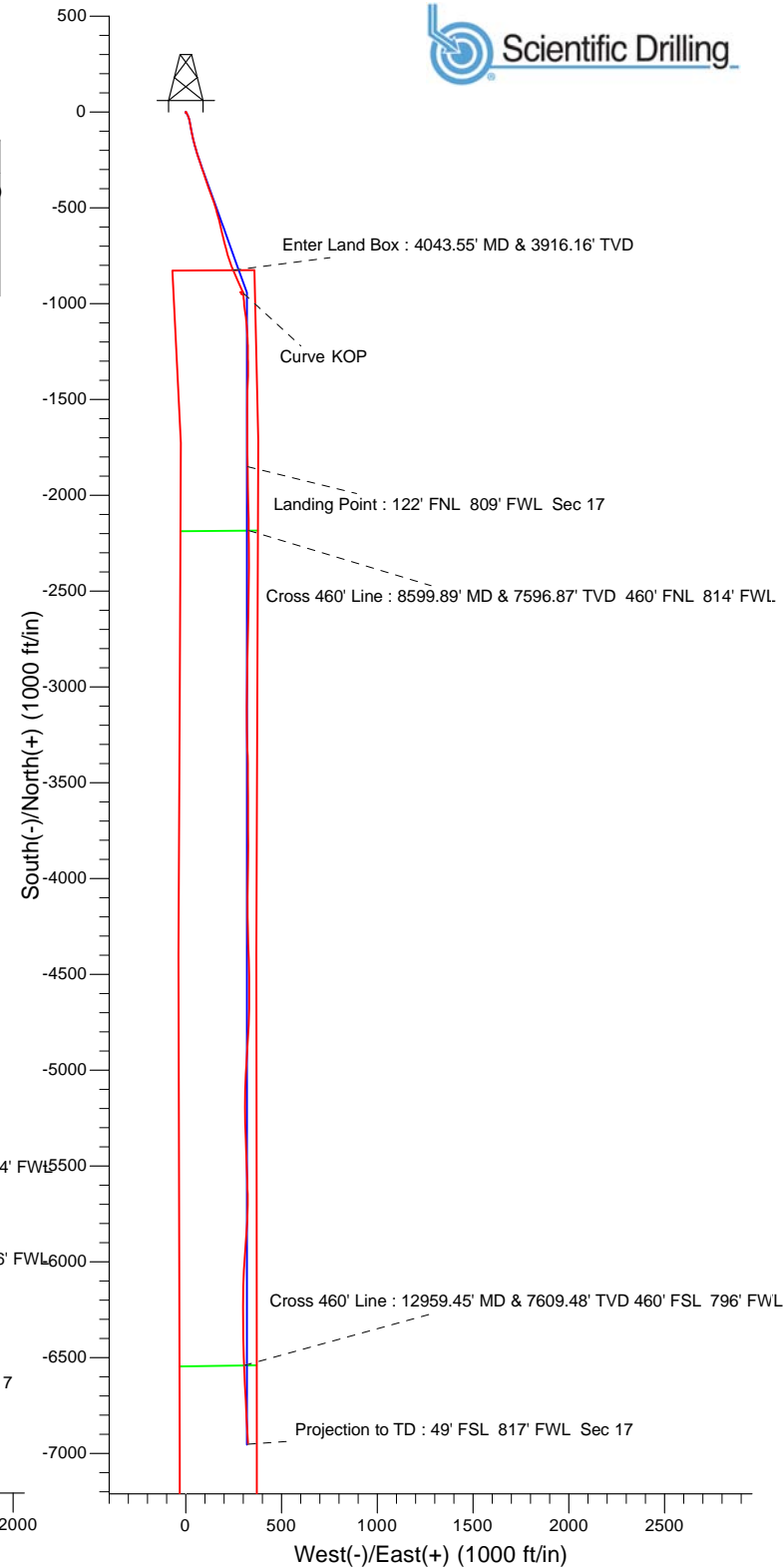
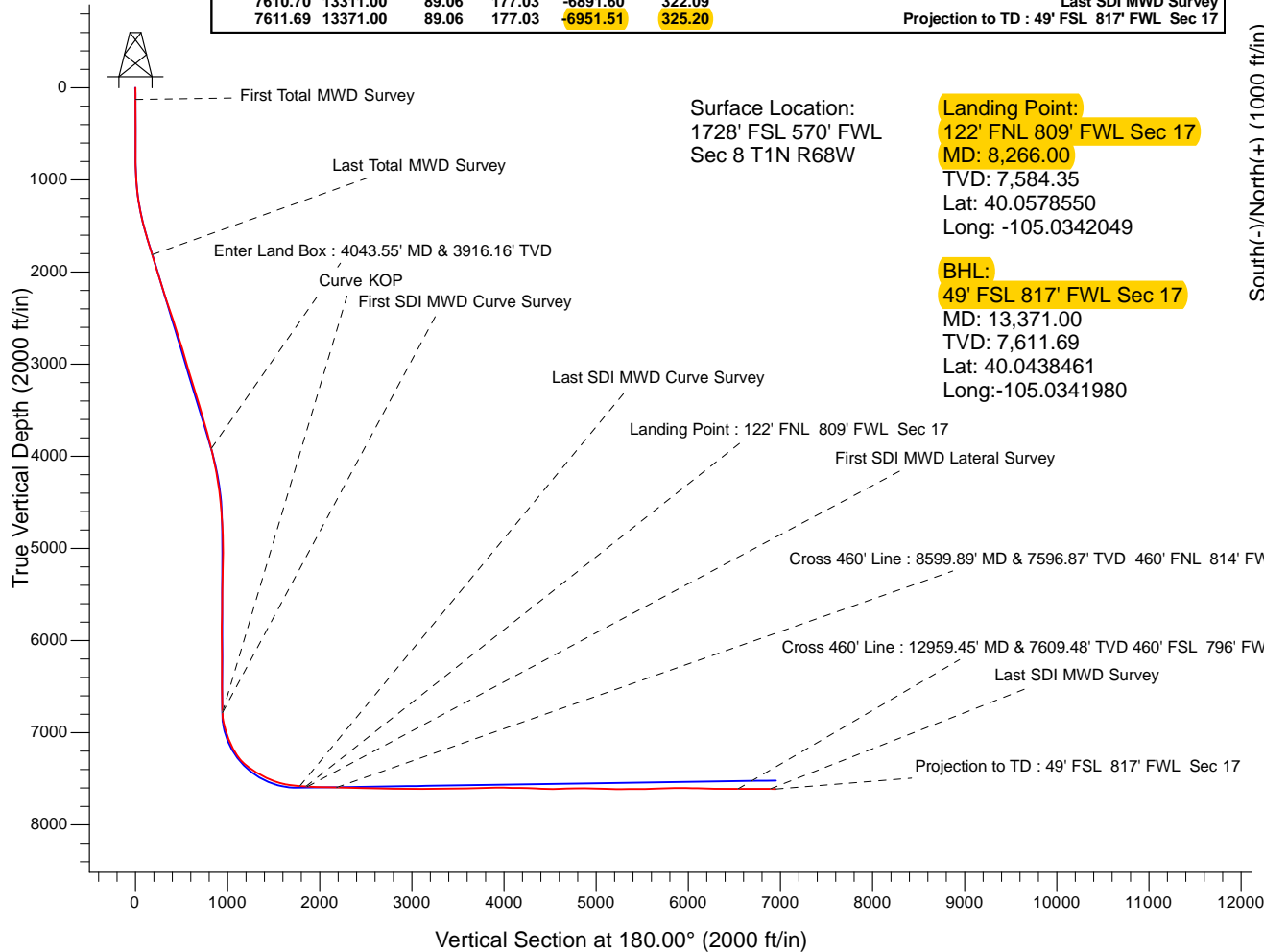


