

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_THOMASON 18-15 PAD

THOMASON 31-15

THOMASON 31-15

Plan: THOMASON 31-15 (wp01)

Standard Planning Report

20 December, 2010



Weatherford®

Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_THOMASON 18-15 PAD
 Well: THOMASON 31-15
 Wellbore: THOMASON 31-15
 Section:
 SHL:
 Design: THOMASON 31-15 (wp01)
 Latitude: 40.143244
 Longitude: -104.655916

T M



Azimuths to True North
 Magnetic North: 8.85°
 Magnetic Field
 Strength: 53060.0snT
 Dip Angle: 66.88°
 Date: 12/17/2010
 Model: IGRF2010



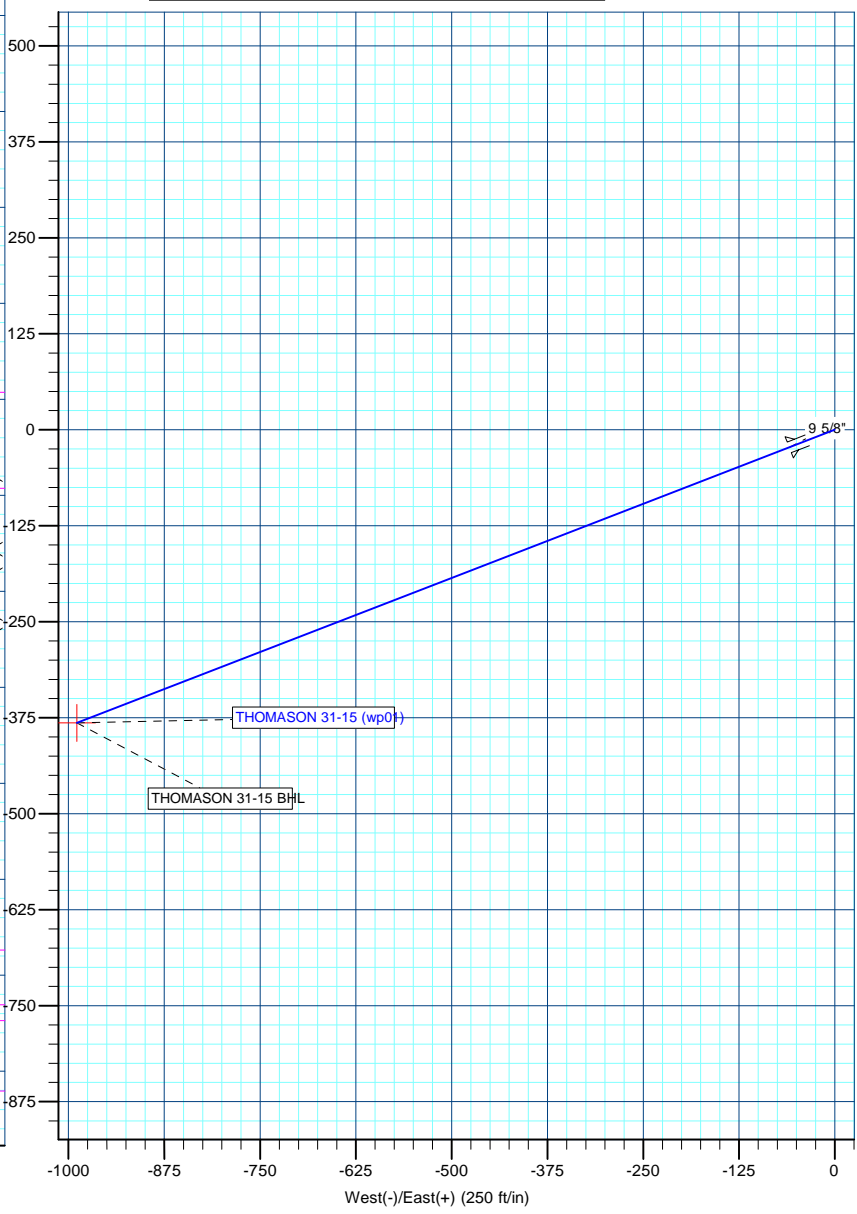
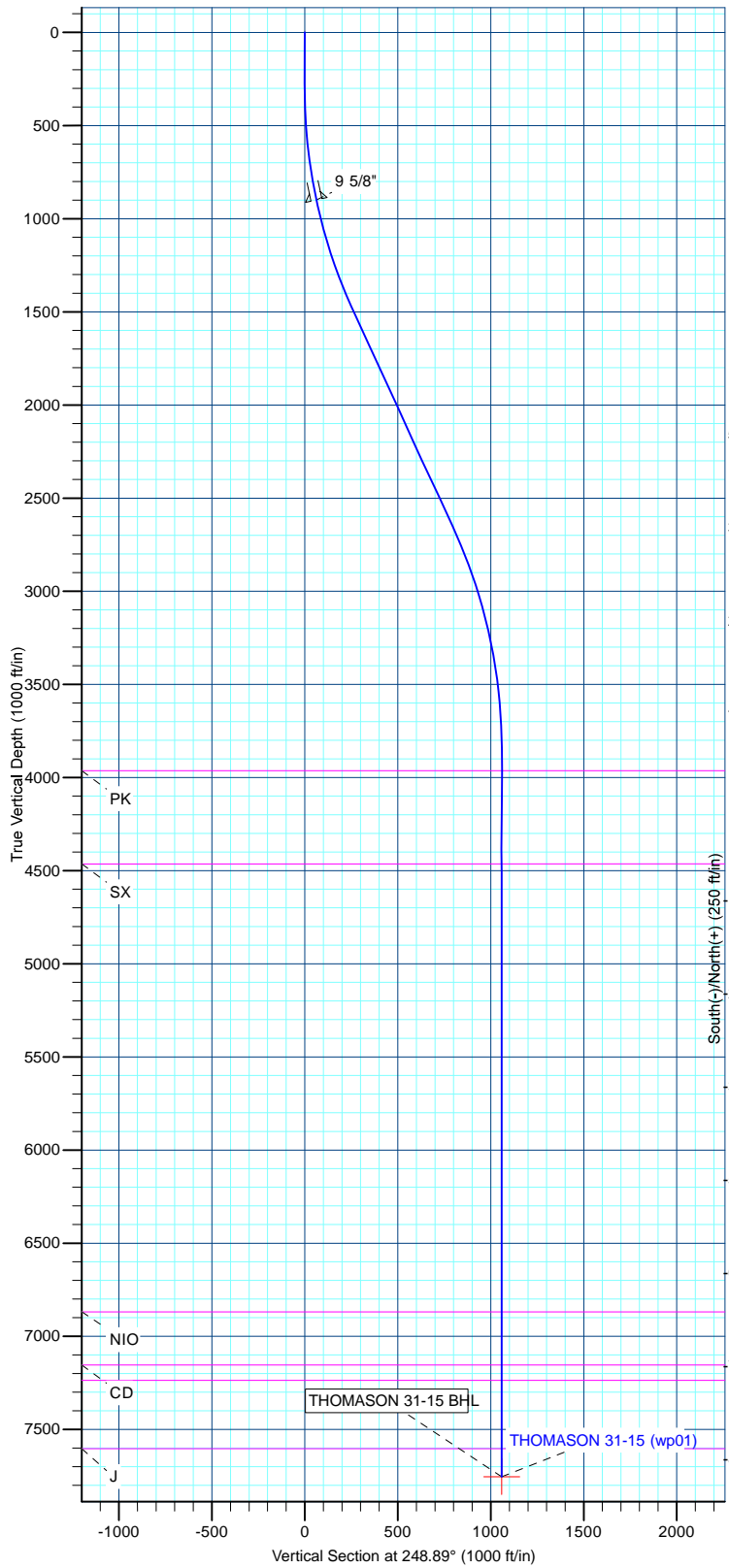
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3964.00	4157.56	PK
4464.00	4657.56	SX
6869.00	7062.56	NIO
7154.00	7347.56	CD
7237.00	7430.56	GH
7604.00	7797.56	J

