

FEB 20 2014

RECEIVED

Permit Information:

Well Name: Thor 21 No. 1H

Location:

SL: 230' FSL & 380' FEL, Section 21, T-26-S, R-33-E, Lea Co., N.M.

BHL: 230' FNL & 380' FEL, Section 21, 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 - 855'	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'-14,047'	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
855'	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
14,047'	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
	1300	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 - 855'	Fresh - Gel	8.6-8.8	28-34	N/c
900' - 5,100'	Brine	10.0-10.2	28-34	N/c
5,100' - 8,952'	Cut Brine	8.4-9.0	28-34	N/c
8,952' - 14,047' Lateral	Cut Brine	9.0-9.5	40-42	8-10

FEB 20 2014

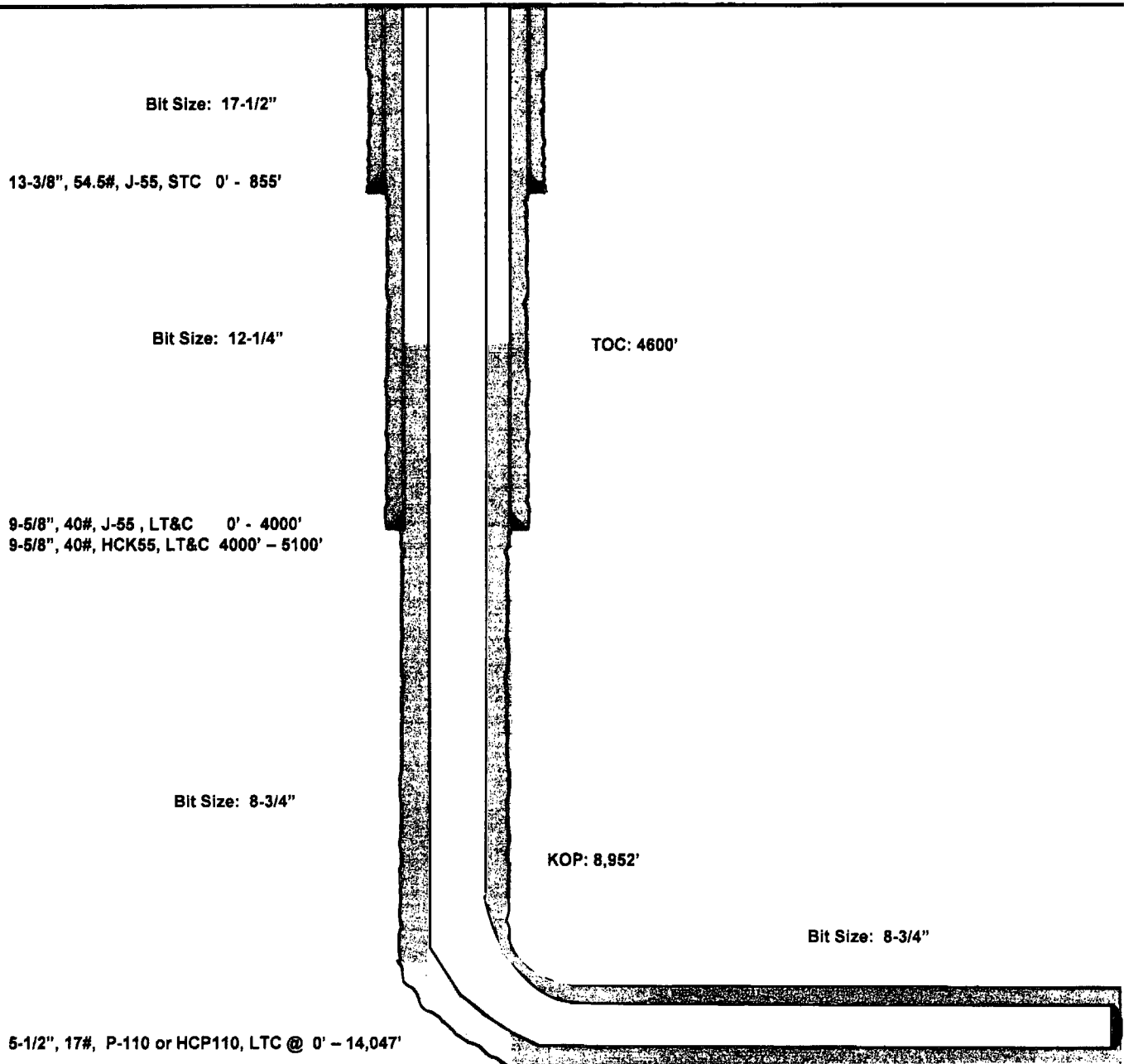
