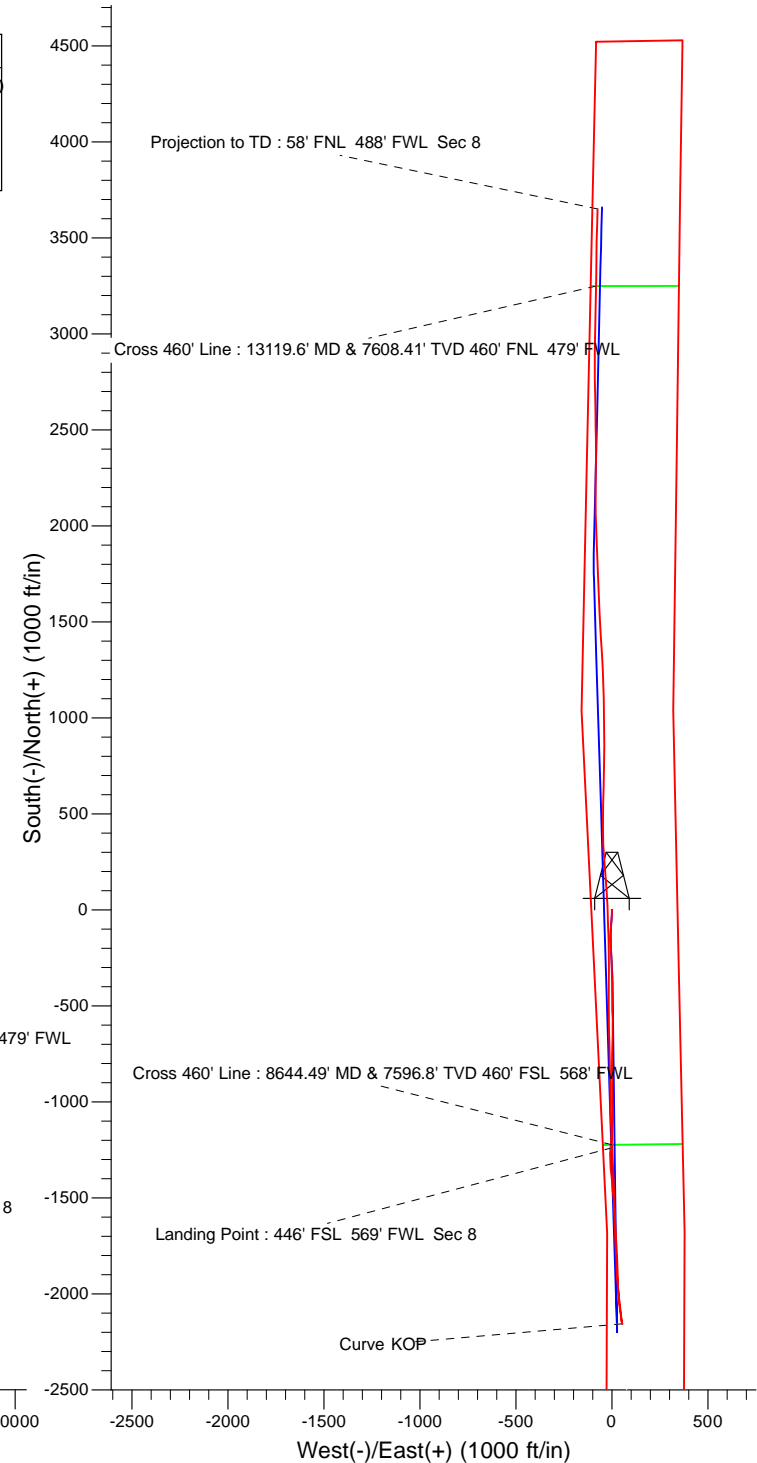
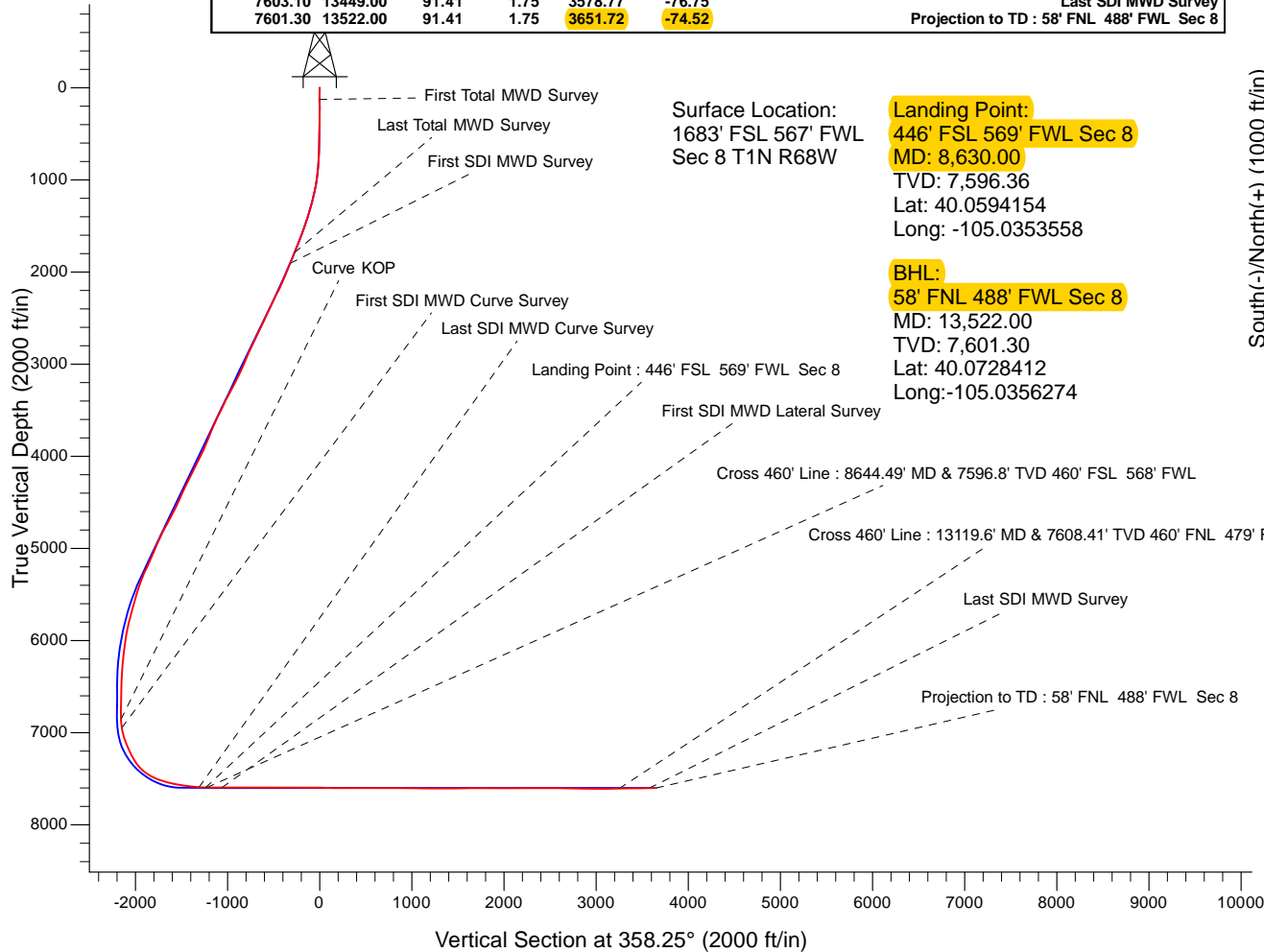


