

Permit Information:

Well Name: Ophelia 27 No.

HOBBS OGD

FEB 27 2014

30-025-41679

Location:

RECEIVED

SL: 2420' FNL & 1520' FEL, Section 27, T-26-S, R-33-E, Lea Co., N.M.

BHL: 2410' FSL & 1370' FEL, Section 22, T-26-S, R-33-E, Lea Co., N.M.

Casing Program:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.5"	0 - 875'	13.375"	54.5#	J55	STC	1.125	1.25	1.60
12.25"	0-4000'	9.625"	40#	J55	LTC	1.125	1.25	1.60
12.25"	4000' - 5100'	9.625"	40#	HCK-55	LTC	1.125	1.25	1.60
8.75"	0'-14,514'	5.5"	17#	HCP-110	LTC	1.125	1.25	1.60

Cement Program:

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /ft	Slurry Description
875'	300	13.5	1.73	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	200	14.8	1.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
5,100'	800	12.7	2.22	Class 'C' + 1.50% R-3 + 0.25 lb/sk Cello-Flake + 2.0% Sodium Metasilicate + 10% Salt + 0.005 lb/sk Static Free
	200	14.8	1.32	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
14,514'	375	10.8	3.67	60:40:0 Class C + 15.0 pps BA-90 + 4% MPA-5 + 3.0% SMS + 5.0% A-10 + 1.0% BA-10A + 0.80% ASA-301 + 2.55% R-21 + 8.0 pps LCM-1
	400	11.8	2.38	50:50:10 Class H + 0.80% FL-52 + 0.30% ASA-301 + 0.40% SMS + 2.0% Salt + 0.30% R-21 + 3.0 pps LCM-1 + 0.25 pps Celloflake
	1400	14.2	1.28	50:50:2 Class H + 0.65% FL-52 + 0.45% CD-32 + 0.10% SMS + 2.0% Salt

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 - 875'	Fresh - Gel	8.6-8.8	28-34	N/c
875' - 5,100'	Brine	10.0-10.2	28-34	N/c
5,100' - 9,397'	Cut Brine	8.4-9.0	28-34	N/c
9,397' - 14,514' Lateral	Cut Brine	9.0-9.5	40-42	8-10

