.5	-21.9	379,057.00	629,496.22	32° 2' 30.438 N	104° 2' 55.719 W
2,200.0	1.46	83.72	2,199.7	-5.8	-19.9	379,057.72	629,498.17	32° 2' 30.445 N	104° 2' 55.696 W
2,300.0	2.11	88.53	2,299.7	-5.6	-16.8	379,057.91	629,501.27	32° 2' 30.447 N	104° 2' 55.680 W
2,400.0	2.76	89.34	2,399.6	-5.5	-12.6	379,057.99	629,505.52	32° 2' 30.448 N	104° 2' 55.611 W
2,500.0	2.38	70.69	2,499.5	-4.8	-8.2	379,058.70	629,509.89	32° 2' 30.455 N	104° 2' 55.560 W
2,600.0	1.99	48.04	2,599.4	-3.0	-4.9	379,060.55	629,513.14	32° 2' 30.473 N	104° 2' 55.522 W
2,700.0	1.57	43.34	2,699.3	-0.8	-2.7	379,062.71	629,515.37	32° 2' 30.494 N	104° 2' 55.496 W
2,800.0	1.15	38.64	2,799.3	1.0	-1.1	379,064.49	629,516.94	32° 2' 30.512 N	104° 2' 55.478 W
2,900.0	0.94	34.85	2,899.3	2.4	0.0	379,065.94	629,518.03	32° 2' 30.526 N	104° 2' 55.465 W
3,000.0	0.74	31.05	2,999.3	3.6	0.8	379,067.17	629,518.83	32° 2' 30.538 N	104° 2' 55.456 W
3,100.0	0.63	7.19	3,099.3	4.7	1.2	379,068.27	629,519.24	32° 2' 30.549 N	104° 2' 55.451 W
3,200.0	0.53	343.34	3,199.3	5.7	1.1	379,069.26	629,519.17	32° 2' 30.559 N	104° 2' 55.452 W
3,300.0	0.45	343.11	3,299.3	6.5	0.8	379,070.07	629,518.92	32° 2' 30.567 N	104° 2' 55.455 W
3,400.0	0.35	342.89	3,399.3	7.2	0.6	379,070.74	629,518.72	32° 2' 30.574 N	104° 2' 55.457 W
3,500.0	0.42	320.90	3,499.3	7.8	0.3	379,071.32	629,518.40	32° 2' 30.579 N	104° 2' 55.461 W
3,600.0	0.48	298.91	3,599.3	8.3	-0.3	379,071.81	629,517.80	32° 2' 30.584 N	104° 2' 55.468 W
3,700.0	0.57	290.90	3,699.3	8.7	-1.1	379,072.19	629,516.97	32° 2' 30.586 N	104° 2' 55.477 W
3,800.0	0.66	282.90	3,799.3	9.0	-2.1	379,072.49	629,515.94	32° 2' 30.591 N	104° 2' 55.489 W
3,900.0	0.73	273.52	3,899.2	9.1	-3.3	379,072.66	629,514.75	32° 2' 30.593 N	104° 2' 55.503 W
4,000.0	0.67	264.14	3,999.2	9.1	-4.6	379,072.64	629,513.53	32° 2' 30.593 N	104° 2' 55.517 W
4,100.0	0.75	262.05	4,099.2	9.0	-5.8	379,072.49	629,512.30	32° 2' 30.591 N	104° 2' 55.532 W
4,200.0	0.78	259.97	4,199.2	8.7	-7.1	379,072.28	629,510.98	32° 2' 30.589 N	104° 2' 55.547 W
4,300.0	0.81	256.58	4,299.2	8.5	-8.5	379,072.00	629,509.62	32° 2' 30.586 N	104° 2' 55.563 W
4,400.0	0.87	253.19	4,399.2	8.1	-9.9	379,071.61	629,508.21	32° 2' 30.583 N	104° 2' 55.579 W
4,500.0	1.03	243.65	4,499.2	7.5	-11.4	379,070.99	629,506.68	32° 2' 30.576 N	104° 2' 55.597 W
4,600.0	1.19	234.11	4,599.2	6.5	-13.0	379,069.99	629,505.03	32° 2' 30.567 N	104° 2' 55.616 W
