

HOBBS OCD

OCT 01 2018

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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Orrtanna 20 Fed

#710H

ST#1

Design: ST#1

Midland PVA

29 July, 2018





Midland PVA



Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #710H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3279.0usft (H&P 610)
Site:	Orianna 20 Fed	ND Reference:	KB = 25 @ 3279.0usft (H&P 610)
Well:	#710H	North Reference:	Grid
Wellbore:	ST#1	Survey Calculation Method:	Minimum Curvature
Design:	ST#1	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	Ortanna 20 Fed					
Site Position:		Northing:	373,025.00	usft	Latitude:	32° 1' 24.126 N
From:	Map	Easting:	770,593.00	usft	Longitude:	103° 35' 36.933 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16	"	Grid Convergence:	0.39 °

Well	#710H					
Well Position	+N-S	0.0 usft	Northing:	372,999.00 usft	Latitude:	32° 1' 23.867 N
	+E-W	0.0 usft	Easting:	770,617.00 usft	Longitude:	103° 35' 36.656 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,254.0 usft

Wellbore	ST#1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/9/2018	6.83	59.86	47,708.93244863

Design	ST#1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 11,826.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.0	0.0	0.0	11.41



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Survey Program		Date	7/29/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
175.0	11,826.0	Drilltech MWD (OH)	MWD	OWSG MWD - Standard	
11,919.0	17,267.0	Drilltech MWD (ST#1)	MWD	OWSG MWD - Standard	

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	0.0	0.00	0.00	0.0	0.0
175.0	0.26	301.76	175.0	0.2	-0.3	0.15	0.15	0.00	0.0	0.0
263.0	0.62	305.63	263.0	0.6	-0.9	0.41	0.41	4.40	0.0	0.0
381.0	0.70	317.94	381.0	1.5	-1.9	0.14	0.07	10.43	0.0	0.0
498.0	0.70	326.29	498.0	2.6	-2.8	0.09	0.00	7.14	0.0	0.0
616.0	0.35	303.87	616.0	3.4	-3.5	0.34	-0.30	-19.00	0.0	0.0
769.0	0.35	204.03	769.0	3.3	-4.0	0.35	0.00	-65.25	0.0	0.0
861.0	0.26	213.28	861.0	2.8	-4.3	0.11	-0.10	10.03	0.0	0.0
923.0	0.26	246.13	923.0	2.7	-4.5	0.24	0.00	53.02	0.0	0.0
1,055.0	1.06	357.75	1,055.0	3.8	-4.8	0.89	0.61	84.56	0.0	0.0
1,147.0	0.79	347.56	1,147.0	5.2	-5.0	0.34	-0.29	-11.08	0.0	0.0
1,240.0	0.62	355.03	1,239.9	6.3	-5.2	0.21	-0.18	8.03	0.0	0.0
1,332.0	0.62	349.40	1,331.9	7.3	-5.3	0.07	0.00	-6.12	0.0	0.0
1,426.0	0.88	81.16	1,425.9	7.9	-4.7	1.16	0.28	97.62	0.0	0.0
1,519.0	1.23	88.98	1,518.9	8.1	-3.0	0.41	0.38	8.41	0.0	0.0
1,612.0	0.97	79.14	1,611.9	8.2	-1.2	0.34	-0.28	-10.58	0.0	0.0
1,706.0	1.06	82.13	1,705.9	8.5	0.4	0.11	0.10	3.18	0.0	0.0
1,798.0	0.97	87.49	1,798.9	8.7	2.1	0.14	-0.10	5.76	0.0	0.0
1,893.0	0.97	95.92	1,892.9	8.6	3.7	0.15	0.00	8.97	0.0	0.0
1,986.0	1.85	93.29	1,985.8	8.4	6.0	0.95	0.95	-2.83	0.0	0.0
2,080.0	3.87	92.50	2,079.7	8.2	10.6	2.15	2.15	-0.84	0.0	0.0