Thor 21 #1H
Lea County, New Mexico

230' FSL
380' FEL
Section 21
T-26-S, R-33-E

Proposed Wellbore

API: 30-025-

KB: 3,379'
GL: 3,252'



Lateral: 14,047' MD, 9,430' TVD

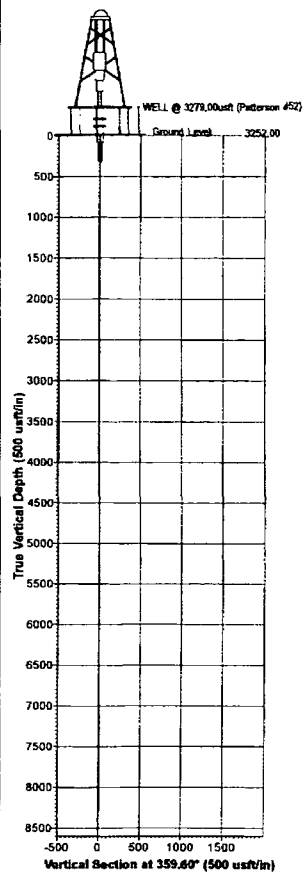
BH Location: 230' FNL & 380' FEL
Section 21
T-26-S, R-33-E



Project: Lea County, (NAD27)
 Site: Thor 21
 Well: #1H
 Wellbore: Wellbore #1 Job #1410305
 Design: Plan #1 02-19-14
 Rig: Patterson 452



Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 0.84°
 Magnetic Field
 Strength: 48227.7nT
 Dip Angle: 59.83°
 Date: 02/19/2014
 Model: IGRF2010_14



WELL DETAILS												
	+N-S	+E-W	North	Ground Level	3252.00	Latitude	Longitude					
	0.00	0.00	372844.00	Easting	736738.00	32° 1' 19.96375 N	103° 34' 10.11014 W					

