

15-40636

COG Operating LLC

Eddy County, NM (NAD27 NME)

Dodd Federal Unit

#922H

OH - Job #32H10121270

Design: OH

SDI Standard Survey Report

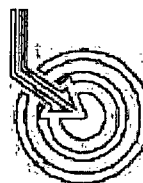
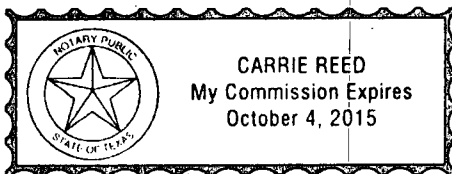
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 5th of November, 2012.

[Signature]

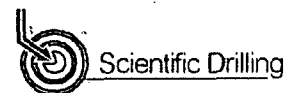
Notary Signature
County of Midland
State of Texas



Scientific Drilling



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #922H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3607.00usft (SO #11)
Site:	Dodd Federal Unit	MD Reference:	RF @ 3607.00usft (SO #11)
Well:	#922H	North Reference:	Grid
Wellbore:	OH - Job #32H10121270	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Project	Eddy County, NM (NAD27 NME)	
Map System:	US State Plane 1927 (Exact solution)	System Datum:
Geo Datum:	NAD 1927 (NADCON CONUS)	Mean Sea Level
Map Zone:	New Mexico East 3001	

Site		Dodd Federal Unit			
Site Position:		Northing:	669,114.80 usft	Latitude:	32° 50' 21.008 N
From:	Map	Easting:	586,009.50 usft	Longitude:	104° 3' 11.875 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.15 °

Well	#922H					
Well Position	+N/-S	0.00 usft	Northing:	665,750.60 usft	Latitude:	32° 49' 47.711 N
	+E/-W	0.00 usft	Easting:	586,272.80 usft	Longitude:	104° 3' 8.894 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,590.00 usft

Wellbore	OH - Job #32H10121270				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	10/17/12			

Design	OH			
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	90.58

Survey Program		Date	10/27/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	4,220.00	Gyro (OH - Job #32H10121270)	Keeper	Standard Wireline Keeper ver 1.0.2	
4,308.00	9,275.00	MWD (OH - Job #32H10121270)	MWD	MWD - Standard	

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.27	225.02	100.00	-0.17	-0.17	225.02	0.24
200.00	0.43	223.77	200.00	-0.60	-0.59	224.47	0.85
300.00	0.67	218.47	299.99	-1.33	-1.22	222.38	1.80
400.00	0.69	212.48	399.99	-2.30	-1.90	219.63	2.98
500.00	0.74	211.92	499.98	-3.35	-2.57	217.44	4.22
600.00	0.56	212.11	599.97	-4.32	-3.17	216.29	5.36
700.00	0.34	184.85	699.97	-5.03	-3.45	214.50	6.10
800.00	0.30	187.36	799.97	-5.58	-3.51	212.18	6.59
900.00	0.23	158.22	899.97	-6.03	-3.47	209.94	6.96
1,000.00	0.20	101.16	999.97	-6.25	-3.23	207.31	7.03