Midland PVA



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Site:	Orianna 20 Fed	MD Reference:	KB = 25 @ 3279.0usft (H&P 610)
Well:	#710H	North Reference:	Grid
Wellbore:	ST#1	Survey Calculation Method:	Minimum Curvature
Design:	ST#1	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
2,173.0	5.98	103.66	2,172.4	6.9	18.5	2.48	2.27	12.00	0.0	0.0	
2,267.0	7.65	109.81	2,265.7	3.7	29.1	1.94	1.78	6.54	0.0	0.0	
2,360.0	8.00	111.22	2,357.8	-0.8	41.0	0.43	0.38	1.52	0.0	0.0	
2,454.0	8.18	119.83	2,450.9	-6.5	52.9	1.30	0.19	9.16	0.0	0.0	
2,548.0	8.09	122.82	2,544.0	-13.4	64.2	0.46	-0.10	3.18	0.0	0.0	
2,642.0	8.00	122.91	2,637.0	-20.5	75.3	0.10	-0.10	0.10	0.0	0.0	
2,736.0	8.71	119.39	2,730.0	-27.6	87.0	0.93	0.76	-3.74	0.0	0.0	
2,830.0	8.97	119.30	2,822.9	-34.7	99.6	0.28	0.28	-0.10	0.0	0.0	
2,924.0	9.15	119.22	2,915.7	-41.9	112.5	0.19	0.19	-0.09	0.0	0.0	
3,017.0	9.32	120.01	3,007.5	-49.3	125.5	0.23	0.18	0.85	0.0	0.0	
3,111.0	9.23	121.24	3,100.3	-57.0	138.5	0.23	-0.10	1.31	0.0	0.0	
3,205.0	9.23	120.45	3,193.1	-64.7	151.4	0.13	0.00	-0.84	0.0	0.0	
3,297.0	10.90	119.57	3,283.7	-72.7	165.4	1.82	1.82	-0.96	0.0	0.0	
3,391.0	10.46	119.66	3,376.0	-81.3	180.5	0.47	-0.47	0.10	0.0	0.0	
3,484.0	10.55	120.27	3,467.5	-89.8	195.2	0.15	0.10	0.66	0.0	0.0	
3,578.0	10.55	118.78	3,559.9	-98.3	210.2	0.29	0.00	-1.59	0.0	0.0	
3,671.0	10.55	118.51	3,651.3	-106.5	225.1	0.05	0.00	-0.29	0.0	0.0	
3,764.0	10.29	116.49	3,742.8	-114.2	240.0	0.48	-0.28	-2.17	0.0	0.0	
3,857.0	10.38	115.52	3,834.3	-121.5	255.0	0.21	0.10	-1.04	0.0	0.0	
3,951.0	10.38	119.92	3,926.7	-129.4	270.0	0.84	0.00	4.68	0.0	0.0	
4,044.0	10.11	120.53	4,018.3	-137.7	284.3	0.31	-0.29	0.66	0.0	0.0	
4,138.0	10.02	119.92	4,110.8	-146.0	298.5	0.15	-0.10	-0.65	0.0	0.0	
4,231.0	9.76	118.60	4,202.4	-153.8	312.4	0.37	-0.28	-1.42	0.0	0.0	
4,325.0	9.85	118.07	4,295.1	-161.4	326.5	0.14	0.10	-0.56	0.0	0.0	
4,418.0	9.50	118.86	4,386.7	-168.9	340.3	0.40	-0.38	0.85	0.0	0.0	
4,512.0	9.50	118.69	4,479.4	-176.3	353.9	0.03	0.00	-0.18	0.0	0.0	
4,606.0	9.50	119.92	4,572.2	-183.9	367.4	0.22	0.00	1.31	0.0	0.0	



Midland PVA



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Site: Ortanna 20 Fed
Well: #710H
Wellbore: ST#1
Design: ST#1

