



PHOENIX
TECHNOLOGY SERVICES

30-025-44384

May 16, 2018

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

Dear District 1 - Hobbs

Re: EOG Resources
Bandit 29 State Com 502H
Lea County, NM
API #30-025-44384
Job No. 62624

HOBBS OCD

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	
Brandon Ferris	502H	5,076	18,560	5/2/18	5/14/18	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 #: 62624
Client: EOG Resources
County & State: Lea County, NM
Well: Bandit 29 State Com 502H
API No: 30-025-44384
Proposed Direction: 182.25

TIE-IN DATA

MD	TVD	INC	AZM	N/-S	E/-W	DATA SOURCE
4830.00	4829.12	2.93	126.09	21.0 S	-22.02 W	MWD
Data Source Company:						Phoenix Technology

SURVEY DATA

First Survey Date	First Survey Depth	INC	AZM
2-May-18	5,076 ft	1.15°	133.88°

Last Survey Date	Last Survey Depth	INC	AZM
14-May-18	18,560 ft	89.73°	179.29°

Survey Instrument Type

Phoenix MWD

Projected TD Survey Date	Projected TD Survey Depth	INC	AZM
14-May-18	18,608 ft	89.73°	179.29°

CORRECTION INFORMATION

Magnetic Declination Used	6.87	degrees
Grid Convergence Used	-0.40	degrees

Corrected to True/Grid North

Grid

Total Correction	6.47	degrees
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TO THE BEST OF MY KNOWLEDGE, I
CERTIFY THIS SURVEY DATA TO BE TRUE
AND CORRECT.

Brandon J. Ferris
Signature

May 14, 2018
Date



EOG Resources

**Lea County, NM (NAD83)
Bandit 29 State Com
502H**

OH / Job 62624

Survey: Phoenix MWD Survey

Standard Survey Report

15 May, 2018



Company:	EOG Resources	Local Co-ordinate Reference:	Well 502H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3553.00usft (H&P 444)
Site:	Bandit 29 State Com	MD Reference:	RKB @ 3553.00usft (H&P 444)
Well:	502H	North Reference:	Grid
Wellbore:	OH / Job 62624	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 444)	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		Bandit 29 State Com			
Site Position:		Northing:	435,375.00 usft	Latitude:	32° 11' 41.01696 N
From:	Map	Easting:	771,884.00 usft	Longitude:	103° 35' 16.92959 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	502H					
Well Position	+N/-S	0.00 usft	Northing:	435,376.00 usft	Latitude:	32° 11' 41.02926 N
	+E/-W	0.00 usft	Easting:	771,849.00 usft	Longitude:	103° 35' 17.33681 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,528.00 usft

Wellbore	OH / Job 62624				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	5/4/2018	6.71	59.89	47,958.81240607

Design	Surveys (H&P 444)				
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Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	4,830.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	182.25

Survey Program		Date	5/15/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
125.00	4,830.00	Phoenix Gyro Surveys (OH / Surface)	SPT_GTD	Continuous north-seeking gyro	
4,830.00	18,608.00	Phoenix MWD Survey (OH / Job 62624)	MWD+HDGM	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)
	4,830.00	2.93	126.09	4,829.12	21.00	-22.02	-20.12	0.00	0.00	0.00
Tie In	5,076.00	1.15	133.88	5,074.95	15.58	-15.16	-14.98	0.73	-0.72	3.17
First Phoenix MWD Survey	5,171.00	1.94	349.58	5,169.94	16.51	-14.76	-15.91	3.11	0.83	-151.89
	5,265.00	4.06	340.38	5,263.81	21.21	-16.17	-20.56	2.31	2.26	-9.79
	5,360.00	6.43	336.64	5,358.40	29.26	-19.41	-28.48	2.52	2.49	-3.94
	5,454.00	8.73	332.33	5,451.57	40.41	-24.81	-39.41	2.52	2.45	-4.59
	5,548.00	11.07	334.49	5,544.17	54.87	-32.01	-53.58	2.52	2.49	2.30

