

District I
2625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Form C-101
Revised November 14, 2012

Energy Minerals and Natural Resources

Oil Conservation Division

1220 South St. Francis Dr.

Santa Fe, NM 87505

RECEIVED

MAY 16 2013

AMENDED REPORT

NMOCD ARTESIA

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address COG OPERATING LLC ONE CONCHO CENTER 600 W Illinois Ave Midland, TX 79701		² OGRID Number 229137
		³ API Number 30-015-40570
⁴ Property Code 302584	⁵ Property Name WHITE OAK STATE	⁶ Well No. 027

⁷ Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
H	23	17-S	28-E		2270	NORTH	185	EAST	EDDY

⁸ Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
H	23	17-S	28-E		1995	NORTH	401	EAST	EDDY

⁹ Pool Information

Pool Name	Pool Code
EMPIRE, GLORIETA YESO	96210

Additional Well Information

¹¹ Work Type NEW WELL	¹² Well Type OIL	¹³ Cable/Rotary	¹⁴ Lease Type STATE	¹⁵ Ground Level Elevation 3704'
¹⁶ Multiple N	¹⁷ Proposed Depth 5400	¹⁸ Formation YESO FORMATION	¹⁹ Contractor	²⁰ Spud Date 10/30/2012
Depth to Ground water 100	Distance from nearest fresh water well >1000		Distance to nearest surface water >1000	

²¹ Proposed Casing and Cement Program

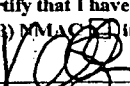
Type	Hole Size	Casing Size	Casing Weight/lb	Setting Depth	Sacks of Cement	Estimated TOC
SURF	17.5	13.375	48	250	1000	0
INT1	11	8.625	24	870	400	0
PROD	7.875	5.5	17	5420	950	0

Casing/Cement Program: Additional Comments

10/31/12 TD 17-1/2 @ 250. Ran 6jts 13-3/8 H40 48# @ 250. Cmt w/1000sx C. +add. PD @ 5:30PM. Circ 621sx. WOC 18hrs. Test csg to 1000# for 30min ok.
 11/1/12 TD 11 @ 870. Ran 21jts 8-5/8 J55 24# @ 870.
 11/2/12 Cmt w/200sx C. +add lead, 200sx C. +add tail. PD @ 4AM. Circ 86sx. WOC 18hrs. Test csg to 1502# for 30min, ok.
 11/5/12 TD 7-7/8 @ 5433MD 5418TVD. Ran 132jts 5-1/2 J55 17# @ 5420.
 11/6/12 Cmt w/500sx C. +add lead, 400sx C. +add tail. PD @ 5:33AM. Circ 118sx. WOC 24hrs. RR. Will test csg to 3500# for 30 min on completion.

²² Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
DoubleRam	2000	2000	

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐ if applicable. Signature:  Printed name: Kelly L. Holly Title: Permitting Tech E-mail address: kholly@concho.com	OIL CONSERVATION DIVISION	
	Approved By: 	
	Title: D. S. Supervision	
	Approved Date: 5/16/2013	Expiration Date:

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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

DAMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-40570	Pool Code 96210	Pool Name EMPIRE; GLORIETA-YESO
Property Code 302584	Property Name WHITE OAK STATE	Well Number 27
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3704'

