



HOBBS OCD

MAY 02 2016

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EOG Resources

Lea County, NM (NAD27 NME)

Thor 21

#705H

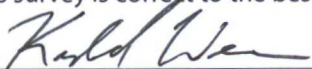
OH

Survey: SDI MWD #1

Regulatory Report (Grid North)

25 September, 2015

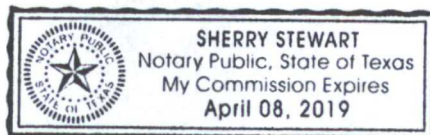
This survey is correct to the best of my knowledge and is supported by actual field data.



Notarized this date 12th of February, 2015.



Notary Signature
County of Midland
State of Texas



Scientific Drilling

Company:	EOG Resources	Local Co-ordinate Reference:	Well #705H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=25' @ 3284.00usft (H&P 260)
Site:	Thor 21	MD Reference:	KB=25' @ 3284.00usft (H&P 260)
Well:	#705H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Project	Lea County, NM (NAD27 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	Thor 21				
Site Position:		Northing:	373,150.00 usft	Latitude:	32° 1' 24.961 N
From:	Map	Easting:	736,878.00 usft	Longitude:	103° 34' 8.442 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.41 °

Well	#705H					
Well Position	+N/-S	0.00 usft	Northing:	373,150.00 usft	Latitude:	32° 1' 24.961 N
	+E/-W	0.00 usft	Easting:	736,878.00 usft	Longitude:	103° 34' 8.442 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,259.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/3/2015	7.13	59.90	48,004

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(bearing)	
	0.00	0.00	0.00	358.35	

Survey Program	Date 9/23/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
180.00	17,687.00	SDI MWD #1 (OH)	SDI-MWD	MWD - Scientific Drilling

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (bearing)	Closure Distance (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	0.97	284.82	179.99	0.39	-1.47	284.82	1.52
271.00	0.85	288.95	270.98	0.81	-2.86	285.76	2.97
331.00	1.07	286.41	330.97	1.11	-3.81	286.21	3.97
390.00	0.77	270.05	389.96	1.26	-4.74	284.94	4.91
451.00	0.78	287.91	450.96	1.39	-5.54	284.10	5.72
512.00	0.60	258.86	511.95	1.46	-6.25	283.13	6.42
604.00	0.54	232.91	603.95	1.10	-7.07	278.88	7.16
695.00	0.31	217.02	694.95	0.65	-7.56	274.91	7.59
786.00	0.61	165.52	785.94	-0.02	-7.59	269.88	7.59
878.00	0.82	166.06	877.94	-1.13	-7.31	261.21	7.39
959.00	0.89	165.91	958.93	-2.30	-7.01	251.83	7.38

Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Thor 21
Well: #705H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #705H
 KB=25' @ 3284.00usft (H&P 260)
 KB=25' @ 3284.00usft (H&P 260)
 Grid
 Minimum Curvature
 Midland District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (bearing)	Closure Distance (usft)
1,053.00	1.10	152.26	1,052.91	-3.81	-6.42	239.31	7.46
1,148.00	0.99	137.64	1,147.90	-5.22	-5.44	226.17	7.54
1,243.00	1.34	169.08	1,242.88	-6.92	-4.68	214.05	8.35
1,338.00	2.17	182.74	1,337.83	-9.81	-4.55	204.90	10.81
1,433.00	3.31	187.35	1,432.72	-14.32	-4.99	199.20	15.17
1,528.00	4.24	187.36	1,527.52	-20.53	-5.79	195.75	21.33
1,622.00	4.49	183.16	1,621.24	-27.65	-6.44	193.11	28.39
1,717.00	4.22	183.84	1,715.97	-34.85	-6.88	191.16	35.52
1,812.00	4.13	186.50	1,810.72	-41.73	-7.50	190.18	42.40
1,907.00	4.01	188.20	1,905.48	-48.42	-8.36	189.79	49.14
2,001.00	4.33	183.80	1,999.23	-55.21	-9.06	189.32	55.95
2,096.00	4.46	183.74	2,093.95	-62.48	-9.54	188.68	63.20
2,191.00	4.63	185.75	2,188.65	-69.98	-10.17	188.27	70.71
2,286.00	4.44	183.87	2,283.35	-77.46	-10.80	187.94	78.21
2,380.00	4.69	185.22	2,377.06	-84.92	-11.39	187.64	85.68
2,475.00	4.54	183.71	2,471.75	-92.54	-11.99	187.38	93.31
2,570.00	4.36	184.10	2,566.46	-99.89	-12.49	187.13	100.67
2,664.00	4.51	188.58	2,660.18	-107.11	-13.30	187.08	107.93
2,759.00	4.44	186.17	2,754.89	-114.46	-14.25	187.10	115.35
2,949.00	4.48	186.36	2,944.32	-129.15	-15.86	187.00	130.12
3,043.00	4.25	186.21	3,038.04	-136.26	-16.65	186.97	137.27
3,138.00	4.18	181.52	3,132.79	-143.22	-17.12	186.82	144.24
3,233.00	4.42	178.92	3,227.52	-150.34	-17.14	186.51	151.32
3,327.00	4.09	179.40	3,321.26	-157.31	-17.04	186.18	158.23
3,422.00	3.53	176.35	3,416.05	-163.62	-16.82	185.87	164.48
3,517.00	3.26	167.38	3,510.88	-169.18	-16.04	185.42	169.93
3,611.00	4.22	167.67	3,604.68	-175.16	-14.72	184.80	175.78
3,706.00	5.01	162.16	3,699.37	-182.53	-12.70	183.98	182.97
3,801.00	4.25	181.38	3,794.07	-189.99	-11.52	183.47	190.34
3,895.00	4.29	168.32	3,887.81	-196.92	-10.89	183.16	197.22
3,990.00	3.96	164.03	3,982.56	-203.55	-9.27	182.61	203.76
4,085.00	3.55	186.13	4,077.37	-209.63	-8.68	182.37	209.81
4,180.00	4.04	190.85	4,172.16	-215.84	-9.62	182.55	216.06
4,275.00	3.73	189.70	4,266.94	-222.18	-10.77	182.78	222.44
4,370.00	3.77	174.91	4,361.74	-228.33	-11.02	182.76	228.60
4,464.00	3.61	179.62	4,455.54	-234.37	-10.72	182.62	234.62
4,559.00	3.62	172.73	4,550.35	-240.34	-10.32	182.46	240.56
4,654.00	4.48	170.50	4,645.12	-246.97	-9.33	182.16	247.15
4,749.00	5.52	166.46	4,739.75	-255.07	-7.65	181.72	255.19
4,844.00	4.98	169.01	4,834.35	-263.56	-5.79	181.26	263.63
4,938.00	5.43	168.35	4,927.97	-271.92	-4.12	180.87	271.95
5,033.00	4.85	178.69	5,022.59	-280.34	-3.12	180.64	280.36
5,128.00	5.07	191.72	5,117.23	-288.47	-3.88	180.77	288.49
5,223.00	4.98	192.07	5,211.87	-296.61	-5.59	181.08	296.66

