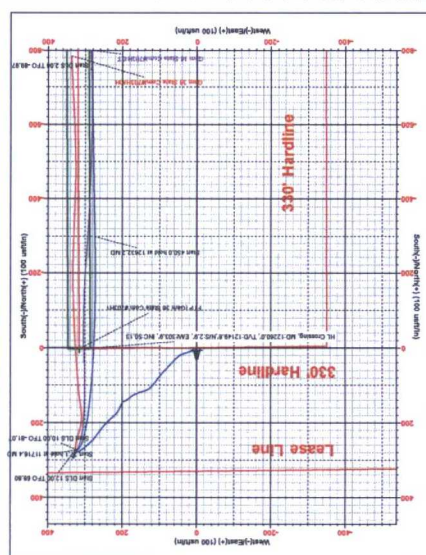
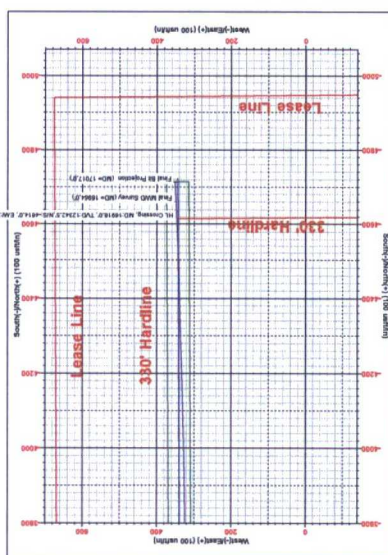
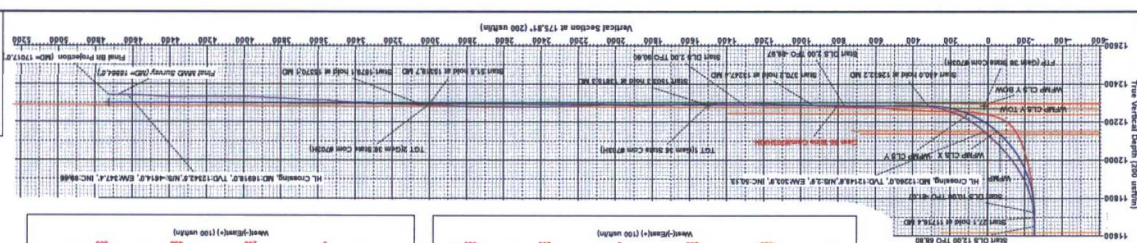
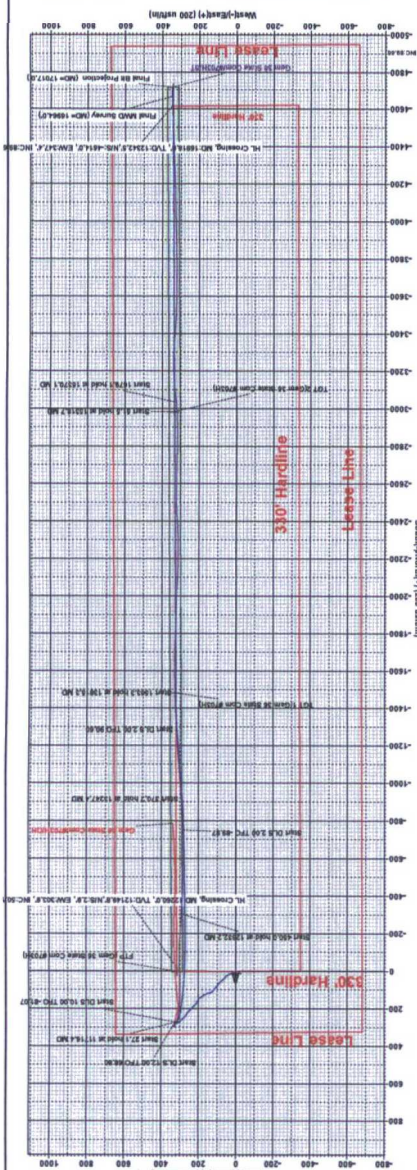