FEB 27 2014

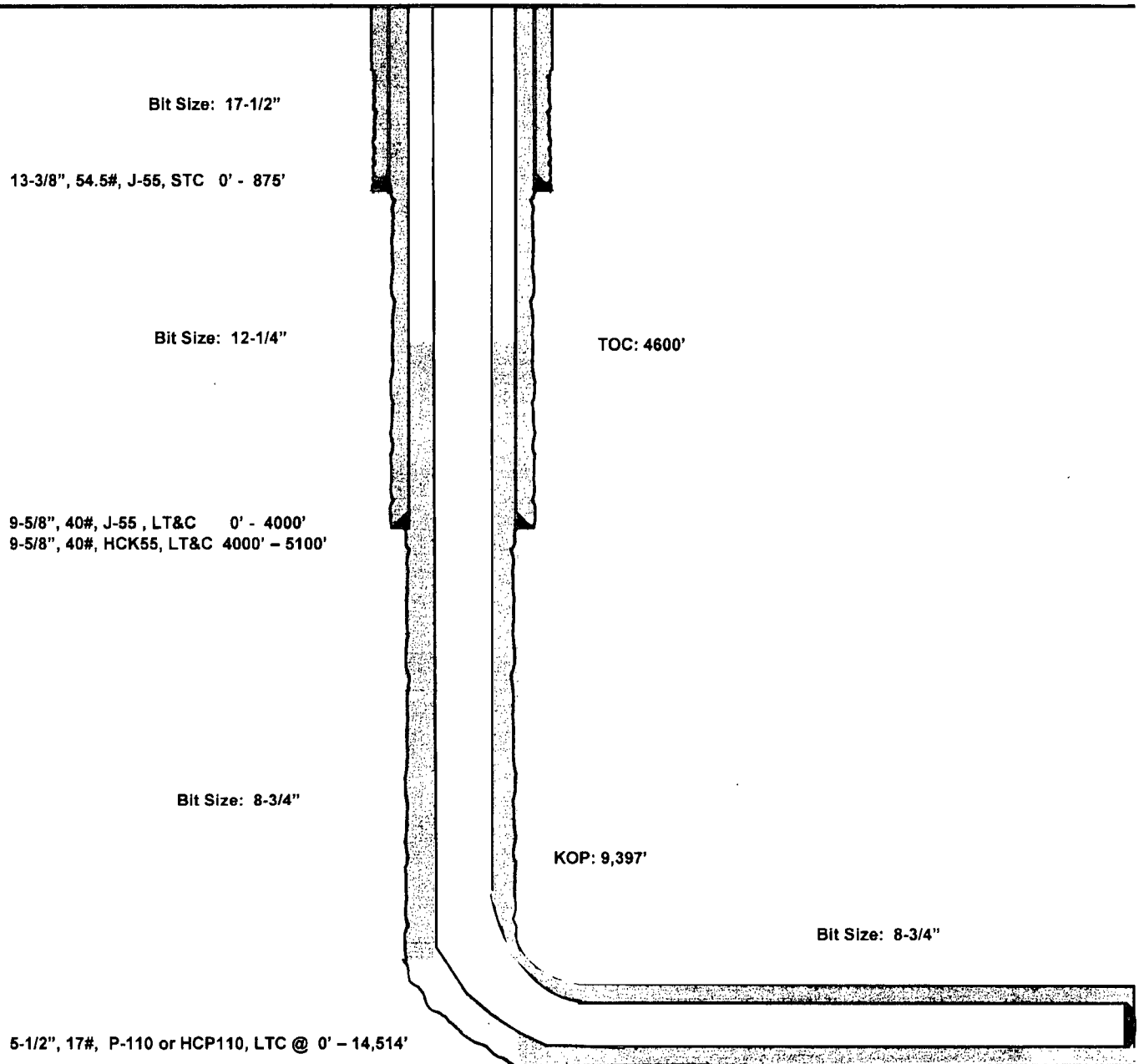
Ophelia 27 #4H
Lea County, New Mexico

2420' FNL
1520' FEL
Section 27
T-26-S, R-33-E

Proposed Wellbore

API: 30-025-

KB: 3,311'
GL: 3,284'



Lateral: 14,514' MD, 9,856' TVD

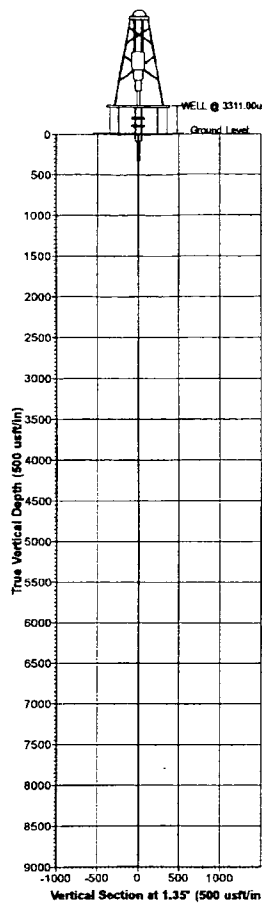
BH Location: 2410' FSL & 1370' FEL
Section 22
T-26-S, R-33-E



Project: Lea County, NM (NAD27 NME)
 Site: Ophelia 27
 Well: #4H
 Wellbore: Wellbore #1 Job #1410306
 Design: Plan #1 02-24-14
 Rig: Patterson 452



Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 6.82°
 Magnetic Field
 Strength: 48224.3nT
 Dip Angle: 59.93°
 Date: 02/20/2014
 Model: IGRF2010_14



WELL DETAILS										
	+N-S	+E-W	North	East	Ground Level	Latitude	Longitude			
	0.00	0.00	370021.00	740910.00	3284.00	32° 0' 53.71265 N	103° 33' 21.87215 W			

