



PHOENIX
TECHNOLOGY SERVICES

30-025-44369

May 15, 2018

Oil Conservation Division
State of New Mexico
1625 N. French Drive
Hobbs, New Mexico 88240

Dear District 1 - Hobbs

Re: EOG Resources
Nautilus 16 State Com #615H
Lea County, NM
API #30-025-44369
Job No. 62591

HOBBS
MAY 22 2018
RECEIVED

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced well by Phoenix Technology Services, Inc. Other information required by your office is as follows:

Name & Title of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Anthony Taylor	615H	887	17,358	4/8/18	4/22/18	MWD

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

Best Regards,

Brittany Carley

Brittany Carley
MWD Operations Administrator- EOW

SURVEY DATA CERTIFICATION



PHOENIX
TECHNOLOGY SERVICES

Job #: 62591
 Client: EOG Resources
 County & State: Lea, New Mexico
 Well: Nautilus 16 State Com #615H
 API No: 30-025-44369
 Proposed Direction: 173.47°

TIE-IN DATA

MD	TVD	INC	AZM	N/-S	E/-W	DATA SOURCE
762.00 ft	761.94 ft	0.90°	277.70°	.75 N	8.61 W	Gyro
Data Source Company:						True Shot

SURVEY DATA

First Survey Date	First Survey Depth	INC	AZM
8-Apr-18	887 ft	0.71°	233.79°

Last Survey Date	Last Survey Depth	INC	AZM
22-Apr-18	17,358 ft	87.14°	176.61°

Survey Instrument Type
Velocity

Projected TD Survey Date	Projected TD Survey Depth	INC	AZM
22-Apr-18	17,410 ft	87.14°	176.61°

CORRECTION INFORMATION

Magnetic Declination Used	6.71 degrees
Grid Convergence Used	-0.46 degrees
Total Correction	6.26 degrees

Corrected to True/Grid North
Grid North

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

Anthony Taylor

Signature

4/22/2018

Date



PHOENIX
TECHNOLOGY SERVICES

EOG Resources

Lea County, NM (NAD83)
Nautilus 16 State Com
615H

OH / Job 62591

Survey: Phoenix MWD Surveys

Standard Survey Report

22 April, 2018

HOBBS OCD
MAY 22 2018
RECEIVED



Company:	EOG Resources	Local Co-ordinate Reference:	Well 615H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3343.00usft (H&P 481)
Site:	Nautilus 16 State Com	MD Reference:	RKB @ 3343.00usft (H&P 481)
Well:	615H	North Reference:	Grid
Wellbore:	OH / Job 62591	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 481)	Database:	USA Compass

Project	Lea County, NM (NAD83)		
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:	383,084.00 usft
From:	Map	Easting:	808,798.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 3' 0.85817 N
		Longitude:	103° 28' 12.24354 W
		Grid Convergence:	0.46 °

Well	615H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 3' 0.85556 N
		Longitude:	103° 28' 11.86013 W
		Ground Level:	3,317.00 usft

Wellbore	OH / Job 62591		
Magnetics	Model Name	Sample Date	Declination (°)
	MVHD	4/13/2018	6.71
			Dip Angle (°)
			59.77
			Field Strength (nT)
			47,821.83463143

Design	Surveys (H&P 481)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
			Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			173.47

Survey Program	Date 4/22/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
887.00	17,410.00	Phoenix MWD Surveys (OH / Job 62591)	MWD+HDGM
			Description
			OWSG Rev.2 MWD + HDGM

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)
762.00	0.90	277.70	761.94	0.75	-8.61	-1.72	0.00	0.00	0.00
Tie In									
887.00	0.71	233.79	886.93	0.42	-10.21	-1.58	0.50	-0.15	-35.13
First Phoenix MWD Survey									
1,077.00	0.71	248.74	1,076.91	-0.70	-12.25	-0.70	0.10	0.00	7.87
1,268.00	0.42	238.76	1,267.90	-1.49	-13.96	-0.11	0.16	-0.15	-5.23
1,458.00	0.54	226.98	1,457.90	-2.46	-15.21	0.72	0.08	0.06	-6.20
1,648.00	0.55	219.16	1,647.89	-3.78	-16.44	1.89	0.04	0.01	-4.12
1,838.00	1.37	114.99	1,837.87	-5.45	-14.95	3.71	0.84	0.43	-54.83
2,028.00	1.87	94.25	2,027.80	-6.64	-9.80	5.48	0.40	0.26	-10.92