4,700.0	1.31	232.43	4,699.1	5.2	-14.8	379,068.68	629,503.28	32° 2' 30.554 N	104° 2' 55.637 W
4,800.0	1.41	230.74	4,799.1	3.7	-16.7	379,067.21	629,501.42	32° 2' 30.539 N	104° 2' 55.658 W
4,900.0	1.50	228.23	4,899.1	2.0	-18.6	379,065.56	629,499.50	32° 2' 30.523 N	104° 2' 55.681 W
5,000.0	1.56	225.73	4,999.0	0.2	-20.5	379,063.73	629,497.54	32° 2' 30.505 N	104° 2' 55.703 W
5,100.0	1.57	228.39	5,099.0	-1.7	-22.5	379,061.87	629,495.55	32° 2' 30.487 N	104° 2' 55.727 W
5,200.0	1.55	231.05	5,199.0	-3.4	-24.6	379,060.11	629,493.47	32° 2' 30.469 N	104° 2' 55.751 W
5,300.0	1.59	226.94	5,298.9	-5.2	-26.7	379,058.32	629,491.40	32° 2' 30.451 N	104° 2' 55.775 W
5,400.0	1.58	222.83	5,398.9	-7.2	-28.6	379,056.36	629,489.45	32° 2' 30.432 N	104° 2' 55.798 W
5,500.0	1.73	221.84	5,498.9	-9.3	-30.6	379,054.22	629,487.51	32° 2' 30.411 N	104° 2' 55.820 W
5,600.0	1.84	220.86	5,598.8	-11.6	-32.6	379,051.88	629,485.45	32° 2' 30.388 N	104° 2' 55.844 W
5,700.0	1.78	221.79	5,698.8	-14.0	-34.7	379,049.51	629,483.37	32° 2' 30.364 N	104° 2' 55.869 W
5,800.0	1.76	222.73	5,798.7	-16.3	-36.8	379,047.23	629,481.29	32° 2' 30.342 N	104° 2' 55.893 W
5,900.0	1.75	221.42	5,898.7	-18.6	-38.8	379,044.95	629,479.24	32° 2' 30.319 N	104° 2' 55.917 W
6,000.0	1.69	220.10	5,998.6	-20.9	-40.8	379,042.68	629,477.28	32° 2' 30.297 N	104° 2' 55.939 W
6,100.0	1.69	217.67	6,098.6	-23.1	-42.7	379,040.38	629,475.43	32° 2' 30.274 N	104° 2' 55.961 W
6,200.0	1.66	215.25	6,198.5	-25.5	-44.4	379,038.03	629,473.69	32° 2' 30.251 N	104° 2' 55.981 W
6,300.0	1.71	219.24	6,298.5	-27.8	-46.2	379,035.70	629,471.91	32° 2' 30.228 N	104° 2' 56.002 W
6,400.0	1.68	223.23	6,398.4	-30.1	-48.1	379,033.47	629,469.96	32° 2' 30.206 N	104° 2' 56.025 W



Survey Report - Geographic



Company: COG Operating LLC  
 Project: Eddy County, NM (NAD 83)  
 Site: Baby Buddha 13 Fed  
 Well: #1H  
 Wellbore: OH  
 Design: OH

Local Co-ordinate Reference: Site Baby Buddha 13 Fed  
 TVD Reference: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 MD Reference: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,500.0	1.40	249.68	6,498.4	-31.6	-50.3	379,031.98	629,467.81	32° 2' 30.191 N	104° 2' 56.050 W
6,600.0	1.12	276.12	6,598.4	-31.9	-52.4	379,031.66	629,465.70	32° 2' 30.188 N	104° 2' 56.074 W
6,700.0	1.15	283.60	6,698.4	-31.5	-54.3	379,032.00	629,463.75	32° 2' 30.192 N	104° 2' 56.097 W
6,800.0	1.19	291.08	6,798.3	-30.9	-56.3	379,032.61	629,461.80	32° 2' 30.198 N	104° 2' 56.120 W