WELL DETAILS: Yellowhammer 13N-17HZ			
Northing 14549653.11	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24) Easting 1630523.16	5063.00 Latitude 40.0629360	Longitude -105.0353600
Design: OH (Yellowhammer 13N-17HZ/OH)			
Created By: Seth Burstad		Date: 1-04-2018	

PROJECT DETAILS: US Rockies Wattenberg Planning UTM83	
Geodetic System: Universal Transverse Mercator (US Survey Feet)	
Datum: North American Datum 1983	
Ellipsoid: GRS 1980	
Zone: Zone 13N (108 W to 102 W)	
System Datum: Mean Sea Level	
Local North: True	

ANNOTATIONS						
TVD	MD	Inc	Azi	+N/-S	+E/-W	Annotation
127.99	128.00	1.14	128.34	-0.79	1.00	First Total MWD Survey
1811.61	1834.00	17.84	163.32	-183.88	50.13	Last Total MWD Survey
3916.16	4043.55	14.86	157.36	-825.08	247.42	Enter Land Box : 4043.55' MD & 3916.16' TVD
6782.54	6922.00	1.64	152.93	-944.33	300.48	Curve KOP
6783.54	6923.00	1.65	153.27	-944.36	300.49	First SDI MWD Curve Survey
7580.96	8200.00	86.68	179.57	-1784.31	322.62	Last SDI MWD Curve Survey
7584.35	8266.00	87.43	179.38	-1850.22	323.22	Landing Point : 122' FNL 809' FWL Sec 17
7585.17	8285.00	87.65	179.33	-1869.20	323.43	First SDI MWD Lateral Survey
7596.87	8599.89	88.67	179.89	-2183.81	329.02	Cross 460' Line : 8599.89' MD & 7596.87' TVD 460' FNL 814' FWL
7609.48	12959.45	89.54	177.89	-6540.50	304.62	Cross 460' Line : 12959.45' MD & 7609.48' TVD 460' FSL 796' FWL
7610.70	13311.00	89.06	177.03	-6891.60	322.09	Last SDI MWD Survey
7611.69	13371.00	89.06	177.03	-6951.51	325.20	Projection to TD : 49' FSL 817' FWL Sec 17





# **US ROCKIES REGION PLANNING**

**US Rockies Wattenberg Planning UTM83**

**1N-68W-8 Yellowhammer 12-8HZ Pad**

**Yellowhammer 13N-17HZ**

**OH**

**Design: OH**

## **Survey Report - Geographic**

**04 January, 2018**



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 13N-17HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	1N-68W-8 Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 13N-17HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

