

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED  
OMB NO. 1004-0135  
Expires: July 31, 2010

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
NMNM115411

6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well  
 Oil Well  Gas Well  Other

8. Well Name and No.  
REALLY SCARY FEDERAL COM 2H

2. Name of Operator  
COG OPERATING LLC  
Contact: DEBORA WILBOURN  
E-Mail: dwilbourn@concho.com

9. API Well No.  
30-015-41411-00-X1

3a. Address  
ONE CONCHO CENTER 600 W ILLINOIS AVENUE  
MIDLAND, TX 79701

3b. Phone No. (include area code)  
Ph: 575-748-6958

10. Field and Pool, or Exploratory  
WILLOW LAKE

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

11. County or Parish, and State

Sec 33 T24S R28E SESW 190FSL 1683FWL  
32.166906 N Lat, 104.095090 W Lon

EDDY COUNTY, NM

**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A PD
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

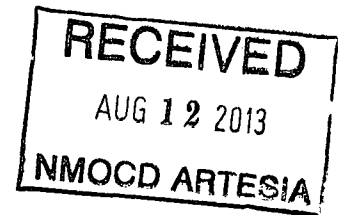
COG OPERATING LLC RESPECTFULLY REQUESTS THE FOLLOWING CHANGES TO THE ORIGINAL APD:

Due to wellbore conditions, COG Operating LLC respectfully requests the following changes:

Plug back existing wellbore by setting 200 sx Class C (16.8ppg/1.01 yield) plug from 7050' to 6460'. Sidetrack and re-drill 7-7/8" vertical, curve and lateral to new BHL.

See attached directional plan.

*CRDade 8/19/13*  
Accepted for record  
NMCCD



*Work done without approval*

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #213498 verified by the BLM Well Information System

For COG OPERATING LLC, sent to the Carlsbad

Committed to AFMSS for processing by JOHNNY DICKERSON on 07/18/2013 (13JLD0984SE)

Name (Printed/Typed) DEBORA WILBOURN

Title DRLG ENGINEERING TECH

Signature (Electronic Submission)

Date 07/15/2013

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By **ACCEPTED**

CHRISTOPHER WALLS  
Title PETROLEUM ENGINEER

Date 08/08/2013

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office Carlsbad

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.



# **COG Operating, LLC**

**Eddy County(NM27E)**

**Sec.33-T24S-R28E**

**Really Scary Federal Com #2H**

**Wellbore #2-ST**

**Plan: Design #1-ST**

## **Standard Planning Report**

**12 July, 2013**

# **Archer**



Project: Eddy County(NM27E)  
 Site: Sec.33-T24S-R28E  
 Well: Really Scary Federal Com #2H  
 Wellbore: Wellbore #2-ST  
 Design: Design #1-ST  
 Lat: 32° 10' 0.864 N  
 Long: 104° 5' 42.326 W  
 GL: 3010.30  
 KB: WELL @ 3027.30usft



**SECTION DETAILS**

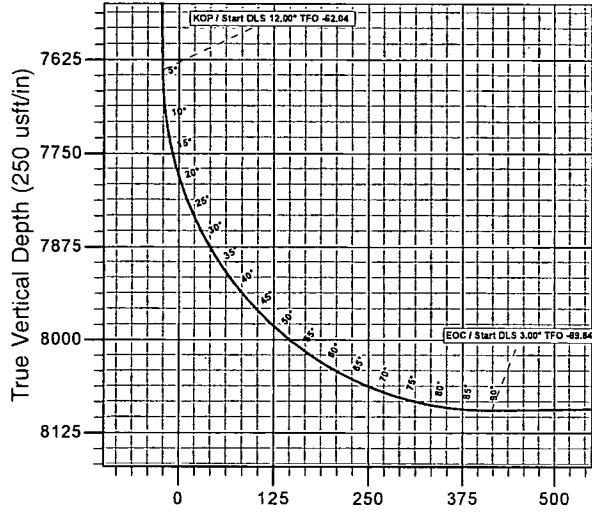
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Annotation
6700.00	1.00	192.43	6698.58	-33.01	34.10	0.00	0.00	-28.91	Tie-In / Start DLS 3.00° TFO -113.01
6876.86	5.00	90.00	6875.71	-34.51	41.48	3.00	-113.01	-29.57	Start 766.19' hold at 6876.86 MD
7643.05	5.00	90.00	7638.49	-34.51	108.26	0.00	0.00	-21.98	KOP / Start DLS 12.00° TFO -62.04
8378.78	90.63	28.00	8095.00	374.62	366.19	12.00	-62.04	413.84	EOC / Start DLS 3.00° TFO -89.84
9331.51	90.63	359.42	8084.23	1290.59	589.62	3.00	-89.84	1349.28	Start 3544.61' hold at 9331.51 MD
12876.12	90.63	359.42	8045.00	4834.80	553.50	0.00	0.00	4866.38	TD at 12876.12

**WELL DETAILS: Really Scary Federal Com #2H**

+N/-S	+E/-W	Northing	Ground Level: Easting	3010.30 Latitude	Longitude	Slot
0.00	0.00	424523.100	573720.000	32° 10' 0.864 N	104° 5' 42.326 W	

**DESIGN TARGET DETAILS**

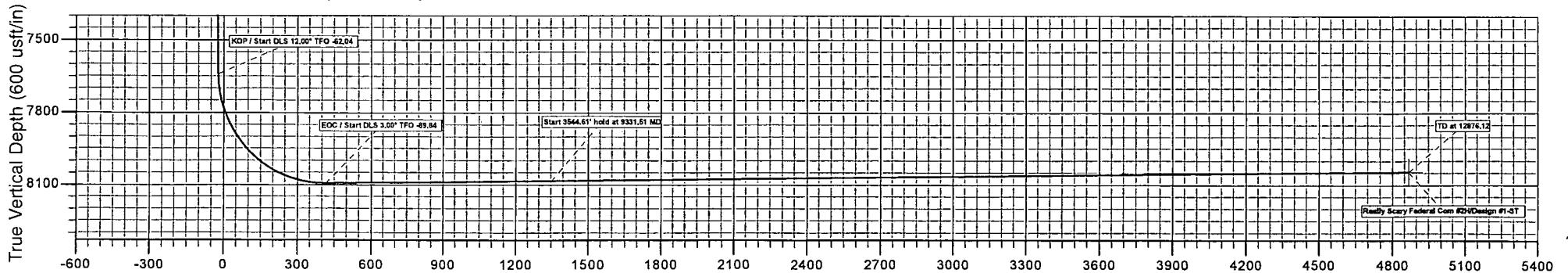
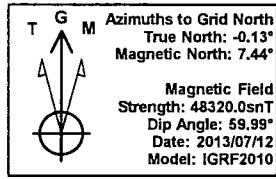
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
RSFC #2H ST PBHL	8045.00	4834.80	553.50	429357.900	574273.500	32° 10' 48.699 N	104° 5' 35.761 W	Point



