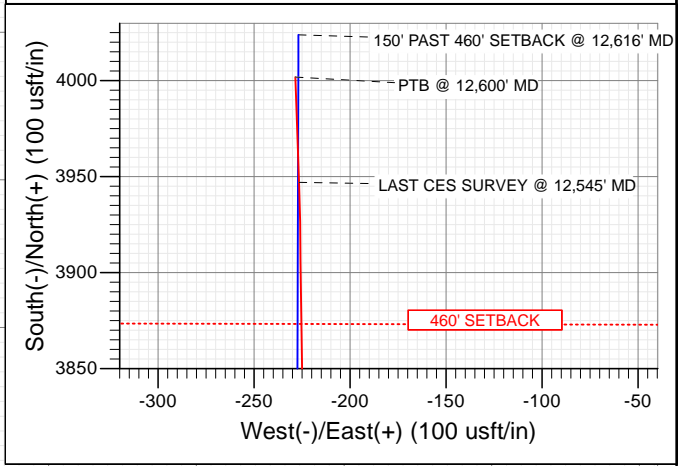
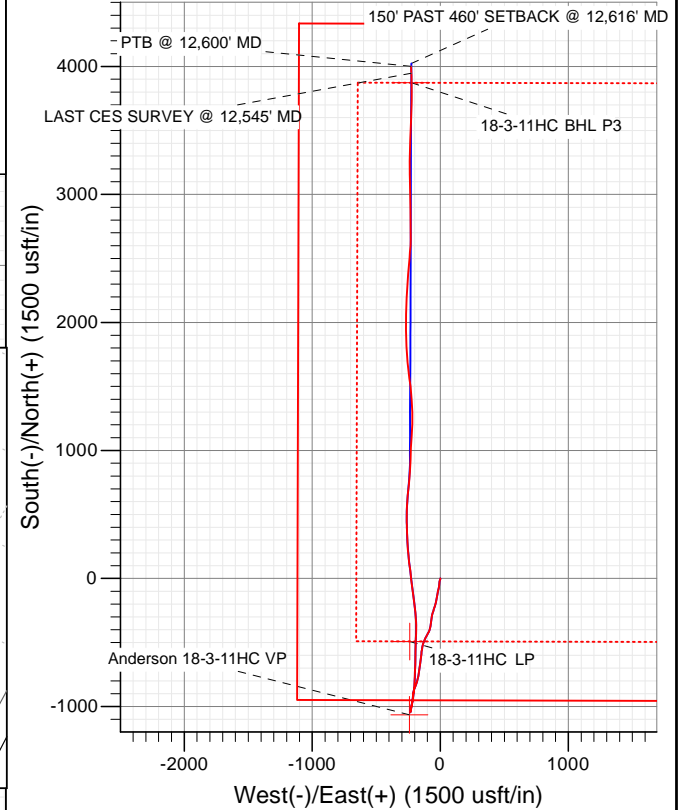
