



HOBBS OCD

DEC 18 2019

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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Fearless 23 Fed Com

#505H

OH

Design: OH

Midland PVA

23 July, 2019



Midland PVA

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Fearless 23 Fed Com
 Well: #505H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #505H
 TVD Reference: KB = 25' @ 3454.0usft
 MD Reference: KB = 25' @ 3454.0usft
 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	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Fearless 23 Fed Com			
Site Position:		Northing:	408,599.00 usft
From: Map		Easting:	753,585.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 7' 17.261 N
		Longitude:	103° 38' 51.882 W
		Grid Convergence:	0.38 "

Well #505H			
Well Position	+N-S	0.0 usft	Northing:
	+E-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore OH			
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	6/1/2018	(°)
			Dip Angle
			(°)
			Field Strength
			(nT)

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

Survey Program Data 7/23/2019			
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
188.0	20,501.0	Newsco MWD (OH)	MWD
			Description
			OWSG MWD - Standard



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MD (usft)	Inc (")	Azi (azimuth) (")	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
188.0	1.50	280.30	188.0	0.4	-2.4	0.81	0.81	0.00	-2.4	0.0
361.0	2.50	98.70	360.9	0.3	-0.9	2.29	0.57	101.94	0.9	0.1
507.0	2.30	70.80	506.8	0.7	5.0	0.80	-0.14	-19.11	-5.0	-1.0
695.0	2.50	70.40	694.6	3.4	12.5	0.11	0.11	-0.21	-12.9	-1.0
876.0	1.00	21.90	875.6	6.2	16.8	1.10	-0.83	-26.80	-12.0	-13.3
977.0	1.50	359.70	976.5	8.3	17.1	0.68	0.50	-21.98	-8.2	-17.1
1,168.0	6.90	31.80	1,165.0	20.4	23.1	3.01	2.86	16.98	-29.5	-8.9
1,354.0	8.40	31.80	1,351.3	41.7	36.3	0.80	0.80	0.00	-50.5	-8.9
1,543.0	7.80	33.70	1,538.5	63.8	50.5	0.45	-0.42	1.01	-60.6	-7.1
1,731.0	7.00	34.60	1,724.9	83.6	63.9	0.32	-0.32	0.48	-60.6	-7.0
1,920.0	6.00	36.40	1,912.7	101.0	76.3	0.54	-0.53	0.95	-58.0	-6.6
2,109.0	5.40	37.00	2,100.8	116.1	87.5	0.32	-0.32	0.32	-52.6	-7.9
2,298.0	5.70	37.20	2,288.9	130.7	98.5	0.16	0.16	0.11	-46.8	-9.8
2,487.0	7.10	36.00	2,476.7	147.6	111.1	0.74	0.74	-0.83	-43.4	-12.6
2,675.0	6.40	33.40	2,663.4	165.7	123.6	0.41	-0.37	-1.38	-40.8	-15.6
2,864.0	5.70	33.20	2,851.4	182.4	134.6	0.37	-0.37	-0.11	-36.4	-16.2
3,053.0	8.70	34.90	3,038.8	202.0	147.9	1.59	1.59	0.90	-36.3	-16.0
3,243.0	7.60	37.90	3,226.9	223.7	163.8	0.62	-0.58	1.58	-39.8	-15.8
3,432.0	7.70	35.30	3,414.2	243.9	178.8	0.19	0.05	-1.38	-40.0	-19.4
3,621.0	7.40	36.60	3,601.6	264.0	193.4	0.18	-0.16	0.69	-41.1	-20.1
3,810.0	7.60	15.30	3,789.0	285.8	204.0	1.47	0.11	-11.27	-31.8	-31.0
3,999.0	5.80	20.50	3,976.7	306.8	210.6	1.00	-0.95	2.75	-32.7	-22.0
4,188.0	5.40	25.00	4,164.8	323.8	217.7	0.31	-0.21	2.38	-28.6	-15.6
4,377.0	5.10	32.70	4,353.0	338.9	226.0	0.40	-0.16	4.07	-23.4	-10.7
4,565.0	3.60	46.50	4,540.5	350.0	234.8	0.97	-0.80	7.34	-15.9	-8.8
4,738.0	2.50	39.40	4,713.2	356.7	241.1	0.67	-0.64	-4.10	-1.8	-14.1