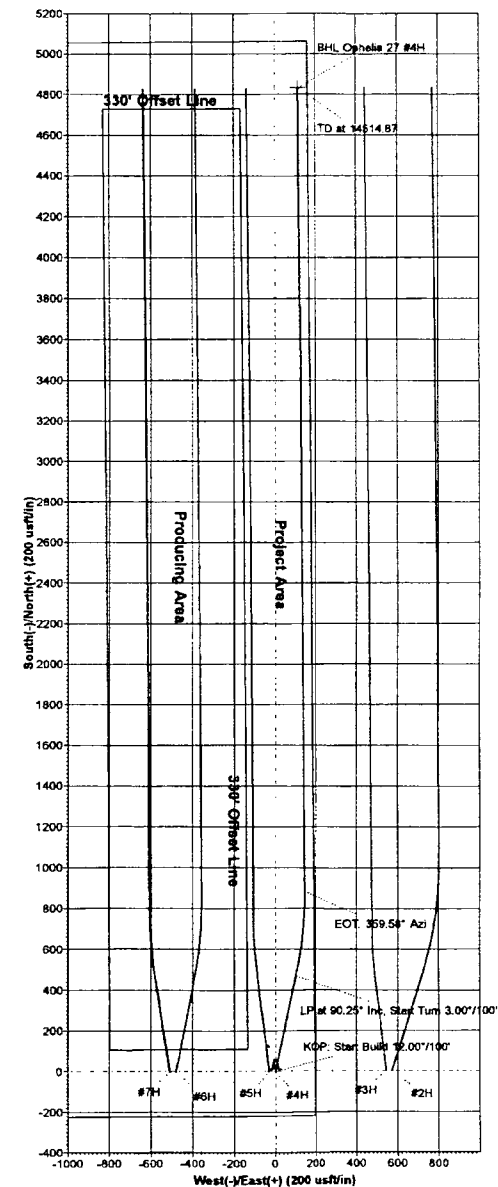
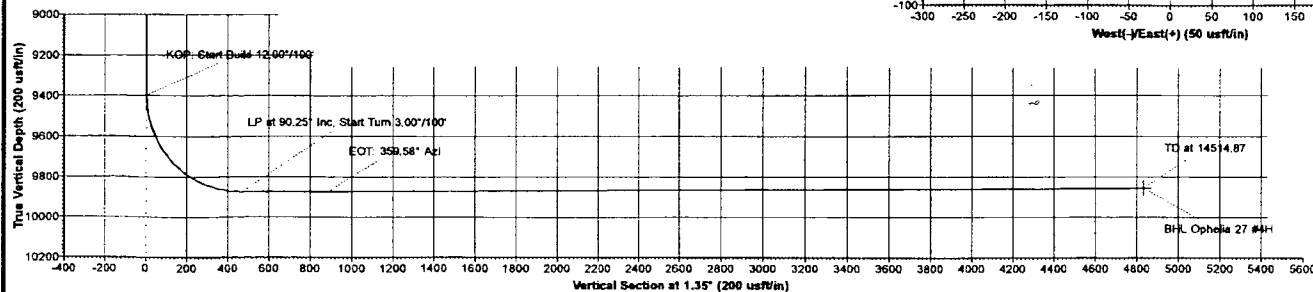
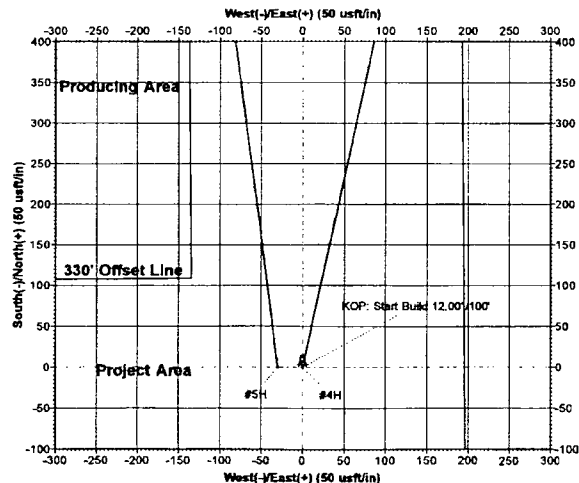
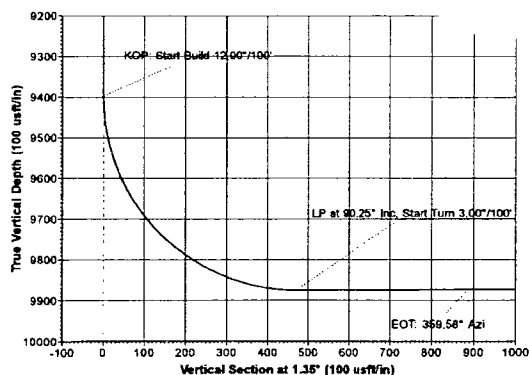
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	9397.54	0.00	0.00	9397.54	0.00	0.00	0.00	0.00	0.00	KOP: Start Build 12.00°/100'
3	10146.02	90.25	12.16	9875.00	468.89	100.52	12.00	12.10	471.14	LP at 90.25° Inc. Start Turn 3.00°/100'
4	10566.93	90.25	359.54	9873.17	843.21	142.50	3.00	-80.88	144.32	EOT: 359.54° Azi
5	14514.87	90.25	359.54	9856.00	4831.00	114.00	0.00	0.00	4832.34	BHL Ophelia 27 #4H TD at 14514.87

DESIGN TARGET DETAILS										
Name	TVD	+N-S	+E-W	North	East	Latitude	Longitude	Shape		
BHL Ophelia 27 #4H	9856.00	4831.00	114.00	374852.00	741024.00	32° 1' 41.51109 N	103° 33' 20.14431 W	Point		

