

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_WETHINGTON PAD**

**Wethington 24-7**

**Wethington 24-7**

**Plan: Wethington 24-7 (wp01)**

## **Standard Planning Report**

**05 May, 2011**



**Weatherford®**

Project: COLORADO NORTHERN ZONE - 83  
Site: WELD\_WETHINGTON PAD  
Well: Wethington 24-7  
Wellbore: Wethington 24-7  
Section:  
SHL:  
Design: Wethington 24-7 (wp01)  
Latitude: 40.068760  
Longitude: -104.820458  
GL: 4902.00  
KB: 15' RKB + 4902' GL @ 4917.00ft

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3307.00	3451.05	PRKM TOP
4637.00	4862.34	SX TOP
5152.00	5408.82	SHN TOP
7107.00	7396.51	NI A TOP
7447.00	7736.51	CDL TOP
7537.00	7826.51	GH TOP
7897.00	8186.51	J TOP



Azimuths to True North  
Magnetic North: 8.88°

Magnetic Field  
Strength: 52962.6snT  
Dip Angle: 66.78°  
Date: 5/3/2011  
Model: IGRF2010

## WELL DETAILS: Wethington 24-7

+N/-S	+E/-W	Northing	Ground Level: Easting	4902.00 Latitude	Longitude	Slot
0.00	0.00	1268623.10	3190182.32	40.068760	-104.820458	