Surface Location

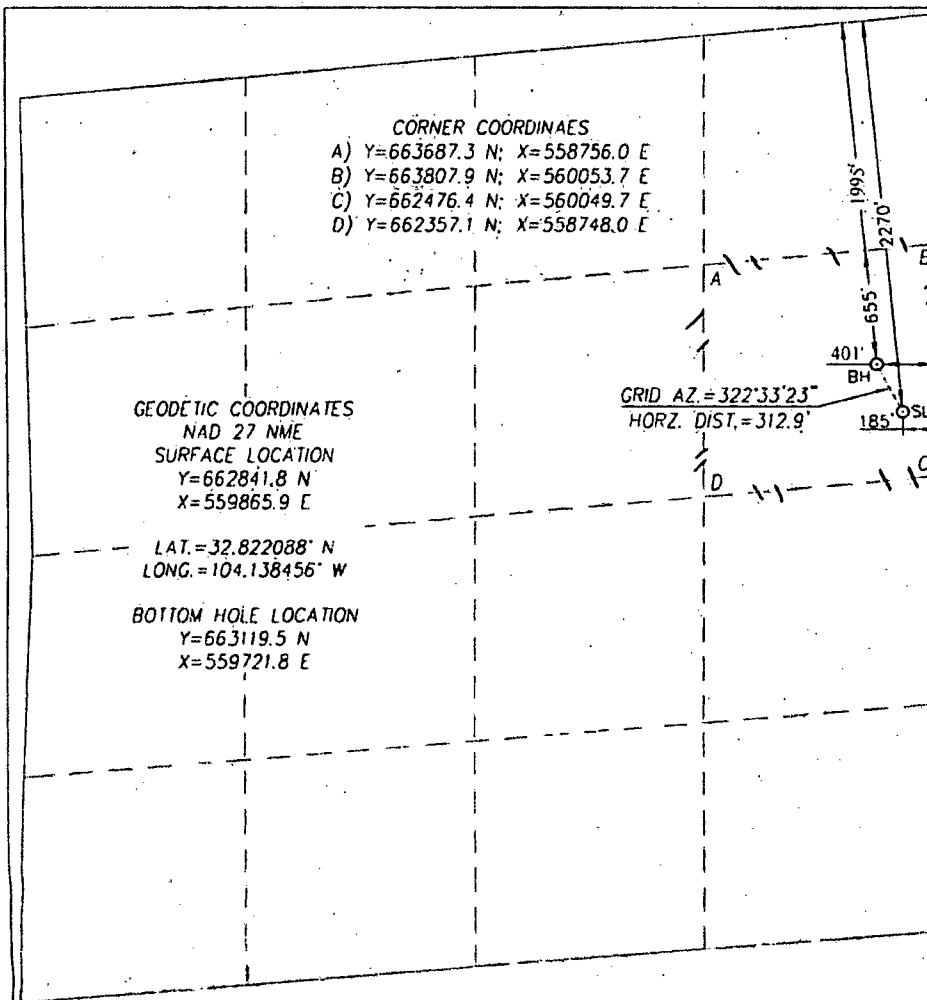
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	23	17-S	28-E		2270	NORTH	185	EAST	EDDY

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
H	23	17-S	28-E		1995	NORTH	401	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

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



OPERATOR CERTIFICATION

I hereby certify that the information 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 or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: Robyn M. Odom Date: 5/16/2013

Printed Name: Robyn M. Odom
E-mail Address: Rodom@concho.com

SURVEYOR CERTIFICATION

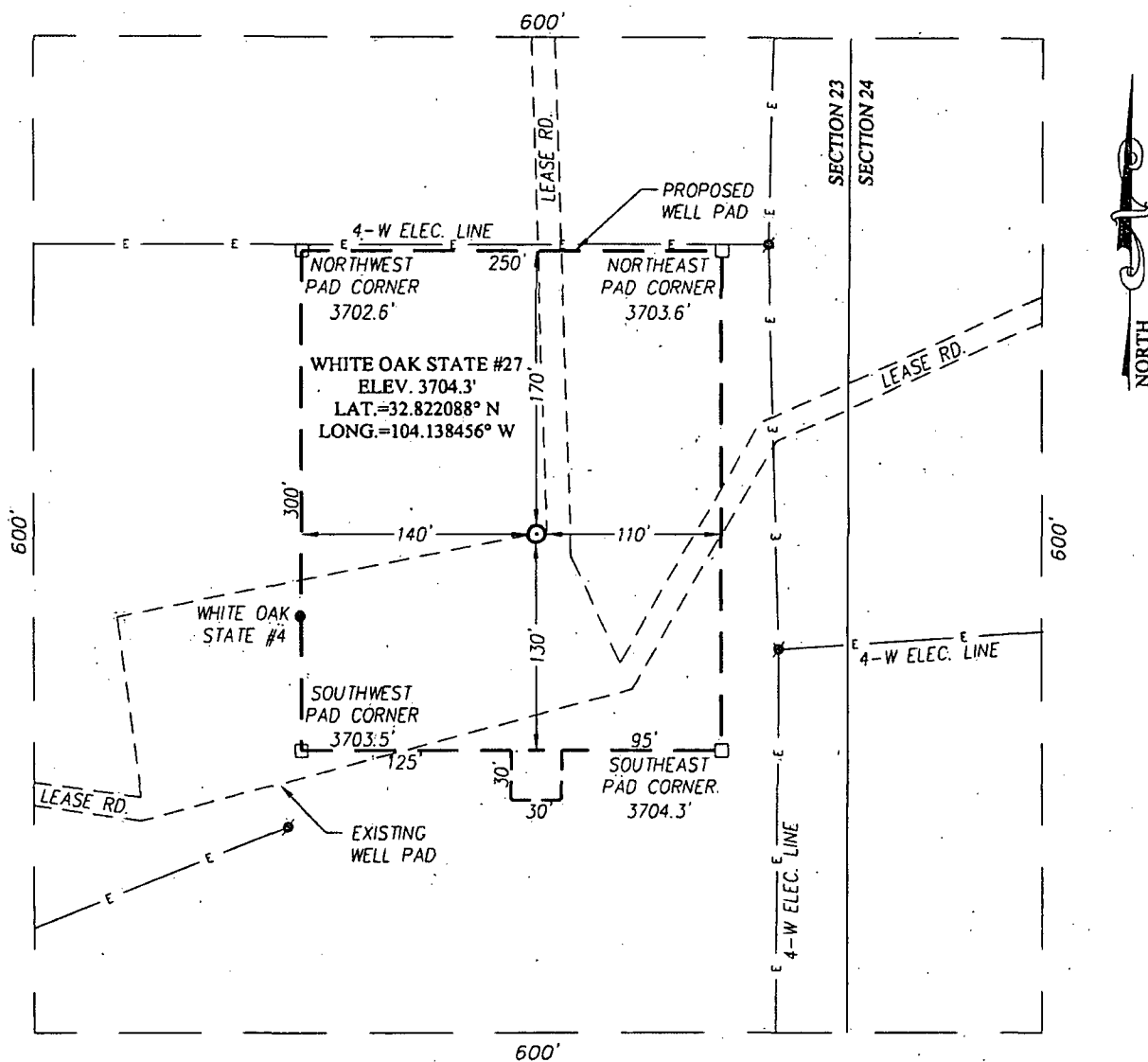
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JUNE 30, 2012

