



BTA Oil Producers, LLC

Lea County, NM (NAD 83)

Sec 10, T25-S, R33-E

Vaca Draw 9418 10 Fed #15H

ST01

Design: ST01

QES Survey Report

30 July, 2019





Survey Report



Company: BTA Oil Producers, LLC
 Project: Lea County, NM (NAD 83)
 Site: Sec 10, T25-S, R33-E
 Well: Vaca Draw 9418 10 Fed #15H
 Wellbore: ST01
 Design: ST01

Local Co-ordinate Reference: Well Vaca Draw 9418 10 Fed #15H
 TVD Reference: WELL @ 3413.0usft (Patterson #566)
 MD Reference: WELL @ 3413.0usft (Patterson #566)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User Db

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

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

Well	Vaca Draw 9418 10 Fed #15H			
Well Position	+N-S	0.0 usft	Northing:	414,941.10 usft
	+E-W	0.0 usft	Easting:	779,351.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level: 3,388.0 usft

Wellbore	ST01					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	HDGM	7/23/2019	6.63	59.75	47,793.30000000	

Design	ST01					
Audit Notes:						
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	11,910.0	
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)		
	0.0	0.0	0.0		10.32	

Survey Program	Date 7/30/2019				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
166.0	11,910.0	QES MWD Surveys (Wellbore #1)	OWSG (Rev2) MWD	OWSG MWD - Standard	
12,005.0	17,380.0	QES MWD Surveys ST01 (ST01)	OWSG (Rev2) MWD	OWSG MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
166.0	0.70	358.20	166.0	1.0	0.0	1.0	0.42	0.42	0.00
231.0	0.70	4.80	231.0	1.8	0.0	1.8	0.12	0.00	10.15
326.0	0.50	6.20	326.0	2.8	0.1	2.8	0.21	-0.21	1.47
415.0	0.40	330.70	415.0	3.5	0.0	3.4	0.33	-0.11	-39.89
507.0	0.60	327.40	507.0	4.1	-0.4	4.0	0.22	0.22	-3.59
600.0	0.70	316.50	600.0	5.0	-1.1	4.7	0.17	0.11	-11.72
691.0	0.90	300.70	691.0	5.7	-2.1	5.3	0.33	0.22	-17.36
814.0	1.10	276.40	813.9	6.4	-4.1	5.5	0.38	0.16	-19.76
908.0	1.30	258.80	907.9	6.2	-6.0	5.1	0.44	0.21	-18.72



