



## **BTA Oil Producers, LLC**

**Lea County, NM (NAD 83)**

**Sec 10, T25-S, R33-E**

**Vaca Draw 9418 10 Fed #17H**

**Wellbore #1**

**Design: Wellbore #1**

## **Survey Report - Geographic**

**07 February, 2020**



**QES**  
Survey Report - Geographic



<b>Company:</b>	BTA Oil Producers, LLC	<b>Local Co-ordinate Reference:</b>	Well Vaca Draw 9418 10 Fed #17H
<b>Project:</b>	Lea County, NM (NAD 83)	<b>TVD Reference:</b>	WELL @ 3401.0usft (Patterson #594)
<b>Site:</b>	Sec 10, T25-S, R33-E	<b>MD Reference:</b>	WELL @ 3401.0usft (Patterson #594)
<b>Well:</b>	Vaca Draw 9418 10 Fed #17H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

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

<b>Site</b>	Sec 10, T25-S, R33-E		
<b>Site Position:</b>		<b>Northing:</b>	414,940.60 usft
<b>From:</b>	Map	<b>Easting:</b>	779,261.40 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	32° 8' 18.299 N
		<b>Longitude:</b>	103° 33' 52.777 W
		<b>Grid Convergence:</b>	0.41 °

<b>Well</b>	Vaca Draw 9418 10 Fed #17H		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b> 414,958.00 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b> 781,952.40 usft
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	usft
		<b>Latitude:</b>	32° 8' 18.280 N
		<b>Longitude:</b>	103° 33' 21.480 W
		<b>Ground Level:</b>	3,376.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2020	1/27/2020	6.57	59.75	47,741.20000000

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	355.90	

<b>Survey Program</b>	<b>Date</b>	2/7/2020			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
157.0	17,425.0	QES MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	414,958.00	781,952.40	32° 8' 18.280 N	103° 33' 21.480 W
157.0	0.70	246.80	157.0	-0.4	-0.9	414,957.62	781,951.52	32° 8' 18.277 N	103° 33' 21.490 W
First MWD Survey @ 157.0' MD / 157.0' TVD									
343.0	0.50	251.40	343.0	-1.1	-2.7	414,956.92	781,949.70	32° 8' 18.270 N	103° 33' 21.512 W
523.0	0.40	252.50	523.0	-1.5	-4.0	414,956.48	781,948.36	32° 8' 18.265 N	103° 33' 21.527 W
707.0	0.50	250.20	707.0	-2.0	-5.4	414,956.01	781,946.99	32° 8' 18.261 N	103° 33' 21.543 W
895.0	0.40	258.30	895.0	-2.4	-6.8	414,955.60	781,945.58	32° 8' 18.257 N	103° 33' 21.560 W
1,083.0	0.60	304.30	1,083.0	-2.0	-8.3	414,956.02	781,944.12	32° 8' 18.261 N	103° 33' 21.577 W
1,273.0	1.10	319.40	1,272.9	0.0	-10.3	414,957.97	781,942.11	32° 8' 18.281 N	103° 33' 21.600 W
1,462.0	0.30	310.30	1,461.9	1.7	-11.8	414,959.66	781,940.55	32° 8' 18.298 N	103° 33' 21.618 W
1,496.0	0.40	301.00	1,495.9	1.8	-12.0	414,959.78	781,940.38	32° 8' 18.299 N	103° 33' 21.620 W
1,537.0	0.40	354.20	1,536.9	2.0	-12.2	414,960.00	781,940.25	32° 8' 18.301 N	103° 33' 21.621 W