Date of Survey
Signature & Seal of Professional Surveyor:

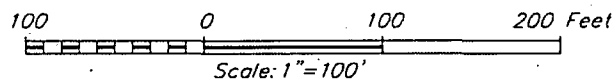
GARY G. EIDSON
Certificate Number: Gary G. Eidson 12641
Ronald J. Eidson 3239
BKLAF Ref. W.O. 12.13.1679 WSC W.O. 12.13.1679

SECTION 23, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY **NEW MEXICO**



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U.S. HWY. #82 AND CO. RD. #209 (TURKEY TRACT) GO NORTH ON CO. RD. 209 APPROX. 1.3 MILES. TURN RIGHT AND GO NORTHEAST APPROX. 0.5 MILES. THE LOCATION IS 90 FEET NORTH OF THE LEASE ROAD.



COG OPERATING, LLC

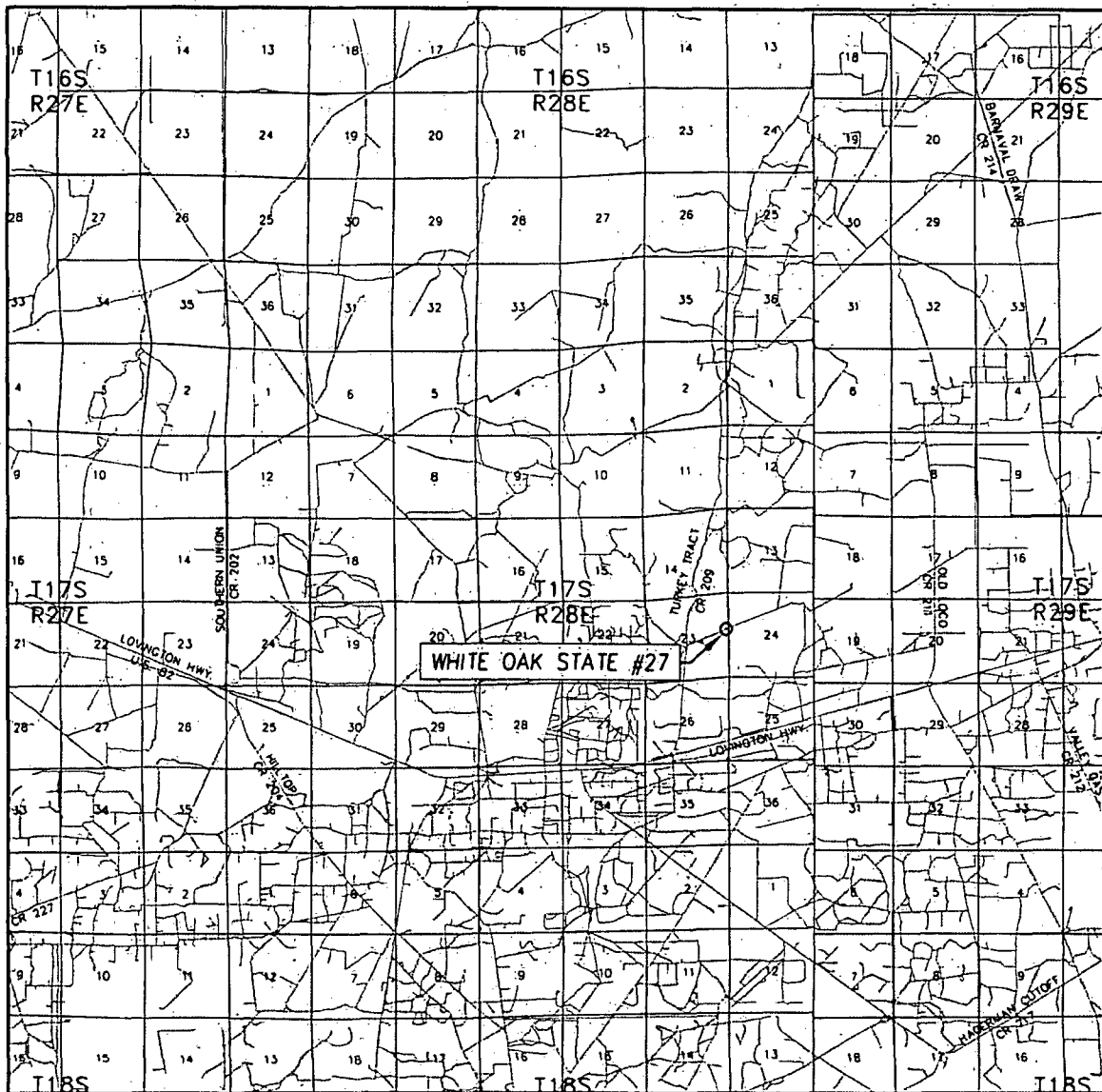
WHITE OAK STATE #27 WELL
LOCATED 2270 FEET FROM THE NORTH LINE
AND 185 FEET FROM THE EAST LINE OF SECTION 23,
TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES
 SINCE 1946
JOHN WEST SURVEYING COMPANY
 412 N. DAL PASO
 HOBBS, N.M. 88240
 (575) 393-3117 www.jwsc.biz