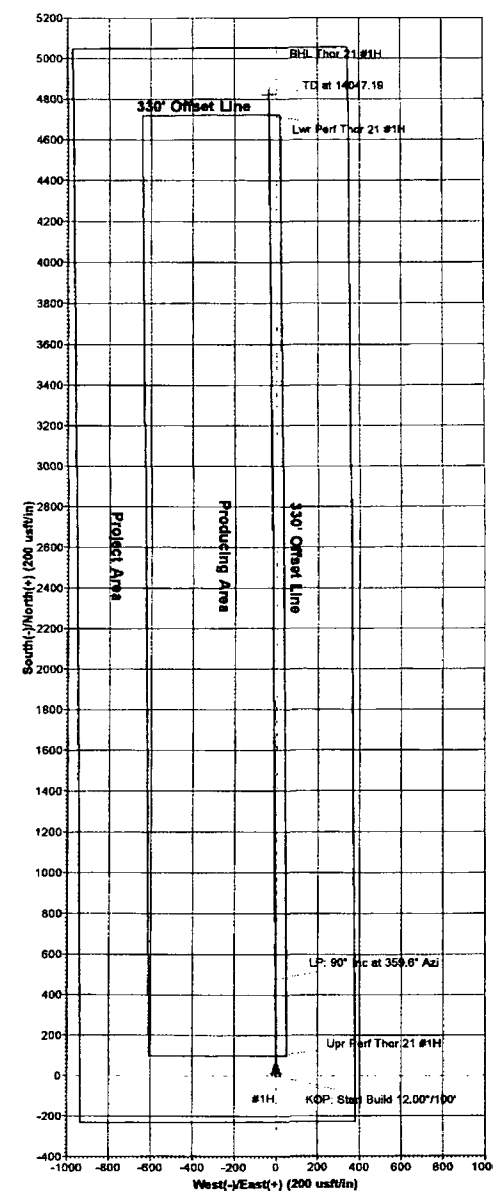
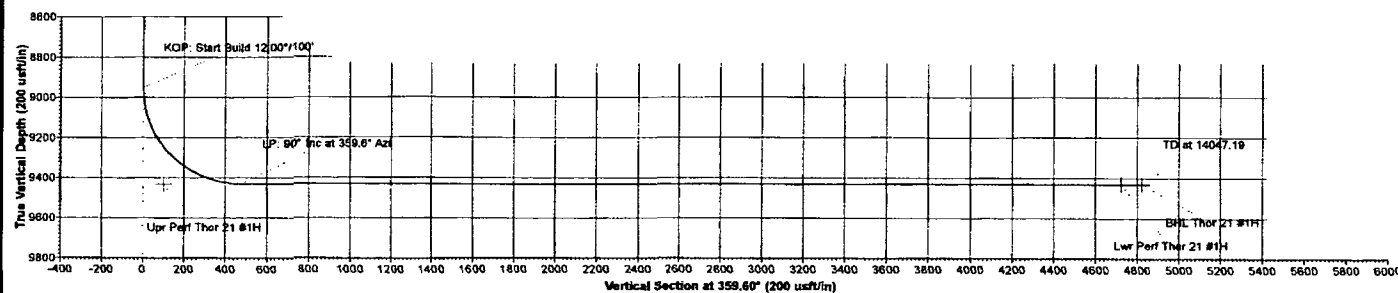
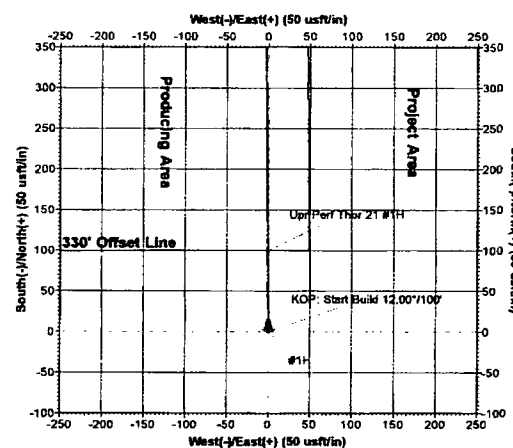
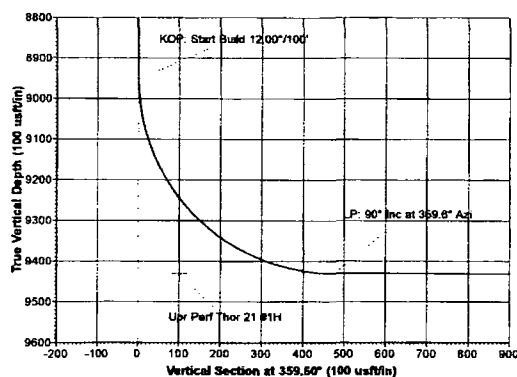
SECTION DETAILS												
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Depth	TFace	VFace	Target	Annotation	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
2	8952.54	0.00	0.00	8952.54	0.00	0.00	0.00	0.00	0.00		KOP: Start Build 12.00°/100'	
3	9702.54	90.00	359.60	9430.00	477.45	-3.37	12.00	359.60	477.48		LP: 90° Inc at 359.6° Azi	
4	14047.19	90.00	359.60	9430.00	4822.00	-34.00	0.00	0.00	4822.12	BHL Thor 21 #1H	TD at 14047.19	

