



Lea County, NM (NAD 83 NME)

Beowulf 33 State Com #301H

HP 466

Plan #5

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: #301H

KB = 25° @ 3443.0usft (HP 466)
Northing 457797.00 Easting 836096.00 Latitude 32° 15' 17.659 N Longitude 103° 22' 47.402 W



Azimuths to Grid North
True North: -0.51°
Magnetic North: 6.32°
Magnetic Field
Strength: 47844.3nT
Dip Angle: 60.12°
Date: 10/10/2017
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.32°
To convert a Magnetic Direction to a True Direction, Add 6.83° East
To convert a True Direction to a Grid Direction, Subtract 0.51°

SECTION DETAILS

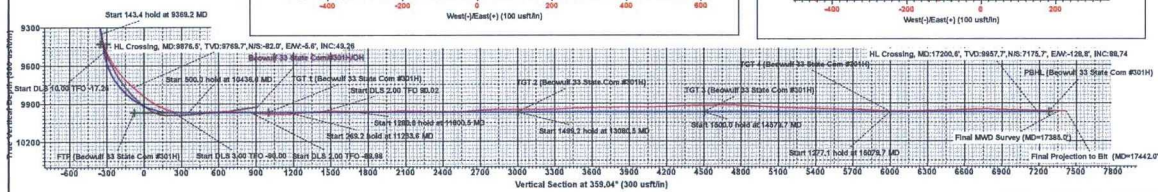
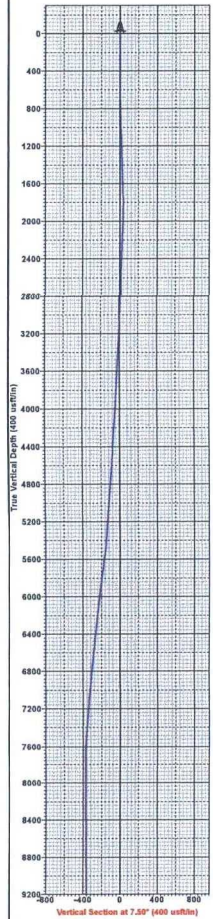
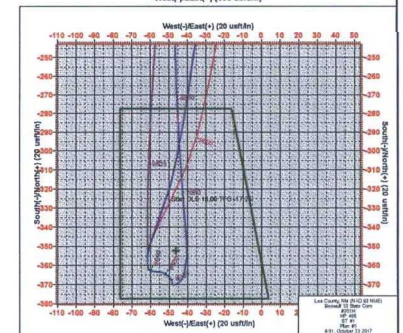
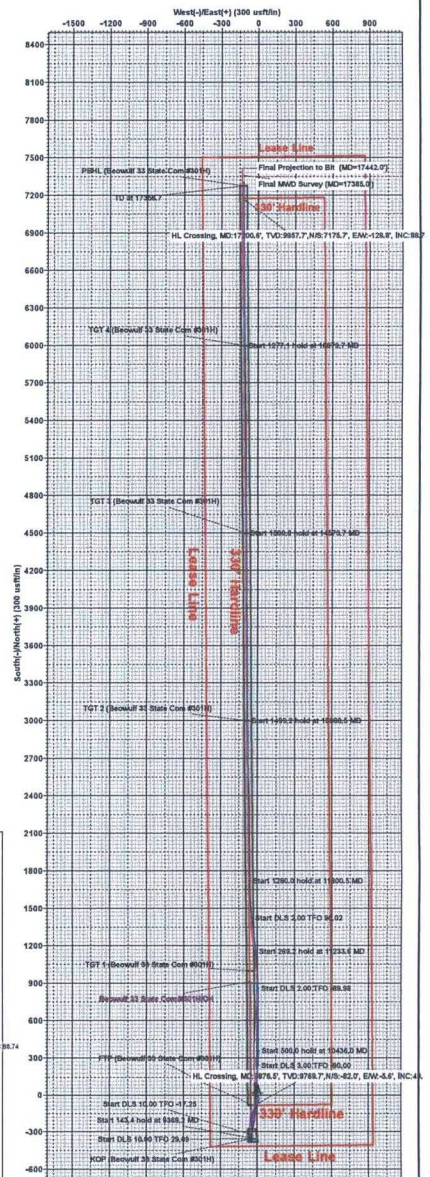
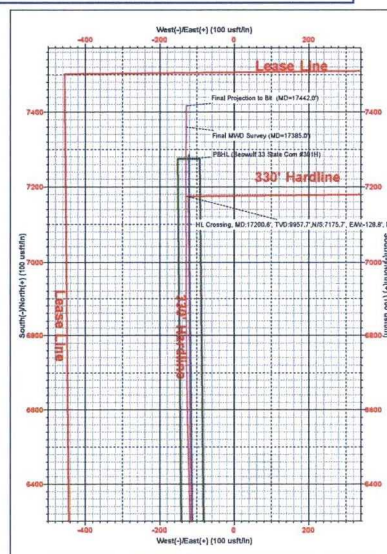
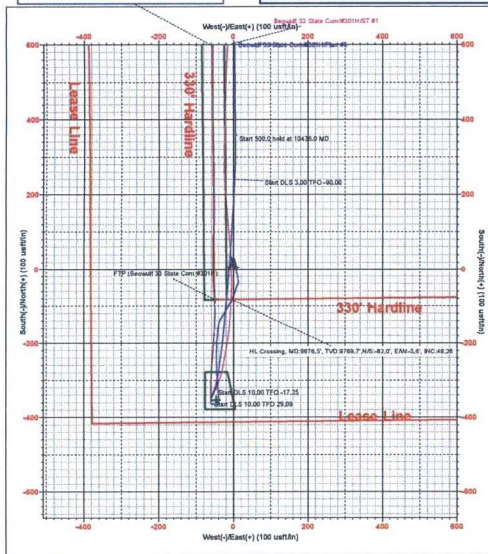
Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	Vsect	Target
1	9300.0	3.37	0.29	9281.0	-354.3	-61.6	0.00	0.00	-353.2	
2	9369.2	10.00	20.00	9349.6	-346.6	-59.5	10.00	29.09	-345.5	
3	9512.6	10.00	20.00	9490.8	-323.2	-51.0	0.00	0.00	-322.3	
4	10317.0	90.00	3.00	9968.0	239.8	3.1	10.00	-17.25	239.7	
5	10436.0	90.00	359.43	9968.0	358.7	5.6	3.00	-90.00	358.6	
6	10936.0	90.00	359.43	9968.0	858.7	0.7	0.00	0.00	858.5	
7	11233.6	90.00	353.48	9968.0	1155.6	-17.7	2.00	-89.98	1155.8	
8	11502.8	90.00	353.48	9968.0	1423.1	-48.3	0.00	0.00	1423.7	
9	11800.5	90.00	359.43	9968.0	1720.1	-66.7	2.00	90.02	1720.9	
10	13080.5	90.00	359.43	9968.0	3000.0	-79.5	0.00	0.00	3000.9	TGT 2 (Beowulf 33 State Com #301H)
11	14579.7	90.00	359.43	9968.0	4499.1	-84.4	0.00	0.00	4500.0	TGT 3 (Beowulf 33 State Com #301H)
12	16079.7	90.00	359.43	9968.0	5999.0	-109.3	0.00	0.00	6000.0	TGT 4 (Beowulf 33 State Com #301H)
13	17356.7	90.00	359.43	9968.0	7276.0	-122.0	0.00	0.00	7277.0	PBHL (Beowulf 33 State Com #301H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/S	+E/W	Northing	Easting
KOP (Beowulf 33 State Com #301H)	8427.2	-352.1	-46.4	457444.87	836048.64
FTP (Beowulf 33 State Com #301H)	9968.0	-82.0	-50.0	457715.00	836046.00
PBHL (Beowulf 33 State Com #301H)	9968.0	7276.0	-122.0	46073.00	836074.00
TGT 1 (Beowulf 33 State Com #301H)	9968.0	1000.0	-59.6	457797.00	836036.44
TGT 2 (Beowulf 33 State Com #301H)	9968.0	3000.0	-79.5	460797.00	836016.64
TGT 3 (Beowulf 33 State Com #301H)	9968.0	4499.1	-84.4	462296.10	836001.63
TGT 4 (Beowulf 33 State Com #301H)	9968.0	5999.0	-109.3	463786.00	835986.70



