

# **PDC ENERGY**

**WELD COUNTY, COLORADO**

**SE SE SEC.32 T4N R66W 6th P.M.**

**TARIN FEDERAL 32X-314**

**JOB #2015-140-135**

**02 December, 2015**

**Survey: FINAL SURVEYS**





# Survey Report



<b>Company:</b> PDC ENERGY	<b>Local Co-ordinate Reference:</b> Well TARIN FEDERAL 32X-314
<b>Project:</b> WELD COUNTY, COLORADO	<b>TVD Reference:</b> KB @ 4788.0usft (ENSIGN 135)
<b>Site:</b> SE SE SEC.32 T4N R66W 6th P.M.	<b>MD Reference:</b> KB @ 4788.0usft (ENSIGN 135)
<b>Well:</b> TARIN FEDERAL 32X-314	<b>North Reference:</b> True
<b>Wellbore:</b> JOB #2015-140-135	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL SURVEYS	<b>Database:</b> EDM 5000.1 Single User Db

<b>Project</b> WELD COUNTY, COLORADO			
<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> Colorado Northern Zone	Using geodetic scale factor		

<b>Site</b> SE SE SEC.32 T4N R66W 6th P.M.			
<b>Site Position:</b>	<b>Northing:</b> 1,339,526.01 usft	<b>Latitude:</b> 40.263240	
<b>From:</b> Lat/Long	<b>Easting:</b> 3,197,254.51 usft	<b>Longitude:</b> -104.793170	
<b>Position Uncertainty:</b> 0.0 usft	<b>Slot Radius:</b> 1.10000ft	<b>Grid Convergence:</b> 0.46 °	

<b>Well</b> TARIN FEDERAL 32X-314			
<b>Well Position</b>	<b>+N-S</b> 0.0 usft	<b>Northing:</b> 1,339,675.35 usft	<b>Latitude:</b> 40.263650
	<b>+E-W</b> 0.0 usft	<b>Easting:</b> 3,197,253.32 usft	<b>Longitude:</b> -104.793170
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b> usft	<b>Ground Level:</b> 4,774.0 usft

<b>Wellbore</b> JOB #2015-140-135					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	20/09/2015	8.40	66.78	52,517

<b>Design</b> FINAL SURVEYS				
<b>Audit Notes:</b>				
<b>Version:</b> 1.0	<b>Phase:</b> ACTUAL	<b>Tie On Depth:</b> 0.0		
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.0	0.0	0.0	275.49

<b>Survey Program</b>		<b>Date</b> 02/12/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
356.0	14,226.0	FINAL SURVEYS (JOB #2015-140-135)	MWD	MWD - Standard

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea 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	4,788.0	0.0	0.0	0.0	0.00	0.00	0.00
356.0	1.10	178.50	356.0	4,432.0	-3.4	0.1	-0.4	0.31	0.31	0.00
636.0	0.40	170.60	636.0	4,152.0	-7.1	0.3	-1.0	0.25	-0.25	-2.82
851.0	0.90	132.40	850.9	3,937.1	-8.9	1.7	-2.5	0.30	0.23	-17.77
<b>9 5/8" SURFACE CASING</b>										
<b>896.0</b>	<b>0.88</b>	<b>133.71</b>	<b>895.9</b>	<b>3,892.1</b>	<b>-9.4</b>	<b>2.2</b>	<b>-3.1</b>	<b>0.06</b>	<b>-0.04</b>	<b>2.91</b>
1,100.0	0.80	140.40	1,099.9	3,688.1	-11.6	4.2	-5.3	0.06	-0.04	3.28
1,379.0	6.30	43.60	1,378.3	3,409.7	-2.0	16.1	-16.2	2.31	1.97	-34.70
1,658.0	10.30	23.30	1,654.4	3,133.6	32.0	36.5	-33.3	1.76	1.43	-7.28
1,938.0	13.00	15.80	1,928.6	2,859.4	85.3	55.0	-46.5	1.10	0.96	-2.68
2,215.0	13.10	6.00	2,198.5	2,589.5	146.5	66.7	-52.4	0.80	0.04	-3.54
2,486.0	13.30	0.20	2,462.4	2,325.6	208.2	70.1	-49.8	0.49	0.07	-2.14
2,757.0	13.60	7.60	2,726.0	2,062.0	271.0	74.4	-48.1	0.64	0.11	2.73