<b>Project</b>	US Rockies Wattenberg Planning UTM83		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site		1N-68W-8 Yellowhammer 12-8HZ Pad, Site Center : Yellowhammer 4C-8HZ			
Site Position:		Northing:	14,549,548.23 usft	Latitude:	40.0626480
From:	Lat/Long	Easting:	1,630,522.56 usft	Longitude:	-105.0353620
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.02 °

Well	Yellowhammer 13N-17HZ, 1728' FSL 570' FWL Sec 8 T1N R68W					
Well Position	+N/-S	0.00 ft	Northing:	14,549,653.10 usft	Latitude:	40.0629360
	+E/-W	0.00 ft	Easting:	1,630,523.16 usft	Longitude:	-105.0353600
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,063.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	11/17/2017	8.46	66.55	52,134

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00		180.00

<b>Survey Program</b>	<b>Date</b>	1/4/2018			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
128.00	1,834.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
1,896.00	13,371.00	Survey #2 - Production (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>
0.00	0.00	0.00	0.00	0.00	0.00	14,549,653.10	1,630,523.16	40.0629360	-105.0353600
128.00	1.14	128.34	127.99	-0.79	1.00	14,549,652.31	1,630,524.16	40.0629339	-105.0353564
<b>First Total MWD Survey</b>									
160.00	1.14	106.10	159.99	-1.08	1.55	14,549,652.02	1,630,524.71	40.0629331	-105.0353544
192.00	1.05	131.06	191.98	-1.36	2.08	14,549,651.74	1,630,525.24	40.0629323	-105.0353525
223.00	0.66	138.71	222.98	-1.68	2.41	14,549,651.42	1,630,525.57	40.0629314	-105.0353513
254.00	0.57	116.82	253.97	-1.88	2.67	14,549,651.22	1,630,525.83	40.0629309	-105.0353504
285.00	0.62	109.18	284.97	-2.01	2.96	14,549,651.09	1,630,526.12	40.0629305	-105.0353494
317.00	0.22	137.74	316.97	-2.11	3.17	14,549,650.99	1,630,526.33	40.0629302	-105.0353486
348.00	0.22	334.97	347.97	-2.10	3.18	14,549,651.00	1,630,526.34	40.0629303	-105.0353486
380.00	0.40	262.20	379.97	-2.06	3.05	14,549,651.04	1,630,526.21	40.0629304	-105.0353491

