

HOBBS OCD
SEP 13 2017
RECEIVED

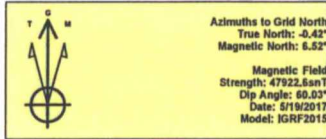


Lea County, NM (NAD 27 NME)

Hawk 35 Fed #5H

H&P 473

Plan #1



To convert a Magnetic Direction to a Grid Direction, Add 6.52°
To convert a Magnetic Direction to a True Direction, Add 6.95° East
To convert a True Direction to a Grid Direction, Subtract 0.42°

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

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1886
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS: #5H

KB = 25 @ 3542.0usft (H&P 473) 3517.0
Northing 430048.00 Easting 744885.00 Latitude 32° 10' 47.433 N Longitude 103° 32' 30.589 W

SECTION DETAILS

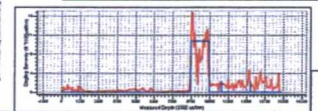
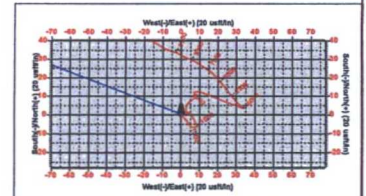
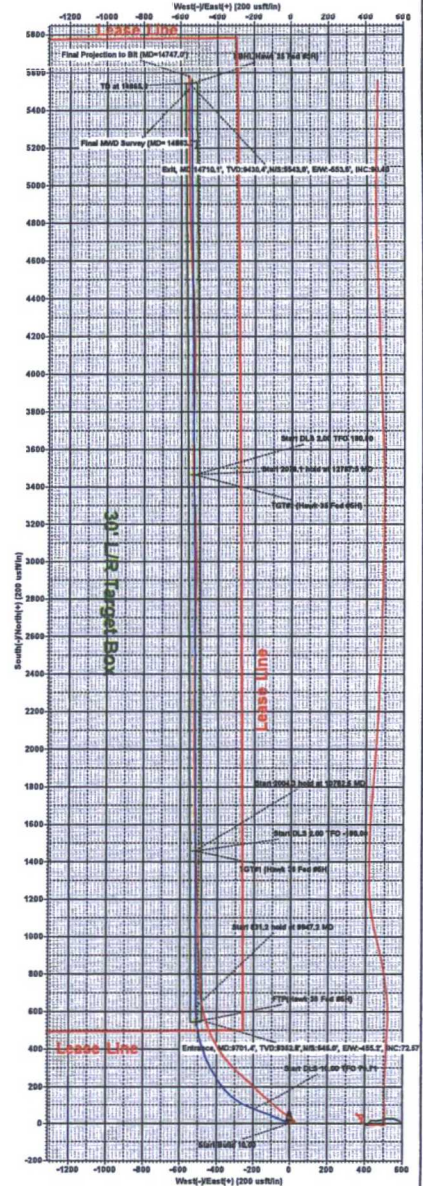
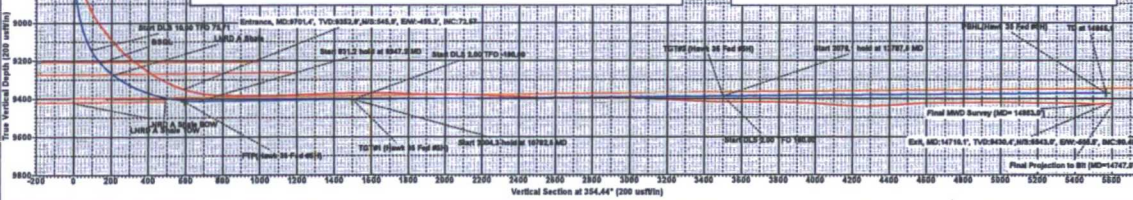
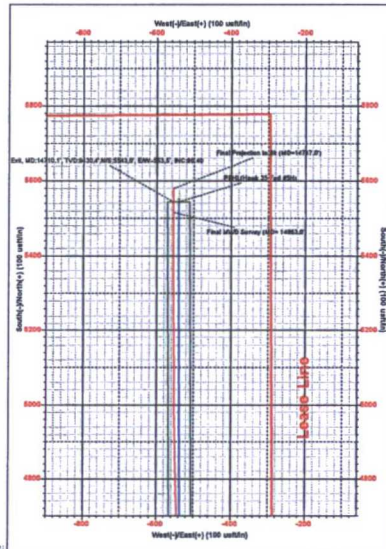
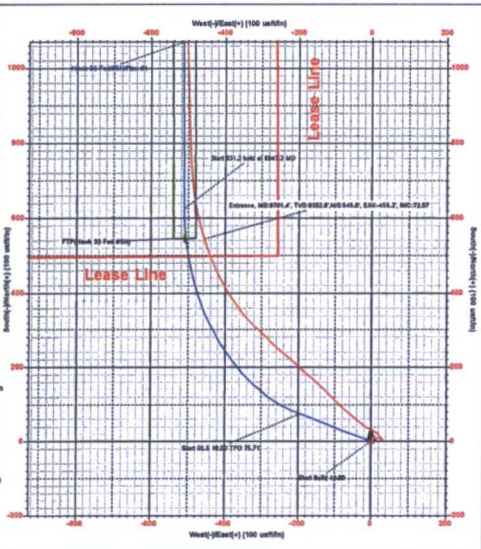
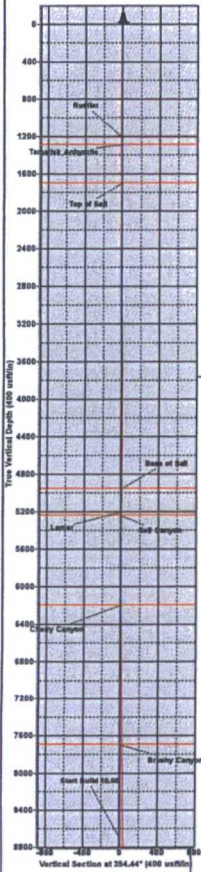
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	VSeal	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.0		