6,900.0	0.93	271.17	6,898.3	-30.5	-58.1	379,033.00	629,460.02	32° 2' 30.202 N	104° 2' 56.140 W
7,000.0	0.67	251.25	6,998.3	-30.7	-59.4	379,032.83	629,458.66	32° 2' 30.200 N	104° 2' 56.156 W
7,100.0	1.06	239.50	7,098.3	-31.4	-60.8	379,032.17	629,457.31	32° 2' 30.194 N	104° 2' 56.172 W
7,200.0	1.44	227.75	7,198.3	-32.7	-62.5	379,030.86	629,455.58	32° 2' 30.181 N	104° 2' 56.192 W
7,300.0	1.39	229.55	7,298.3	-34.3	-64.4	379,029.22	629,453.73	32° 2' 30.165 N	104° 2' 56.214 W
7,400.0	1.31	231.36	7,398.2	-35.8	-66.2	379,027.72	629,451.91	32° 2' 30.150 N	104° 2' 56.235 W
7,500.0	1.23	233.23	7,498.2	-37.2	-67.9	379,026.37	629,450.16	32° 2' 30.136 N	104° 2' 56.255 W
7,600.0	1.16	235.10	7,598.2	-38.4	-69.6	379,025.15	629,448.47	32° 2' 30.124 N	104° 2' 56.275 W
7,632.0	1.10	231.40	7,630.2	-38.8	-70.1	379,024.77	629,447.96	32° 2' 30.121 N	104° 2' 56.281 W
7,664.0	1.00	219.80	7,662.2	-39.2	-70.5	379,024.36	629,447.54	32° 2' 30.117 N	104° 2' 56.285 W
7,696.0	1.20	157.10	7,694.2	-39.7	-70.6	379,023.84	629,447.50	32° 2' 30.111 N	104° 2' 56.286 W
<b>KOP - 7696.0' MD, 7694.2' TVD, 1.20° INC, 157.10° AZI, -69.4' VS</b>									
7,728.0	5.90	137.90	7,726.1	-41.2	-69.3	379,022.31	629,448.73	32° 2' 30.096 N	104° 2' 56.272 W
7,760.0	9.60	141.30	7,757.8	-44.5	-66.6	379,019.01	629,451.50	32° 2' 30.063 N	104° 2' 56.240 W
7,792.0	8.90	118.10	7,789.4	-47.8	-62.7	379,015.76	629,455.36	32° 2' 30.031 N	104° 2' 56.195 W
7,824.0	12.00	120.50	7,820.9	-50.6	-57.7	379,012.90	629,460.41	32° 2' 30.003 N	104° 2' 56.136 W
7,856.0	14.20	116.30	7,852.0	-54.1	-51.3	379,009.47	629,466.79	32° 2' 29.969 N	104° 2' 56.062 W
7,887.0	17.80	106.80	7,881.8	-57.1	-43.3	379,006.42	629,474.74	32° 2' 29.938 N	104° 2' 55.970 W
7,919.0	21.30	100.10	7,912.0	-59.5	-32.9	379,003.98	629,485.15	32° 2' 29.914 N	104° 2' 55.849 W
7,951.0	24.50	94.00	7,941.5	-61.0	-20.6	379,002.50	629,497.50	32° 2' 29.899 N	104° 2' 55.708 W
7,983.0	26.60	95.90	7,970.3	-62.2	-6.8	379,001.30	629,511.24	32° 2' 29.887 N	104° 2' 55.546 W
8,014.0	29.10	95.00	7,997.7	-63.6	7.6	378,999.93	629,525.66	32° 2' 29.873 N	104° 2' 55.379 W
8,046.0	32.40	94.90	8,025.2	-65.0	23.9	378,998.52	629,541.96	32° 2' 29.858 N	104° 2' 55.189 W
8,078.0	36.10	98.90	8,051.7	-67.2	41.7	378,996.33	629,559.82	32° 2' 29.836 N	104° 2' 54.982 W
8,110.0	39.00	94.20	8,077.1	-69.4	61.1	378,994.13	629,579.18	32° 2' 29.814 N	104° 2' 54.757 W