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 13N-17HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	1N-68W-8 Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 13N-17HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
412.00	0.70	306.32	411.97	-1.96	2.78	14,549,651.14	1,630,525.94	40.0629307	-105.0353500	
443.00	0.92	284.26	442.97	-1.78	2.39	14,549,651.32	1,630,525.54	40.0629311	-105.0353514	
475.00	0.66	312.47	474.96	-1.60	2.00	14,549,651.50	1,630,525.16	40.0629316	-105.0353528	
507.00	0.70	321.35	506.96	-1.32	1.74	14,549,651.78	1,630,524.90	40.0629324	-105.0353537	
539.00	0.66	297.18	538.96	-1.08	1.46	14,549,652.02	1,630,524.61	40.0629331	-105.0353548	
571.00	0.97	274.68	570.96	-0.98	1.02	14,549,652.12	1,630,524.18	40.0629334	-105.0353563	
602.00	0.62	289.53	601.95	-0.90	0.60	14,549,652.20	1,630,523.76	40.0629336	-105.0353578	
634.00	0.48	341.47	633.95	-0.71	0.40	14,549,652.39	1,630,523.56	40.0629341	-105.0353586	
666.00	0.48	1.34	665.95	-0.45	0.36	14,549,652.65	1,630,523.52	40.0629348	-105.0353587	
698.00	0.13	98.28	697.95	-0.32	0.40	14,549,652.78	1,630,523.56	40.0629351	-105.0353586	
729.00	0.97	140.12	728.95	-0.53	0.60	14,549,652.57	1,630,523.76	40.0629346	-105.0353578	
761.00	1.23	143.19	760.94	-1.01	0.98	14,549,652.09	1,630,524.14	40.0629333	-105.0353565	
793.00	1.45	140.47	792.93	-1.60	1.44	14,549,651.50	1,630,524.60	40.0629316	-105.0353548	
825.00	1.89	155.41	824.92	-2.39	1.92	14,549,650.71	1,630,525.08	40.0629295	-105.0353531	
856.00	1.98	140.38	855.90	-3.27	2.47	14,549,649.83	1,630,525.63	40.0629271	-105.0353511	
888.00	2.24	144.16	887.88	-4.20	3.19	14,549,648.90	1,630,526.35	40.0629245	-105.0353486	
920.00	3.30	148.20	919.84	-5.49	4.04	14,549,647.61	1,630,527.20	40.0629210	-105.0353455	
952.00	4.09	147.32	951.78	-7.24	5.15	14,549,645.86	1,630,528.30	40.0629162	-105.0353416	
983.00	4.22	152.68	982.70	-9.18	6.27	14,549,643.92	1,630,529.42	40.0629108	-105.0353376	
1,015.00	4.48	150.49	1,014.60	-11.31	7.42	14,549,641.78	1,630,530.58	40.0629050	-105.0353334	
1,047.00	4.97	150.40	1,046.49	-13.61	8.72	14,549,639.49	1,630,531.88	40.0628987	-105.0353288	
1,078.00	5.89	152.33	1,077.36	-16.18	10.12	14,549,636.91	1,630,533.28	40.0628916	-105.0353238	
1,110.00	6.77	154.88	1,109.16	-19.34	11.69	14,549,633.75	1,630,534.84	40.0628829	-105.0353182	
1,142.00	7.56	158.66	1,140.91	-23.01	13.25	14,549,630.08	1,630,536.40	40.0628728	-105.0353126	
1,174.00	7.91	157.78	1,172.62	-27.01	14.85	14,549,626.08	1,630,538.00	40.0628619	-105.0353069	
1,205.00	8.17	161.65	1,203.31	-31.08	16.35	14,549,622.02	1,630,539.50	40.0628507	-105.0353015	
1,237.00	9.10	165.96	1,234.95	-35.69	17.68	14,549,617.40	1,630,540.83	40.0628380	-105.0352968	
1,269.00	10.28	168.50	1,266.49	-40.94	18.87	14,549,612.15	1,630,542.01	40.0628236	-105.0352925	
1,301.00	10.85	169.47	1,297.95	-46.70	19.99	14,549,606.39	1,630,543.13	40.0628078	-105.0352885	
1,332.00	11.60	170.00	1,328.36	-52.64	21.06	14,549,600.45	1,630,544.20	40.0627915	-105.0352847	
1,364.00	11.43	168.68	1,359.71	-58.92	22.24	14,549,594.17	1,630,545.38	40.0627742	-105.0352805	
1,396.00	11.91	170.09	1,391.05	-65.28	23.43	14,549,587.81	1,630,546.57	40.0627568	-105.0352762	
1,427.00	13.40	168.77	1,421.30	-71.95	24.68	14,549,581.14	1,630,547.81	40.0627384	-105.0352718	
1,459.00	14.46	167.71	1,452.36	-79.50	26.26	14,549,573.59	1,630,549.38	40.0627177	-105.0352661	
1,491.00	14.81	168.50	1,483.32	-87.41	27.92	14,549,565.68	1,630,551.05	40.0626960	-105.0352602	
1,522.00	14.90	168.77	1,513.28	-95.20	29.49	14,549,557.89	1,630,552.61	40.0626746	-105.0352546	