Local Co-ordinate Reference: Well #710H
TVD Reference: KB = 25 @ 3279.0usft (H&P 610)
MD Reference: KB = 25 @ 3279.0usft (H&P 610)
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)	
4,699.0	9.58	118.42	4,663.9	-191.4	380.9	0.28	0.09	-1.61	0.0	0.0	0.0
4,760.0	9.23	118.42	4,724.0	-196.2	389.6	0.57	-0.57	0.00	0.0	0.0	0.0
4,870.0	9.41	119.30	4,832.6	-204.8	405.2	0.21	0.16	0.80	0.0	0.0	0.0
4,964.0	9.94	119.39	4,925.3	-212.5	419.0	0.56	0.56	0.10	0.0	0.0	0.0
5,058.0	11.78	124.84	5,017.6	-222.0	433.9	2.24	1.96	5.80	0.0	0.0	0.0
5,152.0	13.81	124.05	5,109.2	-233.8	451.1	2.17	2.16	-0.84	0.0	0.0	0.0
5,245.0	14.25	123.43	5,199.5	-246.3	469.9	0.50	0.47	-0.67	0.0	0.0	0.0
5,339.0	15.04	123.00	5,290.4	-259.3	489.7	0.85	0.84	-0.46	0.0	0.0	0.0
5,432.0	15.48	122.82	5,380.1	-272.6	510.3	0.48	0.47	-0.19	0.0	0.0	0.0
5,526.0	14.95	122.20	5,470.8	-285.8	531.1	0.59	-0.56	-0.66	0.0	0.0	0.0
5,619.0	15.30	122.73	5,560.6	-298.9	551.6	0.40	0.38	0.57	0.0	0.0	0.0
5,713.0	16.00	120.27	5,651.1	-312.1	573.2	1.03	0.74	-2.82	0.0	0.0	0.0
5,806.0	16.44	117.90	5,740.4	-324.7	595.9	0.85	0.47	-2.55	0.0	0.0	0.0
5,899.0	17.23	117.99	5,829.4	-337.4	619.7	0.85	0.85	0.10	0.0	0.0	0.0
5,992.0	17.67	116.23	5,918.2	-350.1	644.5	0.74	0.47	-1.89	0.0	0.0	0.0
6,086.0	17.15	116.75	6,007.9	-362.6	669.7	0.58	-0.55	0.55	0.0	0.0	0.0
6,179.0	17.67	116.58	6,096.6	-375.1	694.5	0.56	0.56	-0.18	0.0	0.0	0.0
6,272.0	15.83	119.83	6,185.6	-387.7	718.2	2.22	-1.98	3.49	0.0	0.0	0.0
6,366.0	14.16	118.34	6,276.4	-399.5	739.4	1.82	-1.78	-1.59	0.0	0.0	0.0
6,459.0	14.33	116.75	6,366.6	-410.1	759.7	0.46	0.18	-1.71	0.0	0.0	0.0
6,552.0	13.54	114.38	6,456.8	-419.8	779.9	1.05	-0.85	-2.55	0.0	0.0	0.0
6,645.0	12.49	117.55	6,547.5	-428.9	798.7	1.36	-1.13	3.41	0.0	0.0	0.0
6,738.0	10.82	123.52	6,638.5	-438.4	814.9	2.21	-1.80	6.42	0.0	0.0	0.0
6,833.0	6.60	132.93	6,732.4	-447.1	826.4	4.67	-4.44	9.91	0.0	0.0	0.0
6,926.0	5.28	132.14	6,824.9	-453.6	833.5	1.42	-1.42	-0.85	0.0	0.0	0.0
7,020.0	5.10	133.89	6,918.5	-459.4	839.7	0.25	-0.19	1.86	0.0	0.0	0.0
7,113.0	3.43	130.91	7,011.3	-464.1	844.8	1.81	-1.80	-3.20	0.0	0.0	0.0



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Wellbore:	ST#1	Survey Calculation Method:	Minimum Curvature
Design:	ST#1	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	BuId (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
7,207.0	1.49	96.98	7,105.2	-466.1	848.1	2.50	-2.06	-36.10	0.0	0.0	
7,300.0	0.97	74.57	7,198.2	-466.0	850.1	0.75	-0.56	-24.10	0.0	0.0	
7,394.0	0.97	91.35	7,292.2	-465.8	851.6	0.30	0.00	17.85	0.0	0.0	
7,487.0	0.88	83.80	7,385.1	-465.7	853.1	0.16	-0.10	-8.12	0.0	0.0	
7,580.0	0.79	104.98	7,478.1	-465.8	854.4	0.34	-0.10	22.77	0.0	0.0	
7,674.0	0.09	75.97	7,572.1	-466.0	855.1	0.76	-0.74	-30.86	0.0	0.0	
7,768.0	0.35	65.25	7,666.1	-465.8	855.5	0.28	0.28	-11.40	0.0	0.0	
7,862.0	0.26	113.24	7,760.1	-465.8	855.9	0.28	-0.10	51.05	0.0	0.0	
7,956.0	0.26	131.96	7,854.1	-466.0	856.3	0.09	0.00	19.91	0.0	0.0	
8,050.0	0.26	129.59	7,948.1	-466.3	856.6	0.01	0.00	-2.52	0.0	0.0	
8,144.0	0.53	136.44	8,042.1	-466.8	857.1	0.29	0.29	7.29	0.0	0.0	
8,238.0	0.44	133.81	8,136.1	-467.3	857.6	0.10	-0.10	-2.80	0.0	0.0	
8,331.0	0.62	161.75	8,229.1	-468.1	858.0	0.33	0.19	30.04	0.0	0.0	
8,424.0	0.70	160.79	8,322.1	-469.1	858.4	0.09	0.09	-1.03	0.0	0.0	
8,518.0	0.62	163.16	8,416.1	-470.1	858.7	0.09	-0.09	2.52	0.0	0.0	
8,612.0	0.88	156.22	8,510.1	-471.2	859.2	0.29	0.28	-7.38	0.0	0.0	
8,706.0	0.88	169.23	8,604.1	-472.6	859.6	0.21	0.00	13.84	0.0	0.0	
8,800.0	0.62	181.09	8,698.1	-473.8	859.7	0.32	-0.28	12.62	0.0	0.0	
8,893.0	0.62	170.98	8,791.1	-474.8	859.8	0.12	0.00	-10.87	0.0	0.0	
8,987.0	0.62	200.08	8,885.1	-475.8	859.7	0.33	0.00	30.96	0.0	0.0	
9,081.0	0.53	213.17	8,979.1	-476.7	859.3	0.17	-0.10	13.93	0.0	0.0	
9,175.0	0.53	250.96	9,073.1	-477.2	858.6	0.37	0.00	40.20	0.0	0.0	
9,269.0	0.62	295.79	9,167.1	-477.1	857.8	0.47	0.10	47.69	0.0	0.0	
9,363.0	1.06	295.52	9,261.0	-476.5	856.5	0.47	0.47	-0.29	0.0	0.0	
9,457.0	1.58	253.07	9,355.0	-476.5	854.5	1.14	0.55	-45.16	0.0	0.0	
9,551.0	1.23	125.37	9,449.0	-477.4	854.1	2.69	-0.37	-135.85	0.0	0.0	
9,644.0	3.96	107.88	9,541.9	-479.0	857.9	3.02	2.94	-18.81	0.0	0.0	