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,001.0	1.50	237.40	1,000.9	5.4	-8.1	3.8	0.60	0.22	-23.01
1,095.0	1.40	231.40	1,094.9	4.0	-10.0	2.1	0.19	-0.11	-6.38
1,188.0	1.10	235.30	1,187.8	2.8	-11.7	0.7	0.34	-0.32	4.19
1,245.0	0.70	246.90	1,244.8	2.3	-12.4	0.1	0.77	-0.70	20.35
1,279.0	0.70	237.90	1,278.8	2.2	-12.8	-0.2	0.32	0.00	-26.47
1,352.0	1.20	131.60	1,351.8	1.4	-12.6	-0.9	2.12	0.68	-145.62
1,445.0	4.30	100.40	1,444.7	0.1	-8.4	-1.4	3.58	3.33	-33.55
1,539.0	6.90	95.50	1,538.3	-1.0	0.6	-0.9	2.81	2.77	-5.21
1,632.0	9.60	97.30	1,630.3	-2.6	13.9	0.0	2.92	2.90	1.94
1,725.0	10.60	96.60	1,721.8	-4.5	30.1	0.9	1.08	1.08	-0.75
1,819.0	10.40	95.90	1,814.3	-6.4	47.1	2.1	0.25	-0.21	-0.74
1,912.0	10.00	95.50	1,905.8	-8.0	63.5	3.5	0.44	-0.43	-0.43
2,005.0	9.80	94.10	1,997.4	-9.4	79.4	5.0	0.34	-0.22	-1.51
2,099.0	10.90	100.60	2,089.9	-11.6	96.2	5.8	1.70	1.17	6.91
2,192.0	11.50	102.00	2,181.1	-15.1	113.9	5.5	0.71	0.65	1.51
2,285.0	11.60	100.30	2,272.2	-18.7	132.1	5.2	0.38	0.11	-1.83
2,378.0	11.40	99.90	2,363.4	-22.0	150.4	5.3	0.23	-0.22	-0.43
2,472.0	11.20	99.40	2,455.5	-25.1	168.5	5.5	0.24	-0.21	-0.53
2,565.0	11.00	98.20	2,546.8	-27.8	186.2	6.0	0.33	-0.22	-1.29
2,658.0	10.80	97.80	2,638.1	-30.3	203.7	6.7	0.23	-0.22	-0.43
2,752.0	11.00	97.80	2,730.4	-32.7	221.3	7.5	0.21	0.21	0.00
2,845.0	11.20	98.30	2,821.7	-35.2	239.0	8.2	0.24	0.22	0.54
2,938.0	11.30	98.90	2,912.9	-37.9	256.9	8.7	0.17	0.11	0.65
3,031.0	11.30	98.50	3,004.1	-40.6	274.9	9.3	0.08	0.00	-0.43
3,125.0	11.30	98.30	3,096.3	-43.3	293.2	9.9	0.04	0.00	-0.21
3,218.0	11.70	98.20	3,187.4	-46.0	311.5	10.5	0.43	0.43	-0.11
3,311.0	11.20	103.10	3,278.6	-49.4	329.6	10.5	1.18	-0.54	5.27
3,405.0	11.60	104.00	3,370.7	-53.7	347.7	9.4	0.47	0.43	0.96
3,498.0	10.20	109.40	3,462.0	-58.7	364.5	7.5	1.86	-1.51	5.81
3,591.0	9.80	108.90	3,553.6	-64.0	379.8	5.0	0.44	-0.43	-0.54
3,685.0	9.40	109.20	3,646.3	-69.2	394.6	2.7	0.43	-0.43	0.32
3,778.0	9.20	108.00	3,738.1	-74.0	408.9	0.5	0.30	-0.22	-1.29
3,871.0	8.70	107.10	3,829.9	-78.3	422.7	-1.3	0.56	-0.54	-0.97
3,965.0	8.30	108.20	3,922.9	-82.5	435.9	-3.1	0.46	-0.43	1.17
4,058.0	7.90	105.40	4,015.0	-86.3	448.4	-4.6	0.60	-0.43	-3.01
4,151.0	6.90	105.20	4,107.2	-89.5	460.0	-5.6	1.08	-1.08	-0.22
4,245.0	6.60	103.80	4,200.6	-92.3	470.7	-6.4	0.36	-0.32	-1.49
4,338.0	7.60	95.30	4,292.8	-94.1	482.0	-6.2	1.56	1.08	-9.14
4,431.0	8.30	96.60	4,385.0	-95.4	494.8	-5.3	0.78	0.75	1.40
4,524.0	8.30	92.90	4,477.0	-96.5	508.2	-4.0	0.57	0.00	-3.98
4,618.0	8.70	94.10	4,569.9	-97.4	522.0	-2.3	0.47	0.43	1.28
4,711.0	9.50	101.00	4,661.8	-99.4	536.6	-1.6	1.45	0.86	7.42
4,805.0	10.20	107.30	4,754.4	-103.3	552.1	-2.7	1.37	0.74	6.70