## CASING DETAILS

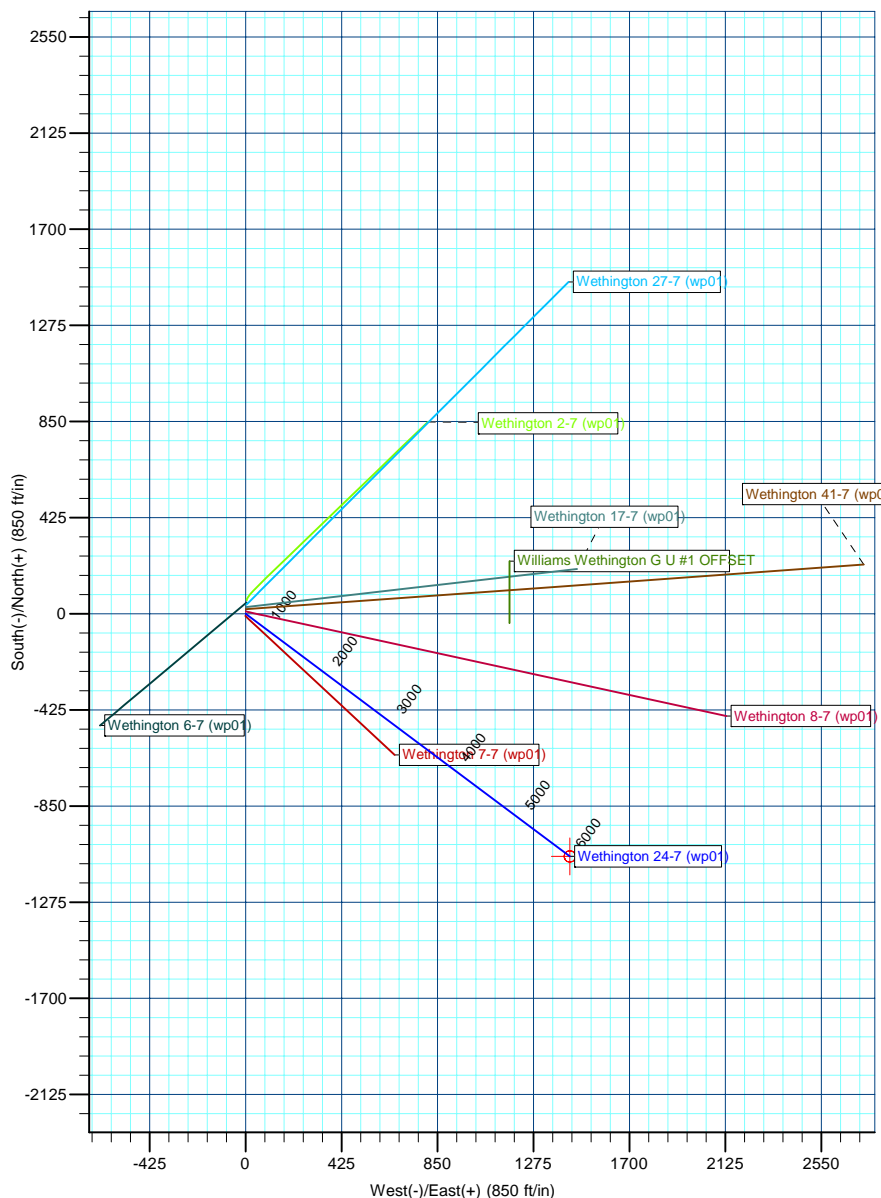
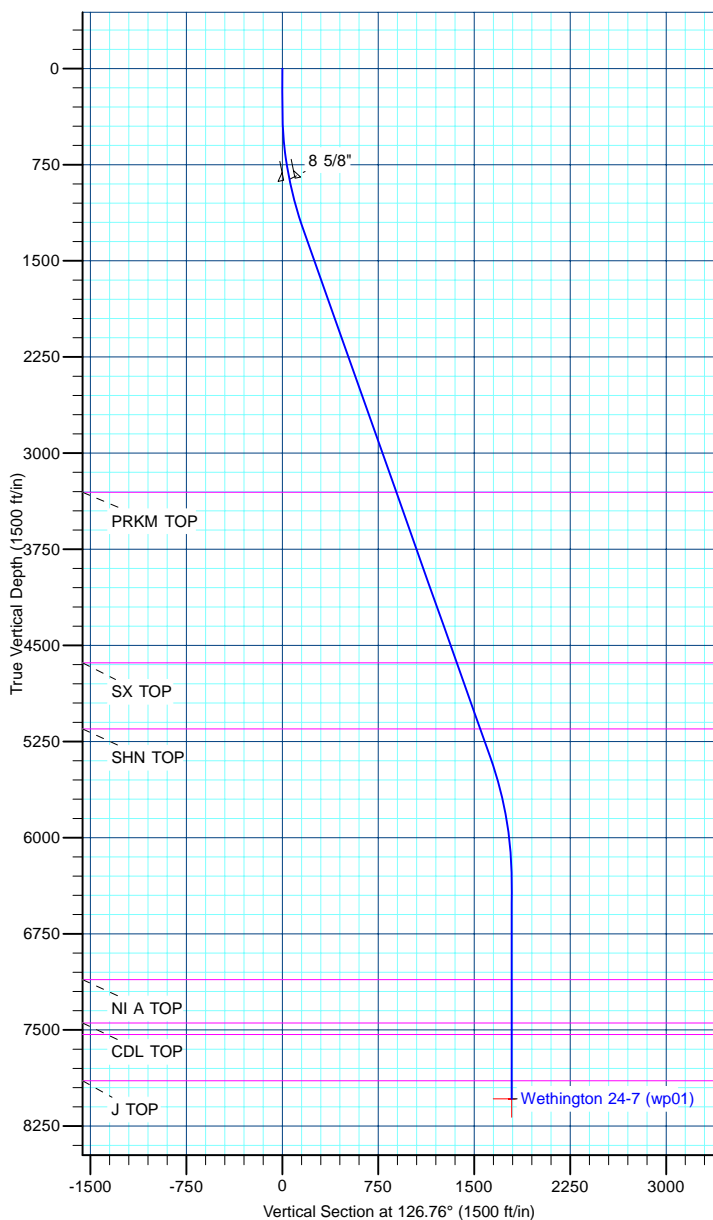
TVD	MD	Name	Size
865.00	868.73	8 5/8"	8-5/8

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Wethington 24-7 BHL	8037.00	-1072.74	1436.08	1267561.39	3191626.58	40.065815	-104.815327	Circle (Radius: 25.00)

## SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00
1277.06	19.54	126.76	1258.23	-98.75	132.20	2.00	126.76	165.01
5649.45	19.54	126.76	5378.77	-973.99	1303.88	0.00	0.00	1627.50
6626.51	0.00	0.00	6337.00	-1072.74	1436.08	2.00	180.00	1792.51
8326.51	0.00	0.00	8037.00	-1072.74	1436.08	0.00	0.00	1792.51