WELL DETAILS: THOMASON 31-15						
+N/-S	+E/-W	Northing	Ground Level: Easting	4864.00 Latitude	Longitude	Slot
0.00	0.00	1296150.39	3235972.90	40.143244	-104.655916	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
THOMASON 31-15 BHL	7754.00	-381.74	-988.84	40.142196	-104.659453	Point

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
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	
1539.72	24.79	248.89	1501.38	-95.11	-246.36	2.00	248.89	264.08	
2807.85	24.79	248.89	2652.62	-286.63	-742.48	0.00	0.00	795.88	
4047.56	0.00	0.00	3854.00	-381.74	-988.84	2.00	180.00	1059.96	
7947.56	0.00	0.00	7754.00	-381.74	-988.84	0.00	0.00	1059.96	THOMASON 31-15 BHL

CASING DETAILS			
TVD	MD	Name	Size
900.00	904.48	9 5/8"	9-5/8



Database:	edm5000p	Local Co-ordinate Reference:	Well THOMASON 31-15
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:	WELD_THOMASON 18-15 PAD	North Reference:	True
Well:	THOMASON 31-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 31-15		
Design:	THOMASON 31-15 (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	WELD_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 31-15					
Well Position	+N-S	32.05 ft	Northing:	1,296,150.39 ft	Latitude:	40.143244
	+E-W	-0.28 ft	Easting:	3,235,972.90 ft	Longitude:	-104.655916
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,864.00 ft