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<b>Site:</b>	SE SE SEC.32 T4N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4788.0usft (ENSGN 135)
<b>Well:</b>	TARIN FEDERAL 32X-314	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2015-140-135	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

## Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,028.0	13.30	20.60	2,989.6	1,798.4	331.8	89.6	-57.4	1.12	-0.11	4.80
3,299.0	12.00	24.00	3,254.0	1,534.0	386.7	112.0	-74.5	0.55	-0.48	1.25
3,571.0	11.00	23.50	3,520.6	1,267.4	436.3	133.8	-91.5	0.37	-0.37	-0.18
3,841.0	9.30	22.60	3,786.3	1,001.7	480.1	152.5	-105.8	0.63	-0.63	-0.33
4,112.0	12.70	23.30	4,052.3	735.7	527.7	172.7	-121.4	1.26	1.25	0.26
4,382.0	12.60	25.80	4,315.7	472.3	581.4	197.3	-140.7	0.21	-0.04	0.93
4,654.0	11.90	20.60	4,581.6	206.4	634.4	220.0	-158.3	0.48	-0.26	-1.91
4,924.0	5.60	15.80	4,848.3	-60.3	673.2	233.4	-167.9	2.35	-2.33	-1.78
5,195.0	0.50	31.30	5,118.8	-330.8	686.9	237.6	-170.8	1.89	-1.88	5.72
5,464.0	0.10	288.20	5,387.8	-599.8	688.0	238.0	-171.1	0.20	-0.15	-38.33
5,735.0	0.50	287.90	5,658.8	-870.8	688.4	236.7	-169.7	0.15	0.15	-0.11
6,005.0	0.30	70.10	5,928.8	-1,140.8	689.0	236.2	-169.2	0.28	-0.07	52.67
6,277.0	0.80	6.90	6,200.8	-1,412.8	691.2	237.1	-169.9	0.26	0.18	-23.24
6,457.0	0.50	12.40	6,380.8	-1,592.8	693.2	237.4	-170.0	0.17	-0.17	3.06
<b>KOP</b>										
<b>6,507.0</b>	<b>3.11</b>	<b>279.43</b>	<b>6,430.8</b>	<b>-1,642.8</b>	<b>693.6</b>	<b>236.2</b>	<b>-168.7</b>	<b>6.36</b>	<b>5.22</b>	<b>-185.95</b>
6,548.0	5.70	275.30	6,471.6	-1,683.6	694.0	233.0	-165.5	6.36	6.31	-10.07
6,638.0	15.20	276.40	6,560.0	-1,772.0	695.7	216.8	-149.2	10.56	10.56	1.22
6,728.0	22.10	271.60	6,645.3	-1,857.3	697.5	188.1	-120.5	7.85	7.67	-5.33
6,818.0	28.00	271.30	6,726.8	-1,938.8	698.5	150.1	-82.5	6.56	6.56	-0.33
6,909.0	35.40	271.70	6,804.1	-2,016.1	699.7	102.3	-34.8	8.14	8.13	0.44
6,999.0	42.60	268.90	6,874.0	-2,086.0	699.9	45.7	21.5	8.23	8.00	-3.11
7,090.0	49.70	265.60	6,937.0	-2,149.0	696.7	-19.8	86.4	8.23	7.80	-3.63
7,180.0	52.40	263.70	6,993.6	-2,205.6	690.1	-89.5	155.1	3.42	3.00	-2.11
7,270.0	56.30	269.80	7,046.1	-2,258.1	686.1	-162.4	227.3	7.01	4.33	6.78