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9,737.0	4.66	103.22	9,634.6	-480.9	864.7	0.84	0.75	-5.01	0.0	0.0	
9,831.0	4.31	98.65	9,728.4	-482.3	871.9	0.53	-0.37	-4.86	0.0	0.0	
9,923.0	4.04	96.54	9,820.1	-483.2	878.5	0.34	-0.29	-2.29	0.0	0.0	
10,017.0	3.08	84.50	9,913.9	-483.3	884.3	1.29	-1.02	-12.81	0.0	0.0	
10,110.0	2.73	79.14	10,006.8	-482.6	889.0	0.48	-0.38	-5.76	0.0	0.0	
10,203.0	2.46	79.93	10,099.7	-481.9	893.1	0.29	-0.29	0.85	0.0	0.0	
10,295.0	2.81	83.27	10,191.6	-481.3	897.3	0.42	0.38	3.63	0.0	0.0	
10,389.0	2.73	86.87	10,285.5	-480.9	901.8	0.20	-0.09	3.83	0.0	0.0	
10,454.0	2.55	92.23	10,350.4	-480.8	904.8	0.47	-0.28	8.25	0.0	0.0	
10,547.0	2.20	85.47	10,443.4	-480.8	908.7	0.48	-0.38	-7.27	0.0	0.0	
10,640.0	2.29	82.57	10,536.3	-480.4	912.3	0.16	0.10	-3.12	0.0	0.0	
10,734.0	2.55	86.17	10,630.2	-480.0	916.2	0.32	0.28	3.83	0.0	0.0	
10,828.0	2.46	82.57	10,724.1	-479.6	920.3	0.19	-0.10	-3.83	0.0	0.0	
10,922.0	2.37	75.36	10,818.0	-478.9	924.2	0.34	-0.10	-7.67	0.0	0.0	
11,015.0	2.46	70.79	10,910.9	-477.7	928.0	0.23	0.10	-4.91	0.0	0.0	
11,109.0	2.46	53.12	11,004.9	-475.8	931.5	0.80	0.00	-18.80	0.0	0.0	
11,202.0	2.73	50.40	11,097.8	-473.2	934.8	0.32	0.29	-2.92	0.0	0.0	
11,295.0	2.73	55.14	11,190.7	-470.6	938.3	0.24	0.00	5.10	0.0	0.0	
11,389.0	1.23	51.28	11,284.6	-468.6	940.9	1.60	-1.60	-4.11	0.0	0.0	
11,482.0	0.97	27.46	11,377.6	-467.3	942.1	0.56	-0.28	-25.61	0.0	0.0	
11,576.0	1.49	39.76	11,471.6	-465.7	943.2	0.62	0.55	13.09	0.0	0.0	
11,670.0	1.67	36.77	11,565.5	-463.6	944.8	0.21	0.19	-3.18	0.0	0.0	
11,732.0	1.76	31.50	11,627.5	-462.1	945.9	0.29	0.15	-8.50	0.0	0.0	
11,826.0	1.23	27.63	11,721.5	-460.0	947.1	0.57	-0.56	-4.12	0.0	0.0	
11,890.0	4.71	325.13	11,785.4	-457.2	945.9	6.69	5.43	-97.65	-2.5	0.5	
KOP 11890.0' MD; 11785.4' TVD; -457.2'; 945.9'; 4.71											
11,919.0	6.60	320.83	11,814.2	-454.9	944.2	6.69	6.53	-14.86	-4.5	0.5	