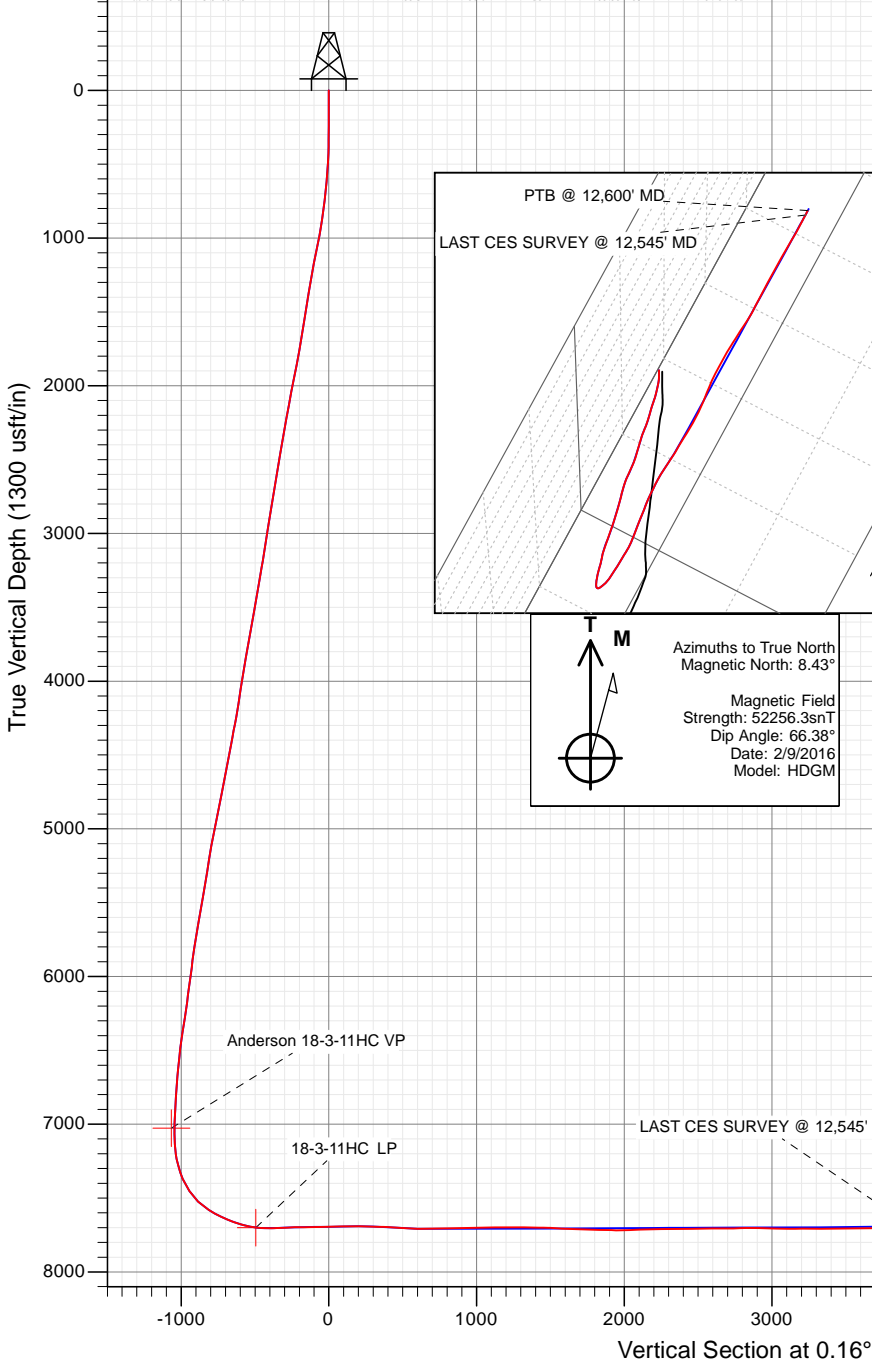