DESIGN TARGET DETAILS												
Name	TVD	+N-S	+E-W	North	Easting	Latitude	Longitude	Shape				
BHL Thor 21 #1H	9430.00	4822.00	-34.00	377466.00	736704.00	32° 2' 7.68373 N	103° 34' 10.10903 W	Point				
Lwr Perf Thor 21 #1H	9430.00	4722.00	-34.00	377366.00	736704.00	32° 2' 6.89415 N	103° 34' 10.11724 W	Point				
Upr Perf Thor 21 #1H	9430.00	100.00	-1.00	372744.00	738737.00	32° 1' 20.95341 N	103° 34' 10.11354 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 #1H, Grid North
 Latitude: 32° 1' 19.96375 N
 Longitude: 103° 34' 10.11014 W
 Grid East: 736738.00
 Grid North: 372644.00
 Scale Factor: 1.000
 Geomagnetic Model: IGRF2010_14
 Sample Date: 19-Feb-14
 Magnetic Declination: 7.24°
 Dip Angle from Horizontal: 59.83°
 Magnetic Field Strength: 48228
 To convert a Magnetic Direction to a Grid Direction, Add 0.84°
 To convert a Magnetic Direction to a True Direction, Add 7.24° East
 To convert a True Direction to a Grid Direction, Subtract 0.41°

LEGEND

Plan #1 02-19-14





EOG Resources

Lea County, NM (NAD27 NME)

Thor 21

#1H

Wellbore #1 Job #1410305

Plan: Plan #1 02-19-14

Planning Report

19 February, 2014





Phoenix Technology Services
Planning Report



Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Thor 21
Well: #1H
Wellbore: Wellbore #1 Job #1410305
Design: Plan #1 02-19-14

Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 3279.00usft (Patterson 452)
MD Reference: WELL @ 3279.00usft (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)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site Thor 21

Site Position:	Northing:	372,644.00 usft	Latitude:	32° 1' 19.96376 N
From: Map	Easting:	736,738.00 usft	Longitude:	103° 34' 10.11014 W
Position Uncertainty: 0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 "

Well #1H

Well Position	+N/-S	0.00 usft	Northing:	372,644.00 usft	Latitude:	32° 1' 19.96376 N
	+E/-W	0.00 usft	Easting:	736,738.00 usft	Longitude:	103° 34' 10.11014 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,252.00 usft

Wellbore Wellbore #1 Job #1410305

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	02/19/14	7.24	59.93	48,228

Design Plan #1 02-19-14

Audit Notes:

Version: **Phase:** PROTOTYPE **Tie On Depth:** 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.60

Survey Tool Program **Date** 02/19/14

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	14,047.19	Plan #1 02-19-14 (Wellbore #1 Job #1410)	MWD	MWD - Standard



Phoenix Technology Services
Planning Report



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Site: Thor 21
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Wellbore: Wellbore #1 Job #1410305
Design: Plan #1 02-19-14

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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)	DLog ("/100usft)
0.00	0.00	0.00	-3,279.00	0.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
100.00	0.00	0.00	-3,179.00	100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
200.00	0.00	0.00	-3,079.00	200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
300.00	0.00	0.00	-2,979.00	300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
400.00	0.00	0.00	-2,879.00	400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
500.00	0.00	0.00	-2,779.00	500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
600.00	0.00	0.00	-2,679.00	600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
700.00	0.00	0.00	-2,579.00	700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
800.00	0.00	0.00	-2,479.00	800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
900.00	0.00	0.00	-2,379.00	900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,000.00	0.00	0.00	-2,279.00	1,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,100.00	0.00	0.00	-2,179.00	1,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,200.00	0.00	0.00	-2,079.00	1,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,300.00	0.00	0.00	-1,979.00	1,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,400.00	0.00	0.00	-1,879.00	1,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,500.00	0.00	0.00	-1,779.00	1,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,600.00	0.00	0.00	-1,679.00	1,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,700.00	0.00	0.00	-1,579.00	1,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,800.00	0.00	0.00	-1,479.00	1,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
1,900.00	0.00	0.00	-1,379.00	1,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,000.00	0.00	0.00	-1,279.00	2,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,100.00	0.00	0.00	-1,179.00	2,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,200.00	0.00	0.00	-1,079.00	2,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,300.00	0.00	0.00	-979.00	2,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,400.00	0.00	0.00	-879.00	2,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,500.00	0.00	0.00	-779.00	2,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,600.00	0.00	0.00	-679.00	2,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00