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4,898.0	9.20	105.70	4,846.1	-107.8	567.2	-4.4	1.11	-1.08	-1.72
4,991.0	8.20	104.00	4,938.0	-111.4	580.8	-5.6	1.11	-1.08	-1.83
5,084.0	7.40	103.40	5,030.1	-114.4	593.0	-6.3	0.86	-0.86	-0.65
5,178.0	7.00	102.20	5,123.4	-117.0	604.5	-6.8	0.45	-0.43	-1.28
5,271.0	7.20	100.10	5,215.7	-119.2	615.8	-7.0	0.35	0.22	-2.26
5,364.0	7.10	99.60	5,308.0	-121.2	627.2	-6.9	0.13	-0.11	-0.54
5,457.0	7.10	98.90	5,400.2	-123.1	638.5	-6.7	0.09	0.00	-0.75
5,551.0	6.80	98.70	5,493.6	-124.8	649.8	-6.4	0.32	-0.32	-0.21
5,644.0	7.20	95.90	5,585.9	-126.2	661.0	-5.8	0.57	0.43	-3.01
5,737.0	6.90	94.10	5,678.2	-127.2	672.4	-4.7	0.40	-0.32	-1.94
5,830.0	7.70	95.30	5,770.4	-128.2	684.2	-3.6	0.88	0.86	1.29
5,924.0	9.00	97.50	5,863.4	-129.7	697.7	-2.7	1.42	1.38	2.34
6,017.0	8.70	102.00	5,955.3	-132.2	711.8	-2.5	0.81	-0.32	4.84
6,110.0	8.60	102.50	6,047.2	-135.1	725.5	-3.0	0.13	-0.11	0.54
6,204.0	8.10	102.90	6,140.2	-138.1	738.8	-3.5	0.54	-0.53	0.43
6,297.0	7.70	101.80	6,232.4	-140.9	751.3	-4.0	0.46	-0.43	-1.18
6,390.0	7.70	102.00	6,324.5	-143.4	763.5	-4.3	0.03	0.00	0.22
6,483.0	7.20	101.30	6,416.7	-145.9	775.3	-4.6	0.55	-0.54	-0.75
6,577.0	7.00	101.30	6,510.0	-148.1	786.7	-4.8	0.21	-0.21	0.00
6,670.0	6.90	102.20	6,602.3	-150.4	797.7	-5.1	0.16	-0.11	0.97
6,763.0	6.80	103.80	6,694.7	-152.9	808.5	-5.6	0.23	-0.11	1.72
6,856.0	6.90	101.80	6,787.0	-155.4	819.3	-6.1	0.28	0.11	-2.15
6,950.0	6.30	103.30	6,880.4	-157.7	829.9	-6.5	0.66	-0.64	1.60
7,043.0	6.00	103.40	6,972.8	-160.0	839.5	-7.0	0.32	-0.32	0.11
7,136.0	5.40	106.80	7,065.4	-162.4	848.5	-7.8	0.74	-0.65	3.66
7,230.0	4.90	106.60	7,159.0	-164.8	856.5	-8.7	0.53	-0.53	-0.21
7,323.0	4.70	105.90	7,251.7	-167.0	864.0	-9.5	0.22	-0.22	-0.75
7,416.0	4.50	103.60	7,344.4	-168.9	871.2	-10.1	0.29	-0.22	-2.47
7,509.0	4.80	105.70	7,437.1	-170.8	878.5	-10.7	0.37	0.32	2.26
7,603.0	4.90	108.00	7,530.7	-173.1	886.1	-11.6	0.23	0.11	2.45
7,696.0	4.40	108.70	7,623.4	-175.5	893.3	-12.6	0.54	-0.54	0.75
7,789.0	4.60	102.40	7,716.1	-177.5	900.3	-13.3	0.57	0.22	-6.77
7,883.0	5.10	97.50	7,809.8	-178.8	908.1	-13.2	0.69	0.53	-5.21
7,976.0	5.20	93.80	7,902.4	-179.6	916.4	-12.5	0.37	0.11	-3.98
8,069.0	4.80	93.80	7,995.1	-180.2	924.5	-11.6	0.43	-0.43	0.00
8,162.0	4.40	93.60	8,087.8	-180.6	932.0	-10.8	0.43	-0.43	-0.22
8,256.0	4.00	100.60	8,181.5	-181.5	938.8	-10.4	0.69	-0.43	7.45
8,349.0	3.50	102.90	8,274.3	-182.7	944.7	-10.5	0.56	-0.54	2.47
8,442.0	3.30	100.40	8,367.2	-183.8	950.1	-10.6	0.27	-0.22	-2.69
8,535.0	2.90	99.00	8,460.0	-184.7	955.1	-10.6	0.44	-0.43	-1.51
8,629.0	2.60	100.30	8,553.9	-185.4	959.5	-10.5	0.33	-0.32	1.38
8,722.0	2.30	102.40	8,646.8	-186.2	963.4	-10.6	0.34	-0.32	2.26
8,815.0	1.90	112.40	8,739.8	-187.2	966.7	-11.0	0.58	-0.43	10.75