Midland PVA



Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #710H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3279.0usft (H&P 610)
Site:	Orrtanna 20 Fed	MD Reference:	KB = 25 @ 3279.0usft (H&P 610)
Well:	#710H	North Reference:	Grid
Wellbore:	ST#1	Survey Calculation Method:	Minimum Curvature
Design:	ST#1	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
11,924.9	6.78	323.61	11,820.1	-454.4	943.7	6.28	3.07	46.99	-5.0	0.8	
FTP Crossing 11924.9' MD; 11820.1' TVD; -454.4'; 943.7'; 6.78											
11,967.0	8.44	339.28	11,861.8	-449.5	941.2	6.28	3.94	37.23	-7.4	2.1	
12,012.0	10.90	339.72	11,906.2	-442.4	938.5	5.47	5.47	0.98	-8.9	2.2	
12,059.0	17.40	348.70	11,951.7	-431.4	935.6	14.56	13.83	19.11	-9.7	4.8	
12,106.0	19.08	350.01	11,996.4	-416.9	932.9	3.68	3.57	2.79	-10.0	7.0	
12,153.0	23.83	349.65	12,040.1	-400.0	929.9	10.11	10.11	-0.77	-9.0	10.2	
12,199.0	28.05	352.12	12,081.4	-380.1	926.7	9.47	9.17	5.37	-7.0	14.7	
12,246.0	36.76	355.54	12,121.1	-355.1	924.1	18.93	18.53	7.28	-5.4	19.2	
12,293.0	46.25	0.55	12,156.3	-324.0	923.2	21.38	20.19	10.66	-6.3	22.7	
12,340.0	52.94	6.71	12,186.7	-288.4	925.5	17.37	14.23	13.11	-9.2	24.0	
12,387.0	57.16	6.53	12,213.6	-250.1	930.0	8.98	8.98	-0.38	-14.1	23.4	
12,434.0	62.70	6.35	12,237.2	-209.7	934.5	11.79	11.79	-0.38	-18.6	23.3	
12,481.0	66.83	6.62	12,257.2	-167.5	939.3	8.80	8.79	0.57	-22.5	23.6	
12,528.0	70.08	6.44	12,274.5	-124.1	944.3	6.92	6.91	-0.38	-25.1	24.1	
12,575.0	71.84	7.41	12,289.8	-79.9	949.6	4.22	3.74	2.06	-25.2	23.5	
12,622.0	74.30	8.11	12,303.5	-35.4	955.7	5.42	5.23	1.49	-22.8	20.6	
12,668.0	78.96	7.15	12,314.1	8.9	961.7	10.33	10.13	-2.09	-19.4	16.3	
12,715.0	82.92	3.81	12,321.5	55.1	966.1	10.96	8.43	-7.11	-15.1	12.1	
12,762.0	83.98	1.87	12,326.9	101.8	968.4	4.68	2.26	-4.13	-9.7	9.2	
12,809.0	86.26	359.24	12,330.9	148.6	968.8	7.39	4.85	-5.60	-5.4	8.1	
12,855.0	89.08	355.98	12,332.8	194.5	966.9	9.37	6.13	-7.09	-3.3	9.5	
12,953.0	89.96	358.36	12,333.6	292.4	962.1	2.59	0.90	2.43	-1.9	13.1	
13,046.0	90.66	358.27	12,333.1	385.3	959.4	0.76	0.75	-0.10	-1.8	14.6	
13,140.0	92.33	358.18	12,330.6	479.2	956.4	1.78	1.78	-0.10	-3.7	16.4	
13,233.0	91.63	359.32	12,327.4	572.2	954.4	1.44	-0.75	1.23	-6.3	17.2	
13,327.0	91.10	0.82	12,325.2	666.1	954.5	1.69	-0.56	1.60	-8.0	15.9	