Sources

Magnetic Field

Strength: 47.641 Gauss

Dir Angle: 59.33°

True North: -0.38°

Azimuths to Grid North

To convert a Magnetic Direction to a Grid Direction, Add 0.38°

To convert a True Direction to a Grid Direction, Subtract 0.38°

SECTION DETAILS

Sec	MPD	Inc	Azi	TVD	+N/S	+E/W	Dmg	Flck	Wsect	Annotation
1	11670.0	1.00	200.11	11661.2	277.4	32.7	0.00	-2.60	Wsect	
2	11716.4	6.00	390.00	11697.5	277.3	32.6	0.00	-3.64	Wsect	
4	31743.5	6.00	360.00	11724.4	-298.4	277.3	32.0	-0.48	1	
6	12082.2	88.81	178.00	12288.6	-298.4	277.3	10.00	-1.87	317.8	
7	13617.4	88.81	178.70	12288.3	-1282.7	317.3	0.00	0.00	787.1	
6	13082.2	88.81	178.00	12288.6	-48.8	281.9	0.00	0.00	787.1	
7	13617.4	88.81	178.70	12288.3	-1282.7	317.3	0.00	0.00	832.2	
6	13082.2	88.81	178.00	12288.6	-48.8	281.9	0.00	0.00	787.1	
10	15370.1	88.77	178.65	12285.2	-3035.0	334.7	0.00	0.00	3051.3	
11	17042.1	88.77	178.65	12302.0	-4714.5	345.0	0.00	0.00	4735.5	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TOT (Gauss 36 State Com #703H)	MPH (Gauss 36 State Com #703H)	FTP (Gauss 36 State Com #703H)
+N/S	12288.0	-1480.2	3.0
+E/W	3366.60	326.2	316.0
Northing	388425.00	344.0	344.0
Easting	780619.25	388425.00	780619.25

PROJECT DETAILS: Lea County NM (NAD 83 NME)

Geodetic System: US State Plane 1983

Datum: North American Datum 1983

Ellipsoid: GRS 1980

System Datum: Mean Sea Level

Zone: New Mexico Eastern Zone

H&P 466

Plan #2

WELL DETAILS: #703H

Ground Level: 3423.0

KE = 25° 34.6 Gauss (H&P 466)

Easting 760294.00

Latitude 32° 38.166 N

Longitude 103° 37' 34.827 W

GEM 36 STATE COM

#703H

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HOBBS OGD





EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Gem 36 State Com

#703H

ST

Design: ST

PVA Report

15 August, 2017

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Site:	Gem 36 State Com	MD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Well:	#703H	North Reference:	Grid
Wellbore:	ST	Survey Calculation Method:	Minimum Curvature
Design:	ST	Database:	EDM 5000.14

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Gem 36 State Com		
Site Position:		Northing:	393,698.00 usft
From:	Map	Easting:	760,159.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 4' 49.388 N
		Longitude:	103° 37' 36.556 W
		Grid Convergence:	0.38 °

Well	#703H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 5' 36.166 N
		Longitude:	103° 37' 34.627 W
		Ground Level:	3,423.0 usft

Wellbore	ST		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	8/3/2017	6.96
			Dip Angle (°)
			59.93
			Field Strength (nT)
			47,841.44348040

Design	ST		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	11,640.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			175.81

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Site:	Gem 36 State Com	MD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Well:	#703H	North Reference:	Grid
Wellbore:	ST	Survey Calculation Method:	Minimum Curvature
Design:	ST	Database:	EDM 5000.14