Project: ADAMS COUNTY, CO  
 Site: S18-T1S-R66W  
 Well: Anderson 18-3-11HC  
 Wellbore: HZ  
 Design: FINAL

FINAL  
 Anderson 18-3-11HC  
 21' RKB @ 5026.0usft  
 Ground Level @ 5005.0  
 North American Datum 1983  
 Well Anderson 18-3-11HC, True North

Type	Target	Origin	N/S	E/W	From
User	No Target (Freehand)	Slot	0.0	0.0	TVD
Name					
Anderson 18-3-11HC VP					
18-3-11HC BHL P3					
18-3-11HC BHL 2:21					
Anderson 18-3-11HC 12,300 TGT					
18-3-11HC BHL					
18-3-11HC LP					
Anderson 18-3-11HC 9100 TGT					



WELL DETAILS: Anderson 18-3-11HC

+N/-S	+E/-W	Northing	Ground Level:	5005.0	Latitude	Longitude
0.0	0.0	1229157.40	Easting	3189546.10	39.960436	-104.823807



## Survey Report

<b>Company:</b> Ward Petroleum	<b>Local Co-ordinate Reference:</b> Well Anderson 18-3-11HC
<b>Project:</b> ADAMS COUNTY, CO	<b>TVD Reference:</b> 21' RKB @ 5026.0usft
<b>Site:</b> S18-T1S-R66W	<b>MD Reference:</b> 21' RKB @ 5026.0usft
<b>Well:</b> Anderson 18-3-11HC	<b>North Reference:</b> True
<b>Wellbore:</b> HZ	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> USA EDM 5000 Multi Users DB

