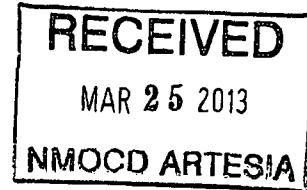




**PHOENIX**  
**TECHNOLOGY SERVICES**

March 20, 2013



Oil Conservation Division  
State of New Mexico  
811 S. First St.  
Artesia, New Mexico 88210

Dear District 2 - Artesia

Re: Concho Resources Inc.  
Clydesdale 1 Fee #1H  
Eddy County, NM  
API #30-015-10214 ✓  
Job No. 1310195

40214

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Robert Dillon	1H	2,241	7,363	03/03/13	03/09/13	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

*Kelly Jo Walter*

Kelly Jo Walter  
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4364 9483

1805 Brittmoore Rd. Houston, TX 77043 • Phone (713) 337-0600 • Fax (713) 337-0599  
www.phxtech.com

# PHOENIX TECHNOLOGY SERVICES SURVEY DATA CERTIFICATION



PHOENIX  
TECHNOLOGY SERVICES

**RECEIVED**

MAR 25 2013

NMOCD ARTESIA

PHOENIX JOB NUMBER 1310195

OPERATOR COG Operating

WELL NAME Clydesdale 1 Fee # 1H

COUNTY & STATE

Eddy, NM

API WELL NUMBER 30-015-40214

PROPOSED DIRECTION 271-25

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
2,149 ft	2,148.62 ft	1.86	278.09	11.41	-31.88	Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
3-Mar-13	2,241 ft	1.9	278.4

SURVEY INSTRUMENT TYPE
PHOENIX MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
9-Mar-13	7,363 ft	92.7	271

TO THE BEST OF MY KNOWLEDGE I  
CERTIFY THIS SURVEY DATA TO BE  
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
9-Mar-13	7,424 ft	92.7	271

*Robert D. Miller*

PRINT YOUR NAME ABOVE

*Robert D. Miller*

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.86
DECLINATION OR GRID	GRID

3-9-2013

TODAY'S DATE

MWD SUPERVISOR 1

Bob Dillon

DIRECTIONAL DRILLER 1

Andrew Hodgkins

MWD SUPERVISOR 2

Eric Burchinal

DIRECTIONAL DRILLER 2

Nathan Hodgkins

1805 Brittmore Road

Houston, Texas 77043

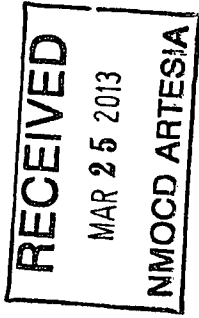
(713)3370609 (Voice), (713)337-0599 (Fax)

**COG Operating LLC**  
Eddy County, New Mexico (NAD 27 NME)  
Clydesdale 1 Fee  
#1H  
Wellbore #1 / Job #1310195

Survey: Phoenix MWD Surveys

## Survey Report

10 March, 2013





Survey Report

Company:	COC Operating LLC	Local/Co-ordinate Reference:	Well #1H
Project:	Eddy County New Mexico (NAD 27 NME)	TVD Reference:	RF @ 344' 00usft (JW 4)
Site:	Clydesdale Fee	MD Reference:	RF @ 344' 00usft (JW 4)
Well:	#1H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #1310195	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1 / Job #1310195	Database:	GCR DB v5000
Project:	Eddy County New Mexico (NAD 27 NME)		
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:	Clydesdale Fee
-------	----------------

Site Position:		North:	616,840.10 usft	Latitude:	32° 41' 44.717849 N
From:	Map	Easting:	470,401.70 usft	Longitude:	104° 25' 46.368925 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.05 °

Well:	#1H	North:	616,840.10 usft	Latitude:	32° 41' 44.717849 N
Well Position:	+N-S	Easting:	470,401.70 usft	Longitude:	104° 25' 46.368925 W
Position Uncertainty:	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,434.00 usft

Wellbore:	Wellbore #1 / Job #1310195
-----------	----------------------------

Magnetics	Model Name	Sample Date	Dip Angle	Field Strength
	IGRF2010_14	02/14/13	7.81	60.43
				48.637