Company:	EOG Resources	Local Co-ordinate Reference:	Well #705H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=25' @ 3284.00usft (H&P 260)
Site:	Thor 21	MD Reference:	KB=25' @ 3284.00usft (H&P 260)
Well:	#705H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (bearing)	Closure Distance (usft)
5,317.00	4.93	191.26	5,305.52	-304.56	-7.23	181.36	304.65
5,412.00	4.78	187.78	5,400.18	-312.49	-8.57	181.57	312.60
5,507.00	4.34	189.21	5,494.88	-319.96	-9.68	181.73	320.10
5,601.00	4.00	184.66	5,588.63	-326.73	-10.51	181.84	326.90
5,696.00	4.20	183.53	5,683.38	-333.51	-11.00	181.89	333.69
5,791.00	3.81	186.12	5,778.15	-340.12	-11.55	181.94	340.32
5,885.00	3.66	183.81	5,871.95	-346.22	-12.08	182.00	346.43
5,980.00	3.62	188.74	5,966.76	-352.21	-12.74	182.07	352.44
6,075.00	3.05	182.07	6,061.60	-357.70	-13.28	182.13	357.94
6,169.00	3.41	189.02	6,155.45	-362.96	-13.81	182.18	363.22
6,264.00	4.06	192.67	6,250.25	-369.03	-14.99	182.33	369.33
6,359.00	3.66	189.57	6,345.03	-375.30	-16.24	182.48	375.65
6,454.00	3.45	190.95	6,439.85	-381.10	-17.28	182.60	381.49
6,548.00	3.94	191.06	6,533.65	-387.04	-18.44	182.73	387.48
6,643.00	4.61	188.05	6,628.39	-394.03	-19.60	182.85	394.51
6,738.00	4.54	192.80	6,723.09	-401.47	-20.97	182.99	402.02
6,832.00	4.11	187.82	6,816.82	-408.44	-22.25	183.12	409.04
6,927.00	3.74	188.75	6,911.60	-414.87	-23.18	183.20	415.52
7,022.00	3.62	188.96	7,006.40	-420.90	-24.12	183.28	421.59
7,117.00	4.66	176.85	7,101.15	-427.71	-24.38	183.26	428.41
7,211.00	5.18	174.85	7,194.81	-435.75	-23.79	183.12	436.40
7,306.00	4.84	172.19	7,289.44	-444.00	-22.86	182.95	444.58
7,401.00	4.44	175.76	7,384.13	-451.63	-22.04	182.79	452.17
7,495.00	4.34	170.10	7,477.86	-458.77	-21.16	182.64	459.25
7,590.00	4.09	174.66	7,572.60	-465.68	-20.23	182.49	466.12
7,685.00	3.96	169.74	7,667.37	-472.28	-19.33	182.34	472.68
7,779.00	3.78	171.24	7,761.15	-478.54	-18.28	182.19	478.89
7,874.00	3.50	176.82	7,855.96	-484.53	-17.64	182.09	484.85
7,969.00	3.20	173.54	7,950.80	-490.06	-17.18	182.01	490.36
8,063.00	4.18	176.49	8,044.60	-496.08	-16.68	181.93	496.36
8,158.00	4.37	169.93	8,139.34	-503.10	-15.83	181.80	503.35
8,253.00	4.34	169.04	8,234.06	-510.20	-14.52	181.63	510.40
8,348.00	4.07	167.01	8,328.81	-517.01	-13.07	181.45	517.18
8,537.00	3.29	165.74	8,517.42	-528.80	-10.23	181.11	528.90
8,632.00	3.72	170.95	8,612.24	-534.49	-9.07	180.97	534.56
8,727.00	4.83	189.81	8,706.98	-541.47	-9.27	180.98	541.55
8,822.00	4.27	189.85	8,801.68	-548.90	-10.56	181.10	549.00
8,916.00	3.78	189.35	8,895.45	-555.40	-11.66	181.20	555.53
9,011.00	3.56	187.18	8,990.25	-561.42	-12.54	181.28	561.56
9,105.00	3.16	189.70	9,084.09	-566.87	-13.34	181.35	567.03
9,200.00	2.66	188.73	9,178.97	-571.63	-14.11	181.41	571.80
9,295.00	3.52	172.88	9,273.83	-576.70	-14.09	181.40	576.87
9,389.00	3.27	174.41	9,367.66	-582.23	-13.47	181.33	582.39
9,484.00	3.14	166.46	9,462.52	-587.46	-12.60	181.23	587.59

Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Thor 21
Well: #705H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #705H
TVD Reference: KB=25' @ 3284.00usft (H&P 260)
MD Reference: KB=25' @ 3284.00usft (H&P 260)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (bearing)	Closure Distance (usft)
9,579.00	5.31	184.74	9,557.26	-594.37	-12.35	181.19	594.50
9,674.00	5.45	182.85	9,651.84	-603.26	-12.94	181.23	603.40
9,769.00	5.05	191.18	9,746.44	-611.87	-13.97	181.31	612.02
9,864.00	4.18	187.49	9,841.13	-619.40	-15.23	181.41	619.59
9,959.00	3.86	190.94	9,935.90	-625.97	-16.29	181.49	626.18
10,054.00	3.28	183.80	10,030.71	-631.82	-17.08	181.55	632.05
10,148.00	2.87	178.77	10,124.58	-636.86	-17.21	181.55	637.09
10,243.00	3.32	180.13	10,219.44	-641.99	-17.16	181.53	642.22
10,338.00	2.89	173.24	10,314.30	-647.12	-16.89	181.49	647.34
10,405.00	2.64	175.35	10,381.22	-650.33	-16.56	181.46	650.54
10,475.00	2.16	183.03	10,451.16	-653.26	-16.50	181.45	653.47
10,568.00	2.59	185.73	10,544.08	-657.10	-16.80	181.46	657.31
10,662.00	3.76	190.02	10,637.94	-662.25	-17.55	181.52	662.48
10,757.00	4.42	186.84	10,732.69	-668.95	-18.53	181.59	669.21
10,851.00	4.30	192.89	10,826.42	-675.98	-19.75	181.67	676.27
10,945.00	4.02	190.24	10,920.17	-682.66	-21.12	181.77	682.98
11,038.00	4.62	223.42	11,012.92	-688.59	-24.27	182.02	689.01
11,133.00	4.67	240.43	11,107.62	-693.27	-30.27	182.50	693.94
11,227.00	2.93	290.52	11,201.43	-694.32	-35.85	182.96	695.25
11,321.00	2.04	294.37	11,295.34	-692.79	-39.62	183.27	693.92
11,415.00	3.10	284.16	11,389.24	-691.48	-43.61	183.61	692.85
11,509.00	2.56	316.36	11,483.14	-689.34	-47.52	183.94	690.97
11,603.00	1.82	332.72	11,577.07	-686.49	-49.66	184.14	688.28
11,697.00	0.63	336.68	11,671.04	-684.69	-50.55	184.22	686.55
11,791.00	0.98	306.14	11,765.03	-683.74	-51.40	184.30	685.67
11,885.00	0.57	309.90	11,859.03	-682.97	-52.41	184.39	684.97
11,978.00	0.46	332.77	11,952.02	-682.34	-52.93	184.44	684.39
12,073.00	0.74	285.13	12,047.02	-681.84	-53.70	184.50	683.95
12,167.00	0.14	18.87	12,141.01	-681.57	-54.25	184.55	683.73
12,261.00	0.45	125.67	12,235.01	-681.68	-53.91	184.52	683.81
12,324.00	0.34	103.85	12,298.01	-681.87	-53.53	184.49	683.96
12,354.00	0.27	127.53	12,328.01	-681.93	-53.39	184.48	684.02
12,401.00	3.75	335.60	12,374.98	-680.60	-53.93	184.53	682.73
12,448.00	9.78	353.80	12,421.64	-675.22	-55.00	184.66	677.46
12,495.00	15.65	357.31	12,467.46	-664.91	-55.73	184.79	667.25
12,543.00	20.87	357.22	12,513.03	-649.90	-56.45	184.96	652.34
12,590.00	25.70	349.62	12,556.20	-631.50	-58.69	185.31	634.22
12,635.00	31.04	348.79	12,595.78	-610.50	-62.71	185.86	613.71
12,682.00	36.97	353.61	12,634.73	-584.54	-66.64	186.50	588.33
12,729.00	43.28	356.30	12,670.66	-554.39	-69.26	187.12	558.70
12,776.00	49.99	357.45	12,702.91	-520.29	-71.10	187.78	525.13
12,824.00	52.74	359.55	12,732.88	-482.81	-72.07	188.49	488.16
12,871.00	57.13	0.59	12,759.87	-444.36	-72.01	189.21	450.15
12,918.00	63.87	0.10	12,783.01	-403.47	-71.77	190.09	409.81
12,965.00	65.01	0.53	12,803.28	-361.07	-71.54	191.21	368.09