1,554.00	15.07	168.59	1,544.20	-103.31	31.11	14,549,549.78	1,630,554.23	40.0626523	-105.0352488	
1,586.00	15.60	169.30	1,575.06	-111.62	32.73	14,549,541.47	1,630,555.85	40.0626295	-105.0352430	
1,618.00	16.39	169.65	1,605.82	-120.29	34.34	14,549,532.80	1,630,557.45	40.0626057	-105.0352372	
1,649.00	16.88	168.15	1,635.52	-128.99	36.05	14,549,524.09	1,630,559.16	40.0625818	-105.0352311	
1,681.00	17.01	167.98	1,666.13	-138.12	37.98	14,549,514.97	1,630,561.09	40.0625567	-105.0352242	
1,713.00	18.19	165.69	1,696.63	-147.54	40.19	14,549,505.55	1,630,563.29	40.0625309	-105.0352163	
1,745.00	18.37	165.96	1,727.02	-157.27	42.65	14,549,495.82	1,630,565.75	40.0625041	-105.0352075	
1,776.00	18.06	164.29	1,756.46	-166.63	45.14	14,549,486.45	1,630,568.23	40.0624784	-105.0351987	
1,808.00	18.11	163.85	1,786.88	-176.19	47.86	14,549,476.90	1,630,570.95	40.0624522	-105.0351889	
1,834.00	17.84	163.32	1,811.61	-183.88	50.13	14,549,469.20	1,630,573.21	40.0624311	-105.0351808	
Last Total MWD Survey										
1,896.00	17.60	165.76	1,870.67	-202.07	55.16	14,549,451.01	1,630,578.24	40.0623811	-105.0351628	
1,979.00	16.81	160.01	1,949.96	-225.51	62.35	14,549,427.57	1,630,585.42	40.0623167	-105.0351371	
2,064.00	18.18	162.38	2,031.03	-249.70	70.57	14,549,403.37	1,630,593.63	40.0622503	-105.0351078	
2,149.00	17.50	161.86	2,111.94	-274.48	78.56	14,549,378.59	1,630,601.61	40.0621823	-105.0350792	
2,237.00	18.54	159.57	2,195.63	-300.17	87.56	14,549,352.90	1,630,610.60	40.0621117	-105.0350470	
2,322.00	20.14	162.28	2,275.83	-326.77	96.74	14,549,326.29	1,630,619.76	40.0620387	-105.0350142	
2,407.00	20.09	162.24	2,355.65	-354.61	105.64	14,549,298.45	1,630,628.66	40.0619622	-105.0349824	
2,493.00	18.91	162.04	2,436.71	-381.94	114.44	14,549,271.12	1,630,637.45	40.0618872	-105.0349509	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 13N-17HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	1N-68W-8 Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 13N-17HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,578.00	19.11	159.32	2,517.08	-408.06	123.61	14,549,244.99	1,630,646.60	40.0618154	-105.0349182
2,662.00	18.97	158.33	2,596.48	-433.61	133.50	14,549,219.44	1,630,656.49	40.0617453	-105.0348828
2,747.00	18.78	160.69	2,676.91	-459.36	143.13	14,549,193.68	1,630,666.11	40.0616745	-105.0348484
2,833.00	18.54	163.69	2,758.39	-485.55	151.55	14,549,167.49	1,630,674.51	40.0616026	-105.0348183
2,918.00	17.03	162.66	2,839.33	-510.40	159.05	14,549,142.64	1,630,682.01	40.0615344	-105.0347915
3,003.00	16.08	164.40	2,920.80	-533.62	165.93	14,549,119.41	1,630,688.87	40.0614706	-105.0347670
3,088.00	18.15	166.53	3,002.04	-557.84	172.18	14,549,095.19	1,630,695.11	40.0614041	-105.0347446
3,174.00	17.56	166.67	3,083.89	-583.49	178.29	14,549,069.54	1,630,701.22	40.0613337	-105.0347228
3,259.00	17.80	166.16	3,164.88	-608.58	184.35	14,549,044.45	1,630,707.27	40.0612648	-105.0347011
3,344.00	17.81	166.73	3,245.81	-633.85	190.44	14,549,019.18	1,630,713.35	40.0611954	-105.0346793
3,428.00	16.38	165.50	3,326.10	-657.82	196.36	14,548,995.20	1,630,719.26	40.0611296	-105.0346582
3,515.00	18.02	165.89	3,409.20	-682.75	202.71	14,548,970.27	1,630,725.60	40.0610611	-105.0346355
3,600.00	16.00	164.94	3,490.48	-706.81	208.96	14,548,946.21	1,630,731.84	40.0609950	-105.0346132
3,686.00	18.10	163.79	3,572.70	-731.09	215.77	14,548,921.93	1,630,738.64	40.0609283	-105.0345888
3,771.00	16.28	164.76	3,653.90	-755.27	222.59	14,548,897.75	1,630,745.45	40.0608620	-105.0345644
3,856.00	16.05	161.37	3,735.54	-777.90	229.48	14,548,875.12	1,630,752.32	40.0607998	-105.0345398