2	8701.0	0.00	0.00	8701.0	0.0	0.0	0.00	0.00	0.0		
3	9205.4	50.46	290.82	9142.7	74.9	-194.5	10.00	290.82	92.5		
4	8947.2	80.67	358.64	9414.2	628.9	-609.5	10.00	75.71	872.3		
5	10778.4	90.67	358.64	9406.0	1467.0	-614.7	0.00	0.00	1500.0		TGT#1 (Hawk 35 Fed #5H)
6	10792.5	90.48	358.64	9406.0	1461.1	-614.7	2.00	-180.00	1504.1		TGT#2 (Hawk 35 Fed #5H)
7	12786.7	90.48	358.64	9388.0	3466.2	-627.1	0.00	0.00	3500.0		
8	12787.5	90.47	358.64	9388.0	3466.0	-627.1	2.00	180.00	3500.8		
9	14866.5	90.47	358.64	9372.0	6544.0	-640.0	0.00	0.00	6576.2		PBH(L) Hawk 35 Fed #5H

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
TGT#1 (Hawk 35 Fed #5H)	8406.0	1467.0	-614.7	431505.00	744370.35
TGT#2 (Hawk 35 Fed #5H)	9389.0	3466.2	-627.1	433513.20	744367.89
PBH(L) Hawk 35 Fed #5H	9372.0	6544.0	-640.0	433592.00	744346.00
FTP(Hawk 35 Fed #5H)	9415.0	646.0	-609.0	430584.00	744376.00



Lea County, NM (NAD 27 NME)
H&P 473
Plan #1
10-08-2017

EOG Resources - Midland

Lea County, NM (NAD 27 NME)