30-025-43936

EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Beowulf 33 State Com

#301H

ST #1

Design: ST #1

PVA Report

23 October, 2017

HOBBS OCT
FEB 09 2018
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PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Beowulf 33 State Com
 Well: #301H
 Wellbore: ST #1
 Design: ST #1

Local Co-ordinate Reference: Well #301H
 TVD Reference: KB = 25' @ 3443.0usft (HP 466)
 MD Reference: KB = 25' @ 3443.0usft (HP 466)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Project Lea County, NM (NAD 83 NME)

Map System: US State Plane 1983
 Geo Datum: North American Datum 1983
 Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Beowulf 33 State Com

Site Position:		Northing:	457,797.00 usft	Latitude:	32° 15' 17.859 N
From:	Map	Easting:	836,096.00 usft	Longitude:	103° 22' 47.402 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.51 °

Well #301H

Well Position	+N/-S	0.0 usft	Northing:	457,797.00 usft	Latitude:	32° 15' 17.859 N
	+E/-W	0.0 usft	Easting:	836,096.00 usft	Longitude:	103° 22' 47.402 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,418.0 usft

Wellbore ST #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/10/2017	6.83	60.12	47,944.25900224

Design ST #1

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	9,297.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.04

PVA Report

Company: EOG Resources - Midland
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 Well: #301H
 Wellbore: ST #1
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Local Co-ordinate Reference: Well #301H
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 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey Program Date 10/23/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
198.0	1,467.0	Invictus MWD (OH)	MWD	MWD - Standard
1,557.0	9,297.0	Intrepid MWD (OH)	MWD	MWD - Standard
9,332.0	17,442.0	Intrepid MWD #2 (ST #1)	MWD	MWD - Standard