7,360.0	61.60	270.00	7,092.5	-2,304.5	685.9	-239.5	304.1	5.89	5.89	0.22
7,450.0	70.70	270.10	7,128.9	-2,340.9	686.0	-321.7	385.9	10.11	10.11	0.11
7,540.0	80.80	271.50	7,151.0	-2,363.0	687.3	-408.8	472.7	11.32	11.22	1.56
7,635.0	86.40	270.10	7,161.6	-2,373.6	688.6	-503.2	566.8	6.07	5.89	-1.47
<b>7" ICP</b>										
<b>7,674.0</b>	<b>87.79</b>	<b>269.37</b>	<b>7,163.5</b>	<b>-2,375.5</b>	<b>688.4</b>	<b>-542.1</b>	<b>605.5</b>	<b>4.02</b>	<b>3.56</b>	<b>-1.88</b>
7,784.0	91.70	267.30	7,164.0	-2,376.0	685.2	-652.1	714.7	4.02	3.56	-1.88
7,877.0	91.40	268.30	7,161.5	-2,373.5	681.6	-745.0	806.8	1.12	-0.32	1.08
7,971.0	90.20	269.40	7,160.2	-2,372.2	679.7	-838.9	900.1	1.73	-1.28	1.17
8,064.0	89.20	268.80	7,160.7	-2,372.7	678.3	-931.9	992.6	1.25	-1.08	-0.65
8,158.0	88.90	269.20	7,162.3	-2,374.3	676.6	-1,025.9	1,085.9	0.53	-0.32	0.43
8,251.0	89.00	268.60	7,164.0	-2,376.0	674.8	-1,118.8	1,178.3	0.65	0.11	-0.65
8,344.0	90.10	269.00	7,164.7	-2,376.7	672.9	-1,211.8	1,270.7	1.26	1.18	0.43
8,437.0	90.20	268.50	7,164.4	-2,376.4	670.9	-1,304.8	1,363.0	0.55	0.11	-0.54
8,529.0	92.20	270.40	7,162.5	-2,374.5	670.0	-1,396.8	1,454.5	3.00	2.17	2.07
8,622.0	92.90	270.40	7,158.4	-2,370.4	670.6	-1,489.7	1,547.0	0.75	0.75	0.00
8,716.0	90.70	270.50	7,155.4	-2,367.4	671.4	-1,583.6	1,640.6	2.34	-2.34	0.11
8,808.0	89.80	271.40	7,155.0	-2,367.0	672.9	-1,675.6	1,732.3	1.38	-0.98	0.98
8,901.0	89.60	270.80	7,155.5	-2,367.5	674.7	-1,768.6	1,825.0	0.68	-0.22	-0.65
8,994.0	89.50	269.80	7,156.2	-2,368.2	675.2	-1,861.6	1,917.7	1.08	-0.11	-1.08
9,088.0	89.10	269.50	7,157.4	-2,369.4	674.6	-1,955.6	2,011.2	0.53	-0.43	-0.32
9,181.0	89.60	269.90	7,158.4	-2,370.4	674.1	-2,048.6	2,103.7	0.69	0.54	0.43
9,274.0	89.90	269.40	7,158.9	-2,370.9	673.5	-2,141.6	2,196.2	0.63	0.32	-0.54
9,367.0	90.60	269.60	7,158.4	-2,370.4	672.7	-2,234.5	2,288.7	0.78	0.75	0.22
9,461.0	90.70	269.20	7,157.4	-2,369.4	671.7	-2,328.5	2,382.2	0.44	0.11	-0.43
9,554.0	90.80	268.60	7,156.2	-2,368.2	670.0	-2,421.5	2,474.5	0.65	0.11	-0.65
9,645.0	90.30	271.00	7,155.3	-2,367.3	669.6	-2,512.5	2,565.1	2.69	-0.55	2.64
9,735.0	90.50	270.80	7,154.7	-2,366.7	671.1	-2,602.5	2,654.8	0.31	0.22	-0.22