<b>Project</b> ADAMS COUNTY, CO		
<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		

<b>Site</b> S18-T1S-R66W					
<b>Site Position:</b>		<b>Northing:</b>	1,229,157.39 usft	<b>Latitude:</b>	39.960436
<b>From:</b> Map		<b>Easting:</b>	3,189,546.10 usft	<b>Longitude:</b>	-104.823807
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.44 °

<b>Well</b> Anderson 18-3-11HC						
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,229,157.40 usft	<b>Latitude:</b>	39.960436
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	3,189,546.10 usft	<b>Longitude:</b>	-104.823807
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	5,005.0 usft

<b>Wellbore</b> HZ					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	2/9/2016	8.43	66.38	52,256

<b>Design</b> FINAL				
<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	0.16

<b>Survey Program</b>		<b>Date</b> 2/23/2016
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>
242.0	12,600.0	Survey #1 (HZ)
		<b>Tool Name</b> MWD+HDGM
		<b>Description</b> OWSG MWD + HDGM

<b>Survey</b>									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
242.0	0.22	143.87	242.0	-0.4	0.3	-0.4	0.09	0.09	
335.0	0.84	179.47	335.0	-1.2	0.4	-1.2	0.72	0.67	
427.0	2.24	199.15	427.0	-3.6	-0.2	-3.6	1.60	1.52	
521.0	3.78	195.37	520.8	-8.3	-1.6	-8.3	1.65	1.64	
614.0	5.23	197.40	613.5	-15.3	-3.7	-15.3	1.57	1.56	
707.0	6.37	188.78	706.1	-24.4	-5.8	-24.5	1.54	1.23	
802.0	7.69	186.94	800.3	-36.0	-7.3	-36.0	1.41	1.39	
895.0	8.83	186.76	892.4	-49.2	-8.9	-49.3	1.23	1.23	
987.0	10.68	190.72	983.0	-64.6	-11.3	-64.6	2.14	2.01	
1,080.0	11.51	189.57	1,074.3	-82.2	-14.5	-82.3	0.92	0.89	
1,172.0	11.34	190.54	1,164.5	-100.2	-17.7	-100.2	0.28	-0.18	
1,265.0	10.06	193.70	1,255.9	-117.1	-21.3	-117.1	1.51	-1.38	

