

REC'D JUN 20 2017 RECEIVED



Lea County, NM (NAD 83 NME)

Nautilus 16 State Com #711

H&P 642

Plan #1

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

WELL DETAILS: #711

KB= 25' @ 3355.0usft (H&P 642) 3330.0
Northing 383047.00 Easting 806437.00 Latitude 32° 3' 0.678 N Longitude 103° 25' 39.678 W

SECTION DETAILS

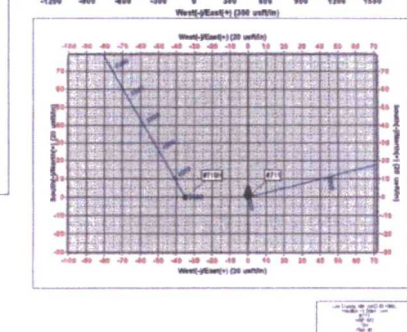
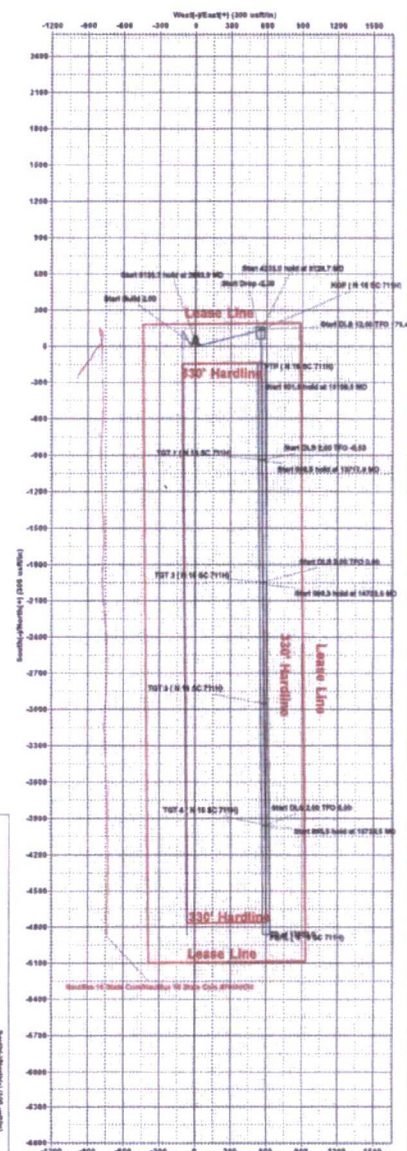
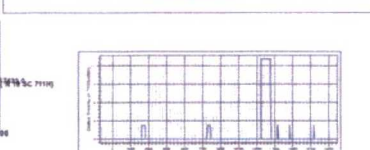
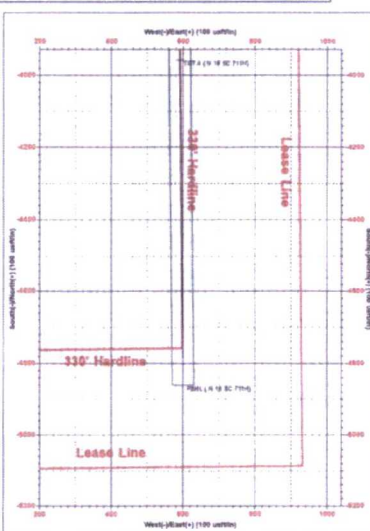
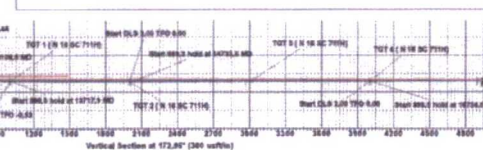
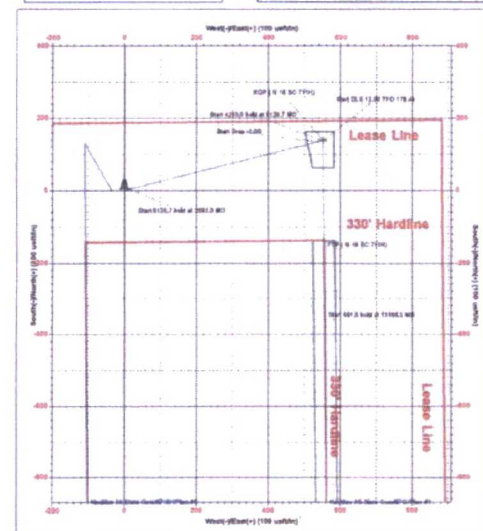
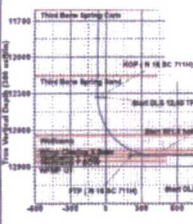
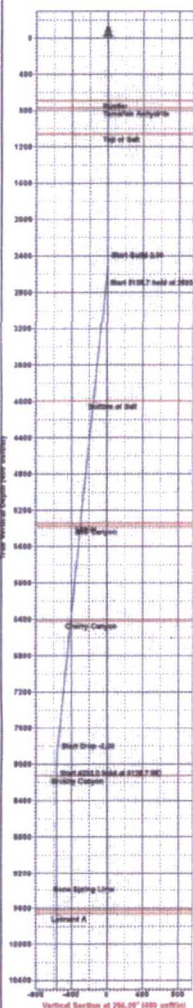
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2393.0	0.00	0.00	2393.0	0.0	0.0	0.00	0.00	0.0	
3	2693.0	6.00	76.00	2692.5	3.8	15.2	2.00	76.00	-1.9	
4	7828.7	6.00	76.00	7800.0	133.7	536.1	0.00	0.00	-67.0	
5	8128.7	0.00	0.00	8099.5	137.5	551.3	2.00	180.00	-58.9	
6	12361.7	0.00	0.00	12332.5	137.5	551.3	0.00	0.00	-58.9	
7	13108.5	89.61	179.44	12810.0	-336.8	595.9	12.00	179.44	402.3	TGT 1 (N 16 SC 711H)
8	13710.0	89.61	179.44	12814.0	-938.2	561.8	0.00	0.00	1000.0	
9	13717.9	89.77	179.44	12814.0	-946.1	561.9	2.00	-53.0	1007.8	TGT 2 (N 16 SC 711H)
10	14716.4	89.77	179.44	12818.0	-1944.6	571.8	0.00	0.00	2000.0	
11	14733.6	90.12	179.44	12818.0	-1961.8	571.8	2.00	0.00	2017.1	TGT 3 (N 16 SC 711H)
12	15722.9	90.12	179.44	12816.0	-2951.0	581.4	0.00	0.00	3000.0	TGT 4 (N 16 SC 711H)
13	16729.3	90.11	179.44	12814.0	-3957.4	591.2	0.00	-180.00	4000.0	
14	16736.5	90.25	179.44	12814.0	-3964.8	591.3	2.00	0.00	4007.2	
15	17632.0	90.25	179.44	12810.0	-4860.0	600.0	0.00	0.00	4896.0	PBHL (N 16 SC 711H)