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #922H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3607.00usft (SO #11)
Site:	Dodd Federal Unit	MD Reference:	RF @ 3607.00usft (SO #11)
Well:	#922H	North Reference:	Grid
Wellbore:	OH - Job #32H10121270	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,100.00	0.27	116.13	1,099.96	-6.39	-2.84	204.00	6.99
1,200.00	0.20	130.11	1,199.96	-6.60	-2.50	200.73	7.06
1,300.00	0.13	104.96	1,299.96	-6.74	-2.26	198.49	7.11
1,400.00	0.08	2.08	1,399.96	-6.70	-2.14	197.73	7.04
1,500.00	0.20	57.67	1,499.96	-6.54	-1.99	196.95	6.84
1,600.00	0.13	357.65	1,599.96	-6.33	-1.85	196.29	6.60
1,700.00	0.22	355.15	1,699.96	-6.03	-1.87	197.24	6.31
1,800.00	0.13	54.47	1,799.96	-5.77	-1.80	197.28	6.04
1,900.00	0.38	28.12	1,899.96	-5.41	-1.55	195.94	5.63
2,000.00	0.43	55.84	1,999.96	-4.91	-1.08	192.40	5.03
2,100.00	0.24	47.83	2,099.96	-4.56	-0.61	187.67	4.60
2,200.00	0.28	39.31	2,199.96	-4.23	-0.30	184.11	4.24
2,300.00	0.46	41.23	2,299.95	-3.74	0.12	178.23	3.74
2,400.00	0.31	54.82	2,399.95	-3.28	0.60	169.61	3.33
2,500.00	0.29	44.07	2,499.95	-2.94	1.00	161.26	3.11
2,600.00	0.31	26.61	2,599.95	-2.52	1.30	152.78	2.83
2,700.00	0.31	11.44	2,699.95	-2.01	1.47	143.83	2.49
2,800.00	0.37	13.86	2,799.95	-1.43	1.60	131.82	2.15
2,900.00	0.43	16.91	2,899.94	-0.76	1.79	113.04	1.94
3,000.00	0.41	50.15	2,999.94	-0.17	2.17	94.53	2.18
3,100.00	0.54	55.88	3,099.94	0.32	2.84	83.53	2.85
3,200.00	0.30	27.33	3,199.93	0.82	3.35	76.26	3.45
3,300.00	0.17	68.98	3,299.93	1.10	3.61	72.97	3.77
3,400.00	0.01	87.53	3,399.93	1.16	3.75	72.85	3.93
3,500.00	0.29	291.53	3,499.93	1.25	3.53	70.46	3.74
3,600.00	0.17	269.12	3,599.93	1.34	3.14	66.88	3.42
3,700.00	0.47	285.21	3,699.93	1.45	2.60	60.88	2.97
3,800.00	0.35	258.04	3,799.93	1.49	1.90	51.92	2.42
3,900.00	0.32	288.62	3,899.93	1.52	1.34	41.45	2.02
4,000.00	0.09	147.03	3,999.93	1.54	1.12	35.97	1.90
4,100.00	0.20	202.47	4,099.93	1.31	1.09	39.80	1.71
4,200.00	0.37	242.02	4,199.92	1.00	0.74	36.57	1.25
4,220.00	0.45	228.88	4,219.92	0.92	0.63	34.28	1.11
Gyro Tie-in							
4,308.00	1.05	80.63	4,307.92	0.82	1.16	54.69	1.42
4,338.00	2.75	87.42	4,337.90	0.90	2.15	67.30	2.33
4,369.00	4.46	92.73	4,368.84	0.88	4.10	77.94	4.19
4,400.00	6.86	95.61	4,399.69	0.64	7.15	84.90	7.17
4,430.00	9.28	98.16	4,429.39	0.12	11.32	89.40	11.32
4,461.00	11.84	99.25	4,459.86	-0.75	16.94	92.53	16.95
4,492.00	14.75	99.14	4,490.03	-1.89	23.97	94.50	24.05
4,522.00	18.54	98.69	4,518.76	-3.21	32.46	95.65	32.62
4,553.00	23.18	97.44	4,547.72	-4.75	43.39	96.25	43.65
4,583.00	25.88	99.11	4,575.01	-6.55	55.71	96.71	56.10
4,614.00	28.84	102.18	4,602.54	-9.20	69.70	97.52	70.31