Hawk 35 Fed

#5H

OH

Design: OH

PVA Report

23 August, 2017

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #5H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3542.0usft (H&P 473)
Site:	Hawk 35 Fed	MD Reference:	KB = 25 @ 3542.0usft (H&P 473)
Well:	#5H	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		#5H				
Well Position	+N/-S	0.0 usft	Northing:	430,048.00 usft	Latitude:	32° 10' 47.433 N
	+E/-W	0.0 usft	Easting:	744,885.00 usft	Longitude:	103° 32' 30.589 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,517.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/19/2017	6.95	60.03	47,922.55519338

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	354.44

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #5H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3542.0usft (H&P 473)
Site:	Hawk 35 Fed	MD Reference:	KB = 25 @ 3542.0usft (H&P 473)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey Program		Date 6/14/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
121.5	1,306.0	Wildfire MWD (OH)	MWD	MWD - Standard	
1,434.0	14,747.0	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	
121.5	0.60	141.97	121.5	-0.5	0.4	0.49	0.49	0.00	-0.6	0.0	
152.5	0.90	147.97	152.5	-0.8	0.6	1.00	0.97	19.35	-1.0	0.1	
181.5	0.90	144.97	181.5	-1.2	0.9	0.16	0.00	-10.34	-1.5	0.0	
210.5	1.00	132.97	210.5	-1.6	1.2	0.77	0.34	-41.38	-1.9	-0.3	
279.5	0.80	137.97	279.5	-2.3	2.0	0.31	-0.29	7.25	-3.0	-0.1	
307.5	1.00	135.97	307.5	-2.7	2.3	0.72	0.71	-7.14	-3.5	-0.2	
336.5	0.90	124.97	336.5	-3.0	2.6	0.72	-0.34	-37.93	-3.8	-0.9	
367.5	0.80	132.97	367.5	-3.3	3.0	0.50	-0.32	25.81	-4.4	-0.4	
399.5	1.00	138.97	399.5	-3.6	3.3	0.69	0.62	18.75	-4.9	0.1	
430.5	0.60	146.97	430.5	-4.0	3.6	1.34	-1.29	25.81	-5.3	0.8	
461.5	0.60	137.97	461.5	-4.2	3.8	0.30	0.00	-29.03	-5.7	0.0	
491.5	0.60	157.97	491.5	-4.5	3.9	0.69	0.00	66.67	-5.6	2.0	
522.5	0.90	148.97	522.5	-4.8	4.1	1.04	0.97	-29.03	-6.3	1.0	
554.5	0.70	136.97	554.5	-5.2	4.4	0.81	-0.62	-37.50	-6.8	-0.3	
585.5	0.70	155.97	585.4	-5.5	4.6	0.75	0.00	61.29	-6.9	2.0	
616.5	0.80	143.97	616.4	-5.9	4.8	0.60	0.32	-38.71	-7.6	0.4	
647.5	0.60	133.97	647.4	-6.1	5.1	0.75	-0.65	-32.26	-7.9	-0.9	
711.5	0.50	137.97	711.4	-6.6	5.5	0.17	-0.16	6.25	-8.6	-0.3	
743.5	0.50	136.97	743.4	-6.8	5.7	0.03	0.00	-3.12	-8.8	-0.5	
774.5	0.50	102.97	774.4	-6.9	5.9	0.94	0.00	-109.68	-7.3	-5.4	

