

ENSIGN

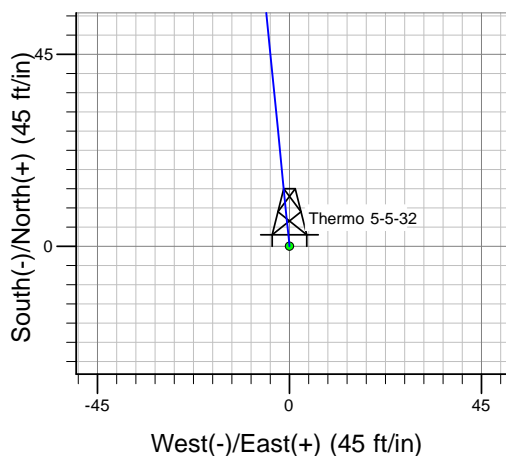
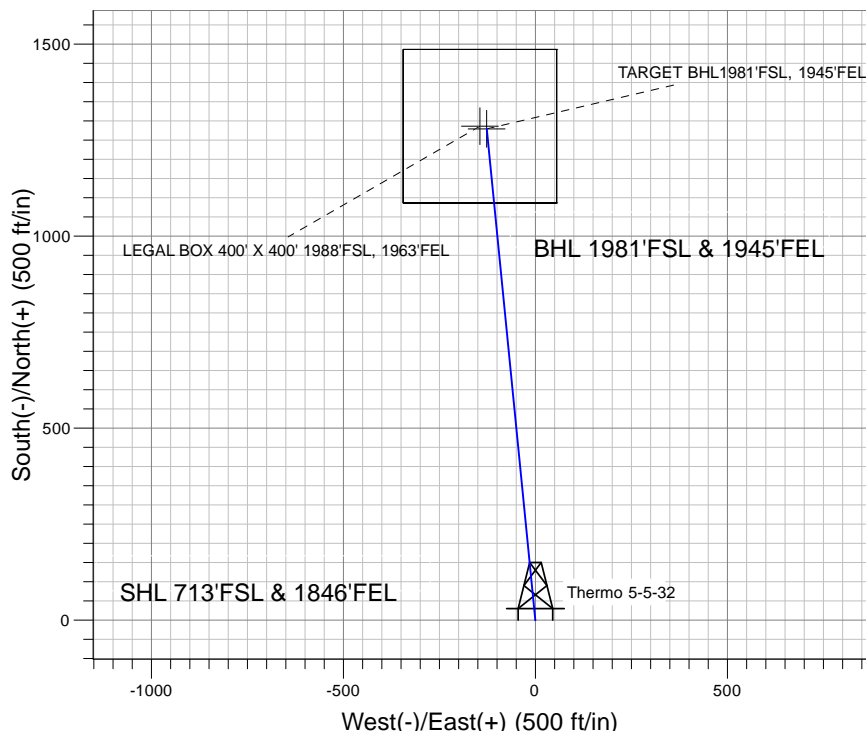
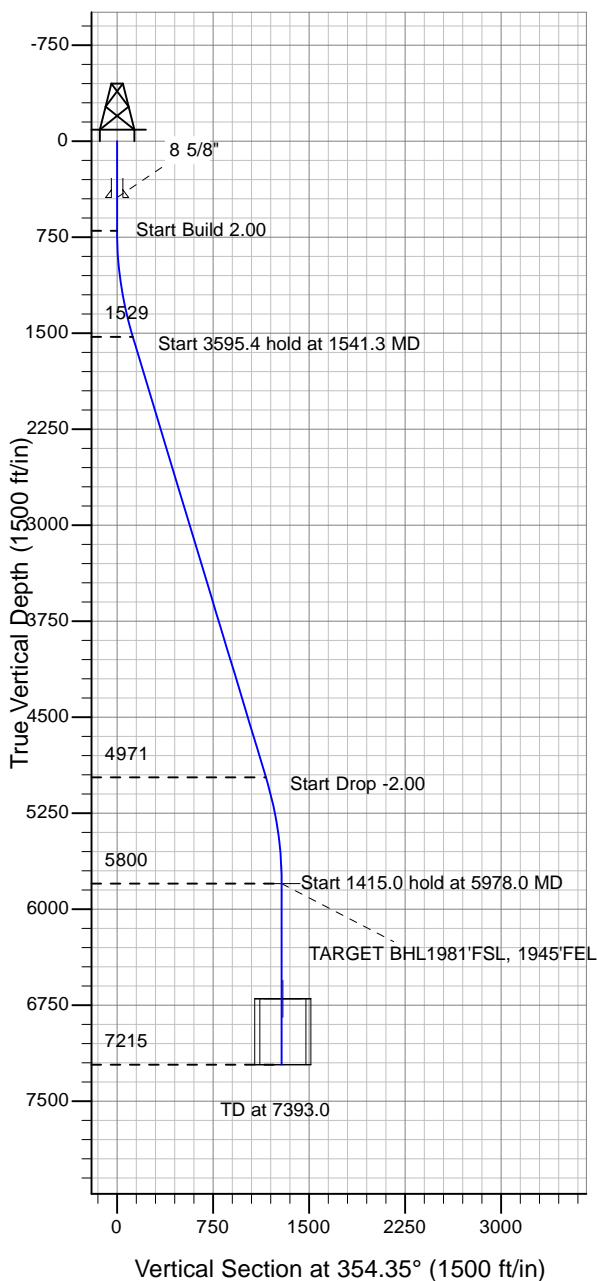
Directional