## Survey Report

<b>Company:</b>	Ward Petroleum	<b>Local Co-ordinate Reference:</b>	Well Anderson 18-3-11HC
<b>Project:</b>	ADAMS COUNTY, CO	<b>TD Reference:</b>	21' RKB @ 5026.0usft
<b>Site:</b>	S18-T1S-R66W	<b>MVD Reference:</b>	21' RKB @ 5026.0usft
<b>Well:</b>	Anderson 18-3-11HC	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
1,357.0	9.62	190.36	1,346.5	-132.4	-24.5	-132.5	0.78	-0.48	
1,450.0	9.32	190.45	1,438.2	-147.5	-27.3	-147.6	0.32	-0.32	
1,499.0	9.58	188.96	1,486.6	-155.4	-28.7	-155.5	0.73	0.53	
1,685.0	8.79	189.66	1,670.2	-184.7	-33.5	-184.8	0.43	-0.42	
1,780.0	11.07	197.31	1,763.8	-200.6	-37.4	-200.7	2.77	2.40	
1,873.0	11.73	200.30	1,854.9	-218.0	-43.3	-218.1	0.95	0.71	
1,966.0	11.38	196.96	1,946.1	-235.6	-49.3	-235.7	0.81	-0.38	
2,060.0	11.21	197.40	2,038.2	-253.2	-54.7	-253.3	0.20	-0.18	
2,155.0	10.94	195.64	2,131.5	-270.7	-59.9	-270.9	0.46	-0.28	
2,247.0	10.55	193.00	2,221.8	-287.3	-64.2	-287.5	0.68	-0.42	
2,341.0	10.20	187.73	2,314.3	-303.9	-67.2	-304.1	1.08	-0.37	
2,435.0	10.11	189.05	2,406.8	-320.3	-69.6	-320.5	0.27	-0.10	
2,529.0	9.58	185.88	2,499.5	-336.3	-71.7	-336.5	0.81	-0.56	
2,621.0	9.05	184.74	2,590.2	-351.1	-73.1	-351.3	0.61	-0.58	
2,713.0	9.58	189.31	2,681.0	-365.8	-75.0	-366.1	0.99	0.58	
2,806.0	9.80	191.68	2,772.7	-381.2	-77.8	-381.5	0.49	0.24	
2,899.0	10.06	201.17	2,864.3	-396.6	-82.3	-396.8	1.78	0.28	
2,991.0	9.27	201.00	2,955.0	-411.0	-87.9	-411.2	0.86	-0.86	
3,084.0	10.20	208.56	3,046.7	-425.2	-94.5	-425.5	1.70	1.00	
3,178.0	9.58	206.45	3,139.3	-439.5	-102.0	-439.8	0.76	-0.66	
3,272.0	11.38	207.15	3,231.7	-454.8	-109.7	-455.1	1.92	1.91	
3,365.0	10.72	209.44	3,323.0	-470.5	-118.1	-470.8	0.85	-0.71	
3,459.0	11.12	201.00	3,415.3	-486.5	-125.7	-486.9	1.75	0.43	
3,551.0	10.42	201.70	3,505.7	-502.6	-131.9	-502.9	0.77	-0.76	
3,646.0	10.77	191.59	3,599.1	-519.2	-136.9	-519.6	1.99	0.37	
3,739.0	9.93	193.00	3,690.5	-535.6	-140.5	-536.0	0.94	-0.90	
3,833.0	10.37	187.38	3,783.1	-551.8	-143.4	-552.2	1.15	0.47	
3,926.0	9.23	188.43	3,874.7	-567.5	-145.5	-567.9	1.24	-1.23	
4,019.0	10.06	185.18	3,966.4	-583.0	-147.4	-583.4	1.07	0.89	
4,112.0	8.17	182.72	4,058.2	-597.7	-148.4	-598.1	2.07	-2.03	
4,206.0	8.92	186.94	4,151.2	-611.6	-149.6	-612.0	1.04	0.80	
4,300.0	9.93	190.01	4,243.9	-626.8	-151.9	-627.2	1.20	1.07	
4,394.0	11.65	188.52	4,336.2	-644.2	-154.7	-644.6	1.85	1.83	
4,487.0	10.20	187.99	4,427.6	-661.6	-157.2	-662.1	1.56	-1.56	
4,582.0	10.46	186.50	4,521.0	-678.5	-159.4	-679.0	0.39	0.27	
4,676.0	12.00	188.43	4,613.2	-696.7	-161.8	-697.1	1.69	1.64	
4,768.0	10.50	184.56	4,703.4	-714.5	-163.9	-714.9	1.82	-1.63	
4,861.0	10.81	186.76	4,794.8	-731.6	-165.6	-732.0	0.55	0.33	
4,956.0	11.87	192.39	4,888.0	-750.0	-168.7	-750.4	1.61	1.12	
5,049.0	11.60	196.08	4,979.0	-768.3	-173.3	-768.8	0.86	-0.29	
5,141.0	11.56	193.35	5,069.2	-786.2	-178.0	-786.7	0.60	-0.04	
5,233.0	10.46	190.36	5,159.5	-803.3	-181.7	-803.9	1.35	-1.20	
5,326.0	8.75	195.64	5,251.2	-818.5	-185.1	-819.0	2.07	-1.84	
5,418.0	9.62	201.79	5,342.0	-832.3	-189.8	-832.9	1.42	0.95	
5,511.0	10.11	205.66	5,433.6	-846.9	-196.2	-847.5	0.89	0.53	
5,604.0	10.59	200.03	5,525.1	-862.3	-202.7	-862.9	1.20	0.52	
5,697.0	11.25	190.72	5,616.4	-879.2	-207.3	-879.8	2.02	0.71	
5,790.0	9.49	191.59	5,707.9	-895.7	-210.6	-896.3	1.90	-1.89	
5,883.0	8.88	185.97	5,799.7	-910.3	-212.8	-910.9	1.17	-0.66	
5,976.0	6.77	185.62	5,891.8	-922.9	-214.1	-923.5	2.27	-2.27	
6,070.0	8.04	183.51	5,985.1	-935.0	-215.1	-935.6	1.38	1.35	
6,163.0	8.13	185.18	6,077.1	-948.0	-216.1	-948.6	0.27	0.10	
6,257.0	7.12	193.00	6,170.3	-960.3	-218.0	-960.9	1.54	-1.07	