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Hawk 35 Fed
 Well: #5H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #5H
 TVD Reference: KB = 25 @ 3542.0usft (H&P 473)
 MD Reference: KB = 25 @ 3542.0usft (H&P 473)
 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)
805.5	0.50	84.97	805.4	-6.9	6.2	0.50	0.00	-58.06	-5.5	-7.5
869.5	0.50	98.97	869.4	-7.0	6.7	0.19	0.00	21.87	-7.7	-5.8
963.5	0.50	59.97	963.4	-6.8	7.5	0.36	0.00	-41.49	-3.1	-9.6
1,026.5	0.40	79.97	1,026.4	-6.6	7.9	0.29	-0.16	31.75	-6.6	-7.9
1,058.5	0.40	70.97	1,058.4	-6.6	8.1	0.20	0.00	-28.12	-5.5	-8.9
1,089.5	0.40	67.97	1,089.4	-6.5	8.3	0.07	0.00	-9.68	-5.3	-9.2
1,120.5	0.50	97.97	1,120.4	-6.5	8.6	0.81	0.32	96.77	-9.4	-5.2
1,151.5	0.30	55.97	1,151.4	-6.5	8.8	1.10	-0.65	-135.48	-3.7	-10.3
1,182.5	0.20	39.97	1,182.4	-6.4	8.9	0.39	-0.32	-51.61	-0.8	-10.9
1,245.5	0.20	354.97	1,245.4	-6.2	8.9	0.24	0.00	-71.43	6.9	-8.4
1,276.5	0.10	157.97	1,276.4	-6.2	8.9	0.96	-0.32	525.81	-9.1	6.0
1,434.0	0.40	323.90	1,433.9	-5.8	8.7	0.32	0.19	105.35	9.8	-3.6
1,622.0	0.50	329.70	1,621.9	-4.6	7.9	0.06	0.05	3.09	7.9	-4.5
1,811.0	0.30	343.70	1,810.9	-3.4	7.3	0.12	-0.11	7.41	5.3	-6.1
1,999.0	0.30	313.70	1,998.9	-2.6	6.8	0.08	0.00	-15.96	6.7	-2.8
2,188.0	0.40	335.20	2,187.9	-1.7	6.2	0.09	0.05	11.38	4.1	-4.9
2,376.0	0.40	326.10	2,375.9	-0.5	5.6	0.03	0.00	-4.84	3.5	-4.3
2,566.0	0.30	288.20	2,565.9	0.2	4.7	0.13	-0.05	-19.95	4.4	-1.6
2,754.0	0.40	299.40	2,753.9	0.7	3.7	0.06	0.05	5.96	2.9	-2.4
2,943.0	0.40	330.10	2,942.9	1.6	2.8	0.11	0.00	16.24	0.0	-3.2
3,132.0	0.50	15.30	3,131.9	2.9	2.7	0.19	0.05	23.92	-3.5	-1.8
3,320.0	0.60	16.70	3,319.9	4.7	3.2	0.05	0.05	0.74	-5.4	-1.7
3,509.0	0.80	51.20	3,508.9	6.4	4.5	0.24	0.11	18.25	-7.5	2.2
3,698.0	0.80	54.40	3,697.8	8.0	6.6	0.02	0.00	1.69	-10.0	2.7
3,887.0	0.30	58.80	3,886.8	9.1	8.1	0.27	-0.26	2.33	-11.6	3.6
4,076.0	0.40	312.00	4,075.8	9.8	8.0	0.30	0.05	-56.51	-0.6	-12.6
4,264.0	0.30	305.80	4,263.8	10.5	7.1	0.06	-0.05	-3.30	-0.4	-12.7