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #922H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3607.00usft (SO #11)
Site:	Dodd Federal Unit	MD Reference:	RF @ 3607.00usft (SO #11)
Well:	#922H	North Reference:	Grid
Wellbore:	OH - Job #32H10121270	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
4,645.00	31.42	106.52	4,629.36	-13.08	84.76	98.77	85.77
4,676.00	34.63	106.83	4,655.34	-17.93	100.95	100.07	102.53
4,707.00	38.18	103.42	4,680.29	-22.70	118.70	100.83	120.86
4,738.00	42.03	100.55	4,704.00	-26.83	138.23	100.98	140.81
4,768.00	46.80	100.18	4,725.42	-30.60	158.88	100.90	161.80
4,799.00	51.12	99.29	4,745.77	-34.55	181.92	100.75	185.17
4,830.00	54.41	99.60	4,764.53	-38.60	206.27	100.60	209.85
4,861.00	57.47	99.18	4,781.89	-42.79	231.60	100.47	235.52
4,891.00	60.42	97.68	4,797.36	-46.55	257.02	100.27	261.20
4,921.00	63.82	98.22	4,811.39	-50.22	283.28	100.05	287.69
4,952.00	68.27	99.19	4,823.97	-54.51	311.27	99.93	316.01
4,983.00	72.45	99.86	4,834.39	-59.34	340.06	99.90	345.20
5,013.00	77.20	100.00	4,842.24	-64.33	368.57	99.90	374.14
5,044.00	81.71	99.99	4,847.91	-69.62	398.58	99.91	404.61
5,135.00	86.00	98.51	4,857.65	-84.16	487.86	99.79	495.06
5,226.00	90.31	97.89	4,860.58	-97.12	577.86	99.54	585.96
5,319.00	92.24	96.05	4,858.51	-108.41	670.14	99.19	678.85
5,413.00	92.92	93.90	4,854.28	-116.55	763.68	98.68	772.53
5,506.00	91.82	93.60	4,850.44	-122.63	856.40	98.15	865.14
5,599.00	92.51	93.50	4,846.92	-128.38	949.16	97.70	957.80
5,693.00	91.36	92.88	4,843.75	-133.61	1,042.96	97.30	1,051.48
5,786.00	92.15	92.88	4,840.90	-138.28	1,135.80	96.94	1,144.18
5,879.00	90.40	93.06	4,838.83	-143.10	1,228.64	96.64	1,236.95
5,973.00	89.78	94.55	4,838.68	-149.33	1,322.43	96.44	1,330.84
6,066.00	89.46	96.02	4,839.30	-157.90	1,415.03	96.37	1,423.82
6,159.00	90.48	95.96	4,839.35	-167.60	1,507.52	96.34	1,516.81
6,253.00	91.19	95.87	4,837.98	-177.29	1,601.01	96.32	1,610.80
6,346.00	91.80	95.61	4,835.55	-186.59	1,693.52	96.29	1,703.76
6,439.00	92.33	93.85	4,832.20	-194.25	1,786.13	96.21	1,796.67
6,472.62	91.95	93.60	4,830.95	-196.43	1,819.66	96.16	1,830.24
TG1-#922H							
6,532.00	91.28	93.15	4,829.27	-199.93	1,878.91	96.07	1,889.52
6,626.00	91.45	91.92	4,827.03	-204.08	1,972.79	95.91	1,983.32
6,720.00	91.98	90.16	4,824.22	-205.79	2,066.73	95.69	2,076.95
6,815.00	92.15	88.31	4,820.80	-204.52	2,161.66	95.40	2,171.31
6,908.00	91.54	86.12	4,817.80	-200.01	2,254.49	95.07	2,263.35
7,002.00	91.71	85.73	4,815.14	-193.33	2,348.22	94.71	2,356.16
7,097.00	90.48	86.20	4,813.32	-186.64	2,442.96	94.37	2,450.08
7,191.00	90.57	85.24	4,812.46	-179.63	2,536.70	94.05	2,543.05
7,285.00	90.84	83.92	4,811.30	-170.75	2,630.27	93.71	2,635.80
7,380.00	90.22	85.59	4,810.42	-162.07	2,724.86	93.40	2,729.68
7,475.00	89.87	86.38	4,810.35	-155.42	2,819.63	93.15	2,823.91
7,570.00	90.40	87.61	4,810.12	-150.44	2,914.49	92.95	2,918.37
7,666.00	91.36	87.79	4,808.65	-146.58	3,010.40	92.79	3,013.97



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #922H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3607.00usft (SO #11)
Site:	Dodd Federal Unit	MD Reference:	RF @ 3607.00usft (SO #11)
Well:	#922H	North Reference:	Grid
Wellbore:	OH - Job #32H10121270	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
7,761.00	91.80	86.82	4,806.03	-142.12	3,105.26	92.62	3,108.51
7,856.00	92.24	86.11	4,802.68	-136.27	3,200.02	92.44	3,202.92
7,952.00	89.25	82.69	4,801.43	-126.90	3,295.53	92.21	3,297.97
8,047.00	87.58	83.39	4,804.06	-115.39	3,389.79	91.95	3,391.75
8,143.00	88.72	84.41	4,807.16	-105.20	3,485.19	91.73	3,486.78
8,238.00	88.90	84.45	4,809.13	-95.98	3,579.72	91.54	3,581.01
8,334.00	89.56	85.59	4,810.42	-87.65	3,675.35	91.37	3,676.40
8,429.00	91.80	89.72	4,809.30	-83.76	3,770.24	91.27	3,771.17
8,525.00	92.51	89.89	4,805.69	-83.43	3,866.17	91.24	3,867.07
8,618.00	93.30	89.54	4,800.97	-82.97	3,959.05	91.20	3,959.92
8,713.00	93.03	88.40	4,795.73	-81.27	4,053.88	91.15	4,054.70
8,807.00	92.68	87.26	4,791.05	-77.71	4,147.70	91.07	4,148.43
8,902.00	91.89	85.32	4,787.26	-71.57	4,242.42	90.97	4,243.02
8,997.00	92.68	85.15	4,783.47	-63.68	4,337.02	90.84	4,337.48
9,091.00	92.15	85.94	4,779.51	-56.39	4,430.65	90.73	4,431.01
9,153.00	92.15	85.76	4,777.18	-51.90	4,492.44	90.66	4,492.74
9,227.00	92.95	86.03	4,773.89	-46.61	4,566.18	90.58	4,566.41
Last MWD Survey							
9,274.10	92.95	86.03	4,771.47	-43.36	4,613.10	90.54	4,613.30
PBHL-#922H							
9,275.00	92.95	86.03	4,771.42	-43.29	4,614.00	90.54	4,614.20
Projection to Bit							