Survey Program		Date 8/15/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
116.0	1,025.0	Invictus (OH)	MWD	MWD - Standard	
1,180.0	11,640.0	QES MWD (OH)	MWD	MWD - Standard	
11,696.0	17,017.0	QES MWD (ST)	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	0.0
116.0	0.70	25.57	116.0	0.6	0.3	0.60	0.60	0.00	0.0	0.0	0.0
132.0	1.10	342.57	132.0	0.9	0.3	4.73	2.50	-268.75	0.0	0.0	0.0
158.0	0.70	75.57	158.0	1.2	0.4	5.13	-1.54	357.69	0.0	0.0	0.0
218.0	0.80	39.57	218.0	1.6	1.0	0.79	0.17	-60.00	0.0	0.0	0.0
303.0	0.80	37.57	303.0	2.5	1.7	0.03	0.00	-2.35	0.0	0.0	0.0
366.0	1.00	72.57	366.0	3.0	2.5	0.91	0.32	55.56	0.0	0.0	0.0
398.0	1.00	41.57	398.0	3.3	3.0	1.67	0.00	-96.87	0.0	0.0	0.0
430.0	0.90	35.57	430.0	3.7	3.3	0.44	-0.31	-18.75	0.0	0.0	0.0
524.0	0.50	68.57	524.0	4.5	4.1	0.59	-0.43	35.11	0.0	0.0	0.0
554.0	0.50	31.57	554.0	4.6	4.3	1.06	0.00	-123.33	0.0	0.0	0.0
586.0	0.50	26.57	586.0	4.9	4.5	0.14	0.00	-15.62	0.0	0.0	0.0
618.0	0.90	19.57	618.0	5.2	4.6	1.28	1.25	-21.87	0.0	0.0	0.0
649.0	0.80	12.57	648.9	5.7	4.7	0.46	-0.32	-22.58	0.0	0.0	0.0
680.0	0.90	13.57	679.9	6.1	4.8	0.33	0.32	3.23	0.0	0.0	0.0
711.0	1.00	35.57	710.9	6.6	5.1	1.21	0.32	70.97	0.0	0.0	0.0
743.0	0.90	42.57	742.9	7.0	5.4	0.48	-0.31	21.87	0.0	0.0	0.0
776.0	0.90	27.57	775.9	7.4	5.7	0.71	0.00	-45.45	0.0	0.0	0.0
805.0	0.80	8.57	804.9	7.8	5.8	1.03	-0.34	-65.52	0.0	0.0	0.0
836.0	0.40	37.57	835.9	8.1	5.9	1.58	-1.29	93.55	0.0	0.0	0.0