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<b>Well:</b>	Vaca Draw 9418 10 Fed #17H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,727.0	2.90	259.50	1,726.8	1.8	-16.9	414,959.78	781,935.45	32° 8' 18.299 N	103° 33' 21.677 W
1,915.0	4.10	242.40	1,914.5	-2.2	-27.6	414,955.80	781,924.82	32° 8' 18.260 N	103° 33' 21.801 W
2,104.0	4.80	237.70	2,102.9	-9.6	-40.2	414,948.45	781,912.15	32° 8' 18.189 N	103° 33' 21.949 W
2,294.0	4.30	227.80	2,292.3	-18.6	-52.2	414,939.41	781,900.15	32° 8' 18.100 N	103° 33' 22.089 W
2,484.0	4.40	226.40	2,481.8	-28.4	-62.8	414,929.60	781,889.60	32° 8' 18.004 N	103° 33' 22.213 W
2,673.0	4.50	228.00	2,670.2	-38.4	-73.6	414,919.64	781,878.84	32° 8' 17.906 N	103° 33' 22.339 W
2,862.0	4.00	227.80	2,858.7	-47.7	-84.0	414,910.25	781,868.44	32° 8' 17.814 N	103° 33' 22.461 W
3,051.0	3.80	238.40	3,047.3	-55.5	-94.2	414,902.54	781,858.23	32° 8' 17.738 N	103° 33' 22.580 W
3,240.0	3.30	237.80	3,235.9	-61.6	-104.1	414,896.36	781,848.29	32° 8' 17.678 N	103° 33' 22.696 W
3,429.0	3.00	232.20	3,424.6	-67.6	-112.6	414,890.43	781,839.78	32° 8' 17.620 N	103° 33' 22.796 W
3,618.0	2.60	229.40	3,613.4	-73.4	-119.8	414,884.61	781,832.62	32° 8' 17.563 N	103° 33' 22.879 W
3,807.0	2.80	237.50	3,802.2	-78.7	-126.9	414,879.34	781,825.47	32° 8' 17.511 N	103° 33' 22.963 W
3,996.0	2.70	244.90	3,991.0	-83.0	-134.9	414,874.97	781,817.54	32° 8' 17.468 N	103° 33' 23.055 W
4,186.0	3.30	244.50	4,180.7	-87.3	-143.8	414,870.72	781,808.55	32° 8' 17.427 N	103° 33' 23.160 W
4,376.0	2.80	221.30	4,370.4	-93.1	-151.8	414,864.88	781,800.55	32° 8' 17.370 N	103° 33' 23.254 W
4,565.0	3.00	227.50	4,559.2	-99.9	-158.5	414,858.07	781,793.86	32° 8' 17.303 N	103° 33' 23.332 W
4,754.0	3.40	230.50	4,747.9	-106.8	-166.5	414,851.16	781,785.89	32° 8' 17.235 N	103° 33' 23.426 W
4,944.0	4.10	237.50	4,937.5	-114.1	-176.6	414,843.93	781,775.81	32° 8' 17.164 N	103° 33' 23.543 W
5,133.0	4.50	237.80	5,126.0	-121.7	-188.6	414,836.35	781,763.84	32° 8' 17.090 N	103° 33' 23.683 W
5,322.0	4.70	240.50	5,314.3	-129.4	-201.6	414,828.58	781,750.83	32° 8' 17.014 N	103° 33' 23.835 W
5,511.0	5.00	240.10	5,502.7	-137.3	-215.4	414,820.67	781,736.95	32° 8' 16.937 N	103° 33' 23.997 W
5,701.0	4.10	228.00	5,692.1	-146.0	-227.7	414,811.99	781,724.72	32° 8' 16.852 N	103° 33' 24.140 W
5,891.0	4.00	227.80	5,881.6	-155.0	-237.6	414,803.00	781,714.77	32° 8' 16.763 N	103° 33' 24.257 W
6,080.0	3.80	241.40	6,070.2	-162.4	-248.0	414,795.57	781,704.38	32° 8' 16.691 N	103° 33' 24.378 W
6,270.0	3.90	239.10	6,259.7	-168.8	-259.1	414,789.24	781,693.31	32° 8' 16.629 N	103° 33' 24.507 W
6,458.0	4.10	239.40	6,447.3	-175.5	-270.4	414,782.53	781,682.04	32° 8' 16.563 N	103° 33' 24.639 W
6,648.0	4.20	240.30	6,636.8	-182.4	-282.2	414,775.63	781,670.15	32° 8' 16.496 N	103° 33' 24.778 W