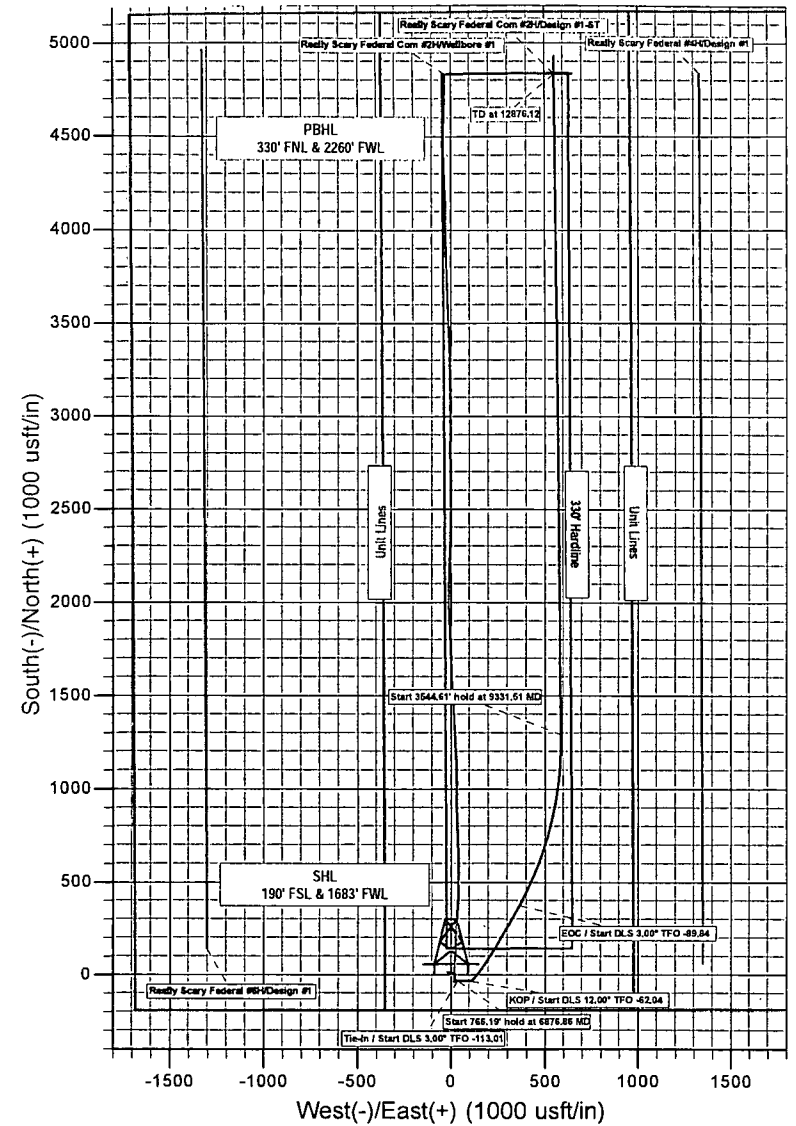
Vertical Section at 6.53° (250 usft/in)

**PROJECT DETAILS: Eddy County(NM27E)**  
 Geodetic System: US State Plane 1927 (Exact solution)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1856  
 Zone: New Mexico East 3001  
 System Datum: Mean Sea Level

**SITE DETAILS: Sec.33-T24S-R28E**  
 Site Centre Latitude: 32° 10' 0.864 N  
 Longitude: 104° 5' 42.326 W  
 Positional Uncertainty: 0.00  
 Convergence: 0.13  
 Local North: Grid



Vertical Section at 6.53° (600 usft/in)



Plan: Design #1-ST (Really Scary Federal Com #2H/Wellbore #2-ST)  
 Created By: Bret Wolford Date: 10:07, July 12 2013

Database:	EDM;5000.1 Single User Db	Local Co-ordinate Reference:	Well Really Scary Federal Com #2H
Company:	COG Operating, LLC	TVD Reference:	WELL @ 3027:30usft
Project:	Eddy County (NM27E)	MD Reference:	WELL @ 3027:30usft
Site:	Sec.33-T24S-R28E	North Reference:	Grid:
Well:	Really Scary Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2-ST		
Design:	Design #1-ST		

Project	Eddy County (NM27E)		
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	Sec.33-T24S-R28E		
Site Position:	From: Map	Northing: 424,523.100 usft	Latitude: 32° 10' 0.864 N
		Easting: 573,720.000 usft	Longitude: 104° 5' 42.326 W
Position Uncertainty:	0.00 usft	Slot Radius: 13-3/16"	Grid Convergence: 0.13 °

Well	Really Scary Federal Com #2H		
Well Position	+N/-S 0.00 usft	Northing: 424,523.100 usft	Latitude: 32° 10' 0.864 N
	+E/-W 0.00 usft	Easting: 573,720.000 usft	Longitude: 104° 5' 42.326 W
Position Uncertainty	0.00 usft	Wellhead Elevation: usft	Ground Level: 3,010.30 usft

Wellbore	Wellbore #2-ST				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	07/12/13	7.57	59.99	48,320

Design	Design #1-ST			
Audit Notes:				
Version:	Phase: PLAN	Tie On Depth:	6,700.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	8,045.00	0.00	0.00	6.53

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
6,700.00	1.00	192.43	6,698.58	-33.01	34.10	0.00	0.00	0.00	0.00	
6,876.86	5.00	90.00	6,875.21	-34.51	41.48	3.00	2.26	-57.92	-113.01	
7,643.05	5.00	90.00	7,638.49	-34.51	108.26	0.00	0.00	0.00	0.00	
8,378.78	90.63	28.00	8,095.00	374.62	366.19	12.00	11.64	-8.43	-62.04	
9,331.51	90.63	359.42	8,084.23	1,290.59	589.62	3.00	0.00	-3.00	-89.84	RSFC #2H ST PBHL
12,876.12	90.63	359.42	8,045.00	4,834.80	553.50	0.00	0.00	0.00	0.00	RSFC #2H ST PBHL