Map System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone Name: New Mexico East 3001
 Local Origin: Well #4H, Grid North
 Latitude: 32° 0' 53.71265 N
 Longitude: 103° 33' 21.87215 W
 Grid East: 740910.00
 Grid North: 370021.00
 Scale Factor: 1.000
 Geomagnetic Model: IGRF2010_14
 Sample Date: 20-Feb-14
 Magnetic Declination: 7.23°
 Dip Angle from Horizontal: 59.93°
 Magnetic Field Strength: 48224
 To convert a Magnetic Direction to a Grid Direction, Add 6.82°
 To convert a Magnetic Direction to a True Direction, Add 7.23° East
 To convert a True Direction to a Grid Direction, Subtract 0.41°

LEGEND

- #3H, Wellbore #1 Job #1410184, Plan #1 01-28-14 V0
- #6H, Wellbore #1 Job #1410308, Plan #1 02-24-14 V0
- #2H, Wellbore #1 Job #1410183, Plan #1 01-28-14 V0
- #7H, Wellbore #1 Job #1410309, Plan #1 02-24-14 V0
- #5H, Wellbore #1 Job #1410307, Plan #1 02-24-14 V0
- Plan #1 02-24-14





EOG Resources

Lea County, NM (NAD27 NME)

Ophelia 27

#4H

Wellbore #1 Job #1410306

Plan: Plan #1 02-24-14

Planning Report

24 February, 2014





Phoenix Technology Services
Planning Report



Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Ophelia 27
Well: #4H
Wellbore: Wellbore #1 Job #1410306
Design: Plan #1 02-24-14

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3311.00usft (Patterson 452)
MD Reference: WELL @ 3311.00usft (Patterson 452)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR DB

Project	Lea County, NM (NAD27 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	Ophelia 27		
Site Position:		Northing:	370,025.00 usft
From:	Map	Easting:	741,483.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 0' 53.71140 N
		Longitude:	103° 33' 15.21704 W
		Grid Convergence:	0.41 °

Well	#4H		
Well Position	+N-S	0.00 usft	Northing: 370,021.00 usft
	+E-W	0.00 usft	Easting: 740,910.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 0' 53.71265 N
		Longitude:	103° 33' 21.87215 W
		Ground Level:	3,284.00 usft

Wellbore	Wellbore #1 Job #1410306					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	IGRF2010_14	02/20/14	7.23	59.93	48,224	

Design	Plan #1 02-24-14				
Audit Notes:					
Version:	Phase:	PROTOTYPE		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	1.35	

Survey Tool Program	Date	02/24/14			
From	To	Survey (Wellbore)		Tool Name	Description
(usft)	(usft)				
0.00	14,514.87	Plan #1 02-24-14 (Wellbore #1 Job #1410		MWD	MWD - Standard



Phoenix Technology Services Planning Report



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Design: Plan #1 02-24-14

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TVD Reference: WELL @ 3311.00usft (Patterson 452)
MD Reference: WELL @ 3311.00usft (Patterson 452)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR DB

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
0.00	0.00	0.00	-3,311.00	0.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
100.00	0.00	0.00	-3,211.00	100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
200.00	0.00	0.00	-3,111.00	200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
300.00	0.00	0.00	-3,011.00	300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
400.00	0.00	0.00	-2,911.00	400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
500.00	0.00	0.00	-2,811.00	500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
600.00	0.00	0.00	-2,711.00	600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
700.00	0.00	0.00	-2,611.00	700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
800.00	0.00	0.00	-2,511.00	800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
900.00	0.00	0.00	-2,411.00	900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,000.00	0.00	0.00	-2,311.00	1,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,100.00	0.00	0.00	-2,211.00	1,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,200.00	0.00	0.00	-2,111.00	1,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,300.00	0.00	0.00	-2,011.00	1,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,400.00	0.00	0.00	-1,911.00	1,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,500.00	0.00	0.00	-1,811.00	1,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,600.00	0.00	0.00	-1,711.00	1,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,700.00	0.00	0.00	-1,611.00	1,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,800.00	0.00	0.00	-1,511.00	1,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
1,900.00	0.00	0.00	-1,411.00	1,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,000.00	0.00	0.00	-1,311.00	2,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,100.00	0.00	0.00	-1,211.00	2,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,200.00	0.00	0.00	-1,111.00	2,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,300.00	0.00	0.00	-1,011.00	2,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,400.00	0.00	0.00	-911.00	2,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,500.00	0.00	0.00	-811.00	2,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,600.00	0.00	0.00	-711.00	2,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00



Phoenix Technology Services
Planning Report



Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Ophelia 27
Well: #4H
Wellbore: Wellbore #1 Job #1410306
Design: Plan #1 02-24-14

Local Co-ordinate Reference: Well #4H
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Planned Survey

