

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTDEC 09 2008
OCD-ARTESIAFORM APPROVED
OMB No 1004-0137
Expires July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No
NMNM118710

1a Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other			6 If Indian, Allottee or Tribe Name		
b Type of Completion ☐ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff Resvr. Other _____			7 Unit or CA Agreement Name and No		
2 Name of Operator COG OPERATING LLC			Contact. KANICIA CARRILLO E-Mail: kcarrillo@conchoresources.com		
3 Address 550 WEST TEXAS AVE STE 1300 MIDLAND, TX 79701			3a Phone No (include area code) Ph. 432-685-4332		
4. Location of Well (Report location clearly and in accordance with Federal requirements)* At surface Lot A 660FNL 1150FEL At top prod interval reported below Lot A 660FNL 1150FEL At total depth Lot D 687FNL 557FWL			8. Lease Name and Well No HIGH LONESOME 26 FEDERAL COM 1H		
14. Date Spudded 09/12/2008			15. Date T.D. Reached 10/08/2008		
16. Date Completed ☐ D & A ☒ Ready to Prod 11/11/2008			9. API Well No. 30-015-31899		
18. Total Depth. MD 10742 TVD 7304			19. Plug Back T.D. MD 10640 TVD 6784		
20 Depth Bridge Plug Set MD TVD			10. Field and Pool, or Exploratory WILCAT ABO		
21. Type Electric & Other Mechanical Logs Run (Submit copy of each) COMPENSATED NEUTRON CCL			11. Sec., T, R, M., or Block and Survey or Area Sec 26 T16S R29E Mer		
22. Was well cored? ☒ No ☐ Yes (Submit analysis) Was DST run? ☒ No ☐ Yes (Submit analysis) Directional Survey? ☒ No ☐ Yes (Submit analysis)			12 County or Parish EDDY		
			13 State NM		
			17 Elevations (DF, KB, RT, GL)* 3694 GL		

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

Hole Size	Size/Grade	Wt (#/ft)	Top (MD)	Bottom (MD)	Stage Cement Depth	No. of Sks & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
7.875	7 000 HCP-100	26.0	0	6784		700		0	184
6 125	4.500 P110	13.5	6576	10640				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)

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf Status
A) ABO	7568	8012	7568 TO 8012			STRATA PORTS OPEN
B) ABO	8403	8765	8403 TO 8765			STRATA PORTS OPEN
C) ABO	9165	9645	9165 TO 9645			STRATA PORTS OPEN
D) ABO	9920	10402	9920 TO 10402			STRATA PORTS OEPN

26. Perforation Record

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

Depth Interval	Amount and Type of Material
7568 TO 8012	ACIDIZE W/146 GALS ACID FRAC W/6,539 GALS GEL, 285,459# SIBERPROP SAND
8403 TO 8765	ACIDIZE W/146 GALS ACID FRAC W/6,146 GALS GEL, 190,220# SIBERPROP SAND
9165 TO 9645	ACIDIZE W/146 GALS ACID FRAC W/5,503 GALS GEL, 137,400# SIBERPROP SAND
9920 TO 10402	ACIDIZE W/146 GALS ACID FRAC W/6,704 GALS GEL, 182,204# SIBERPROP SAND

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	Production Method
11/12/2008	12/01/2008	24	→	610 0	3198 0	281 0	42 9		FLOWS FROM WELL
Choke Size	1bg Press Flwg	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas Oil Ratio	Well Status	
OPEN	SI	450 0	→					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	Production Method
			→						
Choke Size	1bg Press Flwg	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas Oil Ratio	Well Status	
	SI		→						

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

ELECTRONIC SUBMISSION #65321 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

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

Accepted for record - NMOCD

Additional data for transaction #65321 that would not fit on the form

32. Additional remarks, continued

10,539'

10,594' Peak Hydro Anchor

10,640' Peak Down Jet Circulating Sleeve

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-31899	Pool Code 97019	Pool Name Wildcat;Abo
Property Code 37385	Property Name HIGH LONESOME "26" FEDERAL COM	Well Number 1H
OGRID No. 229137	Operator Name C.O.G. OPERATING L.L.C.	Elevation 3694'

Surface Location

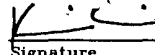
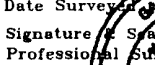
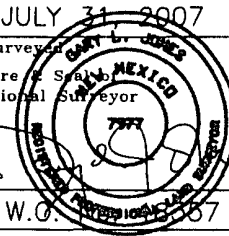
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	26	16 S	29 E		660	NORTH	1150	EAST	EDDY