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0
198.0	0.30	115.10	198.0	-0.2	0.5	0.15	0.15	0.00	0.0	0.0
260.0	0.44	68.61	260.0	-0.2	0.8	0.51	0.23	-74.98	0.0	0.0
322.0	0.62	22.29	322.0	0.2	1.2	0.72	0.29	-74.71	0.0	0.0
354.0	0.53	85.66	354.0	0.4	1.4	1.90	-0.28	198.03	0.0	0.0
385.0	0.18	41.18	385.0	0.4	1.6	1.36	-1.13	-143.48	0.0	0.0
417.0	0.26	22.54	417.0	0.5	1.6	0.33	0.25	-58.25	0.0	0.0
480.0	0.53	358.99	480.0	0.9	1.7	0.49	0.43	-37.38	0.0	0.0
574.0	0.60	9.00	574.0	1.9	1.8	0.13	0.07	10.65	0.0	0.0
732.0	1.00	341.60	732.0	4.0	1.4	0.34	0.25	-17.34	0.0	0.0
934.0	2.00	332.70	933.9	8.8	-0.7	0.51	0.50	-4.41	0.0	0.0
952.0	2.40	345.90	951.9	9.4	-1.0	3.57	2.22	73.33	0.0	0.0
984.0	2.30	331.10	983.9	10.7	-1.4	1.92	-0.31	-46.25	0.0	0.0
1,016.0	1.90	334.60	1,015.8	11.7	-2.0	1.31	-1.25	10.94	0.0	0.0
1,047.0	1.50	325.30	1,046.8	12.5	-2.4	1.56	-1.29	-30.00	0.0	0.0
1,078.0	2.20	327.30	1,077.8	13.3	-3.0	2.27	2.26	6.45	0.0	0.0
1,142.0	1.50	333.90	1,141.8	15.1	-4.0	1.14	-1.09	10.31	0.0	0.0
1,206.0	2.00	338.70	1,205.7	16.9	-4.8	0.81	0.78	7.50	0.0	0.0
1,269.0	1.70	358.00	1,268.7	18.9	-5.2	1.09	-0.48	30.63	0.0	0.0
1,300.0	1.30	350.30	1,299.7	19.7	-5.3	1.44	-1.29	-24.84	0.0	0.0

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Beowulf 33 State Com
 Well: #301H
 Wellbore: ST #1
 Design: ST #1