8,142.0	41.50	90.10	8,101.5	-70.2	81.8	378,993.38	629,599.84	32° 2' 29.806 N	104° 2' 54.517 W
8,173.0	44.10	86.10	8,124.2	-69.4	102.8	378,994.09	629,620.87	32° 2' 29.812 N	104° 2' 54.273 W
8,205.0	48.70	84.10	8,146.3	-67.4	125.9	378,996.09	629,643.95	32° 2' 29.832 N	104° 2' 54.004 W
8,224.9	51.37	83.21	8,159.1	-65.8	141.0	378,997.77	629,659.11	32° 2' 29.846 N	104° 2' 53.828 W
<b>PP - 8224.9' MD, 8169.1' TVD, 51.37° INC, 142.8' VS</b>									
8,237.0	53.00	82.70	8,166.5	-64.6	150.5	378,998.95	629,668.60	32° 2' 29.859 N	104° 2' 53.718 W
8,269.0	57.00	86.30	8,184.8	-62.1	176.6	379,001.44	629,694.68	32° 2' 29.883 N	104° 2' 53.415 W
8,301.0	60.80	85.50	8,201.4	-60.1	203.9	379,003.40	629,722.00	32° 2' 29.902 N	104° 2' 53.097 W
8,333.0	63.60	87.80	8,216.3	-58.5	232.2	379,005.05	629,750.26	32° 2' 29.917 N	104° 2' 52.769 W
8,364.0	67.10	91.00	8,229.2	-58.2	260.3	379,005.33	629,778.42	32° 2' 29.920 N	104° 2' 52.442 W
8,396.0	71.80	89.90	8,240.5	-58.4	290.3	379,005.10	629,808.38	32° 2' 29.916 N	104° 2' 52.094 W
8,428.0	77.80	89.90	8,248.8	-58.4	321.2	379,005.15	629,839.24	32° 2' 29.916 N	104° 2' 51.735 W
8,459.0	83.00	89.30	8,254.0	-58.2	351.7	379,005.37	629,869.80	32° 2' 29.918 N	104° 2' 51.380 W
8,491.0	86.50	89.40	8,256.9	-57.8	383.6	379,005.73	629,901.65	32° 2' 29.920 N	104° 2' 51.010 W
8,587.0	88.20	90.70	8,261.4	-57.9	479.5	379,005.64	629,997.55	32° 2' 29.917 N	104° 2' 49.896 W
8,625.0	88.96	90.70	8,262.3	-58.3	517.5	379,005.18	630,035.53	32° 2' 29.911 N	104° 2' 49.455 W
<b>EOC - 8625.0' MD, 8262.3' TVD, 88.96° INC, 90.70° AZI, 518.9' VS</b>									
8,682.0	90.10	90.70	8,262.8	-59.0	574.4	379,004.48	630,092.52	32° 2' 29.903 N	104° 2' 48.792 W
8,778.0	90.50	90.40	8,262.3	-60.0	670.4	379,003.56	630,188.52	32° 2' 29.891 N	104° 2' 47.677 W
8,874.0	90.80	91.50	8,261.2	-61.6	766.4	379,001.97	630,284.50	32° 2' 29.873 N	104° 2' 46.562 W
8,968.0	90.40	92.30	8,260.2	-64.7	860.4	378,998.85	630,378.44	32° 2' 29.840 N	104° 2' 45.471 W
9,063.0	90.30	92.10	8,259.6	-68.3	955.3	378,995.21	630,473.37	32° 2' 29.801 N	104° 2' 44.368 W
9,158.0	89.90	91.40	8,259.5	-71.2	1,050.2	378,992.31	630,568.32	32° 2' 29.770 N	104° 2' 43.265 W
9,254.0	91.30	92.80	8,258.5	-74.7	1,146.2	378,988.79	630,664.25	32° 2' 29.733 N	104° 2' 42.150 W
9,348.0	91.70	92.40	8,256.0	-79.0	1,240.0	378,984.53	630,758.12	32° 2' 29.688 N	104° 2' 41.060 W