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Hawk 35 Fed
 Well: #5H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #5H
 TVD Reference: KB = 25 @ 3542.0usft (H&P 473)
 MD Reference: KB = 25 @ 3542.0usft (H&P 473)
 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)	
4,453.0	0.50	19.10	4,452.8	11.5	7.0	0.27	0.11	38.78	-13.2	-2.8	
4,642.0	0.80	98.20	4,641.8	12.1	8.6	0.45	0.16	41.85	-6.7	13.2	
4,830.0	1.50	105.90	4,829.8	11.3	12.2	0.38	0.37	4.10	-8.7	14.2	
5,019.0	2.50	114.90	5,018.7	8.9	18.3	0.55	0.53	4.76	-12.9	15.8	
5,105.0	2.40	110.60	5,104.6	7.4	21.7	0.24	-0.12	-5.00	-17.7	14.6	
5,305.0	1.80	110.10	5,304.5	4.9	28.6	0.30	-0.30	-0.25	-25.2	14.4	
5,493.0	0.50	109.20	5,492.4	3.6	32.1	0.69	-0.69	-0.48	-29.2	14.0	
5,682.0	0.30	112.00	5,681.4	3.1	33.4	0.11	-0.11	1.48	-29.8	15.4	
5,871.0	0.20	106.70	5,870.4	2.9	34.2	0.05	-0.05	-2.80	-31.9	12.6	
6,060.0	1.10	309.00	6,059.4	3.9	33.1	0.68	0.48	-83.44	23.2	-23.8	
6,249.0	1.10	316.90	6,248.4	6.4	30.4	0.08	0.00	4.18	16.1	-26.6	
6,438.0	1.20	321.50	6,437.3	9.3	27.9	0.07	0.05	2.43	10.1	-27.6	
6,627.0	1.10	320.30	6,626.3	12.2	25.5	0.05	-0.05	-0.63	6.9	-27.4	
6,816.0	1.10	325.00	6,815.2	15.1	23.3	0.05	0.00	2.49	1.0	-27.8	
7,004.0	1.10	316.50	7,003.2	17.9	21.1	0.09	0.00	-4.52	1.5	-27.6	
7,192.0	1.10	320.20	7,191.2	20.6	18.7	0.04	0.00	1.97	-3.8	-27.5	
7,381.0	1.10	301.70	7,380.1	22.9	16.0	0.19	0.00	-9.79	1.5	-27.9	
7,569.0	1.20	304.60	7,568.1	25.0	12.8	0.06	0.05	1.54	-3.6	-27.8	
7,757.0	1.20	299.90	7,756.1	27.1	9.5	0.05	0.00	-2.50	-5.3	-28.2	
7,946.0	1.00	295.10	7,945.0	28.8	6.3	0.12	-0.11	-2.54	-6.5	-28.7	
8,134.0	1.20	294.50	8,133.0	30.3	3.0	0.11	0.11	-0.32	-9.8	-28.8	
8,323.0	1.10	301.20	8,322.0	32.0	-0.4	0.09	-0.05	3.54	-16.9	-27.2	
8,512.0	0.80	286.80	8,510.9	33.4	-3.2	0.20	-0.16	-7.62	-12.7	-31.0	
8,644.0	1.00	284.90	8,642.9	33.9	-5.2	0.15	0.15	-1.44	-13.7	-31.5	
8,699.0	2.30	290.60	8,697.9	34.4	-6.7	2.38	2.36	10.36	-18.3	-29.9	
8,746.0	7.90	298.60	8,744.7	36.3	-10.4	11.98	11.91	17.02	-24.7	-27.2	
8,793.0	14.90	303.60	8,790.7	41.2	-18.3	15.03	14.89	10.64	-30.6	-26.1	