Local Co-ordinate Reference: Well #301H
 TVD Reference: KB = 25' @ 3443.0usft (HP 466)
 MD Reference: KB = 25' @ 3443.0usft (HP 466)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
1,332.0	1.60	347.00	1,331.7	20.5	-5.5	0.97	0.94	-10.31	0.0	0.0	
1,363.0	1.70	343.80	1,362.7	21.3	-5.7	0.44	0.32	-10.32	0.0	0.0	
1,467.0	2.40	351.80	1,466.6	25.0	-6.4	0.73	0.67	7.69	0.0	0.0	
1,557.0	2.20	2.30	1,556.5	28.6	-6.6	0.52	-0.22	11.67	0.0	0.0	
1,651.0	2.20	359.70	1,650.5	32.2	-6.6	0.11	0.00	-2.77	0.0	0.0	
1,746.0	1.10	18.50	1,745.4	34.8	-6.3	1.28	-1.16	19.79	0.0	0.0	
1,841.0	0.40	145.10	1,840.4	35.4	-5.8	1.45	-0.74	133.26	0.0	0.0	
1,935.0	1.80	177.00	1,934.4	33.7	-5.5	1.57	1.49	33.94	0.0	0.0	
2,029.0	2.00	178.70	2,028.4	30.6	-5.4	0.22	0.21	1.81	0.0	0.0	
2,124.0	2.20	185.00	2,123.3	27.1	-5.5	0.32	0.21	6.63	0.0	0.0	
2,218.0	1.70	182.10	2,217.2	23.9	-5.7	0.54	-0.53	-3.09	0.0	0.0	
2,313.0	1.70	182.00	2,312.2	21.1	-5.8	0.00	0.00	-0.11	0.0	0.0	
2,407.0	1.70	172.70	2,406.2	18.3	-5.7	0.29	0.00	-9.89	0.0	0.0	
2,501.0	1.70	168.80	2,500.1	15.6	-5.3	0.12	0.00	-4.15	0.0	0.0	
2,595.0	1.40	159.40	2,594.1	13.1	-4.6	0.42	-0.32	-10.00	0.0	0.0	
2,690.0	1.50	134.40	2,689.0	11.2	-3.3	0.67	0.11	-26.32	0.0	0.0	
2,784.0	1.80	142.30	2,783.0	9.1	-1.5	0.40	0.32	8.40	0.0	0.0	
2,878.0	1.90	142.90	2,877.0	6.7	0.3	0.11	0.11	0.64	0.0	0.0	
2,973.0	2.20	129.60	2,971.9	4.3	2.7	0.59	0.32	-14.00	0.0	0.0	
3,067.0	2.90	143.10	3,065.8	1.3	5.5	0.98	0.74	14.36	0.0	0.0	
3,162.0	3.10	169.70	3,160.7	-3.2	7.4	1.47	0.21	28.00	0.0	0.0	
3,256.0	3.30	164.50	3,254.5	-8.3	8.6	0.37	0.21	-5.53	0.0	0.0	
3,351.0	3.30	168.40	3,349.4	-13.6	9.9	0.24	0.00	4.11	0.0	0.0	
3,445.0	3.00	168.70	3,443.2	-18.7	10.9	0.32	-0.32	0.32	0.0	0.0	
3,540.0	3.80	174.70	3,538.1	-24.2	11.7	0.92	0.84	6.32	0.0	0.0	
3,634.0	4.10	172.70	3,631.8	-30.7	12.4	0.35	0.32	-2.13	0.0	0.0	
3,728.0	3.50	191.90	3,725.6	-36.8	12.2	1.49	-0.64	20.43	0.0	0.0	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3443.0usft (HP 466)
Site:	Beowulf 33 State Com	MD Reference:	KB = 25' @ 3443.0usft (HP 466)
Well:	#301H	North Reference:	Grid
Wellbore:	ST #1	Survey Calculation Method:	Minimum Curvature
Design:	ST #1	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
3,823.0	3.50	203.10	3,820.5	-42.3	10.5	0.72	0.00	11.79	0.0	0.0	
3,917.0	3.20	202.90	3,914.3	-47.4	8.3	0.32	-0.32	-0.21	0.0	0.0	
4,011.0	3.20	199.80	4,008.2	-52.3	6.4	0.18	0.00	-3.30	0.0	0.0	
4,106.0	3.20	199.90	4,103.0	-57.3	4.6	0.01	0.00	0.11	0.0	0.0	
4,200.0	3.50	196.70	4,196.8	-62.5	2.9	0.38	0.32	-3.40	0.0	0.0	
4,295.0	3.70	200.80	4,291.7	-68.1	1.0	0.34	0.21	4.32	0.0	0.0	
4,390.0	3.70	200.00	4,386.5	-73.9	-1.2	0.05	0.00	-0.84	0.0	0.0	
4,484.0	3.70	206.90	4,480.3	-79.4	-3.6	0.47	0.00	7.34	0.0	0.0	
4,578.0	3.80	204.80	4,574.1	-84.9	-6.2	0.18	0.11	-2.23	0.0	0.0	
4,673.0	3.90	207.90	4,668.9	-90.7	-9.1	0.24	0.11	3.26	0.0	0.0	
4,767.0	4.00	208.00	4,762.6	-96.4	-12.1	0.11	0.11	0.11	0.0	0.0	
4,862.0	4.50	208.30	4,857.4	-102.6	-15.4	0.53	0.53	0.32	0.0	0.0	
4,956.0	4.70	213.20	4,951.1	-109.1	-19.3	0.47	0.21	5.21	0.0	0.0	
5,051.0	4.80	211.20	5,045.7	-115.7	-23.5	0.20	0.11	-2.11	0.0	0.0	
5,145.0	4.90	208.10	5,139.4	-122.6	-27.4	0.30	0.11	-3.30	0.0	0.0	