Database Company:	EDM:5000.1.Single User.Db COG Operating: L.L.C	Local Co-ordinate Reference:	Well Really Scary Federal Com #2H
Project:	Eddy County(NM27E)	TVD Reference:	WELL @ 3027.30usft
Site:	Sec.33-T24S-R28E	MDI Reference:	WELL @ 3027.30usft
Well:	Really Scary Federal Com #2H	North Reference:	Grid
Wellbore:	Wellbore:#2-ST	Survey Calculation Method:	Minimum Curvature
Design:	Design:#1-ST		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (%/100usft)	Build Rate (%/100usft)	Turn Rate (%/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.78	340.66	100.00	0.64	-0.23	0.61	0.78	0.78	0.00	
200.00	0.81	359.55	199.99	1.99	-0.46	1.93	0.26	0.03	18.89	
300.00	0.91	339.18	299.98	3.44	-0.74	3.33	0.32	0.10	-20.37	
400.00	1.18	350.77	399.96	5.20	-1.19	5.03	0.34	0.27	11.59	
500.00	1.12	348.51	499.94	7.17	-1.55	6.95	0.08	-0.06	-2.26	
600.00	0.84	327.90	599.93	8.75	-2.14	8.45	0.45	-0.28	-20.61	
700.00	0.72	332.82	699.92	9.93	-2.81	9.55	0.14	-0.12	4.92	
800.00	0.24	320.11	799.91	10.65	-3.23	10.21	0.49	-0.48	-12.71	
900.00	0.32	330.68	899.91	11.06	-3.50	10.59	0.09	0.08	10.57	
1,000.00	0.30	316.81	999.91	11.49	-3.82	10.98	0.08	-0.02	-13.87	
1,100.00	0.58	283.67	1,099.91	11.80	-4.49	11.21	0.37	0.28	-33.14	
1,200.00	0.90	275.08	1,199.90	11.99	-5.77	11.26	0.34	0.32	-8.59	
1,300.00	1.06	268.84	1,299.88	12.04	-7.47	11.11	0.19	0.16	-6.24	
1,400.00	1.24	262.02	1,399.86	11.87	-9.47	10.72	0.23	0.18	-6.82	
1,500.00	1.15	277.25	1,499.84	11.85	-11.54	10.46	0.33	-0.09	15.23	
1,600.00	0.82	271.67	1,599.83	12.00	-13.25	10.41	0.34	-0.33	-5.58	
1,700.00	0.29	295.05	1,699.82	12.12	-14.19	10.43	0.57	-0.53	23.38	
1,800.00	1.74	69.31	1,799.81	12.77	-13.00	11.21	1.95	1.45	134.26	
1,900.00	2.07	77.66	1,899.75	13.69	-9.82	12.48	0.43	0.33	8.35	
2,000.00	2.09	92.51	1,999.69	14.00	-6.23	13.20	0.54	0.02	14.85	
2,100.00	2.53	98.48	2,099.61	13.59	-2.22	13.25	0.50	0.44	5.97	
2,200.00	2.33	96.79	2,199.52	13.02	1.98	13.16	0.21	-0.20	-1.69	
2,300.00	2.19	98.57	2,299.44	12.50	5.88	13.09	0.16	-0.14	1.78	
2,400.00	1.42	90.03	2,399.39	12.21	9.01	13.16	0.81	-0.77	-8.54	
2,500.00	0.98	111.90	2,499.37	11.89	11.05	13.07	0.63	-0.44	21.87	
2,600.00	1.12	116.05	2,599.35	11.15	12.72	12.52	0.16	0.14	4.15	
2,700.00	1.06	127.05	2,699.33	10.16	14.33	11.72	0.22	-0.06	11.00	
2,800.00	1.00	124.69	2,799.32	9.11	15.79	10.84	0.07	-0.06	-2.36	
2,900.00	1.21	117.08	2,899.30	8.13	17.45	10.06	0.26	0.21	-7.61	
3,000.00	1.19	122.11	2,999.28	7.10	19.27	9.24	0.11	-0.02	5.03	
3,100.00	1.53	120.13	3,099.25	5.87	21.30	8.26	0.34	0.34	-1.98	
3,200.00	1.46	125.05	3,199.21	4.47	23.50	7.12	0.15	-0.07	4.92	
3,300.00	1.17	127.39	3,299.19	3.12	25.35	5.98	0.29	-0.29	2.34	
3,400.00	0.94	154.62	3,399.17	1.76	26.51	4.76	0.54	-0.23	27.23	
3,500.00	0.74	143.76	3,499.16	0.50	27.25	3.59	0.25	-0.20	-10.86	
3,600.00	0.83	144.84	3,599.15	-0.62	28.05	2.58	0.09	0.09	1.08	
3,700.00	0.59	128.84	3,699.14	-1.53	28.87	1.76	0.31	-0.24	-16.00	
3,800.00	0.34	96.73	3,799.14	-1.89	29.56	1.49	0.35	-0.25	-32.11	
3,900.00	0.34	113.03	3,899.14	-2.04	30.13	1.40	0.10	0.00	16.30	
4,000.00	0.36	171.52	3,999.14	-2.47	30.45	1.01	0.34	0.02	58.49	
4,100.00	0.30	148.21	4,099.13	-3.00	30.63	0.50	0.15	-0.06	-23.31	
4,200.00	0.16	165.52	4,199.13	-3.36	30.81	0.17	0.15	-0.14	17.31	
4,300.00	0.33	228.13	4,299.13	-3.68	30.63	-0.18	0.29	0.17	62.61	
4,400.00	0.30	253.69	4,399.13	-3.95	30.16	-0.49	0.14	-0.03	25.56	
4,500.00	0.36	289.98	4,499.13	-3.92	29.61	-0.52	0.21	0.06	36.29	
4,600.00	0.04	224.97	4,599.13	-3.83	29.29	-0.48	0.35	-0.32	-65.01	
4,700.00	0.24	194.39	4,699.13	-4.06	29.22	-0.71	0.21	0.20	-30.58	
4,800.00	0.39	243.76	4,799.13	-4.41	28.86	-1.10	0.30	0.15	49.37	
4,900.00	0.59	261.46	4,899.12	-4.64	28.04	-1.42	0.25	0.20	17.70	
5,000.00	0.50	265.09	4,999.12	-4.76	27.10	-1.64	0.10	-0.09	3.63	
5,100.00	0.51	237.71	5,099.12	-5.03	26.29	-2.01	0.24	0.01	-27.38	
5,200.00	0.54	231.60	5,199.11	-5.56	25.54	-2.62	0.06	0.03	-6.11	
5,300.00	0.47	232.56	5,299.11	-6.10	24.85	-3.24	0.07	-0.07	0.96	

Database Company:	EDM:5000:1 Single User Db COG Operating, LLC	Local Co-ordinate Reference:	Well Really Scary Federal Com #2H
Project:	Eddy County(NM27E)	TVD Reference:	WELL @ 3027.30usft
Site:	Sec.33-T24S-R28E	MD Reference:	WELL @ 3027.30usft
Well:	Really Scary.Federal.Com.#2H	North Reference:	Grid
Wellbore:	Wellbore #2-ST	Survey Calculation Method:	Minimum Curvature
Design:	Design #1-ST		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,400.00	0.21	234.39	5,399.11	-6.46	24.38	-3.64	0.26	-0.26	1.83	
5,500.00	0.41	218.40	5,499.10	-6.85	24.00	-4.07	0.22	0.20	-15.99	
5,600.00	0.67	220.37	5,599.10	-7.57	23.40	-4.86	0.26	0.26	1.97	
5,700.00	0.86	196.12	5,699.09	-8.74	22.82	-6.09	0.37	0.19	-24.25	
5,800.00	0.94	186.60	5,799.08	-10.27	22.51	-7.65	0.17	0.08	-9.52	
5,900.00	0.96	195.21	5,899.06	-11.90	22.20	-9.30	0.14	0.02	8.61	
6,000.00	1.25	183.12	5,999.05	-13.79	21.92	-11.21	0.37	0.29	-12.09	
6,100.00	1.19	189.61	6,099.02	-15.91	21.69	-13.34	0.15	-0.06	6.49	
6,200.00	1.84	160.98	6,198.99	-18.45	22.04	-15.82	0.98	0.65	-28.63	
6,300.00	2.82	141.25	6,298.91	-21.89	24.10	-19.00	1.25	0.98	-19.73	
6,400.00	2.95	133.00	6,398.78	-25.56	27.52	-22.26	0.43	0.13	-8.25	
6,500.00	2.61	128.29	6,498.66	-28.73	31.19	-24.99	0.41	-0.34	-4.71	
6,600.00	1.38	146.92	6,598.60	-31.15	33.64	-27.12	1.37	-1.23	18.63	
<b>Tie-In / Start DLS 3.00° TFO -113.01</b>										
6,700.00	1.00	192.43	6,698.58	-33.01	34.10	-28.91	0.98	-0.38	45.51	
6,800.00	2.77	98.84	6,798.54	-34.23	36.30	-29.88	3.00	1.77	-93.59	
<b>Start 766.19' hold at 6876.86 MD</b>										
6,876.86	5.00	90.00	6,875.21	-34.51	41.48	-29.57	3.00	2.91	-11.50	
6,900.00	5.00	90.00	6,898.27	-34.51	43.50	-29.34	0.00	0.00	0.00	
7,000.00	5.00	90.00	6,997.89	-34.51	52.22	-28.35	0.00	0.00	0.00	
7,100.00	5.00	90.00	7,097.51	-34.51	60.93	-27.36	0.00	0.00	0.00	
7,200.00	5.00	90.00	7,197.13	-34.51	69.65	-26.37	0.00	0.00	0.00	
7,300.00	5.00	90.00	7,296.75	-34.51	78.36	-25.38	0.00	0.00	0.00	
7,400.00	5.00	90.00	7,396.37	-34.51	87.08	-24.39	0.00	0.00	0.00	
7,500.00	5.00	90.00	7,495.99	-34.51	95.80	-23.39	0.00	0.00	0.00	
7,600.00	5.00	90.00	7,595.61	-34.51	104.51	-22.40	0.00	0.00	0.00	
<b>KOP / Start DLS 12.00° TFO -62.04</b>										
7,643.05	5.00	90.00	7,638.49	-34.51	108.26	-21.98	0.00	0.00	0.00	
7,650.00	5.44	82.21	7,645.41	-34.47	108.89	-21.86	12.00	6.35	-112.12	
7,675.00	7.59	63.45	7,670.25	-33.57	111.54	-20.67	12.00	8.61	-75.04	
7,700.00	10.18	53.51	7,694.95	-31.52	114.80	-18.26	12.00	10.35	-39.74	
7,725.00	12.95	47.67	7,719.44	-28.32	118.65	-14.64	12.00	11.06	-23.36	
7,750.00	15.80	43.89	7,743.66	-23.98	123.08	-9.82	12.00	11.40	-15.15	
7,775.00	18.69	41.24	7,767.53	-18.51	128.08	-3.82	12.00	11.59	-10.59	
7,800.00	21.62	39.28	7,791.00	-11.93	133.64	3.34	12.00	11.70	-7.82	
7,825.00	24.56	37.78	7,814.00	-4.26	139.74	11.66	12.00	11.77	-6.03	
7,850.00	27.51	36.57	7,836.46	4.48	146.36	21.10	12.00	11.81	-4.81	
7,875.00	30.47	35.59	7,858.32	14.28	153.49	31.65	12.00	11.85	-3.94	
7,900.00	33.44	34.76	7,879.53	25.10	161.11	43.26	12.00	11.87	-3.30	
7,925.00	36.41	34.06	7,900.02	36.91	169.20	55.91	12.00	11.89	-2.82	
7,950.00	39.39	33.44	7,919.75	49.68	177.73	69.57	12.00	11.91	-2.45	
7,975.00	42.37	32.90	7,938.65	63.37	186.68	84.19	12.00	11.92	-2.16	
8,000.00	45.35	32.42	7,956.67	77.95	196.02	99.74	12.00	11.93	-1.93	
8,025.00	48.33	31.99	7,973.77	93.38	205.74	116.18	12.00	11.93	-1.74	
8,050.00	51.32	31.59	7,989.89	109.62	215.80	133.45	12.00	11.94	-1.58	
8,075.00	54.31	31.23	8,005.00	126.62	226.18	151.52	12.00	11.94	-1.46	
8,100.00	57.29	30.89	8,019.05	144.33	236.85	170.33	12.00	11.95	-1.35	
8,125.00	60.28	30.58	8,032.01	162.70	247.77	189.83	12.00	11.95	-1.26	
8,150.00	63.27	30.28	8,043.83	181.69	258.92	209.97	12.00	11.95	-1.19	
8,175.00	66.26	30.00	8,054.49	201.25	270.27	230.68	12.00	11.96	-1.13	
8,200.00	69.25	29.73	8,063.95	221.31	281.79	251.93	12.00	11.96	-1.08	
8,225.00	72.24	29.47	8,072.20	241.83	293.45	273.64	12.00	11.96	-1.04	
8,250.00	75.23	29.22	8,079.20	262.75	305.21	295.76	12.00	11.96	-1.00	

