



Lea County, NM (NAD 27 NME)

Hawk 35 Fed #4H

H&P 621

Plan #2

PROJECT DETAILS: Lea County, NM (NAD 27 NME)

Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level

WELL DETAILS: #4H

KB = 25 @ 3536.0ustf (H&P 621) 3511.0
 Northing 430042.00 Easting 743959.00 Latitude 32° 10' 47.441 N Longitude 103° 32' 41.364 W



Azimuths to Grid North
 True North: -0.42°
 Magnetic North: 6.52°

Magnetic Field
 Strength: 47816.6nT
 Dip Angle: 60.03°
 Date: 6/8/2017
 Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.52°
 To convert a Magnetic Direction to a True Direction, Add 6.94° East
 To convert a True Direction to a Grid Direction, Subtract 0.42°

SECTION DETAILS

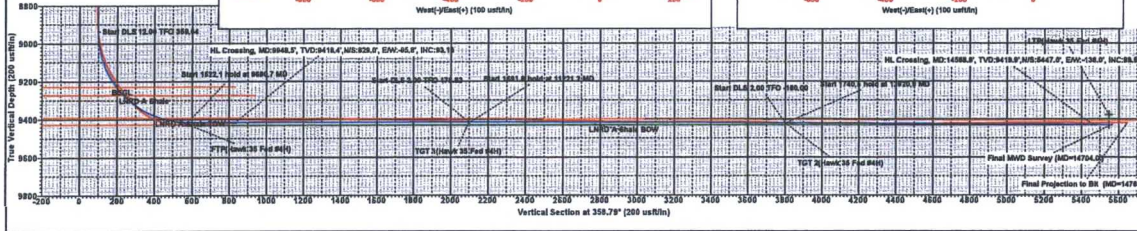
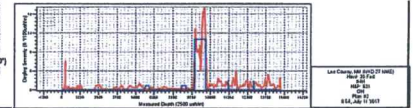
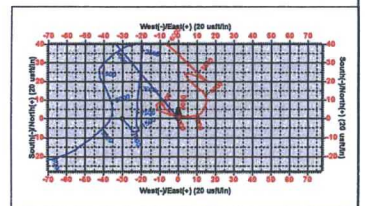
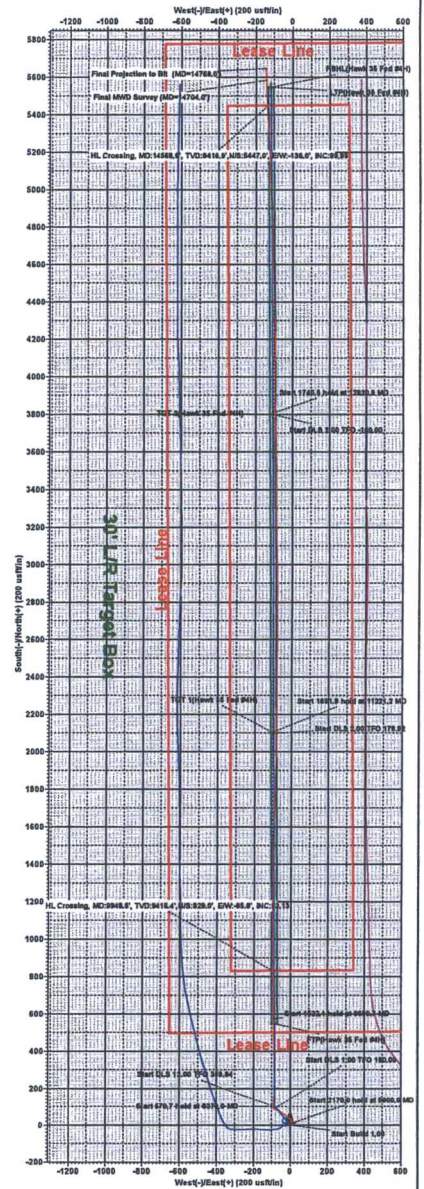
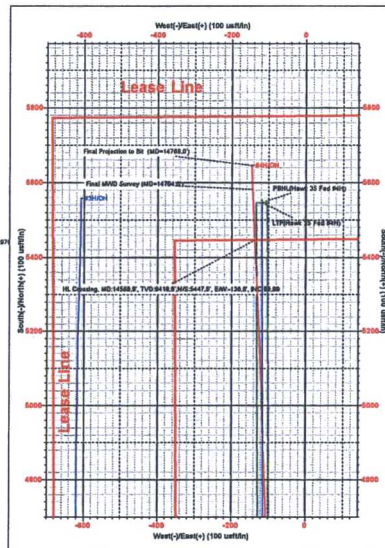
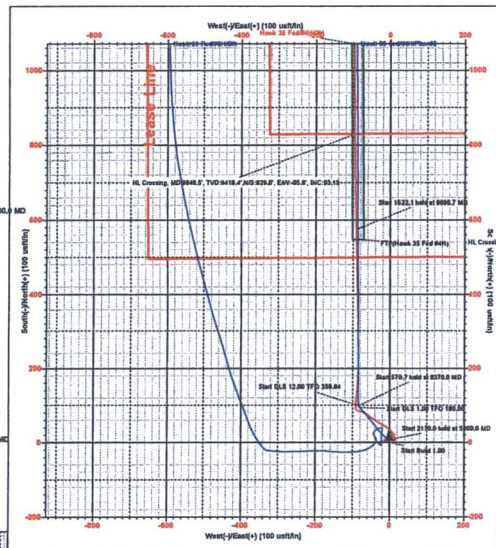