## Survey Report

<b>Company:</b>	Ward Petroleum	<b>Local Co-ordinate Reference:</b>	Well Anderson 18-3-11HC
<b>Project:</b>	ADAMS COUNTY, CO	<b>TVD Reference:</b>	21' RKB @ 5026.0usft
<b>Site:</b>	S18-T1S-R66W	<b>MD Reference:</b>	21' RKB @ 5026.0usft
<b>Well:</b>	Anderson 18-3-11HC	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
6,351.0	7.43	192.21	6,263.5	-971.9	-220.6	-972.6	0.35	0.33	
6,443.0	10.37	191.07	6,354.4	-985.9	-223.4	-986.5	3.20	3.20	
6,536.0	8.22	193.53	6,446.2	-1,000.6	-226.6	-1,001.2	2.35	-2.31	
6,630.0	5.76	190.98	6,539.5	-1,011.7	-229.0	-1,012.4	2.64	-2.62	
6,722.0	5.85	194.85	6,631.0	-1,020.8	-231.1	-1,021.4	0.44	0.10	
6,815.0	4.79	195.02	6,723.6	-1,029.1	-233.4	-1,029.8	1.14	-1.14	
6,909.0	3.30	192.12	6,817.4	-1,035.6	-234.9	-1,036.2	1.60	-1.59	
7,003.0	2.29	181.31	6,911.3	-1,040.1	-235.5	-1,040.7	1.21	-1.07	
7,096.0	1.67	173.40	7,004.2	-1,043.3	-235.4	-1,043.9	0.73	-0.67	
7,143.0	1.36	164.70	7,051.2	-1,044.5	-235.2	-1,045.2	0.82	-0.66	
7,189.0	2.11	71.45	7,097.2	-1,044.8	-234.3	-1,045.4	5.60	1.63	
7,236.0	4.79	29.79	7,144.1	-1,042.8	-232.5	-1,043.4	7.46	5.70	
7,282.0	7.82	3.68	7,189.8	-1,038.0	-231.3	-1,038.6	8.91	6.59	
7,329.0	11.87	11.86	7,236.1	-1,030.1	-230.1	-1,030.7	9.10	8.62	
7,376.0	14.99	11.33	7,281.8	-1,019.4	-227.9	-1,020.0	6.64	6.64	
7,423.0	19.25	10.89	7,326.7	-1,005.8	-225.3	-1,006.4	9.07	9.06	
7,470.0	23.77	10.28	7,370.5	-988.9	-222.1	-989.5	9.63	9.62	
7,564.0	34.37	8.25	7,452.5	-943.8	-214.9	-944.4	11.32	11.28	
7,657.0	45.70	6.94	7,523.6	-884.6	-207.1	-885.2	12.22	12.18	
7,749.0	57.66	5.18	7,580.5	-813.0	-199.6	-813.5	13.09	13.00	
7,797.0	60.82	359.91	7,605.1	-771.8	-197.8	-772.4	11.50	6.58	
7,843.0	64.29	359.73	7,626.3	-731.0	-197.9	-731.5	7.55	7.54	
7,890.0	67.94	1.93	7,645.3	-688.0	-197.3	-688.6	8.87	7.77	
7,936.0	70.62	3.33	7,661.6	-645.1	-195.3	-645.6	6.48	5.83	
7,983.0	72.29	359.38	7,676.6	-600.5	-194.2	-601.1	8.72	3.55	
8,029.0	76.99	1.31	7,688.7	-556.2	-194.0	-556.7	10.99	10.22	
8,076.0	81.17	1.58	7,697.6	-510.1	-192.8	-510.6	8.91	8.89	
8,121.0	85.65	2.19	7,702.8	-465.4	-191.3	-465.9	10.05	9.96	
8,152.0	89.69	2.10	7,704.1	-434.4	-190.2	-435.0	13.04	13.03	
8,182.0	90.26	2.63	7,704.1	-404.5	-188.9	-405.0	2.59	1.90	
8,214.0	91.45	0.78	7,703.6	-372.5	-188.0	-373.0	6.87	3.72	
8,246.0	91.98	355.16	7,702.6	-340.5	-189.1	-341.1	17.63	1.66	
8,307.0	93.47	355.60	7,699.7	-279.8	-194.0	-280.3	2.55	2.44	
8,354.0	92.64	353.31	7,697.2	-233.1	-198.6	-233.6	5.18	-1.77	
8,400.0	90.35	352.87	7,696.0	-187.4	-204.1	-188.0	5.07	-4.98	
8,493.0	89.87	351.64	7,695.9	-95.3	-216.6	-95.9	1.42	-0.52	
8,587.0	91.06	354.37	7,695.1	-2.0	-228.1	-2.6	3.17	1.27	
8,680.0	92.20	352.52	7,692.4	90.3	-238.7	89.7	2.34	1.23	
8,774.0	89.87	354.02	7,690.8	183.7	-249.7	183.0	2.95	-2.48	
8,868.0	87.67	358.06	7,692.8	277.4	-256.2	276.7	4.89	-2.34	
8,899.0	88.11	356.65	7,693.9	308.3	-257.6	307.6	4.76	1.42	
8,935.0	88.86	359.11	7,694.9	344.3	-258.9	343.6	7.14	2.08	
8,961.0	88.64	357.53	7,695.4	370.3	-259.7	369.6	6.13	-0.85	
9,054.0	85.61	358.85	7,700.1	463.1	-262.6	462.4	3.55	-3.26	
9,146.0	87.32	2.89	7,705.8	554.9	-261.2	554.2	4.76	1.86	
9,239.0	89.74	5.27	7,708.2	647.6	-254.6	646.9	3.65	2.60	
9,332.0	91.27	6.50	7,707.3	740.1	-245.1	739.4	2.11	1.65	
9,427.0	91.06	3.42	7,705.4	834.7	-236.9	834.1	3.25	-0.22	
9,520.0	92.90	0.78	7,702.2	927.6	-233.5	927.0	3.46	1.98	
9,614.0	91.80	3.07	7,698.3	1,021.5	-230.3	1,020.8	2.70	-1.17	
9,706.0	89.43	4.30	7,697.3	1,113.3	-224.4	1,112.6	2.90	-2.58	
9,799.0	89.39	2.89	7,698.3	1,206.1	-218.6	1,205.5	1.52	-0.04	
9,892.0	90.13	357.09	7,698.7	1,299.0	-218.6	1,298.4	6.29	0.80	