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,220.00	4,219.92	0.92	0.63	Gyro Tie-in
9,227.00	4,773.89	-46.61	4,566.18	Last MWD Survey
9,275.00	4,771.42	-43.29	4,614.00	Projection to Bit



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

October 31, 2012

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Dodd Federal Unit #922H
990' FSL & 330' FWL
Sec. 14, T17S, R29E
Eddy County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

Very truly yours,

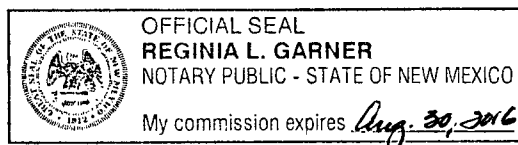
A handwritten signature in cursive script, appearing to read "Eddie LaRue".

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 31st day of October, 2012.

A handwritten signature in cursive script, appearing to read "Regina L. Garner".

Notary Public

Dodd Federal Unit #922H

Date	Depth	Deviation	Direction	TVD
10/11/2012	104	0.10		
10/11/2012	202	0.20		
10/11/2012	231	0.50		
10/12/2012	361	0.80		
10/12/2012	593	0.80		
10/12/2012	833	0.40		
10/13/2012	1055	0.40		
10/13/2012	1320	0.30		
10/14/2012	1562	0.20		
10/15/2012	2062	0.30		
10/15/2012	2533	0.10		
10/15/2012	2972	0.20		
10/16/2012	3443	0.20		
10/16/2012	3913	1.00		
10/18/2012	4369	4.46	92.73	
10/18/2012	4400	6.68	95.61	
10/18/2012	4430	9.29	98.16	
10/18/2012	4492	14.75	99.14	
10/18/2012	4522	18.54	98.69	
10/18/2012	4553	23.18	97.44	
10/19/2012	4584	25.88	99.11	
10/19/2012	4614	28.84	102.10	
10/19/2012	4645	31.42	106.50	
10/19/2012	4676	34.63	106.80	
10/19/2012	4707	38.18	103.40	
10/19/2012	4738	42.03	100.50	
10/19/2012	4861	57.47	99.18	
10/19/2012	4891	60.42	97.68	
10/19/2012	4922	63.82	98.22	
10/19/2012	4952	68.27	99.19	
10/19/2012	4983	72.45	99.86	
10/19/2012	5013	77.20	100.00	
10/20/2012	5044	77.52	100.00	
10/20/2012	5135	86.00	98.51	
10/20/2012	5226	90.31	97.89	
10/20/2012	5321	92.24	96.05	
10/21/2012	5411	92.69	93.90	
10/21/2012	5504	91.82	93.60	
10/21/2012	5607	92.70	93.50	
10/21/2012	5690	91.36	92.88	
10/21/2012	5784	92.15	92.88	
10/21/2012	5877	90.40	93.06	
10/21/2012	5973	89.78	94.55	

Date	Depth	Deviation	Direction	TVD
10/21/2012	6066	89.87	96.02	
10/21/2012	6255	90.48	95.96	
10/22/2012	6251	91.19	95.87	
10/22/2012	6344	91.80	95.61	
10/22/2012	6437	92.33	93.85	
10/22/2012	6530	91.28	93.15	
10/22/2012	6625	91.45	91.45	
10/22/2012	6720	91.98	90.16	
10/22/2012	6815	92.15	88.31	
10/22/2012	6908	91.54	86.12	
10/23/2012	7002	91.71	85.73	
10/23/2012	7097	92.15	85.59	
10/23/2012	7191	90.57	85.24	
10/23/2012	7285	90.84	83.92	
10/23/2012	7314	91.19	84.30	
10/23/2012	7380	90.22	85.59	
10/24/2012	7475	89.87	86.38	
10/24/2012	7570	90.40	87.61	
10/24/2012	7666	91.36	87.78	
10/24/2012	7856	92.24	86.12	
10/24/2012	7952	89.25	82.69	
10/24/2012	8143	88.55	84.09	
10/24/2012	8238	88.90	84.45	
10/25/2012	8334	89.56	85.59	
10/25/2012	8429	91.80	89.72	
10/25/2012	8525	92.51	89.89	
10/25/2012	8618	93.30	89.54	
10/25/2012	8744	93.03	88.46	
10/26/2012	8807	92.68	87.26	
10/26/2012	8902	91.89	85.32	
10/26/2012	8997	92.68	85.15	
10/26/2012	9091	92.15	85.94	
10/26/2012	9153	92.15	85.76	