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2,700.00	0.00	0.00	-611.00	2,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,800.00	0.00	0.00	-511.00	2,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
2,900.00	0.00	0.00	-411.00	2,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,000.00	0.00	0.00	-311.00	3,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,100.00	0.00	0.00	-211.00	3,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,200.00	0.00	0.00	-111.00	3,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,300.00	0.00	0.00	-11.00	3,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,400.00	0.00	0.00	89.00	3,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,500.00	0.00	0.00	189.00	3,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,600.00	0.00	0.00	289.00	3,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,700.00	0.00	0.00	389.00	3,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,800.00	0.00	0.00	489.00	3,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
3,900.00	0.00	0.00	589.00	3,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,000.00	0.00	0.00	689.00	4,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,100.00	0.00	0.00	789.00	4,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,200.00	0.00	0.00	889.00	4,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,300.00	0.00	0.00	989.00	4,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,400.00	0.00	0.00	1,089.00	4,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,500.00	0.00	0.00	1,189.00	4,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,600.00	0.00	0.00	1,289.00	4,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,700.00	0.00	0.00	1,389.00	4,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,800.00	0.00	0.00	1,489.00	4,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
4,900.00	0.00	0.00	1,589.00	4,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,000.00	0.00	0.00	1,689.00	5,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,100.00	0.00	0.00	1,789.00	5,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,200.00	0.00	0.00	1,889.00	5,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,300.00	0.00	0.00	1,989.00	5,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00



Phoenix Technology Services

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5,400.00	0.00	0.00	2,089.00	5,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,500.00	0.00	0.00	2,189.00	5,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,600.00	0.00	0.00	2,289.00	5,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,700.00	0.00	0.00	2,389.00	5,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,800.00	0.00	0.00	2,489.00	5,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
5,900.00	0.00	0.00	2,589.00	5,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,000.00	0.00	0.00	2,689.00	6,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,100.00	0.00	0.00	2,789.00	6,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,200.00	0.00	0.00	2,889.00	6,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,300.00	0.00	0.00	2,989.00	6,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,400.00	0.00	0.00	3,089.00	6,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,500.00	0.00	0.00	3,189.00	6,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,600.00	0.00	0.00	3,289.00	6,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,700.00	0.00	0.00	3,389.00	6,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,800.00	0.00	0.00	3,489.00	6,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
6,900.00	0.00	0.00	3,589.00	6,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,000.00	0.00	0.00	3,689.00	7,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,100.00	0.00	0.00	3,789.00	7,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,200.00	0.00	0.00	3,889.00	7,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,300.00	0.00	0.00	3,989.00	7,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,400.00	0.00	0.00	4,089.00	7,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,500.00	0.00	0.00	4,189.00	7,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,600.00	0.00	0.00	4,289.00	7,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,700.00	0.00	0.00	4,389.00	7,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,800.00	0.00	0.00	4,489.00	7,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
7,900.00	0.00	0.00	4,589.00	7,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,000.00	0.00	0.00	4,689.00	8,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00



Phoenix Technology Services
Planning Report



Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Ophelia 27
Well: #4H
Wellbore: Wellbore #1 Job #1410306
Design: Plan #1 02-24-14

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3311.00usft (Patterson 452)
MD Reference: WELL @ 3311.00usft (Patterson 452)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR DB

Planned Survey

MD (usft)	Inc (")	Azi (azimuth) (")	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg ("/100usft)
8,100.00	0.00	0.00	4,789.00	8,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,200.00	0.00	0.00	4,889.00	8,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,300.00	0.00	0.00	4,989.00	8,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,400.00	0.00	0.00	5,089.00	8,400.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,500.00	0.00	0.00	5,189.00	8,500.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,600.00	0.00	0.00	5,289.00	8,600.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,700.00	0.00	0.00	5,389.00	8,700.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,800.00	0.00	0.00	5,489.00	8,800.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
8,900.00	0.00	0.00	5,589.00	8,900.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
9,000.00	0.00	0.00	5,689.00	9,000.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
9,100.00	0.00	0.00	5,789.00	9,100.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
9,200.00	0.00	0.00	5,889.00	9,200.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
9,300.00	0.00	0.00	5,989.00	9,300.00	0.00	0.00	370,021.00	740,910.00	0.00	0.00
9,397.54	0.00	0.00	6,086.54	9,397.54	0.00	0.00	370,021.00	740,910.00	0.00	0.00
KOP: Start Build 12.00"/100'										
9,400.00	0.30	12.10	6,089.00	9,400.00	0.01	0.00	370,021.01	740,910.00	0.01	12.00
9,425.00	3.30	12.10	6,113.98	9,424.98	0.77	0.17	370,021.77	740,910.17	0.78	12.00
9,450.00	6.30	12.10	6,138.89	9,449.89	2.82	0.60	370,023.82	740,910.60	2.83	12.00
9,475.00	9.30	12.10	6,163.66	9,474.66	6.13	1.31	370,027.13	740,911.31	6.16	12.00
9,500.00	12.30	12.10	6,188.22	9,499.22	10.71	2.30	370,031.71	740,912.30	10.76	12.00
9,525.00	15.30	12.10	6,212.49	9,523.49	16.54	3.55	370,037.54	740,913.55	16.62	12.00
9,550.00	18.30	12.10	6,236.42	9,547.42	23.60	5.06	370,044.60	740,915.06	23.71	12.00
9,575.00	21.30	12.10	6,259.94	9,570.94	31.88	6.83	370,052.88	740,916.83	32.03	12.00
9,600.00	24.30	12.10	6,282.99	9,593.99	41.35	8.86	370,062.35	740,918.86	41.54	12.00
9,625.00	27.30	12.10	6,305.49	9,616.49	51.98	11.14	370,072.98	740,921.14	52.23	12.00
9,650.00	30.30	12.10	6,327.40	9,638.40	63.76	13.67	370,084.76	740,923.67	64.06	12.00
9,675.00	33.30	12.10	6,348.65	9,659.65	76.63	16.43	370,097.63	740,926.43	77.00	12.00