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Wethington 24-7
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Site:</b>	WELD_WETHINGTON PAD	<b>North Reference:</b>	True
<b>Well:</b>	Wethington 24-7	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wethington 24-7		
<b>Design:</b>	Wethington 24-7 (wp01)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<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		

Site		WELD_WETHINGTON PAD			
Site Position:		Northing:	1,268,683.25 ft	Latitude:	40.068925
From:	Lat/Long	Easting:	3,190,186.90 ft	Longitude:	-104.820440
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.44 °

Well	Wethington 24-7					
Well Position	+N-S	-60.12 ft	Northing:	1,268,623.09 ft	Latitude:	40.068760
	+E-W	-5.04 ft	Easting:	3,190,182.32 ft	Longitude:	-104.820458
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,902.00 ft

<b>Wellbore</b>	Wethington 24-7				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	5/3/2011	8.88	66.78	52,963

<b>Design</b>	Wethington 24-7 (wp01)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<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	126.76

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,277.06	19.54	126.76	1,258.23	-98.75	132.20	2.00	2.00	0.00	126.76	
5,649.45	19.54	126.76	5,378.77	-973.99	1,303.88	0.00	0.00	0.00	0.00	
6,626.51	0.00	0.00	6,337.00	-1,072.74	1,436.08	2.00	-2.00	0.00	180.00	
8,326.51	0.00	0.00	8,037.00	-1,072.74	1,436.08	0.00	0.00	0.00	0.00	Wethington 24-7 Bt