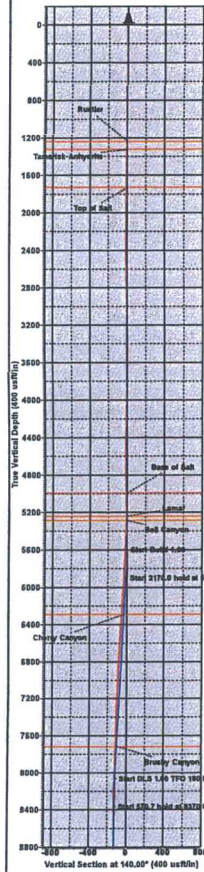
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	Vsect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	5900.0	0.00	0.00	5900.0	0.0	0.0	0.00	0.00	0.0		
3	5900.0	3.00	320.00	5899.9	6.0	-5.0	1.00	320.00	6.1		
4	8070.0	3.00	320.00	8068.9	93.0	-78.0	0.00	0.00	94.8		
5	8370.0	0.00	0.00	8366.8	99.0	-83.1	1.00	180.00	100.8		
6	8940.7	0.00	0.00	8937.5	99.0	-83.1	0.00	0.00	100.8		
7	8690.7	90.00	359.64	8415.0	678.5	-86.1	12.00	359.64	578.2	TOT 1(Hawk 35 Fed #4H)	
8	11212.8	90.00	359.64	9415.0	2099.5	-86.6	0.00	0.00	2100.0	TOT 2(Hawk 35 Fed #4H)	
9	11221.2	89.83	359.64	9415.0	2106.9	-86.7	2.00	178.82	2108.4	TOT 2(Hawk 35 Fed #4H)	
10	12812.8	89.83	359.64	9420.0	3798.6	-106.2	0.00	0.00	3800.0	PBH(Hawk 35 Fed #4H)	
11	12920.9	89.67	359.64	9420.0	3806.6	-106.2	2.00	-180.00	3807.8		
12	14661.4	89.67	359.64	9430.0	5547.0	-117.0	0.00	0.00	5548.2		