Design:	Wellbore #1 / Job #1310195
---------	----------------------------

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	271.25



# Survey Report

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County New Mexico (NAD 27 NME)	TVL Reference:	RF @ 3447.00usft (JW 4)
Site:	Chydesdale Fee	MD Reference:	RF @ 3447.00usft (JW 4)
Well:	#1H	North Reference:	Grid
Wellbore:	Wellbore #1 / Job #130195	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1 / Job #130195	Database:	GCR DB v5000

Survey Program	From (usft)	To (usft)	Date	Description	Tool Name
100.00	2,149.00	2,149.00	VES Gyro Surveys (Wellbore #1 / Job #13	MWD - Standard	MWD
2,241.00	7,424.00	7,424.00	Phoenix MWD Surveys (Wellbore #1 / Job	MWD - Standard	MWD

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDS (usft)	TVD (usft)	N/S (usft)	EW (usft)	V-Sac (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
Tie On Survey	2,149.00	1.86	278.09	-1,298.38	2,148.62	11.41	-31.88	32.12	0.00	616,851.51	470,369.82
	2,241.00	1.90	278.40	-1,206.43	2,240.57	11.84	-34.86	35.11	0.04	616,851.94	470,366.84
First Phoenix MWD Survey	2,272.00	2.50	275.30	-1,175.45	2,271.55	11.98	-36.04	36.30	1.97	616,852.08	470,365.66
	2,303.00	4.30	272.10	-1,144.51	2,302.49	12.08	-37.88	38.13	5.84	616,852.18	470,363.82
	2,334.00	6.50	271.60	-1,113.65	2,333.35	12.17	-40.79	41.05	7.10	616,852.27	470,360.91
	2,366.00	8.90	273.50	-1,081.94	2,365.06	12.37	-45.08	45.34	7.54	616,852.47	470,356.62
	2,397.00	11.30	274.80	-1,051.42	2,395.58	12.78	-50.50	50.76	7.78	616,852.88	470,351.20
	2,428.00	13.60	274.50	-1,021.15	2,425.85	13.32	-57.16	57.44	7.42	616,853.42	470,344.54
	2,459.00	16.10	273.30	-991.19	2,455.81	13.85	-65.08	65.37	8.12	616,853.95	470,336.62
	2,491.00	18.80	272.10	-960.66	2,486.34	14.29	-74.67	74.96	8.51	616,854.39	470,327.03
	2,522.00	22.00	270.60	-931.61	2,515.39	14.54	-85.47	85.77	10.46	616,854.64	470,316.23
	2,554.00	27.50	267.00	-902.56	2,544.44	14.21	-98.85	99.14	17.81	616,854.31	470,302.85
	2,585.00	33.80	266.50	-875.90	2,571.10	13.31	-114.62	114.88	20.34	616,853.41	470,287.08
	2,617.00	40.00	265.80	-850.33	2,596.67	12.01	-133.78	134.01	19.42	616,852.11	470,267.92
	2,648.00	44.30	266.60	-827.35	2,619.65	10.64	-154.53	154.73	13.98	616,850.74	470,247.17
	2,679.00	47.00	267.40	-805.68	2,641.32	9.48	-176.67	176.83	8.90	616,849.58	470,225.03
	2,710.00	50.10	268.00	-785.16	2,661.84	8.55	-199.88	200.02	10.10	616,848.65	470,201.82
	2,741.00	53.60	268.50	-766.02	2,680.98	7.81	-224.25	224.36	11.36	616,847.91	470,177.45
	2,772.00	56.60	269.60	-748.28	2,698.72	7.40	-249.66	249.77	10.11	616,847.50	470,152.04
	2,804.00	59.40	270.60	-731.32	2,715.68	7.45	-276.80	276.89	9.14	616,847.55	470,124.90