Phoenix Technology Services
Planning Report



Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Thor 21
Well: #1H
Wellbore: Wellbore #1 Job #1410305
Design: Plan #1 02-19-14

Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 3279.00usft (Patterson 452)
MD Reference: WELL @ 3279.00usft (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)
2,700.00	0.00	0.00	-579.00	2,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,800.00	0.00	0.00	-479.00	2,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
2,900.00	0.00	0.00	-379.00	2,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,000.00	0.00	0.00	-279.00	3,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,100.00	0.00	0.00	-179.00	3,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,200.00	0.00	0.00	-79.00	3,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,300.00	0.00	0.00	21.00	3,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,400.00	0.00	0.00	121.00	3,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,500.00	0.00	0.00	221.00	3,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,600.00	0.00	0.00	321.00	3,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,700.00	0.00	0.00	421.00	3,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,800.00	0.00	0.00	521.00	3,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
3,900.00	0.00	0.00	621.00	3,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,000.00	0.00	0.00	721.00	4,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,100.00	0.00	0.00	821.00	4,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,200.00	0.00	0.00	921.00	4,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,300.00	0.00	0.00	1,021.00	4,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,400.00	0.00	0.00	1,121.00	4,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,500.00	0.00	0.00	1,221.00	4,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,600.00	0.00	0.00	1,321.00	4,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,700.00	0.00	0.00	1,421.00	4,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,800.00	0.00	0.00	1,521.00	4,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
4,900.00	0.00	0.00	1,621.00	4,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,000.00	0.00	0.00	1,721.00	5,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,100.00	0.00	0.00	1,821.00	5,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,200.00	0.00	0.00	1,921.00	5,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,300.00	0.00	0.00	2,021.00	5,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00



Phoenix Technology Services Planning Report



Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Thor 21
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Wellbore: Wellbore #1 Job #1410305
Design: Plan #1 02-19-14

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Planned Survey

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5,400.00	0.00	0.00	2,121.00	5,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,500.00	0.00	0.00	2,221.00	5,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,600.00	0.00	0.00	2,321.00	5,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,700.00	0.00	0.00	2,421.00	5,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,800.00	0.00	0.00	2,521.00	5,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
5,900.00	0.00	0.00	2,621.00	5,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,000.00	0.00	0.00	2,721.00	6,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,100.00	0.00	0.00	2,821.00	6,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,200.00	0.00	0.00	2,921.00	6,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,300.00	0.00	0.00	3,021.00	6,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,400.00	0.00	0.00	3,121.00	6,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,500.00	0.00	0.00	3,221.00	6,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,600.00	0.00	0.00	3,321.00	6,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,700.00	0.00	0.00	3,421.00	6,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,800.00	0.00	0.00	3,521.00	6,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
6,900.00	0.00	0.00	3,621.00	6,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,000.00	0.00	0.00	3,721.00	7,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,100.00	0.00	0.00	3,821.00	7,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,200.00	0.00	0.00	3,921.00	7,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,300.00	0.00	0.00	4,021.00	7,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,400.00	0.00	0.00	4,121.00	7,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,500.00	0.00	0.00	4,221.00	7,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,600.00	0.00	0.00	4,321.00	7,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,700.00	0.00	0.00	4,421.00	7,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,800.00	0.00	0.00	4,521.00	7,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
7,900.00	0.00	0.00	4,621.00	7,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,000.00	0.00	0.00	4,721.00	8,000.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00



Phoenix Technology Services Planning Report



Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Thor 21
Well: #1H
Wellbore: Wellbore #1 Job #1410305
Design: Plan #1 02-19-14

Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 3279.00usft (Patterson 452)
MD Reference: WELL @ 3279.00usft (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)	DLog (°/100usft)
8,100.00	0.00	0.00	4,821.00	8,100.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,200.00	0.00	0.00	4,921.00	8,200.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,300.00	0.00	0.00	5,021.00	8,300.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,400.00	0.00	0.00	5,121.00	8,400.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,500.00	0.00	0.00	5,221.00	8,500.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,600.00	0.00	0.00	5,321.00	8,600.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,700.00	0.00	0.00	5,421.00	8,700.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,800.00	0.00	0.00	5,521.00	8,800.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,900.00	0.00	0.00	5,621.00	8,900.00	0.00	0.00	372,644.00	736,738.00	0.00	0.00
8,952.54	0.00	0.00	5,673.54	8,952.54	0.00	0.00	372,644.00	736,738.00	0.00	0.00
KOP: Start Build 12.00°/100'										
8,975.00	2.70	359.60	5,695.99	8,974.99	0.53	0.00	372,644.53	736,738.00	0.53	12.00
9,000.00	5.70	359.60	5,720.92	8,999.92	2.36	-0.02	372,646.36	736,737.98	2.36	12.00
9,025.00	8.70	359.60	5,745.72	9,024.72	5.49	-0.04	372,649.49	736,737.96	5.49	12.00
9,050.00	11.70	359.60	5,770.32	9,049.32	9.91	-0.07	372,653.91	736,737.93	9.91	12.00
9,075.00	14.70	359.60	5,794.66	9,073.66	15.62	-0.11	372,659.62	736,737.89	15.62	12.00
9,100.00	17.70	359.60	5,818.67	9,097.67	22.59	-0.16	372,666.59	736,737.84	22.59	12.00
9,125.00	20.70	359.60	5,842.27	9,121.27	30.81	-0.22	372,674.81	736,737.78	30.81	12.00
9,150.00	23.70	359.60	5,865.42	9,144.42	40.25	-0.28	372,684.25	736,737.72	40.25	12.00
9,175.00	26.70	359.60	5,888.04	9,167.04	50.89	-0.36	372,694.89	736,737.64	50.90	12.00
9,200.00	29.70	359.60	5,910.07	9,189.07	62.70	-0.44	372,706.70	736,737.56	62.71	12.00
9,225.00	32.70	359.60	5,931.45	9,210.45	75.65	-0.53	372,719.65	736,737.47	75.65	12.00
9,250.00	35.70	359.60	5,952.13	9,231.13	89.70	-0.63	372,733.70	736,737.37	89.70	12.00
9,275.00	38.70	359.60	5,972.04	9,251.04	104.81	-0.74	372,748.81	736,737.26	104.81	12.00
9,300.00	41.70	359.60	5,991.13	9,270.13	120.94	-0.85	372,764.94	736,737.15	120.95	12.00
9,325.00	44.70	359.80	6,009.36	9,288.36	138.05	-0.97	372,782.05	736,737.03	138.06	12.00
9,350.00	47.70	359.60	6,026.66	9,305.66	156.10	-1.10	372,800.10	736,736.90	156.10	12.00



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Database: Compass 5000 GCR DB