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Well:	615H	North Reference:	Grid
Wellbore:	OH / Job 62591	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 481)	Database:	USA Compass

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)	
2,218.00	2.18	67.22	2,217.68	-5.47	-3.38	5.05	0.52	0.16	-14.23	
2,408.00	2.38	58.74	2,407.53	-2.02	3.32	2.39	0.21	0.11	-4.46	
2,598.00	1.96	57.51	2,597.39	1.77	9.44	-0.69	0.22	-0.22	-0.65	
2,789.00	1.81	78.47	2,788.29	4.13	15.15	-2.38	0.37	-0.08	10.97	
2,979.00	2.26	85.77	2,978.17	5.01	21.82	-2.49	0.27	0.24	3.84	
3,169.00	2.83	88.76	3,167.99	5.38	30.25	-1.91	0.31	0.30	1.57	
3,359.00	3.63	94.25	3,357.68	5.04	40.94	-0.35	0.45	0.42	2.89	
3,549.00	3.17	81.94	3,547.35	5.33	52.14	0.63	0.45	-0.24	-6.48	
3,739.00	2.63	76.58	3,737.11	7.08	61.58	-0.03	0.32	-0.28	-2.82	
3,929.00	2.01	80.54	3,926.95	8.64	69.11	-0.72	0.34	-0.33	2.08	
4,119.00	2.03	84.62	4,116.83	9.50	75.74	-0.83	0.08	0.01	2.15	
4,309.00	1.77	78.03	4,306.73	10.42	81.96	-1.04	0.18	-0.14	-3.47	
4,499.00	1.77	79.09	4,496.64	11.59	87.72	-1.54	0.02	0.00	0.56	
4,689.00	2.09	85.33	4,686.53	12.43	94.05	-1.65	0.20	0.17	3.28	
4,880.00	2.00	95.26	4,877.41	12.40	100.84	-0.86	0.19	-0.05	5.20	
5,070.00	2.14	110.12	5,067.29	10.88	107.47	1.41	0.29	0.07	7.82	
5,187.00	1.95	103.92	5,184.21	9.65	111.46	3.09	0.25	-0.16	-5.30	
5,351.00	3.04	68.76	5,348.06	10.55	118.22	2.96	1.12	0.66	-21.44	
5,541.00	6.11	61.86	5,537.43	17.15	131.83	-2.05	1.64	1.62	-3.63	
5,731.00	5.59	76.80	5,726.46	24.03	149.76	-6.84	0.84	-0.27	7.86	
5,921.00	6.65	69.55	5,915.37	29.99	169.08	-10.57	0.69	0.56	-3.82	
6,111.00	8.68	69.59	6,103.67	38.83	192.83	-16.65	1.07	1.07	0.02	
6,301.00	8.72	69.20	6,291.48	48.95	219.73	-23.64	0.04	0.02	-0.21	
6,492.00	7.53	70.87	6,480.56	58.19	245.09	-29.94	0.64	-0.62	0.87	
6,682.00	7.28	69.72	6,668.97	66.44	268.14	-35.52	0.15	-0.13	-0.61	
6,872.00	7.21	71.97	6,857.46	74.31	290.77	-40.76	0.15	-0.04	1.18	
7,062.00	7.21	72.23	7,045.96	81.64	313.46	-45.46	0.02	0.00	0.14	
7,252.00	7.59	74.74	7,234.37	88.58	336.92	-49.69	0.26	0.20	1.32	
7,442.00	8.76	80.27	7,422.44	94.33	363.29	-52.40	0.74	0.62	2.91	
7,632.00	7.91	82.69	7,610.43	98.43	390.52	-53.38	0.48	-0.45	1.27	
7,822.00	7.28	85.59	7,798.77	101.02	415.49	-53.12	0.39	-0.33	1.53	
8,012.00	3.96	71.61	7,987.84	104.02	433.72	-54.02	1.88	-1.75	-7.36	
8,202.00	1.92	25.91	8,177.60	108.95	441.34	-58.06	1.56	-1.07	-24.05	
8,392.00	1.38	18.30	8,367.52	113.99	443.45	-62.82	0.31	-0.28	-4.01	
8,582.00	1.33	41.38	8,557.47	117.82	445.62	-66.37	0.29	-0.03	12.15	
8,773.00	0.98	48.67	8,748.43	120.56	448.32	-68.79	0.20	-0.18	3.82	
8,963.00	0.66	12.15	8,938.41	122.70	449.77	-70.76	0.31	-0.17	-19.22	
9,153.00	0.55	63.66	9,128.40	124.17	450.81	-72.10	0.28	-0.06	27.11	
9,343.00	0.28	100.89	9,318.39	124.49	452.09	-72.27	0.19	-0.14	19.59	
9,533.00	0.19	46.17	9,508.39	124.62	452.77	-72.32	0.12	-0.05	-28.80	
9,723.00	0.75	352.42	9,698.39	126.07	452.83	-73.76	0.35	0.29	-28.29	
9,913.00	1.24	334.92	9,888.36	129.17	451.80	-76.95	0.30	0.26	-9.21	
10,103.00	1.83	340.86	10,078.29	133.90	449.93	-81.86	0.32	0.31	3.13	