5,239.0	5.20	213.40	5,233.0	-129.7	-31.6	0.59	0.32	5.64	0.0	0.0	
5,274.0	5.10	214.40	5,267.9	-132.3	-33.4	0.38	-0.29	2.86	0.0	0.0	
5,331.0	5.20	211.60	5,324.7	-136.6	-36.2	0.47	0.18	-4.91	0.0	0.0	
5,425.0	5.10	194.90	5,418.3	-144.3	-39.5	1.59	-0.11	-17.77	0.0	0.0	
5,520.0	7.10	185.80	5,512.8	-154.2	-41.2	2.33	2.11	-9.58	0.0	0.0	
5,615.0	7.60	185.70	5,607.0	-166.3	-42.4	0.53	0.53	-0.11	0.0	0.0	
5,709.0	7.50	185.90	5,700.2	-178.6	-43.6	0.11	-0.11	0.21	0.0	0.0	
5,803.0	7.40	184.70	5,793.4	-190.7	-44.8	0.20	-0.11	-1.28	0.0	0.0	
5,898.0	7.30	183.20	5,887.6	-202.8	-45.6	0.23	-0.11	-1.58	0.0	0.0	
5,992.0	7.00	183.30	5,980.9	-214.5	-46.3	0.32	-0.32	0.11	0.0	0.0	
6,087.0	6.70	181.50	6,075.2	-225.8	-46.7	0.39	-0.32	-1.89	0.0	0.0	
6,181.0	6.20	178.90	6,168.6	-236.4	-46.8	0.62	-0.53	-2.77	0.0	0.0	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3443.0usft (HP 466)
Site:	Beowulf 33 State Com	MD Reference:	KB = 25' @ 3443.0usft (HP 466)
Well:	#301H	North Reference:	Grid
Wellbore:	ST #1	Survey Calculation Method:	Minimum Curvature
Design:	ST #1	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
6,276.0	5.90	177.70	6,263.0	-246.4	-46.5	0.34	-0.32	-1.26	0.0	0.0	
6,370.0	6.00	178.80	6,356.5	-256.1	-46.2	0.16	0.11	1.17	0.0	0.0	
6,465.0	5.90	178.20	6,451.0	-266.0	-45.9	0.12	-0.11	-0.63	0.0	0.0	
6,559.0	5.80	176.90	6,544.5	-275.6	-45.5	0.18	-0.11	-1.38	0.0	0.0	
6,653.0	5.70	176.90	6,638.1	-285.0	-45.0	0.11	-0.11	0.00	0.0	0.0	
6,748.0	5.80	177.50	6,732.6	-294.5	-44.6	0.12	0.11	0.63	0.0	0.0	
6,842.0	5.80	175.40	6,826.1	-303.9	-44.0	0.23	0.00	-2.23	0.0	0.0	
6,937.0	5.90	175.20	6,920.6	-313.6	-43.2	0.11	0.11	-0.21	0.0	0.0	
7,031.0	5.50	176.70	7,014.1	-322.9	-42.5	0.45	-0.43	1.60	0.0	0.0	
7,126.0	5.10	174.90	7,108.7	-331.7	-41.9	0.46	-0.42	-1.89	0.0	0.0	
7,220.0	5.10	175.30	7,202.4	-340.0	-41.2	0.04	0.00	0.43	0.0	0.0	
7,315.0	4.90	175.30	7,297.0	-348.2	-40.5	0.21	-0.21	0.00	0.0	0.0	
7,409.0	4.30	186.30	7,390.7	-355.7	-40.5	1.13	-0.64	11.70	0.0	0.0	
7,504.0	3.70	191.50	7,485.5	-362.3	-41.5	0.74	-0.63	5.47	0.0	0.0	
7,598.0	2.70	211.90	7,579.3	-367.1	-43.3	1.60	-1.06	21.70	0.0	0.0	
7,693.0	1.90	245.70	7,674.3	-369.7	-45.9	1.62	-0.84	35.58	0.0	0.0	
7,787.0	0.70	306.70	7,768.2	-370.0	-47.8	1.78	-1.28	64.89	0.0	0.0	
7,881.0	0.70	353.70	7,862.2	-369.1	-48.3	0.59	0.00	50.00	0.0	0.0	
7,976.0	0.70	348.00	7,957.2	-367.9	-48.5	0.07	0.00	-6.00	0.0	0.0	
8,070.0	0.50	316.80	8,051.2	-367.1	-48.9	0.40	-0.21	-33.19	0.0	0.0	
8,165.0	0.50	310.80	8,146.2	-366.5	-49.5	0.06	0.00	-6.32	0.0	0.0	
8,259.0	0.50	319.10	8,240.2	-365.9	-50.1	0.08	0.00	8.83	0.0	0.0	
8,353.0	0.50	314.70	8,334.2	-365.3	-50.7	0.04	0.00	-4.68	0.0	0.0	
8,447.0	0.60	301.60	8,428.2	-364.8	-51.4	0.17	0.11	-13.94	0.0	0.0	
8,541.0	0.70	301.10	8,522.2	-364.2	-52.3	0.11	0.11	-0.53	0.0	0.0	
8,636.0	0.60	292.90	8,617.2	-363.7	-53.2	0.14	-0.11	-8.63	0.0	0.0	
8,731.0	0.90	281.20	8,712.2	-363.4	-54.4	0.35	0.32	-12.32	0.0	0.0	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3443.0usft (HP 466)
Site:	Beowulf 33 State Com	MD Reference:	KB = 25' @ 3443.0usft (HP 466)
Well:	#301H	North Reference:	Grid
Wellbore:	ST #1	Survey Calculation Method:	Minimum Curvature
Design:	ST #1	Database:	EDM 5000.14