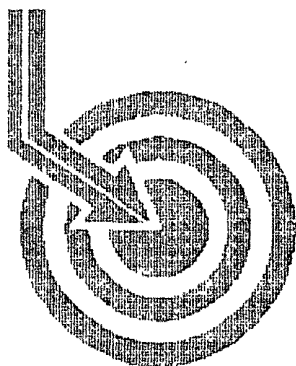
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	26	16 S	29 E		687	NORTH	557	WEST	EDDY

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

BOTTOM HOLE LOCATION LAT.: N 32°53'53.13" LONG.: W104°03'10.84" SPC- N.: 690573.773 E.: 627384.354 (NAD-83) SURFACE LOCATION LAT.: N 32°53'53.02" LONG.: W104°02'26.11" SPC- N.: 690573.536 E.: 631197.812 (NAD-83)	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.  12/05/08 Signature Date Kanicia Carrillo Printed Name
	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. JULY 31 2007 Date Surveyed   Signature Professional Surveyor W.G. Jones Certificate No. Gary L. Jones 7977 BASIN SURVEYS



Scientific Drilling

COG RESOURCES

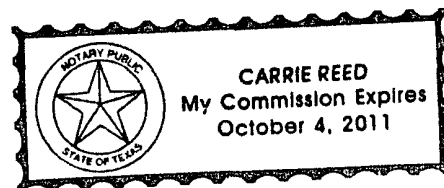
Field: Wildcat
Site: Eddy County, NM
Well: High Lonesome 26 Federal #1
Wellpath: VH - Job #32K0908712
Survey: 09/14/08

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

.....Robert..... Company Representative

Notorized this date 14th of October, 2008.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International Survey Report

Company: COG RESOURCES	Date: 10/13/2008	Time: 10:50:06	Page: 1
Field: Wildcat	Co-ordinate(NE) Reference:	Site: Eddy County, NM, Grid North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: High Lonesome 26 Federal #1	Section (VS) Reference:	Well (0.00N,0.00E,270.00Azi)	
Wellpath: VH - Job #32K0908712	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: 09/14/08	Start Date: 09/14/2008
Company: Scientific Drilling Internatio	Engineer: Garza w/GeoGyro
Tool: Keeper;Keeper Gyro	Tied-to: From Surface