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
TOT 1(Hawk 35 Fed #4H)	8415.0	2088.5	-85.8	432140.50	743863.38
TOT 2(Hawk 35 Fed #4H)	9420.0	3798.6	-106.2	433840.50	743862.94
PBH(Hawk 35 Fed #4H)	9430.0	5547.0	-117.0	435589.00	743842.00
PTP(Hawk 35 Fed #4H)	8415.0	548.0	-86.0	430590.00	743873.00
LTP(Hawk 35 Fed #4H)	9378.0	5547.0	-117.0	435589.00	743842.00



EOG Resources - Midland

Lea County, NM (NAD 27 NME)

Hawk 35 Fed

#4H

OH

Design: OH

PVA Report

11 July, 2017

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #4H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3536.0usft (H&P 621)
Site:	Hawk 35 Fed	MD Reference:	KB = 25 @ 3536.0usft (H&P 621)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Project	Lea County, NM (NAD 27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Hawk 35 Fed		
Site Position:		Northing:	430,058.00 usft
From:	Map	Easting:	746,582.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 10' 47.408 N
		Longitude:	103° 32' 10.844 W
		Grid Convergence:	0.42 °

Well	#4H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 10' 47.441 N
		Longitude:	103° 32' 41.364 W
		Ground Level:	3,511.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	6/8/2017	6.94
			Dip Angle
			(°)
			60.03
			Field Strength
			(nT)
			47,916.64972200

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
		Direction	(°)
			358.79

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 27 NME)
Site: Hawk 35 Fed
Well: #4H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #4H
TVD Reference: KB = 25 @ 3536.0usft (H&P 621)
MD Reference: KB = 25 @ 3536.0usft (H&P 621)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14

Survey Program		Date 7/11/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
158.5	1,303.9	Invictus MWD (OH)	MWD	MWD - Standard	
1,407.0	14,768.0	Intrepid MWD (OH)	MWD	MWD - Standard	

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0
158.5	0.60	39.65	158.5	0.6	0.5	0.38	0.38	0.00	-0.8	0.0
207.9	0.10	208.65	207.9	0.8	0.7	1.41	-1.01	342.11	1.0	0.2
216.9	0.50	46.65	216.9	0.8	0.7	6.62	4.44	-1,800.00	-1.1	0.1
245.9	0.20	36.65	245.9	0.9	0.8	1.05	-1.03	-34.48	-1.3	-0.1
274.9	0.30	51.65	274.9	1.0	0.9	0.41	0.34	51.72	-1.4	0.2
304.9	0.40	37.65	304.9	1.2	1.0	0.44	0.33	-46.67	-1.6	-0.1
333.9	0.40	16.65	333.9	1.3	1.1	0.50	0.00	-72.41	-1.6	-0.7
396.9	0.30	41.65	396.9	1.7	1.3	0.29	-0.16	39.68	-2.1	0.1
428.9	0.10	333.65	428.9	1.8	1.3	0.87	-0.62	-212.50	-1.0	-2.0
459.9	0.10	104.65	459.9	1.8	1.4	0.59	0.00	422.58	-0.9	2.1
521.9	0.20	1.65	521.9	1.9	1.4	0.39	0.16	-166.13	-1.9	-1.4
646.9	0.20	140.65	646.9	1.9	1.6	0.30	0.00	111.20	0.5	2.4
739.9	0.30	282.65	739.9	1.9	1.4	0.51	0.11	152.69	1.0	-2.1
802.9	0.40	237.65	802.9	1.8	1.1	0.45	0.16	-71.43	1.9	-0.9
896.9	0.30	278.65	896.9	1.6	0.6	0.28	-0.11	43.62	0.3	-1.7
959.9	0.20	249.65	959.9	1.6	0.3	0.25	-0.16	-46.03	0.8	-1.4
990.9	0.40	239.65	990.9	1.5	0.1	0.66	0.65	-32.26	0.9	-1.3
1,052.9	0.50	252.65	1,052.9	1.4	-0.3	0.23	0.16	20.97	0.1	-1.4
1,083.9	0.60	285.65	1,083.9	1.4	-0.6	1.05	0.32	106.45	-0.9	-1.2
1,115.9	0.50	256.65	1,115.9	1.4	-0.9	0.91	-0.31	-90.62	-0.5	-1.5