Survey										
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
8,825.0	1.00	272.50	8,806.2	-363.2	-56.0	0.19	0.11	-9.26	0.0	0.0
8,920.0	1.10	274.00	8,901.2	-363.1	-57.7	0.11	0.11	1.58	0.0	0.0
9,014.0	1.30	280.80	8,995.1	-362.8	-59.7	0.26	0.21	7.23	0.0	0.0
9,104.0	1.40	324.90	9,085.1	-361.7	-61.3	1.13	0.11	49.00	0.0	0.0
9,203.0	2.20	5.70	9,184.1	-358.9	-61.8	1.48	0.81	41.21	0.0	0.0
9,297.0	3.20	0.30	9,278.0	-354.4	-61.6	1.10	1.06	-5.74	0.0	0.0
9,332.0	9.40	17.10	9,312.7	-350.7	-60.8	18.29	17.71	48.00	-1.0	-0.1
9,363.0	14.20	24.50	9,343.1	-344.9	-58.4	16.20	15.48	23.87	-3.1	-0.2
9,395.0	17.30	27.80	9,373.9	-337.1	-54.6	10.08	9.69	10.31	-6.4	-0.5
9,442.0	20.60	26.70	9,418.3	-323.5	-47.6	7.06	7.02	-2.34	-13.7	-1.8
9,489.0	21.50	24.40	9,462.2	-308.3	-40.3	2.60	1.91	-4.89	-22.7	-3.3
9,536.0	25.90	15.10	9,505.2	-290.5	-34.1	12.26	9.36	-19.79	-32.5	-7.8
9,583.0	31.10	11.30	9,546.5	-268.7	-29.0	11.71	11.06	-8.09	-43.4	-10.0
9,630.0	34.00	10.90	9,586.1	-243.9	-24.2	6.19	6.17	-0.85	-54.1	-10.1
9,678.0	35.30	11.30	9,625.6	-217.1	-18.9	2.75	2.71	0.83	-62.8	-10.2
9,725.0	39.80	7.00	9,662.9	-188.8	-14.4	11.07	9.57	-9.15	-68.5	-14.9
9,772.0	43.30	5.20	9,698.0	-157.8	-11.1	7.87	7.45	-3.83	-73.6	-16.0
9,819.0	46.80	5.20	9,731.2	-124.7	-8.1	7.45	7.45	0.00	-77.7	-15.2
9,866.0	48.90	2.30	9,762.8	-89.9	-5.8	6.39	4.47	-6.17	-79.1	-16.5
9,876.5	49.26	2.03	9,769.7	-82.0	-5.6	3.92	3.39	-2.60	-79.1	-16.2
HL Crossing, MD:9876.5', TVD:9769.7', N/S:-82.0', E/W:-5.6', INC:49.26										
9,913.0	50.50	1.10	9,793.2	-54.1	-4.8	3.92	3.41	-2.54	-78.0	-14.8
9,961.0	52.80	359.40	9,823.0	-16.5	-4.6	5.54	4.79	-3.54	-73.9	-12.3
10,008.0	53.10	357.70	9,851.3	21.0	-5.6	2.96	0.64	-3.62	-66.7	-8.5
10,056.0	55.20	355.30	9,879.4	59.9	-8.0	5.96	4.37	-5.00	-56.1	-2.9
10,103.0	60.10	355.20	9,904.5	99.4	-11.3	10.43	10.43	-0.21	-44.6	4.4
10,150.0	64.70	354.90	9,926.3	140.9	-14.9	9.80	9.79	-0.64	-32.7	11.5