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Site:	Gem 36 State Com	MD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Well:	#703H	North Reference:	Grid
Wellbore:	ST	Survey Calculation Method:	Minimum Curvature
Design:	ST	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)	
868.0	0.90	2.57	867.9	8.4	6.0	1.93	1.56	-109.37	0.0	0.0	
898.0	0.80	12.57	897.9	8.9	6.0	0.60	-0.33	33.33	0.0	0.0	
930.0	0.60	333.57	929.9	9.3	6.0	1.57	-0.62	-121.87	0.0	0.0	
962.0	0.30	303.57	961.9	9.5	5.9	1.16	-0.94	-93.75	0.0	0.0	
993.0	0.70	339.57	992.9	9.7	5.7	1.58	1.29	116.13	0.0	0.0	
1,025.0	0.60	307.57	1,024.9	10.0	5.5	1.16	-0.31	-100.00	0.0	0.0	
1,180.0	0.40	233.20	1,179.9	10.1	4.5	0.40	-0.13	-47.98	0.0	0.0	
1,371.0	0.30	182.90	1,370.9	9.2	3.9	0.16	-0.05	-26.34	0.0	0.0	
1,561.0	0.50	181.70	1,560.9	7.9	3.9	0.11	0.11	-0.63	0.0	0.0	
1,751.0	1.90	82.90	1,750.9	7.5	7.0	1.07	0.74	-52.00	0.0	0.0	
1,941.0	4.00	72.50	1,940.6	9.8	16.4	1.14	1.11	-5.47	0.0	0.0	
2,131.0	4.90	76.00	2,130.0	13.8	30.6	0.49	0.47	1.84	0.0	0.0	
2,322.0	4.90	56.70	2,320.3	20.3	45.3	0.86	0.00	-10.10	0.0	0.0	
2,512.0	5.40	42.10	2,509.6	31.3	58.1	0.74	0.26	-7.68	0.0	0.0	
2,702.0	5.90	45.40	2,698.7	44.8	71.1	0.31	0.26	1.74	0.0	0.0	
2,892.0	6.20	45.30	2,887.6	58.9	85.3	0.16	0.16	-0.05	0.0	0.0	
3,082.0	5.30	37.70	3,076.7	73.1	98.0	0.62	-0.47	-4.00	0.0	0.0	
3,273.0	5.10	37.50	3,266.9	86.8	108.5	0.11	-0.10	-0.10	0.0	0.0	
3,463.0	4.20	38.20	3,456.2	99.0	118.0	0.47	-0.47	0.37	0.0	0.0	
3,653.0	4.10	51.10	3,645.7	108.7	127.6	0.49	-0.05	6.79	0.0	0.0	
3,842.0	3.30	73.00	3,834.4	114.5	138.0	0.85	-0.42	11.59	0.0	0.0	
4,032.0	3.90	77.30	4,024.0	117.5	149.6	0.35	0.32	2.26	0.0	0.0	
4,222.0	6.00	64.30	4,213.3	123.3	164.8	1.25	1.11	-6.84	0.0	0.0	
4,412.0	6.30	49.50	4,402.2	134.3	181.7	0.85	0.16	-7.79	0.0	0.0	
4,602.0	3.00	77.80	4,591.6	142.2	194.5	2.07	-1.74	14.89	0.0	0.0	
4,792.0	4.80	21.00	4,781.2	150.6	202.2	2.12	0.95	-29.89	0.0	0.0	
4,982.0	4.20	27.00	4,970.6	164.3	208.2	0.40	-0.32	3.16	0.0	0.0	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Site:	Gem 36 State Com	MD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Well:	#703H	North Reference:	Grid
Wellbore:	ST	Survey Calculation Method:	Minimum Curvature
Design:	ST	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)	
5,172.0	6.00	43.70	5,159.8	177.6	218.2	1.22	0.95	8.79	0.0	0.0	
5,362.0	5.60	49.80	5,348.9	190.8	232.2	0.39	-0.21	3.21	0.0	0.0	
5,553.0	6.00	43.90	5,538.9	204.0	246.2	0.38	0.21	-3.09	0.0	0.0	
5,743.0	5.40	35.80	5,728.0	218.4	258.3	0.53	-0.32	-4.26	0.0	0.0	
5,933.0	4.30	36.50	5,917.3	231.4	267.8	0.58	-0.58	0.37	0.0	0.0	
6,123.0	4.80	39.80	6,106.7	243.2	277.1	0.30	0.26	1.74	0.0	0.0	
6,313.0	4.80	45.80	6,296.0	254.9	287.9	0.26	0.00	3.16	0.0	0.0	
6,504.0	5.10	50.70	6,486.3	265.8	300.2	0.27	0.16	2.57	0.0	0.0	
6,694.0	2.50	69.70	6,675.9	272.6	310.6	1.50	-1.37	10.00	0.0	0.0	
6,884.0	0.70	326.00	6,865.8	275.0	313.9	1.45	-0.95	-54.58	0.0	0.0	
7,074.0	1.20	8.70	7,055.8	277.9	313.5	0.44	0.26	22.47	0.0	0.0	
7,264.0	0.40	95.00	7,245.8	279.9	314.5	0.65	-0.42	45.42	0.0	0.0	
7,454.0	0.90	129.80	7,435.8	278.8	316.3	0.32	0.26	18.32	0.0	0.0	