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Survey

MD (usft)	Inc (")	Azi (azimuth) (")	TVD (usft)	N/S (usft)	E/W (usft)	DLog ("/100usft)	Buidl ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)
4,927.0	6.40	23.90	4,801.6	369.5	248.0	2.14	2.08	-8.20	11.6	-11.7
5,116.0	8.40	28.60	5,089.1	391.3	258.9	1.10	1.08	2.49	10.4	-10.3
5,304.0	7.40	32.50	5,275.3	413.5	272.0	0.80	-0.53	2.07	8.0	-10.1
5,483.0	7.20	34.90	5,462.7	433.5	285.3	0.19	-0.11	1.27	7.8	-11.1
5,587.0	7.00	33.70	5,556.0	443.1	291.9	0.26	-0.21	-1.28	8.4	-11.4
5,776.0	7.40	32.00	5,743.5	463.0	304.7	0.24	0.21	-0.90	9.3	-11.4
5,966.0	8.40	30.80	5,931.7	485.3	318.3	0.53	0.53	-0.63	7.8	-10.9
6,155.0	8.20	32.40	6,118.8	508.5	332.6	0.16	-0.11	0.85	4.4	-10.8
6,344.0	8.50	34.90	6,305.7	531.4	347.8	0.25	0.16	1.32	0.7	-11.6
6,533.0	7.50	37.70	6,492.9	552.6	363.3	0.57	-0.53	1.48	-2.1	-13.2
6,722.0	5.30	32.80	6,680.7	569.7	375.6	1.20	-1.16	-2.59	2.3	-14.7
6,910.0	1.10	340.60	6,868.4	578.7	379.7	2.50	-2.23	-27.77	19.8	3.4
7,099.0	1.50	334.50	7,057.4	582.6	378.0	0.22	0.21	-3.23	21.1	14.9
7,288.0	1.40	330.00	7,246.3	586.9	375.8	0.08	-0.05	-2.38	15.6	17.3
7,477.0	1.10	357.40	7,435.3	590.7	374.6	0.35	-0.16	14.50	17.9	9.2
7,666.0	0.90	8.30	7,624.2	594.0	374.7	0.15	-0.11	5.77	16.1	6.0
7,855.0	0.40	310.00	7,813.2	595.9	374.4	0.41	-0.26	-30.85	1.9	15.6
8,043.0	0.00	104.10	8,001.2	596.3	373.9	0.21	-0.21	0.00	12.7	9.1
8,233.0	0.70	210.10	8,191.2	595.3	373.3	0.37	0.37	0.00	-16.7	-1.5
8,422.0	1.20	222.40	8,380.2	592.8	371.4	0.28	0.28	6.51	-19.8	2.4
8,517.0	1.40	215.20	8,475.2	591.1	370.1	0.27	0.21	-7.58	-22.0	-0.3
8,705.0	1.80	209.80	8,663.1	586.7	367.3	0.23	0.21	-2.87	-27.2	-2.5
8,894.0	1.90	239.00	8,852.0	582.5	363.1	0.50	0.05	15.45	-30.7	12.5
9,083.0	2.10	254.40	9,040.9	580.0	357.1	0.30	0.11	8.15	-32.7	21.0
9,271.0	2.80	211.40	9,228.7	575.1	351.4	1.02	0.37	-22.87	-45.4	-9.3
9,460.0	2.70	247.00	9,417.5	569.4	344.9	0.89	-0.05	18.84	-50.5	21.6
9,649.0	1.80	231.00	9,606.4	565.8	338.5	0.58	-0.48	-8.47	-61.8	5.5