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Well:	502H	North Reference:	Grid
Wellbore:	OH / Job 62624	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 444)	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)
5,642.00	13.19	334.86	5,636.06	72.73	-40.45	-71.09	2.26	2.26	0.39
5,737.00	13.63	335.18	5,728.47	92.70	-49.75	-90.68	0.47	0.46	0.34
5,831.00	15.09	334.30	5,819.53	113.78	-59.71	-111.35	1.57	1.55	-0.94
6,019.00	14.69	332.73	6,001.22	157.02	-81.24	-153.71	0.30	-0.21	-0.84
6,207.00	14.11	331.29	6,183.32	198.31	-103.17	-194.11	0.36	-0.31	-0.77
6,396.00	13.73	330.29	6,366.77	237.99	-125.36	-232.90	0.24	-0.20	-0.53
6,584.00	14.30	331.30	6,549.17	277.74	-147.56	-271.74	0.33	0.30	0.54
6,772.00	14.38	331.83	6,731.31	318.68	-169.73	-311.79	0.08	0.04	0.28
6,960.00	10.75	331.37	6,914.78	354.66	-189.16	-346.98	1.93	-1.93	-0.24
7,149.00	6.40	335.40	7,101.62	379.72	-202.00	-371.52	2.32	-2.30	2.13
7,337.00	1.50	344.40	7,289.12	391.63	-207.03	-383.22	2.62	-2.61	4.79
7,526.00	0.64	355.41	7,478.08	395.06	-207.78	-386.62	0.47	-0.46	5.83
7,714.00	0.35	328.89	7,666.08	396.60	-208.16	-388.14	0.19	-0.15	-14.11
7,903.00	0.47	332.67	7,855.07	397.78	-208.81	-389.30	0.07	0.06	2.00
8,092.00	0.58	164.87	8,044.07	397.55	-208.92	-389.06	0.55	0.06	-88.78
8,280.00	0.58	164.24	8,232.06	395.72	-208.41	-387.25	0.00	0.00	-0.34
8,469.00	0.66	187.05	8,421.05	393.71	-208.28	-385.25	0.14	0.04	12.07
8,658.00	0.78	199.53	8,610.03	391.42	-208.85	-382.94	0.10	0.06	6.60
8,846.00	0.87	203.94	8,798.02	388.91	-209.86	-380.39	0.06	0.05	2.35
9,034.00	1.02	201.70	8,985.99	386.05	-211.05	-377.49	0.08	0.08	-1.19
9,223.00	0.93	130.75	9,174.97	383.49	-210.51	-374.94	0.60	-0.05	-37.54
9,412.00	0.98	110.21	9,363.94	381.93	-207.83	-373.49	0.18	0.03	-10.87
9,601.00	1.05	104.16	9,552.91	380.95	-204.64	-372.64	0.07	0.04	-3.20
9,789.00	0.70	175.79	9,740.90	379.38	-202.88	-371.14	0.57	-0.19	38.10
9,987.00	1.24	249.69	9,938.87	377.43	-204.80	-369.11	0.63	0.27	37.32
10,172.00	1.34	272.82	10,123.83	376.84	-208.84	-368.37	0.28	0.05	12.50
10,361.00	1.03	243.46	10,312.79	376.19	-212.57	-367.57	0.36	-0.16	-15.53
10,549.00	0.93	229.01	10,500.76	374.43	-215.23	-365.71	0.14	-0.05	-7.69
10,581.00	0.94	229.62	10,532.76	374.09	-215.63	-365.36	0.04	0.03	1.91
10,653.00	4.53	194.72	10,604.67	370.96	-216.80	-362.18	5.27	4.99	-48.47
10,700.00	10.42	188.29	10,651.25	364.95	-217.89	-356.14	12.64	12.53	-13.68
10,747.00	10.87	185.29	10,697.44	356.34	-218.91	-347.48	1.52	0.96	-6.38
10,794.00	12.18	188.91	10,743.49	347.02	-220.08	-338.13	3.18	2.79	7.70
10,842.00	15.34	194.89	10,790.11	335.88	-222.50	-326.91	7.21	6.58	12.46
10,889.00	21.99	196.02	10,834.61	321.40	-226.53	-312.28	14.17	14.15	2.40
10,936.00	26.86	194.81	10,877.39	302.67	-231.68	-293.36	10.42	10.36	-2.57
10,983.00	31.94	190.22	10,918.33	280.15	-236.60	-270.66	11.82	10.81	-9.77
11,031.00	37.11	188.25	10,957.87	253.30	-240.93	-243.67	11.02	10.77	-4.10
11,078.00	43.51	185.35	10,993.69	223.13	-244.48	-213.38	14.19	13.62	-6.17
11,125.00	49.51	183.06	11,026.02	189.14	-246.95	-179.32	13.24	12.77	-4.87
11,174.00	54.26	180.77	11,056.26	150.62	-248.21	-140.78	10.37	9.69	-4.67
11,220.00	61.46	181.28	11,080.72	111.71	-248.91	-101.87	15.68	15.65	1.11
11,267.00	70.57	184.47	11,099.81	68.87	-251.11	-58.98	20.35	19.38	6.79