Company:	EOG Resources	Local Co-ordinate Reference:	Well #705H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=25' @ 3284.00usft (H&P 260)
Site:	Thor 21	MD Reference:	KB=25' @ 3284.00usft (H&P 260)
Well:	#705H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (bearing)	Closure Distance (usft)
13,013.00	69.75	0.55	12,821.74	-316.78	-71.12	192.65	324.67
13,060.00	71.61	0.34	12,837.29	-272.43	-70.78	194.56	281.47
13,107.00	71.51	0.98	12,852.16	-227.85	-70.26	197.14	238.44
13,154.00	72.99	1.10	12,866.48	-183.09	-69.45	200.77	195.82
13,201.00	75.28	359.35	12,879.33	-137.89	-69.28	206.68	154.31
13,248.00	79.00	357.86	12,889.79	-92.09	-70.40	217.39	115.92
13,295.00	83.21	356.80	12,897.06	-45.72	-72.56	237.79	85.76
13,315.00	83.82	356.68	12,899.32	-25.88	-73.69	250.65	78.10
13,329.00	84.12	356.46	12,900.79	-11.98	-74.52	260.87	75.48
13,376.00	87.01	356.45	12,904.42	34.78	-77.42	294.19	84.88
13,423.00	89.23	356.56	12,905.96	81.67	-80.29	315.49	114.52
13,518.00	90.17	356.52	12,906.46	176.49	-86.02	334.02	196.34
13,612.00	91.71	358.57	12,904.92	270.39	-90.04	341.58	284.98
13,706.00	91.44	358.45	12,902.33	364.32	-92.49	345.76	375.87
13,801.00	92.01	0.41	12,899.47	459.27	-93.43	348.50	468.67
13,895.00	91.51	1.79	12,896.59	553.20	-91.63	350.60	560.74
13,989.00	90.50	1.97	12,894.94	647.13	-88.55	352.21	653.16
14,083.00	90.87	2.68	12,893.81	741.05	-84.73	353.48	745.88
14,178.00	90.03	359.98	12,893.07	836.01	-82.53	354.36	840.08
14,272.00	91.64	359.84	12,891.70	930.00	-82.68	354.92	933.67
14,365.00	90.40	359.03	12,890.04	1,022.98	-83.59	355.33	1,026.39
14,459.00	93.69	0.43	12,886.69	1,116.90	-84.04	355.70	1,120.06
14,553.00	94.10	359.50	12,880.30	1,210.68	-84.09	356.03	1,213.60
14,647.00	92.02	358.57	12,875.29	1,304.53	-85.67	356.24	1,307.34
14,741.00	92.11	1.04	12,871.90	1,398.46	-85.99	356.48	1,401.10
14,835.00	90.60	0.54	12,869.68	1,492.42	-84.70	356.75	1,494.82
14,930.00	90.27	0.18	12,868.95	1,587.42	-84.10	356.97	1,589.64
15,024.00	90.34	0.31	12,868.45	1,681.41	-83.70	357.15	1,683.50
15,118.00	90.77	357.30	12,867.54	1,775.38	-85.66	357.24	1,777.44
15,211.00	94.87	358.20	12,862.97	1,868.17	-89.31	357.26	1,870.31
15,306.00	93.33	359.27	12,856.18	1,962.90	-91.40	357.33	1,965.03
15,400.00	89.29	359.82	12,854.03	2,056.86	-92.14	357.43	2,058.92
15,494.00	90.07	357.42	12,854.55	2,150.82	-94.41	357.49	2,152.89
15,588.00	90.40	357.51	12,854.17	2,244.73	-98.57	357.49	2,246.89
15,682.00	92.89	357.71	12,851.47	2,338.60	-102.48	357.49	2,340.84
15,776.00	95.35	357.64	12,844.72	2,432.27	-106.29	357.50	2,434.59
15,871.00	93.19	358.33	12,837.64	2,526.94	-109.62	357.52	2,529.32
15,965.00	90.94	358.08	12,834.26	2,620.83	-112.56	357.54	2,623.25
16,060.00	91.01	357.80	12,832.64	2,715.75	-115.97	357.55	2,718.23
16,154.00	90.13	356.43	12,831.70	2,809.63	-120.70	357.54	2,812.22
16,247.00	92.18	357.45	12,829.83	2,902.47	-125.67	357.52	2,905.19
16,342.00	92.68	357.90	12,825.80	2,997.31	-129.52	357.53	3,000.10
16,435.00	92.02	359.27	12,821.99	3,090.20	-131.81	357.56	3,093.01
16,530.00	91.38	0.48	12,819.17	3,185.15	-132.02	357.63	3,187.89

Company: EOG Resources
Project: Lea County, NM (NAD27 NME)
Site: Thor 21
Well: #705H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #705H
 KB=25' @ 3284.00usft (H&P 260)
 KB=25' @ 3284.00usft (H&P 260)
 Grid
 Minimum Curvature
 Midland District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (bearing)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (bearing)	Closure Distance (usft)
16,624.00	90.20	2.38	12,817.87	3,279.11	-129.67	357.74	3,281.67
16,719.00	90.67	1.54	12,817.15	3,374.05	-126.42	357.85	3,376.42
16,813.00	93.19	2.64	12,813.99	3,467.92	-123.00	357.97	3,470.10
16,907.00	91.04	2.92	12,810.52	3,561.74	-118.44	358.10	3,563.71
17,002.00	89.83	1.53	12,809.80	3,656.67	-114.76	358.20	3,658.47
17,096.00	92.65	1.74	12,807.76	3,750.60	-112.07	358.29	3,752.27
17,190.00	93.15	1.46	12,803.01	3,844.44	-109.45	358.37	3,846.00
17,285.00	93.26	1.03	12,797.70	3,939.27	-107.39	358.44	3,940.73
17,379.00	92.69	0.03	12,792.82	4,033.13	-106.52	358.49	4,034.54
17,473.00	92.42	359.26	12,788.63	4,127.04	-107.11	358.51	4,128.43
17,567.00	91.48	357.38	12,785.43	4,220.94	-109.86	358.51	4,222.37
17,624.00	91.65	356.26	12,783.87	4,277.83	-113.02	358.49	4,279.32
Final MWD Survey (MD=17624')							
17,687.00	91.65	356.26	12,782.06	4,340.67	-117.13	358.45	4,342.25
Final Projection to Bit (MD= 17687')							