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Well:	615H	North Reference:	Grid
Wellbore:	OH / Job 62591	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 481)	Database:	USA Compass

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)
10,293.00	0.62	131.08	10,268.26	136.09	449.71	-84.06	1.26	-0.64	79.06
10,483.00	1.26	296.55	10,458.25	136.34	448.62	-84.44	0.98	0.34	87.09
10,674.00	1.75	294.80	10,649.18	138.51	444.09	-87.10	0.26	0.26	-0.92
10,864.00	3.49	258.27	10,838.99	138.55	435.80	-88.09	1.23	0.92	-19.23
11,054.00	1.75	283.85	11,028.79	138.07	427.32	-88.58	1.08	-0.92	13.46
11,244.00	0.50	49.95	11,218.76	139.29	425.13	-90.04	1.10	-0.66	66.37
11,434.00	1.54	359.40	11,408.73	142.38	425.74	-93.04	0.67	0.55	-26.61
11,624.00	1.72	1.73	11,598.66	147.78	425.80	-98.40	0.10	0.09	1.23
11,814.00	1.06	327.94	11,788.60	152.12	424.95	-102.81	0.54	-0.35	-17.78
11,872.00	0.50	284.38	11,846.60	152.64	424.42	-103.38	1.34	-0.97	-75.10
12,017.00	5.69	164.92	11,991.37	145.85	425.68	-96.50	4.10	3.58	-82.39
12,112.00	7.48	179.16	12,085.74	135.12	427.00	-85.68	2.54	1.88	14.99
12,159.00	15.81	186.19	12,131.74	125.68	426.35	-76.38	17.95	17.72	14.96
12,207.00	20.02	180.00	12,177.40	110.95	425.65	-61.83	9.61	8.77	-12.90
12,254.00	23.89	181.67	12,220.99	93.39	425.37	-44.41	8.34	8.23	3.55
12,302.00	28.19	179.65	12,264.11	72.33	425.15	-23.51	9.15	8.96	-4.21
12,349.00	31.73	177.49	12,304.82	48.87	425.76	-0.13	7.87	7.53	-4.60
12,397.00	33.63	174.77	12,345.22	23.02	427.53	25.75	5.00	3.96	-5.67
12,444.00	34.69	174.24	12,384.11	-3.25	430.06	52.14	2.34	2.26	-1.13
12,492.00	38.42	174.02	12,422.66	-31.68	432.98	80.72	7.78	7.77	-0.46
12,539.00	42.64	168.48	12,458.39	-61.83	437.69	111.20	11.80	8.98	-11.79
12,587.00	48.47	167.56	12,491.99	-95.33	444.81	145.30	12.22	12.15	-1.92
12,634.00	54.67	172.22	12,521.20	-131.55	451.20	182.01	15.30	13.19	9.91
12,682.00	61.51	173.05	12,546.55	-171.94	456.41	222.73	14.33	14.25	1.73
12,729.00	67.51	171.95	12,566.77	-213.98	461.96	265.13	12.94	12.77	-2.34
12,777.00	70.14	171.29	12,584.11	-258.26	468.48	309.86	5.63	5.48	-1.38
12,824.00	77.49	174.11	12,597.20	-303.00	474.19	354.96	16.66	15.64	6.00
12,872.00	83.76	176.31	12,605.02	-350.16	478.14	402.27	13.82	13.06	4.58
12,919.00	92.57	176.92	12,606.52	-397.01	480.91	449.13	18.79	18.74	1.30
12,967.00	92.82	176.39	12,604.26	-444.88	483.70	497.00	1.22	0.52	-1.10
13,062.00	92.41	176.22	12,599.93	-539.58	489.82	591.78	0.47	-0.43	-0.18
13,157.00	88.57	175.51	12,599.12	-634.31	496.67	686.68	4.11	-4.04	-0.75
13,252.00	89.75	177.01	12,600.51	-729.09	502.86	781.55	2.01	1.24	1.58
13,347.00	90.94	177.54	12,599.94	-823.98	507.38	876.34	1.37	1.25	0.56
13,443.00	89.64	176.48	12,599.45	-919.85	512.39	972.15	1.75	-1.35	-1.10
13,538.00	89.90	178.77	12,599.83	-1,014.76	516.33	1,066.89	2.43	0.27	2.41
13,633.00	90.42	179.03	12,599.57	-1,109.74	518.15	1,161.47	0.61	0.55	0.27
13,728.00	90.11	178.90	12,599.13	-1,204.72	519.86	1,256.03	0.35	-0.33	-0.14
13,823.00	89.67	176.88	12,599.31	-1,299.65	523.36	1,350.74	2.18	-0.46	-2.13
13,918.00	90.26	180.04	12,599.37	-1,394.61	525.92	1,445.37	3.38	0.62	3.33
14,013.00	89.28	179.25	12,599.75	-1,489.60	526.50	1,539.82	1.33	-1.03	-0.83
14,108.00	88.23	178.72	12,601.82	-1,584.56	528.19	1,634.35	1.24	-1.11	-0.56
14,203.00	90.86	179.21	12,602.57	-1,679.54	529.90	1,728.90	2.82	2.77	0.52
14,298.00	88.85	178.28	12,602.81	-1,774.51	531.98	1,823.50	2.33	-2.12	-0.98