9,443.0	92.10	92.20	8,252.8	-82.8	1,334.9	378,980.72	630,852.99	32° 2' 29.648 N	104° 2' 39.958 W



Survey Report - Geographic



Company: COG Operating LLC  
 Project: Eddy County, NM (NAD 83)  
 Site: Baby Buddha 13 Fed  
 Well: #1H  
 Wellbore: OH  
 Design: OH

Local Co-ordinate Reference:  
 TVD Reference:  
 MD Reference:  
 North Reference:  
 Survey Calculation Method:  
 Database:

Site Baby Buddha 13 Fed  
 WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)  
 Grid  
 Minimum Curvature  
 Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,539.0	91.20	91.70	8,250.1	-86.1	1,430.8	378,977.45	630,948.89	32° 2' 29.613 N	104° 2' 38.844 W
9,634.0	89.80	90.80	8,249.3	-88.2	1,525.8	378,975.38	631,043.86	32° 2' 29.590 N	104° 2' 37.740 W
9,730.0	86.90	90.10	8,252.0	-88.9	1,621.7	378,974.63	631,139.81	32° 2' 29.580 N	104° 2' 36.626 W
9,825.0	87.50	90.50	8,256.7	-89.4	1,716.6	378,974.13	631,234.69	32° 2' 29.572 N	104° 2' 35.523 W
9,920.0	88.10	90.50	8,260.3	-90.2	1,811.5	378,973.30	631,329.62	32° 2' 29.562 N	104° 2' 34.420 W
10,016.0	87.30	89.90	8,264.2	-90.6	1,907.5	378,972.96	631,425.54	32° 2' 29.556 N	104° 2' 33.308 W
10,112.0	87.40	91.20	8,268.6	-91.5	2,003.4	378,972.04	631,521.43	32° 2' 29.544 N	104° 2' 32.192 W
10,207.0	86.50	90.80	8,273.6	-93.1	2,098.2	378,970.39	631,616.28	32° 2' 29.525 N	104° 2' 31.090 W
10,303.0	87.00	91.20	8,279.1	-94.8	2,194.0	378,968.72	631,712.11	32° 2' 29.506 N	104° 2' 29.976 W
10,398.0	89.30	91.80	8,282.2	-97.3	2,288.9	378,966.23	631,807.02	32° 2' 29.479 N	104° 2' 28.874 W
10,493.0	90.00	90.90	8,282.7	-99.5	2,383.9	378,963.99	631,901.99	32° 2' 29.454 N	104° 2' 27.770 W
10,589.0	90.20	90.70	8,282.6	-100.9	2,479.9	378,962.65	631,997.98	32° 2' 29.438 N	104° 2' 26.655 W
10,685.0	90.70	90.60	8,281.8	-102.0	2,575.9	378,961.56	632,093.98	32° 2' 29.425 N	104° 2' 25.540 W
10,780.0	90.90	90.20	8,280.5	-102.6	2,670.9	378,960.90	632,188.96	32° 2' 29.416 N	104° 2' 24.436 W
10,876.0	90.40	89.90	8,279.4	-102.7	2,766.9	378,960.82	632,284.96	32° 2' 29.413 N	104° 2' 23.321 W
10,971.0	89.30	90.10	8,279.7	-102.7	2,861.9	378,960.82	632,379.95	32° 2' 29.410 N	104° 2' 22.217 W
11,066.0	89.70	90.00	8,280.5	-102.8	2,956.9	378,960.73	632,474.95	32° 2' 29.407 N	104° 2' 21.114 W
11,161.0	89.00	90.10	8,281.6	-102.9	3,051.9	378,960.65	632,569.94	32° 2' 29.403 N	104° 2' 20.010 W
11,257.0	88.60	90.10	8,283.6	-103.0	3,147.8	378,960.48	632,665.92	32° 2' 29.399 N	104° 2' 18.895 W