WELL DETAILS: Yellowhammer 30N2-8HZ				
GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)		5063.00		
Northing	Easting	Latitude	Longitude	
14549608.32	1630522.86	40.0628130	-105.0353610	
Design: OH (Yellowhammer 30N2-8HZ/OH)				
Created By: Seth Burstad    Date: 12-11-2017				

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							Annotation
TVD	MD	Inc	Azi	+N/-S	+E/-W		
128.00	128.00	0.35	266.59	-0.02	-0.39		First Total MWD Survey
1791.63	1831.00	22.10	176.94	-272.99	-1.80		Last Total MWD Survey
1907.64	1956.00	21.63	178.36	-319.50	0.11		First SDI MWD Survey
6859.38	7297.00	2.44	340.10	-2155.49	53.94		Curve KOP
6947.89	7386.00	9.43	348.79	-2147.06	51.84		First SDI MWD Curve Survey
7592.78	8557.00	86.31	357.71	-1310.08	4.70		Last SDI MWD Curve Survey
7596.36	8630.00	88.07	357.17	-1237.25	1.45		Landing Point : 446' FSL 569' FWL Sec 8
7596.80	8644.49	88.42	357.06	-1222.78	0.72		Cross 460' Line : 8644.49' MD & 7596.8' TVD 460' FSL 568' FWL
7596.44	8807.00	90.57	358.59	-1060.47	-6.81		First SDI MWD Lateral Survey
7608.41	13119.60	91.18	1.04	3249.49	-82.49		Cross 460' Line : 13119.6' MD & 7608.41' TVD 460' FNL 479' FWL
7603.10	13449.00	91.41	1.75	3578.77	-76.75		Last SDI MWD Survey
7601.30	13522.00	91.41	1.75	3651.72	-74.52		Projection to TD : 58' FNL 488' FWL Sec 8





# **US ROCKIES REGION PLANNING**

**US Rockies Wattenberg Planning UTM83**

**Yellowhammer 12-8HZ Pad**

**Yellowhammer 30N2-8HZ**

**OH**

**Design: OH**

## **Survey Report - Geographic**

**11 December, 2017**



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 30N2-8HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 30N2-8HZ	<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						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 30N2-8HZ, 1683' FSL 567' FWL Sec 8 T1N R68W					
Well Position	+N/-S	0.00 ft	Northing:	14,549,608.31 usft	Latitude:	40.0628130
	+E/-W	0.00 ft	Easting:	1,630,522.86 usft	Longitude:	-105.0353610
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	358.25	