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #4H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3536.0usft (H&P 621)
Site:	Hawk 35 Fed	MD Reference:	KB = 25 @ 3536.0usft (H&P 621)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
1,145.9	0.70	275.65	1,145.9	1.4	-1.2	0.93	0.67	63.33	-1.3	-1.2
1,177.9	0.70	275.65	1,177.9	1.4	-1.6	0.00	0.00	0.00	-1.7	-1.2
1,240.9	0.50	303.65	1,240.9	1.6	-2.2	0.55	-0.32	44.44	-2.7	-0.1
1,272.9	0.70	274.65	1,272.9	1.7	-2.5	1.12	0.62	-90.62	-2.6	-1.5
1,303.9	0.80	296.65	1,303.9	1.8	-2.9	0.98	0.32	70.97	-3.4	-0.3
1,407.0	0.70	299.50	1,407.0	2.4	-4.1	0.10	-0.10	2.76	-4.7	-0.1
1,595.0	0.70	318.30	1,594.9	3.9	-5.8	0.12	0.00	10.00	-6.8	1.8
1,783.0	0.70	319.30	1,782.9	5.6	-7.4	0.01	0.00	0.53	-9.0	1.9
1,972.0	0.60	319.00	1,971.9	7.2	-8.8	0.05	-0.05	-0.16	-11.2	1.9
2,160.0	0.60	315.90	2,159.9	8.7	-10.1	0.02	0.00	-1.65	-13.2	1.2
2,352.0	1.50	210.70	2,351.9	7.2	-12.1	0.91	0.47	-54.79	0.0	-14.1
2,540.0	1.60	109.80	2,539.8	4.2	-10.9	1.27	0.05	-53.67	11.6	0.3
2,729.0	1.40	112.90	2,728.8	2.4	-6.2	0.11	-0.11	1.64	6.7	-0.2
2,918.0	1.30	98.00	2,917.7	1.2	-2.0	0.19	-0.05	-7.88	2.1	0.9
3,106.0	1.30	90.30	3,105.7	0.9	2.2	0.09	0.00	-4.10	-2.2	0.9
3,295.0	1.20	88.10	3,294.6	1.0	6.4	0.06	-0.05	-1.16	-6.4	0.8
3,484.0	1.30	74.70	3,483.6	1.6	10.4	0.16	0.05	-7.09	-10.5	-1.2
3,672.0	1.70	23.10	3,671.5	4.7	13.6	0.72	0.21	-27.45	-9.7	-10.6
3,861.0	1.50	20.10	3,860.5	9.6	15.5	0.11	-0.11	-1.59	-14.4	-11.3
4,050.0	1.90	305.30	4,049.4	13.8	13.8	1.11	0.21	-39.58	3.3	-19.2
4,238.0	1.70	308.40	4,237.3	17.3	9.1	0.12	-0.11	1.65	-3.6	-19.2
4,427.0	1.80	318.60	4,426.2	21.3	4.9	0.17	0.05	5.40	-12.7	-17.8
4,616.0	0.50	49.50	4,615.2	24.0	3.6	0.99	-0.69	48.10	-18.3	15.9
4,804.0	1.20	102.40	4,803.2	24.1	6.1	0.52	0.37	28.14	-0.8	24.9
4,993.0	2.20	116.50	4,992.1	22.1	11.3	0.57	0.53	7.46	-0.3	24.8
5,076.0	1.90	122.60	5,075.0	20.6	13.9	0.45	-0.36	7.35	-0.6	24.9
5,261.0	0.90	313.10	5,260.0	20.0	15.4	1.51	-0.54	-91.62	-2.4	-25.1