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Well:	502H	North Reference:	Grid
Wellbore:	OH / Job 62624	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 444)	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)
11,314.00	79.44	188.33	11,111.96	23.81	-256.19	-13.76	20.47	18.87	8.21
11,322.00	81.33	189.28	11,113.30	16.02	-257.40	-5.92	26.37	23.63	11.88
11,382.00	88.99	192.56	11,118.36	-42.63	-268.72	53.13	13.88	12.77	5.47
11,477.00	91.98	190.55	11,117.55	-135.69	-287.75	146.86	3.79	3.15	-2.12
11,571.00	90.85	188.70	11,115.23	-228.33	-303.46	240.04	2.31	-1.20	-1.97
11,665.00	92.46	186.12	11,112.52	-321.49	-315.58	333.61	3.23	1.71	-2.74
11,760.00	91.75	184.58	11,109.03	-416.01	-324.43	428.40	1.78	-0.75	-1.62
11,854.00	92.18	185.17	11,105.80	-509.62	-332.41	522.25	0.78	0.46	0.63
11,949.00	93.36	183.99	11,101.21	-604.20	-339.99	617.06	1.76	1.24	-1.24
12,043.00	91.93	183.64	11,096.87	-697.89	-346.24	710.92	1.57	-1.52	-0.37
12,137.00	90.02	181.71	11,095.28	-791.76	-350.62	804.89	2.89	-2.03	-2.05
12,231.00	88.35	179.86	11,096.61	-885.74	-351.91	898.85	2.65	-1.78	-1.97
12,325.00	87.77	177.18	11,099.80	-979.64	-349.49	992.59	2.92	-0.62	-2.85
12,419.00	88.71	177.61	11,102.68	-1,073.50	-345.22	1,086.20	1.10	1.00	0.46
12,514.00	89.44	177.23	11,104.22	-1,168.39	-340.94	1,180.85	0.87	0.77	-0.40
12,609.00	87.11	176.75	11,107.08	-1,263.21	-335.95	1,275.40	2.50	-2.45	-0.51
12,703.00	87.51	176.51	11,111.49	-1,356.94	-330.43	1,368.85	0.50	0.43	-0.26
12,797.00	89.35	177.12	11,114.06	-1,450.76	-325.21	1,462.39	2.06	1.96	0.65
12,892.00	89.38	176.71	11,115.12	-1,545.62	-320.10	1,556.97	0.43	0.03	-0.43
12,987.00	90.82	178.68	11,114.95	-1,640.53	-316.28	1,651.66	2.57	1.52	2.07
13,082.00	91.85	178.70	11,112.74	-1,735.48	-314.11	1,746.45	1.08	1.08	0.02