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Wethington 24-7
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Site:</b>	WELD_WETHINGTON PAD	<b>North Reference:</b>	True
<b>Well:</b>	Wethington 24-7	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wethington 24-7		
<b>Design:</b>	Wethington 24-7 (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	2.00	126.76	399.98	-1.04	1.40	1.75	2.00	2.00	0.00
500.00	4.00	126.76	499.84	-4.18	5.59	6.98	2.00	2.00	0.00
600.00	6.00	126.76	599.45	-9.39	12.57	15.69	2.00	2.00	0.00
700.00	8.00	126.76	698.70	-16.68	22.34	27.88	2.00	2.00	0.00
800.00	10.00	126.76	797.47	-26.05	34.87	43.52	2.00	2.00	0.00
868.73	11.37	126.76	865.00	-33.67	45.08	56.27	2.00	2.00	0.00
8 5/8"									
900.00	12.00	126.76	895.62	-37.46	50.15	62.60	2.00	2.00	0.00
1,000.00	14.00	126.76	993.06	-50.93	68.18	85.10	2.00	2.00	0.00
1,100.00	16.00	126.76	1,089.64	-66.41	88.91	110.98	2.00	2.00	0.00
1,200.00	18.00	126.76	1,185.27	-83.91	112.33	140.21	2.00	2.00	0.00
1,277.06	19.54	126.76	1,258.23	-98.75	132.20	165.01	2.00	2.00	0.00
1,300.00	19.54	126.76	1,279.85	-103.34	138.34	172.68	0.00	0.00	0.00
1,400.00	19.54	126.76	1,374.09	-123.36	165.14	206.13	0.00	0.00	0.00
1,500.00	19.54	126.76	1,468.33	-143.38	191.94	239.58	0.00	0.00	0.00
1,600.00	19.54	126.76	1,562.57	-163.39	218.74	273.03	0.00	0.00	0.00
1,700.00	19.54	126.76	1,656.81	-183.41	245.53	306.48	0.00	0.00	0.00
1,800.00	19.54	126.76	1,751.05	-203.43	272.33	339.92	0.00	0.00	0.00
1,900.00	19.54	126.76	1,845.29	-223.45	299.13	373.37	0.00	0.00	0.00
2,000.00	19.54	126.76	1,939.53	-243.46	325.93	406.82	0.00	0.00	0.00
2,100.00	19.54	126.76	2,033.77	-263.48	352.72	440.27	0.00	0.00	0.00
2,200.00	19.54	126.76	2,128.01	-283.50	379.52	473.72	0.00	0.00	0.00
2,300.00	19.54	126.76	2,222.25	-303.52	406.32	507.17	0.00	0.00	0.00
2,400.00	19.54	126.76	2,316.49	-323.53	433.12	540.61	0.00	0.00	0.00
2,500.00	19.54	126.76	2,410.73	-343.55	459.91	574.06	0.00	0.00	0.00
2,600.00	19.54	126.76	2,504.97	-363.57	486.71	607.51	0.00	0.00	0.00
2,700.00	19.54	126.76	2,599.21	-383.59	513.51	640.96	0.00	0.00	0.00
2,800.00	19.54	126.76	2,693.45	-403.60	540.31	674.41	0.00	0.00	0.00
2,900.00	19.54	126.76	2,787.69	-423.62	567.10	707.86	0.00	0.00	0.00
3,000.00	19.54	126.76	2,881.93	-443.64	593.90	741.30	0.00	0.00	0.00
3,100.00	19.54	126.76	2,976.17	-463.66	620.70	774.75	0.00	0.00	0.00
3,200.00	19.54	126.76	3,070.41	-483.67	647.50	808.20	0.00	0.00	0.00
3,300.00	19.54	126.76	3,164.65	-503.69	674.29	841.65	0.00	0.00	0.00
3,400.00	19.54	126.76	3,258.89	-523.71	701.09	875.10	0.00	0.00	0.00
3,451.05	19.54	126.76	3,307.00	-533.93	714.77	892.17	0.00	0.00	0.00
PRKM TOP									
3,500.00	19.54	126.76	3,353.13	-543.73	727.89	908.55	0.00	0.00	0.00
3,600.00	19.54	126.76	3,447.37	-563.74	754.68	942.00	0.00	0.00	0.00
3,700.00	19.54	126.76	3,541.61	-583.76	781.48	975.44	0.00	0.00	0.00
3,800.00	19.54	126.76	3,635.85	-603.78	808.28	1,008.89	0.00	0.00	0.00
3,900.00	19.54	126.76	3,730.09	-623.80	835.08	1,042.34	0.00	0.00	0.00
4,000.00	19.54	126.76	3,824.33	-643.81	861.87	1,075.79	0.00	0.00	0.00
4,100.00	19.54	126.76	3,918.57	-663.83	888.67	1,109.24	0.00	0.00	0.00
4,200.00	19.54	126.76	4,012.81	-683.85	915.47	1,142.69	0.00	0.00	0.00
4,300.00	19.54	126.76	4,107.05	-703.87	942.27	1,176.13	0.00	0.00	0.00
4,400.00	19.54	126.76	4,201.29	-723.88	969.06	1,209.58	0.00	0.00	0.00
4,500.00	19.54	126.76	4,295.53	-743.90	995.86	1,243.03	0.00	0.00	0.00
4,600.00	19.54	126.76	4,389.77	-763.92	1,022.66	1,276.48	0.00	0.00	0.00
4,700.00	19.54	126.76	4,484.01	-783.93	1,049.46	1,309.93	0.00	0.00	0.00
4,800.00	19.54	126.76	4,578.25	-803.95	1,076.25	1,343.38	0.00	0.00	0.00