<b>Survey Program</b>	<b>Date</b>	12/11/2017			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
128.00	1,831.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
1,831.00	13,522.00	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	14,549,608.31	1,630,522.86	40.0628130	-105.0353610
128.00	0.35	266.59	128.00	-0.02	-0.39	14,549,608.29	1,630,522.47	40.0628130	-105.0353624
<b>First Total MWD Survey</b>									
160.00	0.04	216.49	160.00	-0.04	-0.49	14,549,608.27	1,630,522.37	40.0628129	-105.0353627
192.00	0.31	293.49	192.00	-0.01	-0.58	14,549,608.30	1,630,522.28	40.0628130	-105.0353630
223.00	0.00	278.28	223.00	0.02	-0.66	14,549,608.33	1,630,522.20	40.0628131	-105.0353633
254.00	0.00	98.28	254.00	0.02	-0.66	14,549,608.33	1,630,522.20	40.0628131	-105.0353633
285.00	0.22	258.33	285.00	0.01	-0.72	14,549,608.32	1,630,522.15	40.0628131	-105.0353635
317.00	0.00	278.28	317.00	0.00	-0.78	14,549,608.31	1,630,522.09	40.0628130	-105.0353637
348.00	0.40	146.88	348.00	-0.09	-0.72	14,549,608.22	1,630,522.14	40.0628128	-105.0353635
380.00	0.62	142.49	380.00	-0.33	-0.55	14,549,607.99	1,630,522.31	40.0628121	-105.0353629