Survey Date: 6/30/12	CAD Date: 7/13/12	Drawn By: AF
W.O. No.: 12111169	Rev.	Rel. W.O.

Sheet 1 of 1

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 23 TWP. 17-S RGE. 28-E

SURVEY N.M.P.M.

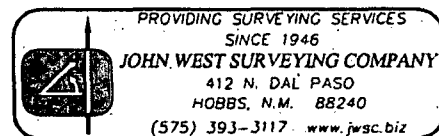
COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 2270' FNL & 185' FEL

ELEVATION 3704'

OPERATOR COG OPERATING, LLC

LEASE WHITE OAK STATE



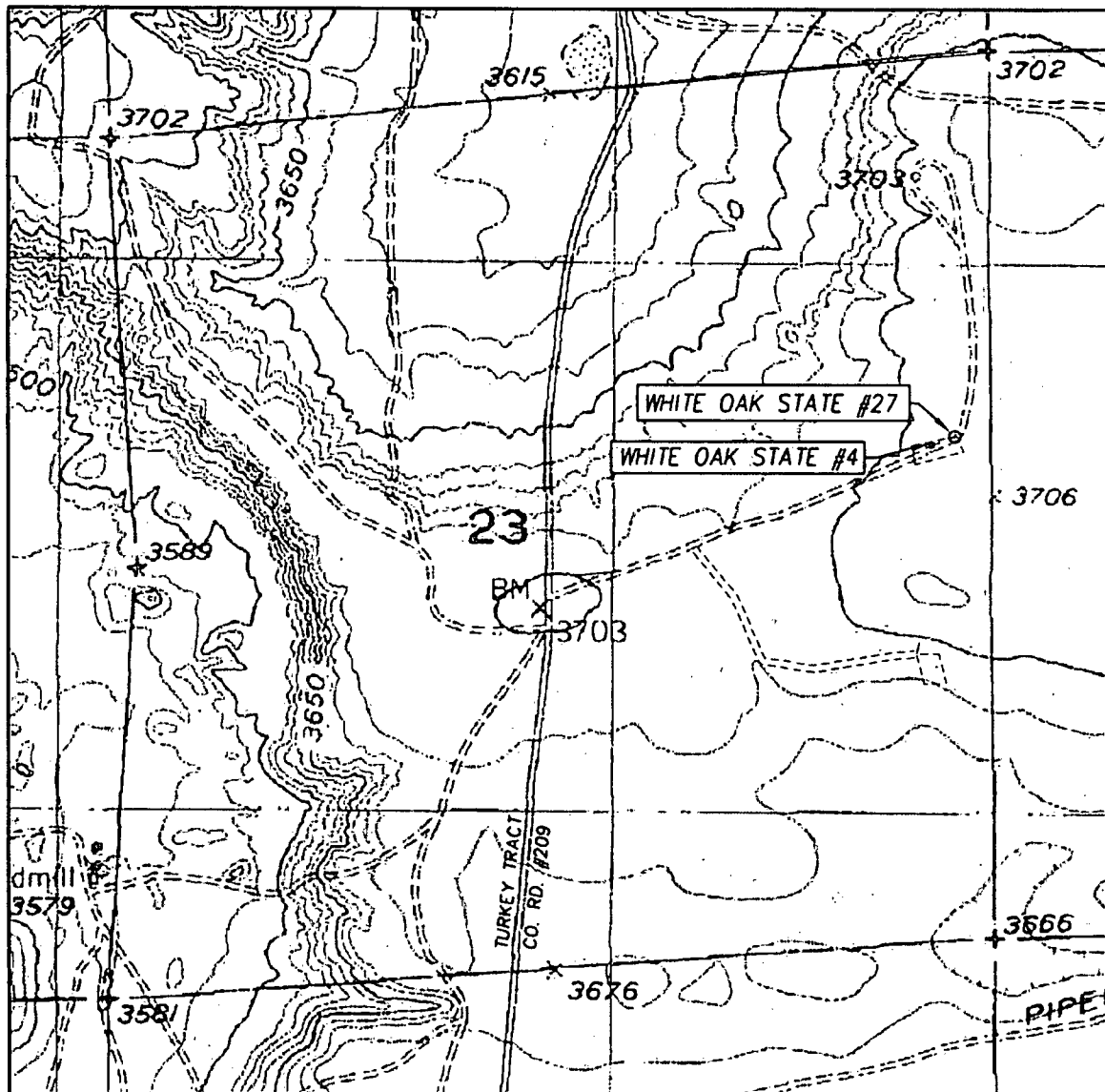
PROVIDING SURVEYING SERVICES
SINCE 1946

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO
HOBBS, N.M. 88240

(575) 393-3117 www.jwsc.biz

LOCATION VERIFICATION MAP



SCALE: 1" = 1000'

CONTOUR INTERVAL:
RED LAKE, N.M. - 10'

SEC. 23 TWP. 17-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

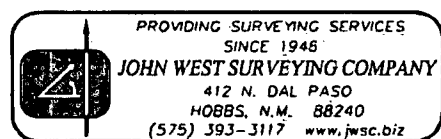
DESCRIPTION 2270' FNL & 185' FEL

ELEVATION 3704'

OPERATOR COG OPERATING, LLC

LEASE WHITE OAK STATE

U.S.G.S. TOPOGRAPHIC MAP
RED LAKE, N.M.





COG Operating, LLC

Eddy County, NM (NAD27)

White Oak State #27

SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H

Top of Paddock @ 3700' TVD: 169' N/121' W of surface

Design: Surveys

Standard Survey Report

16 January, 2013





Childress Directional Drilling Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H
Project:	Eddy County, NM (NAD27)	TVD Reference:	WELL @ 3704.00usft (Silver Oak 11)
Site:	White Oak State #27	MD Reference:	WELL @ 3704.00usft (Silver Oak 11)
Well:	SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H	North Reference:	Grid