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8,909.0	1.70	115.70	8,833.7	-188.4	969.4	-11.7	0.24	-0.21	3.51
9,002.0	1.60	126.50	8,926.7	-189.8	971.7	-12.6	0.35	-0.11	11.61
9,095.0	1.50	126.50	9,019.7	-191.3	973.7	-13.7	0.11	-0.11	0.00
9,189.0	1.20	143.50	9,113.6	-192.8	975.3	-14.9	0.53	-0.32	18.09
9,282.0	1.10	144.40	9,206.6	-194.3	976.4	-16.2	0.11	-0.11	0.97
9,375.0	1.20	154.40	9,299.6	-195.9	977.3	-17.6	0.24	0.11	10.75
9,469.0	1.60	164.20	9,393.6	-198.0	978.1	-19.6	0.49	0.43	10.43
9,551.0	1.60	175.50	9,475.5	-200.3	978.5	-21.8	0.38	0.00	13.78
9,644.0	1.80	170.60	9,568.5	-203.0	978.8	-24.4	0.27	0.22	-5.27
9,737.0	0.40	227.00	9,661.5	-204.7	978.8	-26.0	1.73	-1.51	60.65
9,831.0	0.30	203.30	9,755.5	-205.1	978.5	-26.5	0.18	-0.11	-25.21
9,924.0	1.60	208.40	9,848.5	-206.5	977.8	-28.0	1.40	1.40	5.48
10,018.0	1.80	269.40	9,942.4	-207.7	975.7	-29.5	1.84	0.21	64.89
10,111.0	3.30	318.60	10,035.3	-205.7	972.5	-28.1	2.71	1.61	52.90
10,204.0	2.10	328.80	10,128.2	-202.2	969.8	-25.2	1.38	-1.29	10.97
10,298.0	1.10	300.00	10,222.2	-200.3	968.1	-23.6	1.33	-1.06	-30.64
10,391.0	1.80	267.80	10,315.2	-199.9	965.9	-23.6	1.13	0.75	-34.62
10,484.0	2.00	269.20	10,408.1	-200.0	962.8	-24.3	0.22	0.22	1.51
10,577.0	2.10	286.20	10,501.1	-199.5	959.5	-24.4	0.66	0.11	18.28
10,671.0	2.20	314.50	10,595.0	-197.8	956.6	-23.2	1.12	0.11	30.11
10,764.0	1.10	343.00	10,688.0	-195.7	955.1	-21.4	1.44	-1.18	30.65
10,857.0	0.20	331.80	10,780.9	-194.7	954.7	-20.5	0.97	-0.97	-12.04
10,951.0	0.90	239.00	10,874.9	-194.9	954.0	-20.8	0.99	0.74	-98.72
11,044.0	0.70	225.40	10,967.9	-195.7	953.0	-21.8	0.30	-0.22	-14.62
11,137.0	1.00	262.20	11,060.9	-196.2	951.8	-22.5	0.65	0.32	39.57
11,230.0	0.60	226.80	11,153.9	-196.6	950.6	-23.2	0.66	-0.43	-38.06
11,324.0	0.60	174.80	11,247.9	-197.5	950.3	-24.0	0.56	0.00	-55.32
11,417.0	1.00	146.70	11,340.9	-198.6	950.8	-25.1	0.59	0.43	-30.22
11,510.0	1.50	173.20	11,433.9	-200.5	951.4	-26.8	0.81	0.54	28.49
11,603.0	2.10	247.00	11,526.8	-202.4	950.0	-28.9	2.38	0.65	79.35
11,697.0	3.00	270.80	11,620.8	-203.0	945.9	-30.3	1.46	0.96	25.32
11,790.0	3.50	269.50	11,713.6	-203.0	940.7	-31.2	0.54	0.54	-1.40
11,824.0	3.30	270.40	11,747.5	-203.0	938.6	-31.6	0.61	-0.59	2.65
ST01 Tie In @ 11910.0' MD / 11833.4' TVD									
11,910.0	3.00	284.10	11,833.4	-202.5	934.0	-31.9	0.94	-0.35	15.93
12,005.0	7.70	344.60	11,928.0	-195.7	929.9	-26.0	7.10	4.95	63.68
12,036.0	9.80	347.10	11,958.7	-191.1	928.7	-21.7	6.88	6.77	8.06
12,068.0	14.40	353.60	11,990.0	-184.5	927.7	-15.3	14.97	14.38	20.31
12,100.0	19.10	357.10	12,020.6	-175.3	927.0	-6.4	15.02	14.69	10.94
12,194.0	36.60	357.80	12,103.4	-131.6	925.1	36.2	18.62	18.62	0.74
12,289.0	50.00	355.80	12,172.4	-66.7	921.3	99.4	14.18	14.11	-2.11
12,384.0	56.70	357.40	12,229.0	9.3	916.9	173.4	7.18	7.05	1.68
12,479.0	62.80	359.50	12,276.9	91.3	914.7	253.7	6.70	6.42	2.21

