

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NM OIL CONSERVATION
ARTESIA DISTRICT

OCJ Artesia
JUN 14 2015

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other		5. Lease Serial No. NMNM0107697	
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr. Other _____		6. If Indian, Allottee or Tribe Name	
2. Name of Operator COG OPERATING LLC		7. Unit or CA Agreement Name and No.	
Contact: STORMI DAVIS E-Mail: sdavis@concho.com		8. Lease Name and Well No. SCREWDRIER 24 FEDERAL COM 2H	
3. Address 2208 W MAIN ST ARTESIA, NM 88210		9. API Well No. 30-015-42914	
3a. Phone No. (include area code) Ph: 575-748-6946		10. Field and Pool, or Exploratory LUSK; BONE SPRING, WEST	
4. Location of Well (Report location clearly and in accordance with Federal requirements)* Sec 24 T19S R31E Mer NMP At surface SESE 900FSL 190FEL At top prod interval reported below Sec 24 T19S R31E Mer NMP At total depth SWSW 409FSL 331FWL		11. Sec., T., R., M., or Block and Survey or Area Sec 24 T19S R31E Mer NMP	
14. Date Spudded 02/02/2015		15. Date T.D. Reached 02/21/2015	
16. Date Completed ☐ D & A ☒ Ready to Prod. 04/03/2015		17. Elevations (DF, KB, RT, GL)* 3544 GL	
18. Total Depth: MD 13841 TVD 9210		19. Plug Back T.D.: MD 13790 TVD 9210	
20. Depth Bridge Plug Set: MD 13790 TVD 9210		21. Type Electric & Other Mechanical Logs Run (Submit copy of each) NONE	
22. Was well cored? ☒ No ☐ Yes (Submit analysis) Was DST run? ☒ No ☐ Yes (Submit analysis) Directional Survey? ☐ No ☒ Yes (Submit analysis)			

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
20.000	16.000 J55	65.0	0	774		900		0	
14.750	11.750 J55	47.0	0	2765		1350		0	
10.625	8.625 J55	32.0	0	4338	2789	1400		0	
7.875	5.500 P110	17.0	0	13841		2200		0	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	8662							

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) BONE SPRING	9384	13750	9384 TO 13690	0.430	540	OPEN
B)			13740 TO 13750		60	OPEN
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
9384 TO 13690	SEE IN REMARKS

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity
04/04/2015	04/12/2015	24	→	646.0	540.0	1565.0		
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
	360	100.0	→	646	540	1565		POW

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity
			→					
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
			→					

ACCEPTED FOR RECORD

Production Method
ELECTRIC PUMP-SUB-SURFACE

MAY 28 2015

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #298810 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

Reclamation
Date: 10/12/15

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity/ Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity/ Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

29. Disposition of Gas(Sold, used for fuel, vented, etc.)
FLARED

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
BRUSHY CANYON	5360	7019		RUSTLER	734
BONE SPRING LM	7020	8279		TOS	814
1ST BONE SPRING	8280	9220		TANSILL	2409
				YATES	2564
				SEVEN RIVERS	2759
				REEF	2829
				BASE OF REEF	4365
				BRUSHY CANYON	5360

32. Additional remarks (include plugging procedure):

Perfs 7 1/2" Sand (#) Fluid (gal)
 13494-13690 7098 451748 476448
 13197-13396 6048 450045 375690
 12907-13103 6384 453217 372960
 12611-12809 6090 450135 377580
 12320-12516 6006 451047 373632
 12022-12222 6024 451577 371214
 11733-11928 6066 448776 369702

33. Circle enclosed attachments:

1. Electrical/Mechanical Logs (1 full set req'd.)
2. Geologic Report
3. DST Report
4. Directional Survey
5. Sundry Notice for plugging and cement verification
6. Core Analysis
- 7 Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #298810 Verified by the BLM Well Information System.
 For COG OPERATING LLC, sent to the Carlsbad
 Committed to AFMSS for processing by DEBORAH HAM on 05/15/2015 ()

Name (please print) STORMI DAVIS

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 04/21/2015

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.

** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL **

Additional data for transaction #298810 that would not fit on the form

32. Additional remarks, continued

11439-11635 6006 450050 371322
11146-11341 5964 453516 372102
10852-11047 6048 451058 368634
10562-10754 6048 450512 378714
10265-10459 5964 451745 366660
9972-10167 6132 451355 368424
9678-9868 6090 449082 375984
9384-9580 6006 455673 369978
Totals 91973 6769536 5689043

Additional Tops:
Bone Spring Lm 7020
1st Bone Spring 8280

Surveys attached.



NM OIL CONSERVATION
ARTESIA DISTRICT

JUN 11 2015

RECEIVED

February 20, 2015

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: Screwdriver 24 Federal Com 2H

Please find enclosed a copy of the survey from 0' to 8528' ran on the above referenced well.

Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 20 day of Feb,
A.D., 2015, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas



Company: Concho
Lease/Well: Screwdriver 24 Federal Com /2H
Location: S 24 - T 19/S - R 31/E
Rig Name: McVay 6
State/County: New Mexico/Eddy
Latitude: 32.64, Longitude: -103.81
GRID North is 0.28 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 19 FT