Database:	EDM/5000.1 Single User Db	Local Co-ordinate Reference:	Well: Really Scary Federal Com #2H
Company:	COG Operating, LLC	TVD Reference:	WELL @ 3027.30usft
Project:	Eddy County (NM27E)	MD Reference:	WELL @ 3027.30usft
Site:	Sec. 33-T24S-R28E	North Reference:	Grid:
Well:	Really Scary Federal Com #2H	Survey/Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2-ST		
Design:	Design #1-ST		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,275.00	78.22	28.97	8,084.94	284.01	317.04	318.23	12.00	11.96	-0.98	
8,300.00	81.21	28.73	8,089.40	305.55	328.90	340.98	12.00	11.96	-0.95	
8,325.00	84.20	28.50	8,092.58	327.32	340.78	363.96	12.00	11.96	-0.94	
8,350.00	87.19	28.27	8,094.45	349.25	352.63	387.09	12.00	11.96	-0.93	
8,375.00	90.18	28.03	8,095.03	371.29	364.42	410.33	12.00	11.96	-0.92	
<b>EOC / Start DLS:3'00" TFO:-89.84'</b>										
8,378.78	90.63	28.00	8,095.00	374.62	366.19	413.84	12.00	11.96	-0.92	
8,400.00	90.64	27.36	8,094.76	393.41	376.05	433.63	3.00	0.01	-3.00	
8,500.00	90.64	24.36	8,093.65	483.38	419.66	527.98	3.00	0.01	-3.00	
8,600.00	90.65	21.36	8,092.52	575.51	458.51	623.92	3.00	0.01	-3.00	
8,700.00	90.65	18.36	8,091.39	669.54	492.48	721.21	3.00	0.00	-3.00	
8,800.00	90.65	15.36	8,090.25	765.23	521.48	819.57	3.00	0.00	-3.00	
8,900.00	90.65	12.36	8,089.10	862.30	545.44	918.74	3.00	0.00	-3.00	
9,000.00	90.65	9.36	8,087.96	960.49	564.28	1,018.43	3.00	0.00	-3.00	
9,100.00	90.65	6.36	8,086.83	1,059.53	577.96	1,118.39	3.00	0.00	-3.00	
9,200.00	90.64	3.36	8,085.70	1,159.15	586.43	1,218.33	3.00	-0.01	-3.00	
9,300.00	90.64	0.36	8,084.58	1,259.08	589.68	1,317.98	3.00	-0.01	-3.00	
<b>Start 3644.61' hold at 9331.61' MD</b>										
9,331.51	90.63	359.42	8,084.23	1,290.59	589.62	1,349.28	3.00	-0.01	-3.00	
9,400.00	90.63	359.42	8,083.47	1,359.07	588.92	1,417.23	0.00	0.00	0.00	
9,500.00	90.63	359.42	8,082.37	1,459.06	587.90	1,516.46	0.00	0.00	0.00	
9,600.00	90.63	359.42	8,081.26	1,559.05	586.88	1,615.68	0.00	0.00	0.00	
9,700.00	90.63	359.42	8,080.15	1,659.04	585.86	1,714.91	0.00	0.00	0.00	
9,800.00	90.63	359.42	8,079.05	1,759.03	584.84	1,814.13	0.00	0.00	0.00	
9,900.00	90.63	359.42	8,077.94	1,859.01	583.82	1,913.35	0.00	0.00	0.00	
10,000.00	90.63	359.42	8,076.83	1,959.00	582.81	2,012.58	0.00	0.00	0.00	
10,100.00	90.63	359.42	8,075.73	2,058.99	581.79	2,111.80	0.00	0.00	0.00	
10,200.00	90.63	359.42	8,074.62	2,158.98	580.77	2,211.03	0.00	0.00	0.00	
10,300.00	90.63	359.42	8,073.51	2,258.97	579.75	2,310.25	0.00	0.00	0.00	
10,400.00	90.63	359.42	8,072.41	2,358.96	578.73	2,409.47	0.00	0.00	0.00	
10,500.00	90.63	359.42	8,071.30	2,458.95	577.71	2,508.70	0.00	0.00	0.00	
10,600.00	90.63	359.42	8,070.19	2,558.93	576.69	2,607.92	0.00	0.00	0.00	
10,700.00	90.63	359.42	8,069.08	2,658.92	575.67	2,707.15	0.00	0.00	0.00	
10,800.00	90.63	359.42	8,067.98	2,758.91	574.65	2,806.37	0.00	0.00	0.00	
10,900.00	90.63	359.42	8,066.87	2,858.90	573.64	2,905.59	0.00	0.00	0.00	
11,000.00	90.63	359.42	8,065.76	2,958.89	572.62	3,004.82	0.00	0.00	0.00	
11,100.00	90.63	359.42	8,064.66	3,058.88	571.60	3,104.04	0.00	0.00	0.00	
11,200.00	90.63	359.42	8,063.55	3,158.87	570.58	3,203.26	0.00	0.00	0.00	
11,300.00	90.63	359.42	8,062.44	3,258.86	569.56	3,302.49	0.00	0.00	0.00	
11,400.00	90.63	359.42	8,061.34	3,358.84	568.54	3,401.71	0.00	0.00	0.00	
11,500.00	90.63	359.42	8,060.23	3,458.83	567.52	3,500.94	0.00	0.00	0.00	
11,600.00	90.63	359.42	8,059.12	3,558.82	566.50	3,600.16	0.00	0.00	0.00	
11,700.00	90.63	359.42	8,058.02	3,658.81	565.48	3,699.38	0.00	0.00	0.00	
11,800.00	90.63	359.42	8,056.91	3,758.80	564.47	3,798.61	0.00	0.00	0.00	
11,900.00	90.63	359.42	8,055.80	3,858.79	563.45	3,897.83	0.00	0.00	0.00	
12,000.00	90.63	359.42	8,054.70	3,958.78	562.43	3,997.06	0.00	0.00	0.00	
12,100.00	90.63	359.42	8,053.59	4,058.76	561.41	4,096.28	0.00	0.00	0.00	
12,200.00	90.63	359.42	8,052.48	4,158.75	560.39	4,195.50	0.00	0.00	0.00	
12,300.00	90.63	359.42	8,051.38	4,258.74	559.37	4,294.73	0.00	0.00	0.00	
12,400.00	90.63	359.42	8,050.27	4,358.73	558.35	4,393.95	0.00	0.00	0.00	
12,500.00	90.63	359.42	8,049.16	4,458.72	557.33	4,493.18	0.00	0.00	0.00	
12,600.00	90.63	359.42	8,048.06	4,558.71	556.31	4,592.40	0.00	0.00	0.00	
12,700.00	90.63	359.42	8,046.95	4,658.70	555.29	4,691.62	0.00	0.00	0.00	