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<b>Site:</b>	SE SE SEC.32 T4N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4788.0usft (ENSIGN 135)
<b>Well:</b>	TARIN FEDERAL 32X-314	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2015-140-135	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

## Survey

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9,826.0	90.20	270.80	7,154.1	-2,366.1	672.3	-2,693.5	2,745.5	0.33	-0.33	0.00
9,916.0	89.80	270.10	7,154.1	-2,366.1	673.0	-2,783.5	2,835.1	0.90	-0.44	-0.78
10,006.0	89.70	270.20	7,154.5	-2,366.5	673.3	-2,873.5	2,924.7	0.16	-0.11	0.11
10,097.0	90.10	270.00	7,154.7	-2,366.7	673.4	-2,964.5	3,015.3	0.49	0.44	-0.22
10,187.0	90.70	270.50	7,154.0	-2,366.0	673.8	-3,054.5	3,104.9	0.87	0.67	0.56
10,277.0	89.50	269.60	7,153.9	-2,365.9	673.9	-3,144.5	3,194.5	1.67	-1.33	-1.00
10,368.0	89.70	269.70	7,154.5	-2,366.5	673.3	-3,235.5	3,285.1	0.25	0.22	0.11
10,459.0	90.10	270.00	7,154.7	-2,366.7	673.1	-3,326.5	3,375.6	0.55	0.44	0.33
10,549.0	90.20	270.00	7,154.4	-2,366.4	673.1	-3,416.5	3,465.2	0.11	0.11	0.00
10,640.0	90.60	270.50	7,153.8	-2,365.8	673.5	-3,507.5	3,555.8	0.70	0.44	0.55
10,730.0	90.60	270.30	7,152.9	-2,364.9	674.1	-3,597.4	3,645.5	0.22	0.00	-0.22
10,820.0	89.70	269.70	7,152.6	-2,364.6	674.1	-3,687.4	3,735.0	1.20	-1.00	-0.67
10,911.0	90.10	270.00	7,152.8	-2,364.8	673.9	-3,778.4	3,825.6	0.55	0.44	0.33
11,001.0	90.70	270.90	7,152.1	-2,364.1	674.6	-3,868.4	3,915.3	1.20	0.67	1.00
11,092.0	90.50	270.40	7,151.2	-2,363.2	675.6	-3,959.4	4,005.9	0.59	-0.22	-0.55
11,183.0	89.80	269.70	7,151.0	-2,363.0	675.7	-4,050.4	4,096.5	1.09	-0.77	-0.77
11,273.0	89.80	269.40	7,151.3	-2,363.3	675.0	-4,140.4	4,186.0	0.33	0.00	-0.33
11,363.0	90.30	268.90	7,151.2	-2,363.2	673.7	-4,230.4	4,275.5	0.79	0.56	-0.56
11,453.0	90.50	269.00	7,150.6	-2,362.6	672.0	-4,320.4	4,364.9	0.25	0.22	0.11
11,543.0	89.10	268.70	7,150.9	-2,362.9	670.2	-4,410.4	4,454.3	1.59	-1.56	-0.33
11,633.0	88.90	268.20	7,152.4	-2,364.4	667.8	-4,500.3	4,543.6	0.60	-0.22	-0.56
11,724.0	89.50	270.40	7,153.7	-2,365.7	666.7	-4,591.3	4,634.0	2.51	0.66	2.42
11,814.0	89.80	270.10	7,154.3	-2,366.3	667.1	-4,681.3	4,723.7	0.47	0.33	-0.33
11,904.0	90.70	269.60	7,153.9	-2,365.9	666.8	-4,771.3	4,813.2	1.14	1.00	-0.56
11,994.0	90.60	271.00	7,152.9	-2,364.9	667.3	-4,861.3	4,902.8	1.56	-0.11	1.56
12,085.0	90.80	270.80	7,151.7	-2,363.7	668.7	-4,952.3	4,993.5	0.31	0.22	-0.22
12,175.0	91.30	270.80	7,150.1	-2,362.1	670.0	-5,042.3	5,083.2	0.56	0.56	0.00
12,265.0	89.70	271.70	7,149.3	-2,361.3	671.9	-5,132.2	5,173.0	2.04	-1.78	1.00