Midland PVA



Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #710H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3279.0usft (H&P 610)
Site:	Orrtanna 20 Fed	MD Reference:	KB = 25 @ 3279.0usft (H&P 610)
Well:	#710H	North Reference:	Grid
Wellbore:	ST#1	Survey Calculation Method:	Minimum Curvature
Design:	ST#1	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)	
13,420.0	90.22	1.52	12,324.1	759.1	956.4	1.21	-0.95	0.75	-8.5	12.9	
13,514.0	90.57	3.10	12,323.5	853.0	960.2	1.72	0.37	1.68	-8.6	7.9	
13,607.0	89.52	1.87	12,323.4	945.9	964.3	1.74	-1.13	-1.32	-8.0	2.7	
13,702.0	91.71	1.52	12,322.4	1,040.9	967.1	2.33	2.31	-0.37	-8.5	-1.3	
13,796.0	92.15	0.55	12,319.2	1,134.8	968.8	1.13	0.47	-1.03	-11.1	-4.2	
13,889.0	89.52	1.26	12,317.8	1,227.8	970.2	2.93	-2.83	0.76	-11.9	-8.8	
13,982.0	87.93	359.94	12,319.9	1,320.7	971.2	2.22	-1.71	-1.42	-9.2	-9.0	
14,077.0	87.49	358.80	12,323.7	1,415.7	970.2	1.29	-0.46	-1.20	-4.8	-9.1	
14,171.0	88.72	359.15	12,326.8	1,509.6	968.5	1.36	1.31	0.37	-1.1	-8.6	
14,264.0	89.08	358.80	12,328.6	1,602.6	966.8	0.54	0.39	-0.38	1.2	-8.2	
14,358.0	90.40	359.06	12,329.0	1,696.5	965.1	1.43	1.40	0.28	2.2	-7.6	
14,453.0	88.90	358.88	12,329.6	1,791.5	963.4	1.59	-1.58	-0.19	3.4	-7.1	
14,547.0	92.07	359.32	12,328.8	1,885.5	961.9	3.40	3.37	0.47	3.2	-6.8	
14,642.0	91.54	358.71	12,325.8	1,980.4	960.2	0.85	-0.56	-0.64	0.7	-6.3	
14,737.0	90.04	358.97	12,324.5	2,075.4	958.3	1.60	-1.58	0.27	0.0	-5.6	
14,832.0	90.04	359.76	12,324.4	2,170.4	957.3	0.83	0.00	0.83	0.5	-5.8	
14,926.0	88.20	359.24	12,325.9	2,264.4	956.4	2.03	-1.96	-0.55	2.6	-6.1	
15,021.0	89.69	358.44	12,327.6	2,359.3	954.5	1.78	1.57	-0.84	4.9	-5.4	
15,116.0	89.69	356.25	12,328.1	2,454.2	950.1	2.31	0.00	-2.31	6.0	-2.2	
15,211.0	90.84	355.90	12,327.7	2,549.0	943.6	1.27	1.21	-0.37	6.1	3.1	
15,305.0	89.16	355.02	12,327.7	2,642.7	936.2	2.02	-1.79	-0.94	6.7	9.4	
15,401.0	91.98	357.48	12,326.8	2,738.5	929.9	3.90	2.94	2.56	6.4	14.4	
15,496.0	92.24	359.24	12,323.3	2,833.4	927.2	1.87	0.27	1.85	3.4	16.0	
15,591.0	91.80	1.17	12,319.9	2,928.3	927.5	2.08	-0.46	2.03	0.7	14.4	
15,685.0	88.90	3.37	12,319.3	3,022.2	931.2	3.87	-3.09	2.34	0.7	9.5	
15,780.0	91.71	4.68	12,318.8	3,117.0	937.9	3.26	2.96	1.38	0.7	1.7	
15,875.0	90.48	3.98	12,317.0	3,211.7	945.1	1.49	-1.29	-0.74	-0.5	-6.7	



Midland PVA



Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Oritanna 20 Fed
Well: #710H
Wellbore: ST#1
Design: ST#1

Local Co-ordinate Reference: Well #710H
TVD Reference: KB = 25 @ 3279.0usft (H&P 610)
MD Reference: KB = 25 @ 3279.0usft (H&P 610)
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)
15,970.0	88.46	2.49	12,317.9	3,306.5	950.4	2.64	-2.13	-1.57	1.0	-13.3
16,065.0	89.16	2.66	12,319.9	3,401.4	954.7	0.76	0.74	0.18	3.5	-18.7
16,159.0	91.19	0.64	12,319.6	3,495.3	957.4	3.05	2.16	-2.15	3.8	-22.6
16,254.0	91.36	358.88	12,317.5	3,590.3	957.0	1.86	0.18	-1.85	2.3	-23.2
16,349.0	91.36	358.00	12,315.2	3,685.2	954.4	0.93	0.00	-0.93	0.5	-20.8
16,444.0	88.37	358.27	12,315.4	3,780.2	951.3	3.16	-3.15	0.28	1.2	-17.9
16,538.0	88.99	355.98	12,317.6	3,874.0	946.6	2.52	0.66	-2.44	3.9	-13.3
16,633.0	88.20	354.93	12,319.9	3,968.7	939.1	1.38	-0.83	-1.11	6.7	-6.0
16,728.0	94.97	357.65	12,317.3	4,063.4	933.0	7.68	7.13	2.86	4.5	0.0
16,823.0	92.33	358.80	12,311.3	4,158.2	930.0	3.03	-2.78	1.21	-1.1	2.8
16,918.0	93.30	359.85	12,306.6	4,253.0	928.9	1.50	1.02	1.11	-5.3	3.7
17,012.0	87.67	1.34	12,305.8	4,347.0	929.9	6.20	-5.99	1.59	-5.6	2.6
17,107.0	86.26	1.26	12,310.8	4,441.8	932.0	1.49	-1.48	-0.08	-0.1	0.3
17,201.0	93.47	0.47	12,311.0	4,535.8	933.5	7.71	7.67	-0.84	0.6	-1.3
Last MWD Survey (MD = 17201.0)										
17,267.0	93.47	0.47	12,307.0	4,601.6	934.0	0.00	0.00	0.00	-3.0	-2.0
Projection to Bit (MD = 17267.0)										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
11,890.0	11,785.4	-457.2	945.9	KOP 11890.0' MD; 11785.4' TVD; -457.2'; 945.9'; 4.71
11,924.9	11,820.1	-454.4	943.7	FTP Crossing 11924.9' MD; 11820.1' TVD; -454.4'; 943.7'; 6.78
17,201.0	12,311.0	4,535.8	933.5	Last MWD Survey (MD = 17201.0)
17,267.0	12,307.0	4,601.6	934.0	Projection to Bit (MD = 17267.0)