6,838.0	3.20	240.30	6,826.4	-188.4	-292.9	414,769.56	781,659.50	32° 8' 16.436 N	103° 33' 24.902 W
7,027.0	1.90	252.30	7,015.2	-192.0	-300.5	414,765.99	781,651.93	32° 8' 16.402 N	103° 33' 24.991 W
7,216.0	1.90	257.20	7,204.1	-193.7	-306.5	414,764.34	781,645.89	32° 8' 16.386 N	103° 33' 25.061 W
7,405.0	1.10	257.50	7,393.0	-194.7	-311.3	414,763.26	781,641.07	32° 8' 16.375 N	103° 33' 25.117 W
7,595.0	1.00	250.70	7,583.0	-195.7	-314.7	414,762.31	781,637.72	32° 8' 16.366 N	103° 33' 25.156 W
7,783.0	0.90	237.30	7,771.0	-197.0	-317.5	414,760.97	781,634.93	32° 8' 16.353 N	103° 33' 25.189 W
7,973.0	0.90	226.20	7,960.9	-198.9	-319.8	414,759.13	781,632.60	32° 8' 16.335 N	103° 33' 25.216 W
8,162.0	0.40	210.10	8,149.9	-200.5	-321.2	414,757.54	781,631.20	32° 8' 16.320 N	103° 33' 25.232 W
8,351.0	0.30	192.00	8,338.9	-201.5	-321.6	414,756.48	781,630.76	32° 8' 16.309 N	103° 33' 25.238 W
8,540.0	0.30	100.40	8,527.9	-202.1	-321.3	414,755.91	781,631.15	32° 8' 16.303 N	103° 33' 25.233 W
8,728.0	0.40	110.60	8,715.9	-202.4	-320.2	414,755.59	781,632.24	32° 8' 16.300 N	103° 33' 25.220 W
8,918.0	0.30	136.60	8,905.9	-203.0	-319.2	414,754.99	781,633.21	32° 8' 16.294 N	103° 33' 25.209 W
9,107.0	0.40	172.10	9,094.9	-204.0	-318.8	414,753.98	781,633.64	32° 8' 16.284 N	103° 33' 25.204 W
9,287.0	0.30	39.80	9,274.9	-204.3	-318.4	414,753.72	781,634.03	32° 8' 16.282 N	103° 33' 25.200 W
9,477.0	0.20	239.80	9,464.9	-204.1	-318.3	414,753.93	781,634.06	32° 8' 16.284 N	103° 33' 25.200 W
9,666.0	0.10	137.00	9,653.9	-204.4	-318.5	414,753.65	781,633.88	32° 8' 16.281 N	103° 33' 25.202 W
9,856.0	0.90	205.90	9,843.9	-205.8	-319.1	414,752.18	781,633.35	32° 8' 16.266 N	103° 33' 25.208 W
10,046.0	0.70	277.20	10,033.9	-207.0	-320.9	414,750.99	781,631.54	32° 8' 16.255 N	103° 33' 25.229 W
10,235.0	1.00	257.00	10,222.9	-207.2	-323.6	414,750.76	781,628.79	32° 8' 16.253 N	103° 33' 25.261 W
10,425.0	1.10	255.40	10,412.8	-208.1	-327.0	414,749.93	781,625.41	32° 8' 16.245 N	103° 33' 25.300 W
10,614.0	1.00	149.10	10,601.8	-209.9	-327.9	414,748.06	781,624.50	32° 8' 16.226 N	103° 33' 25.311 W
10,803.0	0.90	181.30	10,790.8	-212.8	-327.1	414,745.16	781,625.31	32° 8' 16.197 N	103° 33' 25.302 W
10,992.0	1.40	353.20	10,979.8	-212.0	-327.4	414,745.97	781,625.01	32° 8' 16.205 N	103° 33' 25.305 W
11,182.0	1.40	335.80	11,169.7	-207.6	-328.6	414,750.39	781,623.78	32° 8' 16.249 N	103° 33' 25.319 W
11,370.0	1.20	293.60	11,357.7	-204.7	-331.4	414,753.27	781,621.04	32° 8' 16.278 N	103° 33' 25.351 W
11,560.0	1.80	247.00	11,547.6	-205.1	-335.9	414,752.90	781,616.47	32° 8' 16.275 N	103° 33' 25.404 W
11,749.0	1.40	219.80	11,736.5	-208.0	-340.1	414,749.97	781,612.26	32° 8' 16.246 N	103° 33' 25.453 W
11,820.0	1.70	188.10	11,807.5	-209.7	-340.8	414,748.26	781,611.55	32° 8' 16.229 N	103° 33' 25.462 W