13,176.00	90.82	179.64	11,110.55	-1,829.44	-312.75	1,840.29	1.48	-1.10	1.00
13,271.00	91.07	179.21	11,108.98	-1,924.42	-311.80	1,935.16	0.52	0.26	-0.45
13,366.00	91.84	179.05	11,106.57	-2,019.38	-310.35	2,029.99	0.83	0.81	-0.17
13,460.00	90.90	179.95	11,104.32	-2,113.35	-309.53	2,123.85	1.38	-1.00	0.96
13,555.00	91.95	180.08	11,101.96	-2,208.32	-309.56	2,218.75	1.11	1.11	0.14
13,650.00	90.38	179.47	11,100.03	-2,303.29	-309.19	2,313.64	1.77	-1.65	-0.64
13,744.00	91.15	179.34	11,098.77	-2,397.28	-308.21	2,407.52	0.83	0.82	-0.14
13,839.00	89.84	179.15	11,097.95	-2,492.27	-306.96	2,502.38	1.39	-1.38	-0.20
13,934.00	90.55	179.09	11,097.63	-2,587.25	-305.50	2,597.24	0.75	0.75	-0.06
14,028.00	87.70	179.75	11,099.06	-2,681.23	-304.55	2,691.10	3.11	-3.03	0.70
14,123.00	86.93	179.57	11,103.51	-2,776.12	-303.98	2,785.90	0.83	-0.81	-0.19
14,218.00	87.71	178.52	11,107.95	-2,871.00	-302.40	2,880.65	1.38	0.82	-1.11
14,312.00	88.39	178.67	11,111.15	-2,964.92	-300.10	2,974.40	0.74	0.72	0.16
14,407.00	89.45	179.95	11,112.94	-3,059.89	-298.96	3,069.26	1.75	1.12	1.35
14,502.00	90.76	181.47	11,112.77	-3,154.88	-300.13	3,164.22	2.11	1.38	1.60
14,597.00	91.01	180.90	11,111.30	-3,249.85	-302.10	3,259.19	0.66	0.26	-0.60
14,691.00	91.55	180.56	11,109.20	-3,343.82	-303.29	3,353.13	0.68	0.57	-0.36
14,786.00	90.58	180.58	11,107.44	-3,438.79	-304.24	3,448.07	1.02	-1.02	0.02
14,880.00	91.16	180.83	11,106.01	-3,532.78	-305.40	3,542.03	0.67	0.62	0.27
14,975.00	89.19	181.69	11,105.72	-3,627.75	-307.48	3,637.01	2.26	-2.07	0.91
15,070.00	90.58	181.28	11,105.91	-3,722.71	-309.95	3,732.00	1.53	1.46	-0.43
15,164.00	89.58	181.39	11,105.78	-3,816.68	-312.14	3,825.98	1.07	-1.06	0.12
15,258.00	90.78	181.40	11,105.48	-3,910.65	-314.42	3,919.97	1.28	1.28	0.01