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Site:</b>	WELD_WETHINGTON PAD	<b>North Reference:</b>	True
<b>Well:</b>	Wethington 24-7	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wethington 24-7		
<b>Design:</b>	Wethington 24-7 (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,862.34	19.54	126.76	4,637.00	-816.43	1,092.96	1,364.23	0.00	0.00	0.00
<b>SX TOP</b>									
4,900.00	19.54	126.76	4,672.49	-823.97	1,103.05	1,376.83	0.00	0.00	0.00
5,000.00	19.54	126.76	4,766.73	-843.99	1,129.85	1,410.27	0.00	0.00	0.00
5,100.00	19.54	126.76	4,860.97	-864.00	1,156.65	1,443.72	0.00	0.00	0.00
5,200.00	19.54	126.76	4,955.21	-884.02	1,183.44	1,477.17	0.00	0.00	0.00
5,300.00	19.54	126.76	5,049.45	-904.04	1,210.24	1,510.62	0.00	0.00	0.00
5,400.00	19.54	126.76	5,143.69	-924.06	1,237.04	1,544.07	0.00	0.00	0.00
5,408.82	19.54	126.76	5,152.00	-925.82	1,239.40	1,547.02	0.00	0.00	0.00
<b>SHN TOP</b>									
5,500.00	19.54	126.76	5,237.93	-944.07	1,263.84	1,577.52	0.00	0.00	0.00
5,600.00	19.54	126.76	5,332.17	-964.09	1,290.63	1,610.96	0.00	0.00	0.00
5,649.45	19.54	126.76	5,378.77	-973.99	1,303.88	1,627.50	0.00	0.00	0.00
5,700.00	18.53	126.76	5,426.56	-983.86	1,317.09	1,643.99	2.00	-2.00	0.00
5,800.00	16.53	126.76	5,521.91	-1,001.88	1,341.22	1,674.11	2.00	-2.00	0.00
5,900.00	14.53	126.76	5,618.25	-1,017.90	1,362.67	1,700.88	2.00	-2.00	0.00
6,000.00	12.53	126.76	5,715.47	-1,031.91	1,381.41	1,724.28	2.00	-2.00	0.00
6,100.00	10.53	126.76	5,813.45	-1,043.87	1,397.43	1,744.27	2.00	-2.00	0.00
6,200.00	8.53	126.76	5,912.07	-1,053.77	1,410.69	1,760.82	2.00	-2.00	0.00
6,300.00	6.53	126.76	6,011.20	-1,061.62	1,421.19	1,773.93	2.00	-2.00	0.00
6,400.00	4.53	126.76	6,110.73	-1,067.38	1,428.91	1,783.56	2.00	-2.00	0.00
6,500.00	2.53	126.76	6,210.53	-1,071.07	1,433.84	1,789.72	2.00	-2.00	0.00
6,600.00	0.53	126.76	6,310.49	-1,072.67	1,435.98	1,792.39	2.00	-2.00	0.00
6,626.51	0.00	0.00	6,337.00	-1,072.74	1,436.08	1,792.51	2.00	-2.00	0.00
6,700.00	0.00	0.00	6,410.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
6,800.00	0.00	0.00	6,510.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
6,900.00	0.00	0.00	6,610.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,000.00	0.00	0.00	6,710.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,100.00	0.00	0.00	6,810.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,200.00	0.00	0.00	6,910.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,300.00	0.00	0.00	7,010.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,396.51	0.00	0.00	7,107.00	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
<b>NI A TOP</b>									
7,400.00	0.00	0.00	7,110.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,500.00	0.00	0.00	7,210.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,600.00	0.00	0.00	7,310.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,700.00	0.00	0.00	7,410.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,736.51	0.00	0.00	7,447.00	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
<b>CDL TOP</b>									
7,800.00	0.00	0.00	7,510.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
7,826.51	0.00	0.00	7,537.00	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
<b>GH TOP</b>									
7,900.00	0.00	0.00	7,610.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
8,000.00	0.00	0.00	7,710.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
8,100.00	0.00	0.00	7,810.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
8,186.51	0.00	0.00	7,897.00	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
<b>J TOP</b>									
8,200.00	0.00	0.00	7,910.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
8,300.00	0.00	0.00	8,010.49	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
8,326.51	0.00	0.00	8,037.00	-1,072.74	1,436.08	1,792.51	0.00	0.00	0.00
<b>Wethington 24-7 BHL</b>									

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Wethington 24-7
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4902' GL @ 4917.00ft
<b>Site:</b>	WELD_WETHINGTON PAD	<b>North Reference:</b>	True
<b>Well:</b>	Wethington 24-7	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wethington 24-7		
<b>Design:</b>	Wethington 24-7 (wp01)		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Wethington 24-7 BHL	0.00	0.00	8,037.00	-1,072.74	1,436.08	1,267,561.39	3,191,626.58	40.065815	-104.815327
- plan hits target center									
- Circle (radius 25.00)									

Casing Points					
Measured Depth	Vertical Depth		Name	Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
868.73	865.00	8 5/8"		8-5/8	11

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
3,451.05	3,307.00	PRKM TOP				
4,862.34	4,637.00	SX TOP				
5,408.82	5,152.00	SHN TOP				
7,396.51	7,107.00	NI A TOP				
7,736.51	7,447.00	CDL TOP				
7,826.51	7,537.00	GH TOP				
8,186.51	7,897.00	J TOP		0.00		