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 27 NME)
Site: Hawk 35 Fed
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: KB = 25 @ 3542.0usft (H&P 473)
MD Reference: KB = 25 @ 3542.0usft (H&P 473)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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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)
8,840.0	22.10	307.50	8,835.3	49.9	-30.3	15.54	15.32	8.30	-37.9	-26.6
8,887.0	27.90	309.00	8,877.9	62.3	-45.9	12.41	12.34	3.19	-45.7	-30.0
8,934.0	31.60	312.70	8,918.7	77.5	-63.5	8.78	7.87	7.87	-54.9	-33.3
8,982.0	37.10	313.80	8,958.3	96.1	-83.2	11.53	11.46	2.29	-62.8	-41.4
9,029.0	42.10	313.80	8,994.5	116.8	-104.8	10.64	10.64	0.00	-70.0	-52.2
9,076.0	46.10	312.50	9,028.2	139.2	-128.7	8.73	8.51	-2.77	-75.6	-65.4
9,123.0	47.10	311.10	9,060.5	161.9	-154.1	3.03	2.13	-2.98	-79.2	-78.7
9,171.0	50.60	310.90	9,092.1	185.6	-181.4	7.30	7.29	-0.42	-80.9	-92.3
9,218.0	51.10	311.50	9,121.8	209.7	-208.8	1.45	1.06	1.28	-81.7	-104.2
9,265.0	54.10	312.00	9,150.3	234.5	-236.7	6.44	6.38	1.06	-81.2	-112.7
9,312.0	58.00	311.30	9,176.6	260.4	-265.8	8.39	8.30	-1.49	-80.6	-116.9
9,360.0	59.50	314.00	9,201.5	288.2	-296.0	5.73	3.12	5.62	-84.6	-113.9
9,407.0	60.40	317.40	9,225.0	317.3	-324.4	6.55	1.91	7.23	-87.5	-108.0
9,454.0	60.70	321.20	9,248.1	348.4	-351.1	7.07	0.64	8.09	-87.9	-100.4
9,501.0	61.00	324.60	9,271.0	381.1	-375.8	6.35	0.64	7.23	-85.0	-91.9
9,549.0	62.90	329.30	9,293.6	416.6	-398.9	9.50	3.96	9.79	-80.4	-81.8
9,596.0	65.20	334.10	9,314.2	453.8	-418.9	10.40	4.89	10.21	-74.1	-72.1
9,643.0	67.70	337.70	9,332.9	493.1	-436.5	8.81	5.32	7.66	-66.1	-63.0
9,690.0	71.60	341.80	9,349.3	534.4	-451.7	11.65	8.30	8.72	-57.8	-53.6
9,701.4	72.57	342.64	9,352.8	544.8	-455.0	11.04	8.49	7.41	-55.7	-51.4
Entrance, MD:9701.4', TVD:9352.8', N/S:545.0', E/W:-455.2', INC:72.57										
9,733.9	75.35	345.00	9,361.8	574.7	-463.7	11.04	8.55	7.27	-49.9	-45.0
FTP(Hawk 35 Fed #5H)										
9,738.0	75.70	345.30	9,362.8	578.6	-464.7	11.04	8.59	7.16	-49.2	-44.2
9,785.0	79.60	348.20	9,372.9	623.3	-475.3	10.26	8.30	6.17	-40.9	-34.8
9,811.0	82.00	350.30	9,377.0	648.5	-480.0	12.20	9.23	8.08	-36.8	-29.8
9,858.0	85.80	354.30	9,382.0	694.8	-486.3	11.70	8.09	8.51	-31.5	-23.7