Checked By: _____

Approved By: _____

Date: _____

HOBBS OCD
OCT 01 2018
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Lea County, NM (NAD 83 NME)

Ortanna 20 Fed #710H

H&P 610

Plan #3

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: #710H

KB = 25 @ 3279.0ust (H&P 610) 3254.0
Northing 372898.00 Easting 770817.00 Latitude 32°1'23.657' N Longitude 103°35'36.658' W

SECTION DETAILS

Sec	MD	Inc	Adj	TVD	+N-S	+E-W	Diag	TFace	Vsect	Target	Annotation
1	11900.0	0.00	22.88	11785.5	-468.7	947.7	0.00	-262.2	-262.2		
2	11950.1	6.00	320.00	11853.7	-468.4	946.2	8.00	-72.59	-260.2		
3	12529.3	67.33	7.40	12295.0	-142.7	866.3	11.21	48.09	61.2		
4	12746.5	80.35	359.29	12356.8	62.4	976.0	11.21	-20.05	255.5		TOTW (#710H STW Plan #3)
5	16237.4	80.35	359.29	12315.4	359.0	934.0	0.00	0.00	3673.4		TOTW (#710H STW Plan #3)
6	16265.7	80.29	359.90	12315.2	359.3	933.8	2.00	85.79	3704.0		
7	17296.6	80.29	359.90	12310.0	4618.0	932.0	0.00	0.00	4711.1		PGHL (#710H STW Plan #3)

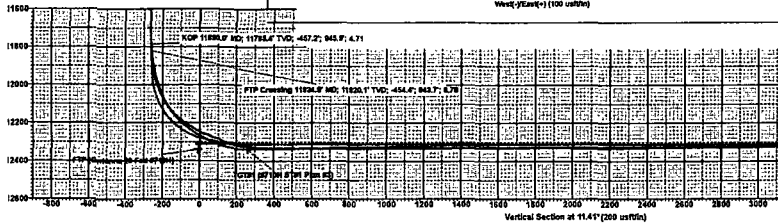
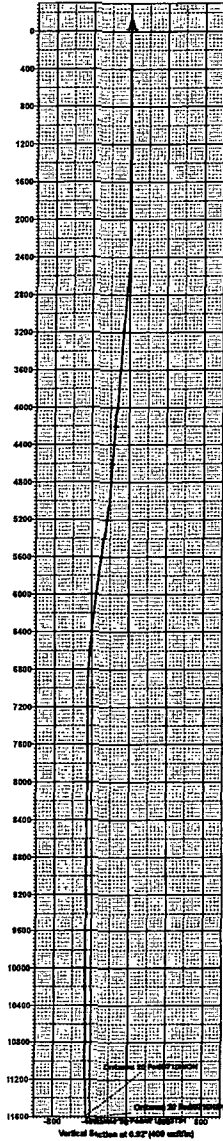
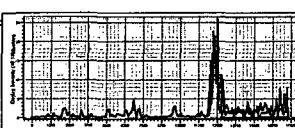
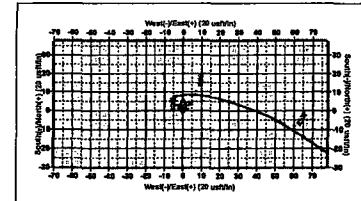
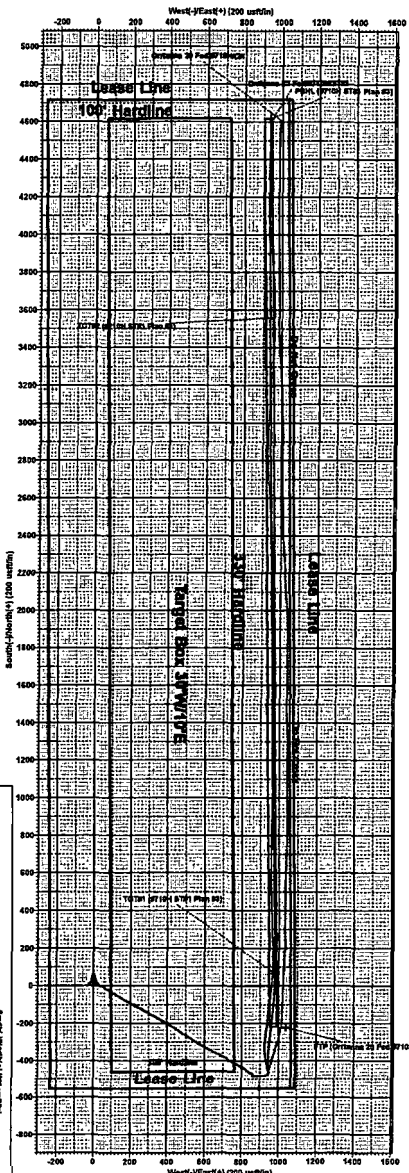
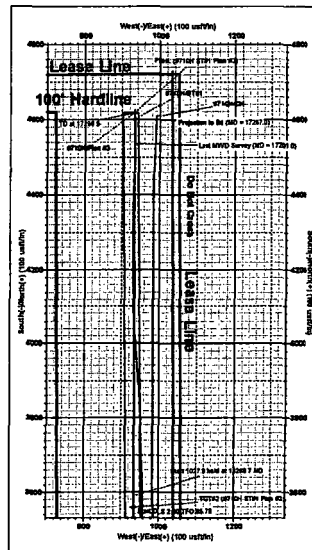
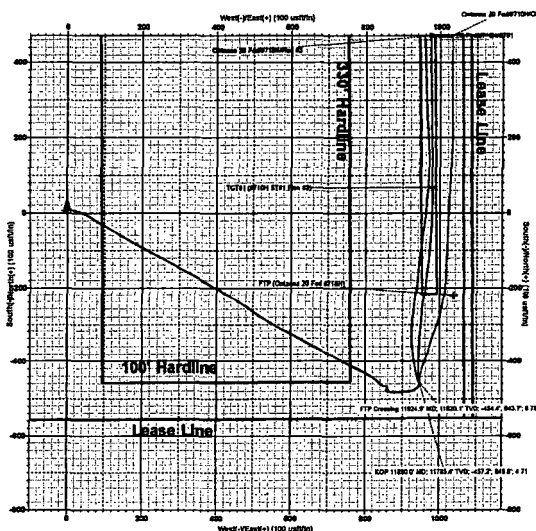
To convert a Magnetic Direction to a Grid Direction, Add 6.4°
To convert a Magnetic Direction to a True Direction, Add 6.3° East
To convert a True Direction to a Grid Direction, Subtract 0.39°