Database:	EDM,5000.1 Single User Db	Local Co-ordinate Reference:	Well: Really Scary Federal Com #2H
Company:	COG Operating, LLC	TVD Reference:	WELL @ 3027.30usft
Project:	Eddy County(NM27E)	MD Reference:	WELL @ 3027.30usft
Site:	Sec.33-T24S-R28E	North Reference:	Grid
Well:	Really Scary Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2-ST		
Design:	Design #1-ST		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,800.00	90.63	359.42	8,045.84	4,758.69	554.28	4,790.85	0.00	0.00	0.00
<b>TD at 12876.12 - RSFC #2H ST PBHL</b>									
12,876.12	90.63	359.42	8,045.00	4,834.80	553.50	4,866.38	0.00	0.00	0.00

Design Targets										
Target Name	hit/miss/target	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
RSFC #2H ST PBHL		0.00	0.00	8,045.00	4,834.80	553.50	429,357.900	574,273.500	32° 10' 48.699 N	104° 5' 35.761 W
- plan hits target center										
- Point										

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
6,700.00	6,698.58	-33.01	34.10	Tie-In / Start DLS 3.00° TFO -113.01
6,876.86	6,875.21	-34.51	41.48	Start 766.19' hold at 6876.86 MD
7,643.05	7,638.49	-34.51	108.26	KOP / Start DLS 12.00° TFO -62.04
8,378.78	8,095.00	374.62	366.19	EOC / Start DLS 3.00° TFO -89.84
9,331.51	8,084.23	1,290.59	589.62	Start 3544.61' hold at 9331.51 MD
12,876.12	8,045.00	4,834.80	553.50	TD at 12876.12





# COG Operating, LLC

Eddy County(NM27E)

Sec.33-T24S-R28E

Really Scary Federal Com #2H

Wellbore #2-ST

Design #1-ST

## Anticollision Report

12 July, 2013

# Archer

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Really Scary Federal Com #2H
Project:	Eddy County (NM27E)	TVD Reference:	WELL @ 3027.30usft
Reference Site:	Sec.33-T24S-R28E	MD Reference:	WELL @ 3027.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Really Scary Federal Com #2H	Survey/Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #2-ST	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1-ST	Offset TVD Reference:	Reference Datum

Reference	Design #1-ST		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool/Program	Date			
	07/12/13			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	6,700.00	Survey #2-VES Gyro (Wellbore #1)	GYD_DP_MS	Gyrodatta gyro-compassing and drop
6,700.00	12,876.12	Design #1-ST (Wellbore #2-ST)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec.33-T24S-R28E						
Really Scary Federal Com #2H - Wellbore #1 - Wellbore	6,700.00	6,700.00	0.00	0.00	10,000.000	CC, ES
Really Scary Federal Com #2H - Wellbore #1 - Wellbore	12,876.12	12,711.00	581.83	414.19	3.471	SF

Offset Design:	Sec.33-T24S-R28E - Really Scary Federal Com #2H - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program:	100-GYD_DP_MS - Gyro MWD												Offset Well Error:	0.00 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis (from North)	Azimuth	Offset Wellbore Centres (N/S)	E/W	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,700.00	6,698.58	6,700.00	6,698.58	0.00	0.00	0.00		-33.01	34.10	0.00	0.00	0.00	N/A	CC, ES
6,760.62	6,759.19	6,760.60	6,759.17	0.03	0.05	-94.26		-33.95	33.62	1.21	1.10	0.11	11.375	
6,800.00	6,798.54	6,799.91	6,798.48	0.05	0.09	-94.26		-34.47	33.03	3.28	3.06	0.22	14.841	
6,876.86	6,875.21	6,876.36	6,874.90	0.07	0.21	-94.34		-35.29	31.21	10.31	9.91	0.41	25.417	
6,900.00	6,898.27	6,899.30	6,897.83	0.08	0.25	-94.30		-35.49	30.48	13.06	12.62	0.44	29.392	
7,000.00	6,997.89	6,998.83	6,997.31	0.16	0.31	-93.03		-35.82	27.63	24.62	24.15	0.47	52.056	
7,100.00	7,097.51	7,098.49	7,096.95	0.27	0.36	-92.60		-36.12	25.69	35.29	34.88	0.41	86.803	
7,200.00	7,197.13	7,198.17	7,196.62	0.41	0.40	-93.23		-37.07	24.39	45.33	45.01	0.33	138.542	
7,300.00	7,296.75	7,297.36	7,295.79	0.58	0.43	-93.62		-38.02	23.05	55.44	54.83	0.60	91.878	
7,400.00	7,396.37	7,396.75	7,395.16	0.77	0.47	-93.67		-38.73	21.31	65.91	65.04	0.87	75.606	
7,500.00	7,495.99	7,496.14	7,494.54	0.97	0.50	-93.90		-39.72	19.57	76.41	74.89	1.52	50.246	
7,600.00	7,595.61	7,599.26	7,597.33	1.19	0.54	-89.52		-33.79	19.07	85.46	83.77	1.69	50.669	
7,643.05	7,638.49	7,639.45	7,636.63	1.28	0.57	-84.19		-25.50	19.70	89.04	87.27	1.77	50.404	
7,650.00	7,645.41	7,645.80	7,642.78	1.30	0.56	-83.24		-23.90	19.72	89.83	88.03	1.80	49.783	
7,675.00	7,670.25	7,668.00	7,664.08	1.35	0.57	-80.17		-17.55	19.67	93.45	91.51	1.94	48.258	
7,700.00	7,694.95	7,691.33	7,686.18	1.42	0.58	-77.38		-10.18	19.46	98.09	96.03	2.06	47.658	
7,725.00	7,719.44	7,715.41	7,708.75	1.50	0.61	-75.07		-1.80	19.21	103.47	101.29	2.18	47.555	
7,750.00	7,743.66	7,740.09	7,731.65	1.58	0.67	-73.18		7.40	19.29	109.09	106.77	2.32	47.052	
7,775.00	7,767.53	7,764.49	7,753.96	1.67	0.75	-71.73		17.25	19.71	114.92	112.48	2.44	47.067	
7,800.00	7,791.00	7,790.88	7,777.76	1.77	0.84	-70.24		28.62	20.75	120.68	118.11	2.57	46.938	
7,825.00	7,814.00	7,813.40	7,797.75	1.88	0.92	-69.86		38.91	22.00	126.45	123.71	2.74	46.185	
7,850.00	7,836.46	7,835.29	7,816.74	2.01	1.00	-69.83		49.75	23.13	132.75	129.81	2.94	45.126	
7,875.00	7,858.32	7,858.00	7,836.02	2.16	1.10	-69.86		61.68	24.26	139.44	136.25	3.20	43.628	
7,900.00	7,879.53	7,878.86	7,853.25	2.33	1.22	-70.43		73.38	25.30	146.52	143.04	3.48	42.109	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Really Scary Federal Com #2H
Project:	Eddy County(NM27E)	TVD Reference:	WELL @ 3027.30usft
Reference Site:	Sec.33-T24S-R28E	MD Reference:	WELL @ 3027.30usft
Site Error:	0:00 usft	North Reference:	Grid
Reference Well:	Really Scary Federal Com.#2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0:00 usft	Output errors are at:	2:00 sigma
Reference Wellbore:	Wellbore #2-ST	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1-ST	Offset TVD Reference:	Reference Datum