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 2/20/2015 / 15:54

NM OIL CONSERVATION

ARTESIA DISTRICT

JUN 11 2015

RECEIVED

VES Survey International

West Texas

(432) 563-5444

Surveyor: Cody Johnson

Screwdriver 24 Federal Com 2H / API 30-015-42914

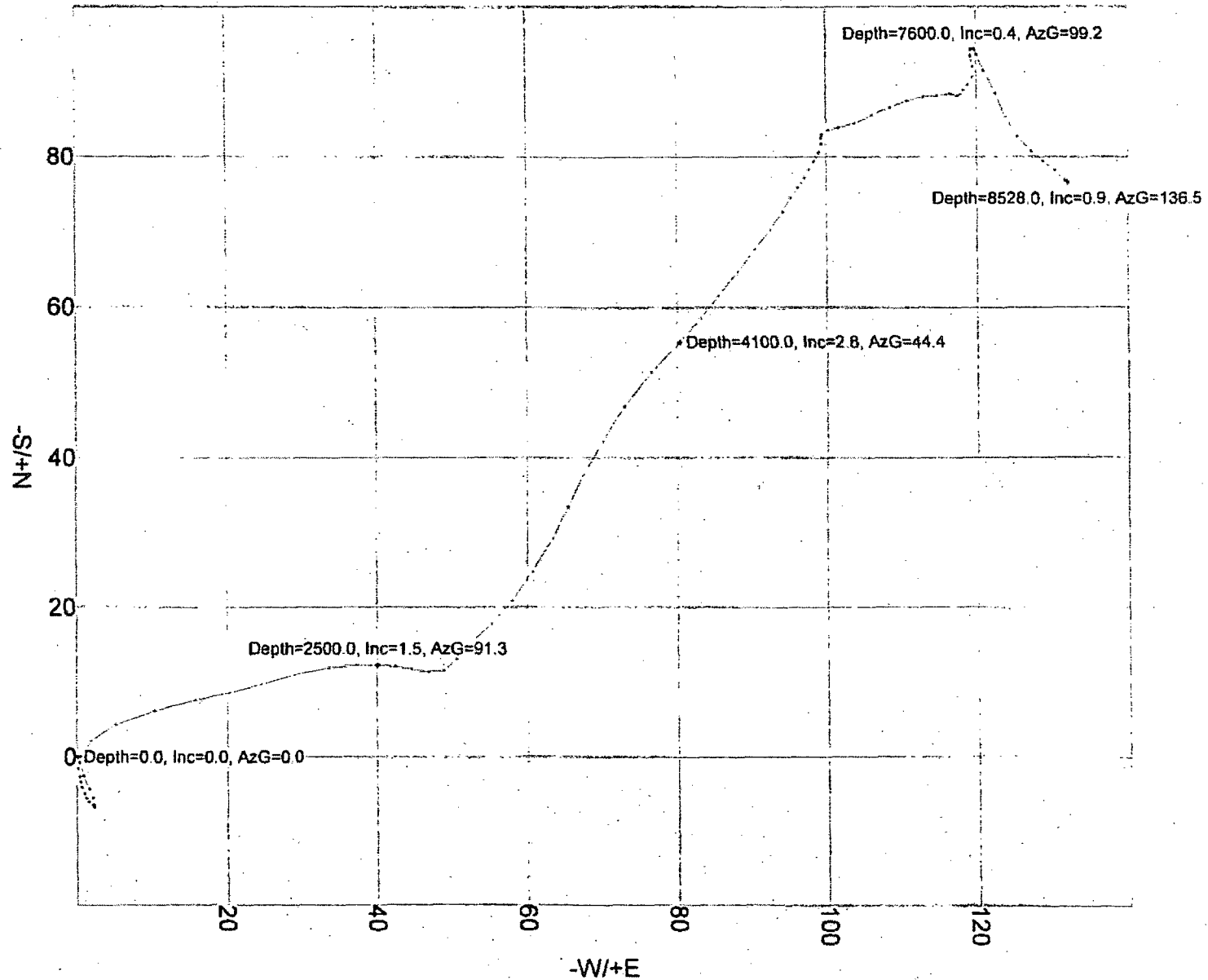
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	----
100.00	1.01	155.93	99.99	-0.81	0.36	-0.81	0.88	155.93	1.01
200.00	1.15	169.25	199.98	-2.60	0.91	-2.60	2.76	160.76	0.29
300.00	1.02	146.93	299.96	-4.34	1.58	-4.34	4.62	159.96	0.44
400.00	0.51	176.00	399.95	-5.53	2.10	-5.53	5.92	159.20	0.63
500.00	0.59	166.71	499.95	-6.48	2.25	-6.48	6.86	160.84	0.11
600.00	0.16	337.73	599.94	-8.84	2.31	-8.84	7.22	161.31	0.75
700.00	0.33	316.63	699.94	-6.50	2.06	-6.50	6.82	162.40	0.19
800.00	0.46	306.11	799.94	-6.05	1.54	-6.05	6.25	166.74	0.16
900.00	0.25	350.99	899.94	-5.60	1.18	-5.60	5.72	168.12	0.34
1000.00	0.53	335.32	999.94	-4.97	0.95	-4.97	5.06	169.16	0.30
1100.00	0.47	347.58	1099.93	-4.15	0.67	-4.15	4.20	170.83	0.12
1200.00	0.38	351.76	1199.93	-3.42	0.53	-3.42	3.46	171.12	0.09
1300.00	0.47	343.93	1299.93	-2.69	0.37	-2.69	2.72	172.13	0.10
1400.00	0.82	353.36	1399.92	-1.59	0.18	-1.59	1.60	173.67	0.37
1500.00	1.11	22.87	1499.91	0.02	0.47	0.02	0.47	87.46	0.57
1600.00	1.82	40.04	1599.87	2.13	1.87	2.13	2.84	41.25	0.83
1700.00	2.84	66.31	1699.79	4.34	5.16	4.34	6.75	49.91	1.45
1800.00	3.47	73.67	1799.64	6.19	10.33	6.19	12.05	59.08	0.75