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Hawk 35 Fed
 Well: #5H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #5H
 TVD Reference: KB = 25 @ 3542.0usft (H&P 473)
 MD Reference: KB = 25 @ 3542.0usft (H&P 473)
 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)
9,905.0	87.70	356.50	9,384.7	741.6	-490.1	6.18	4.04	4.68	-28.4	-20.2
9,953.0	88.30	357.90	9,386.4	789.5	-492.4	3.17	1.25	2.92	-26.2	-18.1
10,047.0	89.40	358.30	9,388.2	883.4	-495.5	1.25	1.17	0.43	-23.4	-15.6
10,141.0	90.40	358.20	9,388.4	977.3	-498.4	1.07	1.06	-0.11	-22.3	-13.3
10,235.0	91.90	358.40	9,386.5	1,071.3	-501.2	1.61	1.60	0.21	-23.3	-11.1
10,330.0	92.60	359.40	9,382.8	1,166.2	-503.0	1.28	0.74	1.05	-26.1	-9.9
10,424.0	92.40	358.20	9,378.7	1,260.1	-505.0	1.29	-0.21	-1.28	-29.3	-8.5
10,518.0	91.20	357.40	9,375.7	1,354.0	-508.6	1.53	-1.28	-0.85	-31.3	-5.4
10,613.0	91.00	357.20	9,373.9	1,448.8	-513.0	0.30	-0.21	-0.21	-32.2	-1.5
10,620.8	90.96	357.34	9,373.8	1,456.6	-513.4	1.88	-0.53	1.81	-32.2	-1.2
TGT#1 (Hawk 35 Fed #5H)										
10,707.0	90.50	358.90	9,372.7	1,542.8	-516.2	1.88	-0.53	1.81	-32.6	1.1
10,802.0	89.10	359.40	9,373.0	1,637.8	-517.7	1.56	-1.47	0.53	-31.5	1.9
10,897.0	87.60	359.00	9,375.7	1,732.7	-519.0	1.63	-1.58	-0.42	-27.9	2.6
10,991.0	88.60	359.80	9,378.9	1,826.7	-520.0	1.36	1.06	0.85	-24.0	3.0
11,085.0	89.80	359.90	9,380.2	1,920.6	-520.2	1.28	1.28	0.11	-21.9	2.7
11,180.0	89.30	359.40	9,380.9	2,015.6	-520.8	0.74	-0.53	-0.53	-20.3	2.7
11,274.0	87.20	359.70	9,383.8	2,109.6	-521.5	2.26	-2.23	0.32	-16.7	2.8
11,369.0	87.80	359.60	9,387.9	2,204.5	-522.1	0.64	0.63	-0.11	-11.7	2.8
11,463.0	88.80	359.80	9,390.7	2,298.4	-522.6	1.08	1.06	0.21	-8.1	2.7
11,557.0	87.30	0.30	9,393.9	2,392.4	-522.5	1.68	-1.60	0.53	-4.2	2.1
11,652.0	87.60	0.30	9,398.2	2,487.3	-522.0	0.32	0.32	0.00	0.9	1.0
11,746.0	89.00	0.70	9,400.9	2,581.2	-521.2	1.55	1.49	0.43	4.5	-0.4
11,841.0	89.70	1.00	9,402.0	2,676.2	-519.8	0.80	0.74	0.32	6.3	-2.4
11,935.0	91.40	1.80	9,401.1	2,770.2	-517.5	2.00	1.81	0.85	6.2	-5.3
12,029.0	89.70	0.60	9,400.2	2,864.2	-515.5	2.21	-1.81	-1.28	6.1	-7.8
12,123.0	89.50	359.80	9,400.9	2,958.2	-515.2	0.88	-0.21	-0.85	7.6	-8.8