Survey

MD ft	Incl deg	Azlm deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	359.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.21	256.48	100.00	0.18	-0.04	-0.18	0.21	0.18	256.48
200.00	0.35	207.32	200.00	0.50	-0.36	-0.50	0.27	0.61	234.28
300.00	0.47	148.23	300.00	0.42	-0.98	-0.42	0.42	1.06	203.30
400.00	0.50	150.53	399.99	-0.01	-1.71	0.01	0.04	1.71	179.67
500.00	0.54	136.81	499.99	-0.55	-2.43	0.55	0.13	2.49	167.31
600.00	0.50	149.75	599.98	-1.09	-3.15	1.09	0.12	3.33	160.92
700.00	0.54	146.78	699.98	-1.57	-3.92	1.57	0.05	4.22	158.21
800.00	0.66	119.18	799.98	-2.33	-4.60	2.33	0.31	5.15	153.13
900.00	1.03	86.30	899.96	-3.73	-4.82	3.73	0.60	6.09	142.27
1000.00	1.41	80.80	999.94	-5.84	-4.56	5.84	0.40	7.41	128.01
1100.00	1.43	85.05	1099.91	-8.30	-4.26	8.30	0.11	9.33	117.17
1200.00	1.31	74.85	1199.88	-10.64	-3.85	10.64	0.27	11.32	109.90
1300.00	1.18	75.67	1299.86	-12.74	-3.30	12.74	0.13	13.16	104.51
1400.00	0.70	73.92	1399.85	-14.33	-2.88	14.33	0.48	14.61	101.35
1500.00	0.56	27.76	1499.84	-15.14	-2.27	15.14	0.51	15.31	98.54
1600.00	0.70	31.11	1599.83	-15.69	-1.32	15.69	0.14	15.74	94.80
1700.00	0.66	54.52	1699.83	-16.47	-0.46	16.47	0.28	16.48	91.60
1800.00	0.23	9.65	1799.82	-16.97	0.07	16.97	0.52	16.97	89.76
1900.00	0.46	33.93	1899.82	-17.23	0.60	17.23	0.27	17.24	88.00
2000.00	0.23	46.52	1999.82	-17.60	1.07	17.60	0.24	17.63	86.51
2100.00	0.51	328.07	2099.82	-17.51	1.59	17.51	0.52	17.58	84.82
2200.00	0.67	344.34	2199.81	-17.12	2.53	17.12	0.23	17.30	81.59
2300.00	0.50	359.49	2299.81	-16.96	3.53	16.96	0.23	17.32	78.24
2400.00	0.18	331.03	2399.81	-16.88	4.10	16.88	0.35	17.37	76.34
2500.00	0.27	300.67	2499.81	-16.60	4.36	16.60	0.15	17.16	75.28
2600.00	0.63	306.85	2599.80	-15.96	4.81	15.96	0.36	16.67	73.22
2700.00	0.47	313.32	2699.80	-15.22	5.42	15.22	0.17	16.15	70.39
2800.00	0.47	342.49	2799.79	-14.80	6.09	14.80	0.24	16.00	67.61
2900.00	0.34	2.57	2899.79	-14.69	6.78	14.69	0.19	16.18	65.21
3000.00	0.13	34.44	2999.79	-14.76	7.17	14.76	0.24	16.41	64.09
3100.00	0.13	25.42	3099.79	-14.88	7.37	14.88	0.02	16.60	63.65
3200.00	0.42	264.88	3199.79	-14.56	7.44	14.56	0.50	16.35	62.94
3300.00	0.36	344.88	3299.79	-14.11	7.71	14.11	0.50	16.08	61.36
3400.00	0.03	117.20	3399.79	-14.05	8.00	14.05	0.38	16.17	60.35
3500.00	0.20	205.95	3499.79	-14.00	7.83	14.00	0.20	16.04	60.78
3600.00	0.44	239.75	3599.79	-13.59	7.48	13.59	0.30	15.51	61.18
3700.00	0.58	259.87	3699.78	-12.76	7.20	12.76	0.23	14.65	60.58
3800.00	0.43	292.67	3799.78	-11.92	7.25	11.92	0.32	13.95	58.68
3900.00	0.20	229.97	3899.78	-11.44	7.29	11.44	0.38	13.56	57.51
4000.00	0.74	213.21	3999.77	-10.95	6.63	10.95	0.55	12.80	58.80
4100.00	0.94	225.61	4099.76	-10.01	5.52	10.01	0.27	11.43	61.13
4200.00	0.96	234.91	4199.75	-8.74	4.46	8.74	0.16	9.81	62.95
4300.00	0.92	236.22	4299.74	-7.39	3.54	7.39	0.05	8.19	64.42
4400.00	0.85	235.63	4399.72	-6.11	2.67	6.11	0.07	6.67	66.38
4500.00	0.90	231.88	4499.71	-4.88	1.77	4.88	0.08	5.19	70.09
4600.00	0.73	225.61	4599.70	-3.80	0.84	3.80	0.19	3.90	77.60
4700.00	0.85	226.24	4699.69	-2.81	-0.12	2.81	0.12	2.82	92.49
4800.00	0.79	228.41	4799.68	-1.76	-1.09	1.76	0.07	2.07	121.81



Scientific
Drilling

Scientific Drilling International

Survey Report

Company: COG RESOURCES

Field: Wildcat

Site: Eddy County, NM

Well: High Lonesome 26 Federal #1

Wellpath: VH - Job #32K0908712

Date: 10/13/2008

Co-ordinate(NE) Reference:

Vertical (TVD) Reference:

Section (VS) Reference:

Survey Calculation Method:

Time: 10:50:06

Site: Eddy County, NM, Grid North

SITE 0.0

Well (0.00N,0.00E,270.00Azi)