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3443.0usft (HP 466)
Site:	Beowulf 33 State Com	MD Reference:	KB = 25' @ 3443.0usft (HP 466)
Well:	#301H	North Reference:	Grid
Wellbore:	ST #1	Survey Calculation Method:	Minimum Curvature
Design:	ST #1	Database:	EDM 5000.14

Survey										
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
10,197.0	70.50	354.30	9,944.2	184.1	-18.9	12.40	12.34	-1.28	-21.3	18.5
10,245.0	77.80	355.90	9,957.3	230.1	-22.9	15.54	15.21	3.33	-11.1	25.2
10,292.0	84.00	0.10	9,964.7	276.5	-24.5	15.87	13.19	8.94	-3.4	29.1
10,352.0	89.30	1.00	9,968.2	336.3	-23.9	8.96	8.83	1.50	0.2	29.6
10,446.0	92.30	1.10	9,966.9	430.3	-22.2	3.19	3.19	0.11	-1.1	27.1
10,541.0	92.80	2.90	9,962.7	525.1	-18.9	1.96	0.53	1.89	-5.4	22.8
10,635.0	91.50	3.70	9,959.2	618.9	-13.5	1.62	-1.38	0.85	-8.9	16.5
10,730.0	87.20	4.10	9,960.3	713.7	-7.0	4.55	-4.53	0.42	-7.8	9.1
10,824.0	87.30	2.10	9,964.8	807.4	-1.9	2.13	0.11	-2.13	-3.2	3.1
10,919.0	85.50	357.90	9,970.7	902.2	-1.9	4.80	-1.89	-4.42	2.7	1.8
11,013.0	86.50	355.60	9,977.3	995.8	-7.2	2.66	1.06	-2.45	9.3	3.3
11,107.0	88.40	353.40	9,981.5	1,089.3	-16.2	3.09	2.02	-2.34	13.5	5.3
11,202.0	94.20	352.30	9,979.3	1,183.5	-28.1	6.21	6.11	-1.16	11.3	7.1
11,296.0	95.30	352.40	9,971.5	1,276.3	-40.5	1.18	1.17	0.11	3.5	8.9
11,391.0	96.20	356.90	9,962.0	1,370.4	-49.3	4.81	0.95	4.74	-6.0	7.0
11,485.0	89.40	0.50	9,957.4	1,464.2	-51.5	8.18	-7.23	3.83	-10.6	-1.2
11,579.0	89.10	359.30	9,958.7	1,558.2	-51.6	1.32	-0.32	-1.28	-9.4	-8.9
11,674.0	89.10	358.20	9,960.1	1,653.1	-53.7	1.16	0.00	-1.16	-7.9	-11.6
11,769.0	88.80	358.90	9,961.9	1,748.1	-56.1	0.80	-0.32	0.74	-6.1	-10.9
11,863.0	90.20	359.10	9,962.7	1,842.1	-57.7	1.50	1.49	0.21	-5.3	-10.2
11,957.0	91.90	359.60	9,961.0	1,936.1	-58.8	1.89	1.81	0.53	-7.0	-10.1
12,052.0	90.90	359.80	9,958.7	2,031.0	-59.3	1.07	-1.05	0.21	-9.3	-10.5
12,146.0	89.80	359.70	9,958.1	2,125.0	-59.7	1.18	-1.17	-0.11	-9.9	-11.0
12,240.0	89.00	0.20	9,959.1	2,219.0	-59.8	1.00	-0.85	0.53	-8.9	-11.9
12,335.0	87.00	358.20	9,962.4	2,313.9	-61.1	2.98	-2.11	-2.11	-5.6	-11.5
12,429.0	88.50	357.40	9,966.1	2,407.8	-64.7	1.81	1.60	-0.85	-1.9	-8.8
12,524.0	92.40	356.50	9,965.3	2,502.6	-69.8	4.21	4.11	-0.95	-2.7	-4.7