# Survey Report

Company: COG Operating LLC		Local Co-ordinate Reference		Well #1H							
Project: Eddy County, New Mexico (NAD 27 NME)		TVD Reference:		RF @ 3447.00usft (JW 4)							
Site: Clydesdale Fee		MD Reference:		RF @ 3447.00usft (JW 4)							
Well: #1H		North Reference:		Grid:							
Wellbore: Wellbore # 1 / Job #1310195		Survey Calculation Method:		Minimum Curvature							
Design: Wellbore # 1 / Job #1310195		Database:		GCR DB V5000							
Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	IVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V: Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
2,835.00	61.80	271.00	-716.11	2,730.89	7.83	-303.80	303.90	7.82	616,847.93	470,097.90	
2,866.00	64.40	271.30	-702.08	2,744.92	8.38	-331.44	331.54	8.43	616,848.48	470,070.26	
2,897.00	67.40	271.80	-689.43	2,757.57	9.15	-359.72	359.84	9.79	616,849.25	470,041.98	
2,928.00	70.90	272.00	-678.39	2,768.61	10.11	-388.67	388.80	11.31	616,850.21	470,013.03	
2,960.00	74.40	272.10	-668.85	2,778.15	11.20	-419.19	419.34	10.94	616,851.30	469,982.51	
2,991.00	77.60	272.00	-661.35	2,785.65	12.28	-449.25	449.41	10.33	616,852.38	469,952.45	
3,022.00	80.00	272.20	-655.33	2,791.67	13.39	-479.63	479.81	7.77	616,853.49	469,922.07	
3,053.00	81.70	272.50	-650.40	2,796.60	14.65	-510.21	510.41	5.57	616,854.75	469,891.49	
3,085.00	83.20	272.80	-646.20	2,800.80	16.11	-541.90	542.12	4.78	616,856.21	469,859.80	
3,116.00	84.80	272.80	-642.96	2,804.04	17.62	-572.69	572.94	5.16	616,857.72	469,829.01	
3,147.00	86.80	272.70	-640.69	2,806.31	19.10	-603.57	603.85	6.46	616,859.20	469,798.13	
3,241.00	90.70	272.20	-638.64	2,808.36	23.12	-697.45	697.78	4.18	616,863.22	469,704.25	
3,334.00	92.80	271.90	-641.48	2,805.52	26.44	-790.34	790.73	2.28	616,866.54	469,611.36	
3,428.00	93.40	271.00	-646.56	2,800.44	28.82	-884.17	884.59	1.15	616,868.92	469,517.53	
3,521.00	93.00	272.30	-651.75	2,795.25	31.49	-976.98	977.44	1.46	616,871.59	469,424.72	
3,615.00	91.50	272.30	-655.44	2,791.56	35.26	-1,070.83	1,071.35	1.60	616,875.36	469,330.87	
3,708.00	92.00	272.00	-658.28	2,788.72	38.75	-1,163.72	1,164.29	0.63	616,878.85	469,237.98	
3,802.00	92.50	271.20	-661.98	2,785.02	41.37	-1,257.61	1,258.22	1.00	616,881.47	469,144.09	
3,895.00	93.10	271.10	-666.52	2,780.48	43.24	-1,350.48	1,351.11	0.65	616,883.34	469,051.22	
3,989.00	91.50	271.50	-670.29	2,776.71	45.37	-1,444.38	1,445.03	1.75	616,885.47	468,957.32	
4,082.00	91.70	271.00	-672.89	2,774.11	47.40	-1,537.32	1,537.99	0.58	616,887.50	468,864.38	
4,176.00	92.30	270.80	-676.17	2,770.83	48.87	-1,631.25	1,631.93	0.67	616,888.97	468,770.45	
4,270.00	92.80	270.50	-680.35	2,766.65	49.94	-1,725.15	1,725.83	0.62	616,890.04	468,676.55	
4,364.00	93.00	270.20	-685.11	2,761.89	50.51	-1,819.03	1,819.70	0.38	616,890.61	468,582.67	
4,457.00	91.60	270.60	-688.84	2,758.16	51.16	-1,911.95	1,912.61	1.57	616,891.26	468,489.75	
4,550.00	91.80	270.60	-691.60	2,755.40	52.13	-2,004.90	2,005.56	0.22	616,892.23	468,396.80	
4,644.00	93.00	270.40	-695.53	2,751.47	52.95	-2,098.82	2,099.47	1.29	616,893.05	468,302.88	