CASING DETAILS

No casing data is available.

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP (N 16 SC 711H)	12332.5	+137.5	651.3	383184.06	806998.33
FTP (N 16 SC 711H)	12810.0	-138.0	954.0	382908.00	806991.00
PBHL (N 16 SC 711H)	12810.0	-4860.0	600.0	381077.00	807037.00
TGT 1 (N 16 SC 711H)	12814.0	-938.2	561.8	382106.00	806986.79
TGT 2 (N 16 SC 711H)	12814.0	-946.1	561.9	382106.00	807028.21
TGT 3 (N 16 SC 711H)	12816.0	-2951.0	581.4	380999.00	807018.40
TGT 4 (N 16 SC 711H)	12818.0	-1944.6	571.8	381102.40	807008.69



EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Nautilus 16 State Com

#711

74293

OH

Plan: Plan #1

Standard Survey Report

20 July, 2017

Survey Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #711
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25' @ 3355.0usft (H&P 642)
Site:	Nautilus 16 State Com	MD Reference:	KB= 25' @ 3355.0usft (H&P 642)
Well:	#711	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.14

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Nautilus 16 State Com		
Site Position:		Northing:	383,047.00 usft
From:	Map	Easting:	806,402.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 3' 0.681 N
		Longitude:	103° 28' 40.085 W
		Grid Convergence:	0.45 °

Well	#711		
Well Position	+N/-S	0.0 usft	Northing: 383,047.00 usft
	+E/-W	0.0 usft	Easting: 806,437.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 3' 0.678 N
		Longitude:	103° 28' 39.678 W
		Ground Level:	3,330.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	7/20/2017	(°)
			6.89
			Dip Angle (°)
			59.92
			Field Strength (nT)
			47,835.99819185

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			172.96

Survey Tool Program	Date 7/20/2017		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
0.0	17,632.0	Plan #1 (OH)	MWD
			Description
			MWD - Standard