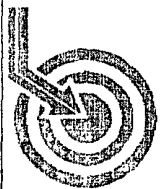
Minimum Curvature

Page: 2

Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.00	0.73	207.50	4899.67	-0.95	-2.12	0.95	0.28	2.32	155.77
5000.00	1.18	205.71	4999.66	-0.21	-3.61	0.21	0.45	3.61	176.65
5100.00	1.07	229.13	5099.64	0.94	-5.15	-0.94	0.47	5.23	190.36
5200.00	0.87	212.46	5199.63	2.05	-6.40	-2.05	0.34	6.72	197.80
5300.00	1.01	195.83	5299.61	2.70	-7.89	-2.70	0.31	8.34	198.92
5400.00	1.29	213.66	5399.59	3.57	-9.67	-3.57	0.45	10.31	200.24
5500.00	1.14	223.54	5499.57	4.88	-11.33	-4.88	0.26	12.33	203.29
5600.00	0.78	230.84	5599.56	6.09	-12.48	-6.09	0.38	13.89	206.01
5700.00	0.52	215.07	5699.55	6.88	-13.28	-6.88	0.31	14.96	207.38
5800.00	0.84	192.41	5799.54	7.30	-14.37	-7.30	0.41	16.12	206.92
5900.00	1.01	201.47	5899.53	7.78	-15.91	-7.78	0.22	17.70	206.05
6000.00	1.01	204.49	5999.51	8.46	-17.53	-8.46	0.05	19.46	205.78
6100.00	0.80	209.37	6099.50	9.17	-18.94	-9.17	0.22	21.04	205.84
6200.00	0.53	171.63	6199.50	9.45	-20.00	-9.45	0.50	22.12	205.28
6300.00	1.00	192.63	6299.49	9.57	-21.31	-9.57	0.54	23.36	204.18
6400.00	0.54	197.25	6399.48	9.90	-22.61	-9.90	0.46	24.69	203.64
6500.00	1.03	173.11	6499.47	9.93	-23.96	-9.93	0.58	25.93	202.52
6600.00	0.60	148.75	6599.46	9.55	-25.30	-9.55	0.54	27.04	200.69
6700.00	0.45	160.25	6699.45	9.15	-26.11	-9.15	0.18	27.67	199.31
6800.00	0.89	168.22	6799.45	8.86	-27.24	-8.86	0.45	28.65	198.01
6900.00	0.98	129.73	6899.43	8.04	-28.55	-8.04	0.62	29.66	195.73
7000.00	0.81	156.06	6999.42	7.10	-29.74	-7.10	0.44	30.58	193.42
7100.00	1.00	130.86	7099.41	6.15	-30.96	-6.15	0.44	31.57	191.24
7200.00	1.17	148.34	7199.39	4.95	-32.40	-4.95	0.37	32.78	188.69
7300.00	0.78	153.59	7299.38	4.12	-33.88	-4.12	0.40	34.13	186.93
7400.00	1.34	145.23	7399.36	3.15	-35.45	-3.15	0.58	35.59	185.07
7425.00	1.33	140.45	7424.35	2.79	-35.91	-2.79	0.45	36.02	184.45