# Survey Report

Company: COG Operating LLC			Local Co-ordinate Reference:			Well #11					
Project: Eddy County, New Mexico (NAD 27 NME)			TVD Reference:			RF @ 3447 00ust (JW 4)					
Site: Clydesdale 1 Fee			MD Reference:			RF @ 3447 00ust (JW 4)					
Well: #11H			North Reference:			Gnd					
Wellbore: Wellbore #1 / Job #1310195			Survey Calculation Method:			Minimum Curvature					
Design: Wellbore #1 / Job #1310195			Database:			GCR DB v5000					
Survey											
MD (ust)	Inc (°)	Azi (azimuth) (°)	TVDSS (ust)	TVD (ust)	N/S (ust)	E/W (ust)	V. Sec (ust)	Dleg (°/100ust)	Northing (ust)	Easting (ust)	
4,738.00	91.90	270.40	-699.55	2,747.45	53.61	-2,192.73	2,193.37	1.17	616,893.71	468,208.97	
4,831.00	92.20	270.60	-702.88	2,744.12	54.42	-2,285.66	2,286.31	0.39	616,894.52	468,116.04	
4,925.00	91.40	270.60	-705.83	2,741.17	55.40	-2,379.61	2,380.25	0.85	616,895.50	468,022.09	
5,019.00	91.60	270.50	-708.29	2,738.71	56.30	-2,473.57	2,474.21	0.24	616,896.40	467,928.13	
5,113.00	91.80	270.00	-711.08	2,735.92	56.71	-2,567.53	2,568.16	0.57	616,896.81	467,834.17	
5,206.00	92.00	270.60	-714.16	2,732.84	57.20	-2,660.48	2,661.09	0.68	616,897.30	467,741.22	
5,300.00	92.60	272.00	-717.94	2,729.06	59.33	-2,754.38	2,755.02	1.62	616,899.43	467,647.32	
5,393.00	93.20	271.20	-722.64	2,724.36	61.93	-2,847.22	2,847.89	1.07	616,902.03	467,554.48	
5,487.00	93.10	272.10	-727.81	2,719.19	64.63	-2,941.04	2,941.75	0.96	616,904.73	467,460.66	
5,581.00	93.60	272.00	-733.30	2,713.70	67.98	-3,034.82	3,035.58	0.54	616,908.08	467,366.88	
5,674.00	92.60	272.10	-738.33	2,708.67	71.31	-3,127.62	3,128.43	1.08	616,911.41	467,274.08	
5,767.00	92.90	271.70	-742.79	2,704.21	74.39	-3,220.46	3,221.32	0.54	616,914.49	467,181.24	
5,861.00	93.70	271.40	-748.20	2,698.80	76.92	-3,314.27	3,315.16	0.91	616,917.02	467,087.43	
5,955.00	92.10	271.60	-752.96	2,694.04	79.38	-3,408.12	3,409.04	1.72	616,919.48	466,993.58	
6,048.00	92.00	271.10	-756.28	2,690.72	81.57	-3,501.03	3,501.98	0.55	616,921.67	466,900.67	
6,142.00	92.20	271.10	-759.73	2,687.27	83.38	-3,594.95	3,595.91	0.21	616,923.48	466,806.75	
6,236.00	92.40	270.60	-763.50	2,683.50	84.77	-3,688.86	3,689.83	0.57	616,924.87	466,712.84	
6,329.00	92.50	270.80	-767.48	2,679.52	85.90	-3,781.77	3,782.74	0.24	616,926.00	466,619.93	
6,423.00	92.70	270.60	-771.74	2,675.26	87.05	-3,875.67	3,876.64	0.30	616,927.15	466,526.03	
6,516.00	93.00	269.60	-776.36	2,670.64	87.21	-3,968.55	3,969.51	1.12	616,927.31	466,433.15	
6,610.00	92.00	270.70	-780.47	2,666.53	87.46	-4,062.46	4,063.40	1.58	616,927.56	466,339.24	
6,703.00	92.20	270.40	-783.87	2,663.13	88.35	-4,155.39	4,156.33	0.39	616,928.45	466,246.31	
6,796.00	92.50	269.80	-787.69	2,659.31	88.51	-4,248.31	4,249.23	0.72	616,928.61	466,153.39	
6,890.00	92.90	270.60	-792.11	2,654.89	88.84	-4,342.21	4,343.11	0.95	616,928.94	466,059.49	
6,984.00	91.90	272.10	-796.05	2,650.95	91.05	-4,436.09	4,437.02	1.92	616,931.15	465,965.61	
7,077.00	92.10	271.70	-799.30	2,647.70	94.14	-4,528.99	4,529.96	0.48	616,934.24	465,872.71	
7,171.00	92.30	271.50	-802.91	2,644.09	96.76	-4,622.88	4,623.89	0.30	616,936.86	465,778.82	