4,026.00	15.31	157.26	3,899.21	-820.87	245.66	14,548,832.14	1,630,768.49	40.0606818	-105.0344820
4,043.55	14.86	157.36	3,916.16	-825.08	247.42	14,548,827.92	1,630,770.25	40.0606702	-105.0344757
<b>Enter Land Box : 4043.55' MD &amp; 3916.16' TVD</b>									
4,111.00	13.15	157.83	3,981.60	-840.17	253.65	14,548,812.83	1,630,776.47	40.0606288	-105.0344535
4,282.00	11.79	154.95	4,148.56	-874.01	268.38	14,548,778.98	1,630,791.19	40.0605358	-105.0344008
4,369.00	10.14	153.82	4,233.97	-888.94	275.53	14,548,764.05	1,630,798.33	40.0604949	-105.0343753
4,454.00	9.23	154.26	4,317.76	-901.79	281.79	14,548,751.20	1,630,804.59	40.0604596	-105.0343529
4,539.00	8.19	155.48	4,401.78	-913.44	287.26	14,548,739.54	1,630,810.06	40.0604276	-105.0343333
4,624.00	5.97	154.85	4,486.13	-922.95	291.65	14,548,730.03	1,630,814.44	40.0604014	-105.0343176
4,708.00	5.73	158.01	4,569.69	-930.80	295.08	14,548,722.19	1,630,817.87	40.0603799	-105.0343054
4,793.00	4.24	163.13	4,654.37	-937.74	297.58	14,548,715.25	1,630,820.37	40.0603608	-105.0342964
4,878.00	3.14	164.36	4,739.19	-942.99	299.12	14,548,710.00	1,630,821.90	40.0603464	-105.0342909
4,963.00	2.78	195.03	4,824.08	-947.22	299.21	14,548,705.76	1,630,822.00	40.0603348	-105.0342906
5,049.00	2.39	214.90	4,909.99	-950.71	297.65	14,548,702.28	1,630,820.43	40.0603252	-105.0342962
5,133.00	1.35	267.34	4,993.95	-952.19	295.66	14,548,700.80	1,630,818.44	40.0603212	-105.0343033
5,219.00	1.83	282.15	5,079.92	-951.95	293.30	14,548,701.04	1,630,816.08	40.0603218	-105.0343117
5,302.00	1.48	318.06	5,162.89	-950.87	291.29	14,548,702.12	1,630,814.07	40.0603248	-105.0343189
5,387.00	1.87	3.63	5,247.85	-948.67	290.64	14,548,704.32	1,630,813.42	40.0603308	-105.0343212
5,473.00	1.37	350.15	5,333.82	-946.26	290.56	14,548,706.73	1,630,813.34	40.0603375	-105.0343215
5,558.00	1.05	346.94	5,418.80	-944.50	290.21	14,548,708.49	1,630,812.99	40.0603423	-105.0343228
5,643.00	0.89	335.55	5,503.79	-943.14	289.76	14,548,709.85	1,630,812.54	40.0603460	-105.0343244
5,728.00	0.81	319.51	5,588.78	-942.08	289.09	14,548,710.91	1,630,811.88	40.0603489	-105.0343268
5,813.00	0.75	311.58	5,673.77	-941.25	288.29	14,548,711.74	1,630,811.07	40.0603512	-105.0343297
5,846.00	0.92	312.14	5,706.77	-940.93	287.93	14,548,712.06	1,630,810.71	40.0603521	-105.0343309
5,984.00	0.62	321.38	5,844.76	-939.60	286.64	14,548,713.38	1,630,809.43	40.0603557	-105.0343355
6,069.00	0.60	303.54	5,929.75	-939.00	285.98	14,548,713.99	1,630,808.77	40.0603574	-105.0343379
6,154.00	0.47	281.95	6,014.75	-938.68	285.27	14,548,714.31	1,630,808.06	40.0603583	-105.0343404
6,239.00	1.01	124.20	6,099.74	-939.03	285.55	14,548,713.96	1,630,808.34	40.0603573	-105.0343394
6,324.00	1.59	106.64	6,184.72	-939.79	287.30	14,548,713.20	1,630,810.09	40.0603552	-105.0343332
6,410.00	1.87	113.02	6,270.68	-940.68	289.74	14,548,712.31	1,630,812.52	40.0603528	-105.0343245
6,495.00	1.41	101.30	6,355.65	-941.43	292.04	14,548,711.56	1,630,814.82	40.0603507	-105.0343163
6,580.00	1.44	84.57	6,440.62	-941.53	294.13	14,548,711.45	1,630,816.91	40.0603504	-105.0343088
6,667.00	0.93	82.31	6,527.60	-941.33	295.91	14,548,711.65	1,630,818.70	40.0603510	-105.0343024
6,753.00	1.37	129.37	6,613.59	-941.89	297.40	14,548,711.09	1,630,820.18	40.0603494	-105.0342971
6,838.00	1.28	112.56	6,698.57	-942.90	299.06	14,548,710.08	1,630,821.85	40.0603467	-105.0342911
6,922.00	1.64	152.93	6,782.54	-944.33	300.48	14,548,708.65	1,630,823.26	40.0603427	-105.0342861
<b>Curve KOP</b>									
6,923.00	1.65	153.27	6,783.54	-944.36	300.49	14,548,708.63	1,630,823.27	40.0603427	-105.0342860
<b>First SDI MWD Curve Survey</b>									