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<b>Site:</b>	Sec 10, T25-S, R33-E	<b>MD Reference:</b>	WELL @ 3401.0usft (Patterson #594)
<b>Well:</b>	Vaca Draw 9418 10 Fed #17H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,879.0	1.80	186.30	11,866.5	-211.5	-341.1	414,746.47	781,611.33	32° 8' 16.211 N	103° 33' 25.464 W
11,973.0	5.10	25.10	11,960.4	-209.2	-339.5	414,748.79	781,612.94	32° 8' 16.234 N	103° 33' 25.446 W
12,068.0	20.90	5.40	12,052.7	-188.4	-336.0	414,769.62	781,616.35	32° 8' 16.440 N	103° 33' 25.404 W
12,163.0	35.40	8.30	12,136.2	-144.0	-330.5	414,813.96	781,621.94	32° 8' 16.878 N	103° 33' 25.335 W
12,258.0	40.20	9.80	12,211.3	-86.6	-321.3	414,871.43	781,631.14	32° 8' 17.447 N	103° 33' 25.224 W
12,353.0	49.90	8.30	12,278.3	-20.2	-310.8	414,937.76	781,641.63	32° 8' 18.102 N	103° 33' 25.096 W
12,448.0	60.60	11.20	12,332.4	56.5	-297.4	415,014.54	781,654.95	32° 8' 18.861 N	103° 33' 24.935 W
12,505.4	67.18	3.08	12,357.7	107.6	-291.1	415,065.61	781,661.25	32° 8' 19.366 N	103° 33' 24.857 W
<b>330' HL Crossed @ 12505.4' MD / 12357.7' TVD</b>									
12,543.0	71.70	358.20	12,370.9	142.8	-290.8	415,100.79	781,661.62	32° 8' 19.714 N	103° 33' 24.850 W
12,638.0	84.50	351.90	12,390.5	235.1	-298.9	415,193.15	781,653.50	32° 8' 20.628 N	103° 33' 24.937 W
12,733.0	88.00	352.10	12,396.7	329.0	-312.1	415,287.01	781,640.31	32° 8' 21.558 N	103° 33' 25.082 W
12,854.0	91.00	355.10	12,397.7	449.2	-325.6	415,407.22	781,626.82	32° 8' 22.749 N	103° 33' 25.229 W
12,949.0	91.50	0.20	12,395.7	544.1	-329.5	415,502.09	781,622.93	32° 8' 23.688 N	103° 33' 25.266 W
13,045.0	89.90	357.40	12,394.5	640.0	-331.5	415,598.05	781,620.92	32° 8' 24.637 N	103° 33' 25.282 W
13,140.0	90.10	355.10	12,394.5	734.8	-337.7	415,692.84	781,614.71	32° 8' 25.576 N	103° 33' 25.346 W
13,235.0	92.20	355.40	12,392.6	829.5	-345.6	415,787.48	781,606.84	32° 8' 26.513 N	103° 33' 25.429 W
13,330.0	92.30	357.70	12,388.8	924.2	-351.3	415,882.23	781,601.13	32° 8' 27.451 N	103° 33' 25.488 W
13,424.0	88.20	359.80	12,388.4	1,018.2	-353.3	415,976.18	781,599.08	32° 8' 28.381 N	103° 33' 25.504 W
13,519.0	87.70	0.00	12,391.8	1,113.1	-353.5	416,071.12	781,598.92	32° 8' 29.320 N	103° 33' 25.498 W
13,613.0	94.30	359.30	12,390.2	1,207.1	-354.1	416,165.05	781,598.34	32° 8' 30.250 N	103° 33' 25.497 W
13,708.0	95.50	1.60	12,382.1	1,301.7	-353.3	416,259.70	781,599.08	32° 8' 31.186 N	103° 33' 25.480 W
13,803.0	93.00	4.00	12,375.0	1,396.3	-348.7	416,354.31	781,603.71	32° 8' 32.122 N	103° 33' 25.418 W
13,897.0	89.20	5.80	12,373.2	1,489.9	-340.7	416,447.93	781,611.74	32° 8' 33.048 N	103° 33' 25.317 W
13,992.0	89.00	3.30	12,374.7	1,584.6	-333.1	416,542.61	781,619.28	32° 8' 33.984 N	103° 33' 25.221 W
14,087.0	92.10	0.50	12,373.8	1,679.5	-330.0	416,637.53	781,622.43	32° 8' 34.923 N	103° 33' 25.177 W
14,181.0	89.40	358.80	12,372.6	1,773.5	-330.5	416,731.51	781,621.85	32° 8' 35.853 N	103° 33' 25.176 W