11,352.0	87.40	91.10	8,286.9	-104.0	3,242.8	378,959.49	632,760.86	32° 2' 29.387 N	104° 2' 17.792 W
11,447.0	88.00	91.10	8,290.7	-105.9	3,337.7	378,957.67	632,855.76	32° 2' 29.366 N	104° 2' 16.689 W
11,543.0	87.10	92.10	8,294.8	-108.5	3,433.6	378,954.99	632,951.64	32° 2' 29.337 N	104° 2' 15.576 W
11,638.0	87.50	92.10	8,299.3	-112.0	3,528.4	378,951.51	633,046.47	32° 2' 29.300 N	104° 2' 14.474 W
11,733.0	88.50	92.00	8,302.6	-115.4	3,623.3	378,948.12	633,141.35	32° 2' 29.264 N	104° 2' 13.372 W
11,829.0	88.40	91.80	8,305.2	-118.6	3,719.2	378,944.93	633,237.26	32° 2' 29.230 N	104° 2' 12.257 W
11,924.0	89.30	91.90	8,307.1	-121.7	3,814.1	378,941.87	633,332.19	32° 2' 29.197 N	104° 2' 11.155 W
12,019.0	87.20	93.10	8,310.0	-125.8	3,909.0	378,937.73	633,427.05	32° 2' 29.153 N	104° 2' 10.053 W
12,115.0	87.80	93.50	8,314.2	-131.3	4,004.7	378,932.21	633,522.80	32° 2' 29.096 N	104° 2' 8.940 W
12,210.0	89.10	93.40	8,316.8	-137.0	4,099.5	378,926.49	633,617.59	32° 2' 29.037 N	104° 2' 7.839 W
12,306.0	89.10	92.60	8,318.3	-142.1	4,195.4	378,921.47	633,713.44	32° 2' 28.984 N	104° 2' 6.726 W
12,401.0	89.20	92.30	8,319.7	-146.1	4,290.3	378,917.41	633,808.34	32° 2' 28.942 N	104° 2' 5.623 W
12,496.0	86.70	92.30	8,323.1	-149.9	4,385.1	378,913.60	633,903.20	32° 2' 28.901 N	104° 2' 4.521 W
12,592.0	87.00	91.70	8,328.3	-153.3	4,480.9	378,910.25	633,999.00	32° 2' 28.866 N	104° 2' 3.408 W
12,687.0	88.80	91.60	8,331.8	-156.0	4,575.8	378,907.52	634,093.89	32° 2' 28.836 N	104° 2' 2.306 W
12,782.0	89.50	90.60	8,333.2	-157.8	4,670.8	378,905.69	634,188.86	32° 2' 28.815 N	104° 2' 1.203 W
12,821.0	89.60	90.30	8,333.5	-158.1	4,709.8	378,905.39	634,227.86	32° 2' 28.811 N	104° 2' 0.749 W
12,878.0	89.60	90.30	8,333.9	-158.4	4,766.8	378,905.09	634,284.85	32° 2' 28.807 N	104° 2' 0.087 W

BHL - 12878.0' MD, 8333.9' TVD, 89.60° INC, 90.30° AZI, -158.4° N, 4766.8' E, 4769.4' VS

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,696.0	7,694.2	-39.7	-70.6	KOP - 7696.0' MD, 7694.2' TVD, 1.20° INC, 157.10° AZI, -69.4' VS
8,224.9	8,159.1	-65.8	141.0	PP - 8224.9' MD, 8159.1' TVD, 51.37° INC, 142.8' VS
8,625.0	8,262.3	-58.3	517.5	EOC - 8625.0' MD, 8262.3' TVD, 88.96° INC, 90.70° AZI, 518.9' VS
12,878.0	8,333.9	-158.4	4,766.8	BHL - 12878.0' MD, 8333.9' TVD, 89.60° INC, 90.30° AZI, -158.4° N, 4766.8' E,

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_