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Well:	615H	North Reference:	Grid
Wellbore:	OH / Job 62591	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 481)	Database:	USA Compass

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)
14,393.00	91.01	178.50	12,602.93	-1,869.47	534.65	1,918.14	2.29	2.27	0.23
14,488.00	90.92	178.28	12,601.33	-1,964.41	537.32	2,012.78	0.25	-0.09	-0.23
14,584.00	90.97	180.48	12,599.74	-2,060.39	538.36	2,108.25	2.29	0.05	2.29
14,679.00	90.41	178.85	12,598.60	-2,155.38	538.91	2,202.68	1.81	-0.59	-1.72
14,774.00	91.83	181.32	12,596.74	-2,250.35	538.77	2,297.02	3.00	1.49	2.60
14,869.00	87.56	178.77	12,597.25	-2,345.32	538.70	2,391.37	5.23	-4.49	-2.68
14,964.00	91.63	182.41	12,597.92	-2,440.27	537.72	2,485.59	5.75	4.28	3.83
15,059.00	89.61	180.22	12,596.89	-2,535.23	535.54	2,579.69	3.14	-2.13	-2.31
15,154.00	91.59	180.44	12,595.90	-2,630.22	534.99	2,674.00	2.10	2.08	0.23
15,249.00	91.71	179.78	12,593.16	-2,725.18	534.81	2,768.32	0.71	0.13	-0.69
15,344.00	91.63	179.60	12,590.39	-2,820.14	535.33	2,862.72	0.21	-0.08	-0.19
15,439.00	89.49	178.15	12,589.46	-2,915.11	537.19	2,957.29	2.72	-2.25	-1.53
15,534.00	90.03	181.27	12,589.86	-3,010.10	537.67	3,051.71	3.33	0.57	3.28
15,629.00	89.87	182.24	12,589.94	-3,105.05	534.76	3,145.72	1.03	-0.17	1.02
15,724.00	90.04	180.44	12,590.02	-3,200.02	532.54	3,239.82	1.90	0.18	-1.89
15,819.00	89.48	180.74	12,590.42	-3,295.01	531.56	3,334.09	0.67	-0.59	0.32
15,914.00	89.22	182.37	12,591.49	-3,389.97	528.98	3,428.13	1.74	-0.27	1.72
16,009.00	91.20	187.51	12,591.15	-3,484.58	520.81	3,521.20	5.80	2.08	5.41
16,043.00	90.34	185.14	12,590.69	-3,518.37	517.06	3,554.34	7.41	-2.53	-6.97
16,075.00	89.37	182.24	12,590.77	-3,550.30	515.00	3,585.83	9.56	-3.03	-9.06
16,104.00	90.97	183.16	12,590.68	-3,579.26	513.64	3,614.45	6.36	5.52	3.17
16,136.00	89.55	180.79	12,590.54	-3,611.24	512.53	3,646.10	8.63	-4.44	-7.41
16,168.00	88.49	179.65	12,591.09	-3,643.23	512.41	3,677.87	4.86	-3.31	-3.56