Wellbore:	Top of Paddock @ 3700' TVD: 169' N/121' W of surface	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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

Site	White Oak State #27				
Site Position:		Northing:	0.00 usft	Latitude:	30° 59' 24.512 N
From:	Map	Easting:	0.00 usft	Longitude:	105° 55' 44.137 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.82 °

Well	SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H					
Well Position	+N-S	0.00 usft	Northing:	662,841.80 usft	Latitude:	32° 49' 19.516 N
	+E-W	0.00 usft	Easting:	559,865.90 usft	Longitude:	104° 8' 18.440 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,704.00 usft

Wellbore	Top of Paddock @ 3700' TVD: 169' N/121' W of surface				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	2012/10/24	7.73	60.61	48,775

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	324.54	

Survey Program	Date:	2013/01/16			
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
100.00	5,433.00	VES gyro surveys (Top of Paddock @ 370	NS-GYRO-MS	North sensing gyrocompassing mvs	

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
100.00	0.27	10.73	100.00	0.23	0.04	0.16	0.27	0.27	0.00
200.00	0.21	4.64	200.00	0.65	0.10	0.47	0.07	-0.06	-8.09
300.00	0.40	28.20	300.00	1.14	0.28	0.76	0.22	0.19	23.56
400.00	0.48	43.47	399.89	1.75	0.74	1.00	0.14	0.08	15.27
500.00	0.71	47.74	499.89	2.47	1.48	1.15	0.23	0.23	4.27
600.00	0.54	49.20	599.98	3.19	2.30	1.27	0.17	-0.17	1.46
700.00	0.48	54.08	699.98	3.75	2.99	1.31	0.07	-0.06	4.88