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9,773.0	2.40	125.20	9,730.3	563.1	339.1	2.72	0.48	-85.32	9.4	-62.8
9,868.0	9.30	153.80	9,824.8	555.1	344.1	7.87	7.28	30.11	-30.9	-58.9
9,981.0	20.40	151.20	9,914.5	534.0	355.3	11.95	11.94	-2.80	-48.7	-58.6
10,058.0	25.20	154.20	10,002.1	501.3	372.1	5.20	5.05	3.16	-71.8	-44.8
10,150.0	38.20	168.60	10,082.9	455.9	388.3	14.00	11.70	15.32	-82.4	-13.6
10,202.0	41.80	175.20	10,123.3	423.5	390.8	13.40	10.77	12.69	-99.6	0.0
10,244.0	45.30	173.00	10,153.7	394.7	393.8	9.08	8.33	-5.24	-104.0	-0.2
10,339.0	48.80	177.20	10,217.9	324.9	399.7	5.75	4.74	4.42	-106.4	11.4
10,433.0	55.80	178.10	10,274.7	250.2	402.7	6.43	6.38	0.96	-98.5	15.4
10,527.0	64.40	180.60	10,321.5	168.8	403.6	9.43	9.15	2.66	-84.0	17.2
10,621.0	68.30	180.90	10,359.2	82.7	402.5	4.16	4.15	0.32	-62.5	15.3
10,717.0	77.40	179.90	10,387.5	-8.9	401.8	9.53	9.48	-1.04	-36.7	13.3
10,812.0	81.40	180.30	10,404.9	-102.3	401.7	4.23	4.21	0.42	-19.8	12.1
10,908.0	82.40	179.60	10,418.2	-195.4	401.8	1.29	1.08	-0.74	-7.1	11.2
11,001.0	85.20	180.00	10,428.4	-289.8	402.1	2.98	2.95	0.42	2.6	10.6
11,095.0	86.60	180.30	10,435.2	-383.6	401.8	1.52	1.49	0.32	8.8	9.5
11,190.0	88.60	179.60	10,439.1	-478.5	401.9	2.23	2.11	-0.74	12.2	8.7
11,284.0	89.10	179.30	10,441.0	-572.4	402.6	0.62	0.53	-0.32	13.6	8.7
11,379.0	89.70	178.90	10,442.0	-667.4	404.3	0.76	0.63	-0.42	14.0	9.3
11,473.0	90.20	178.90	10,442.1	-761.4	408.1	0.53	0.53	0.00	13.6	10.2
11,568.0	90.70	179.10	10,441.4	-858.4	407.8	0.57	0.53	0.21	12.3	11.0
11,662.0	91.60	179.50	10,439.5	-950.4	408.9	1.05	0.96	0.43	9.8	11.2
11,757.0	89.50	179.50	10,438.6	-1,045.3	409.8	2.21	-2.21	0.00	8.4	11.2
11,851.0	89.80	179.60	10,439.1	-1,139.3	410.5	0.34	0.32	0.11	8.4	11.0
11,946.0	91.30	179.70	10,438.2	-1,234.3	411.1	1.58	1.58	0.11	7.0	10.7
12,040.0	88.70	179.30	10,438.2	-1,328.3	411.9	2.80	-2.77	-0.43	6.4	10.6
12,134.0	88.50	179.00	10,440.5	-1,422.3	413.3	0.38	-0.21	-0.32	8.2	11.1