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Hawk 35 Fed
 Well: #4H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #4H
 TVD Reference: KB = 25 @ 3536.0usft (H&P 621)
 MD Reference: KB = 25 @ 3536.0usft (H&P 621)
 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)
5,450.0	2.10	310.10	5,448.9	23.2	11.7	0.64	0.63	-1.59	-6.0	-25.3
5,638.0	2.50	314.80	5,636.8	28.3	6.1	0.24	0.21	2.50	-15.5	-24.4
5,826.0	2.50	316.10	5,824.6	34.2	0.4	0.03	0.00	0.69	-19.9	-23.7
6,015.0	3.50	303.10	6,013.3	40.3	-7.3	0.64	0.53	-6.88	-14.9	-25.7
6,203.0	4.10	302.00	6,200.9	47.0	-17.8	0.32	0.32	-0.59	-17.5	-23.1
6,392.0	4.20	301.90	6,389.4	54.2	-29.4	0.05	0.05	-0.05	-21.8	-20.1
6,580.0	3.50	300.30	6,577.0	60.8	-40.2	0.38	-0.37	-0.85	-24.5	-17.5
6,769.0	3.70	304.60	6,765.6	67.1	-50.2	0.18	0.11	2.28	-28.1	-12.6
6,958.0	2.20	303.80	6,954.4	72.6	-58.2	0.79	-0.79	-0.42	-28.2	-10.3
7,146.0	1.70	314.70	7,142.3	76.6	-63.2	0.33	-0.27	5.80	-26.1	-3.2
7,335.0	1.50	296.00	7,331.2	79.6	-67.4	0.29	-0.11	-9.89	-19.8	-8.3
7,523.0	1.80	292.90	7,519.1	81.9	-72.4	0.17	0.16	-1.65	-16.0	-5.0
7,712.0	1.50	279.00	7,708.0	83.4	-77.6	0.26	-0.16	-7.35	-12.2	-2.9
7,901.0	1.30	284.50	7,897.0	84.3	-82.1	0.13	-0.11	2.91	-9.0	4.2
8,089.0	0.90	297.30	8,085.0	85.5	-85.5	0.25	-0.21	6.81	-2.3	10.4
8,278.0	0.90	284.90	8,273.9	86.6	-88.2	0.10	0.00	-6.56	-2.4	12.9
8,467.0	0.80	352.10	8,462.9	88.3	-89.8	0.50	-0.05	35.56	9.7	8.1
8,655.0	0.80	338.50	8,650.9	90.8	-90.5	0.10	0.00	-7.23	4.9	9.9
8,843.0	0.50	319.90	8,838.9	92.7	-91.5	0.19	-0.16	-9.89	-0.5	10.5
8,929.0	3.00	353.90	8,924.8	95.2	-92.0	3.02	2.91	39.53	2.9	9.2
8,976.0	9.70	1.40	8,971.5	100.4	-92.0	14.33	14.26	15.96	0.1	8.9
9,023.0	15.10	7.50	9,017.4	110.4	-91.1	11.81	11.49	12.98	-3.5	8.5
9,070.0	19.30	5.80	9,062.3	124.2	-89.5	9.00	8.94	-3.62	-7.6	7.1
9,117.0	23.70	5.70	9,106.0	141.4	-87.8	9.36	9.36	-0.21	-10.4	5.5
9,164.0	27.90	4.60	9,148.3	161.7	-86.0	8.99	8.94	-2.34	-12.0	3.4
9,211.0	32.40	3.60	9,189.0	185.3	-84.3	9.63	9.57	-2.13	-12.3	1.4
9,258.0	35.60	0.30	9,227.9	211.5	-83.4	7.86	6.81	-7.02	-11.0	-0.3

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Hawk 35 Fed
 Well: #4H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #4H
 TVD Reference: KB = 25 @ 3536.0usft (H&P 621)
 MD Reference: KB = 25 @ 3536.0usft (H&P 621)
 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)
9,305.0	40.40	358.80	9,264.9	240.4	-83.7	10.40	10.21	-3.19	-8.3	-0.4
9,353.0	42.50	359.40	9,300.9	272.2	-84.2	4.45	4.37	1.25	-3.5	0.0
9,403.0	46.80	358.30	9,336.5	307.3	-84.9	8.74	8.60	-2.20	3.8	0.6
9,447.0	53.40	358.20	9,364.7	341.1	-85.9	15.00	15.00	-0.23	10.3	1.5
9,494.0	62.10	358.30	9,389.7	380.7	-87.1	18.51	18.51	0.21	15.3	2.4
9,541.0	70.50	358.90	9,408.6	423.7	-88.2	17.91	17.87	1.28	17.8	3.1
9,588.0	79.60	359.00	9,420.7	469.1	-89.0	19.36	19.36	0.21	17.5	3.7
9,599.0	81.70	359.00	9,422.5	479.9	-89.2	19.09	19.09	0.00	17.1	3.8
9,677.0	91.30	358.90	9,427.3	557.7	-90.6	12.31	12.31	-0.13	12.7	4.7
9,771.0	91.60	358.90	9,424.9	651.6	-92.4	0.32	0.32	0.00	9.9	5.9
9,866.0	91.90	358.80	9,422.0	746.6	-94.3	0.33	0.32	-0.11	7.0	7.2
9,948.5	93.13	359.24	9,418.4	829.0	-95.8	1.58	1.49	0.53	3.4	8.1
HL Crossing, MD:9948.5', TVD:9418.4', N/S:829.0', E/W:-95.8', INC:93.13										
9,960.0	93.30	359.30	9,417.7	840.5	-95.9	1.58	1.49	0.53	2.8	8.2
10,054.0	92.60	359.90	9,412.9	934.3	-96.6	0.98	-0.74	0.64	-2.1	8.2
10,148.0	91.30	359.80	9,409.7	1,028.3	-96.8	1.39	-1.38	-0.11	-5.3	7.9
10,243.0	90.90	0.00	9,407.9	1,123.3	-97.0	0.47	-0.42	0.21	-7.1	7.5
10,337.0	92.00	359.80	9,405.5	1,217.2	-97.1	1.19	1.17	-0.21	-9.5	7.0
10,431.0	91.60	359.30	9,402.5	1,311.2	-97.9	0.68	-0.43	-0.53	-12.4	7.2
10,525.0	89.30	0.40	9,401.8	1,405.2	-98.1	2.71	-2.45	1.17	-13.2	6.8
10,620.0	90.40	1.80	9,402.1	1,500.1	-96.3	1.87	1.16	1.47	-12.9	4.4
10,715.0	88.70	2.80	9,402.8	1,595.1	-92.5	2.08	-1.79	1.05	-12.2	0.0
10,809.0	88.50	2.10	9,405.1	1,688.9	-88.5	0.77	-0.21	-0.74	-9.9	-4.6
10,903.0	89.40	1.50	9,406.8	1,782.9	-85.5	1.15	0.96	-0.64	-8.2	-8.1
10,998.0	88.90	2.00	9,408.2	1,877.8	-82.6	0.74	-0.53	0.53	-6.8	-11.6
11,092.0	87.90	0.50	9,410.9	1,971.8	-80.6	1.92	-1.06	-1.60	-4.2	-14.3
11,187.0	88.50	359.70	9,413.8	2,066.7	-80.4	1.05	0.63	-0.84	-1.2	-15.0