Planned Survey										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
695.0	0.00	0.00	695.0	0.0	0.0	0.0	0.00	0.00	0.00	
Rustler										
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
779.0	0.00	0.00	779.0	0.0	0.0	0.0	0.00	0.00	0.00	

Survey Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Nautilus 16 State Com
 Well: #711
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well #711
 TVD Reference: KB= 25' @ 3355.0usft (H&P 642)
 MD Reference: KB= 25' @ 3355.0usft (H&P 642)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Planned 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)
Tamarisk Anhydrite									
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,062.0	0.00	0.00	1,062.0	0.0	0.0	0.0	0.00	0.00	0.00
Top of Salt									
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,393.0	0.00	0.00	2,393.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.14	76.00	2,400.0	0.0	0.0	0.0	2.00	2.00	0.00
2,500.0	2.14	76.00	2,500.0	0.5	1.9	-0.2	2.00	2.00	0.00
2,600.0	4.14	76.00	2,599.8	1.8	7.3	-0.9	2.00	2.00	0.00
2,693.0	6.00	76.00	2,692.5	3.8	15.2	-1.9	2.00	2.00	0.00
2,700.0	6.00	76.00	2,699.4	4.0	15.9	-2.0	0.00	0.00	0.00
2,800.0	6.00	76.00	2,798.9	6.5	26.1	-3.3	0.00	0.00	0.00
2,900.0	6.00	76.00	2,898.3	9.0	36.2	-4.5	0.00	0.00	0.00
3,000.0	6.00	76.00	2,997.8	11.6	46.4	-5.8	0.00	0.00	0.00
3,100.0	6.00	76.00	3,097.2	14.1	56.5	-7.1	0.00	0.00	0.00
3,200.0	6.00	76.00	3,196.7	16.6	66.6	-8.3	0.00	0.00	0.00
3,300.0	6.00	76.00	3,296.1	19.1	76.8	-9.6	0.00	0.00	0.00
3,400.0	6.00	76.00	3,395.6	21.7	86.9	-10.9	0.00	0.00	0.00
3,500.0	6.00	76.00	3,495.0	24.2	97.1	-12.1	0.00	0.00	0.00
3,600.0	6.00	76.00	3,594.5	26.7	107.2	-13.4	0.00	0.00	0.00
3,700.0	6.00	76.00	3,693.9	29.3	117.4	-14.7	0.00	0.00	0.00
3,800.0	6.00	76.00	3,793.4	31.8	127.5	-15.9	0.00	0.00	0.00
3,900.0	6.00	76.00	3,892.8	34.3	137.6	-17.2	0.00	0.00	0.00
4,000.0	6.00	76.00	3,992.3	36.8	147.8	-18.5	0.00	0.00	0.00
4,008.8	6.00	76.00	4,001.0	37.1	148.7	-18.6	0.00	0.00	0.00
Bottom of Salt									
4,100.0	6.00	76.00	4,091.7	39.4	157.9	-19.7	0.00	0.00	0.00
4,200.0	6.00	76.00	4,191.2	41.9	168.1	-21.0	0.00	0.00	0.00
4,300.0	6.00	76.00	4,290.6	44.4	178.2	-22.3	0.00	0.00	0.00

Survey Report

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Project: Lea County, NM (NAD 83 NME)
Site: Nautilus 16 State Com
Well: #711
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #711
TVD Reference: KB= 25' @ 3355.0usft (H&P 642)
MD Reference: KB= 25' @ 3355.0usft (H&P 642)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14