Phoenix Technology Services
Planning Report



Company: EOG Resources
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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
9,700.00	36.30	12.10	6,369.17	9,680.17	90.58	19.42	370,111.58	740,929.42	91.01	12.00
9,725.00	39.30	12.10	6,388.93	9,699.93	105.56	22.63	370,126.56	740,932.63	106.06	12.00
9,750.00	42.30	12.10	6,407.85	9,718.85	121.53	26.05	370,142.53	740,936.05	122.11	12.00
9,775.00	45.30	12.10	6,425.89	9,736.89	138.44	29.68	370,159.44	740,939.68	139.11	12.00
9,800.00	48.30	12.10	6,443.01	9,754.01	156.26	33.50	370,177.26	740,943.50	157.01	12.00
9,825.00	51.30	12.10	6,459.14	9,770.14	174.93	37.50	370,195.93	740,947.50	175.76	12.00
9,850.00	54.30	12.10	6,474.26	9,785.26	194.39	41.67	370,215.39	740,951.67	195.32	12.00
9,875.00	57.30	12.10	6,488.31	9,799.31	214.61	46.01	370,235.61	740,956.01	215.63	12.00
9,900.00	60.30	12.10	6,501.26	9,812.26	235.51	50.49	370,256.51	740,960.49	236.64	12.00
9,925.00	63.30	12.10	6,513.08	9,824.08	257.05	55.11	370,278.05	740,965.11	258.28	12.00
9,950.00	66.30	12.10	6,523.72	9,834.72	279.17	59.85	370,300.17	740,969.85	280.50	12.00
9,975.00	69.30	12.10	6,533.17	9,844.17	301.80	64.70	370,322.80	740,974.70	303.24	12.00
10,000.00	72.30	12.10	6,541.39	9,852.39	324.88	69.65	370,345.88	740,979.65	326.43	12.00
10,025.00	75.30	12.10	6,548.37	9,859.37	348.35	74.68	370,369.35	740,984.68	350.02	12.00
10,050.00	78.30	12.10	6,554.08	9,865.08	372.15	79.78	370,393.15	740,989.78	373.92	12.00
10,075.00	81.30	12.10	6,558.51	9,869.51	396.20	84.94	370,417.20	740,994.94	398.09	12.00
10,100.00	84.30	12.10	6,561.64	9,872.64	420.45	90.14	370,441.45	741,000.14	422.46	12.00
10,125.00	87.30	12.10	6,563.47	9,874.47	444.83	95.36	370,465.83	741,005.36	446.95	12.00
10,149.62	90.25	12.10	6,564.00	9,875.00	468.89	100.52	370,489.89	741,010.52	471.14	12.00
LP at 90.25° Inc, Start Turn 3.00°/100'										
10,200.00	90.25	10.59	6,563.78	9,874.78	518.28	110.43	370,539.28	741,020.43	520.75	3.00
10,300.00	90.25	7.59	6,563.34	9,874.34	617.02	126.23	370,638.02	741,036.23	619.82	3.00
10,400.00	90.25	4.59	6,562.90	9,873.90	716.44	136.83	370,737.44	741,046.83	719.47	3.00
10,500.00	90.25	1.59	6,562.47	9,873.47	816.28	142.22	370,837.28	741,052.22	819.41	3.00
10,566.93	90.25	359.58	6,562.17	9,873.17	883.21	142.90	370,904.21	741,052.90	886.33	3.00
EOT: 359.58° Azi										
10,600.00	90.25	359.58	6,562.03	9,873.03	916.27	142.66	370,937.27	741,052.66	919.38	0.00