**Scientific
Drilling**

Field: Wildcat

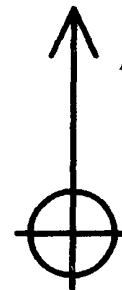
Site: Eddy County, NM

Well: High Lonesome 26 Federal #1

Wellpath: VH - Job #32K0908712

Survey: 09/14/08

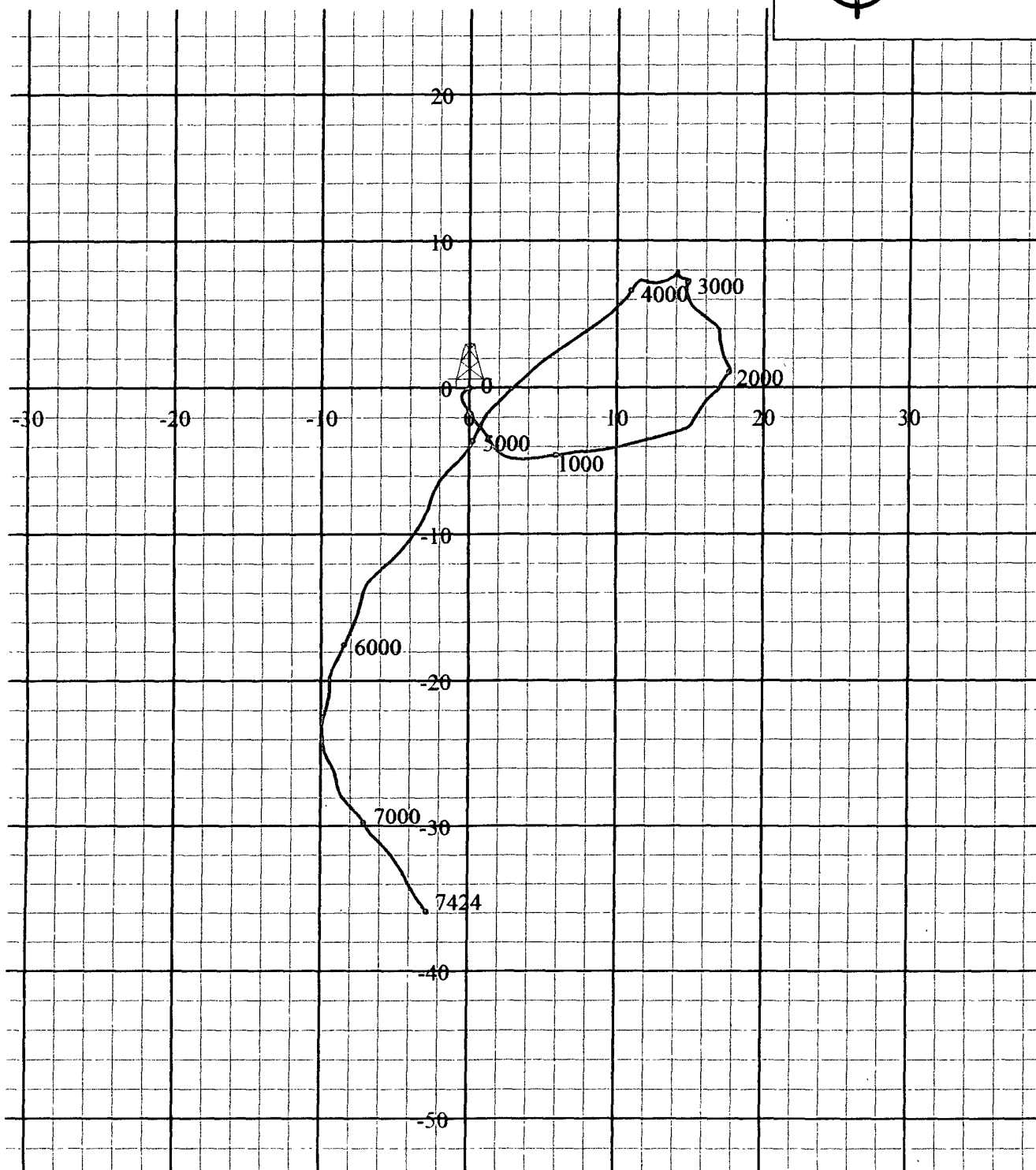
G/T/M



Azimuths to Grid North
True North: 0.00°
Magnetic North: 0.00°

Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 10/13/2008
Model: igrf2000

South(-)/North(+) [5ft/in]



West(-)/East(+) [5ft/in]

COG Operating LLC

Eddy County

High Lonesome 26 Fed #1H

High Lonesome 26 Fed Com #1H

OH

Survey: MWD #1

Patfinder X & Y Survey Report

04 December, 2008

Pathfinder Energy Services

Pathfinder X & Y Survey Report

Company: COG Operating LLC
Project: Eddy County
Site: High Lonesome 26 Fed #1H
Well: High Lonesome 26 Fed Com #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well High Lonesome 26 Fed Com #1H
TVD Reference: WELL @ 3715.00ft (Original Well Elev)
MD Reference: WELL @ 3715.00ft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Project: Eddy County

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: High Lonesome 26 Fed #1H

Site Position:		Northing:	690,573.540 ft	Latitude:	32° 53' 53.021 N
From: Map		Easting:	631,197.810 ft	Longitude:	104° 2' 26.020 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.16 °

Well: High Lonesome 26 Fed Com #1H

Well Position	+N/-S	0.00 ft	Northing:	690,573.540 ft	Latitude:	32° 53' 53.021 N
	+E/-W	0.00 ft	Easting:	631,197.810 ft	Longitude:	104° 2' 26.020 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,715.00ft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/5/2008	8.17	60.81	49,271

Design: OH

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	270.00

Pathfinder Energy Services

Pathfinder X & Y Survey Report

Company: COG Operating LLC
Project: Eddy County
Site: High Lonesome 26 Fed #1H
Well: High Lonesome 26 Fed Com #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well High Lonesome 26 Fed Com #1H
TVD Reference: WELL @ 3715.00ft (Original Well Elev)
MD Reference: WELL @ 3715.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey Program		Date	12/4/2008		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	6,900.00	GYRO (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s	
6,970.40	10,742.00	MWD #1 (OH)	MWD	MWD - Standard	