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 13N-17HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	1N-68W-8 Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 13N-17HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,008.00	10.71	177.11	6,867.96	-953.36	301.44	14,548,699.62	1,630,824.22	40.0603180	-105.0342826
7,093.00	16.06	174.72	6,950.63	-972.97	302.92	14,548,680.01	1,630,825.69	40.0602641	-105.0342774
7,178.00	18.88	177.01	7,031.70	-998.41	304.72	14,548,654.57	1,630,827.48	40.0601942	-105.0342709
7,263.00	24.99	171.23	7,110.52	-1,029.93	308.18	14,548,623.05	1,630,830.93	40.0601077	-105.0342586
7,348.00	28.03	172.70	7,186.57	-1,067.49	313.46	14,548,585.49	1,630,836.19	40.0600045	-105.0342397
7,433.00	36.08	175.24	7,258.56	-1,112.32	318.08	14,548,540.66	1,630,840.80	40.0598814	-105.0342232
7,518.00	45.72	176.22	7,322.73	-1,167.75	322.17	14,548,485.22	1,630,844.87	40.0597292	-105.0342086
7,603.00	54.12	180.19	7,377.42	-1,232.68	324.07	14,548,420.29	1,630,846.74	40.0595509	-105.0342018
7,689.00	57.26	177.96	7,425.89	-1,303.69	325.24	14,548,349.28	1,630,847.88	40.0593559	-105.0341976
7,774.00	62.66	181.87	7,468.44	-1,377.23	325.28	14,548,275.75	1,630,847.89	40.0591539	-105.0341975
7,859.00	66.07	182.07	7,505.21	-1,453.80	322.64	14,548,199.17	1,630,845.22	40.0589437	-105.0342069
7,944.00	71.73	180.22	7,535.80	-1,533.05	321.08	14,548,119.92	1,630,843.63	40.0587260	-105.0342125
8,029.00	77.74	179.61	7,558.17	-1,615.01	321.21	14,548,037.96	1,630,843.73	40.0585009	-105.0342120
8,115.00	82.48	179.46	7,572.94	-1,699.71	321.90	14,547,953.27	1,630,844.38	40.0582684	-105.0342096
8,200.00	86.68	179.57	7,580.96	-1,784.31	322.62	14,547,868.67	1,630,845.07	40.0580360	-105.0342070
<b>Last SDI MWD Curve Survey</b>									
8,266.00	87.43	179.38	7,584.35	-1,850.22	323.22	14,547,802.76	1,630,845.64	40.0578550	-105.0342049
<b>Landing Point : 122' FNL 809' FWL Sec 17</b>									
8,285.00	87.65	179.33	7,585.17	-1,869.20	323.43	14,547,783.78	1,630,845.85	40.0578029	-105.0342041
<b>First SDI MWD Lateral Survey</b>									
8,370.00	87.65	179.18	7,588.65	-1,954.12	324.54	14,547,698.86	1,630,846.92	40.0575697	-105.0342002
8,455.00	87.65	178.17	7,592.14	-2,039.02	326.50	14,547,613.95	1,630,848.85	40.0573365	-105.0341931
8,541.00	88.19	179.14	7,595.26	-2,124.94	328.52	14,547,528.03	1,630,850.83	40.0571006	-105.0341859
8,599.89	88.67	179.89	7,596.87	-2,183.81	329.02	14,547,469.17	1,630,851.31	40.0569389	-105.0341842
<b>Cross 460' Line : 8599.89' MD &amp; 7596.87' TVD 460' FNL 814' FWL</b>									
8,626.00	88.89	180.22	7,597.43	-2,209.91	328.99	14,547,443.06	1,630,851.27	40.0568673	-105.0341842
8,711.00	89.40	179.04	7,598.69	-2,294.90	329.54	14,547,358.07	1,630,851.79	40.0566339	-105.0341823
8,797.00	89.00	180.79	7,599.89	-2,380.89	329.67	14,547,272.09	1,630,851.88	40.0563977	-105.0341818
8,882.00	88.56	180.72	7,601.70	-2,465.86	328.55	14,547,187.11	1,630,850.73	40.0561644	-105.0341858
8,967.00	88.86	180.63	7,603.62	-2,550.83	327.55	14,547,102.14	1,630,849.69	40.0559310	-105.0341894
9,052.00	88.96	179.75	7,605.23	-2,635.82	327.27	14,547,017.16	1,630,849.38	40.0556977	-105.0341904
9,138.00	88.93	181.70	7,606.82	-2,721.79	326.18	14,546,931.19	1,630,848.25	40.0554616	-105.0341943
9,223.00	88.86	181.99	7,608.46	-2,806.73	323.44	14,546,846.25	1,630,845.48	40.0552283	-105.0342041
9,308.00	89.56	181.22	7,609.63	-2,891.69	321.06	14,546,761.29	1,630,843.07	40.0549950	-105.0342126
9,393.00	89.20	180.28	7,610.55	-2,976.67	319.95	14,546,676.30	1,630,841.92	40.0547616	-105.0342166
9,478.00	90.00	181.08	7,611.14	-3,061.67	318.94	14,546,591.31	1,630,840.88	40.0545282	-105.0342202
9,563.00	90.03	179.53	7,611.12	-3,146.66	318.49	14,546,506.32	1,630,840.39	40.0542948	-105.0342218
9,643.00	89.97	179.14	7,611.12	-3,226.66	319.42	14,546,426.32	1,630,841.29	40.0540751	-105.0342185
9,734.00	90.54	177.82	7,610.72	-3,317.62	321.83	14,546,335.36	1,630,843.67	40.0538253	-105.0342099
9,818.00	91.14	179.14	7,609.48	-3,401.58	324.06	14,546,251.40	1,630,845.86	40.0535947	-105.0342019
9,904.00	92.14	179.82	7,607.02	-3,487.54	324.84	14,546,165.44	1,630,846.61	40.0533587	-105.0341991
9,989.00	90.87	179.88	7,604.79	-3,572.51	325.06	14,546,080.47	1,630,846.80	40.0531253	-105.0341984
10,077.00	91.17	179.49	7,603.22	-3,660.49	325.54	14,545,992.49	1,630,847.25	40.0528837	-105.0341966
10,161.00	90.60	179.92	7,601.93	-3,744.48	325.98	14,545,908.50	1,630,847.65	40.0526531	-105.0341951
10,246.00	91.64	179.56	7,600.26	-3,829.46	326.36	14,545,823.52	1,630,848.00	40.0524197	-105.0341937
10,332.00	90.10	181.17	7,598.96	-3,915.45	325.81	14,545,737.53	1,630,847.42	40.0521836	-105.0341957
10,416.00	89.97	181.06	7,598.91	-3,999.43	324.18	14,545,653.55	1,630,845.75	40.0519530	-105.0342015
10,502.00	89.40	180.60	7,599.38	-4,085.42	322.93	14,545,567.56	1,630,844.47	40.0517168	-105.0342060
10,587.00	89.00	179.28	7,600.57	-4,170.41	323.02	14,545,482.57	1,630,844.52	40.0514834	-105.0342057
10,672.00	88.26	179.06	7,602.60	-4,255.37	324.25	14,545,397.61	1,630,845.72	40.0512501	-105.0342013
10,757.00	87.39	177.94	7,605.83	-4,340.28	326.48	14,545,312.70	1,630,847.91	40.0510169	-105.0341933
10,842.00	87.59	178.41	7,609.55	-4,425.16	329.18	14,545,227.82	1,630,850.58	40.0507838	-105.0341837
10,926.00	89.67	178.80	7,611.56	-4,509.10	331.22	14,545,143.87	1,630,852.59	40.0505533	-105.0341764
11,012.00	91.04	180.52	7,611.02	-4,595.09	331.74	14,545,057.88	1,630,853.07	40.0503172	-105.0341746