Offset-Design Sec.33-T24S-R28E - Really Scary Federal Com #2H - Wellbore #1 - Wellbore #1														Offset Site Error:	
Survey Program: 100-GYD-DP-IMS-7390-MWD														Offset Well Error:	
Reference	Offset	Semi-Major Axis		Distance		Minimum Separation		Warning							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
7,925.00	7,900.02	7,899.86	7,869.97	2.53	1.37	-71.01	86.06	26.36	154.02	150.23	3.80	40.562			
7,950.00	7,919.75	7,922.00	7,886.92	2.74	1.56	-71.40	100.25	27.43	161.94	157.78	4.16	38.917			
7,975.00	7,938.65	7,940.61	7,900.63	2.98	1.74	-72.67	112.80	28.26	170.25	165.70	4.56	37.363			
8,000.00	7,956.67	7,960.79	7,914.94	3.24	1.95	-73.63	127.01	29.03	178.98	174.01	4.97	36.036			
8,025.00	7,973.77	7,981.74	7,929.30	3.53	2.19	-74.48	142.23	29.77	187.96	182.53	5.43	34.624			
8,050.00	7,989.89	8,001.59	7,942.52	3.83	2.43	-75.66	157.04	30.37	197.18	191.26	5.92	33.321			
8,075.00	8,005.00	8,020.96	7,955.04	4.16	2.66	-76.98	171.80	30.76	206.70	200.27	6.43	32.130			
8,100.00	8,019.05	8,039.87	7,966.85	4.50	2.90	-78.40	186.57	30.97	216.55	209.57	6.98	31.038			
8,125.00	8,032.01	8,059.27	7,978.46	4.87	3.16	-79.69	202.11	31.05	226.68	219.13	7.55	30.006			
8,150.00	8,043.83	8,080.00	7,990.17	5.24	3.44	-80.64	219.22	31.15	237.00	228.82	8.18	28.989			
8,175.00	8,054.49	8,104.92	8,003.16	5.64	3.80	-80.66	240.48	31.67	247.19	238.31	8.88	27.831			
8,200.00	8,063.95	8,129.09	8,014.54	6.04	4.16	-80.77	261.77	32.83	257.03	247.42	9.61	26.759			
8,225.00	8,072.20	8,152.65	8,024.38	6.46	4.52	-80.95	283.11	34.37	266.66	256.32	10.35	25.773			
8,250.00	8,079.20	8,176.00	8,033.17	6.89	4.89	-81.14	304.66	36.21	276.10	264.99	11.12	24.837			
8,275.00	8,084.94	8,195.62	8,039.89	7.33	5.20	-82.05	323.03	37.81	285.51	273.67	11.84	24.120			
8,300.00	8,089.40	8,214.41	8,045.81	7.78	5.51	-83.06	340.80	39.22	295.05	282.50	12.55	23.503			
8,325.00	8,092.58	8,232.07	8,050.92	8.23	5.80	-84.23	357.66	40.36	304.81	291.54	13.27	22.977			
8,350.00	8,094.45	8,250.08	8,055.68	8.69	6.10	-85.27	375.01	41.32	314.77	300.78	13.99	22.498			
8,375.00	8,095.03	8,271.00	8,060.60	9.14	6.45	-85.73	395.32	42.24	324.90	310.14	14.77	22.003			
8,378.78	8,095.00	8,271.00	8,060.60	9.21	6.45	-86.34	395.32	42.24	326.43	311.60	14.83	22.014			
8,400.00	8,094.76	8,289.34	8,064.43	9.58	6.77	-86.59	413.24	42.97	335.05	319.52	15.53	21.580			
8,500.00	8,093.65	8,360.92	8,074.76	11.27	8.01	-89.90	484.00	44.92	375.22	356.76	18.46	20.328			
8,600.00	8,092.52	8,451.18	8,077.37	12.95	9.60	-90.19	574.16	45.27	413.52	391.86	21.66	19.095			
8,700.00	8,091.39	8,529.12	8,073.56	14.62	10.91	-92.24	651.98	43.65	449.53	424.98	24.55	18.312			
8,800.00	8,090.25	8,623.06	8,071.43	16.27	12.40	-92.31	745.80	39.50	482.74	455.16	27.58	17.501			
8,900.00	8,089.10	8,734.05	8,071.84	17.90	14.20	-90.63	856.74	36.46	509.30	478.42	30.88	16.491			
9,000.00	8,087.96	8,837.37	8,070.57	19.49	16.00	-90.05	960.05	36.02	528.54	494.41	34.13	15.485			
9,100.00	8,086.83	8,930.24	8,068.73	21.06	17.62	-90.70	1,052.90	35.51	542.79	505.65	37.13	14.617			
9,200.00	8,085.70	9,014.24	8,066.83	22.60	19.07	-92.31	1,136.85	33.42	553.78	513.92	39.86	13.891			
9,300.00	8,084.58	9,103.83	8,066.06	24.12	20.58	-93.34	1,226.32	28.92	562.02	519.46	42.56	13.204			
9,331.51	8,084.23	9,133.48	8,066.61	24.60	21.08	-93.53	1,255.91	27.10	563.86	520.44	43.42	12.987			
9,400.00	8,083.47	9,204.79	8,068.18	25.61	22.28	-93.24	1,327.07	22.85	567.18	521.43	45.74	12.399			
9,500.00	8,082.37	9,309.43	8,068.65	27.10	24.11	-92.76	1,431.56	17.36	571.37	522.17	49.20	11.614			
9,600.00	8,081.26	9,411.00	8,065.62	28.63	25.94	-92.60	1,532.98	12.74	574.94	522.29	52.66	10.919			
9,700.00	8,080.15	9,509.39	8,062.02	30.18	27.64	-92.76	1,631.20	8.28	578.54	522.53	56.01	10.330			
9,800.00	8,079.05	9,609.18	8,058.91	31.76	29.30	-92.78	1,730.83	3.58	582.30	522.96	59.33	9.814			
9,900.00	8,077.94	9,708.09	8,055.58	33.37	31.00	-92.88	1,829.56	-1.28	586.27	523.55	62.72	9.348			
10,000.00	8,076.83	9,820.38	8,054.05	35.00	32.92	-91.68	1,941.75	-5.90	589.39	523.06	66.34	8.885			
10,100.00	8,075.73	9,948.59	8,054.74	36.64	35.08	-88.94	2,069.93	-6.86	589.13	518.90	70.23	8.389			
10,200.00	8,074.62	10,056.94	8,054.66	38.30	36.95	-88.11	2,178.23	-3.52	584.94	511.11	73.83	7.922			
10,300.00	8,073.51	10,154.20	8,053.56	39.98	38.65	-88.37	2,275.43	-0.46	580.78	503.51	77.28	7.516			
10,400.00	8,072.41	10,250.12	8,051.74	41.67	40.33	-88.77	2,371.30	2.01	577.23	496.53	80.69	7.153			
10,500.00	8,071.30	10,345.03	8,049.26	43.36	41.99	-89.28	2,466.16	3.72	574.46	490.36	84.10	6.831			
10,600.00	8,070.19	10,432.87	8,046.36	45.07	43.53	-90.50	2,553.96	4.12	573.09	485.71	87.38	6.558			
10,608.20	8,070.10	10,439.95	8,046.12	45.22	43.66	-90.61	2,561.03	4.06	573.08	485.43	87.65	6.538			
10,700.00	8,069.09	10,530.30	8,042.73	46.79	45.24	-90.76	2,651.31	2.94	573.39	482.56	90.83	6.312			
10,800.00	8,067.98	10,633.53	8,038.39	48.52	47.02	-90.45	2,754.45	2.03	573.40	479.05	94.35	6.077			
10,900.00	8,066.87	10,737.92	8,035.07	50.25	48.77	-90.01	2,858.78	1.78	572.74	474.89	97.85	5.853			
11,000.00	8,065.76	10,841.34	8,034.15	52.00	50.50	-89.67	2,962.19	2.14	571.36	470.00	101.36	5.637			
11,100.00	8,064.66	10,938.79	8,035.07	53.74	52.18	-89.92	3,059.63	2.46	569.90	465.07	104.83	5.436			
11,184.13	8,063.73	11,016.82	8,036.32	55.22	53.53	-90.54	3,137.65	2.09	569.34	461.64	107.70	5.286			
11,200.00	8,063.55	11,028.00	8,036.60	55.50	53.72	-91.01	3,148.83	1.96	569.35	461.17	108.18	5.263			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Really Scary Federal Com #2H
Project:	Eddy County(NM27E)	TVD Reference:	WELL @ 3027.30usft
Reference Site:	Sec.33-T24S-R28E	MD Reference:	WELL @ 3027.30usft
Site Error:	0:00:usft	North Reference:	Grid
Reference Well:	Really Scary Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0:00:usft	Output errors are at:	2.00:sigma
Reference Wellbore:	Wellbore #2-ST	Database:	EDM 5000.1: Single User Db
Reference Design:	Design #1-ST	Offset TVD Reference:	Reference Datum