Childress Directional Drilling

Survey Report



Company: COG Operating, LLC Local Co-ordinate Reference: Well SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H

Project: Eddy County, NM (NAD27) TVD Reference: WELL @ 3704.00usft (Silver Oak 11)

Site: White Oak State #27 MD Reference: WELL @ 3704.00usft (Silver Oak 11)

Well: SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H North Reference: Grid

Wellbore: Top of Paddock @ 3700' TVD, 169' N/121' W of surface Survey Calculation Method: Minimum Curvature

Design: Surveys Database: EDM 5000.1 Single User Db

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)
800.00	0.64	15.26	799.97	4.53	3.48	1.67	0.40	0.16	-38.82
897.00	0.40	352.40	896.97	5.39	3.58	2.31	0.32	-0.25	-23.57
960.00	0.30	339.50	959.97	5.76	3.49	2.67	0.20	-0.16	-20.48
991.00	0.30	346.60	990.97	5.92	3.44	2.82	0.12	0.00	22.90
1,053.00	0.50	4.00	1,052.97	6.34	3.42	3.18	0.37	0.32	28.06
1,148.00	1.70	337.20	1,147.95	8.06	2.91	4.88	1.34	1.26	-28.21
1,241.00	3.50	336.00	1,240.85	11.92	1.22	9.00	1.94	1.94	-1.29
1,335.00	4.70	338.10	1,334.61	18.12	-1.39	15.56	1.29	1.28	2.23
1,429.00	5.30	334.10	1,428.25	25.60	-4.72	23.59	0.74	0.64	-4.26
1,523.00	5.60	326.20	1,521.83	33.31	-9.17	32.45	0.86	0.32	-8.40
1,618.00	5.80	325.60	1,616.36	41.12	-14.46	41.88	0.22	0.21	-0.63
1,712.00	5.30	322.80	1,709.91	48.50	-19.76	50.97	0.60	-0.53	-2.98
1,806.00	5.30	321.60	1,803.51	55.36	-25.09	59.65	0.12	0.00	-1.28
1,899.00	5.30	320.90	1,896.12	62.06	-30.46	68.22	0.07	0.00	-0.75
1,993.00	5.40	320.30	1,989.71	68.83	-36.03	76.97	0.12	0.11	-0.64
2,087.00	5.80	318.80	2,083.26	75.81	-41.98	86.10	0.45	0.43	-1.60
2,182.00	5.50	321.80	2,177.80	83.00	-47.96	95.43	0.44	-0.32	3.16
2,276.00	5.00	322.30	2,271.40	89.78	-53.25	104.02	0.53	-0.53	0.53
2,370.00	5.10	321.20	2,365.04	96.28	-58.37	112.28	0.15	0.11	-1.17
2,464.00	5.60	319.10	2,458.63	103.00	-63.99	121.02	0.57	0.53	-2.23
2,558.00	5.20	321.10	2,552.21	109.78	-69.67	129.84	0.47	-0.43	2.13
2,652.00	4.70	325.80	2,645.86	116.28	-74.51	137.94	0.68	-0.53	5.00
2,745.00	5.20	325.80	2,738.51	122.92	-79.02	145.96	0.54	-0.54	0.00
2,839.00	4.70	327.20	2,832.16	129.68	-83.50	154.07	0.55	-0.53	1.49
2,933.00	4.20	320.70	2,925.88	135.58	-87.77	161.35	0.75	-0.53	-6.91
3,026.00	4.60	318.30	3,018.60	141.00	-92.41	168.48	0.47	0.43	-2.58
3,120.00	4.60	307.20	3,112.30	146.10	-97.92	175.80	0.95	0.00	-11.81
3,214.00	4.10	303.10	3,206.03	150.21	-103.73	182.53	0.63	-0.53	-4.36
3,308.00	4.50	303.30	3,299.77	154.07	-109.63	189.09	0.43	0.43	0.21
3,401.00	4.00	307.20	3,392.51	158.03	-115.26	195.59	0.62	-0.54	4.19
3,495.00	4.00	306.70	3,486.28	161.97	-120.50	201.84	0.04	0.00	-0.53
3,588.00	4.40	311.80	3,579.03	166.29	-125.76	208.41	0.59	0.43	5.48
3,682.00	4.60	311.80	3,672.74	171.21	-131.26	215.60	0.21	0.21	0.00
3,776.00	4.40	313.50	3,766.45	176.20	-136.69	222.82	0.26	-0.21	1.81
3,869.00	4.80	313.50	3,859.15	181.34	-142.10	230.14	0.43	0.43	0.00
3,963.00	4.70	317.60	3,952.83	186.89	-147.55	237.82	0.38	-0.11	4.36
4,057.00	5.00	315.30	4,046.49	192.64	-153.02	245.69	0.38	0.32	-2.45
4,152.00	4.70	319.70	4,141.15	198.55	-158.45	253.65	0.50	-0.32	4.63
4,245.00	4.00	319.50	4,233.89	203.93	-163.03	260.68	0.75	-0.75	-0.22
4,339.00	4.20	318.80	4,327.65	209.01	-167.42	267.37	0.22	0.21	-0.74
4,433.00	4.20	320.70	4,421.39	214.26	-171.87	274.23	0.15	0.00	2.02
4,526.00	4.40	321.80	4,516.13	219.82	-176.33	281.34	0.23	0.21	1.16