Well Name: Thermo 5-5-32

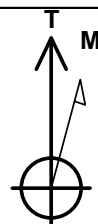
Surface Location: Thermo 5-5-32 Pad Sec.32-T6N-R65W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4641.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1403628.98 3227038.67 40° 26' 18.589 N 104° 41' 3.610 W
 Original Well Elev WELL @ 4654.0ft (Original Well Elev)

Mineral Resources Inc



Thermo 5-5-32 Pad Sec.32-T6N-R65W
 Thermo 5-5-32
 Plan #2 (8-19-10)
 13:45, August 19 2010



Azimuths to True North
 Magnetic North: 8.94°

Magnetic Field
 Strength: 53248.7snT
 Dip Angle: 67.12°
 Date: 8/19/2010
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL1981'FSL, 1945'FEL	5800.0	1279.8	-126.6	40° 26' 31.235 N	104° 41' 5.247 W	Point
LEGAL BOX 400' X 400' 1988'FSL, 1963'FEL	6700.0	1286.8	-144.6	40° 26' 31.305 N	104° 41' 5.480 W	Rectangle (Sides: L400.0 W400.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	
3	1541.3	16.83	354.35	1529.3	122.0	-12.1	2.00	354.35	122.6	
4	5136.7	16.83	354.35	4970.7	1157.7	-114.5	0.00	0.00	1163.4	
5	5978.0	0.00	0.00	5800.0	1279.8	-126.6	2.00	180.00	1286.0	TARGET BHL1981'FSL, 1945'FEL
6	7393.0	0.00	0.00	7215.0	1279.8	-126.6	0.00	0.00	1286.0	



Mineral Resources Inc

SEC.32-T6N-R65W

Thermo 5-5-32 Pad Sec.32-T6N-R65W

Thermo 5-5-32

Wellbore #1

Plan: Plan #2 (8-19-10)

Standard Planning Report

19 August, 2010

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Thermo 5-5-32
Company:	Mineral Resources Inc	TVD Reference:	WELL @ 4654.0ft (Original Well Elev)
Project:	SEC.32-T6N-R65W	MD Reference:	WELL @ 4654.0ft (Original Well Elev)
Site:	Thermo 5-5-32 Pad Sec.32-T6N-R65W	North Reference:	True
Well:	Thermo 5-5-32	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (8-19-10)		

Project	SEC.32-T6N-R65W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Thermo 5-5-32 Pad Sec.32-T6N-R65W					
Site Position:		Northing:		Latitude:	
From:	Lat/Long	Easting:	1,403,628.99 ft	Longitude:	40° 26' 18.589 N
Position Uncertainty:	0.0 ft	Slot Radius:	3,227,038.67 ft		104° 41' 3.610 W
			"	Grid Convergence:	0.53 °

Well	Thermo 5-5-32				
Well Position	+N-S	0.0 ft	Northing:	1,403,628.98 ft	Latitude: 40° 26' 18.589 N
	+E-W	0.0 ft	Easting:	3,227,038.67 ft	Longitude: 104° 41' 3.610 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level: 4,641.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/19/2010	8.94	67.12	53,249

Design	Plan #2 (8-19-10)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	354.35