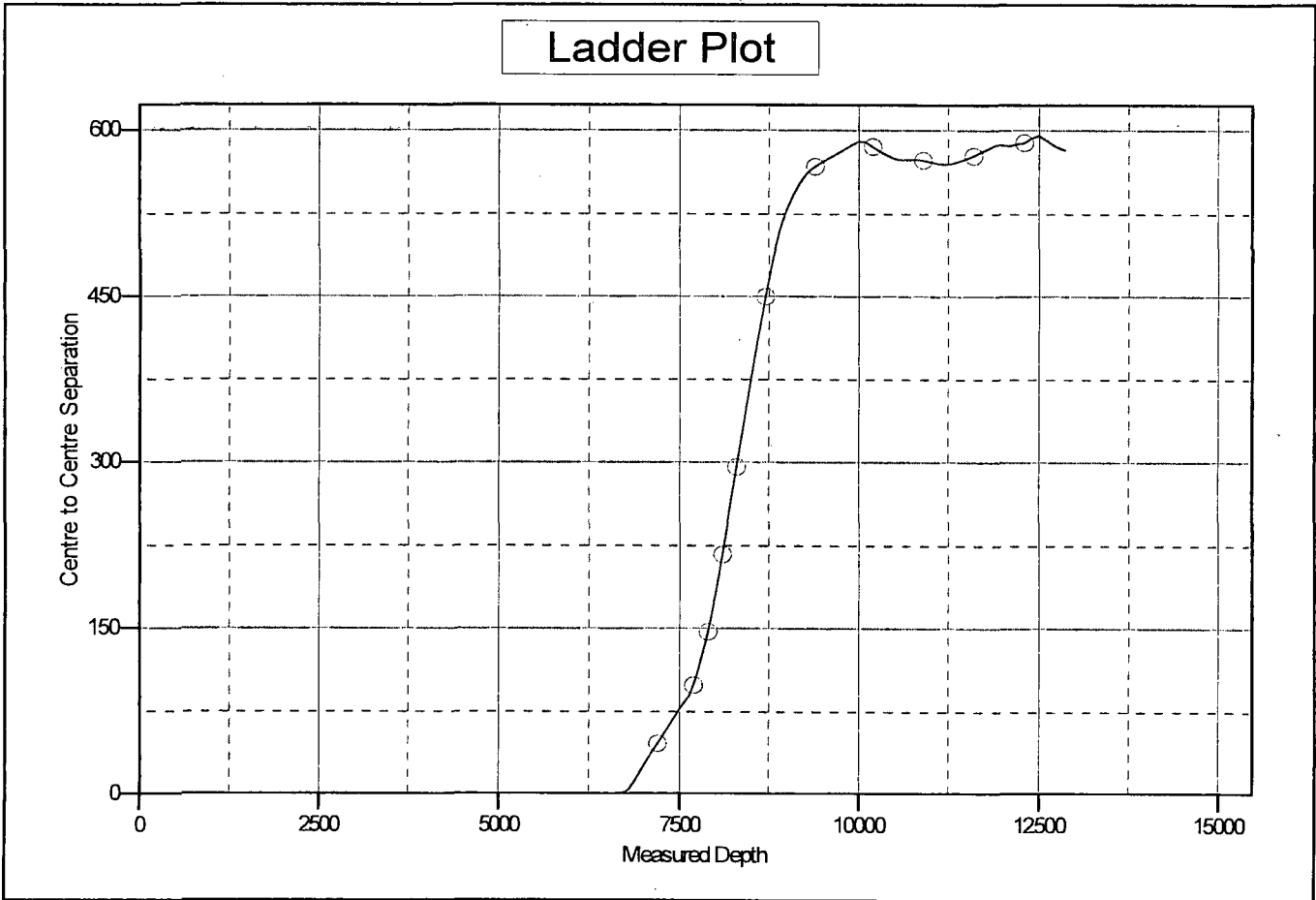
Offset Design: Sec.33-T24S-R28E - Really Scary Federal Com #2H - Wellbore #1 - Wellbore #1													Offset Site Error:
Survey Program: 100-GYD-DP-MS-7380-MWD													Offset Well Error:
Reference	Offset		Semi-Major Axis				Distance				Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre N-S (usft)	E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,300.00	8,062.44	11,123.76	8,039.19	57.25	55.36	-91.44	3,244.53	0.11	570.10	458.46	111.64	5.107	
11,400.00	8,061.34	11,220.42	8,041.27	59.01	57.06	-91.78	3,341.13	-2.69	571.85	456.69	115.16	4.966	
11,500.00	8,060.23	11,318.09	8,042.42	60.78	58.81	-92.01	3,438.74	-5.94	574.09	455.37	118.72	4.836	
11,600.00	8,059.12	11,414.83	8,041.82	62.55	60.54	-92.35	3,535.20	-9.60	576.85	454.60	122.25	4.719	
11,700.00	8,058.02	11,512.72	8,039.52	64.32	62.29	-92.53	3,633.18	-13.74	580.08	454.29	125.79	4.612	
11,800.00	8,056.91	11,614.14	8,038.63	66.10	64.05	-92.39	3,734.50	-18.05	583.31	453.97	129.34	4.510	
11,900.00	8,055.80	11,719.82	8,040.66	67.88	65.83	-91.83	3,840.07	-22.35	586.29	453.34	132.95	4.410	
12,000.00	8,054.70	11,837.21	8,042.07	69.66	67.84	-90.13	3,957.43	-24.03	586.59	449.81	136.78	4.289	
12,084.54	8,053.76	11,916.99	8,042.24	71.17	69.22	-90.60	4,037.21	-24.12	585.83	446.14	139.69	4.194	
12,100.00	8,053.59	11,929.45	8,042.23	71.45	69.44	-90.89	4,049.68	-24.28	585.87	445.68	140.19	4.179	
12,200.00	8,052.48	12,025.19	8,041.74	73.23	71.11	-91.31	4,145.37	-26.86	587.50	443.84	143.67	4.089	
12,300.00	8,051.38	12,117.82	8,040.91	75.02	72.72	-92.02	4,237.98	-28.68	588.51	441.43	147.08	4.001	
12,400.00	8,050.27	12,204.48	8,040.25	76.81	74.23	-93.31	4,324.50	-33.33	592.75	442.35	150.40	3.941	
12,500.00	8,049.16	12,353.58	8,034.09	78.61	76.84	-88.59	4,473.36	-37.47	595.18	440.39	154.79	3.845	
12,600.00	8,048.06	12,459.06	8,029.68	80.40	78.61	-88.06	4,578.69	-34.08	591.01	432.67	158.34	3.732	
12,700.00	8,046.95	12,556.15	8,026.30	82.20	80.28	-88.34	4,675.67	-30.88	586.79	425.00	161.79	3.627	
12,800.00	8,045.84	12,648.03	8,021.99	84.00	81.89	-89.14	4,767.42	-28.70	583.53	418.35	165.18	3.533	
12,876.12	8,045.00	12,711.00	8,018.59	85.36	83.00	-90.44	4,830.29	-27.71	581.83	414.19	167.63	3.471 SF	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well: Really Scary Federal Com #2H
Project:	Eddy County (NM27E)	TVD Reference:	WELL @ 3027.30usft
Reference Site:	Sec. 33-T24S-R28E	MD Reference:	WELL @ 3027.30usft
Site Error:	0:00:usft	North Reference:	Grid:
Reference Well:	Really Scary Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0:00:usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #2-ST	Database:	EDM; 5000; 1; Single User; Db
Reference Design:	Design #1-ST	Offset TVD Reference:	Reference Datum:

Reference Depths are relative to WELL @ 3027.30usft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Really Scary Federal Com #2H  
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30  
 Grid Convergence at Surface is: 0.13°



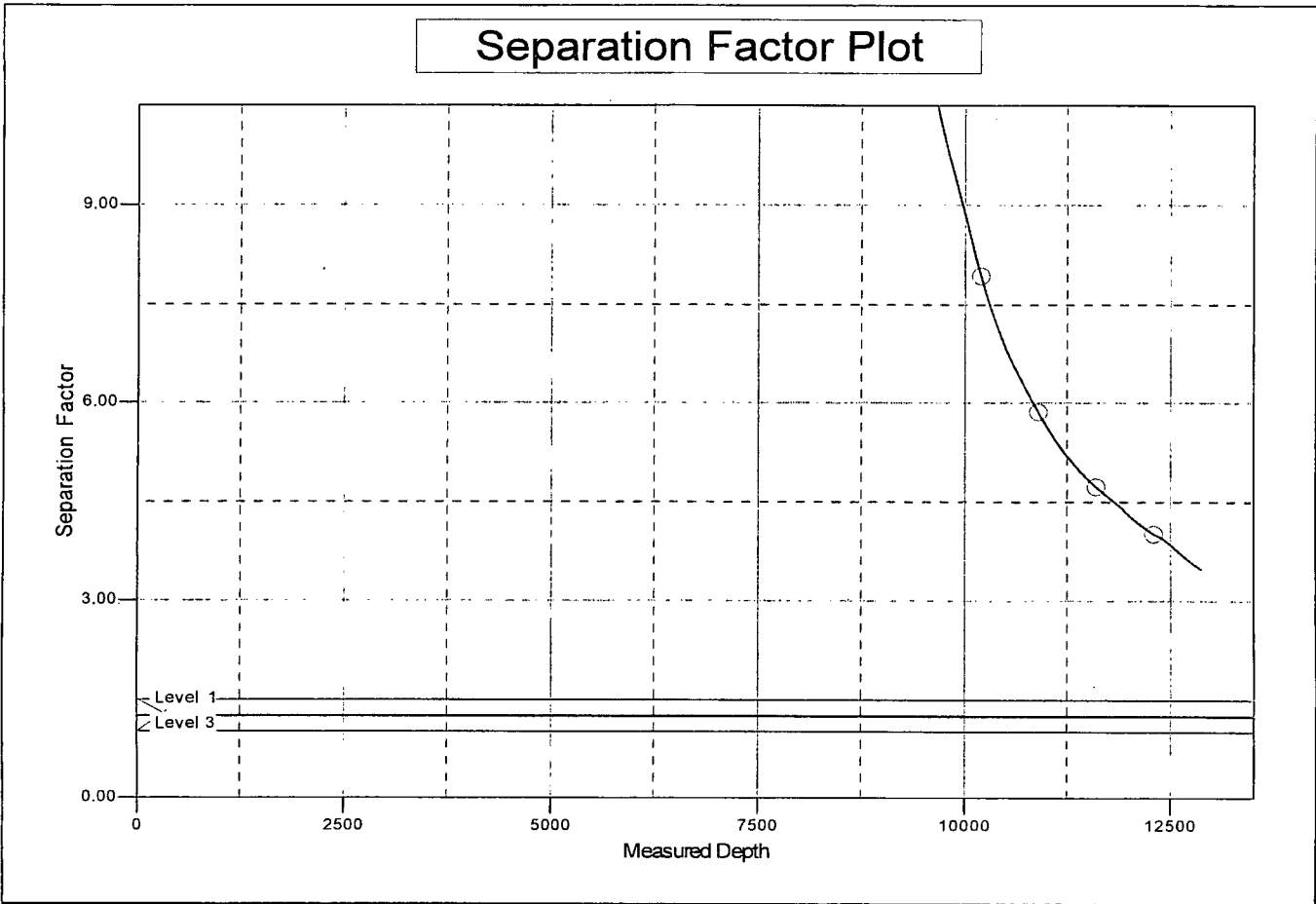
### LEGEND

Federal Com #2H, Wellbore #1, Wellbore #1 V0

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Really Scary Federal Com #2H
Project:	Eddy County (NM27E)	TVD Reference:	WELL @ 3027.30usft
Reference Site:	Sec. 33-T24S-R28E	MD Reference:	WELL @ 3027.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Really Scary Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #2-ST	Database:	EDM 5000: 1 Single User Db
Reference Design:	Design #1-ST	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 3027.30usft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Really Scary Federal Com #2H  
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30  
 Grid Convergence at Surface is: 0.13°



LEGEND

Federal Com #2H, Wellbore #1, Wellbore #1 V0