Phoenix Technology Services
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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
10,700.00	90.25	359.58	6,561.60	9,872.60	1,016.27	141.93	371,037.27	741,051.93	1,019.34	0.00
10,800.00	90.25	359.58	6,561.16	9,872.16	1,116.27	141.19	371,137.27	741,051.19	1,119.29	0.00
10,900.00	90.25	359.58	6,560.73	9,871.73	1,216.26	140.46	371,237.26	741,050.46	1,219.24	0.00
11,000.00	90.25	359.58	6,560.29	9,871.29	1,316.26	139.73	371,337.26	741,049.73	1,319.19	0.00
11,100.00	90.25	359.58	6,559.86	9,870.86	1,416.26	139.00	371,437.26	741,049.00	1,419.14	0.00
11,200.00	90.25	359.58	6,559.42	9,870.42	1,516.25	138.27	371,537.25	741,048.27	1,519.09	0.00
11,300.00	90.25	359.58	6,558.99	9,869.99	1,616.25	137.53	371,637.25	741,047.53	1,619.04	0.00
11,400.00	90.25	359.58	6,558.55	9,869.55	1,716.25	136.80	371,737.25	741,046.80	1,718.99	0.00
11,500.00	90.25	359.58	6,558.12	9,869.12	1,816.24	136.07	371,837.24	741,046.07	1,818.95	0.00
11,600.00	90.25	359.58	6,557.68	9,868.68	1,916.24	135.34	371,937.24	741,045.34	1,918.90	0.00
11,700.00	90.25	359.58	6,557.25	9,868.25	2,016.23	134.61	372,037.23	741,044.61	2,018.85	0.00
11,800.00	90.25	359.58	6,556.81	9,867.81	2,116.23	133.87	372,137.23	741,043.87	2,118.80	0.00
11,900.00	90.25	359.58	6,556.38	9,867.38	2,216.23	133.14	372,237.23	741,043.14	2,218.75	0.00
12,000.00	90.25	359.58	6,555.94	9,866.94	2,316.22	132.41	372,337.22	741,042.41	2,318.70	0.00
12,100.00	90.25	359.58	6,555.51	9,866.51	2,416.22	131.68	372,437.22	741,041.68	2,418.65	0.00
12,200.00	90.25	359.58	6,555.07	9,866.07	2,516.22	130.95	372,537.22	741,040.95	2,518.61	0.00
12,300.00	90.25	359.58	6,554.64	9,865.64	2,616.21	130.21	372,637.21	741,040.21	2,618.56	0.00
12,400.00	90.25	359.58	6,554.20	9,865.20	2,716.21	129.48	372,737.21	741,039.48	2,718.51	0.00
12,500.00	90.25	359.58	6,553.77	9,864.77	2,816.21	128.75	372,837.21	741,038.75	2,818.46	0.00
12,600.00	90.25	359.58	6,553.33	9,864.33	2,916.20	128.02	372,937.20	741,038.02	2,918.41	0.00
12,700.00	90.25	359.58	6,552.90	9,863.90	3,016.20	127.29	373,037.20	741,037.29	3,018.36	0.00
12,800.00	90.25	359.58	6,552.46	9,863.46	3,116.19	126.55	373,137.19	741,036.55	3,118.31	0.00
12,900.00	90.25	359.58	6,552.03	9,863.03	3,216.19	125.82	373,237.19	741,035.82	3,218.26	0.00
13,000.00	90.25	359.58	6,551.59	9,862.59	3,316.19	125.09	373,337.19	741,035.09	3,318.22	0.00
13,100.00	90.25	359.58	6,551.16	9,862.16	3,416.18	124.36	373,437.18	741,034.36	3,418.17	0.00
13,200.00	90.25	359.58	6,550.72	9,861.72	3,516.18	123.63	373,537.18	741,033.63	3,518.12	0.00
13,300.00	90.25	359.58	6,550.29	9,861.29	3,616.18	122.89	373,637.18	741,032.89	3,618.07	0.00