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	EW (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLog (°/100usft)
9,375.00	50.70	359.60	6,042.99	9,321.99	175.02	-1.23	372,819.02	736,736.77	175.02	12.00
9,400.00	53.70	359.60	6,058.32	9,337.32	194.77	-1.37	372,838.77	736,736.63	194.77	12.00
9,425.00	56.70	359.60	6,072.58	9,351.58	215.29	-1.52	372,859.29	736,736.48	215.30	12.00
9,450.00	59.70	359.60	6,085.76	9,364.76	236.53	-1.67	372,880.53	736,736.33	236.54	12.00
9,475.00	62.70	359.60	6,097.80	9,376.80	258.44	-1.82	372,902.44	736,736.18	258.44	12.00
9,500.00	65.70	359.60	6,108.68	9,387.68	280.94	-1.98	372,924.94	736,736.02	280.95	12.00
9,525.00	68.70	359.60	6,118.37	9,397.37	303.98	-2.14	372,947.98	736,735.86	303.99	12.00
9,550.00	71.70	359.60	6,126.84	9,405.84	327.50	-2.31	372,971.50	736,735.69	327.51	12.00
9,575.00	74.70	359.60	6,134.07	9,413.07	351.43	-2.48	372,995.43	736,735.52	351.44	12.00
9,600.00	77.70	359.60	6,140.03	9,419.03	375.71	-2.65	373,019.71	736,735.35	375.72	12.00
9,625.00	80.70	359.60	6,144.72	9,423.72	400.26	-2.82	373,044.26	736,735.18	400.27	12.00
9,650.00	83.70	359.60	6,148.11	9,427.11	425.03	-3.00	373,069.03	736,735.00	425.04	12.00
9,675.00	86.70	359.60	6,150.21	9,429.21	449.93	-3.17	373,093.93	736,734.83	449.94	12.00
9,700.00	89.70	359.60	6,150.99	9,429.99	474.92	-3.35	373,118.92	736,734.65	474.93	12.00
9,702.54	90.00	359.60	6,151.00	9,430.00	477.45	-3.37	373,121.45	736,734.63	477.46	12.00
LP: 90° Inc at 359.6° Azi										
9,800.00	90.00	359.60	6,151.00	9,430.00	574.92	-4.05	373,218.92	736,733.95	574.93	0.00
9,900.00	90.00	359.60	6,151.00	9,430.00	674.91	-4.76	373,318.91	736,733.24	674.93	0.00
10,000.00	90.00	359.60	6,151.00	9,430.00	774.91	-5.46	373,418.91	736,732.54	774.93	0.00
10,100.00	90.00	359.60	6,151.00	9,430.00	874.91	-6.17	373,518.91	736,731.83	874.93	0.00
10,200.00	90.00	359.60	6,151.00	9,430.00	974.91	-6.87	373,618.91	736,731.13	974.93	0.00
10,300.00	90.00	359.60	6,151.00	9,430.00	1,074.90	-7.58	373,718.90	736,730.42	1,074.93	0.00
10,400.00	90.00	359.60	6,151.00	9,430.00	1,174.90	-8.28	373,818.90	736,729.72	1,174.93	0.00
10,500.00	90.00	359.60	6,151.00	9,430.00	1,274.90	-8.99	373,918.90	736,729.01	1,274.93	0.00
10,600.00	90.00	359.60	6,151.00	9,430.00	1,374.90	-9.69	374,018.90	736,728.31	1,374.93	0.00
10,700.00	90.00	359.60	6,151.00	9,430.00	1,474.89	-10.40	374,118.89	736,727.60	1,474.93	0.00
10,800.00	90.00	359.60	6,151.00	9,430.00	1,574.89	-11.10	374,218.89	736,726.90	1,574.93	0.00