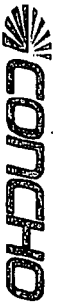
Survey Report



Company:	COG Operating LLC				Local/Co-ordinate Reference:				Well #1H		
Project:	Eddy County New Mexico (NAD 27/NME)				TVD Reference:				RF @ 3447.00usft (JW 4)		
Site:	Clydesdale 1 Fee				MD Reference:				RF @ 3447.00usft (JW 4)		
Well:	#1H				North Reference:				Grid		
Wellbore:	Wellbore #1 / Job #1310195				Survey Calculation Method:				Minimum Curvature		
Design:	Wellbore #1 / Job #1310195				Database:				GCR DB v5000		
Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Eastng (usft)	
7,264.00	92.60	271.50	-806.88	2,640.12	99.19	-4,715.76	4,716.80	0.32	616,939.29	465,685.94	
7,363.00	92.70	271.00	-811.46	2,635.54	101.35	-4,814.63	4,815.70	0.51	616,941.45	465,587.07	
Final MWD Survey											
7,424.00	92.70	271.00	-814.33	2,632.67	102.41	-4,875.56	4,876.63	0.00	616,942.51	465,526.14	
Projection to TD											

Survey Annotations				Local Coordinates		Comment	
Measured Depth (usft)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	+N/S (usft)	+E/W (usft)		
2,149.00	2,148.62	11.41	-31.88			Tie On Survey	
2,241.00	2,240.57	11.84	-34.86			First Phoenix MWD Survey	
7,363.00	2,635.54	101.35	-4,814.63			Final MWD Survey	
7,424.00	2,632.67	102.41	-4,875.56			Projection to TD	





Clydesdale 1 Fee#1H  
Eddy County, NM (NAN27 NME)  
Northing: (N) 618840.10  
Easting: (X) 470401.70  
Plan #1 8-3/4" Hole

RECEIVED  
MAR 25 2013  
NMOC D ARTESIA



Attention to Grid North  
Magnetic North: 139°  
Grid North: 139°  
Magnetic Declination: 139°  
To convert a Magnetic Direction to a Grid Direction, Add 7.9°  
To convert a True Direction to a Grid Direction, Add 0.05°  
Magnetic Field  
Date: 12/6/2012  
By: [Signature]  
Notes: 10/20/2012

WELL DETAILS:

Name: P-201C FEL  
P-201C FEL  
TVD: 2846.05  
N/S: 100.21  
E/W: -4886.74  
Northing: 618844.01  
Easting: 470231.72  
485315.40

SECTION DETAILS

MD	htc	AI	TVD	N/S	E/W	Dhs	Trace	Vsrt	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2272.54	0.00	0.00	2272.54	0.00	0.00	10.37	-477.35	12.00	271.25
3023.54	98.00	271.25	2715.00	106.21	-4886.74	0.00	0.00	4887.88	PBHL
7432.86	90.00	271.25	2715.00	106.21	-4886.74	0.00	0.00	4887.88	PBHL

DESIGN TARGET DETAILS

Name	P-201C FEL	TVD	N/S	E/W	Northing	Easting
P-201C FEL	2846.05	100.21	-4886.74	618844.01	470231.72	485315.40