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,900.00	0.98	129.73	6,899.43	3,184.43	-28.55	-8.04	8.04	0.00	690,544.99	631,189.77
6,998.00	4.04	273.68	6,997.36	3,282.36	-28.87	-10.84	10.84	4.97	690,544.67	631,186.97
7,030.00	9.67	280.27	7,029.12	3,314.12	-28.31	-14.62	14.62	17.74	690,545.23	631,183.19
7,062.00	15.56	280.70	7,060.34	3,345.34	-27.04	-21.48	21.48	18.41	690,546.50	631,176.33
7,094.00	21.37	280.16	7,090.68	3,375.68	-25.21	-31.45	31.45	18.16	690,548.33	631,166.36
7,126.00	27.70	280.35	7,119.77	3,404.77	-22.84	-44.52	44.52	19.78	690,550.70	631,153.29
7,158.00	33.85	280.43	7,147.25	3,432.25	-19.89	-60.61	60.61	19.22	690,553.65	631,137.20
7,190.00	39.57	279.81	7,172.90	3,457.90	-16.54	-79.44	79.44	17.91	690,557.00	631,118.37
7,222.00	45.46	279.09	7,196.47	3,481.47	-13.00	-100.76	100.76	18.47	690,560.54	631,097.05
7,254.00	50.21	278.50	7,217.95	3,502.95	-9.37	-124.20	124.20	14.91	690,564.17	631,073.61
7,286.00	55.13	277.50	7,237.35	3,522.35	-5.84	-149.39	149.39	15.57	690,567.70	631,048.42
7,318.00	59.53	275.18	7,254.62	3,539.62	-2.88	-176.15	176.15	15.04	690,570.66	631,021.66
7,349.00	64.37	273.52	7,269.19	3,554.19	-0.82	-203.42	203.42	16.31	690,572.72	630,994.39
7,381.00	69.82	273.52	7,281.64	3,566.64	0.99	-232.83	232.83	17.03	690,574.53	630,964.98
7,413.00	73.78	274.04	7,291.63	3,576.63	3.00	-263.16	263.16	12.47	690,576.54	630,934.65
7,445.00	78.26	274.19	7,299.36	3,584.36	5.23	-294.12	294.12	14.01	690,578.77	630,903.69
7,477.00	84.15	273.82	7,304.25	3,589.25	7.43	-325.65	325.65	18.44	690,580.97	630,872.16
7,509.00	87.76	271.09	7,306.51	3,591.51	8.80	-357.54	357.54	14.13	690,582.34	630,840.27
7,541.00	88.88	270.13	7,307.45	3,592.45	9.14	-389.52	389.52	4.61	690,582.68	630,808.29
7,573.00	91.28	270.70	7,307.40	3,592.40	9.37	-421.52	421.52	7.71	690,582.91	630,776.29
7,604.00	92.77	270.26	7,306.31	3,591.31	9.63	-452.50	452.50	5.01	690,583.17	630,745.31

Pathfinder Energy Services

Patfinder X & Y Survey Report

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Design: OH

Local Co-ordinate Reference: Well High Lonesome 26 Fed Com #1H
TVD Reference: WELL @ 3715.00ft (Original Well Elev)
MD Reference: WELL @ 3715.00ft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
7,636.00	92.68	269.49	7,304.79	3,589.79	9.56	-484.46	484.46	2.42	690,583.10	630,713.35	
7,658.00	92.86	269.86	7,303.72	3,588.72	9.44	-506.43	506.43	1.87	690,582.98	630,691.38	
7,682.00	92.95	267.58	7,302.51	3,587.51	8.90	-530.40	530.40	9.50	690,582.44	630,667.41	
7,713.00	92.86	267.23	7,300.94	3,585.94	7.50	-561.32	561.32	1.16	690,581.04	630,636.49	
7,745.00	92.33	267.65	7,299.49	3,584.49	6.07	-593.26	593.26	2.11	690,579.61	630,604.55	
7,778.00	92.33	267.62	7,298.15	3,583.15	4.71	-626.20	626.20	0.09	690,578.25	630,571.61	
7,810.00	92.94	267.61	7,296.68	3,581.68	3.38	-658.14	658.14	1.91	690,576.92	630,539.67	
7,843.00	92.15	267.23	7,295.21	3,580.21	1.90	-691.08	691.08	2.66	690,575.44	630,506.73	
7,905.00	88.29	267.11	7,294.97	3,579.97	-1.16	-752.99	752.99	6.23	690,572.38	630,444.82	
7,969.00	87.14	266.46	7,297.52	3,582.52	-4.75	-816.83	816.83	2.06	690,568.79	630,380.98	
8,033.00	90.22	267.72	7,299.00	3,584.00	-8.00	-880.73	880.73	5.20	690,565.54	630,317.08	
8,097.00	90.22	267.68	7,298.75	3,583.75	-10.57	-944.67	944.67	0.06	690,562.97	630,253.14	
8,159.00	89.69	268.68	7,298.80	3,583.80	-12.54	-1,006.64	1,006.64	1.83	690,561.00	630,191.17	
8,223.00	89.78	268.42	7,299.10	3,584.10	-14.15	-1,070.62	1,070.62	0.43	690,559.39	630,127.19	
8,288.00	89.60	268.00	7,299.45	3,584.45	-16.19	-1,135.59	1,135.59	0.70	690,557.35	630,062.22	
8,351.00	88.72	268.05	7,300.37	3,585.37	-18.36	-1,198.54	1,198.54	1.40	690,555.18	629,999.27	
8,415.00	86.97	267.87	7,302.78	3,587.78	-20.63	-1,262.45	1,262.45	2.75	690,552.91	629,935.36	
8,477.00	87.23	268.68	7,305.92	3,590.92	-22.50	-1,324.35	1,324.35	1.37	690,551.04	629,873.46	
8,541.00	87.76	268.37	7,308.71	3,593.71	-24.14	-1,388.26	1,388.26	0.96	690,549.40	629,809.55	
8,605.00	86.61	269.77	7,311.86	3,596.86	-25.18	-1,452.18	1,452.18	2.83	690,548.36	629,745.63	
8,669.00	86.76	269.95	7,315.56	3,600.56	-25.34	-1,516.07	1,516.07	0.37	690,548.20	629,681.74	
8,733.00	87.14	269.32	7,318.96	3,603.96	-25.74	-1,579.98	1,579.98	1.15	690,547.80	629,617.83	
8,797.00	89.34	271.05	7,320.93	3,605.93	-25.54	-1,643.94	1,643.94	4.37	690,548.00	629,553.87	
8,860.00	89.08	271.04	7,321.80	3,606.80	-24.39	-1,706.92	1,706.92	0.41	690,549.15	629,490.89	
8,924.00	87.67	270.77	7,323.61	3,608.61	-23.38	-1,770.89	1,770.89	2.24	690,550.16	629,426.92	
8,988.00	88.64	271.29	7,325.67	3,610.67	-22.23	-1,834.84	1,834.84	1.72	690,551.31	629,362.97	
9,052.00	87.58	270.86	7,327.78	3,612.78	-21.03	-1,898.80	1,898.80	1.79	690,552.51	629,299.01	