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12,229.0	87.30	177.70	10,444.0	-1,517.2	416.0	1.88	-1.26	-1.37	11.1	13.0
12,324.0	88.90	179.70	10,447.2	-1,612.1	418.2	2.70	1.68	2.11	13.7	14.2
12,418.0	88.70	179.80	10,448.1	-1,706.1	418.6	0.24	-0.21	0.11	15.1	13.8
12,512.0	88.20	181.20	10,451.7	-1,800.0	417.8	1.58	-0.53	1.49	17.1	12.1
12,607.0	87.80	181.30	10,455.0	-1,894.9	415.7	0.43	-0.42	0.11	19.9	9.1
12,701.0	88.10	181.40	10,458.3	-1,988.9	413.5	0.34	0.32	0.11	22.7	6.0
12,796.0	89.00	181.00	10,460.7	-2,083.8	411.5	1.04	0.95	-0.42	24.6	3.1
12,890.0	88.90	180.30	10,462.5	-2,177.8	410.4	0.75	-0.11	-0.74	25.8	1.2
12,984.0	87.60	179.10	10,465.3	-2,271.7	410.9	1.88	-1.38	-1.28	28.1	0.8
13,079.0	89.90	181.90	10,467.4	-2,366.7	410.1	3.81	2.42	2.95	29.6	-1.0
13,173.0	89.40	180.70	10,468.0	-2,460.7	408.0	1.38	-0.53	-1.28	29.7	-4.0
13,268.0	90.30	181.00	10,468.2	-2,555.7	406.6	1.00	0.95	0.32	29.4	-6.3
13,362.0	91.30	181.20	10,468.9	-2,649.8	404.7	1.08	1.08	0.21	27.5	-8.0
13,456.0	91.00	181.30	10,465.0	-2,743.6	402.7	0.34	-0.32	0.11	25.1	-11.9
13,550.0	89.10	179.70	10,465.0	-2,837.6	401.9	2.84	-2.02	-1.70	24.5	-13.6
13,645.0	89.20	179.50	10,466.4	-2,932.6	402.5	0.24	0.11	-0.21	25.3	-13.8
13,739.0	88.50	179.70	10,468.3	-3,026.5	403.2	0.77	-0.74	0.21	26.7	-14.1
13,833.0	88.60	179.40	10,470.5	-3,120.5	403.9	0.45	0.32	-0.32	28.3	-14.2
13,927.0	88.00	179.10	10,473.1	-3,214.5	405.2	0.91	-0.85	-0.32	30.4	-13.9
14,022.0	88.60	178.50	10,475.9	-3,309.4	407.2	0.89	0.63	-0.63	32.5	-12.8
14,116.0	86.70	178.10	10,479.8	-3,403.3	409.9	2.07	-2.02	-0.43	35.1	-10.9
14,210.0	86.50	177.60	10,485.3	-3,497.0	413.5	0.57	-0.21	-0.53	39.4	-8.2
14,305.0	88.30	178.70	10,489.6	-3,591.9	416.5	2.22	1.89	1.16	42.4	-6.1
14,398.0	87.90	178.60	10,492.7	-3,684.8	418.7	0.44	-0.43	-0.11	44.2	-4.8
14,493.0	88.40	177.90	10,495.8	-3,779.7	421.6	0.91	0.53	-0.74	45.9	-2.7
14,587.0	88.60	177.10	10,498.3	-3,873.6	425.7	0.88	0.21	-0.85	47.1	0.5
14,682.0	89.30	178.50	10,500.0	-3,968.5	429.4	1.65	0.74	1.47	47.6	3.2