7,644.0	0.90	124.40	7,625.7	277.0	318.6	0.04	0.00	-2.84	0.0	0.0	
7,834.0	0.40	121.60	7,815.7	275.9	320.4	0.26	-0.26	-1.47	0.0	0.0	
8,024.0	0.50	102.00	8,005.7	275.3	321.8	0.10	0.05	-10.32	0.0	0.0	
8,214.0	0.30	173.20	8,195.7	274.7	322.7	0.26	-0.11	37.47	0.0	0.0	
8,404.0	0.30	6.60	8,385.7	274.7	322.8	0.31	0.00	-87.68	0.0	0.0	
8,594.0	0.20	7.80	8,575.7	275.5	322.9	0.05	-0.05	0.63	0.0	0.0	
8,784.0	0.40	20.30	8,765.7	276.4	323.2	0.11	0.11	6.58	0.0	0.0	
8,973.0	0.50	19.40	8,954.7	277.8	323.7	0.05	0.05	-0.48	0.0	0.0	
9,163.0	0.60	30.00	9,144.7	279.5	324.5	0.07	0.05	5.58	0.0	0.0	
9,354.0	0.70	27.70	9,335.7	281.4	325.5	0.05	0.05	-1.20	0.0	0.0	
9,544.0	1.30	26.80	9,525.6	284.3	327.0	0.32	0.32	-0.47	0.0	0.0	
9,734.0	1.30	12.70	9,715.6	288.4	328.5	0.17	0.00	-7.42	0.0	0.0	
9,924.0	1.00	13.30	9,905.6	292.1	329.3	0.16	-0.16	0.32	0.0	0.0	
10,114.0	0.90	59.80	10,095.5	294.4	331.0	0.40	-0.05	24.47	0.0	0.0	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #703H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Site:	Gem 36 State Com	MD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Well:	#703H	North Reference:	Grid
Wellbore:	ST	Survey Calculation Method:	Minimum Curvature
Design:	ST	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)	
10,304.0	0.30	103.80	10,285.5	295.1	332.8	0.38	-0.32	23.16	0.0	0.0	
10,494.0	1.10	180.30	10,475.5	293.1	333.2	0.56	0.42	40.26	0.0	0.0	
10,684.0	0.70	207.30	10,665.5	290.3	332.7	0.30	-0.21	14.21	0.0	0.0	
10,874.0	0.90	6.10	10,855.5	290.7	332.3	0.83	0.11	83.58	0.0	0.0	
11,063.0	0.80	178.30	11,044.5	290.9	332.5	0.90	-0.05	91.11	0.0	0.0	
11,253.0	1.60	222.60	11,234.4	287.6	330.8	0.62	0.42	23.32	0.0	0.0	
11,444.0	2.40	185.20	11,425.3	281.7	328.6	0.78	0.42	-19.58	0.0	0.0	
11,501.0	2.50	188.20	11,482.3	279.2	328.3	0.29	0.18	5.26	0.0	0.0	
11,640.0	1.00	199.60	11,621.2	275.1	327.5	1.10	-1.08	8.20	0.0	0.0	
11,696.0	5.00	228.90	11,677.1	273.0	325.5	7.42	7.14	52.32	-1.5	0.2	
11,735.0	7.10	246.50	11,715.9	271.0	322.0	7.13	5.38	45.13	-1.8	2.0	
11,782.0	11.00	202.20	11,762.4	265.6	317.6	16.39	8.30	-94.26	-5.4	1.8	
11,830.0	17.40	195.60	11,808.9	254.5	313.9	13.73	13.33	-13.75	-10.2	3.6	
11,877.0	23.30	192.20	11,852.9	238.6	310.1	12.80	12.55	-7.23	-16.3	5.1	
11,925.0	27.90	187.60	11,896.2	218.2	306.6	10.43	9.58	-9.58	-23.3	5.7	
11,972.0	31.20	183.90	11,937.1	195.1	304.3	8.02	7.02	-7.87	-29.5	6.7	
12,020.0	35.90	181.80	11,977.1	168.6	303.0	10.08	9.79	-4.37	-35.1	8.8	
12,067.0	40.00	181.80	12,014.1	139.8	302.1	8.72	8.72	0.00	-39.8	11.8	
12,115.0	42.50	181.10	12,050.2	108.1	301.3	5.30	5.21	-1.46	-43.3	14.3	
12,162.0	45.70	178.70	12,084.0	75.4	301.4	7.68	6.81	-5.11	-45.3	16.3	
12,210.0	47.60	177.60	12,116.9	40.5	302.5	4.29	3.96	-2.29	-44.9	19.9	
12,258.0	50.00	178.10	12,148.5	4.5	303.9	5.06	5.00	1.04	-41.5	24.2	
12,305.0	53.00	179.90	12,177.8	-32.3	304.5	7.05	6.38	3.83	-35.9	27.7	
12,352.0	57.60	181.00	12,204.5	-70.9	304.2	9.97	9.79	2.34	-29.6	29.3	
12,400.0	64.50	180.30	12,227.8	-112.9	303.7	14.43	14.37	-1.46	-24.3	29.7	
12,447.0	69.10	181.50	12,246.3	-156.1	303.0	10.06	9.79	2.55	-19.4	29.9	
12,495.0	73.30	184.50	12,261.7	-201.5	300.6	10.56	8.75	6.25	-13.9	27.9	