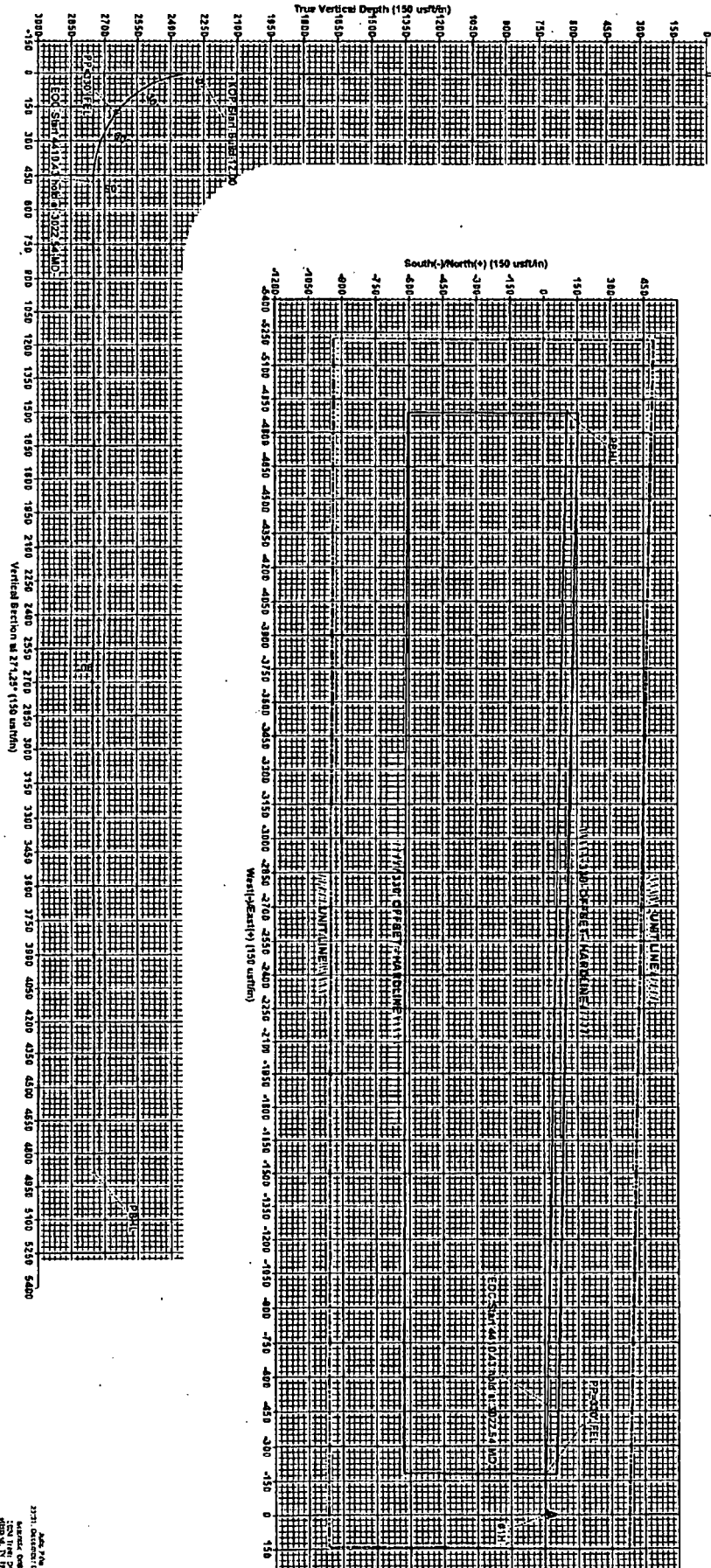
SITE DETAILS: Clydesdale 1 Fee

Site Code: NME010  
Northing: 618840.10  
Easting: 470401.70  
Convergence: -0.05  
Local North: Grid

PROJECT DETAILS: Eddy County, NM (NAN27 NME)  
Clydesdale System: US State Plane 1983 (NAD83 CONUS)  
Datum: NAD 1983 (NAD83 CONUS)  
Zone: New Mexico East 3001  
System Datum: Mean Sea Level