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14,776.0	88.40	177.20	10,501.9	-4,062.4	432.9	1.68	-0.96	-1.38	48.2	5.9
14,871.0	90.20	179.20	10,503.0	-4,157.4	435.9	2.83	1.89	2.11	48.0	7.9
14,965.0	91.10	180.80	10,502.0	-4,251.3	435.9	1.95	0.96	1.70	45.7	7.0
15,059.0	90.80	179.90	10,500.4	-4,345.3	435.3	1.01	-0.32	-0.96	42.8	5.6
15,154.0	92.00	180.30	10,498.1	-4,440.3	435.1	1.33	1.28	0.42	39.2	4.5
15,249.0	88.20	180.00	10,497.9	-4,535.3	434.9	4.01	-4.00	-0.32	37.7	3.4
15,343.0	87.60	179.30	10,501.4	-4,629.2	435.5	0.98	-0.84	-0.74	39.9	3.1
15,437.0	87.90	179.60	10,505.1	-4,723.1	436.4	0.45	0.32	0.32	42.3	3.1
15,531.0	88.10	179.80	10,508.4	-4,817.1	436.8	0.30	0.21	0.21	43.9	2.7
15,626.0	88.90	180.00	10,510.8	-4,912.0	437.0	0.87	0.84	0.21	44.5	2.0
15,720.0	89.10	179.80	10,512.5	-5,006.0	437.2	0.30	0.21	-0.21	44.3	1.2
15,815.0	89.90	180.00	10,513.3	-5,101.0	437.3	0.87	0.84	0.21	43.3	0.5
15,909.0	90.60	180.30	10,512.9	-5,195.0	437.1	0.81	0.74	0.32	41.1	-0.6
16,003.0	91.00	180.20	10,511.6	-5,289.0	436.7	0.44	0.43	-0.11	38.0	-1.9
16,098.0	89.20	180.60	10,511.4	-5,384.0	436.0	1.94	-1.89	0.42	36.0	-3.5
16,192.0	89.80	180.80	10,512.2	-5,478.0	434.9	0.67	0.64	0.21	35.0	-5.5
16,286.0	90.50	180.60	10,512.0	-5,572.0	433.7	0.77	0.74	-0.21	32.9	-7.6
16,380.0	89.80	181.40	10,511.7	-5,666.0	432.1	1.13	-0.74	0.85	30.8	-10.1
16,475.0	90.50	181.40	10,511.5	-5,760.9	429.8	0.74	0.74	0.00	28.7	-13.3
16,569.0	89.30	181.30	10,511.7	-5,854.9	427.5	1.28	-1.28	-0.11	27.1	-16.4
16,663.0	88.00	179.80	10,513.9	-5,948.9	426.8	2.11	-1.38	-1.60	27.5	-18.2
16,757.0	88.80	179.90	10,516.5	-6,042.8	426.9	0.86	0.85	0.11	28.3	-18.8
16,852.0	87.90	178.90	10,519.2	-6,137.8	427.9	1.42	-0.95	-1.05	29.2	-18.7
16,946.0	88.40	178.70	10,522.3	-6,231.7	429.9	0.57	0.53	-0.21	30.4	-17.6
17,041.0	89.10	178.60	10,524.3	-6,326.7	432.1	0.74	0.74	-0.11	30.6	-16.3
17,135.0	87.60	178.20	10,527.1	-6,420.6	434.7	1.65	-1.60	-0.43	31.5	-14.5
17,230.0	86.90	178.50	10,531.6	-6,515.5	437.4	0.80	-0.74	0.32	34.2	-12.7