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,541.3	16.83	354.35	1,529.3	122.0	-12.1	2.00	2.00	0.00	354.35	
5,136.7	16.83	354.35	4,970.7	1,157.7	-114.5	0.00	0.00	0.00	0.00	
5,978.0	0.00	0.00	5,800.0	1,279.8	-126.6	2.00	-2.00	0.00	180.00	TARGET BHL1981°
7,393.0	0.00	0.00	7,215.0	1,279.8	-126.6	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Thermo 5-5-32
Company:	Mineral Resources Inc	TVD Reference:	WELL @ 4654.0ft (Original Well Elev)
Project:	SEC.32-T6N-R65W	MD Reference:	WELL @ 4654.0ft (Original Well Elev)
Site:	Thermo 5-5-32 Pad Sec.32-T6N-R65W	North Reference:	True
Well:	Thermo 5-5-32	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (8-19-10)		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.40	354.35	720.0	0.1	0.0	0.1	2.00	2.00	0.00
760.0	1.20	354.35	760.0	0.6	-0.1	0.6	2.00	2.00	0.00
800.0	2.00	354.35	800.0	1.7	-0.2	1.7	2.00	2.00	0.00
840.0	2.80	354.35	839.9	3.4	-0.3	3.4	2.00	2.00	0.00
880.0	3.60	354.35	879.9	5.6	-0.6	5.7	2.00	2.00	0.00
920.0	4.40	354.35	919.8	8.4	-0.8	8.4	2.00	2.00	0.00
960.0	5.20	354.35	959.6	11.7	-1.2	11.8	2.00	2.00	0.00
1,000.0	6.00	354.35	999.5	15.6	-1.5	15.7	2.00	2.00	0.00
1,040.0	6.80	354.35	1,039.2	20.1	-2.0	20.2	2.00	2.00	0.00
1,080.0	7.60	354.35	1,078.9	25.0	-2.5	25.2	2.00	2.00	0.00
1,120.0	8.40	354.35	1,118.5	30.6	-3.0	30.7	2.00	2.00	0.00
1,160.0	9.20	354.35	1,158.0	36.7	-3.6	36.9	2.00	2.00	0.00
1,200.0	10.00	354.35	1,197.5	43.3	-4.3	43.5	2.00	2.00	0.00
1,240.0	10.80	354.35	1,236.8	50.5	-5.0	50.7	2.00	2.00	0.00
1,280.0	11.60	354.35	1,276.0	58.2	-5.8	58.5	2.00	2.00	0.00
1,320.0	12.40	354.35	1,315.2	66.5	-6.6	66.8	2.00	2.00	0.00
1,360.0	13.20	354.35	1,354.2	75.3	-7.5	75.7	2.00	2.00	0.00
1,400.0	14.00	354.35	1,393.1	84.7	-8.4	85.1	2.00	2.00	0.00
1,440.0	14.80	354.35	1,431.8	94.6	-9.4	95.0	2.00	2.00	0.00
1,480.0	15.60	354.35	1,470.4	105.0	-10.4	105.5	2.00	2.00	0.00
1,520.0	16.40	354.35	1,508.8	116.0	-11.5	116.6	2.00	2.00	0.00
1,541.3	16.83	354.35	1,529.3	122.0	-12.1	122.6	2.00	2.00	0.00
1,560.0	16.83	354.35	1,547.2	127.4	-12.6	128.1	0.00	0.00	0.00
1,600.0	16.83	354.35	1,585.4	139.0	-13.7	139.6	0.00	0.00	0.00
1,640.0	16.83	354.35	1,623.7	150.5	-14.9	151.2	0.00	0.00	0.00
1,680.0	16.83	354.35	1,662.0	162.0	-16.0	162.8	0.00	0.00	0.00
1,720.0	16.83	354.35	1,700.3	173.5	-17.2	174.4	0.00	0.00	0.00
1,760.0	16.83	354.35	1,738.6	185.0	-18.3	186.0	0.00	0.00	0.00
1,800.0	16.83	354.35	1,776.9	196.6	-19.4	197.5	0.00	0.00	0.00
1,840.0	16.83	354.35	1,815.2	208.1	-20.6	209.1	0.00	0.00	0.00
1,880.0	16.83	354.35	1,853.5	219.6	-21.7	220.7	0.00	0.00	0.00
1,920.0	16.83	354.35	1,891.7	231.1	-22.9	232.3	0.00	0.00	0.00
1,960.0	16.83	354.35	1,930.0	242.7	-24.0	243.8	0.00	0.00	0.00
2,000.0	16.83	354.35	1,968.3	254.2	-25.1	255.4	0.00	0.00	0.00