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
17,624.00	12,783.87	4,277.83	-113.02	Final MWD Survey (MD=17624')
17,687.00	12,782.06	4,340.67	-117.13	Final Projection to Bit (MD= 17687')

Checked By: _____ Approved By: _____ Date: _____



Thor 21 #705H
Lea County, NM (NAD27 NME)
Northing: (Y) 373150.00
Easting: (X) 736878.00
Plan #6



Azimuth to Grid North
True North: -0.41°
Magnetic North: 5.73°
Magnetic Field
Strength: 48003.6nT
Dip Angle: 59.90°
Date: 9/3/2015
Model: IGRF2015

To convert Magnetic North to Grid, Add 6.73°
To convert True North to Grid, Subtract 0.41°

WELL DETAILS:					
Ground Level:	3259.00				
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.00	0.00	373150.00	736878.00	32° 1' 24.901 N	103° 34' 8.442 W

SECTION DETAILS									
MD	Inc	Asd	TVD	+N-S	+E-W	Diag TFace	VSet		Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00		
2287.00	3.87	183.26	2388.71	-13.04	-0.74	1.00	183.26	-13.02	
12358.23	3.87	183.26	12353.26	-484.61	-30.01	0.00	0.00	-483.40	
12757.90	44.41	340.07	12998.85	-552.03	-55.88	12.00	187.53	-549.01	
13147.30	90.33	359.00	12845.00	-303.88	-92.43	11.88	13.28	-300.02	Updated TGT#1(Thor 21#705H)
14345.51	90.34	390.90	12838.00	907.90	-100.83	0.00	-8.01	909.08	Updated TGT#2(Thor 21#705H)
14392.24	91.21	359.00	12837.41	1041.22	-101.14	2.00	0.05	1043.70	Updated TGT#3(Thor 21#705H)
15343.40	91.21	359.00	12795.00	2987.90	-114.80	0.00	0.00	2989.08	Updated PBHL(Thor 21#705H)
16378.18	91.79	360.00	12795.26	3026.87	-115.00	2.00	0.02	3028.72	
17885.17	91.79	359.00	12755.00	4315.00	-124.00	0.00	0.00	4317.78	Updated PBHL(Thor 21#705H)

DESIGN TARGET DETAILS					
Name	TVD	+N-S	+E-W	Northing	Easting
Updated TGT#1(Thor 21#705H)	12838.00	907.90	-100.83	374147.50	736777.17
Updated TGT#2(Thor 21#705H)	12796.00	2987.90	-114.80	378147.90	736703.20
Updated PBHL(Thor 21#705H)	12755.00	4315.00	-124.00	377495.00	736754.00
AC TGT 25(Thor 21#705H)	11926.30	-670.39	-38.17	372476.61	736839.83
Updated FTR(Thor 21#705H)	12845.00	-405.00	-91.00	372745.00	736787.00

