

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

THOMASON 18-15 PAD

THOMASON 4-15

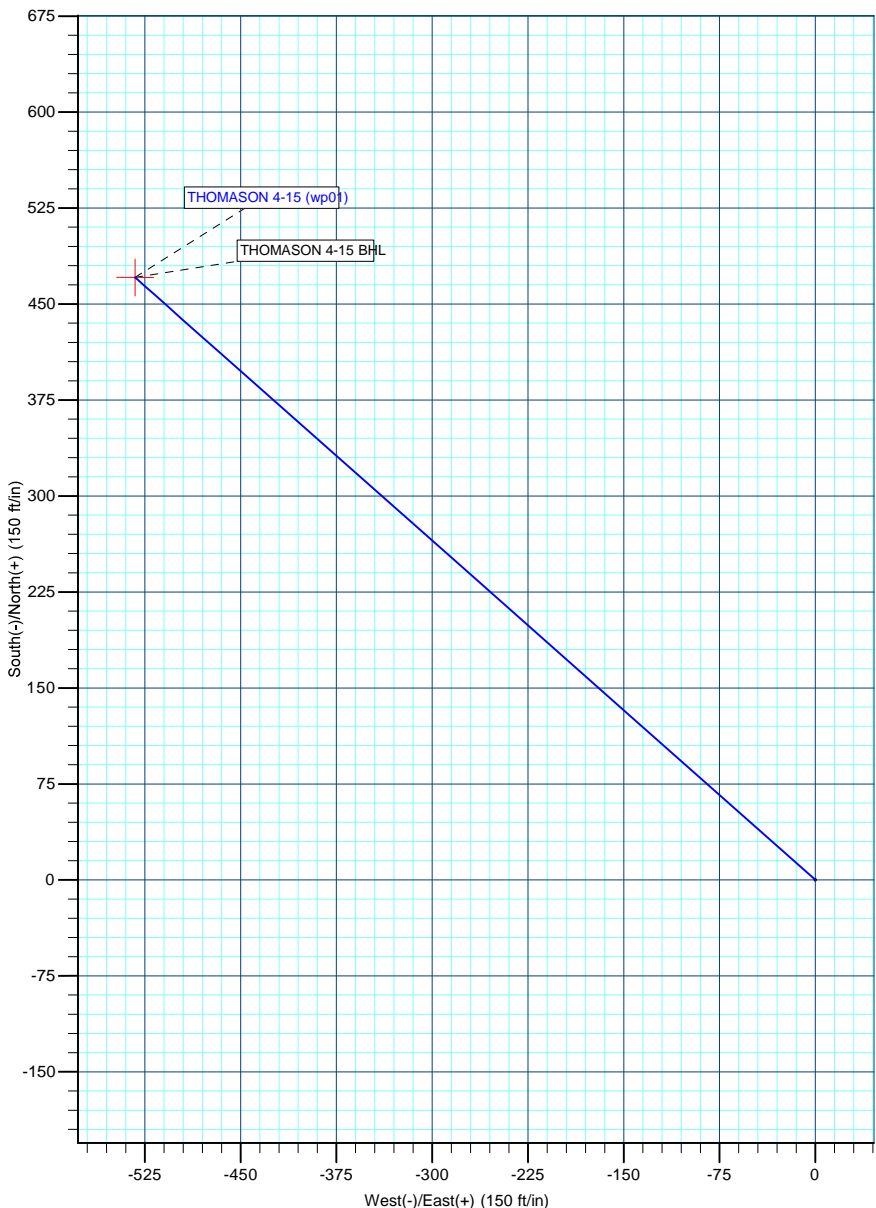
THOMASON 4-15

Plan: THOMASON 4-15 (wp01)

Standard Planning Report

17 December, 2010





Database:	edm5000p	Local Co-ordinate Reference:	Well THOMASON 4-15
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4864.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4864.00ft (Original Well Elev)
Site:	THOMASON 18-15 PAD	North Reference:	True
Well:	THOMASON 4-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 4-15		
Design:	THOMASON 4-15 (wp01)		

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	THOMASON 18-15 PAD				
Site Position:		Northing:	1,296,118.35 ft	Latitude:	40.143156
From:	Lat/Long	Easting:	3,235,973.49 ft	Longitude:	-104.655915
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.55 °