Wellbore	THOMASON 31-15				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/17/2010	8.85	66.88	53,060

Design	THOMASON 31-15 (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	248.89

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,539.72	24.79	248.89	1,501.38	-95.11	-246.36	2.00	2.00	0.00	248.89	
2,807.85	24.79	248.89	2,652.62	-286.63	-742.48	0.00	0.00	0.00	0.00	
4,047.56	0.00	0.00	3,854.00	-381.74	-988.84	2.00	-2.00	0.00	180.00	
7,947.56	0.00	0.00	7,754.00	-381.74	-988.84	0.00	0.00	0.00	0.00	THOMASON 31-15

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4864.00ft (Original Well Elev)
Site:	WELD_THOMASON 18-15 PAD	North Reference:	True
Well:	THOMASON 31-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 31-15		
Design:	THOMASON 31-15 (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	2.00	248.89	399.98	-0.63	-1.63	1.75	2.00	2.00	0.00
500.00	4.00	248.89	499.84	-2.51	-6.51	6.98	2.00	2.00	0.00
600.00	6.00	248.89	599.45	-5.65	-14.64	15.69	2.00	2.00	0.00
700.00	8.00	248.89	698.70	-10.04	-26.01	27.88	2.00	2.00	0.00
800.00	10.00	248.89	797.47	-15.67	-40.60	43.52	2.00	2.00	0.00
900.00	12.00	248.89	895.62	-22.55	-58.40	62.60	2.00	2.00	0.00
904.48	12.09	248.89	900.00	-22.88	-59.27	63.54	2.00	2.00	0.00
9 5/8"									
1,000.00	14.00	248.89	993.06	-30.65	-79.39	85.10	2.00	2.00	0.00
1,100.00	16.00	248.89	1,089.64	-39.97	-103.53	110.98	2.00	2.00	0.00
1,200.00	18.00	248.89	1,185.27	-50.50	-130.80	140.21	2.00	2.00	0.00
1,300.00	20.00	248.89	1,279.82	-62.22	-161.17	172.77	2.00	2.00	0.00
1,400.00	22.00	248.89	1,373.17	-75.13	-194.61	208.60	2.00	2.00	0.00
1,500.00	24.00	248.89	1,465.21	-89.20	-231.05	247.67	2.00	2.00	0.00
1,539.72	24.79	248.89	1,501.38	-95.11	-246.36	264.08	2.00	2.00	0.00
1,600.00	24.79	248.89	1,556.11	-104.21	-269.94	289.36	0.00	0.00	0.00
1,700.00	24.79	248.89	1,646.89	-119.31	-309.07	331.30	0.00	0.00	0.00
1,800.00	24.79	248.89	1,737.67	-134.42	-348.19	373.23	0.00	0.00	0.00
1,900.00	24.79	248.89	1,828.46	-149.52	-387.31	415.17	0.00	0.00	0.00
2,000.00	24.79	248.89	1,919.24	-164.62	-426.43	457.10	0.00	0.00	0.00
2,100.00	24.79	248.89	2,010.02	-179.73	-465.55	499.04	0.00	0.00	0.00
2,200.00	24.79	248.89	2,100.80	-194.83	-504.68	540.98	0.00	0.00	0.00
2,300.00	24.79	248.89	2,191.58	-209.93	-543.80	582.91	0.00	0.00	0.00
2,400.00	24.79	248.89	2,282.37	-225.03	-582.92	624.85	0.00	0.00	0.00
2,500.00	24.79	248.89	2,373.15	-240.14	-622.04	666.79	0.00	0.00	0.00
2,600.00	24.79	248.89	2,463.93	-255.24	-661.16	708.72	0.00	0.00	0.00
2,700.00	24.79	248.89	2,554.71	-270.34	-700.29	750.66	0.00	0.00	0.00
2,807.85	24.79	248.89	2,652.62	-286.63	-742.48	795.88	0.00	0.00	0.00
2,900.00	22.95	248.89	2,736.88	-300.06	-777.27	833.18	2.00	-2.00	0.00
3,000.00	20.95	248.89	2,829.63	-313.52	-812.14	870.56	2.00	-2.00	0.00
3,100.00	18.95	248.89	2,923.62	-325.81	-843.97	904.68	2.00	-2.00	0.00
3,200.00	16.95	248.89	3,018.75	-336.91	-872.72	935.50	2.00	-2.00	0.00
3,300.00	14.95	248.89	3,114.89	-346.81	-898.36	962.98	2.00	-2.00	0.00
3,400.00	12.95	248.89	3,211.94	-355.49	-920.85	987.09	2.00	-2.00	0.00
3,500.00	10.95	248.89	3,309.77	-362.95	-940.17	1,007.79	2.00	-2.00	0.00
3,600.00	8.95	248.89	3,408.26	-369.17	-956.29	1,025.07	2.00	-2.00	0.00
3,700.00	6.95	248.89	3,507.29	-374.15	-969.19	1,038.91	2.00	-2.00	0.00
3,800.00	4.95	248.89	3,606.75	-377.89	-978.86	1,049.27	2.00	-2.00	0.00
3,900.00	2.95	248.89	3,706.50	-380.37	-985.29	1,056.16	2.00	-2.00	0.00
4,000.00	0.95	248.89	3,806.44	-381.60	-988.47	1,059.57	2.00	-2.00	0.00
4,047.56	0.00	0.00	3,854.00	-381.74	-988.84	1,059.96	2.00	-2.00	0.00
4,100.00	0.00	0.00	3,906.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,157.56	0.00	0.00	3,964.00	-381.74	-988.84	1,059.96	0.00	0.00	0.00
PK									
4,200.00	0.00	0.00	4,006.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,300.00	0.00	0.00	4,106.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,400.00	0.00	0.00	4,206.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,500.00	0.00	0.00	4,306.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,600.00	0.00	0.00	4,406.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,657.56	0.00	0.00	4,464.00	-381.74	-988.84	1,059.96	0.00	0.00	0.00