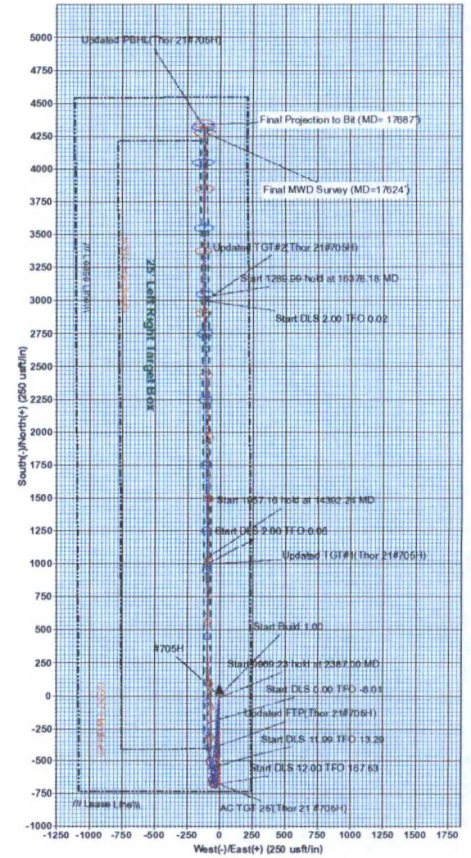
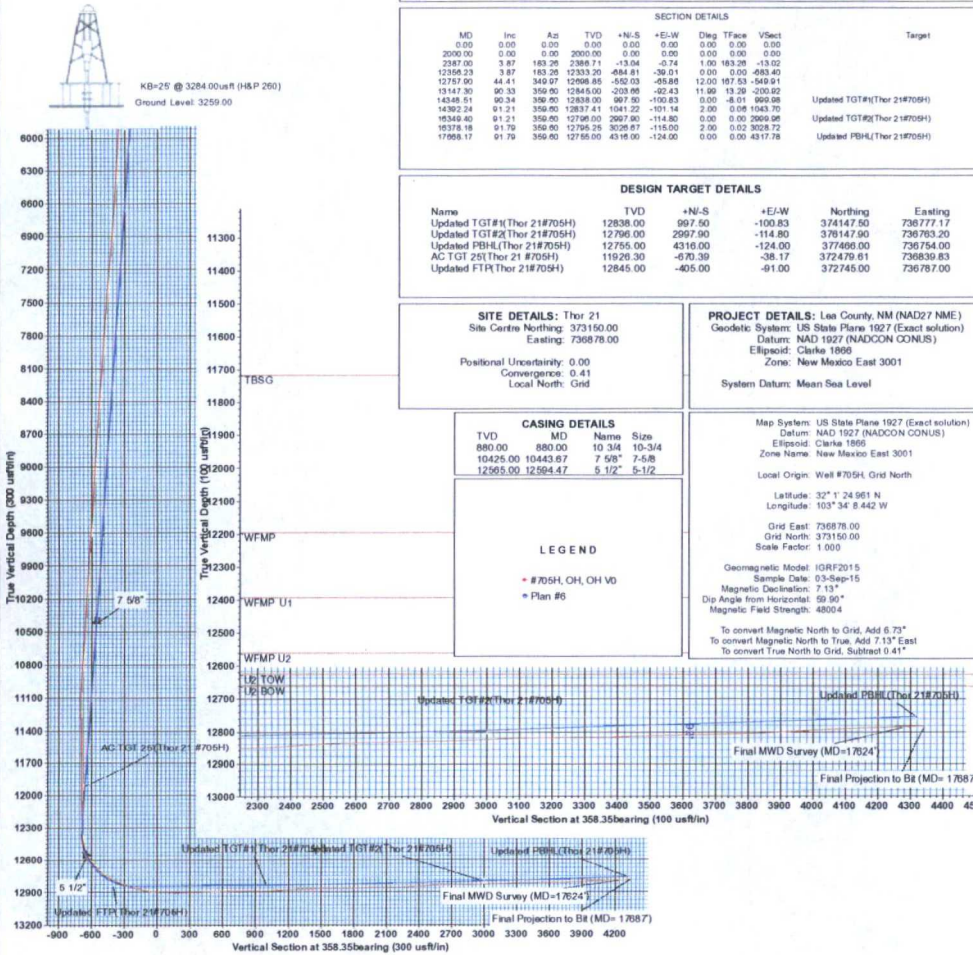
SITE DETAILS: Thor 21	
Site Centre Northing:	373150.00
Easting:	736878.00
Positional Uncertainty:	0.00
Convergence:	0.41
Local North:	Grid

PROJECT DETAILS: Lea County, NM (NAD27 NME)	
Geoid:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone Name:	New Mexico East 3001
System Datum:	Mean Sea Level

CASING DETAILS			
TVD	MD	Name	Size
880.00	880.00	10 3/4	10-3/4
10425.00	10443.67	7 5/8"	7-5/8
12565.00	12594.47	5 1/2"	5-1/2

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well #705H, Grid North
Latitude: 32° 1' 24.901 N
Longitude: 103° 34' 8.442 W
Grid East: 736878.00
Grid North: 373150.00
Scale Factor: 1.000
Geomagnetic Model: IGRF2015
Sample Date: 03-Sep-15
Magnetic Declination: 7.13°
Dip Angle from Horizontal: 59.90°
Magnetic Field Strength: 48004
To convert Magnetic North to Grid, Add 6.73°
To convert Magnetic North to True, Add 7.13° East
To convert True North to Grid, Subtract 0.41°