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3443.0usft (HP 466)
Site:	Beowulf 33 State Com	MD Reference:	KB = 25' @ 3443.0usft (HP 466)
Well:	#301H	North Reference:	Grid
Wellbore:	ST #1	Survey Calculation Method:	Minimum Curvature
Design:	ST #1	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
12,619.0	94.00	356.30	9,960.0	2,597.3	-75.7	1.70	1.68	-0.21	-8.0	0.3	
12,713.0	94.00	358.20	9,953.5	2,691.0	-80.2	2.02	0.00	2.02	-14.5	3.9	
12,810.0	91.90	358.90	9,948.5	2,787.8	-82.7	2.28	-2.16	0.72	-19.5	5.3	
12,905.0	89.90	359.00	9,947.0	2,882.8	-84.4	2.11	-2.11	0.11	-21.0	6.1	
12,999.0	89.30	359.20	9,947.6	2,976.7	-85.9	0.67	-0.64	0.21	-20.4	6.7	
13,093.0	90.90	359.80	9,947.5	3,070.7	-86.7	1.82	1.70	0.64	-20.5	6.6	
13,188.0	90.60	0.00	9,946.2	3,165.7	-86.9	0.38	-0.32	0.21	-21.8	5.8	
13,282.0	90.70	359.80	9,945.2	3,259.7	-87.1	0.24	0.11	-0.21	-22.8	5.0	
13,377.0	93.30	359.00	9,941.9	3,354.6	-88.0	2.86	2.74	-0.84	-26.1	5.1	
13,472.0	92.60	358.90	9,937.0	3,449.5	-89.8	0.74	-0.74	-0.11	-31.0	5.9	
13,566.0	91.30	359.70	9,933.8	3,543.4	-90.9	1.62	-1.38	0.85	-34.2	6.1	
13,660.0	90.40	359.00	9,932.4	3,637.4	-92.0	1.21	-0.96	-0.74	-35.6	6.2	
13,755.0	90.90	359.20	9,931.3	3,732.4	-93.5	0.57	0.53	0.21	-36.7	6.7	
13,849.0	90.20	359.60	9,930.4	3,826.4	-94.5	0.86	-0.74	0.43	-37.6	6.8	
13,943.0	90.10	359.50	9,930.2	3,920.4	-95.2	0.15	-0.11	-0.11	-37.8	6.6	
14,038.0	91.10	358.90	9,929.2	4,015.4	-96.5	1.23	1.05	-0.63	-38.8	7.0	
14,133.0	92.00	359.30	9,926.6	4,110.3	-98.0	1.04	0.95	0.42	-41.4	7.5	
14,227.0	92.00	359.60	9,923.3	4,204.3	-98.9	0.32	0.00	0.32	-44.7	7.5	
14,321.0	92.60	359.70	9,919.5	4,298.2	-99.5	0.65	0.64	0.11	-48.5	7.1	
14,416.0	90.80	0.30	9,916.7	4,393.1	-99.5	2.00	-1.89	0.63	-51.3	6.2	
14,510.0	90.50	0.40	9,915.6	4,487.1	-98.9	0.34	-0.32	0.11	-52.4	4.7	
14,605.0	90.70	0.30	9,914.7	4,582.1	-98.4	0.24	0.21	-0.11	-53.3	3.2	
14,699.0	90.20	0.40	9,913.9	4,676.1	-97.8	0.54	-0.53	0.11	-54.1	1.6	
14,794.0	88.40	0.40	9,915.1	4,771.1	-97.1	1.89	-1.89	0.00	-52.9	0.0	
14,888.0	86.50	0.30	9,919.3	4,865.0	-96.5	2.02	-2.02	-0.11	-48.7	-1.5	
14,982.0	86.70	0.60	9,924.8	4,958.8	-95.8	0.38	0.21	0.32	-43.2	-3.1	
15,076.0	86.90	1.10	9,930.1	5,052.7	-94.4	0.57	0.21	0.53	-37.9	-5.5	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3443.0usft (HP 466)
Site:	Beowulf 33 State Com	MD Reference:	KB = 25' @ 3443.0usft (HP 466)
Well:	#301H	North Reference:	Grid
Wellbore:	ST #1	Survey Calculation Method:	Minimum Curvature
Design:	ST #1	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
15,171.0	88.60	1.10	9,933.8	5,147.6	-92.6	1.79	1.79	0.00	-34.2	-8.2	
15,265.0	88.30	359.80	9,936.4	5,241.6	-91.8	1.42	-0.32	-1.38	-31.6	-9.9	
15,360.0	88.30	358.90	9,939.2	5,336.5	-92.9	0.95	0.00	-0.95	-28.8	-9.8	
15,454.0	88.50	359.20	9,941.8	5,430.5	-94.5	0.38	0.21	0.32	-26.2	-9.2	
15,548.0	88.20	358.90	9,944.5	5,524.4	-96.0	0.45	-0.32	-0.32	-23.5	-8.5	
15,642.0	88.20	359.40	9,947.5	5,618.3	-97.4	0.53	0.00	0.53	-20.5	-8.1	
15,737.0	89.00	358.60	9,949.8	5,713.3	-99.1	1.19	0.84	-0.84	-18.2	-7.4	
15,831.0	87.00	358.70	9,953.1	5,807.2	-101.3	2.13	-2.13	0.11	-14.9	-6.1	
15,925.0	86.70	359.00	9,958.2	5,901.1	-103.2	0.45	-0.32	0.32	-9.8	-5.1	
16,018.0	88.50	358.60	9,962.1	5,993.9	-105.1	1.98	1.94	-0.43	-5.9	-4.1	
16,113.0	90.60	357.20	9,962.9	6,088.9	-108.6	2.66	2.21	-1.47	-5.1	-1.6	
16,207.0	91.70	358.00	9,961.0	6,182.8	-112.6	1.45	1.17	0.85	-7.0	1.4	
16,302.0	90.90	358.20	9,958.8	6,277.7	-115.7	0.87	-0.84	0.21	-9.2	3.6	
16,396.0	92.30	357.90	9,956.2	6,371.6	-118.9	1.52	1.49	-0.32	-11.8	5.9	
16,490.0	92.40	358.50	9,952.3	6,465.5	-121.8	0.65	0.11	0.64	-15.7	7.9	
16,585.0	91.70	358.80	9,948.9	6,560.4	-124.1	0.80	-0.74	0.32	-19.1	9.2	
16,680.0	91.10	359.00	9,946.6	6,655.3	-125.9	0.67	-0.63	0.21	-21.4	10.1	
16,774.0	90.50	359.40	9,945.3	6,749.3	-127.2	0.77	-0.64	0.43	-22.7	10.5	
16,869.0	88.40	359.70	9,946.2	6,844.3	-128.0	2.23	-2.21	0.32	-21.8	10.3	
16,963.0	87.90	359.80	9,949.3	6,938.3	-128.4	0.54	-0.53	0.11	-18.7	9.7	
17,058.0	87.10	359.90	9,953.4	7,033.2	-128.6	0.85	-0.84	0.11	-14.6	9.1	
17,152.0	88.90	0.00	9,956.7	7,127.1	-128.7	1.92	1.91	0.11	-11.3	8.2	
17,200.6	88.74	359.84	9,957.7	7,175.7	-128.8	0.45	-0.32	-0.32	-10.3	7.8	
HL Crossing, MD:17200.6', TVD:9957.7', N/S:7175.7', E/W:-128.8', INC:88.74											
17,246.0	88.60	359.70	9,958.7	7,221.1	-129.0	0.45	-0.32	-0.32	-9.3	7.5	
17,341.0	89.20	0.60	9,960.6	7,316.1	-128.7	1.14	0.63	0.95	-30.8	27.5	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3443.0usft (HP 466)
Site:	Beowulf 33 State Com	MD Reference:	KB = 25' @ 3443.0usft (HP 466)
Well:	#301H	North Reference:	Grid
Wellbore:	ST #1	Survey Calculation Method:	Minimum Curvature
Design:	ST #1	Database:	EDM 5000.14

Survey										
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
17,385.0	89.10	0.40	9,961.2	7,360.1	-128.3	0.51	-0.23	-0.45	-64.4	54.8
Final MWD Survey (MD=17385.0')										
17,442.0	89.10	0.40	9,962.1	7,417.0	-127.9	0.00	0.00	0.00	-107.6	91.6
Final Projection to Bit (MD=17442.0')										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,876.5	9,769.7	-82.0	-5.6	HL Crossing, MD:9876.5', TVD:9769.7', N/S:-82.0', E/W:-5.6', INC:49.26
17,200.6	9,957.7	7,175.7	-128.8	HL Crossing, MD:17200.6', TVD:9957.7', N/S:7175.7', E/W:-128.8', INC:88.74
17,385.0	9,961.2	7,360.1	-128.3	Final MWD Survey (MD=17385.0')
17,442.0	9,962.1	7,417.0	-127.9	Final Projection to Bit (MD=17442.0')

Checked By: _____ Approved By: _____ Date: _____