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	2.93	77.81	1899.49	7.58	15.73	7.58	17.47	64.27	0.59
2000.00	2.53	78.63	1999.37	8.55	20.39	8.55	22.11	67.24	0.40
2100.00	2.46	70.31	2099.28	9.71	24.58	9.71	26.43	68.44	0.37
2200.00	2.84	77.53	2199.17	10.97	29.02	10.97	31.03	69.29	0.51
2300.00	2.55	79.80	2299.06	11.90	33.64	11.90	35.68	70.51	0.31
2400.00	1.72	89.52	2398.99	12.31	37.33	12.31	39.31	71.75	0.91
2500.00	1.52	91.26	2498.95	12.29	40.16	12.29	42.00	72.98	0.20
2600.00	1.17	98.43	2598.92	12.12	42.50	12.12	44.19	74.09	0.39
2700.00	1.27	100.31	2698.90	11.77	44.60	11.77	46.13	75.22	0.11
2800.00	1.40	99.07	2798.87	11.38	46.90	11.38	48.26	76.37	0.13
2900.00	1.05	64.63	2898.85	11.57	48.93	11.57	50.28	76.69	0.80
3000.00	1.62	38.54	2998.82	13.07	50.63	13.07	52.29	75.53	0.82
3100.00	1.86	47.44	3098.78	15.27	52.71	15.27	54.88	73.84	0.36
3200.00	2.36	44.57	3198.71	17.84	55.35	17.84	58.15	72.14	0.52
3300.00	2.25	39.11	3298.63	20.83	58.04	20.83	61.66	70.25	0.25
3400.00	3.12	32.03	3398.52	24.67	60.72	24.67	65.54	67.89	0.93
3500.00	2.96	29.69	3498.38	29.22	63.45	29.22	69.85	65.27	0.20
3600.00	2.44	21.96	3598.27	33.43	65.52	33.43	73.55	62.97	0.64
3700.00	2.93	27.78	3698.16	37.66	67.50	37.66	77.30	60.84	0.56
3800.00	3.09	31.77	3798.02	42.21	70.11	42.21	81.84	58.95	0.27
3900.00	3.18	32.93	3897.87	46.83	73.04	46.83	86.76	57.33	0.10
4000.00	3.49	42.72	3997.70	51.39	76.61	51.39	92.25	56.15	0.65
4100.00	2.81	44.36	4097.55	55.38	80.39	55.38	97.62	55.44	0.69
4200.00	2.05	38.33	4197.46	58.53	83.21	58.53	101.73	54.88	0.80
4300.00	2.36	39.65	4297.38	61.52	85.63	61.52	105.44	54.31	0.32
4400.00	2.35	37.75	4397.30	64.73	88.20	64.73	109.40	53.73	0.08
4500.00	1.95	38.17	4497.23	67.69	90.51	67.69	113.02	53.21	0.40
4600.00	1.82	37.83	4597.18	70.28	92.53	70.28	116.20	52.78	0.13
4700.00	1.55	31.24	4697.13	72.69	94.21	72.69	118.99	52.35	0.33
4800.00	0.95	30.39	4797.11	74.57	95.33	74.57	121.03	51.97	0.60
4900.00	0.96	38.80	4897.09	75.94	96.28	75.94	122.62	51.74	0.14
5000.00	0.82	29.64	4997.08	77.21	97.16	77.21	124.11	51.53	0.20
5100.00	0.61	25.61	5097.07	78.32	97.74	78.32	125.25	51.30	0.22
5200.00	0.84	38.95	5197.07	79.36	98.43	79.36	126.44	51.12	0.29
5300.00	0.82	14.89	5297.06	80.63	99.08	80.63	127.74	50.86	0.35
5400.00	0.59	13.93	5397.05	81.83	99.39	81.83	128.74	50.54	0.23
5500.00	0.32	316.78	5497.04	82.54	99.32	82.54	129.14	50.27	0.50
5600.00	0.50	47.01	5597.04	83.04	99.45	83.04	129.56	50.14	0.59
5700.00	0.64	69.30	5697.04	83.53	100.29	83.53	130.52	50.21	0.26

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	1.07	79.31	5797.03	83.90	101.73	83.90	131.86	50.48	0.46
5900.00	1.40	70.10	5897.00	84.49	103.80	84.49	133.84	50.85	0.39
6000.00	1.52	64.49	5996.97	85.48	106.15	85.48	136.29	51.15	0.18
6100.00	1.46	65.53	6096.94	86.58	108.50	86.58	138.81	51.41	0.07
6200.00	1.44	70.86	6196.91	87.52	110.85	87.52	141.24	51.71	0.14
6300.00	1.12	83.98	6296.88	88.04	113.01	88.04	143.26	52.08	0.44
6400.00	0.84	90.29	6396.87	88.14	114.72	88.14	144.67	52.47	0.29
6500.00	0.57	74.57	6496.86	88.26	115.93	88.26	145.71	52.72	0.33
6600.00	0.10	42.07	6596.86	88.46	116.47	88.46	146.26	52.78	0.48
6700.00	0.40	128.45	6696.86	88.32	116.80	88.32	146.43	52.91	0.40
6800.00	0.42	93.19	6796.85	88.08	117.44	88.08	146.80	53.13	0.25
6900.00	0.27	16.13	6896.85	88.29	117.87	88.29	147.27	53.17	0.46
7000.00	0.55	42.01	6996.85	88.87	118.26	88.87	147.93	53.07	0.33
7100.00	0.48	38.87	7096.84	89.56	118.84	89.56	148.81	53.00	0.08
7200.00	0.96	25.33	7196.84	90.64	119.47	90.64	149.96	52.81	0.51
7300.00	0.75	335.60	7296.83	92.00	119.56	92.00	150.85	52.42	0.75
7400.00	0.99	354.07	7396.82	93.45	119.20	93.45	151.46	51.90	0.37
7500.00	0.12	81.86	7496.81	94.33	119.21	94.33	152.02	51.65	0.99
7600.00	0.36	99.18	7596.81	94.29	119.63	94.29	152.32	51.75	0.25
7700.00	0.86	165.69	7696.80	93.51	120.13	93.51	152.23	52.10	0.79
7800.00	1.69	152.61	7796.78	91.47	120.99	91.47	151.68	52.91	0.88
7900.00	2.16	153.07	7896.72	88.48	122.52	88.48	151.13	54.16	0.47
8000.00	1.84	161.61	7996.66	85.28	123.88	85.28	150.40	55.46	0.44
8100.00	1.63	135.68	8096.62	82.74	125.38	82.74	150.22	56.58	0.80
8200.00	1.44	137.65	8196.58	80.79	127.23	80.79	150.71	57.58	0.20
8300.00	0.94	123.06	8296.56	79.42	128.76	79.42	151.28	58.33	0.58
8400.00	1.29	133.94	8396.54	78.19	130.25	78.19	151.92	59.02	0.41
8500.00	0.88	129.85	8496.52	76.92	131.65	76.92	152.48	59.70	0.41
8528.00	0.86	136.47	8524.52	76.63	131.97	76.63	152.60	59.86	0.37