Well	THOMASON 4-15					
Well Position	+N-S	48.08 ft	Northing:	1,296,166.42 ft	Latitude:	40.143288
	+E-W	-0.28 ft	Easting:	3,235,972.75 ft	Longitude:	-104.655916
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,864.00 ft

Wellbore	THOMASON 4-15				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/17/2010	8.85	66.88	53,060

Design	THOMASON 4-15 (wp01)				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)	
	0.00	0.00	0.00	311.47	

Plan Sections										
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	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.44	24.01	311.47	2,165.62	164.13	-185.72	2.00	2.00	0.00	311.47	
2,728.93	24.01	311.47	2,648.39	306.53	-346.84	0.00	0.00	0.00	0.00	
3,929.37	0.00	0.00	3,814.00	470.66	-532.56	2.00	-2.00	0.00	180.00	
7,429.37	0.00	0.00	7,314.00	470.66	-532.56	0.00	0.00	0.00	0.00	THOMASON 4-15 E

Database:	edm5000p	Local Co-ordinate Reference:	Well THOMASON 4-15
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4864.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4864.00ft (Original Well Elev)
Site:	THOMASON 18-15 PAD	North Reference:	True
Well:	THOMASON 4-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 4-15		
Design:	THOMASON 4-15 (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	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	2.00	311.47	1,099.98	1.16	-1.31	1.75	2.00	2.00	0.00
1,200.00	4.00	311.47	1,199.84	4.62	-5.23	6.98	2.00	2.00	0.00
1,300.00	6.00	311.47	1,299.45	10.39	-11.76	15.69	2.00	2.00	0.00
1,400.00	8.00	311.47	1,398.70	18.46	-20.89	27.88	2.00	2.00	0.00
1,500.00	10.00	311.47	1,497.47	28.82	-32.61	43.52	2.00	2.00	0.00
1,600.00	12.00	311.47	1,595.62	41.46	-46.91	62.60	2.00	2.00	0.00
1,700.00	14.00	311.47	1,693.06	56.35	-63.76	85.10	2.00	2.00	0.00
1,800.00	16.00	311.47	1,789.64	73.49	-83.16	110.98	2.00	2.00	0.00
1,900.00	18.00	311.47	1,885.27	92.85	-105.06	140.21	2.00	2.00	0.00
2,000.00	20.00	311.47	1,979.82	114.41	-129.46	172.77	2.00	2.00	0.00
2,100.00	22.00	311.47	2,073.17	138.14	-156.31	208.60	2.00	2.00	0.00
2,200.44	24.01	311.47	2,165.62	164.13	-185.72	247.85	2.00	2.00	0.00
2,300.00	24.01	311.47	2,256.56	190.96	-216.07	288.36	0.00	0.00	0.00
2,400.00	24.01	311.47	2,347.91	217.90	-246.56	329.05	0.00	0.00	0.00
2,500.00	24.01	311.47	2,439.26	244.85	-277.05	369.74	0.00	0.00	0.00
2,600.00	24.01	311.47	2,530.61	271.79	-307.53	410.42	0.00	0.00	0.00
2,700.00	24.01	311.47	2,621.96	298.74	-338.02	451.11	0.00	0.00	0.00
2,728.93	24.01	311.47	2,648.39	306.53	-346.84	462.88	0.00	0.00	0.00
2,800.00	22.59	311.47	2,713.66	325.14	-367.90	490.99	2.00	-2.00	0.00
2,900.00	20.59	311.47	2,806.64	349.51	-395.47	527.78	2.00	-2.00	0.00
3,000.00	18.59	311.47	2,900.85	371.71	-420.59	561.30	2.00	-2.00	0.00
3,100.00	16.59	311.47	2,996.17	391.72	-443.23	591.52	2.00	-2.00	0.00
3,200.00	14.59	311.47	3,092.48	409.51	-463.36	618.39	2.00	-2.00	0.00
3,300.00	12.59	311.47	3,189.68	425.07	-480.97	641.88	2.00	-2.00	0.00
3,400.00	10.59	311.47	3,287.64	438.37	-496.02	661.97	2.00	-2.00	0.00
3,500.00	8.59	311.47	3,386.24	449.40	-508.50	678.62	2.00	-2.00	0.00
3,600.00	6.59	311.47	3,485.36	458.14	-518.39	691.82	2.00	-2.00	0.00
3,700.00	4.59	311.47	3,584.87	464.59	-525.68	701.56	2.00	-2.00	0.00
3,800.00	2.59	311.47	3,684.67	468.73	-530.37	707.82	2.00	-2.00	0.00
3,900.00	0.59	311.47	3,784.63	470.56	-532.45	710.59	2.00	-2.00	0.00
3,929.37	0.00	0.00	3,814.00	470.66	-532.56	710.74	2.00	-2.00	0.00
4,000.00	0.00	0.00	3,884.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,079.37	0.00	0.00	3,964.00	470.66	-532.56	710.74	0.00	0.00	0.00
PK									
4,100.00	0.00	0.00	3,984.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,200.00	0.00	0.00	4,084.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,300.00	0.00	0.00	4,184.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,400.00	0.00	0.00	4,284.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,500.00	0.00	0.00	4,384.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,579.37	0.00	0.00	4,464.00	470.66	-532.56	710.74	0.00	0.00	0.00
SX									