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 30N2-8HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 30N2-8HZ	<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	0.79	120.08	411.99	-0.57	-0.25	14,549,607.74	1,630,522.61	40.0628115	-105.0353619
443.00	0.66	133.17	442.99	-0.80	0.06	14,549,607.51	1,630,522.92	40.0628108	-105.0353608
475.00	0.75	131.85	474.99	-1.07	0.35	14,549,607.24	1,630,523.21	40.0628101	-105.0353597
507.00	0.62	140.91	506.99	-1.34	0.62	14,549,606.97	1,630,523.48	40.0628093	-105.0353588
539.00	1.05	165.60	538.98	-1.76	0.80	14,549,606.55	1,630,523.66	40.0628082	-105.0353581
571.00	1.49	177.56	570.98	-2.46	0.89	14,549,605.85	1,630,523.75	40.0628063	-105.0353578
602.00	1.54	183.80	601.97	-3.28	0.88	14,549,605.03	1,630,523.74	40.0628040	-105.0353578
634.00	1.76	186.70	633.95	-4.20	0.79	14,549,604.11	1,630,523.65	40.0628015	-105.0353581
666.00	1.89	181.78	665.94	-5.21	0.72	14,549,603.10	1,630,523.58	40.0627987	-105.0353584
698.00	2.02	176.77	697.92	-6.30	0.73	14,549,602.01	1,630,523.59	40.0627957	-105.0353583
729.00	2.24	178.70	728.90	-7.45	0.78	14,549,600.86	1,630,523.64	40.0627926	-105.0353582
761.00	3.08	183.18	760.86	-8.94	0.75	14,549,599.37	1,630,523.60	40.0627885	-105.0353583
793.00	3.74	183.18	792.80	-10.84	0.64	14,549,597.47	1,630,523.50	40.0627833	-105.0353587
825.00	4.44	183.36	824.72	-13.12	0.51	14,549,595.20	1,630,523.37	40.0627770	-105.0353592
856.00	5.54	183.71	855.60	-15.81	0.34	14,549,592.50	1,630,523.20	40.0627696	-105.0353597
888.00	5.89	178.70	887.45	-18.99	0.28	14,549,589.32	1,630,523.13	40.0627609	-105.0353600
920.00	5.98	180.72	919.27	-22.30	0.30	14,549,586.01	1,630,523.15	40.0627518	-105.0353599
952.00	6.28	181.78	951.09	-25.71	0.22	14,549,582.60	1,630,523.07	40.0627424	-105.0353602
983.00	7.43	187.40	981.87	-29.40	-0.09	14,549,578.91	1,630,522.76	40.0627323	-105.0353613
1,015.00	8.48	188.63	1,013.56	-33.78	-0.71	14,549,574.53	1,630,522.14	40.0627203	-105.0353635
1,047.00	10.02	185.73	1,045.14	-38.88	-1.34	14,549,569.43	1,630,521.50	40.0627062	-105.0353658
1,078.00	11.21	185.99	1,075.61	-44.56	-1.93	14,549,563.75	1,630,520.92	40.0626907	-105.0353679
1,110.00	11.51	183.97	1,106.99	-50.84	-2.47	14,549,557.47	1,630,520.37	40.0626734	-105.0353698
1,142.00	11.73	185.38	1,138.33	-57.27	-3.00	14,549,551.05	1,630,519.84	40.0626558	-105.0353717
1,174.00	12.48	184.24	1,169.62	-63.95	-3.56	14,549,544.36	1,630,519.28	40.0626374	-105.0353737
1,237.00	14.37	183.27	1,230.89	-78.55	-4.51	14,549,529.76	1,630,518.32	40.0625973	-105.0353771
1,269.00	15.21	182.57	1,261.83	-86.71	-4.92	14,549,521.61	1,630,517.90	40.0625749	-105.0353786
1,332.00	16.26	183.18	1,322.47	-103.77	-5.78	14,549,504.54	1,630,517.04	40.0625281	-105.0353816
1,364.00	16.96	180.99	1,353.14	-112.91	-6.11	14,549,495.40	1,630,516.70	40.0625030	-105.0353828
1,396.00	17.84	179.93	1,383.67	-122.48	-6.19	14,549,485.84	1,630,516.63	40.0624767	-105.0353831
1,427.00	17.97	179.58	1,413.17	-132.01	-6.15	14,549,476.31	1,630,516.66	40.0624505	-105.0353829
1,459.00	17.93	180.46	1,443.61	-141.87	-6.15	14,549,466.44	1,630,516.66	40.0624234	-105.0353829
1,491.00	18.76	179.67	1,473.99	-151.94	-6.16	14,549,456.37	1,630,516.64	40.0623958	-105.0353830
1,522.00	19.64	178.70	1,503.26	-162.13	-6.01	14,549,446.18	1,630,516.79	40.0623678	-105.0353825
1,554.00	20.21	178.79	1,533.35	-173.04	-5.77	14,549,435.28	1,630,517.02	40.0623378	-105.0353816
1,586.00	20.48	178.00	1,563.35	-184.16	-5.46	14,549,424.16	1,630,517.33	40.0623073	-105.0353805
1,618.00	20.74	177.38	1,593.30	-195.41	-5.01	14,549,412.90	1,630,517.78	40.0622764	-105.0353789
1,649.00	20.70	178.52	1,622.30	-206.37	-4.61	14,549,401.94	1,630,518.17	40.0622463	-105.0353775
1,681.00	20.61	177.91	1,652.24	-217.65	-4.26	14,549,390.66	1,630,518.51	40.0622153	-105.0353762
1,713.00	21.09	177.73	1,682.15	-229.04	-3.83	14,549,379.28	1,630,518.94	40.0621841	-105.0353747
1,745.00	21.93	177.29	1,711.92	-240.76	-3.32	14,549,367.55	1,630,519.45	40.0621519	-105.0353728
1,776.00	22.02	177.47	1,740.66	-252.35	-2.79	14,549,355.97	1,630,519.97	40.0621200	-105.0353709
1,808.00	22.10	177.29	1,770.32	-264.35	-2.24	14,549,343.96	1,630,520.52	40.0620871	-105.0353690
1,831.00	22.10	176.94	1,791.63	-272.99	-1.80	14,549,335.32	1,630,520.95	40.0620633	-105.0353674
<b>Last Total MWD Survey</b>									
1,956.00	21.63	178.36	1,907.64	-319.50	0.11	14,549,288.81	1,630,522.85	40.0619356	-105.0353606
<b>First SDI MWD Survey</b>									
2,045.00	22.15	179.59	1,990.22	-352.68	0.70	14,549,255.63	1,630,523.42	40.0618445	-105.0353585
2,134.00	23.30	178.55	2,072.31	-387.05	1.27	14,549,221.26	1,630,523.97	40.0617501	-105.0353564
2,223.00	25.01	179.36	2,153.52	-423.46	1.92	14,549,184.85	1,630,524.61	40.0616501	-105.0353541
2,311.00	27.19	181.26	2,232.54	-462.17	1.69	14,549,146.14	1,630,524.36	40.0615438	-105.0353549
2,400.00	26.79	179.64	2,311.85	-502.56	1.37	14,549,105.75	1,630,524.03	40.0614329	-105.0353561
2,489.00	25.22	178.30	2,391.84	-541.57	2.05	14,549,066.74	1,630,524.70	40.0613258	-105.0353536
2,578.00	23.39	176.63	2,472.95	-578.16	3.66	14,549,030.15	1,630,526.29	40.0612253	-105.0353479
2,667.00	25.41	179.96	2,554.00	-614.90	4.71	14,548,993.41	1,630,527.32	40.0611244	-105.0353441