Planned 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)
4,400.0	6.00	76.00	4,390.1	47.0	188.4	-23.5	0.00	0.00	0.00
4,500.0	6.00	76.00	4,489.6	49.5	198.5	-24.8	0.00	0.00	0.00
4,600.0	6.00	76.00	4,589.0	52.0	208.6	-26.1	0.00	0.00	0.00
4,700.0	6.00	76.00	4,688.5	54.5	218.8	-27.3	0.00	0.00	0.00
4,800.0	6.00	76.00	4,787.9	57.1	228.9	-28.6	0.00	0.00	0.00
4,900.0	6.00	76.00	4,887.4	59.6	239.1	-29.9	0.00	0.00	0.00
5,000.0	6.00	76.00	4,986.8	62.1	249.2	-31.1	0.00	0.00	0.00
5,100.0	6.00	76.00	5,086.3	64.7	259.4	-32.4	0.00	0.00	0.00
5,200.0	6.00	76.00	5,185.7	67.2	269.5	-33.7	0.00	0.00	0.00
5,300.0	6.00	76.00	5,285.2	69.7	279.6	-34.9	0.00	0.00	0.00
5,365.2	6.00	76.00	5,350.0	71.4	286.3	-35.8	0.00	0.00	0.00
Lamar									
5,398.4	6.00	76.00	5,383.0	72.2	289.6	-36.2	0.00	0.00	0.00
Bell Canyon									
5,400.0	6.00	76.00	5,384.6	72.3	289.8	-36.2	0.00	0.00	0.00
5,500.0	6.00	76.00	5,484.1	74.8	299.9	-37.5	0.00	0.00	0.00
5,600.0	6.00	76.00	5,583.5	77.3	310.1	-38.7	0.00	0.00	0.00
5,700.0	6.00	76.00	5,683.0	79.8	320.2	-40.0	0.00	0.00	0.00
5,800.0	6.00	76.00	5,782.4	82.4	330.4	-41.3	0.00	0.00	0.00
5,900.0	6.00	76.00	5,881.9	84.9	340.5	-42.5	0.00	0.00	0.00
6,000.0	6.00	76.00	5,981.3	87.4	350.6	-43.8	0.00	0.00	0.00
6,100.0	6.00	76.00	6,080.8	90.0	360.8	-45.1	0.00	0.00	0.00
6,200.0	6.00	76.00	6,180.2	92.5	370.9	-46.3	0.00	0.00	0.00
6,300.0	6.00	76.00	6,279.7	95.0	381.1	-47.6	0.00	0.00	0.00
6,400.0	6.00	76.00	6,379.1	97.5	391.2	-48.9	0.00	0.00	0.00
6,442.1	6.00	76.00	6,421.0	98.6	395.5	-49.4	0.00	0.00	0.00
Cherry Canyon									
6,500.0	6.00	76.00	6,478.6	100.1	401.3	-50.1	0.00	0.00	0.00
6,600.0	6.00	76.00	6,578.0	102.6	411.5	-51.4	0.00	0.00	0.00
6,700.0	6.00	76.00	6,677.5	105.1	421.6	-52.7	0.00	0.00	0.00
6,800.0	6.00	76.00	6,777.0	107.7	431.8	-53.9	0.00	0.00	0.00
6,900.0	6.00	76.00	6,876.4	110.2	441.9	-55.2	0.00	0.00	0.00
7,000.0	6.00	76.00	6,975.9	112.7	452.1	-56.5	0.00	0.00	0.00
7,100.0	6.00	76.00	7,075.3	115.2	462.2	-57.7	0.00	0.00	0.00
7,200.0	6.00	76.00	7,174.8	117.8	472.3	-59.0	0.00	0.00	0.00
7,300.0	6.00	76.00	7,274.2	120.3	482.5	-60.3	0.00	0.00	0.00
7,400.0	6.00	76.00	7,373.7	122.8	492.6	-61.5	0.00	0.00	0.00
7,500.0	6.00	76.00	7,473.1	125.4	502.8	-62.8	0.00	0.00	0.00
7,600.0	6.00	76.00	7,572.6	127.9	512.9	-64.1	0.00	0.00	0.00
7,700.0	6.00	76.00	7,672.0	130.4	523.1	-65.3	0.00	0.00	0.00
7,800.0	6.00	76.00	7,771.5	132.9	533.2	-66.6	0.00	0.00	0.00
7,828.7	6.00	76.00	7,800.0	133.7	536.1	-67.0	0.00	0.00	0.00
7,900.0	4.57	76.00	7,871.0	135.3	542.5	-67.8	2.00	-2.00	0.00
8,000.0	2.57	76.00	7,970.8	136.8	548.5	-68.5	2.00	-2.00	0.00