VES Survey International
West Texas
(432) 563-5444
Surveyor: Cody Johnson
Screwdriver 24 Federal Com 2H / API 30-015-42914



VES Survey Date: 2/12/2015

Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 2H
Project:	Eddy County, NM	TVD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Site:	Screwdriver 24 Fed Com 2H	MD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Well:	2H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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		Screwdriver 24 Fed Com 2H			
Site Position:		Northing:	597,336.30 usft	Latitude:	32° 38' 27.99 N
From:	Map	Easting:	859,763.70 usft	Longitude:	103° 48' 51.54 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.28 °

Well:	2H				
Well Position	+N-S	0.00 usft	Northing:	597,336.30 usft	Latitude: 32° 38' 27.99 N
	+E-W	0.00 usft	Easting:	659,763.70 usft	Longitude: 103° 48' 51.54 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 3,544.00 usft

Wellbore		Lateral			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/6/2015	7.53	60.65	48,631

Design		Surveys		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	263.63

Survey Program		Date	2/23/2015	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	8,528.00	Gyro (Lateral)	GYRO-NS	Gyrocompass Gyro
8,558.00	13,841.00	MWD (Lateral)	MWD+HDGM	OWSG MWD + HDGM

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
Screwdriver 24 Fed Com 2H SHL									
100.00	1.01	155.93	99.99	-0.80	0.36	-0.27	1.01	1.01	0.00
200.00	1.15	169.25	199.98	-2.60	0.91	-0.61	0.29	0.14	-13.32
300.00	1.02	146.93	299.96	-4.33	1.58	-1.09	0.44	-0.13	-22.32
400.00	0.51	176.00	399.95	-5.52	2.10	-1.47	0.63	-0.51	29.07
500.00	0.59	166.71	499.95	-6.46	2.25	-1.51	0.12	0.08	-9.29
600.00	0.16	337.73	599.94	-6.83	2.31	-1.54	0.75	-0.43	171.02
700.00	0.33	316.63	699.94	-6.50	2.06	-1.33	0.19	0.17	-21.10
800.00	0.46	308.11	799.94	-6.05	1.54	-0.86	0.15	0.13	-10.52

Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 2H
Project:	Eddy County, NM	TVD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Site:	Screwdriver 24 Fed Corn 2H	MD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Well:	2H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
900.00	0.25	350.99	899.94	-5.60	1.18	-0.55	0.33	-0.21	44.88
1,000.00	0.53	335.32	999.94	-4.98	0.95	-0.40	0.30	0.28	-15.67
1,100.00	0.47	347.58	1,099.93	-4.14	0.67	-0.21	0.12	-0.06	12.28
1,200.00	0.38	351.76	1,199.93	-3.41	0.53	-0.15	0.10	-0.09	4.18
1,300.00	0.47	343.93	1,299.93	-2.69	0.37	-0.07	0.11	0.09	-7.83
1,400.00	0.82	353.36	1,399.92	-1.58	0.18	0.00	0.38	0.35	9.43
1,500.00	1.11	22.87	1,499.91	0.02	0.47	-0.47	0.57	0.29	29.51
1,600.00	1.82	40.04	1,599.87	2.13	1.87	-2.09	0.83	0.71	17.17
1,700.00	2.84	66.31	1,699.79	4.34	5.16	-3.61	1.45	1.02	26.27
1,800.00	3.47	73.87	1,799.64	6.18	10.33	-10.95	0.75	0.63	7.36
1,900.00	2.93	77.81	1,899.49	7.57	15.74	-16.48	0.59	-0.54	4.14
2,000.00	2.53	78.63	1,999.37	8.55	20.40	-21.22	0.40	-0.40	0.82
2,100.00	2.46	70.31	2,099.28	9.71	24.58	-25.51	0.37	-0.07	-8.32
2,200.00	2.84	77.53	2,199.17	10.97	29.02	-30.06	0.51	0.38	7.22
2,300.00	2.55	79.80	2,299.06	11.89	33.63	-34.74	0.31	-0.29	2.27
2,400.00	1.72	89.52	2,398.99	12.30	37.32	-38.45	0.90	-0.83	9.72
2,500.00	1.52	91.28	2,498.95	12.28	40.15	-41.26	0.21	-0.20	1.74
2,600.00	1.17	98.43	2,598.92	12.11	42.48	-43.56	0.39	-0.35	7.17
2,700.00	1.27	100.31	2,698.90	11.76	44.58	-45.61	0.11	0.10	1.88
2,800.00	1.40	99.07	2,798.87	11.37	46.88	-47.85	0.13	0.13	-1.24
2,900.00	1.05	84.83	2,898.85	11.57	48.91	-49.89	0.80	-0.35	-34.44
3,000.00	1.62	38.54	2,998.82	13.06	50.82	-51.76	0.82	0.57	-26.09
3,100.00	1.86	47.44	3,098.78	15.27	52.70	-54.07	0.36	0.24	8.90
3,200.00	2.36	44.57	3,198.71	17.83	55.34	-56.97	0.51	0.50	-2.67
3,300.00	2.25	39.11	3,298.63	20.82	58.02	-59.97	0.25	-0.11	-5.46
3,400.00	3.12	32.03	3,398.52	24.65	60.70	-63.06	0.93	0.87	-7.08
3,500.00	2.96	29.69	3,498.38	29.20	63.43	-66.27	0.20	-0.16	-2.34
3,600.00	2.44	21.96	3,598.27	33.42	65.50	-68.80	0.63	-0.52	-7.73
3,700.00	2.93	27.78	3,698.16	37.66	67.49	-71.25	0.56	0.49	5.82
3,800.00	3.09	31.77	3,798.02	42.21	70.10	-74.35	0.26	0.18	3.99
3,900.00	3.18	32.93	3,897.87	46.83	73.02	-77.77	0.11	0.09	1.16
4,000.00	3.49	42.72	3,997.70	51.39	76.60	-81.83	0.65	0.31	9.79
4,100.00	2.81	44.36	4,097.55	55.38	80.38	-86.02	0.69	-0.68	1.64
4,200.00	2.05	38.33	4,197.46	58.54	83.20	-89.18	0.80	-0.76	-6.03
4,300.00	2.36	39.85	4,297.38	61.52	85.62	-91.92	0.31	0.31	1.32
4,400.00	2.35	37.75	4,397.30	64.73	88.19	-94.83	0.08	-0.01	-1.90
4,500.00	1.95	38.17	4,497.23	67.69	90.50	-97.45	0.40	-0.40	0.42
4,600.00	1.82	37.83	4,597.18	70.28	92.52	-99.75	0.13	-0.13	-0.34
4,700.00	1.55	31.24	4,697.13	72.69	94.20	-101.68	0.33	-0.27	-6.59
4,800.00	0.95	30.39	4,797.11	74.56	95.32	-103.00	0.60	-0.60	-0.85
4,900.00	0.98	38.60	4,897.09	75.93	96.26	-104.09	0.14	0.01	8.41
5,000.00	0.82	29.64	4,997.08	77.21	97.14	-105.11	0.20	-0.14	-9.18
5,100.00	0.61	25.61	5,097.07	78.31	97.73	-105.81	0.22	-0.21	-4.03

Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 2H
Project:	Eddy County, NM	TVD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Site:	Screwdriver 24 Fed Com 2H	MD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Well:	2H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
5,200.00	0.64	38.95	5,197.07	79.36	88.42	-106.61	0.28	0.23	13.34
5,300.00	0.82	14.69	5,297.06	80.62	99.06	-107.39	0.35	-0.02	-24.06
5,400.00	0.59	13.93	5,397.05	81.81	99.37	-107.83	0.23	-0.23	-0.86
5,500.00	0.32	316.78	5,497.05	82.51	99.30	-107.84	0.50	-0.27	-57.15
5,600.00	0.50	47.01	5,597.04	83.02	99.43	-108.03	0.59	0.18	90.23
5,700.00	0.64	69.30	5,697.04	83.51	100.27	-108.92	0.26	0.14	22.29
5,800.00	1.07	79.31	5,797.03	83.88	101.71	-110.39	0.45	0.43	10.01
5,900.00	1.40	70.10	5,897.00	84.47	103.78	-112.51	0.38	0.33	-9.21
6,000.00	1.52	64.49	5,996.97	85.48	106.12	-114.85	0.19	0.12	-5.61
6,100.00	1.46	65.53	6,096.94	86.56	108.48	-117.41	0.07	-0.06	1.04
6,200.00	1.44	70.86	6,196.91	87.50	110.83	-119.85	0.14	-0.02	5.33
6,300.00	1.12	83.98	6,296.88	88.01	112.99	-122.05	0.43	-0.32	13.12
6,400.00	0.84	90.29	6,396.87	88.11	114.69	-123.76	0.30	-0.28	6.31
6,500.00	0.57	74.57	6,496.86	88.24	115.90	-124.98	0.33	-0.27	-15.72
6,600.00	0.10	42.07	6,596.86	88.43	116.44	-125.53	0.49	-0.47	-32.50
6,700.00	0.40	128.45	6,696.86	88.28	116.77	-125.85	0.41	0.30	86.38
6,800.00	0.42	93.19	6,796.85	88.04	117.41	-126.45	0.25	0.02	-35.26
6,900.00	0.27	16.13	6,896.85	88.25	117.84	-126.91	0.45	-0.15	-77.06
7,000.00	0.55	42.01	6,996.85	88.83	118.23	-127.35	0.33	0.28	25.88
7,100.00	0.48	38.87	7,096.85	89.52	118.81	-128.01	0.08	-0.07	-3.14
7,200.00	0.96	25.33	7,196.84	90.60	119.44	-128.75	0.51	0.48	-13.54
7,300.00	0.75	335.60	7,296.83	91.95	119.52	-128.99	0.74	-0.21	-49.73
7,400.00	0.99	354.07	7,396.82	93.41	119.16	-128.79	0.37	0.24	18.47
7,500.00	0.12	81.86	7,496.81	94.28	119.18	-128.90	0.99	-0.87	87.79
7,600.00	0.36	99.18	7,596.81	94.25	119.59	-129.31	0.25	0.24	17.32
7,700.00	0.66	165.69	7,696.81	93.47	120.09	-129.72	0.79	0.50	66.51
7,800.00	1.69	152.61	7,796.78	91.43	120.95	-130.35	0.87	0.83	-13.08
7,900.00	2.16	153.07	7,896.72	88.44	122.48	-131.54	0.47	0.47	0.46
8,000.00	1.84	161.61	7,996.66	85.24	123.84	-132.53	0.44	-0.32	8.54
8,100.00	1.63	135.68	8,096.62	82.70	125.34	-133.74	0.80	-0.21	-25.93
8,200.00	1.44	137.65	8,196.58	80.75	127.18	-135.36	0.20	-0.19	1.97
8,300.00	0.94	123.06	8,296.56	79.38	128.72	-136.73	0.58	-0.50	-14.59
8,400.00	1.29	133.94	8,396.54	78.15	130.22	-138.08	0.41	0.35	10.88
8,500.00	0.88	129.85	8,496.52	76.88	131.62	-139.33	0.42	-0.41	-4.09
8,528.00	0.86	136.47	8,524.52	76.59	131.93	-139.61	0.37	-0.07	23.64
8,556.00	1.00	122.70	8,552.52	76.30	132.28	-139.92	0.94	0.50	-49.18
8,588.00	0.70	170.50	8,584.51	75.96	132.54	-140.15	2.32	-0.94	149.38
8,620.00	4.60	246.00	8,616.48	75.24	131.40	-138.94	13.99	12.19	235.94
8,651.00	8.70	245.70	8,647.26	73.77	128.13	-135.52	13.23	13.23	-0.97
8,683.00	12.70	243.40	8,678.70	71.20	122.78	-129.82	12.57	12.50	-7.19
8,715.00	16.40	248.10	8,709.67	67.94	115.44	-122.28	12.13	11.56	14.69
8,747.00	19.40	250.10	8,740.12	84.44	106.25	-112.74	9.57	9.38	6.25
8,778.00	22.80	254.00	8,769.04	81.03	95.63	-101.81	11.86	10.97	12.58

Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 2H
Project:	Eddy County, NM	TVD Reference:	3544' GL + 19' RKB @ 3583.00usft (McVay 6)
Site:	Screwdriver 24 Fed Com 2H	MD Reference:	3544' GL + 19' RKB @ 3583.00usft (McVay 6)
Well:	2H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
8,810.00	25.80	255.60	8,798.20	57.59	82.92	-88.80	9.60	9.38	5.00
8,842.00	27.60	255.00	8,826.78	53.94	89.01	-74.57	5.89	5.83	-1.88
8,874.00	29.50	255.50	8,854.89	50.05	54.22	-59.44	5.98	5.94	1.58
8,906.00	32.30	258.00	8,882.35	48.30	38.23	-43.13	9.82	8.75	7.81
8,937.00	35.50	259.00	8,908.08	42.86	21.29	-25.91	10.48	10.32	3.23
8,969.00	37.90	258.90	8,933.73	39.19	2.52	-8.85	7.50	7.50	-0.31
9,001.00	40.40	258.50	8,958.54	35.23	-17.29	13.28	7.85	7.81	-1.25
9,033.00	41.90	259.30	8,982.64	31.18	-37.85	34.26	4.97	4.89	2.50
9,065.00	43.80	258.80	9,006.14	27.05	-59.28	55.91	5.42	5.31	-1.58
9,096.00	44.80	257.90	9,028.40	22.70	-80.41	77.39	3.81	3.23	-2.90
9,128.00	46.60	258.80	9,050.79	18.04	-102.79	100.15	8.44	6.25	2.19
9,155.92	48.43	258.07	9,069.84	13.88	-122.95	120.65	8.71	6.56	-1.88
Screwdriver 24 Fed Com 2H PP									
9,160.00	48.70	258.00	9,072.34	13.25	-125.94	123.70	8.71	6.57	-1.82
9,191.00	52.70	257.70	9,091.87	8.20	-149.39	147.58	12.92	12.90	-0.87
9,223.00	55.80	259.00	9,110.71	2.96	-174.79	173.38	9.84	9.06	4.06
9,255.00	58.80	258.40	9,128.02	-2.31	-201.18	200.19	10.43	10.31	-1.88
9,288.00	61.50	257.80	9,143.43	-7.86	-227.50	228.97	8.55	8.39	-1.94
9,318.00	66.20	257.20	9,157.53	-14.08	-255.53	255.52	14.78	14.69	-1.88
9,350.00	70.70	258.30	9,169.28	-20.90	-284.50	285.08	14.30	14.08	-2.81
9,384.00	74.50	257.00	9,179.44	-28.39	-316.08	317.28	11.35	11.18	2.08
9,415.00	76.90	257.50	9,187.10	-35.02	-345.35	347.11	7.90	7.74	1.61
9,447.00	81.70	257.60	9,193.04	-41.78	-376.05	378.37	15.00	15.00	0.31
9,479.00	85.00	257.00	9,198.74	-48.78	-407.05	409.95	10.48	10.31	-1.88
9,510.00	89.40	255.40	9,198.28	-56.17	-437.11	440.65	15.10	14.19	-5.16
9,542.00	91.40	254.30	9,198.04	-64.53	-468.00	472.27	7.13	6.25	-3.44
9,637.00	88.80	256.50	9,197.87	-88.47	-559.92	568.28	3.59	-2.74	2.32
9,732.00	88.80	259.50	9,199.88	-108.22	-652.81	660.79	3.16	0.00	3.16
9,827.00	89.20	261.30	9,201.52	-124.08	-746.46	755.62	1.94	0.42	1.89
9,923.00	89.10	263.40	9,202.94	-138.83	-841.59	851.58	2.19	-0.10	2.19
9,986.00	89.30	263.30	9,203.82	-144.13	-904.16	914.57	0.35	0.32	-0.18
10,081.00	90.00	265.30	9,204.40	-153.56	-998.68	1,009.58	2.23	0.74	2.11
10,176.00	90.10	265.10	9,204.32	-161.51	-1,093.35	1,104.52	0.24	0.11	-0.21
10,271.00	90.10	265.10	9,204.15	-169.83	-1,188.00	1,199.49	0.00	0.00	0.00
10,366.00	89.90	265.10	9,204.15	-177.74	-1,282.66	1,294.48	0.21	-0.21	0.00
10,461.00	89.50	265.40	9,204.65	-185.61	-1,377.33	1,389.42	0.53	-0.42	0.32
10,554.00	89.30	265.60	9,205.62	-192.91	-1,470.04	1,482.38	0.30	-0.22	0.22
10,649.00	89.20	265.90	9,206.87	-199.94	-1,564.77	1,577.29	0.33	-0.11	0.32
10,744.00	90.00	266.10	9,207.53	-208.57	-1,659.53	1,672.21	0.87	0.84	0.21
10,839.00	89.90	266.40	9,207.61	-212.78	-1,754.33	1,767.11	0.33	-0.11	0.32
10,934.00	89.50	266.50	9,208.11	-218.67	-1,849.15	1,861.99	0.43	-0.42	0.11
11,028.00	88.70	266.40	9,209.59	-224.49	-1,942.95	1,955.86	0.88	-0.85	-0.11
11,124.00	87.30	265.00	9,212.94	-231.88	-2,038.62	2,051.74	2.08	-1.48	-1.48
11,220.00	88.30	263.40	9,216.62	-241.37	-2,134.05	2,147.68	1.96	1.04	-1.87