Pathfinder Energy Services **Patfinder X & Y Survey Report**

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Design: OH

Local Co-ordinate Reference: Well High Lonesome 26 Fed Com #1H
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North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (%/100ft)	Northing (ft)	Easting (ft)	
9,116.00	89.16	271.01	7,329.60	3,614.60	-19.98	-1,962.76	1,962.76	2.48	690,553.56	629,235.05	
9,179.00	90.92	272.11	7,329.56	3,614.56	-18.27	-2,025.73	2,025.73	3.29	690,555.27	629,172.08	
9,243.00	91.45	271.84	7,328.24	3,613.24	-16.06	-2,089.68	2,089.68	0.93	690,557.48	629,108.13	
9,371.00	92.24	272.17	7,324.11	3,609.11	-11.59	-2,217.53	2,217.53	0.67	690,561.95	628,980.28	
9,435.00	90.48	270.73	7,322.60	3,607.60	-9.97	-2,281.49	2,281.49	3.55	690,563.57	628,916.32	
9,499.00	90.13	270.01	7,322.25	3,607.25	-9.56	-2,345.49	2,345.49	1.25	690,563.98	628,852.32	
9,563.00	90.48	270.49	7,321.91	3,606.91	-9.28	-2,409.49	2,409.49	0.93	690,564.26	628,788.32	
9,628.00	91.63	269.89	7,320.72	3,605.72	-9.06	-2,474.47	2,474.47	2.00	690,564.48	628,723.34	
9,690.00	92.07	269.48	7,318.72	3,603.72	-9.40	-2,536.44	2,536.44	0.97	690,564.14	628,661.37	
9,754.00	92.15	269.16	7,316.36	3,601.36	-10.16	-2,600.39	2,600.39	0.52	690,563.38	628,597.42	
9,818.00	92.15	268.33	7,313.96	3,598.96	-11.56	-2,664.33	2,664.33	1.30	690,561.98	628,533.48	
9,882.00	93.74	268.56	7,310.67	3,595.67	-13.30	-2,728.22	2,728.22	2.51	690,560.24	628,469.59	
9,930.00	93.56	268.40	7,307.61	3,592.61	-14.57	-2,776.11	2,776.11	0.50	690,558.97	628,421.70	
9,993.00	89.96	267.45	7,305.68	3,590.68	-16.85	-2,839.03	2,839.03	5.91	690,556.69	628,358.78	
10,057.00	89.69	267.87	7,305.88	3,590.88	-19.46	-2,902.97	2,902.97	0.78	690,554.08	628,294.84	
10,106.00	90.48	267.43	7,305.80	3,590.80	-21.47	-2,951.93	2,951.93	1.85	690,552.07	628,245.88	
10,169.00	89.96	267.05	7,305.56	3,590.56	-24.50	-3,014.86	3,014.86	1.02	690,549.04	628,182.95	
10,233.00	90.04	268.81	7,305.56	3,590.56	-26.81	-3,078.81	3,078.81	2.75	690,546.73	628,119.00	
10,297.00	89.69	269.11	7,305.71	3,590.71	-27.98	-3,142.80	3,142.80	0.72	690,545.56	628,055.01	
10,361.00	89.43	269.88	7,306.20	3,591.20	-28.54	-3,206.80	3,206.80	1.27	690,545.00	627,991.01	
10,425.00	89.52	269.39	7,306.79	3,591.79	-28.95	-3,270.79	3,270.79	0.78	690,544.59	627,927.02	
10,489.00	90.04	269.24	7,307.03	3,592.03	-29.71	-3,334.79	3,334.79	0.85	690,543.83	627,863.02	
10,553.00	90.92	270.60	7,306.50	3,591.50	-29.80	-3,398.78	3,398.78	2.53	690,543.74	627,799.03	
10,616.00	90.13	270.35	7,305.92	3,590.92	-29.28	-3,461.78	3,461.78	1.32	690,544.26	627,736.03	
10,653.00	91.19	271.20	7,305.50	3,590.50	-28.78	-3,498.77	3,498.77	3.67	690,544.76	627,699.04	
10,742.00	91.19	271.20	7,303.65	3,588.65	-26.92	-3,587.73	3,587.73	0.00	690,546.62	627,610.08	