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 30N2-8HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 30N2-8HZ	<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
2,756.00	25.56	180.89	2,634.34	-653.19	4.42	14,548,955.12	1,630,527.02	40.0610193	-105.0353452
2,845.00	26.12	181.76	2,714.44	-691.97	3.52	14,548,916.34	1,630,526.11	40.0609128	-105.0353484
2,934.00	26.01	182.63	2,794.39	-731.05	2.03	14,548,877.27	1,630,524.60	40.0608055	-105.0353537
3,023.00	24.00	182.13	2,875.04	-768.63	0.46	14,548,839.68	1,630,523.01	40.0607022	-105.0353593
3,112.00	22.28	180.72	2,956.88	-803.59	-0.43	14,548,804.72	1,630,522.11	40.0606062	-105.0353625
3,201.00	24.17	177.63	3,038.66	-838.67	0.11	14,548,769.64	1,630,522.64	40.0605099	-105.0353606
3,290.00	25.30	178.51	3,119.50	-875.89	1.36	14,548,732.42	1,630,523.88	40.0604077	-105.0353561
3,378.00	27.03	179.66	3,198.48	-914.68	1.97	14,548,693.63	1,630,524.47	40.0603012	-105.0353539
3,467.00	29.91	179.31	3,276.71	-957.10	2.36	14,548,651.21	1,630,524.84	40.0601847	-105.0353525
3,556.00	27.74	178.97	3,354.67	-1,000.01	3.00	14,548,608.30	1,630,525.46	40.0600669	-105.0353503
3,645.00	24.96	178.39	3,434.42	-1,039.50	3.90	14,548,568.82	1,630,526.35	40.0599584	-105.0353470
3,734.00	25.42	180.85	3,514.96	-1,077.37	4.14	14,548,530.94	1,630,526.57	40.0598544	-105.0353462
3,823.00	25.18	182.91	3,595.42	-1,115.38	2.90	14,548,492.94	1,630,525.31	40.0597500	-105.0353506
3,911.00	25.02	184.32	3,675.11	-1,152.63	0.54	14,548,455.68	1,630,522.95	40.0596477	-105.0353590
4,000.00	22.00	184.58	3,756.72	-1,188.02	-2.20	14,548,420.29	1,630,520.18	40.0595505	-105.0353689
4,115.00	22.11	186.68	3,863.30	-1,230.99	-6.44	14,548,377.33	1,630,515.93	40.0594325	-105.0353840
4,203.00	25.54	182.06	3,943.80	-1,266.41	-9.05	14,548,341.91	1,630,513.31	40.0593353	-105.0353933
4,292.00	27.82	177.66	4,023.33	-1,306.34	-8.89	14,548,301.98	1,630,513.45	40.0592256	-105.0353928
4,381.00	25.33	174.88	4,102.92	-1,346.06	-6.35	14,548,262.25	1,630,515.98	40.0591165	-105.0353837
4,470.00	26.10	174.18	4,183.10	-1,384.50	-2.66	14,548,223.81	1,630,519.65	40.0590110	-105.0353705
4,559.00	27.53	174.78	4,262.53	-1,424.46	1.20	14,548,183.85	1,630,523.49	40.0589012	-105.0353567
4,648.00	26.03	174.96	4,341.98	-1,464.40	4.78	14,548,143.91	1,630,527.06	40.0587916	-105.0353439
4,736.00	22.92	173.65	4,422.07	-1,500.68	8.37	14,548,107.63	1,630,530.64	40.0586919	-105.0353310
4,825.00	24.68	177.15	4,503.50	-1,536.46	11.22	14,548,071.85	1,630,533.47	40.0585937	-105.0353209
4,914.00	28.14	178.86	4,583.20	-1,576.02	12.56	14,548,032.29	1,630,534.79	40.0584850	-105.0353161
5,003.00	27.74	178.11	4,661.83	-1,617.70	13.66	14,547,990.61	1,630,535.88	40.0583706	-105.0353122
5,092.00	28.35	177.87	4,740.38	-1,659.52	15.13	14,547,948.79	1,630,537.33	40.0582557	-105.0353069
5,180.00	26.95	177.53	4,818.32	-1,700.32	16.76	14,547,907.98	1,630,538.95	40.0581437	-105.0353011
5,269.00	24.38	176.55	4,898.54	-1,738.82	18.74	14,547,869.49	1,630,540.91	40.0580380	-105.0352940
5,357.00	23.08	177.25	4,979.10	-1,774.18	20.66	14,547,834.13	1,630,542.81	40.0579409	-105.0352871
5,446.00	23.40	176.82	5,060.87	-1,809.25	22.48	14,547,799.06	1,630,544.62	40.0578446	-105.0352806
5,535.00	24.30	178.60	5,142.27	-1,845.20	23.90	14,547,763.10	1,630,546.03	40.0577458	-105.0352755
5,624.00	25.54	177.61	5,222.99	-1,882.68	25.15	14,547,725.63	1,630,547.26	40.0576429	-105.0352711
5,713.00	22.43	175.90	5,304.29	-1,918.79	27.17	14,547,689.51	1,630,549.26	40.0575437	-105.0352639
5,802.00	19.50	174.86	5,387.39	-1,950.53	29.71	14,547,657.77	1,630,551.80	40.0574566	-105.0352548
5,891.00	16.36	173.89	5,472.06	-1,977.79	32.38	14,547,630.51	1,630,554.45	40.0573817	-105.0352453
5,980.00	15.82	173.17	5,557.57	-2,002.30	35.15	14,547,606.00	1,630,557.22	40.0573144	-105.0352353
6,069.00	16.72	174.81	5,643.01	-2,027.10	37.75	14,547,581.20	1,630,559.81	40.0572463	-105.0352260
6,158.00	14.92	172.31	5,728.63	-2,051.21	40.45	14,547,557.09	1,630,562.49	40.0571801	-105.0352164
6,247.00	12.76	172.37	5,815.05	-2,072.30	43.28	14,547,535.99	1,630,565.32	40.0571222	-105.0352063
6,336.00	10.66	173.25	5,902.19	-2,090.22	45.56	14,547,518.07	1,630,567.59	40.0570729	-105.0351982
6,425.00	9.07	173.76	5,989.87	-2,105.37	47.29	14,547,502.92	1,630,569.31	40.0570313	-105.0351920
6,514.00	7.53	177.59	6,077.94	-2,118.17	48.29	14,547,490.12	1,630,570.31	40.0569962	-105.0351884
6,603.00	5.95	175.73	6,166.32	-2,128.60	48.88	14,547,479.70	1,630,570.90	40.0569676	-105.0351863
6,692.00	4.78	172.41	6,254.93	-2,136.88	49.72	14,547,471.42	1,630,571.73	40.0569448	-105.0351833
6,780.00	4.17	171.67	6,342.66	-2,143.68	50.66	14,547,464.62	1,630,572.67	40.0569262	-105.0351799
6,869.00	2.51	161.05	6,431.50	-2,148.72	51.77	14,547,459.57	1,630,573.77	40.0569123	-105.0351760
6,958.00	1.05	153.20	6,520.46	-2,151.29	52.77	14,547,457.00	1,630,574.77	40.0569052	-105.0351724
7,047.00	1.43	163.80	6,609.44	-2,153.09	53.44	14,547,455.21	1,630,575.45	40.0569003	-105.0351700
7,135.00	1.53	168.36	6,697.41	-2,155.29	53.99	14,547,453.00	1,630,575.99	40.0568943	-105.0351680
7,224.00	0.39	154.05	6,786.40	-2,156.73	54.36	14,547,451.57	1,630,576.36	40.0568903	-105.0351667
7,297.00	2.44	340.10	6,859.38	-2,155.49	53.94	14,547,452.80	1,630,575.94	40.0568937	-105.0351682
<b>Curve KOP</b>									
7,313.00	3.06	339.93	6,875.36	-2,154.77	53.68	14,547,453.53	1,630,575.68	40.0568957	-105.0351691