Survey Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Nautilus 16 State Com
 Well: #711
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well #711
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Planned 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)
8,100.0	0.57	76.00	8,070.8	137.4	551.2	-68.9	2.00	-2.00	0.00
8,128.7	0.00	0.00	8,099.5	137.5	551.3	-68.9	2.00	-2.00	0.00
8,159.2	0.00	0.00	8,130.0	137.5	551.3	-68.9	0.00	0.00	0.00
Brushy Canyon									
8,200.0	0.00	0.00	8,170.8	137.5	551.3	-68.9	0.00	0.00	0.00
8,300.0	0.00	0.00	8,270.8	137.5	551.3	-68.9	0.00	0.00	0.00
8,400.0	0.00	0.00	8,370.8	137.5	551.3	-68.9	0.00	0.00	0.00
8,500.0	0.00	0.00	8,470.8	137.5	551.3	-68.9	0.00	0.00	0.00
8,600.0	0.00	0.00	8,570.8	137.5	551.3	-68.9	0.00	0.00	0.00
8,700.0	0.00	0.00	8,670.8	137.5	551.3	-68.9	0.00	0.00	0.00
8,800.0	0.00	0.00	8,770.8	137.5	551.3	-68.9	0.00	0.00	0.00
8,900.0	0.00	0.00	8,870.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,000.0	0.00	0.00	8,970.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,100.0	0.00	0.00	9,070.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,200.0	0.00	0.00	9,170.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,300.0	0.00	0.00	9,270.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,400.0	0.00	0.00	9,370.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,500.0	0.00	0.00	9,470.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,600.0	0.00	0.00	9,570.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,657.2	0.00	0.00	9,628.0	137.5	551.3	-68.9	0.00	0.00	0.00
Bone Spring Lime									
9,696.2	0.00	0.00	9,667.0	137.5	551.3	-68.9	0.00	0.00	0.00
Leonard A									
9,700.0	0.00	0.00	9,670.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,800.0	0.00	0.00	9,770.8	137.5	551.3	-68.9	0.00	0.00	0.00
9,900.0	0.00	0.00	9,870.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,000.0	0.00	0.00	9,970.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,100.0	0.00	0.00	10,070.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,200.0	0.00	0.00	10,170.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,300.0	0.00	0.00	10,270.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,400.0	0.00	0.00	10,370.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,500.0	0.00	0.00	10,470.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,600.0	0.00	0.00	10,570.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,651.2	0.00	0.00	10,622.0	137.5	551.3	-68.9	0.00	0.00	0.00
First Bone Spring Sand									
10,700.0	0.00	0.00	10,670.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,800.0	0.00	0.00	10,770.8	137.5	551.3	-68.9	0.00	0.00	0.00
10,836.2	0.00	0.00	10,807.0	137.5	551.3	-68.9	0.00	0.00	0.00
SBSG Shale									
10,900.0	0.00	0.00	10,870.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,000.0	0.00	0.00	10,970.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,100.0	0.00	0.00	11,070.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,174.2	0.00	0.00	11,145.0	137.5	551.3	-68.9	0.00	0.00	0.00
SBSG Sand									
11,200.0	0.00	0.00	11,170.8	137.5	551.3	-68.9	0.00	0.00	0.00