Midland PVA

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Fearless 23 Fed Com
 Well: #505H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #505H
 TVD Reference: KB = 25' @ 3454.0usft
 MD Reference: KB = 25' @ 3454.0usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
17,324.0	87.60	178.90	10,536.1	-8,609.3	439.8	0.88	0.74	0.43	38.9	-11.5
17,419.0	87.70	179.30	10,540.0	-8,704.2	441.1	0.43	0.11	0.42	39.0	-10.9
17,513.0	88.10	179.20	10,543.5	-8,798.2	442.3	0.44	0.43	-0.11	40.6	-10.5
17,607.0	88.50	179.30	10,546.2	-8,892.1	443.5	0.44	0.43	0.11	41.2	-10.2
17,702.0	88.90	179.80	10,547.6	-8,987.1	444.3	1.56	1.47	0.53	40.3	-10.4
17,796.0	88.70	180.00	10,548.7	-7,081.1	444.4	1.29	-1.28	0.21	39.2	-11.1
17,890.0	89.40	180.20	10,550.3	-7,175.1	444.3	0.77	0.74	0.21	38.6	-12.1
17,984.0	88.30	179.70	10,552.2	-7,269.0	444.4	1.29	-1.17	-0.53	38.3	-12.9
18,078.0	89.10	179.80	10,554.3	-7,363.0	444.8	0.86	0.85	0.11	38.2	-13.4
18,173.0	89.40	179.50	10,555.5	-7,458.0	445.3	0.45	0.32	-0.32	37.2	-13.7
18,267.0	89.50	180.10	10,556.4	-7,552.0	445.7	0.65	0.11	0.64	35.9	-14.3
18,361.0	90.50	180.30	10,556.4	-7,646.0	445.3	1.08	1.08	0.21	33.7	-15.5
18,456.0	90.10	178.90	10,555.9	-7,741.0	446.0	1.53	-0.42	-1.47	31.0	-15.7
18,550.0	89.50	178.80	10,556.3	-7,835.0	447.9	0.65	-0.64	-0.11	29.1	-14.7
18,644.0	87.80	178.70	10,558.5	-7,928.9	449.9	1.81	-1.81	-0.11	29.1	-13.6
18,739.0	88.00	178.50	10,562.0	-8,023.8	452.3	0.30	0.21	-0.21	30.4	-12.1
18,833.0	89.10	178.90	10,564.4	-8,117.8	454.4	1.25	1.17	0.43	30.5	-10.9
18,927.0	87.80	179.00	10,566.9	-8,211.7	458.1	1.39	-1.38	0.11	30.9	-10.1
19,022.0	87.70	179.60	10,570.6	-8,306.6	457.3	0.64	-0.11	0.63	32.4	-9.8
19,116.0	87.30	178.30	10,574.7	-8,400.5	459.0	1.45	-0.43	-1.38	34.2	-9.0
19,211.0	87.70	177.40	10,578.9	-8,495.4	462.8	1.04	0.42	-0.95	36.2	-8.3
19,305.0	87.90	178.30	10,582.5	-8,589.2	467.7	1.19	0.21	-1.17	37.1	-2.0
19,399.0	88.40	177.70	10,585.5	-8,683.0	472.6	1.58	0.53	1.49	37.2	2.0
19,494.0	89.20	177.40	10,587.5	-8,777.9	478.7	0.90	0.84	-0.32	36.3	5.2
19,588.0	89.40	178.00	10,588.8	-8,871.8	480.5	0.67	0.21	0.64	34.6	8.1
19,682.0	89.70	178.00	10,589.4	-8,965.7	483.8	0.32	0.32	0.00	32.4	10.5
19,777.0	90.20	178.60	10,589.5	-9,060.7	488.6	0.82	0.53	0.63	29.6	12.4



Midland PVA

Company: EOG Resources - Midland
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 Site: Fearless 23 Fed Com
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Local Co-ordinate Reference: Well #505H
 TVD Reference: KB = 25' @ 3454.0usft
 MD Reference: KB = 25' @ 3454.0usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey

MD (usft)	Inc (")	Azi (azimuth) (")	TVD (usft)	N/S (usft)	E/W (usft)	DLeg ("/100usft)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)
19,870.0	90.50	179.20	10,588.9	-9,153.7	488.4	0.72	0.32	0.65	26.2	13.3
19,965.0	91.00	179.10	10,587.7	-9,248.7	489.8	0.54	0.53	-0.11	22.1	13.8
20,059.0	91.30	179.80	10,585.8	-9,342.6	490.7	0.81	0.32	0.74	17.3	13.8
20,154.0	88.90	180.50	10,584.8	-9,437.6	490.4	1.65	-1.47	0.74	13.4	12.7
20,248.0	88.70	181.80	10,585.9	-9,531.6	488.5	1.88	-1.28	1.38	11.7	9.9
20,343.0	89.20	181.60	10,587.7	-9,626.5	485.7	0.57	0.53	-0.21	10.5	6.2
20,437.0	90.00	181.80	10,588.3	-9,720.5	482.9	0.88	0.85	0.21	8.3	2.5
20,450.0	90.00	181.80	10,588.3	-9,733.5	482.5	0.00	0.00	0.00	7.9	2.0
20,501.0	90.00	181.80	10,588.3	-9,784.5	480.9	0.00	0.00	0.00	6.4	-0.1