Archer Survey Report

Company:	COG OPERATING, LLC	Local Co-ordinate Reference:	Well 2H
Project:	Eddy County, NM	TVD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Site:	Screwdriver 24 Fed Com 2H	MD Reference:	3544' GL + 19' RKB @ 3563.00usft (McVay 6)
Well:	2H	North Reference:	Grid
Wellbore:	Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM R5000.1 MULTI

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)
11,316.00	88.50	262.70	9,219.30	-252.99	-2,229.31	2,243.81	0.76	0.21	-0.73
11,411.00	90.30	263.20	9,220.30	-264.64	-2,323.56	2,338.60	1.97	1.89	0.53
11,507.00	90.20	263.00	9,219.88	-276.18	-2,418.89	2,434.59	0.23	-0.10	-0.21
11,603.00	91.10	263.00	9,218.79	-287.88	-2,514.16	2,530.58	0.84	0.84	0.00
11,699.00	91.30	263.00	9,216.78	-299.57	-2,609.43	2,626.55	0.21	0.21	0.00
11,794.00	91.10	262.90	9,214.79	-311.23	-2,703.69	2,721.53	0.24	-0.21	-0.11
11,890.00	93.10	264.10	9,211.27	-322.09	-2,799.00	2,817.45	2.43	2.08	1.25
11,985.00	93.10	263.70	9,208.14	-332.17	-2,893.32	2,912.31	0.42	0.00	-0.42
12,081.00	93.70	264.10	9,200.44	-342.35	-2,988.61	3,008.14	0.75	0.63	0.42
12,177.00	92.40	264.60	9,195.33	-351.79	-3,084.01	3,104.00	1.45	-1.35	0.52
12,273.00	80.90	266.30	9,192.57	-359.40	-3,179.68	3,199.90	2.36	-1.56	1.77
12,368.00	89.40	266.70	9,192.32	-365.20	-3,274.48	3,294.78	1.83	-1.58	0.42
12,464.00	89.50	266.10	9,193.24	-371.23	-3,370.28	3,390.86	0.63	0.10	-0.63
12,560.00	89.30	265.60	9,194.25	-378.18	-3,466.03	3,486.59	0.58	-0.21	-0.52
12,655.00	89.30	265.60	9,195.41	-385.46	-3,560.74	3,581.52	0.00	0.00	0.00
12,750.00	89.60	265.50	9,196.32	-392.83	-3,655.45	3,676.47	0.33	0.32	-0.11
12,846.00	88.40	264.70	9,198.00	-401.03	-3,751.08	3,772.42	1.50	-1.25	-0.83
12,942.00	88.10	264.70	9,200.93	-409.90	-3,846.63	3,868.36	0.31	-0.31	0.00
13,038.00	89.40	263.90	9,203.02	-419.43	-3,942.13	3,964.32	1.59	1.35	-0.83
13,133.00	89.50	263.90	9,203.93	-429.52	-4,038.58	4,059.32	0.11	0.11	0.00
13,228.00	89.50	263.50	9,204.76	-439.95	-4,131.01	4,154.31	0.42	0.00	-0.42
13,324.00	89.30	262.90	9,205.77	-451.31	-4,226.33	4,250.31	0.66	-0.21	-0.63
13,420.00	89.50	262.90	9,206.77	-463.18	-4,321.58	4,346.29	0.21	0.21	0.00
13,514.00	89.60	262.20	9,207.51	-475.37	-4,414.79	4,440.27	0.75	0.11	-0.74
13,610.00	89.50	262.10	9,208.27	-488.48	-4,509.88	4,536.24	0.15	-0.10	-0.10
13,706.00	89.70	262.00	9,208.94	-501.76	-4,604.96	4,632.20	0.23	0.21	-0.10
13,774.00	89.70	262.30	9,209.29	-511.04	-4,672.32	4,700.17	0.44	0.00	0.44
13,841.00	89.70	262.30	9,209.64	-520.02	-4,738.72	4,767.16	0.00	0.00	0.00

Screwdriver 24 Fed Com 2H BHL - Screwdriver 24 Fed Com 2H PBHL

Design Targets	Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
hits/mis target	Screwdriver 24 Fed Con	0.00	0.00	0.00	0.00	0.00	597,336.30	659,763.70	32° 38' 27.99 N	103° 48' 51.54 W
Shape	- actual wellpath hits target center									
	- Point									
	Screwdriver 24 Fed Con	0.00	0.00	9,045.07	-15.59	-139.72	597,320.71	659,623.99	32° 38' 27.84 N	103° 48' 53.16 W
	- actual wellpath misses target center by 41.86usft at 9156.53usft MD (9070.05 TVD, 13.78 N, -123.40 E)									
	- Point									
	Screwdriver 24 Fed Con	0.00	0.00	9,209.64	-520.02	-4,738.72	598,816.28	655,024.99	32° 38' 23.07 N	103° 49' 46.99 W
	- actual wellpath hits target center									
	- Point									

COG OPERATING, LLC

Field: Eddy County, NM
 Site: Screwdriver 24 Fed Com 2H
 Well: 2H
 Wellbore: Lateral
 Plan: Surveys