Childress Directional Drilling
Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H
Project:	Eddy County, NM (NAD27)	TVD Reference:	WELL @ 3704.00usft (Silver Oak 11)
Site:	White Oak State #27	MD Reference:	WELL @ 3704.00usft (Silver Oak 11)
Well:	SHL: 2270' FNL, 185' FEL, Sec. 23, T17S, R28E, Unit H	North Reference:	Grid
Wellbore:	Top of Paddock @ 3700' TVD: 169' N/121' W of surface	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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)
4,622.00	4.50	321.80	4,609.84	225.55	-180.84	288.62	0.11	0.11	0.00
4,716.00	5.10	323.90	4,703.51	231.82	-185.58	296.49	0.67	0.64	2.23
4,810.00	4.70	324.90	4,797.17	238.35	-190.25	304.51	0.44	-0.43	1.08
4,903.00	4.00	325.80	4,889.90	244.15	-194.27	311.57	0.76	-0.75	0.97
4,997.00	4.20	325.10	4,983.66	249.68	-198.08	318.29	0.22	0.21	-0.74
5,091.00	4.40	324.60	5,077.39	255.45	-202.14	325.34	0.22	0.21	-0.53
5,184.00	4.40	324.10	5,170.12	261.24	-206.30	332.47	0.04	0.00	-0.54
5,278.00	4.20	326.30	5,263.86	267.03	-210.32	339.52	0.28	-0.21	2.34
5,372.00	3.30	327.20	5,357.65	272.17	-213.70	345.66	0.96	-0.96	0.96
5,433.00	3.30	327.20	5,418.55	275.12	-215.60	349.17	0.00	0.00	0.00
PTB at TD @ 5433' MD 3.30° INC 327.20° AZM 5418.55° AZM									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,433.00	5,418.55	275.12	-215.60	PTB at TD @ 5433' MD 3.30° INC 327.20° AZM 5418.55° AZM

Checked By: _____ Approved By: _____ Date: _____



Company Name: COG Operating, LLC
 Site: White Oak State
 Well: #27H
 Project: Eddy County, NM (NAD27)
 Rig Name: Silver Oak 11



Created By: Gail Deering
 Date: November 2, 2012
 Plan: Design #2

ANNOTATIONS

MD	TVD	Inc	Azi	+N/-S	+E/-W	VSDeparture	Annotation
800.00	799.97	0.64	15.26	4.53	3.48	1.67	0.00
1050.00	1049.98	0.64	15.26	7.22	4.21	3.44	2.79
1262.91	1262.62	4.62	323.05	15.23	-0.63	12.77	12.28
5263.30	5250.00	4.62	323.05	272.78	-194.30	334.91	334.53

WELL DETAILS: #27

Ground Level:	3704.00
Northing	662841.80
Easting	559865.90

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL	5250.00	272.78	-194.30	663114.58	559671.60