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Well:	THOMASON 31-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 31-15		
Design:	THOMASON 31-15 (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)
SX									
4,700.00	0.00	0.00	4,506.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,800.00	0.00	0.00	4,606.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
4,900.00	0.00	0.00	4,706.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,000.00	0.00	0.00	4,806.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,100.00	0.00	0.00	4,906.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,200.00	0.00	0.00	5,006.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,300.00	0.00	0.00	5,106.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,400.00	0.00	0.00	5,206.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,500.00	0.00	0.00	5,306.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,600.00	0.00	0.00	5,406.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,700.00	0.00	0.00	5,506.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,800.00	0.00	0.00	5,606.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
5,900.00	0.00	0.00	5,706.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,000.00	0.00	0.00	5,806.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,100.00	0.00	0.00	5,906.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,200.00	0.00	0.00	6,006.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,300.00	0.00	0.00	6,106.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,400.00	0.00	0.00	6,206.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,500.00	0.00	0.00	6,306.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,600.00	0.00	0.00	6,406.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,700.00	0.00	0.00	6,506.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,800.00	0.00	0.00	6,606.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
6,900.00	0.00	0.00	6,706.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,000.00	0.00	0.00	6,806.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,062.56	0.00	0.00	6,869.00	-381.74	-988.84	1,059.96	0.00	0.00	0.00
NIO									
7,100.00	0.00	0.00	6,906.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,200.00	0.00	0.00	7,006.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,300.00	0.00	0.00	7,106.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,347.56	0.00	0.00	7,154.00	-381.74	-988.84	1,059.96	0.00	0.00	0.00
CD									
7,400.00	0.00	0.00	7,206.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,430.56	0.00	0.00	7,237.00	-381.74	-988.84	1,059.96	0.00	0.00	0.00
GH									
7,500.00	0.00	0.00	7,306.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,600.00	0.00	0.00	7,406.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,700.00	0.00	0.00	7,506.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,797.56	0.00	0.00	7,604.00	-381.74	-988.84	1,059.96	0.00	0.00	0.00
J									
7,800.00	0.00	0.00	7,606.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,900.00	0.00	0.00	7,706.44	-381.74	-988.84	1,059.96	0.00	0.00	0.00
7,947.56	0.00	0.00	7,754.00	-381.74	-988.84	1,059.96	0.00	0.00	0.00
THOMASON 31-15 BHL									

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4864.00ft (Original Well Elev)
Site:	WELD_THOMASON 18-15 PAD	North Reference:	True
Well:	THOMASON 31-15	Survey Calculation Method:	Minimum Curvature
Wellbore:	THOMASON 31-15		
Design:	THOMASON 31-15 (wp01)		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
THOMASON 31-15 BI - plan hits target center - Point	0.00	0.00	7,754.00	-381.74	-988.84	1,295,759.26	3,234,987.75	40.142196	-104.659453

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
904.48	900.00	9 5/8"	9-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,157.56	3,964.00	PK		0.00	
4,657.56	4,464.00	SX		0.00	
7,062.56	6,869.00	NIO		0.00	
7,347.56	7,154.00	CD		0.00	
7,430.56	7,237.00	GH		0.00	
7,797.56	7,604.00	J		0.00	