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
9,825.0	9,782.2	560.1	341.4	KOP, MD:9825.0', TVD:9782.2', N/S:560.1', E/W:341.4', INC:8.07
9,838.2	9,785.3	558.8	342.2	FTP Crossing, MD:9838.2', TVD:9785.3', N/S:558.8', E/W:342.2', INC:7.05
20,450.0	10,588.3	-9,733.5	482.5	Last MWD Survey (MD=20450.0')
20,501.0	10,588.3	-9,784.5	480.9	Projection to Bit (MD=20501.0')

Checked By: _____ Approved By: _____ Date: _____

I certify this survey to be true and correct to the best of my belief and knowledge.

Kay Maddox 12/10/2019
 Signed Date



Lea County, NM (NAD 83 NME)

Fearless 23 Fed Com #505H

Plan #1

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: #505H

KB = 25' @ 3454.0ush
Northing: 408598.00 Easting: 763585.00
Latitude: 32° 7' 17.281" N Longitude: 103° 35' 51.862" W

To convert a Magnetic Direction to a Grid Direction, Add 6.42°
To convert a Magnetic Direction to a True Direction, Add 6.77° East
To convert a True Direction to a Grid Direction, Subtract 0.36°

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1568.3	7.37	32.17	1567.3	20.0	12.6	2.00	32.17	-19.4	
4	6811.0	7.37	32.17	6766.7	589.0	370.4	0.00	0.00	-570.1	
5	7179.3	0.00	0.00	7134.0	609.0	353.0	2.00	180.00	-589.5	Brushy Top (Fearless 23 Fed Com #505H)
6	9896.3	0.00	0.00	9851.0	609.0	353.0	0.00	0.00	-589.5	
7	10793.0	89.67	179.46	10423.9	39.4	388.4	10.00	179.46	-20.2	
8	14105.9	89.67	179.46	10443.0	-3273.3	419.6	0.00	0.00	3290.0	TGT#1(Fearless 23 Fed Com #505H)
9	14128.6	89.21	179.46	10443.2	-3266.1	419.6	2.00	180.00	3312.7	TGT#2(Fearless 23 Fed Com #505H)
10	15572.2	89.21	179.46	10463.0	-4739.4	433.4	0.00	0.00	4755.0	TGT#3(Fearless 23 Fed Com #505H)
11	15588.4	88.89	179.46	10463.3	-4755.7	433.6	2.00	-180.00	4771.2	TGT#4(Fearless 23 Fed Com #505H)
12	17638.2	88.89	179.46	10503.0	-6805.0	452.9	0.00	0.00	6819.0	
13	17650.0	88.65	179.46	10503.3	-6816.8	453.0	2.00	-179.82	6830.8	
14	19342.0	88.65	179.46	10543.0	-8508.2	469.0	0.00	0.00	8521.0	
15	19362.2	88.25	179.46	10543.6	-8526.5	469.2	2.00	179.46	8541.2	
16	20820.4	88.25	179.46	10582.0	-9788.0	481.0	0.00	0.00	9797.8	PBHL (Fearless 23 Fed Com #505H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
Brushy Top (Fearless 23 Fed Com #505H)	7134.0	609.0	353.0	408208.00	763988.00
FTP (Fearless 23 Fed Com #505H)	10424.0	629.0	353.0	409132.00	763988.00
TGT#1(Fearless 23 Fed Com #505H)	10443.0	-3273.3	419.6	408225.70	764004.80
TGT#2(Fearless 23 Fed Com #505H)	10463.0	-4739.4	433.4	408259.80	764018.42
TGT#3(Fearless 23 Fed Com #505H)	10503.0	-6805.0	452.9	407174.00	764037.80
TGT#4(Fearless 23 Fed Com #505H)	10543.0	-8508.2	469.0	406090.80	764054.00
PBHL (Fearless 23 Fed Com #505H)	10582.0	-9788.0	481.0	405913.00	764068.00