12,356.0	90.40	273.10	7,149.2	-2,361.2	675.8	-5,223.1	5,263.8	1.72	0.77	1.54
12,446.0	89.40	272.10	7,149.4	-2,361.4	679.8	-5,313.0	5,353.7	1.57	-1.11	-1.11
12,537.0	89.90	272.30	7,149.9	-2,361.9	683.3	-5,404.0	5,444.6	0.59	0.55	0.22
12,627.0	89.70	271.80	7,150.3	-2,362.3	686.5	-5,493.9	5,534.4	0.60	-0.22	-0.56
12,717.0	90.60	273.60	7,150.0	-2,362.0	690.8	-5,583.8	5,624.3	2.24	1.00	2.00
12,807.0	90.00	272.00	7,149.6	-2,361.6	695.2	-5,673.7	5,714.2	1.90	-0.67	-1.78
12,897.0	89.90	271.80	7,149.6	-2,361.6	698.2	-5,763.7	5,804.0	0.25	-0.11	-0.22
12,988.0	89.60	270.60	7,150.0	-2,362.0	700.1	-5,854.6	5,894.8	1.36	-0.33	-1.32
13,078.0	89.30	269.40	7,150.9	-2,362.9	700.1	-5,944.6	5,984.3	1.37	-0.33	-1.33
13,168.0	89.00	269.10	7,152.2	-2,364.2	698.9	-6,034.6	6,073.8	0.47	-0.33	-0.33
13,259.0	89.50	268.60	7,153.4	-2,365.4	697.1	-6,125.6	6,164.2	0.78	0.55	-0.55
13,349.0	89.40	268.20	7,154.3	-2,366.3	694.6	-6,215.5	6,253.5	0.46	-0.11	-0.44
13,439.0	90.80	267.90	7,154.1	-2,366.1	691.5	-6,305.5	6,342.7	1.59	1.56	-0.33
13,529.0	91.70	267.20	7,152.2	-2,364.2	687.6	-6,395.4	6,431.8	1.27	1.00	-0.78
13,620.0	90.70	269.10	7,150.3	-2,362.3	684.7	-6,486.3	6,522.1	2.36	-1.10	2.09
13,710.0	90.20	268.20	7,149.5	-2,361.5	682.6	-6,576.3	6,611.4	1.14	-0.56	-1.00
13,799.0	89.70	269.20	7,149.6	-2,361.6	680.6	-6,665.3	6,699.8	1.26	-0.56	1.12
13,889.0	90.00	268.70	7,149.9	-2,361.9	678.9	-6,755.2	6,789.2	0.65	0.33	-0.56
13,980.0	90.30	268.40	7,149.6	-2,361.6	676.6	-6,846.2	6,879.5	0.47	0.33	-0.33
14,070.0	90.20	267.60	7,149.2	-2,361.2	673.5	-6,936.2	6,968.8	0.90	-0.11	-0.89
<b>LAST SURVEY - DEC 2, 2015</b>										
<b>14,160.0</b>	<b>90.30</b>	<b>267.60</b>	<b>7,148.8</b>	<b>-2,360.8</b>	<b>669.7</b>	<b>-7,026.1</b>	<b>7,057.9</b>	<b>0.11</b>	<b>0.11</b>	<b>0.00</b>
<b>EXTRAPOLATION TO TD</b>										
<b>14,226.0</b>	<b>90.30</b>	<b>267.60</b>	<b>7,148.5</b>	<b>-2,360.5</b>	<b>666.9</b>	<b>-7,092.0</b>	<b>7,123.3</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Survey Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well TARIN FEDERAL 32X-314
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB @ 4788.0usft (ENSIGN 135)
<b>Site:</b>	SE SE SEC.32 T4N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4788.0usft (ENSIGN 135)
<b>Well:</b>	TARIN FEDERAL 32X-314	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2015-140-135	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
ABDN VERT UPRR 4 - survey misses target center by 1022.8usft at 13153.8usft MD (7152.0 TVD, 699.1 N, -6020.4 E) - Circle (radius 30.0)	0.00	0.00	7,972.0	88.2	-6,000.3	1,339,715.69	3,191,252.81	40.263890	-104.814670