Projection to Bit @ 10742' MD

Pathfinder Energy Services

Patfinder X & Y Survey Report

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Project: Eddy County
Site: High Lonesome 26 Fed #1H
Well: High Lonesome 26 Fed Com #1H
Wellbore: OH
Design: OH

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North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Pathfinder Energy Services Patfinder X & Y Survey Report

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TGT 5 @ 2967.76'VS - survey misses by 16.88ft at 10121.08ft MD (7305.69 TVD, -22.16 N, -2967.00 E) - Point	0.00	0.00	7,301.00	-5.96	-2,967.76	690,567.580	628,230.050	32° 53' 53.042 N	104° 3' 0.829 W
Kop @ 6990' TVD - survey misses by 30.69ft at 6990.23ft MD (6989.62 TVD, -28.90 N, -10.32 E) - Point	0.00	0.00	6,990.00	0.00	0.00	690,573.540	631,197.810	32° 53' 53.021 N	104° 2' 26.020 W
PBHL OH - survey misses by 231.69ft at 10742.00ft MD (7303.65 TVD, -26.92 N, -3587.73 E) - Point	0.00	0.00	7,259.00	0.23	-3,813.46	690,573.773	627,384.354	32° 53' 53.126 N	104° 3' 10.748 W
TGT 6 @ 3327.68'VS - survey misses by 40.68ft at 10481.46ft MD (7307.04 TVD, -29.61 N, -3327.25 E) - Point	0.00	0.00	7,276.00	-3.32	-3,327.68	690,570.220	627,870.130	32° 53' 53.078 N	104° 3' 5.051 W
TGT 3 @ 1947.99'VS - survey misses by 9.52ft at 9101.53ft MD (7329.35 TVD, -20.23 N, -1948.29 E) - Point	0.00	0.00	7,336.00	-13.43	-1,947.99	690,560.110	629,249.820	32° 53' 52.941 N	104° 2' 48.869 W
TGT 4 @ 2267.92'VS - survey misses by 12.28ft at 9421.11ft MD (7322.76 TVD, -10.18 N, -2267.61 E) - Point	0.00	0.00	7,335.00	-11.08	-2,267.92	690,562.460	628,929.890	32° 53' 52.973 N	104° 2' 52.621 W
TGT 1 @ 1208.14'VS - survey misses by 9.39ft at 8360.95ft MD (7300.62 TVD, -18.70 N, -1208.49 E) - Point	0.00	0.00	7,310.00	-18.51	-1,208.14	690,555.030	629,989.670	32° 53' 52.871 N	104° 2' 40.191 W
TGT 2 @ 1568.07'VS - survey misses by 9.50ft at 8720.95ft MD (7318.35 TVD, -25.61 N, -1567.94 E) - Point	0.00	0.00	7,317.00	-16.21	-1,568.07	690,557.330	629,629.740	32° 53' 52.903 N	104° 2' 44.413 W

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,742.00	7,303.65	-26.92	-3,587.73	Projection to Bit @ 10742' MD

Checked By _____ Approved By: _____ Date: _____