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP COORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
TOTW (#710H STW Plan #3)	12338.8	66.4	976.0	373087.39	771685.00
TOTW (#710H STW Plan #3)	12315.4	359.0	934.0	373557.86	771691.00
PGHL (#710H STW Plan #3)	12310.0	4618.0	932.0	377617.04	771648.00
FTP (Ortanna 20 Fed #710H)	12340.0	-223.0	1037.0	372778.00	771664.00



Bureau of Land Management

Hobbs Field Office

414 W. Taylor

Hobbs, New Mexico

505.393.3612

WATER PRODUCTION & DISPOSAL INFORMATION

Well: ORRTANNA 20 FEDERAL FACILITY

Sec 20 T26S, R33E

Orrtanna 20 Federal #710H 30-025-44617

1. Name of formations producing water on lease: WOLFCAMP
2. Amount of water produced from all formations in barrels per day 1000 BWPD
3. How water is stored on lease Tanks: 4- 400 bbl tanks
4. How water is moved to disposal facility Pipeline/Trucked
5. Disposal Facility:
 - a. Facility Operators name EOG RESOURCES INC
 - b. Name of facility or well name & number
BLACK BEAR 36 STATE #5
30-025-40585
H-36-25S-33E
Permit no SWD 1359
 - c. Type of facility or wells SWD



EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702
(432) 686-3600

September 27, 2018

State of New Mexico
Oil Conservation Division – District 1
1625 N. French Drive
Hobbs, New Mexico 88240

HOBBS OCD

OCT 01 2018

RECEIVED

Re: Request for exception to Rule 107 J
Tubingless Completion
ORRTANNA 20 FEDERAL #710H 30-025-44617

EOG Resources, Inc. requests an exception to NMOCD Rule 107 J regarding required production tubing. EOG requests a tubingless completion for the well listed above to allow greater flowback after frac stimulation.

The plan is to install production tubing as soon as flow decreases, which should occur within 6 months.

Thank you for your consideration of this request. If additional information is needed, please contact me at 432 686-3658.

Sincerely,

EOG Resources, Inc.

A handwritten signature in black ink that reads "Kay Maddox". The signature is written in a cursive, flowing style.

Kay Maddox
Regulatory Analyst