Survey Report

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 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Planned 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)
11,300.0	0.00	0.00	11,270.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,400.0	0.00	0.00	11,370.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,500.0	0.00	0.00	11,470.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,600.0	0.00	0.00	11,570.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,638.2	0.00	0.00	11,609.0	137.5	551.3	-68.9	0.00	0.00	0.00
Third Bone Spring Carb									
11,700.0	0.00	0.00	11,670.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,800.0	0.00	0.00	11,770.8	137.5	551.3	-68.9	0.00	0.00	0.00
11,900.0	0.00	0.00	11,870.8	137.5	551.3	-68.9	0.00	0.00	0.00
12,000.0	0.00	0.00	11,970.8	137.5	551.3	-68.9	0.00	0.00	0.00
12,100.0	0.00	0.00	12,070.8	137.5	551.3	-68.9	0.00	0.00	0.00
12,190.2	0.00	0.00	12,161.0	137.5	551.3	-68.9	0.00	0.00	0.00
Third Bone Spring Sand									
12,200.0	0.00	0.00	12,170.8	137.5	551.3	-68.9	0.00	0.00	0.00
12,300.0	0.00	0.00	12,270.8	137.5	551.3	-68.9	0.00	0.00	0.00
12,361.7	0.00	0.00	12,332.5	137.5	551.3	-68.9	0.00	0.00	0.00
12,375.0	1.59	179.44	12,345.8	137.3	551.3	-68.7	12.00	12.00	0.00
12,400.0	4.59	179.44	12,370.7	135.9	551.3	-67.4	12.00	12.00	0.00
12,425.0	7.59	179.44	12,395.6	133.3	551.4	-64.7	12.00	12.00	0.00
12,450.0	10.59	179.44	12,420.3	129.3	551.4	-60.8	12.00	12.00	0.00
12,475.0	13.59	179.44	12,444.7	124.1	551.5	-55.6	12.00	12.00	0.00
12,500.0	16.59	179.44	12,468.8	117.6	551.5	-49.1	12.00	12.00	0.00
12,525.0	19.59	179.44	12,492.6	109.8	551.6	-41.4	12.00	12.00	0.00
12,550.0	22.59	179.44	12,515.9	100.8	551.7	-32.5	12.00	12.00	0.00
12,575.0	25.59	179.44	12,538.7	90.6	551.8	-22.3	12.00	12.00	0.00
12,600.0	28.59	179.44	12,561.0	79.2	551.9	-11.0	12.00	12.00	0.00
12,625.0	31.59	179.44	12,582.6	66.7	552.0	1.4	12.00	12.00	0.00
12,650.0	34.59	179.44	12,603.6	53.1	552.2	15.0	12.00	12.00	0.00
12,675.0	37.59	179.44	12,623.8	38.3	552.3	29.6	12.00	12.00	0.00
12,700.0	40.59	179.44	12,643.2	22.6	552.5	45.3	12.00	12.00	0.00
12,701.1	40.72	179.44	12,644.0	21.9	552.5	46.0	12.00	12.00	0.00
Wolfcamp									
12,725.0	43.59	179.44	12,661.7	5.8	552.6	61.9	12.00	12.00	0.00
12,750.0	46.59	179.44	12,679.4	-11.9	552.8	79.5	12.00	12.00	0.00
12,775.0	49.59	179.44	12,696.1	-30.5	553.0	98.0	12.00	12.00	0.00
12,800.0	52.59	179.44	12,711.8	-49.9	553.2	117.3	12.00	12.00	0.00
12,825.0	55.59	179.44	12,726.4	-70.2	553.4	137.5	12.00	12.00	0.00
12,850.0	58.59	179.44	12,740.0	-91.2	553.6	158.3	12.00	12.00	0.00
12,875.0	61.59	179.44	12,752.5	-112.8	553.8	179.8	12.00	12.00	0.00
12,900.0	64.59	179.44	12,763.8	-135.1	554.0	202.0	12.00	12.00	0.00
12,917.5	66.69	179.44	12,771.0	-151.1	554.1	217.8	12.00	12.00	0.00
Wfmp Clastics X Base									
12,925.0	67.59	179.44	12,773.9	-158.0	554.2	224.7	12.00	12.00	0.00
12,950.0	70.59	179.44	12,782.8	-181.3	554.4	247.9	12.00	12.00	0.00