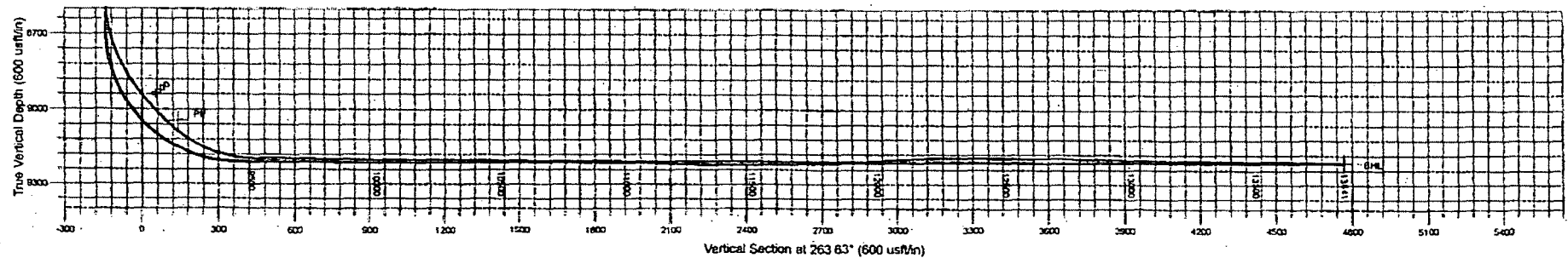
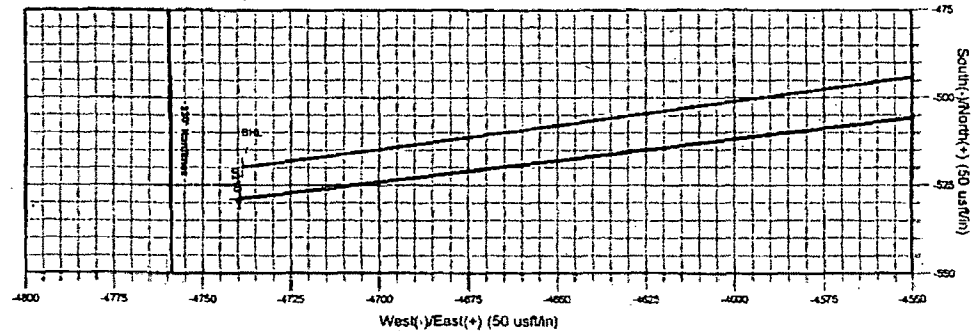
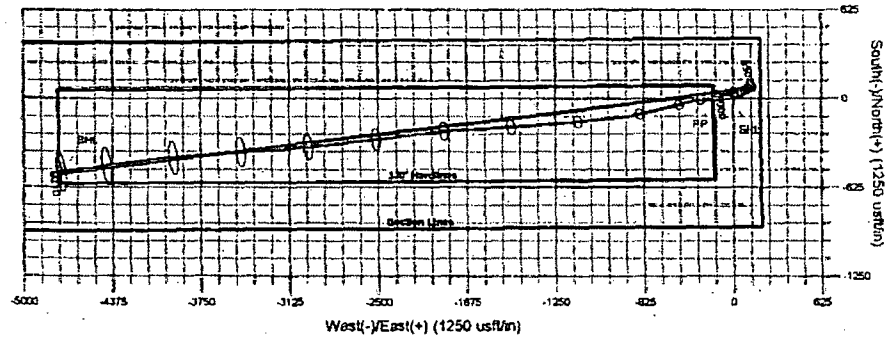
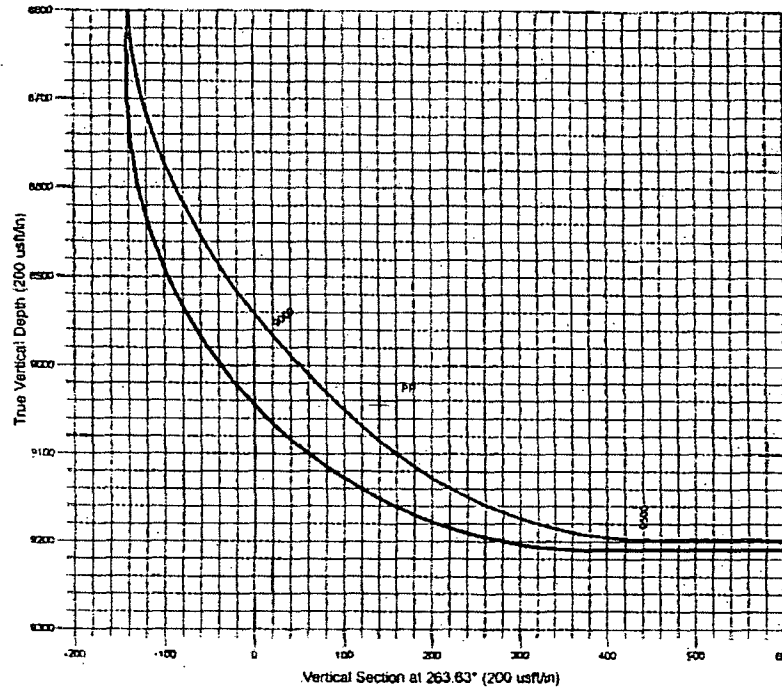


Section Distances

Sec24, T19S, R31E
 SHL - Unit P
 900'FSL, 190'FEL
 PP - Unit P
 885'FSL, 330'FEL
 BHL - Unit M
 411'FSL, 350'FWL

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Screwdriver 24 Fed Com 2H SHL	0.00	0.00	0.00	597336.30	659763.70	32° 38' 27.99 N	103° 48' 51.54 W
Screwdriver 24 Fed Com 2H PP	9045.06	-15.59	-139.72	597320.71	659623.98	32° 38' 27.84 N	103° 48' 53.18 W
Screwdriver 24 Fed Com 2H BHL	9209.64	-520.02	-4738.72	596816.28	655024.98	32° 38' 23.07 N	103° 49' 46.99 W



Archer

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