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Well:	502H	North Reference:	Grid
Wellbore:	OH / Job 62624	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 444)	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)
15,353.00	89.59	181.44	11,105.18	-4,005.62	-316.78	4,014.96	1.25	-1.25	0.04
15,447.00	90.59	180.90	11,105.03	-4,099.60	-318.70	4,108.94	1.21	1.06	-0.57
15,542.00	89.73	180.73	11,104.76	-4,194.59	-320.05	4,203.91	0.92	-0.91	-0.18
15,636.00	88.73	180.99	11,106.03	-4,288.57	-321.46	4,297.87	1.10	-1.06	0.28
15,731.00	89.33	180.19	11,107.63	-4,383.55	-322.44	4,392.82	1.05	0.63	-0.84
15,825.00	90.92	179.30	11,107.43	-4,477.55	-322.02	4,486.73	1.94	1.69	-0.95
15,920.00	91.09	180.31	11,105.76	-4,572.53	-321.70	4,581.62	1.08	0.18	1.06
16,014.00	88.33	180.16	11,106.24	-4,666.52	-322.08	4,675.56	2.94	-2.94	-0.16
16,109.00	88.96	180.11	11,108.49	-4,761.49	-322.31	4,770.46	0.67	0.66	-0.05
16,203.00	89.13	180.04	11,110.05	-4,855.48	-322.43	4,864.38	0.20	0.18	-0.07
16,297.00	89.85	178.96	11,110.89	-4,949.47	-321.61	4,958.27	1.38	0.77	-1.15
16,392.00	90.32	178.57	11,110.75	-5,044.45	-319.56	5,053.09	0.64	0.49	-0.41
16,486.00	89.04	177.84	11,111.27	-5,138.40	-316.62	5,146.86	1.57	-1.36	-0.78
16,581.00	89.24	176.57	11,112.70	-5,233.27	-311.98	5,241.48	1.35	0.21	-1.34
16,675.00	89.81	176.64	11,113.48	-5,327.10	-306.42	5,335.02	0.61	0.61	0.07
16,769.00	91.24	176.46	11,112.62	-5,420.92	-300.76	5,428.55	1.53	1.52	-0.19
16,864.00	88.72	177.67	11,112.65	-5,515.79	-295.90	5,523.15	2.94	-2.65	1.27
16,958.00	88.81	177.50	11,114.68	-5,609.69	-291.94	5,616.82	0.20	0.10	-0.18
17,052.00	89.59	177.01	11,115.99	-5,703.57	-287.44	5,710.45	0.98	0.83	-0.52
17,147.00	89.61	179.01	11,116.65	-5,798.50	-284.14	5,805.18	2.11	0.02	2.11
17,241.00	89.64	178.63	11,117.27	-5,892.48	-282.20	5,899.01	0.41	0.03	-0.40
17,335.00	89.79	179.53	11,117.73	-5,986.47	-280.69	5,992.87	0.97	0.16	0.96
17,430.00	90.76	178.80	11,117.28	-6,081.45	-279.31	6,087.73	1.28	1.02	-0.77
17,524.00	89.72	180.35	11,116.89	-6,175.45	-278.61	6,181.62	1.99	-1.11	1.65
17,618.00	90.75	180.40	11,116.50	-6,269.44	-279.23	6,275.57	1.10	1.10	0.05
17,712.00	91.16	179.72	11,114.93	-6,363.43	-279.33	6,369.49	0.84	0.44	-0.72
17,806.00	92.73	179.35	11,111.74	-6,457.37	-278.56	6,463.32	1.72	1.67	-0.39
17,900.00	91.66	179.67	11,108.14	-6,551.29	-277.76	6,557.15	1.19	-1.14	0.34
17,994.00	89.48	180.60	11,107.21	-6,645.28	-277.98	6,651.07	2.52	-2.32	0.99
18,089.00	87.62	181.34	11,109.61	-6,740.23	-279.59	6,746.01	2.11	-1.96	0.78
18,183.00	88.67	181.38	11,112.65	-6,834.16	-281.82	6,839.95	1.12	1.12	0.04
18,277.00	89.55	180.97	11,114.11	-6,928.12	-283.75	6,933.92	1.03	0.94	-0.44
18,372.00	90.75	180.26	11,113.87	-7,023.12	-284.77	7,028.88	1.47	1.26	-0.75
18,466.00	88.75	179.37	11,114.28	-7,117.11	-284.46	7,122.79	2.33	-2.13	-0.95
18,560.00	89.73	179.29	11,115.52	-7,211.09	-283.36	7,216.66	1.05	1.04	-0.09
Final Phoenix MWD Survey									
18,608.00	89.73	179.29	11,115.75	-7,259.09	-282.77	7,264.59	0.00	0.00	0.00
Projection to TD									

Company:	EOG Resources	Local Co-ordinate Reference:	Well 502H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3553.00usft (H&P 444)
Site:	Bandit 29 State Com	MD Reference:	RKB @ 3553.00usft (H&P 444)
Well:	502H	North Reference:	Grid
Wellbore:	OH / Job 62624	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 444)	Database:	USA Compass

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,830.00	4,829.12	21.00	-22.02	Tie In
5,076.00	5,074.95	15.58	-15.16	First Phoenix MWD Survey
18,560.00	11,115.52	-7,211.09	-283.36	Final Phoenix MWD Survey
18,608.00	11,115.75	-7,259.09	-282.77	Projection to TD