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 30N2-8HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 30N2-8HZ	<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	
7,386.00	9.43	348.79	6,947.89	-2,147.06	51.84	14,547,461.23	1,630,573.85	40.0569169	-105.0351757	
First SDI MWD Curve Survey										
7,402.00	10.84	349.34	6,963.64	-2,144.30	51.31	14,547,464.00	1,630,573.32	40.0569245	-105.0351776	
7,491.00	17.43	353.66	7,049.90	-2,122.80	48.29	14,547,485.50	1,630,570.30	40.0569835	-105.0351884	
7,580.00	22.92	348.91	7,133.41	-2,092.52	43.48	14,547,515.78	1,630,565.51	40.0570666	-105.0352056	
7,669.00	25.33	357.00	7,214.65	-2,056.49	39.15	14,547,551.81	1,630,561.19	40.0571656	-105.0352211	
7,757.00	30.31	353.85	7,292.46	-2,015.58	35.78	14,547,592.72	1,630,557.84	40.0572779	-105.0352331	
7,846.00	40.20	357.24	7,365.06	-1,964.43	31.98	14,547,643.87	1,630,554.06	40.0574184	-105.0352467	
7,935.00	52.87	358.97	7,426.16	-1,900.00	29.95	14,547,708.30	1,630,552.06	40.0575953	-105.0352539	
8,023.00	60.63	357.85	7,474.37	-1,826.50	27.88	14,547,781.81	1,630,550.01	40.0577972	-105.0352613	
8,112.00	69.85	355.99	7,511.61	-1,745.89	23.49	14,547,862.42	1,630,545.66	40.0580185	-105.0352770	
8,201.00	75.16	356.58	7,538.35	-1,661.22	18.00	14,547,947.09	1,630,540.20	40.0582511	-105.0352966	
8,290.00	79.68	358.63	7,557.74	-1,574.45	14.39	14,548,033.85	1,630,536.62	40.0584893	-105.0353096	
8,379.00	81.36	357.93	7,572.39	-1,486.71	11.75	14,548,121.60	1,630,534.02	40.0587303	-105.0353190	
8,468.00	83.01	357.61	7,584.50	-1,398.61	8.32	14,548,209.70	1,630,530.62	40.0589722	-105.0353312	
8,557.00	86.31	357.71	7,592.78	-1,310.08	4.70	14,548,298.23	1,630,527.04	40.0592153	-105.0353442	
Last SDI MWD Curve Survey										
8,630.00	88.07	357.17	7,596.36	-1,237.25	1.45	14,548,371.07	1,630,523.81	40.0594154	-105.0353558	
Landing Point : 446' FSL 569' FWL Sec 8										
8,644.49	88.42	357.06	7,596.80	-1,222.78	0.72	14,548,385.53	1,630,523.09	40.0594551	-105.0353584	
Cross 460' Line : 8644.49' MD & 7596.8' TVD 460' FSL 568' FWL										
8,645.00	88.43	357.06	7,596.82	-1,222.27	0.69	14,548,386.04	1,630,523.07	40.0594565	-105.0353585	
8,734.00	90.87	356.94	7,597.36	-1,133.40	-3.97	14,548,474.91	1,630,518.44	40.0597005	-105.0353751	
8,807.00	90.57	358.59	7,596.44	-1,060.47	-6.81	14,548,547.85	1,630,515.63	40.0599008	-105.0353853	
First SDI MWD Lateral Survey										
8,823.00	90.50	358.95	7,596.29	-1,044.47	-7.16	14,548,563.85	1,630,515.29	40.0599447	-105.0353866	
8,912.00	90.23	359.10	7,595.73	-955.49	-8.67	14,548,652.83	1,630,513.81	40.0601891	-105.0353920	
9,000.00	88.66	359.20	7,596.58	-867.50	-9.98	14,548,740.81	1,630,512.54	40.0604307	-105.0353966	
9,089.00	90.17	358.61	7,597.49	-778.53	-11.68	14,548,829.79	1,630,510.87	40.0606751	-105.0354027	
9,178.00	89.97	358.83	7,597.38	-689.55	-13.67	14,548,918.77	1,630,508.92	40.0609194	-105.0354098	
9,267.00	89.16	359.04	7,598.06	-600.57	-15.32	14,549,007.75	1,630,507.30	40.0611638	-105.0354157	
9,356.00	90.07	359.62	7,598.65	-511.58	-16.36	14,549,096.74	1,630,506.30	40.0614082	-105.0354194	