## Survey Report

<b>Company:</b>	Ward Petroleum	<b>Local Co-ordinate Reference:</b>	Well Anderson 18-3-11HC
<b>Project:</b>	ADAMS COUNTY, CO	<b>TD Reference:</b>	21' RKB @ 5026.0usft
<b>Site:</b>	S18-T1S-R66W	<b>MVD Reference:</b>	21' RKB @ 5026.0usft
<b>Well:</b>	Anderson 18-3-11HC	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
9,985.0	89.30	356.30	7,699.2	1,391.9	-224.0	1,391.2	1.23	-0.89	
10,078.0	87.98	354.54	7,701.4	1,484.5	-231.4	1,483.9	2.37	-1.42	
10,125.0	85.91	352.87	7,703.9	1,531.2	-236.5	1,530.5	5.66	-4.40	
10,170.0	86.48	353.23	7,706.9	1,575.8	-242.0	1,575.1	1.50	1.27	
10,201.0	87.23	352.79	7,708.6	1,606.5	-245.7	1,605.8	2.80	2.42	
10,232.0	87.94	352.87	7,709.9	1,637.2	-249.6	1,636.5	2.30	2.29	
10,263.0	88.37	354.46	7,710.9	1,668.0	-253.0	1,667.3	5.31	1.39	
10,310.0	89.25	353.58	7,711.8	1,714.7	-257.9	1,714.0	2.65	1.87	
10,356.0	88.55	357.53	7,712.7	1,760.6	-261.5	1,759.8	8.72	-1.52	
10,448.0	87.63	357.09	7,715.8	1,852.4	-265.8	1,851.7	1.11	-1.00	
10,510.0	88.95	358.94	7,717.6	1,914.4	-267.9	1,913.6	3.66	2.13	
10,541.0	89.56	0.43	7,718.0	1,945.4	-268.1	1,944.6	5.19	1.97	
10,635.0	91.71	0.26	7,717.0	2,039.3	-267.5	2,038.6	2.29	2.29	
10,682.0	92.33	0.52	7,715.3	2,086.3	-267.2	2,085.6	1.43	1.32	
10,728.0	91.93	2.19	7,713.6	2,132.3	-266.1	2,131.5	3.73	-0.87	
10,821.0	91.58	4.65	7,710.8	2,225.1	-260.6	2,224.3	2.67	-0.38	
10,853.0	92.20	4.91	7,709.7	2,256.9	-257.9	2,256.2	2.10	1.94	
10,915.0	89.60	3.16	7,708.8	2,318.8	-253.6	2,318.0	5.05	-4.19	
11,009.0	90.18	3.33	7,708.9	2,412.6	-248.2	2,411.9	0.64	0.62	
11,056.0	90.92	5.97	7,708.5	2,459.4	-244.4	2,458.7	5.83	1.57	
11,101.0	91.63	4.91	7,707.5	2,504.2	-240.2	2,503.5	2.83	1.58	
11,148.0	91.14	3.77	7,706.3	2,551.1	-236.6	2,550.4	2.64	-1.04	
11,196.0	90.97	4.83	7,705.5	2,598.9	-233.0	2,598.3	2.24	-0.35	
11,243.0	89.82	0.34	7,705.1	2,645.9	-230.9	2,645.2	9.86	-2.45	
11,289.0	89.91	358.50	7,705.2	2,691.9	-231.4	2,691.2	4.00	0.20	
11,336.0	90.57	358.24	7,705.0	2,738.8	-232.7	2,738.2	1.51	1.40	
11,382.0	91.32	359.03	7,704.3	2,784.8	-233.8	2,784.2	2.37	1.63	
11,429.0	90.48	0.43	7,703.6	2,831.8	-234.0	2,831.2	3.47	-1.79	
11,476.0	89.87	0.87	7,703.4	2,878.8	-233.5	2,878.2	1.60	-1.30	
11,523.0	89.43	358.94	7,703.7	2,925.8	-233.6	2,925.1	4.21	-0.94	
11,569.0	88.20	358.85	7,704.6	2,971.8	-234.4	2,971.1	2.68	-2.67	
11,616.0	87.77	358.76	7,706.3	3,018.8	-235.4	3,018.1	0.93	-0.91	
11,661.0	88.46	358.67	7,707.8	3,063.7	-236.4	3,063.0	1.55	1.53	
11,708.0	90.18	358.94	7,708.3	3,110.7	-237.4	3,110.0	3.70	3.66	
11,756.0	91.01	358.59	7,707.8	3,158.7	-238.4	3,158.0	1.88	1.73	
11,803.0	90.13	0.17	7,707.4	3,205.7	-238.9	3,205.0	3.85	-1.87	
11,848.0	89.87	0.34	7,707.4	3,250.7	-238.7	3,250.0	0.69	-0.58	
11,895.0	90.35	0.78	7,707.3	3,297.7	-238.3	3,297.0	1.39	1.02	
11,943.0	89.39	1.05	7,707.4	3,345.7	-237.5	3,345.0	2.08	-2.00	
11,990.0	90.00	1.49	7,707.6	3,392.7	-236.5	3,392.0	1.60	1.30	
12,034.0	90.31	3.24	7,707.5	3,436.6	-234.7	3,436.0	4.04	0.70	
12,097.0	91.41	0.96	7,706.6	3,499.6	-232.4	3,498.9	4.02	1.75	
12,129.0	91.98	3.60	7,705.6	3,531.5	-231.1	3,530.9	8.44	1.78	
12,222.0	89.78	1.49	7,704.2	3,624.4	-227.0	3,623.8	3.28	-2.37	
12,269.0	89.87	0.87	7,704.3	3,671.4	-226.0	3,670.8	1.33	0.19	
12,316.0	90.88	1.75	7,704.0	3,718.4	-224.9	3,717.7	2.85	2.15	
12,410.0	92.55	358.76	7,701.2	3,812.3	-224.5	3,811.7	3.64	1.78	
12,504.0	93.96	359.73	7,695.9	3,906.2	-225.7	3,905.5	1.82	1.50	
12,545.0	94.79	358.06	7,692.8	3,947.0	-226.5	3,946.4	4.54	2.02	LAST CES SURVEY @ 12,545' MD
12,600.0	95.00	358.00	7,688.1	4,001.8	-228.4	4,001.1	0.40	0.38	PTB @ 12,600' MD