16,199.00	88.18	179.25	12,591.99	-3,674.22	512.71	3,708.69	1.63	-1.00	-1.29
16,231.00	86.02	176.96	12,593.61	-3,706.16	513.76	3,740.54	9.83	-6.75	-7.16
16,263.00	85.75	176.61	12,595.90	-3,738.02	515.55	3,772.40	1.38	-0.84	-1.09
16,295.00	85.99	176.26	12,598.21	-3,769.88	517.54	3,804.28	1.32	0.75	-1.09
16,390.00	89.39	176.35	12,602.04	-3,864.59	523.66	3,899.07	3.58	3.58	0.09
16,485.00	90.04	174.77	12,602.51	-3,959.30	531.01	3,994.00	1.80	0.68	-1.66
16,580.00	89.57	175.16	12,602.83	-4,053.93	539.35	4,088.97	0.64	-0.49	0.41
16,675.00	90.42	175.78	12,602.84	-4,148.64	546.85	4,183.91	1.11	0.89	0.65
16,770.00	91.20	176.48	12,601.50	-4,243.41	553.26	4,278.80	1.10	0.82	0.74
16,865.00	90.39	178.37	12,600.18	-4,338.30	557.53	4,373.56	2.16	-0.85	1.99
16,959.00	86.98	178.50	12,602.34	-4,432.22	560.09	4,467.17	3.63	-3.63	0.14
17,055.00	86.49	177.36	12,607.80	-4,528.00	563.56	4,562.72	1.29	-0.51	-1.19
17,150.00	86.27	176.22	12,613.80	-4,622.66	568.87	4,657.37	1.22	-0.23	-1.20
17,245.00	86.55	175.91	12,619.75	-4,717.25	575.37	4,752.08	0.44	0.29	-0.33
17,340.00	87.18	176.61	12,624.95	-4,811.91	581.56	4,846.83	0.99	0.66	0.74
17,358.00	87.14	176.61	12,625.84	-4,829.85	582.62	4,864.78	0.22	-0.22	0.00
Final Phoenix MWD Survey									
17,410.00	87.14	176.61	12,628.43	-4,881.70	585.69	4,916.64	0.00	0.00	0.00
Projection to TD									



Survey Report



Company:	EOG Resources	Local Co-ordinate Reference:	Well 615H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3343.00usft (H&P 481)
Site:	Nautilus 16 State Com	MD Reference:	RKB @ 3343.00usft (H&P 481)
Well:	615H	North Reference:	Grid
Wellbore:	OH / Job 62591	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 481)	Database:	USA Compass

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
762.00	761.94	0.75	-8.61	Tie In
887.00	886.93	0.42	-10.21	First Phoenix MWD Survey
17,358.00	12,625.84	-4,829.85	582.62	Final Phoenix MWD Survey
17,410.00	12,628.43	-4,881.70	585.69	Projection to TD

Checked By: _____ Approved By: _____ Date: _____