Cross 330' HL @ 12504.7' MD / 12288.4' TVD



Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM (NAD 83)
Site: Sec 10, T25-S, R33-E
Well: Vaca Draw 9418 10 Fed #15H
Wellbore: ST01
Design: ST01

Local Co-ordinate Reference: Well Vaca Draw 9418 10 Fed #15H
TVD Reference: WELL @ 3413.0usft (Patterson #566)
MD Reference: WELL @ 3413.0usft (Patterson #566)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,504.7	63.96	359.69	12,288.4	114.3	914.5	276.2	4.58	4.53	0.76
12,574.0	67.10	0.20	12,317.1	177.3	914.5	338.3	4.58	4.53	0.73
12,670.0	72.40	1.80	12,350.3	267.3	916.1	427.1	5.74	5.52	1.67
12,765.0	79.90	0.20	12,373.0	359.5	917.7	518.1	8.06	7.89	-1.68
12,859.0	87.80	359.90	12,383.1	452.9	917.7	610.0	8.41	8.40	-0.32
12,955.0	90.50	0.10	12,384.5	548.9	917.7	704.4	2.82	2.81	0.21
13,051.0	89.00	359.50	12,384.9	644.9	917.4	798.8	1.68	-1.56	-0.63
13,146.0	91.70	359.00	12,384.4	739.8	916.2	892.0	2.89	2.84	-0.53
13,241.0	90.60	0.60	12,382.5	834.8	915.8	985.4	2.04	-1.16	1.68
13,337.0	90.00	359.70	12,382.0	930.8	916.1	1,079.9	1.13	-0.63	-0.94
13,432.0	89.80	357.30	12,382.1	1,025.8	913.6	1,172.8	2.54	-0.21	-2.53
13,527.0	90.50	359.20	12,381.9	1,120.7	910.7	1,265.7	2.13	0.74	2.00
13,622.0	88.90	2.90	12,382.4	1,215.7	912.4	1,359.5	4.24	-1.68	3.89
13,718.0	89.00	3.60	12,384.1	1,311.5	917.9	1,454.7	0.74	0.10	0.73
13,813.0	94.20	3.90	12,381.5	1,406.2	924.1	1,549.0	5.48	5.47	0.32
13,908.0	88.70	1.50	12,379.1	1,501.1	928.5	1,643.1	6.32	-5.79	-2.53
14,003.0	88.80	0.60	12,381.1	1,596.0	930.3	1,736.9	0.95	0.11	-0.95
14,097.0	87.50	359.50	12,384.2	1,690.0	930.4	1,829.3	1.81	-1.38	-1.17
14,192.0	87.80	359.40	12,388.1	1,784.9	929.5	1,922.5	0.33	0.32	-0.11
14,288.0	89.60	358.80	12,390.2	1,880.9	928.0	2,016.7	1.98	1.88	-0.63
14,383.0	90.00	357.10	12,390.6	1,975.8	924.6	2,109.5	1.84	0.42	-1.79
14,477.0	88.40	359.00	12,391.9	2,069.7	921.4	2,201.3	2.64	-1.70	2.02
14,572.0	89.60	358.10	12,393.6	2,164.7	919.0	2,294.3	1.58	1.26	-0.95
14,668.0	87.70	0.10	12,395.8	2,260.6	917.4	2,388.4	2.87	-1.98	2.08
14,763.0	86.30	359.40	12,400.8	2,355.5	917.0	2,481.7	1.65	-1.47	-0.74
14,857.0	88.10	359.20	12,405.4	2,449.4	915.9	2,573.8	1.93	1.91	-0.21
14,952.0	88.80	357.80	12,407.9	2,544.3	913.4	2,666.8	1.65	0.74	-1.47
15,047.0	91.30	359.50	12,407.9	2,639.3	911.2	2,759.8	3.18	2.63	1.79
15,142.0	90.40	1.50	12,406.5	2,734.2	912.0	2,853.4	2.31	-0.95	2.11
15,237.0	93.70	2.40	12,403.1	2,829.1	915.2	2,947.3	3.60	3.47	0.95
15,333.0	92.30	0.60	12,398.0	2,924.9	917.7	3,042.0	2.37	-1.46	-1.88
15,428.0	87.40	358.80	12,398.3	3,019.9	917.2	3,135.4	5.49	-5.16	-1.89
15,523.0	89.90	358.80	12,400.5	3,114.8	915.2	3,228.4	2.63	2.63	0.00
15,618.0	92.20	358.70	12,398.8	3,209.8	913.2	3,321.5	2.42	2.42	-0.11
15,712.0	88.90	357.40	12,397.9	3,303.7	910.0	3,413.3	3.77	-3.51	-1.38
15,808.0	89.30	0.20	12,399.4	3,399.7	908.0	3,507.3	2.95	0.42	2.92
15,903.0	91.20	1.30	12,399.0	3,494.7	909.2	3,601.0	2.31	2.00	1.16
15,999.0	91.90	0.40	12,396.4	3,590.6	910.6	3,695.7	1.19	0.73	-0.94
16,095.0	91.40	358.50	12,393.6	3,686.6	909.7	3,789.9	2.05	-0.52	-1.98
16,190.0	92.10	358.10	12,390.7	3,781.5	906.9	3,882.8	0.85	0.74	-0.42
16,283.0	90.80	357.80	12,388.4	3,874.4	903.6	3,973.6	1.43	-1.40	-0.32
16,378.0	89.60	0.20	12,388.0	3,969.4	901.9	4,066.7	2.82	-1.26	2.53
16,473.0	90.60	0.80	12,387.9	4,064.4	902.7	4,160.3	1.23	1.05	0.63