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Hawk 35 Fed
 Well: #4H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #4H
 TVD Reference: KB = 25 @ 3536.0usft (H&P 621)
 MD Reference: KB = 25 @ 3536.0usft (H&P 621)
 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)
11,281.0	89.50	0.00	9,415.5	2,160.7	-80.6	1.11	1.06	0.32	0.3	-15.4
11,375.0	90.20	0.40	9,415.7	2,254.7	-80.3	0.86	0.74	0.43	0.3	-16.3
11,469.0	90.60	359.70	9,415.1	2,348.7	-80.2	0.86	0.43	-0.74	-0.7	-16.9
11,563.0	93.10	0.70	9,412.0	2,442.6	-79.9	2.86	2.66	1.06	-3.9	-17.8
11,658.0	92.10	1.00	9,407.7	2,537.5	-78.5	1.10	-1.05	0.32	-8.5	-19.8
11,752.0	88.40	359.50	9,407.3	2,631.5	-78.1	4.25	-3.94	-1.60	-9.2	-20.8
11,846.0	88.30	359.60	9,410.0	2,725.5	-78.8	0.15	-0.11	0.11	-6.8	-20.7
11,940.0	88.70	359.70	9,412.5	2,819.4	-79.4	0.44	0.43	0.11	-4.6	-20.7
12,034.0	89.50	359.60	9,414.0	2,913.4	-80.0	0.86	0.85	-0.11	-3.4	-20.7
12,129.0	90.10	359.30	9,414.3	3,008.4	-80.9	0.71	0.63	-0.32	-3.4	-20.4
12,223.0	89.30	358.30	9,414.8	3,102.4	-82.9	1.36	-0.85	-1.06	-3.2	-19.0
12,317.0	90.10	358.40	9,415.3	3,196.3	-85.6	0.86	0.85	0.11	-3.0	-16.9
12,411.0	91.70	359.60	9,413.8	3,290.3	-87.2	2.13	1.70	1.28	-4.7	-15.8
12,506.0	89.80	0.40	9,412.6	3,385.3	-87.2	2.17	-2.00	0.84	-6.2	-16.4
12,600.0	89.90	0.50	9,412.8	3,479.3	-86.5	0.15	0.11	0.11	-6.3	-17.7
12,694.0	88.30	359.50	9,414.3	3,573.3	-86.5	2.01	-1.70	-1.06	-5.1	-18.3
12,789.0	88.10	358.70	9,417.3	3,668.2	-88.0	0.87	-0.21	-0.84	-2.3	-17.4
12,883.0	88.50	358.40	9,420.0	3,762.2	-90.3	0.53	0.43	-0.32	0.2	-15.6
12,978.0	89.70	359.00	9,421.5	3,857.1	-92.5	1.41	1.26	0.63	1.2	-14.0
13,072.0	91.00	0.10	9,421.0	3,951.1	-93.2	1.81	1.38	1.17	0.1	-13.9
13,166.0	89.90	0.40	9,420.2	4,045.1	-92.8	1.21	-1.17	0.32	-1.2	-14.9
13,261.0	89.50	359.70	9,420.7	4,140.1	-92.7	0.85	-0.42	-0.74	-1.2	-15.5
13,355.0	88.60	359.00	9,422.3	4,234.1	-93.8	1.21	-0.96	-0.74	-0.2	-15.1
13,449.0	88.60	358.60	9,424.6	4,328.0	-95.8	0.43	0.00	-0.43	1.6	-13.7
13,544.0	89.10	358.20	9,426.5	4,423.0	-98.4	0.67	0.53	-0.42	2.9	-11.6
13,638.0	89.90	358.20	9,427.3	4,516.9	-101.4	0.85	0.85	0.00	3.2	-9.2
13,732.0	92.20	358.30	9,425.6	4,610.9	-104.2	2.45	2.45	0.11	0.9	-7.0