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Gem 36 State Com
Well: #703H
Wellbore: ST
Design: ST

Local Co-ordinate Reference: Well #703H
TVD Reference: KB = 25' @ 3448.0usft (H&P 466)
MD Reference: KB = 25' @ 3448.0usft (H&P 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)
12,542.0	76.60	184.50	12,273.9	-246.7	297.1	7.02	7.02	0.00	-8.1	24.0
12,580.0	80.60	183.30	12,281.4	-283.9	294.6	10.97	10.53	-3.16	-3.1	20.9
12,639.0	88.90	183.80	12,286.8	-342.4	290.9	14.09	14.07	0.85	1.7	16.2
12,686.0	89.30	182.70	12,287.6	-389.4	288.3	2.49	0.85	-2.34	2.3	12.7
12,780.0	91.30	181.30	12,287.1	-483.3	285.0	2.60	2.13	-1.49	1.4	7.8
12,875.0	92.70	181.80	12,283.8	-578.2	282.4	1.56	1.47	0.53	-2.2	3.6
12,970.0	90.40	179.60	12,281.2	-673.2	281.2	3.35	-2.42	-2.32	-5.1	0.8
13,064.0	89.10	176.60	12,281.6	-767.1	284.4	3.48	-1.38	-3.19	-5.0	2.2
13,159.0	87.00	176.20	12,284.8	-861.8	290.3	2.25	-2.21	-0.42	-2.1	4.3
13,256.0	87.10	174.80	12,289.8	-958.4	297.9	1.45	0.10	-1.44	2.6	5.1
13,351.0	90.00	175.50	12,292.2	-1,053.0	306.0	3.14	3.05	0.74	4.7	6.0
13,447.0	87.10	176.60	12,294.7	-1,148.8	312.6	3.23	-3.02	1.15	6.8	5.4
13,542.0	87.40	175.50	12,299.2	-1,243.4	319.1	1.20	0.32	-1.16	11.1	4.8
13,638.0	91.20	176.90	12,300.4	-1,339.2	325.5	4.22	3.96	1.46	11.9	4.5
13,733.0	93.50	179.70	12,296.5	-1,434.0	328.3	3.81	2.42	2.95	7.7	3.7
13,828.0	90.60	178.10	12,293.1	-1,529.0	330.1	3.49	-3.05	-1.68	3.9	4.6
13,923.0	91.60	180.10	12,291.3	-1,623.9	331.6	2.35	1.05	2.11	1.7	5.5
14,018.0	91.40	181.10	12,288.8	-1,718.9	330.6	1.07	-0.21	1.05	-1.2	3.9
14,113.0	91.80	182.60	12,286.1	-1,813.8	327.5	1.63	0.42	1.58	-4.2	0.2
14,208.0	87.90	181.30	12,286.4	-1,908.7	324.3	4.33	-4.11	-1.37	-4.3	-3.6
14,303.0	89.30	183.10	12,288.7	-2,003.6	320.7	2.40	1.47	1.89	-2.4	-7.8
14,398.0	91.40	183.40	12,288.1	-2,098.4	315.3	2.23	2.21	0.32	-3.3	-13.8
14,493.0	91.10	180.80	12,286.1	-2,193.4	311.8	2.75	-0.32	-2.74	-5.8	-17.8
14,588.0	92.90	178.70	12,282.7	-2,288.3	312.2	2.91	1.89	-2.21	-9.5	-18.0
14,684.0	90.00	176.60	12,280.3	-2,384.2	316.1	3.73	-3.02	-2.19	-12.3	-14.6
14,779.0	89.90	178.30	12,280.4	-2,479.1	320.4	1.79	-0.11	1.79	-12.6	-11.0
14,874.0	90.80	180.10	12,279.8	-2,574.0	321.7	2.12	0.95	1.89	-13.5	-10.2