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 13N-17HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	1N-68W-8 Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 13N-17HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,096.00	91.68	180.47	7,609.03	-4,679.07	331.01	14,544,973.91	1,630,852.31	40.0500866	-105.0341771
11,183.00	91.27	182.90	7,606.79	-4,765.99	328.45	14,544,886.99	1,630,849.72	40.0498478	-105.0341863
11,268.00	89.70	183.73	7,606.07	-4,850.85	323.54	14,544,802.14	1,630,844.77	40.0496148	-105.0342039
11,353.00	89.46	183.28	7,606.69	-4,935.68	318.34	14,544,717.30	1,630,839.54	40.0493818	-105.0342224
11,438.00	88.86	182.85	7,607.94	-5,020.55	313.80	14,544,632.43	1,630,834.96	40.0491488	-105.0342387
11,523.00	88.06	181.59	7,610.22	-5,105.46	310.51	14,544,547.53	1,630,831.64	40.0489156	-105.0342504
11,609.00	87.89	179.55	7,613.26	-5,191.39	309.65	14,544,461.59	1,630,830.75	40.0486796	-105.0342535
11,694.00	90.77	178.80	7,614.26	-5,276.37	310.87	14,544,376.62	1,630,831.94	40.0484463	-105.0342491
11,779.00	90.90	178.14	7,613.02	-5,361.33	313.14	14,544,291.66	1,630,834.17	40.0482130	-105.0342410
11,863.00	90.50	177.95	7,611.99	-5,445.27	316.01	14,544,207.71	1,630,837.00	40.0479824	-105.0342308
11,949.00	90.50	177.23	7,611.24	-5,531.19	319.62	14,544,121.79	1,630,840.59	40.0477465	-105.0342179
12,036.00	92.14	178.36	7,609.24	-5,618.10	322.97	14,544,034.88	1,630,843.90	40.0475078	-105.0342059
12,121.00	93.15	180.75	7,605.31	-5,703.00	323.63	14,543,949.98	1,630,844.52	40.0472747	-105.0342036
12,206.00	91.44	182.75	7,601.91	-5,787.89	321.04	14,543,865.10	1,630,841.90	40.0470416	-105.0342128
12,290.00	89.36	184.39	7,601.32	-5,871.71	315.81	14,543,781.27	1,630,836.63	40.0468114	-105.0342315
12,376.00	89.20	183.79	7,602.40	-5,957.49	309.67	14,543,695.50	1,630,830.47	40.0465758	-105.0342534
12,461.00	89.40	183.88	7,603.44	-6,042.29	303.99	14,543,610.70	1,630,824.75	40.0463429	-105.0342738
12,546.00	87.99	181.28	7,605.38	-6,127.17	300.16	14,543,525.82	1,630,820.89	40.0461098	-105.0342874
12,631.00	88.56	179.83	7,607.94	-6,212.13	299.34	14,543,440.87	1,630,820.03	40.0458765	-105.0342904
12,716.00	89.67	180.00	7,609.25	-6,297.12	299.47	14,543,355.88	1,630,820.12	40.0456431	-105.0342899
12,801.00	90.23	179.08	7,609.33	-6,382.11	300.15	14,543,270.88	1,630,820.77	40.0454097	-105.0342875
12,888.00	89.97	178.22	7,609.17	-6,469.09	302.20	14,543,183.91	1,630,822.79	40.0451709	-105.0342802
12,959.45	89.54	177.89	7,609.48	-6,540.50	304.62	14,543,112.50	1,630,825.18	40.0449748	-105.0342715
<b>Cross 460' Line : 12959.45' MD &amp; 7609.48' TVD 460' FSL 796' FWL</b>									
12,973.00	89.46	177.83	7,609.60	-6,554.04	305.13	14,543,098.96	1,630,825.68	40.0449376	-105.0342697
13,059.00	90.54	177.18	7,609.60	-6,639.95	308.87	14,543,013.04	1,630,829.39	40.0447016	-105.0342563
13,144.00	89.90	177.02	7,609.27	-6,724.84	313.17	14,542,928.15	1,630,833.66	40.0444685	-105.0342410
13,229.00	89.53	176.85	7,609.69	-6,809.72	317.72	14,542,843.27	1,630,838.17	40.0442354	-105.0342247
13,311.00	89.06	177.03	7,610.70	-6,891.60	322.09	14,542,761.39	1,630,842.51	40.0440106	-105.0342091
<b>Last SDI MWD Survey</b>									
13,371.00	89.06	177.03	7,611.69	-6,951.51	325.20	14,542,701.48	1,630,845.60	40.0438461	-105.0341980
<b>Projection to TD : 49' FSL 817' FWL Sec 17</b>									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
128.00	127.99	-0.79	1.00	First Total MWD Survey
1,834.00	1,811.61	-183.88	50.13	Last Total MWD Survey
4,043.55	3,916.16	-825.08	247.42	Enter Land Box : 4043.55' MD & 3916.16' TVD
6,922.00	6,782.54	-944.33	300.48	Curve KOP
6,923.00	6,783.54	-944.36	300.49	First SDI MWD Curve Survey
8,200.00	7,580.96	-1,784.31	322.62	Last SDI MWD Curve Survey
8,266.00	7,584.35	-1,850.22	323.22	Landing Point : 122' FNL 809' FWL Sec 17
8,285.00	7,585.17	-1,869.20	323.43	First SDI MWD Lateral Survey
8,599.89	7,596.87	-2,183.81	329.02	Cross 460' Line : 8599.89' MD & 7596.87' TVD 460' FNL 814' FWL
12,959.45	7,609.48	-6,540.50	304.62	Cross 460' Line : 12959.45' MD & 7609.48' TVD 460' FSL 796' FWL
13,311.00	7,610.70	-6,891.60	322.09	Last SDI MWD Survey
13,371.00	7,611.69	-6,951.51	325.20	Projection to TD : 49' FSL 817' FWL Sec 17