Survey Report



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Local Co-ordinate Reference: Well Vaca Draw 9418 10 Fed #15H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,568.0	86.40	358.10	12,390.3	4,159.3	901.8	4,253.6	5.25	-4.42	-2.84
16,662.0	90.30	359.20	12,393.0	4,253.2	899.6	4,345.6	4.31	4.15	1.17
16,757.0	88.50	357.60	12,394.0	4,348.2	897.0	4,438.5	2.53	-1.89	-1.68
16,852.0	91.30	359.70	12,394.2	4,443.1	894.7	4,531.5	3.68	2.95	2.21
16,946.0	89.80	1.30	12,393.3	4,537.1	895.5	4,624.1	2.33	-1.60	1.70
17,042.0	91.10	2.20	12,392.6	4,633.1	898.5	4,719.1	1.65	1.35	0.94
17,136.0	91.80	1.30	12,390.2	4,727.0	901.3	4,812.0	1.21	0.74	-0.96
Cross 330' HL@ 17148.7' MD / 12389.8' TVD									
17,148.7	91.47	1.27	12,389.8	4,739.7	901.6	4,824.5	2.64	-2.63	-0.21
17,231.0	89.30	1.10	12,389.3	4,821.9	903.3	4,905.8	2.64	-2.63	-0.21
17,326.0	88.80	0.80	12,390.8	4,916.9	904.9	4,999.5	0.61	-0.53	-0.32
17,330.0	88.90	0.90	12,390.9	4,920.9	905.0	5,003.4	3.54	2.50	2.50
TD @ 17380.0' MD / 12391.9' TVD									
17,380.0	88.90	0.90	12,391.9	4,970.9	905.8	5,052.8	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,910.0	11,833.4	-202.5	934.0	ST01 Tie In @ 11910.0' MD / 11833.4' TVD
12,504.7	12,288.4	114.3	914.5	Cross 330' HL@ 12504.7' MD / 12288.4' TVD
17,148.7	12,389.8	4,739.7	901.6	Cross 330' HL@ 17148.7' MD / 12389.8' TVD
17,380.0	12,391.9	4,970.9	905.8	TD @ 17380.0' MD / 12391.9' TVD