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MD Reference: KB = 25' @ 3448.0usft (H&P 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)
14,969.0	90.00	180.60	12,279.2	-2,669.0	321.1	0.99	-0.84	0.53	-14.6	-11.4
15,064.0	89.60	182.20	12,279.5	-2,764.0	318.8	1.74	-0.42	1.68	-14.6	-14.3
15,095.0	87.80	181.10	12,280.2	-2,795.0	317.9	6.80	-5.81	-3.55	-14.1	-15.4
15,127.0	86.40	179.90	12,281.8	-2,826.9	317.6	5.76	-4.37	-3.75	-12.6	-15.9
15,159.0	84.20	179.90	12,284.4	-2,858.8	317.7	6.87	-6.87	0.00	-10.0	-16.0
15,190.0	85.20	179.70	12,287.3	-2,889.7	317.8	3.29	3.23	-0.65	-7.3	-16.1
15,222.0	87.30	178.90	12,289.4	-2,921.6	318.2	7.02	6.56	-2.50	-5.4	-15.9
15,254.0	90.30	177.80	12,290.1	-2,953.6	319.1	9.98	9.37	-3.44	-4.8	-15.2
15,285.0	89.60	175.70	12,290.1	-2,984.6	320.8	7.14	-2.26	-6.77	-4.9	-13.6
15,317.0	89.30	173.60	12,290.4	-3,016.4	323.8	6.63	-0.94	-6.56	-4.8	-10.8
15,349.0	89.60	173.10	12,290.7	-3,048.2	327.5	1.82	0.94	-1.56	-4.6	-7.3
15,380.0	88.60	173.20	12,291.2	-3,079.0	331.2	3.24	-3.23	0.32	-4.2	-3.8
15,412.0	88.00	175.90	12,292.1	-3,110.8	334.3	8.64	-1.87	8.44	-3.4	-0.9
15,444.0	89.20	176.20	12,292.9	-3,142.7	336.5	3.87	3.75	0.94	-2.7	1.1
15,507.0	88.20	179.40	12,294.3	-3,205.6	338.9	5.32	-1.59	5.08	-1.5	3.1
15,539.0	84.60	179.90	12,296.4	-3,237.6	339.1	11.36	-11.25	1.56	0.3	3.1
15,570.0	81.90	178.90	12,300.0	-3,268.4	339.4	9.28	-8.71	-3.23	3.8	3.3
15,602.0	83.40	181.10	12,304.1	-3,300.1	339.4	8.27	4.69	6.87	7.8	3.1
15,634.0	90.80	184.50	12,305.7	-3,332.0	337.8	25.44	23.12	10.62	9.3	1.3
15,697.0	90.90	183.90	12,304.8	-3,394.8	333.2	0.97	0.16	-0.95	8.1	-3.7
15,728.0	86.30	183.30	12,305.5	-3,425.7	331.3	14.96	-14.84	-1.94	8.8	-5.9
15,760.0	85.30	183.90	12,307.9	-3,457.6	329.3	3.64	-3.12	1.87	11.0	-8.1
15,792.0	85.20	183.90	12,310.5	-3,489.4	327.1	0.31	-0.31	0.00	13.5	-10.4
15,823.0	84.90	183.40	12,313.2	-3,520.2	325.1	1.88	-0.97	-1.61	16.0	-12.6
15,855.0	85.60	182.00	12,315.9	-3,552.1	323.6	4.88	2.19	-4.37	18.6	-14.3
15,887.0	88.80	180.40	12,317.4	-3,584.0	323.0	11.18	10.00	-5.00	20.0	-15.1
15,918.0	90.20	180.80	12,317.7	-3,615.0	322.7	4.70	4.52	1.29	20.2	-15.6