LEGEND	
* #705H, CH, OH, VD	
* Plan #6	



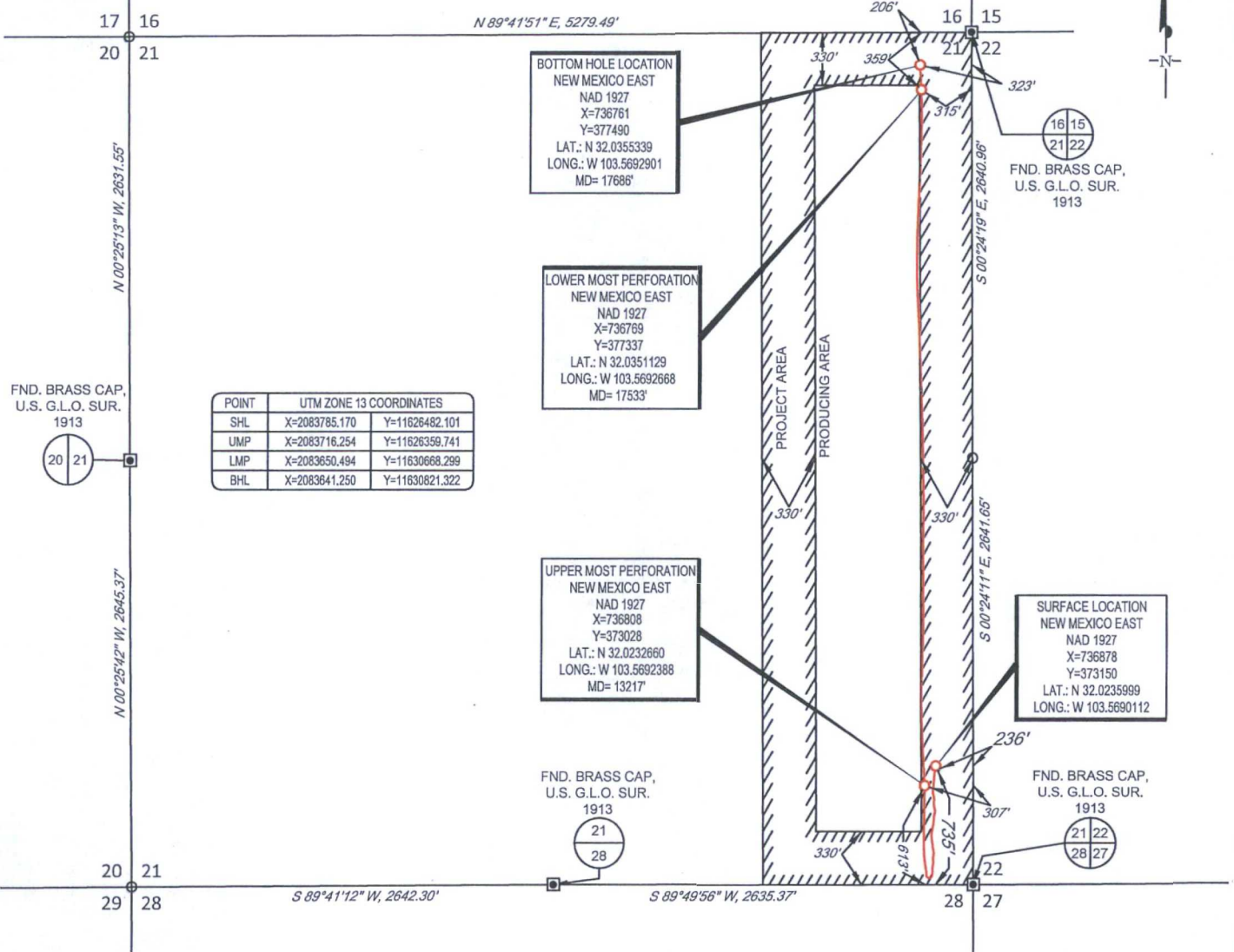
James Dunn
9/31/2015 10:23:15 AM
Scientific Drilling
303 S. Redwood Rd
Clovis, TX 79301



SCALE: 1" = 1000'

0' 500' 1000'

SECTION 21, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO



LEASE NAME & WELL NO.: THOR 21 #705H
SECTION 21 TWP 26-S RGE 33-E SURVEY N.M.P.M.
COUNTY LEA STATE NM ELEVATION 3259'
DESCRIPTION 735' FSL & 236' FEL



TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

1400 EVERMAN PARKWAY, Ste. 197 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM



Michael Blake Brown, P.S. No. 18329
MARCH 09, 2016

THOR 21 #705H AS-COMPLETED	REVISION:		NOTES:
	INT	DATE	
DATE: 03/09/16			1. ORIGINAL DOCUMENT SIZE: 8.5" X 11" 2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927. 3. THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY EOG RESOURCES, INC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.
FILE:AD_THOR21_705H			
DRAWN BY: GLH			
SHEET: 1 OF 1			