9,445.00	90.64	359.90	7,598.10	-422.58	-16.73	14,549,185.74	1,630,505.96	40.0616526	-105.0354208	
9,534.00	89.93	0.89	7,597.66	-333.58	-16.12	14,549,274.73	1,630,506.61	40.0618970	-105.0354186	
9,623.00	90.74	359.66	7,597.14	-244.59	-15.69	14,549,363.73	1,630,507.07	40.0621414	-105.0354171	
9,712.00	89.46	358.32	7,596.98	-155.61	-17.26	14,549,452.71	1,630,505.54	40.0623857	-105.0354227	
9,801.00	89.63	357.91	7,597.69	-66.66	-20.19	14,549,541.66	1,630,502.65	40.0626300	-105.0354331	
9,890.00	88.83	357.75	7,598.89	22.27	-23.56	14,549,630.59	1,630,499.31	40.0628742	-105.0354452	
9,978.00	88.22	355.77	7,601.15	110.09	-28.53	14,549,718.42	1,630,494.37	40.0631154	-105.0354629	
10,067.00	90.03	355.41	7,602.51	198.82	-35.37	14,549,807.14	1,630,487.57	40.0633590	-105.0354874	
10,156.00	91.11	356.10	7,601.63	287.57	-41.96	14,549,895.89	1,630,481.01	40.0636027	-105.0355109	
10,245.00	89.87	358.76	7,600.86	376.46	-45.95	14,549,984.79	1,630,477.06	40.0638469	-105.0355252	
10,334.00	88.76	0.17	7,601.93	465.45	-46.78	14,550,073.78	1,630,476.26	40.0640912	-105.0355282	
10,423.00	88.96	1.06	7,603.70	554.43	-45.83	14,550,162.75	1,630,477.26	40.0643356	-105.0355248	
10,512.00	91.64	1.41	7,603.23	643.40	-43.91	14,550,251.72	1,630,479.21	40.0645799	-105.0355179	
10,601.00	90.91	1.09	7,601.25	732.35	-41.97	14,550,340.68	1,630,481.18	40.0648242	-105.0355110	
10,690.00	88.93	0.93	7,601.38	821.33	-40.40	14,550,429.66	1,630,482.79	40.0650685	-105.0355054	
10,779.00	89.90	359.67	7,602.29	910.33	-39.93	14,550,518.65	1,630,483.29	40.0653129	-105.0355037	
10,868.00	88.90	359.27	7,603.22	999.32	-40.76	14,550,607.64	1,630,482.50	40.0655573	-105.0355066	
10,956.00	89.10	358.44	7,604.75	1,087.28	-42.51	14,550,695.61	1,630,480.78	40.0657989	-105.0355129	
11,045.00	89.46	358.09	7,605.87	1,176.24	-45.21	14,550,784.56	1,630,478.12	40.0660432	-105.0355226	
11,134.00	89.93	357.07	7,606.35	1,265.15	-48.97	14,550,873.48	1,630,474.40	40.0662873	-105.0355360	
11,223.00	90.07	356.47	7,606.35	1,354.01	-53.98	14,550,962.34	1,630,469.42	40.0665314	-105.0355539	
11,312.00	89.33	357.03	7,606.81	1,442.87	-59.03	14,551,051.20	1,630,464.41	40.0667754	-105.0355719	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Yellowhammer 30N2-8HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Site:</b>	Yellowhammer 12-8HZ Pad	<b>MD Reference:</b>	GL 5063' & KB 17' @ 5080.00ft (Xtreme 24)
<b>Well:</b>	Yellowhammer 30N2-8HZ	<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
11,401.00	90.47	357.12	7,606.97	1,531.75	-63.57	14,551,140.08	1,630,459.90	40.0670195	-105.0355882
11,490.00	92.35	357.41	7,604.78	1,620.62	-67.81	14,551,228.95	1,630,455.69	40.0672635	-105.0356034
11,578.00	91.37	357.82	7,601.92	1,708.49	-71.47	14,551,316.83	1,630,452.07	40.0675048	-105.0356164
11,667.00	88.02	357.87	7,602.40	1,797.42	-74.82	14,551,405.75	1,630,448.76	40.0677490	-105.0356284
11,756.00	89.20	357.61	7,604.55	1,886.32	-78.33	14,551,494.66	1,630,445.28	40.0679932	-105.0356409
11,845.00	90.84	357.85	7,604.52	1,975.25	-81.85	14,551,583.58	1,630,441.79	40.0682374	-105.0356535