Database:	edm5000p	Local Co-ordinate Reference:	Well THOMASON 4-15
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4864.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4864.00ft (Original Well Elev)
Site:	THOMASON 18-15 PAD	North Reference:	True
Well:	THOMASON 4-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 4-15		
Design:	THOMASON 4-15 (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)
4,600.00	0.00	0.00	4,484.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,700.00	0.00	0.00	4,584.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,800.00	0.00	0.00	4,684.63	470.66	-532.56	710.74	0.00	0.00	0.00
4,900.00	0.00	0.00	4,784.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,000.00	0.00	0.00	4,884.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,100.00	0.00	0.00	4,984.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,200.00	0.00	0.00	5,084.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,300.00	0.00	0.00	5,184.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,400.00	0.00	0.00	5,284.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,500.00	0.00	0.00	5,384.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,600.00	0.00	0.00	5,484.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,700.00	0.00	0.00	5,584.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,800.00	0.00	0.00	5,684.63	470.66	-532.56	710.74	0.00	0.00	0.00
5,900.00	0.00	0.00	5,784.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,000.00	0.00	0.00	5,884.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,100.00	0.00	0.00	5,984.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,200.00	0.00	0.00	6,084.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,300.00	0.00	0.00	6,184.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,400.00	0.00	0.00	6,284.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,500.00	0.00	0.00	6,384.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,600.00	0.00	0.00	6,484.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,700.00	0.00	0.00	6,584.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,800.00	0.00	0.00	6,684.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,900.00	0.00	0.00	6,784.63	470.66	-532.56	710.74	0.00	0.00	0.00
6,984.37	0.00	0.00	6,869.00	470.66	-532.56	710.74	0.00	0.00	0.00
NIO									
7,000.00	0.00	0.00	6,884.63	470.66	-532.56	710.74	0.00	0.00	0.00
7,100.00	0.00	0.00	6,984.63	470.66	-532.56	710.74	0.00	0.00	0.00
7,200.00	0.00	0.00	7,084.63	470.66	-532.56	710.74	0.00	0.00	0.00
7,269.37	0.00	0.00	7,154.00	470.66	-532.56	710.74	0.00	0.00	0.00
CD									
7,300.00	0.00	0.00	7,184.63	470.66	-532.56	710.74	0.00	0.00	0.00
7,352.37	0.00	0.00	7,237.00	470.66	-532.56	710.74	0.00	0.00	0.00
GH									
7,400.00	0.00	0.00	7,284.63	470.66	-532.56	710.74	0.00	0.00	0.00
7,429.37	0.00	0.00	7,314.00	470.66	-532.56	710.74	0.00	0.00	0.00
THOMASON 4-15 BHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
THOMASON 4-15 BH - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	7,314.00	470.66	-532.56	1,296,631.99	3,235,435.73	40.144580	-104.657821

Database:	edm5000p	Local Co-ordinate Reference:	Well THOMASON 4-15
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4864.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4864.00ft (Original Well Elev)
Site:	THOMASON 18-15 PAD	North Reference:	True
Well:	THOMASON 4-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 4-15		
Design:	THOMASON 4-15 (wp01)		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
900.00	900.00	9 5/8"	9-5/8	12-1/4

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,079.37	3,964.00	PK		0.00	
4,579.37	4,464.00	SX		0.00	
6,984.37	6,869.00	NIO		0.00	
7,269.37	7,154.00	CD		0.00	
7,352.37	7,237.00	GH		0.00	