14,276.0	89.80	357.20	12,373.2	1,868.4	-333.9	416,826.44	781,618.54	32° 8' 36.793 N	103° 33' 25.206 W
14,371.0	90.20	356.70	12,373.2	1,963.3	-338.9	416,921.31	781,613.48	32° 8' 37.732 N	103° 33' 25.257 W
14,466.0	87.60	354.90	12,375.1	2,058.0	-345.9	417,016.02	781,606.53	32° 8' 38.670 N	103° 33' 25.330 W
14,561.0	89.10	357.50	12,377.8	2,152.8	-352.2	417,110.77	781,600.23	32° 8' 39.608 N	103° 33' 25.395 W
14,656.0	91.20	3.70	12,377.6	2,247.7	-351.2	417,205.71	781,601.23	32° 8' 40.547 N	103° 33' 25.376 W
14,750.0	90.50	7.70	12,376.2	2,341.2	-341.8	417,299.21	781,610.56	32° 8' 41.472 N	103° 33' 25.259 W
14,845.0	90.70	6.00	12,375.2	2,435.5	-330.5	417,393.53	781,621.89	32° 8' 42.404 N	103° 33' 25.120 W
14,940.0	88.70	0.90	12,375.7	2,530.3	-324.8	417,488.32	781,627.61	32° 8' 43.342 N	103° 33' 25.045 W
15,034.0	89.80	0.30	12,376.9	2,624.3	-323.8	417,582.30	781,628.59	32° 8' 44.272 N	103° 33' 25.026 W
15,129.0	90.00	2.30	12,377.1	2,719.3	-321.7	417,677.27	781,630.75	32° 8' 45.211 N	103° 33' 24.993 W
15,224.0	87.80	1.10	12,378.9	2,814.2	-318.8	417,772.21	781,633.56	32° 8' 46.150 N	103° 33' 24.952 W
15,320.0	88.60	0.70	12,381.9	2,910.1	-317.3	417,868.15	781,635.07	32° 8' 47.100 N	103° 33' 24.927 W
15,415.0	89.40	1.10	12,383.6	3,005.1	-315.8	417,963.12	781,636.56	32° 8' 48.039 N	103° 33' 24.901 W
15,510.0	91.50	2.50	12,382.8	3,100.1	-312.9	418,058.06	781,639.55	32° 8' 48.979 N	103° 33' 24.859 W
15,605.0	89.60	358.90	12,381.9	3,195.0	-311.7	418,153.03	781,640.71	32° 8' 49.918 N	103° 33' 24.837 W
15,700.0	87.80	358.10	12,384.1	3,290.0	-314.2	418,247.97	781,638.22	32° 8' 50.858 N	103° 33' 24.858 W
15,795.0	89.60	357.50	12,386.2	3,384.9	-317.8	418,342.87	781,634.57	32° 8' 51.797 N	103° 33' 24.893 W
15,890.0	88.80	356.50	12,387.5	3,479.7	-322.8	418,437.73	781,629.60	32° 8' 52.736 N	103° 33' 24.942 W
15,985.0	90.10	356.70	12,388.4	3,574.6	-328.4	418,532.55	781,623.97	32° 8' 53.675 N	103° 33' 25.000 W
16,041.0	88.60	355.60	12,389.1	3,630.4	-332.2	418,588.42	781,620.21	32° 8' 54.228 N	103° 33' 25.039 W
16,135.0	86.80	354.50	12,392.9	3,724.0	-340.3	418,681.99	781,612.11	32° 8' 55.154 N	103° 33' 25.125 W
16,230.0	88.10	355.60	12,397.1	3,818.5	-348.5	418,776.54	781,603.92	32° 8' 56.091 N	103° 33' 25.213 W
16,325.0	89.30	356.30	12,399.2	3,913.3	-355.2	418,871.27	781,597.21	32° 8' 57.029 N	103° 33' 25.283 W
16,419.0	90.80	358.80	12,399.2	4,007.2	-359.2	418,965.18	781,593.19	32° 8' 57.958 N	103° 33' 25.322 W
16,514.0	91.10	359.10	12,397.6	4,102.1	-360.9	419,060.15	781,591.45	32° 8' 58.898 N	103° 33' 25.334 W
16,608.0	91.40	358.60	12,395.5	4,196.1	-362.8	419,154.11	781,589.57	32° 8' 59.828 N	103° 33' 25.348 W
16,704.0	89.70	356.70	12,394.6	4,292.0	-366.8	419,250.01	781,585.63	32° 9' 0.777 N	103° 33' 25.386 W
16,799.0	89.40	357.90	12,395.4	4,386.9	-371.2	419,344.90	781,581.16	32° 9' 1.716 N	103° 33' 25.430 W