Phoenix Technology Services
Planning Report



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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
13,400.00	90.25	359.58	6,549.85	9,860.85	3,716.17	122.16	373,737.17	741,032.16	3,718.02	0.00
13,500.00	90.25	359.58	6,549.42	9,860.42	3,816.17	121.43	373,837.17	741,031.43	3,817.97	0.00
13,600.00	90.25	359.58	6,548.98	9,859.98	3,916.17	120.70	373,937.17	741,030.70	3,917.92	0.00
13,700.00	90.25	359.58	6,548.54	9,859.54	4,016.16	119.97	374,037.16	741,029.97	4,017.87	0.00
13,800.00	90.25	359.58	6,548.11	9,859.11	4,116.16	119.23	374,137.16	741,029.23	4,117.83	0.00
13,900.00	90.25	359.58	6,547.67	9,858.67	4,216.15	118.50	374,237.15	741,028.50	4,217.78	0.00
14,000.00	90.25	359.58	6,547.24	9,858.24	4,316.15	117.77	374,337.15	741,027.77	4,317.73	0.00
14,100.00	90.25	359.58	6,546.80	9,857.80	4,416.15	117.04	374,437.15	741,027.04	4,417.68	0.00
14,200.00	90.25	359.58	6,546.37	9,857.37	4,516.14	116.31	374,537.14	741,026.31	4,517.63	0.00
14,300.00	90.25	359.58	6,545.93	9,856.93	4,616.14	115.57	374,637.14	741,025.57	4,617.58	0.00
14,400.00	90.25	359.58	6,545.50	9,856.50	4,716.14	114.84	374,737.14	741,024.84	4,717.53	0.00
14,500.00	90.25	359.58	6,545.06	9,856.06	4,816.13	114.11	374,837.13	741,024.11	4,817.48	0.00
14,514.87	90.25	359.58	6,545.00	9,856.00	4,831.00	114.00	374,852.00	741,024.00	4,832.34	0.00

TD at 14514.87

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
9,397.54	9,397.54	0.00	0.00	KOP: Start Build 12.00°/100'
10,149.62	9,875.00	468.89	100.52	LP at 90.25° Inc, Start Turn 3.00°/100'
10,566.93	9,873.17	883.21	142.90	EOT: 359.58° Azi
14,514.87	9,856.00	4,831.00	114.00	TD at 14514.87

EOG RESOURCES, INC.
OPHELIA 27 #4H

Hydrogen Sulfide Plan Summary

- A. All personnel shall receive proper H₂S training in accordance with Onshore Order III.C.3.a.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment:
- Well control equipment
 - a. Flare line 150' from wellhead to be ignited by flare gun.
 - b. Choke manifold with a remotely operated choke.
 - c. Mud/gas separator
 - Protective equipment for essential personnel.

Breathing apparatus:

 - a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
 - b. Work/Escapes packs — 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
 - c. Emergency Escape Packs — 4 packs shall be stored in the doghouse for emergency evacuation.

Auxiliary Rescue Equipment:

 - a. Stretcher
 - b. Two OSHA full body harness
 - c. 100 ft 5/8 inch OSHA approved rope
 - d. 1-20# class ABC fire extinguisher
 - H₂S detection and monitoring equipment:

The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.
(Gas sample tubes will be stored in the safety trailer)
 - Visual warning systems.
 - a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - c. Two wind socks will be placed in strategic locations, visible from all angles.

EOG RESOURCES, INC.
OPHELIA 27 #4H

- **Mud program:**
The mud program has been designed to minimize the volume of H₂S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H₂S bearing zones.
- **Metallurgy:**
All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
- **Communication:**
Communication will be via cell phones and land lines where available.

EOG RESOURCES, INC.
OPHELIA 27 #4H

Emergency Assistance Telephone List

PUBLIC SAFETY: **911 or**

Lea County Sheriff's Department	(575) 396-3611
Rod Coffman	
Fire Department:	
Carlsbad	(575) 885-3125
Artesia	(575) 746-5050
Hospitals:	
Carlsbad	(575) 887-4121
Artesia	(575) 748-3333
Hobbs	(575) 392-1979
Dept. of Public Safety/Carlsbad	(575) 748-9718
Highway Department	(575) 885-3281
New Mexico Oil Conservation	(575) 476-3440
U.S. Dept. of Labor	(575) 887-1174

EOG Resources, Inc.

EOG / Midland	Office (432) 686-3600
---------------	-----------------------

Company Drilling Consultants:

Lonnie Byrd	Cell (432) 894-2389
Rickie Poindexter	

Drilling Engineer

Robert Brosig	Office (432) 686-3737
	Cell (432) 770-0705

Drilling Manager

Steve Munsell	Office (432) 686-3609
	Cell (432) 894-1256

Drilling Superintendent

Ron Welch	Office (432) 686-3695
	Cell (432) 386-0592

Cactus Drilling

Patterson Drilling	Office (432) 682-9401
Patterson 452 Drilling Rig	Rig (432) 894-2389

Tool Pusher:

Robert Merchant	Cell (903) 477-3751
Patrick Ford	Cell (903) 539-7889

Safety

Reggie Phillips (HSE Manager)	Office (432) 686-3747
	Cell (432) 250-7507