KOP - TARIN FEDER - survey misses target center by 18.9usft at 6539.9usft MD (6463.6 TVD, 693.9 N, 233.8 E) - Point	0.00	0.00	6,464.8	682.3	248.6	1,340,359.59	3,197,496.46	40.265523	-104.792279
BHL - TARIN FEDER/ - survey misses target center by 15.5usft at 14226.0usft MD (7148.5 TVD, 666.9 N, -7092.0 E) - Point	0.00	0.00	7,147.0	682.3	-7,094.1	1,340,301.03	3,190,154.33	40.265520	-104.818590
7" ICP *NEW* - TARI/ - survey misses target center by 22.7usft at 7605.3usft MD (7159.2 TVD, 688.4 N, -473.6 E) - Point	0.00	0.00	7,181.0	682.3	-471.2	1,340,353.85	3,196,776.71	40.265523	-104.794858
EXIST VERT GREEN - survey misses target center by 2308.0usft at 12749.8usft MD (7149.7 TVD, 692.7 N, -5616.6 E) - Circle (radius 30.0)	0.00	0.00	7,462.0	-1,591.3	-5,729.9	1,338,038.47	3,191,536.50	40.259280	-104.813700
KOP - TARIN FEDER - survey misses target center by 17.1usft at 6524.0usft MD (6447.7 TVD, 693.8 N, 235.1 E) - Point	0.00	0.00	6,448.8	682.3	247.7	1,340,359.58	3,197,495.56	40.265523	-104.792282
EXIST VERT KERN L - survey misses target center by 2415.2usft at 7450.0usft MD (7128.9 TVD, 686.0 N, -321.7 E) - Circle (radius 30.0)	0.00	0.00	7,407.0	-1,712.2	-256.8	1,337,961.22	3,197,010.21	40.258950	-104.794090
EXIST VERT GREEN - survey misses target center by 2297.2usft at 14061.1usft MD (7149.3 TVD, 673.8 N, -6927.3 E) - Circle (radius 30.0)	0.00	0.00	7,452.0	-1,602.0	-6,849.1	1,338,018.90	3,190,417.47	40.259250	-104.817710
7" ICP *NEW* - TARI/ - survey misses target center by 8.5usft at 7603.5usft MD (7159.1 TVD, 688.4 N, -471.8 E) - Point	0.00	0.00	7,165.0	682.3	-471.2	1,340,353.85	3,196,776.71	40.265523	-104.794858
EXIST VERT KERN L - survey misses target center by 2312.7usft at 8813.5usft MD (7155.0 TVD, 673.0 N, -1681.1 E) - Circle (radius 30.0)	0.00	0.00	7,902.0	-1,515.4	-1,719.3	1,338,146.33	3,195,546.27	40.259490	-104.799330
BHL - TARIN FEDER/ - survey misses target center by 17.6usft at 14226.0usft MD (7148.5 TVD, 666.9 N, -7092.0 E) - Point	0.00	0.00	7,140.0	682.3	-7,094.1	1,340,301.03	3,190,154.33	40.265520	-104.818590

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
896.0	895.9	-9.4	2.2	9 5/8" SURFACE CASING
6,507.0	6,430.8	693.6	236.2	KOP
7,674.0	7,163.5	688.4	-542.1	7" ICP
14,160.0	7,148.8	669.7	-7,026.1	LAST SURVEY - DEC 2, 2015
14,226.0	7,148.5	666.9	-7,092.0	EXTRAPOLATION TO TD

Checked By: _____	Approved By: _____	Date: _____
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