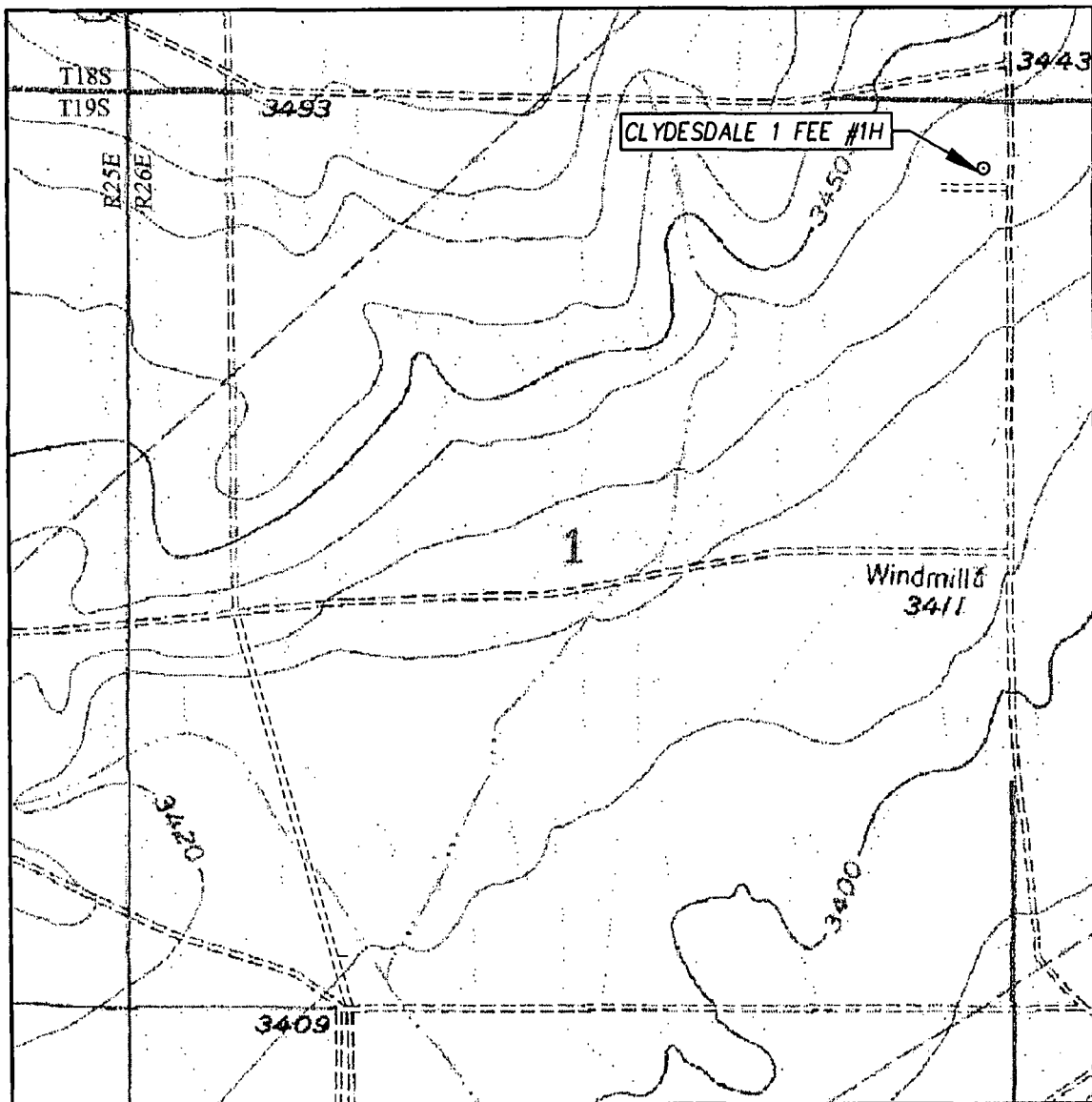
System Datum: Mean Sea Level

Map System: US State Plane 1983 East datum  
Datum: NAD 1983 (NAD83 CONUS)  
Zone Name: New Mexico East 3001  
Local Origin: WGS 84, Grid North  
Latitude: 32° 41' 44.118 N  
Longitude: 106° 12' 46.189 W  
Grid East: 470401.70  
Grid North: 618840.10  
Scale Factor: 0.999999999  
Datum Shift: 10.00  
Magnetic Declination: 139°  
Magnetic Field Strength: 48134  
To convert a Magnetic Direction to a Grid Direction, Add 7.9°  
To convert a True Direction to a Grid Direction, Add 0.05°



2737 Clydesdale 1 Fee  
2737 Clydesdale 1 Fee  
2737 Clydesdale 1 Fee  
2737 Clydesdale 1 Fee

# LOCATION VERIFICATION MAP



SCALE: 1" = 1000'

CONTOUR INTERVAL:  
DAYTON, N.M. - 10'

SEC. 1 TWP. 19-S RGE. 25-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 380' FNL & 150' FEL

ELEVATION 3434'

OPERATOR COG OPERATING, LLC

LEASE CLYDESDALE 1 FEE

U.S.G.S. TOPOGRAPHIC MAP  
DAYTON, N.M.