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Site:	Gem 36 State Com	MD Reference:	KB = 25' @ 3448.0usft (H&P 466)
Well:	#703H	North Reference:	Grid
Wellbore:	ST	Survey Calculation Method:	Minimum Curvature
Design:	ST	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)	
16,013.0	85.20	179.00	12,321.5	-3,709.9	322.8	5.59	-5.26	-1.89	23.6	-16.1	
16,109.0	88.70	179.00	12,326.6	-3,805.7	324.5	3.65	3.65	0.00	28.3	-15.0	
16,204.0	86.90	178.50	12,330.3	-3,900.6	326.6	1.97	-1.89	-0.53	31.6	-13.5	
16,299.0	88.70	179.20	12,333.9	-3,995.6	328.5	2.03	1.89	0.74	34.9	-12.1	
16,394.0	90.90	178.30	12,334.2	-4,090.5	330.5	2.50	2.32	-0.95	34.8	-10.7	
16,489.0	89.30	178.30	12,334.1	-4,185.5	333.4	1.68	-1.68	0.00	34.3	-8.4	
16,584.0	91.40	177.80	12,333.5	-4,280.4	336.6	2.27	2.21	-0.53	33.3	-5.8	
16,679.0	89.20	179.00	12,333.0	-4,375.4	339.2	2.64	-2.32	1.26	32.4	-3.7	
16,774.0	87.30	178.30	12,335.9	-4,470.3	341.5	2.13	-2.00	-0.74	35.0	-2.0	
16,869.0	86.40	177.30	12,341.1	-4,565.1	345.1	1.41	-0.95	-1.05	39.8	1.0	
16,901.0	89.20	177.30	12,342.3	-4,597.0	346.6	8.75	8.75	0.00	40.9	2.3	
16,964.0	90.90	177.60	12,342.3	-4,659.9	349.4	2.74	2.70	0.48	40.6	4.8	
17,017.0	90.90	177.60	12,341.4	-4,712.9	351.6	0.00	0.00	0.00	39.5	6.7	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
12,260.0	12,149.8	2.9	303.9	HL Crossing, MD:12260.0', TVD:12149.8',N/S:2.9', E/W:303.9', INC:50.13	
16,918.0	12,342.5	-4,614.0	347.4	HL Crossing, MD:16918.0', TVD:12342.5',N/S:-4614.0', E/W:347.4', INC:89.66	
16,964.0	12,342.3	-4,659.9	349.4	Final MWD Survey (MD= 16964.0')	
17,017.0	12,341.4	-4,712.9	351.6	Final Bit Projection (MD= 17017.0')	

Checked By: _____ Approved By: _____ Date: _____