Phoenix Technology Services
Planning Report



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Design: Plan #1 02-19-14

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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)	DLog (°/100usft)
10,900.00	90.00	359.60	6,151.00	9,430.00	1,674.89	-11.81	374,318.89	736,726.19	1,674.93	0.00
11,000.00	90.00	359.60	6,151.00	9,430.00	1,774.89	-12.51	374,418.89	736,725.49	1,774.93	0.00
11,100.00	90.00	359.60	6,151.00	9,430.00	1,874.88	-13.22	374,518.88	736,724.78	1,874.93	0.00
11,200.00	90.00	359.60	6,151.00	9,430.00	1,974.88	-13.92	374,618.88	736,724.08	1,974.93	0.00
11,300.00	90.00	359.60	6,151.00	9,430.00	2,074.88	-14.63	374,718.88	736,723.37	2,074.93	0.00
11,400.00	90.00	359.60	6,151.00	9,430.00	2,174.88	-15.34	374,818.88	736,722.66	2,174.93	0.00
11,500.00	90.00	359.60	6,151.00	9,430.00	2,274.87	-16.04	374,918.87	736,721.96	2,274.93	0.00
11,600.00	90.00	359.60	6,151.00	9,430.00	2,374.87	-16.75	375,018.87	736,721.25	2,374.93	0.00
11,700.00	90.00	359.60	6,151.00	9,430.00	2,474.87	-17.45	375,118.87	736,720.55	2,474.93	0.00
11,800.00	90.00	359.60	6,151.00	9,430.00	2,574.87	-18.16	375,218.87	736,719.84	2,574.93	0.00
11,900.00	90.00	359.60	6,151.00	9,430.00	2,674.86	-18.86	375,318.86	736,719.14	2,674.93	0.00
12,000.00	90.00	359.60	6,151.00	9,430.00	2,774.86	-19.57	375,418.86	736,718.43	2,774.93	0.00
12,100.00	90.00	359.60	6,151.00	9,430.00	2,874.86	-20.27	375,518.86	736,717.73	2,874.93	0.00
12,200.00	90.00	359.60	6,151.00	9,430.00	2,974.86	-20.98	375,618.86	736,717.02	2,974.93	0.00
12,300.00	90.00	359.60	6,151.00	9,430.00	3,074.85	-21.68	375,718.85	736,716.32	3,074.93	0.00
12,400.00	90.00	359.60	6,151.00	9,430.00	3,174.85	-22.39	375,818.85	736,715.61	3,174.93	0.00
12,500.00	90.00	359.60	6,151.00	9,430.00	3,274.85	-23.09	375,918.85	736,714.91	3,274.93	0.00
12,600.00	90.00	359.60	6,151.00	9,430.00	3,374.85	-23.80	376,018.85	736,714.20	3,374.93	0.00
12,700.00	90.00	359.60	6,151.00	9,430.00	3,474.84	-24.50	376,118.84	736,713.50	3,474.93	0.00
12,800.00	90.00	359.60	6,151.00	9,430.00	3,574.84	-25.21	376,218.84	736,712.79	3,574.93	0.00
12,900.00	90.00	359.60	6,151.00	9,430.00	3,674.84	-25.91	376,318.84	736,712.09	3,674.93	0.00
13,000.00	90.00	359.60	6,151.00	9,430.00	3,774.84	-26.62	376,418.84	736,711.38	3,774.93	0.00
13,100.00	90.00	359.60	6,151.00	9,430.00	3,874.83	-27.32	376,518.83	736,710.68	3,874.93	0.00
13,200.00	90.00	359.60	6,151.00	9,430.00	3,974.83	-28.03	376,618.83	736,709.97	3,974.93	0.00
13,300.00	90.00	359.60	6,151.00	9,430.00	4,074.83	-28.73	376,718.83	736,709.27	4,074.93	0.00
13,400.00	90.00	359.60	6,151.00	9,430.00	4,174.83	-29.44	376,818.83	736,708.56	4,174.93	0.00
13,500.00	90.00	359.60	6,151.00	9,430.00	4,274.82	-30.14	376,918.82	736,707.86	4,274.93	0.00



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13,600.00	90.00	359.60	6,151.00	9,430.00	4,374.82	-30.85	377,018.82	736,707.15	4,374.93	0.00
13,700.00	90.00	359.60	6,151.00	9,430.00	4,474.82	-31.55	377,118.82	736,706.45	4,474.93	0.00
13,800.00	90.00	359.60	6,151.00	9,430.00	4,574.82	-32.26	377,218.82	736,705.74	4,574.93	0.00
13,900.00	90.00	359.60	6,151.00	9,430.00	4,674.81	-32.96	377,318.81	736,705.04	4,674.93	0.00
14,000.00	90.00	359.60	6,151.00	9,430.00	4,774.81	-33.67	377,418.81	736,704.33	4,774.93	0.00
14,047.19	90.00	359.60	6,151.00	9,430.00	4,822.00	-34.00	377,466.00	736,704.00	4,822.12	0.00
TD at 14047.19										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
8,952.54	8,952.54	0.00	0.00	KOP: Start Build 12.00°/100'
9,702.54	9,430.00	477.45	-3.37	LP: 90° Inc at 359.6° Azi
14,047.19	9,430.00	4,822.00	-34.00	TD at 14047.19