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 27 NME)
 Site: Hawk 35 Fed
 Well: #5H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #5H
 TVD Reference: KB = 25 @ 3542.0usft (H&P 473)
 MD Reference: KB = 25 @ 3542.0usft (H&P 473)
 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)
12,218.0	87.60	358.80	9,403.3	3,053.1	-516.4	2.26	-2.00	-1.05	10.8	-8.2
12,313.0	86.70	358.60	9,408.0	3,148.0	-518.5	0.97	-0.95	-0.21	16.3	-6.6
12,407.0	87.10	358.00	9,413.1	3,241.8	-521.3	0.77	0.43	-0.64	22.2	-4.4
12,501.0	87.30	357.00	9,417.7	3,335.6	-525.4	1.08	0.21	-1.06	27.6	-0.9
12,595.0	88.60	357.40	9,421.0	3,429.4	-530.0	1.45	1.38	0.43	31.7	3.1
12,630.6	89.46	358.60	9,421.6	3,465.0	-531.2	4.15	2.42	3.37	32.6	4.1
TGT#2 (Hawk 35 Fed #5H)										
12,690.0	90.90	0.60	9,421.4	3,524.4	-531.6	4.15	2.42	3.37	32.9	4.2
12,784.0	90.20	1.20	9,420.5	3,618.4	-530.2	0.98	-0.74	0.64	32.8	2.1
12,879.0	89.00	0.60	9,421.2	3,713.3	-528.7	1.41	-1.26	-0.63	34.2	0.0
12,973.0	88.10	1.10	9,423.6	3,807.3	-527.3	1.10	-0.96	0.53	37.4	-1.9
13,067.0	88.30	1.20	9,426.5	3,901.2	-525.4	0.24	0.21	0.11	41.1	-4.4
13,162.0	85.80	0.10	9,431.4	3,996.1	-524.3	2.87	-2.63	-1.16	46.8	-6.1
13,257.0	86.20	359.80	9,438.1	4,090.9	-524.4	0.53	0.42	-0.32	54.2	-6.6
13,351.0	88.00	359.90	9,442.8	4,184.7	-524.6	1.92	1.91	0.11	59.7	-6.9
13,446.0	91.50	358.90	9,443.2	4,279.7	-525.6	3.83	3.68	-1.05	60.9	-6.5
13,540.0	93.10	357.90	9,439.5	4,373.6	-528.3	2.01	1.70	-1.06	57.9	-4.5
13,634.0	94.40	356.90	9,433.3	4,467.3	-532.5	1.74	1.38	-1.06	52.5	-0.8
13,728.0	92.40	357.10	9,427.7	4,561.0	-537.4	2.14	-2.13	0.21	47.7	3.5
13,823.0	89.70	357.90	9,426.0	4,655.9	-541.6	2.96	-2.84	0.84	46.7	7.1
13,917.0	90.30	358.30	9,426.0	4,749.8	-544.7	0.77	0.64	0.43	47.5	9.6
14,011.0	91.30	358.50	9,424.7	4,843.8	-547.3	1.08	1.06	0.21	47.0	11.6
14,106.0	90.70	358.70	9,423.0	4,938.7	-549.6	0.67	-0.63	0.21	46.1	13.4
14,200.0	88.70	359.80	9,423.5	5,032.7	-550.9	2.43	-2.13	1.17	47.3	14.0
14,295.0	89.00	359.70	9,425.4	5,127.7	-551.3	0.33	0.32	-0.11	50.0	13.9
14,389.0	89.80	359.50	9,426.4	5,221.7	-551.9	0.88	0.85	-0.21	51.8	13.9
14,483.0	89.20	359.80	9,427.2	5,315.7	-552.5	0.71	-0.64	0.32	53.4	13.9

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 27 NME)
Site: Hawk 35 Fed
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: KB = 25 @ 3542.0usft (H&P 473)
MD Reference: KB = 25 @ 3542.0usft (H&P 473)
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)
14,577.0	88.30	359.80	9,429.3	5,409.7	-552.8	0.96	-0.96	0.00	56.2	13.7
14,661.0	89.80	359.60	9,430.7	5,493.7	-553.3	1.80	1.79	-0.24	58.3	13.6
14,683.0	90.40	0.10	9,430.6	5,515.7	-553.3	3.55	2.73	2.27	58.4	13.5
Final MWD Survey (MD= 14863.0')										
14,710.1	90.40	0.10	9,430.4	5,542.8	-553.3	0.00	0.00	0.00	58.4	13.3
Exit, MD:14710.1', TVD:9430.4', N/S:5543.0', E/W:-553.5', INC:90.40 - PBHL(Hawk 35 Fed #5H)										
14,747.0	90.40	0.10	9,430.2	5,579.7	-553.2	0.00	0.00	0.00	67.8	15.4
Final Projection to Bit (MD=14747.0')										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,701.4	9,352.8	544.8	-455.0	Entrance, MD:9701.4', TVD:9352.8', N/S:545.0', E/W:-455.2', INC:72.57
14,683.0	9,430.6	5,515.7	-553.3	Final MWD Survey (MD= 14863.0')
14,710.1	9,430.4	5,542.8	-553.3	Exit, MD:14710.1', TVD:9430.4', N/S:5543.0', E/W:-553.5', INC:90.40
14,747.0	9,430.2	5,579.7	-553.2	Final Projection to Bit (MD=14747.0')

Checked By: _____ Approved By: _____ Date: _____