Survey Report

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 Design: Plan #1

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Planned 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)
12,975.0	73.59	179.44	12,790.5	-205.1	554.7	271.5	12.00	12.00	0.00
13,000.0	76.59	179.44	12,797.0	-229.3	554.9	295.5	12.00	12.00	0.00
13,014.0	78.27	179.44	12,800.0	-242.9	555.0	309.1	12.00	12.00	0.00
Wolfcamp Y TOW									
13,025.0	79.59	179.44	12,802.1	-253.7	555.1	319.8	12.00	12.00	0.00
13,050.0	82.59	179.44	12,806.0	-278.4	555.4	344.4	12.00	12.00	0.00
13,075.0	85.59	179.44	12,808.6	-303.3	555.6	369.1	12.00	12.00	0.00
13,100.0	88.59	179.44	12,809.8	-328.3	555.9	393.9	12.00	12.00	0.00
13,108.5	89.61	179.44	12,810.0	-336.8	555.9	402.3	12.00	12.00	0.00
13,200.0	89.61	179.44	12,810.6	-428.2	556.8	493.2	0.00	0.00	0.00
13,300.0	89.61	179.44	12,811.2	-528.2	557.8	592.6	0.00	0.00	0.00
13,400.0	89.61	179.44	12,811.9	-628.2	558.8	692.0	0.00	0.00	0.00
13,500.0	89.61	179.44	12,812.6	-728.2	559.7	791.3	0.00	0.00	0.00
13,600.0	89.61	179.44	12,813.3	-828.2	560.7	890.7	0.00	0.00	0.00
13,710.0	89.61	179.44	12,814.0	-938.2	561.8	1,000.0	0.00	0.00	0.00
13,717.9	89.77	179.44	12,814.0	-946.1	561.9	1,007.8	2.00	2.00	-0.02
13,800.0	89.77	179.44	12,814.4	-1,028.2	562.7	1,089.4	0.00	0.00	0.00
13,900.0	89.77	179.44	12,814.8	-1,128.2	563.6	1,188.8	0.00	0.00	0.00
14,000.0	89.77	179.44	12,815.2	-1,228.2	564.6	1,288.1	0.00	0.00	0.00
14,100.0	89.77	179.44	12,815.6	-1,328.2	565.6	1,387.5	0.00	0.00	0.00
14,200.0	89.77	179.44	12,816.0	-1,428.2	566.6	1,486.8	0.00	0.00	0.00
14,300.0	89.77	179.44	12,816.3	-1,528.2	567.5	1,586.2	0.00	0.00	0.00
14,400.0	89.77	179.44	12,816.7	-1,628.2	568.5	1,685.6	0.00	0.00	0.00
14,500.0	89.77	179.44	12,817.1	-1,728.2	569.5	1,784.9	0.00	0.00	0.00
14,600.0	89.77	179.44	12,817.5	-1,828.2	570.5	1,884.3	0.00	0.00	0.00
14,700.0	89.77	179.44	12,817.9	-1,928.2	571.4	1,983.6	0.00	0.00	0.00
14,716.4	89.77	179.44	12,818.0	-1,944.6	571.6	2,000.0	0.00	0.00	0.00
14,733.6	90.12	179.44	12,818.0	-1,961.8	571.8	2,017.1	2.00	2.00	0.00
14,800.0	90.12	179.44	12,817.9	-2,028.1	572.4	2,083.0	0.00	0.00	0.00
14,900.0	90.12	179.44	12,817.7	-2,128.1	573.4	2,182.4	0.00	0.00	0.00
15,000.0	90.12	179.44	12,817.5	-2,228.1	574.4	2,281.7	0.00	0.00	0.00
15,100.0	90.12	179.44	12,817.3	-2,328.1	575.3	2,381.1	0.00	0.00	0.00
15,200.0	90.12	179.44	12,817.1	-2,428.1	576.3	2,480.4	0.00	0.00	0.00
15,300.0	90.12	179.44	12,816.9	-2,528.1	577.3	2,579.8	0.00	0.00	0.00
15,400.0	90.12	179.44	12,816.7	-2,628.1	578.3	2,679.2	0.00	0.00	0.00
15,500.0	90.12	179.44	12,816.5	-2,728.1	579.2	2,778.5	0.00	0.00	0.00
15,600.0	90.12	179.44	12,816.3	-2,828.1	580.2	2,877.9	0.00	0.00	0.00
15,700.0	90.12	179.44	12,816.0	-2,928.1	581.2	2,977.3	0.00	0.00	0.00
15,722.9	90.12	179.44	12,816.0	-2,951.0	581.4	3,000.0	0.00	0.00	0.00
15,800.0	90.12	179.44	12,815.8	-3,028.1	582.2	3,076.6	0.00	0.00	0.00
15,900.0	90.12	179.44	12,815.6	-3,128.1	583.1	3,176.0	0.00	0.00	0.00
16,000.0	90.12	179.44	12,815.4	-3,228.1	584.1	3,275.3	0.00	0.00	0.00
16,100.0	90.11	179.44	12,815.2	-3,328.1	585.1	3,374.7	0.00	0.00	0.00