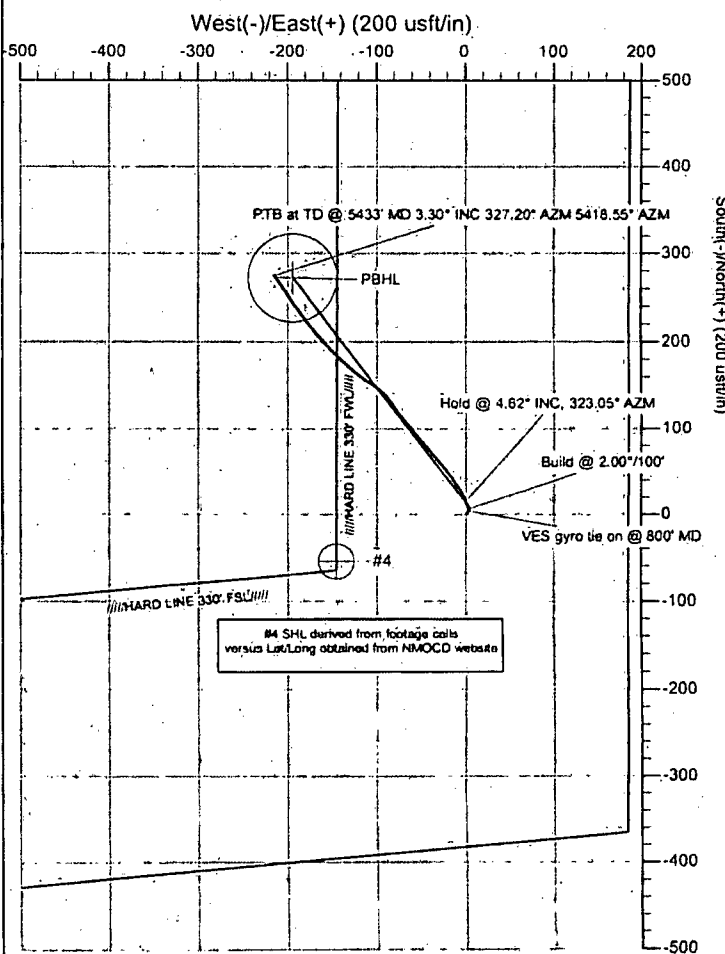
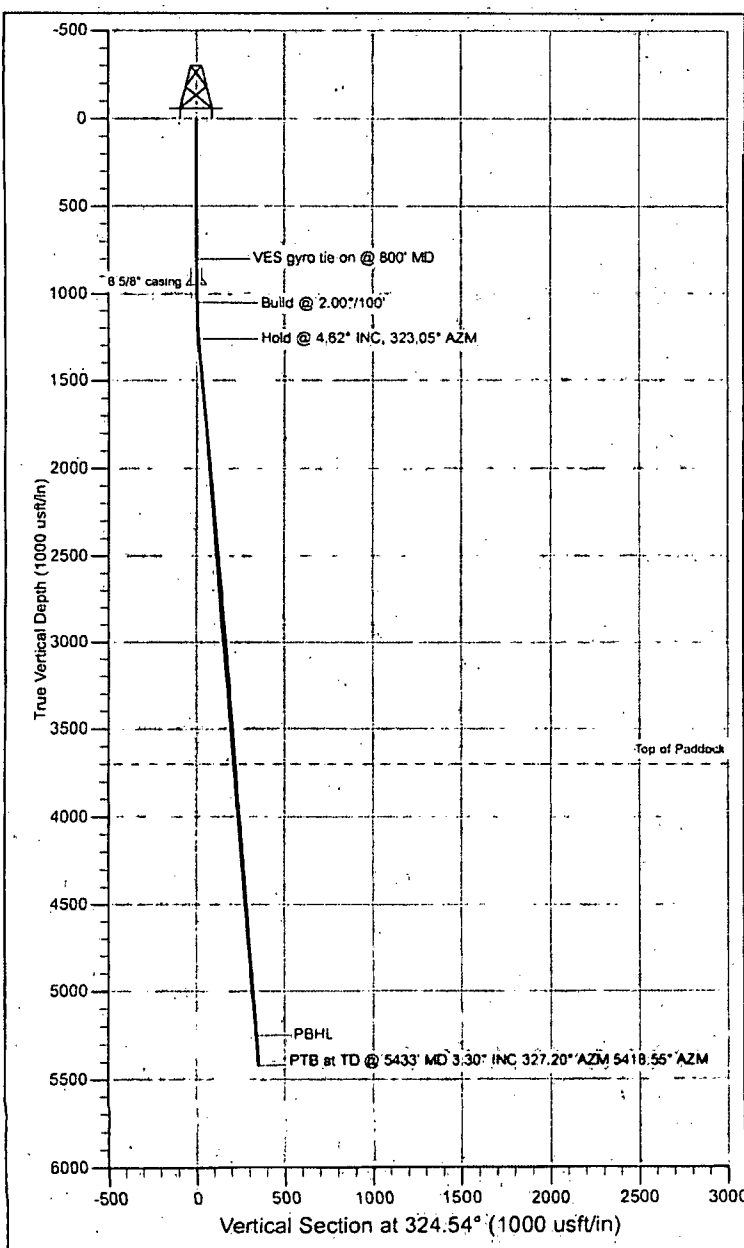
CASING DETAILS

TVD	MD	Name	Size
950.00	950.03	8 5/8" casing	8-5/8



Azimuths to Grid North
 True North: -0.11°
 Magnetic North: 7.62°
 Magnetic Field
 Strength: 48775.3nT
 Dip Angle: 60.81°
 Date: 10/24/2012
 Model: IGRF2010

**Magnetic Azimuth Apply:
 7.62° to convert to Grid North**



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3700.00	3708.24	Top of Padock