**QES**  
Survey Report - Geographic



<b>Company:</b>	BTA Oil Producers, LLC	<b>Local Co-ordinate Reference:</b>	Well Vaca Draw 9418 10 Fed #17H
<b>Project:</b>	Lea County, NM (NAD 83)	<b>TVD Reference:</b>	WELL @ 3401.0usft (Patterson #594)
<b>Site:</b>	Sec 10, T25-S, R33-E	<b>MD Reference:</b>	WELL @ 3401.0usft (Patterson #594)
<b>Well:</b>	Vaca Draw 9418 10 Fed #17H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
16,894.0	88.90	358.60	12,396.8	4,481.8	-374.1	419,439.85	781,578.25	32° 9' 2.656 N	103° 33' 25.456 W
16,989.0	90.20	0.00	12,397.5	4,576.8	-375.3	419,534.83	781,577.09	32° 9' 3.596 N	103° 33' 25.461 W
17,084.0	90.70	0.30	12,396.8	4,671.8	-375.1	419,629.83	781,577.34	32° 9' 4.536 N	103° 33' 25.450 W
17,143.8	89.76	359.99	12,396.5	4,731.6	-374.9	419,689.63	781,577.49	32° 9' 5.128 N	103° 33' 25.444 W
<b>330' HL Crossed @ 17143.8' MD / 12396.5' TVD</b>									
17,179.0	89.20	359.80	12,396.8	4,766.8	-375.0	419,724.83	781,577.43	32° 9' 5.476 N	103° 33' 25.441 W
17,274.0	92.70	1.10	12,395.3	4,861.8	-374.2	419,819.79	781,578.17	32° 9' 6.416 N	103° 33' 25.425 W
17,370.0	90.90	358.20	12,392.3	4,957.7	-374.8	419,915.73	781,577.58	32° 9' 7.365 N	103° 33' 25.424 W
17,425.0	90.90	358.20	12,391.4	5,012.7	-376.5	419,970.70	781,575.86	32° 9' 7.909 N	103° 33' 25.439 W
<b>TD @ 17425.0' MD / 12391.4' TVD</b>									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
157.0	157.0	-0.4	-0.9	First MWD Survey @ 157.0'MD / 157.0' TVD	
12,505.4	12,357.7	107.6	-291.1	330' HL Crossed @ 12505.4' MD / 12357.7' TVD	
17,143.8	12,396.5	4,731.6	-374.9	330' HL Crossed @ 17143.8' MD / 12396.5' TVD	
17,425.0	12,391.4	5,012.7	-376.5	TD @ 17425.0' MD / 12391.4' TVD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_