Survey Report

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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)
16,200.0	90.11	179.44	12,815.0	-3,428.1	586.0	3,474.1	0.00	0.00	0.00
16,300.0	90.11	179.44	12,814.8	-3,528.1	587.0	3,573.4	0.00	0.00	0.00
16,400.0	90.11	179.44	12,814.6	-3,628.1	588.0	3,672.8	0.00	0.00	0.00
16,500.0	90.11	179.44	12,814.4	-3,728.1	589.0	3,772.1	0.00	0.00	0.00
16,600.0	90.11	179.44	12,814.3	-3,828.1	589.9	3,871.5	0.00	0.00	0.00
16,700.0	90.11	179.44	12,814.1	-3,928.1	590.9	3,970.9	0.00	0.00	0.00
16,729.3	90.11	179.44	12,814.0	-3,957.4	591.2	4,000.0	0.00	0.00	0.00
16,736.5	90.25	179.44	12,814.0	-3,964.6	591.3	4,007.2	2.00	2.00	0.00
16,800.0	90.25	179.44	12,813.7	-4,028.0	591.9	4,070.2	0.00	0.00	0.00
16,900.0	90.25	179.44	12,813.3	-4,128.0	592.9	4,169.6	0.00	0.00	0.00
17,000.0	90.25	179.44	12,812.8	-4,228.0	593.8	4,268.9	0.00	0.00	0.00
17,100.0	90.25	179.44	12,812.4	-4,328.0	594.8	4,368.3	0.00	0.00	0.00
17,200.0	90.25	179.44	12,811.9	-4,428.0	595.8	4,467.7	0.00	0.00	0.00
17,300.0	90.25	179.44	12,811.5	-4,528.0	596.8	4,567.0	0.00	0.00	0.00
17,400.0	90.25	179.44	12,811.0	-4,628.0	597.7	4,666.4	0.00	0.00	0.00
17,500.0	90.25	179.44	12,810.6	-4,728.0	598.7	4,765.7	0.00	0.00	0.00
17,600.0	90.25	179.44	12,810.1	-4,828.0	599.7	4,865.1	0.00	0.00	0.00
17,632.0	90.25	179.44	12,810.0	-4,860.0	600.0	4,896.9	0.00	0.00	0.00

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Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP (N 16 SC 711H) - plan hits target center - Polygon	0.00	0.00	12,332.5	137.5	551.3	383,184.46	806,988.33	32° 3' 1.995 N	103° 28' 33.260 W
Point 1			12,332.5	25.0	-50.0	383,209.46	806,938.33		
Point 2			12,332.5	25.0	30.0	383,209.46	807,018.33		
Point 3			12,332.5	-75.0	30.0	383,109.46	807,018.33		
Point 4			12,332.5	-75.0	-30.0	383,109.46	806,958.33		
FTP (N 16 SC 711H) - plan misses target center by 40.6usft at 12921.5usft MD (12772.6 TVD, -154.8 N, 554.2 E) - Point	0.00	0.00	12,810.0	-139.0	554.0	382,908.00	806,991.00	32° 2' 59.259 N	103° 28' 33.254 W
PBHL (N 16 SC 711H) - plan hits target center - Rectangle (sides W60.0 H0.0 D4,721.0)	90.00	179.44	12,810.0	-4,860.0	600.0	378,187.00	807,037.00	32° 2' 12.540 N	103° 28' 33.155 W
TGT 4 (N 16 SC 711H) - plan hits target center - Point	0.00	0.00	12,814.0	-3,957.4	591.2	379,089.60	807,028.20	32° 2' 21.472 N	103° 28' 33.174 W
TGT 1 (N 16 SC 711H) - plan hits target center - Point	0.00	0.00	12,814.0	-938.2	561.8	382,108.80	806,998.79	32° 2' 51.350 N	103° 28' 33.237 W
TGT 3 (N 16 SC 711H) - plan hits target center - Point	0.00	0.00	12,816.0	-2,951.0	581.4	380,096.00	807,018.40	32° 2' 31.432 N	103° 28' 33.195 W
TGT 2 (N 16 SC 711H) - plan hits target center - Point	0.00	0.00	12,818.0	-1,944.6	571.6	381,102.40	807,008.59	32° 2' 41.391 N	103° 28' 33.216 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
695.0	695.0	Rustler			
779.0	779.0	Tamarisk Anhydrite			
1,062.0	1,062.0	Top of Salt			
4,008.8	4,001.0	Bottom of Salt			
5,365.2	5,350.0	Lamar			
5,398.4	5,383.0	Bell Canyon			
6,442.1	6,421.0	Cherry Canyon			
8,159.2	8,130.0	Brushy Canyon			
9,657.2	9,628.0	Bone Spring Lime			
9,696.2	9,667.0	Leonard A			
10,651.2	10,622.0	First Bone Spring Sand			
10,836.2	10,807.0	SBSG Shale			
11,174.2	11,145.0	SBSG Sand			
11,638.2	11,609.0	Third Bone Spring Carb			
12,190.2	12,161.0	Third Bone Spring Sand			
12,701.1	12,644.0	Wolfcamp			
12,917.5	12,771.0	Wfmp Clastics X Base			
13,014.0	12,800.0	Wolfcamp Y TOW			

Survey Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Nautilus 16 State Com
Well: #711
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #711
TVD Reference: KB= 25' @ 3355.0usft (H&P 642)
MD Reference: KB= 25' @ 3355.0usft (H&P 642)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14

Checked By: _____ Approved By: _____ Date: _____