## Survey Report

<b>Company:</b> Ward Petroleum	<b>Local Co-ordinate Reference:</b> Well Anderson 18-3-11HC
<b>Project:</b> ADAMS COUNTY, CO	<b>TVD Reference:</b> 21' RKB @ 5026.0usft
<b>Site:</b> S18-T1S-R66W	<b>MD Reference:</b> 21' RKB @ 5026.0usft
<b>Well:</b> Anderson 18-3-11HC	<b>North Reference:</b> True
<b>Wellbore:</b> HZ	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target - Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Anderson 18-3-11HC 91 - actual wellpath misses target center by 26.3usft at 9076.8usft MD (7701.8 TVD, 485.8 N, -262.9 E) - Point	0.00	0.00	7,700.0	485.5	-236.7	1,229,641.12	3,189,305.72	39.961769	-104.824651
18-3-11HC BHL - actual wellpath misses target center by 2.7usft at 12471.6usft MD (7698.0 TVD, 3873.9 N, -225.5 E) - Point	0.00	0.00	7,700.0	3,873.9	-227.3	1,233,029.50	3,189,289.30	39.971071	-104.824617
Anderson 18-3-11HC 12 - actual wellpath misses target center by 9.6usft at 12283.1usft MD (7704.3 TVD, 3685.5 N, -225.7 E) - Point	0.00	0.00	7,695.0	3,685.5	-227.8	1,232,841.05	3,189,290.21	39.970553	-104.824619
18-3-11HC BHL 2.21 - actual wellpath misses target center by 8.2usft at 12472.2usft MD (7698.0 TVD, 3874.4 N, -225.5 E) - Point	0.00	0.00	7,690.0	3,873.9	-227.3	1,233,029.50	3,189,289.30	39.971071	-104.824617
18-3-11HC LP - actual wellpath misses target center by 46.9usft at 8091.3usft MD (7699.8 TVD, -494.9 N, -192.4 E) - Point	0.00	0.00	7,700.0	-493.4	-239.3	1,228,662.20	3,189,310.60	39.959081	-104.824660
18-3-11HC BHL P3 - actual wellpath misses target center by 16.0usft at 12472.6usft MD (7697.9 TVD, 3874.9 N, -225.5 E) - Point	0.00	0.00	7,682.0	3,873.9	-227.3	1,233,029.50	3,189,289.30	39.971071	-104.824617
Anderson 18-3-11HC VF - actual wellpath misses target center by 23.2usft at 7119.3usft MD (7027.6 TVD, -1043.9 N, -235.3 E) - Point	0.00	0.00	7,027.0	-1,066.4	-241.0	1,228,089.19	3,189,313.24	39.957508	-104.824666

Design Annotations					
	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
			+N/-S (usft)	+E/-W (usft)	
	12,545.0	7,692.8	3,947.0	-226.5	LAST CES SURVEY @ 12,545' MD
	12,600.0	7,688.1	4,001.8	-228.4	PTB @ 12,600' MD

Checked By: _____	Approved By: _____	Date: _____
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