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 27 NME)
Site: Hawk 35 Fed
Well: #4H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #4H
TVD Reference: KB = 25 @ 3536.0usft (H&P 621)
MD Reference: KB = 25 @ 3536.0usft (H&P 621)
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)
13,827.0	91.90	359.00	9,422.2	4,705.8	-106.5	0.80	-0.32	0.74	-3.0	-5.3
13,921.0	88.90	357.40	9,421.5	4,799.7	-109.4	3.62	-3.19	-1.70	-4.2	-2.9
14,015.0	90.60	358.20	9,421.9	4,893.6	-113.0	2.00	1.81	0.85	-4.3	0.1
14,110.0	91.50	358.40	9,420.2	4,988.6	-115.9	0.97	0.95	0.21	-6.6	2.3
14,205.0	90.90	357.40	9,418.2	5,083.5	-119.3	1.23	-0.63	-1.05	-9.1	5.2
14,299.0	89.60	357.40	9,417.8	5,177.4	-123.6	1.38	-1.38	0.00	-10.1	8.9
14,394.0	89.60	357.30	9,418.5	5,272.3	-128.0	0.11	0.00	-0.11	-10.0	12.7
14,488.0	89.30	357.60	9,419.4	5,366.2	-132.2	0.45	-0.32	0.32	-9.6	16.3
14,568.9	89.99	357.00	9,419.9	5,447.0	-136.0	1.13	0.85	-0.74	-9.6	19.6
HL Crossing, MD:14568.9', TVD:9419.9', N/S:5447.0', E/W:-136.0', INC:89.99										
14,582.0	90.10	356.90	9,419.9	5,460.1	-136.7	1.13	0.85	-0.74	-9.7	20.2
14,677.0	89.80	357.30	9,419.9	5,555.0	-141.5	0.53	-0.32	0.42	-10.6	25.3
14,704.0	90.10	358.00	9,420.0	5,581.9	-142.6	2.82	1.11	2.59	-16.7	40.7
Final MWD Survey (MD=14704.0')										
14,768.0	90.10	358.00	9,419.9	5,645.9	-144.8	0.00	0.00	0.00	-38.9	95.0
Final Projection to Bit (MD=14768.0')										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,948.5	9,418.4	829.0	-95.8	HL Crossing, MD:9948.5', TVD:9418.4', N/S:829.0', E/W:-95.8', INC:93.13
14,568.9	9,419.9	5,447.0	-136.0	HL Crossing, MD:14568.9', TVD:9419.9', N/S:5447.0', E/W:-136.0', INC:89.99
14,704.0	9,420.0	5,581.9	-142.6	Final MWD Survey (MD=14704.0')
14,768.0	9,419.9	5,645.9	-144.8	Final Projection to Bit (MD=14768.0')

Checked By: _____ Approved By: _____ Date: _____