11,934.00	91.17	359.00	7,602.96	2,064.20	-84.30	14,551,672.54	1,630,439.38	40.0684816	-105.0356623
12,023.00	90.07	0.21	7,602.00	2,153.19	-84.91	14,551,761.53	1,630,438.80	40.0687260	-105.0356645
12,112.00	90.30	0.80	7,601.71	2,242.18	-84.13	14,551,850.52	1,630,439.62	40.0689704	-105.0356617
12,200.00	89.63	0.31	7,601.77	2,330.18	-83.28	14,551,938.52	1,630,440.51	40.0692121	-105.0356586
12,289.00	88.42	359.55	7,603.28	2,419.16	-83.38	14,552,027.50	1,630,440.44	40.0694564	-105.0356590
12,378.00	89.73	359.29	7,604.72	2,508.14	-84.29	14,552,116.48	1,630,439.57	40.0697008	-105.0356622
12,467.00	90.81	358.99	7,604.30	2,597.13	-85.62	14,552,205.47	1,630,438.27	40.0699452	-105.0356670
12,555.00	89.90	358.39	7,603.75	2,685.11	-87.63	14,552,293.45	1,630,436.30	40.0701867	-105.0356742
12,644.00	88.43	359.27	7,605.05	2,774.07	-89.45	14,552,382.41	1,630,434.51	40.0704311	-105.0356807
12,733.00	88.02	1.16	7,607.81	2,863.03	-89.12	14,552,471.37	1,630,434.88	40.0706753	-105.0356795
12,821.00	88.73	0.32	7,610.30	2,950.98	-87.98	14,552,559.32	1,630,436.05	40.0709169	-105.0356755
12,910.00	89.83	0.68	7,611.42	3,039.97	-87.20	14,552,648.31	1,630,436.87	40.0711613	-105.0356727
12,999.00	91.11	1.50	7,610.69	3,128.95	-85.51	14,552,737.29	1,630,438.59	40.0714056	-105.0356666
13,088.00	91.04	1.49	7,609.02	3,217.90	-83.19	14,552,826.24	1,630,440.95	40.0716499	-105.0356583
13,119.60	91.18	1.04	7,608.41	3,249.49	-82.49	14,552,857.83	1,630,441.66	40.0717366	-105.0356558
<b>Cross 460' Line : 13119.6' MD &amp; 7608.41' TVD 460' FNL 479' FWL</b>									
13,177.00	91.44	0.22	7,607.09	3,306.87	-81.86	14,552,915.21	1,630,442.31	40.0718942	-105.0356536
13,266.00	91.24	0.90	7,605.01	3,395.84	-80.99	14,553,004.18	1,630,443.22	40.0721385	-105.0356505
13,355.00	89.87	1.32	7,604.15	3,484.82	-79.27	14,553,093.15	1,630,444.98	40.0723829	-105.0356443
13,449.00	91.41	1.75	7,603.10	3,578.77	-76.75	14,553,187.11	1,630,447.53	40.0726409	-105.0356353
<b>Last SDI MWD Survey</b>									
13,522.00	91.41	1.75	7,601.30	3,651.72	-74.52	14,553,260.05	1,630,449.79	40.0728412	-105.0356274
<b>Projection to TD : 58' FNL 488' FWL Sec 8</b>									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
128.00	128.00	-0.02	-0.39	First Total MWD Survey
1,831.00	1,791.63	-272.99	-1.80	Last Total MWD Survey
1,956.00	1,907.64	-319.50	0.11	First SDI MWD Survey
7,297.00	6,859.38	-2,155.49	53.94	Curve KOP
7,386.00	6,947.89	-2,147.06	51.84	First SDI MWD Curve Survey
8,557.00	7,592.78	-1,310.08	4.70	Last SDI MWD Curve Survey
8,630.00	7,596.36	-1,237.25	1.45	Landing Point : 446' FSL 569' FWL Sec 8
8,644.49	7,596.80	-1,222.78	0.72	Cross 460' Line : 8644.49' MD & 7596.8' TVD 460' FSL 568' FWL
8,807.00	7,596.44	-1,060.47	-6.81	First SDI MWD Lateral Survey
13,119.60	7,608.41	3,249.49	-82.49	Cross 460' Line : 13119.6' MD & 7608.41' TVD 460' FNL 479' FWL
13,449.00	7,603.10	3,578.77	-76.75	Last SDI MWD Survey
13,522.00	7,601.30	3,651.72	-74.52	Projection to TD : 58' FNL 488' FWL Sec 8

Checked By: _____	Approved By: _____	Date: _____
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