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Company:	Mineral Resources Inc	TVD Reference:	WELL @ 4654.0ft (Original Well Elev)
Project:	SEC.32-T6N-R65W	MD Reference:	WELL @ 4654.0ft (Original Well Elev)
Site:	Thermo 5-5-32 Pad Sec.32-T6N-R65W	North Reference:	True
Well:	Thermo 5-5-32	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (8-19-10)		

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)	
2,040.0	16.83	354.35	2,006.6	265.7	-26.3	267.0	0.00	0.00	0.00	
2,080.0	16.83	354.35	2,044.9	277.2	-27.4	278.6	0.00	0.00	0.00	
2,120.0	16.83	354.35	2,083.2	288.7	-28.6	290.2	0.00	0.00	0.00	
2,160.0	16.83	354.35	2,121.5	300.3	-29.7	301.7	0.00	0.00	0.00	
2,200.0	16.83	354.35	2,159.8	311.8	-30.8	313.3	0.00	0.00	0.00	
2,240.0	16.83	354.35	2,198.0	323.3	-32.0	324.9	0.00	0.00	0.00	
2,280.0	16.83	354.35	2,236.3	334.8	-33.1	336.5	0.00	0.00	0.00	
2,320.0	16.83	354.35	2,274.6	346.4	-34.3	348.1	0.00	0.00	0.00	
2,360.0	16.83	354.35	2,312.9	357.9	-35.4	359.6	0.00	0.00	0.00	
2,400.0	16.83	354.35	2,351.2	369.4	-36.5	371.2	0.00	0.00	0.00	
2,440.0	16.83	354.35	2,389.5	380.9	-37.7	382.8	0.00	0.00	0.00	
2,480.0	16.83	354.35	2,427.8	392.4	-38.8	394.4	0.00	0.00	0.00	
2,520.0	16.83	354.35	2,466.1	404.0	-40.0	405.9	0.00	0.00	0.00	
2,560.0	16.83	354.35	2,504.3	415.5	-41.1	417.5	0.00	0.00	0.00	
2,600.0	16.83	354.35	2,542.6	427.0	-42.2	429.1	0.00	0.00	0.00	
2,640.0	16.83	354.35	2,580.9	438.5	-43.4	440.7	0.00	0.00	0.00	
2,680.0	16.83	354.35	2,619.2	450.1	-44.5	452.3	0.00	0.00	0.00	
2,720.0	16.83	354.35	2,657.5	461.6	-45.7	463.8	0.00	0.00	0.00	
2,760.0	16.83	354.35	2,695.8	473.1	-46.8	475.4	0.00	0.00	0.00	
2,800.0	16.83	354.35	2,734.1	484.6	-47.9	487.0	0.00	0.00	0.00	
2,840.0	16.83	354.35	2,772.4	496.2	-49.1	498.6	0.00	0.00	0.00	
2,880.0	16.83	354.35	2,810.6	507.7	-50.2	510.2	0.00	0.00	0.00	
2,920.0	16.83	354.35	2,848.9	519.2	-51.4	521.7	0.00	0.00	0.00	
2,960.0	16.83	354.35	2,887.2	530.7	-52.5	533.3	0.00	0.00	0.00	
3,000.0	16.83	354.35	2,925.5	542.2	-53.6	544.9	0.00	0.00	0.00	
3,040.0	16.83	354.35	2,963.8	553.8	-54.8	556.5	0.00	0.00	0.00	
3,080.0	16.83	354.35	3,002.1	565.3	-55.9	568.0	0.00	0.00	0.00	
3,120.0	16.83	354.35	3,040.4	576.8	-57.1	579.6	0.00	0.00	0.00	
3,160.0	16.83	354.35	3,078.7	588.3	-58.2	591.2	0.00	0.00	0.00	
3,200.0	16.83	354.35	3,116.9	599.9	-59.3	602.8	0.00	0.00	0.00	
3,240.0	16.83	354.35	3,155.2	611.4	-60.5	614.4	0.00	0.00	0.00	
3,280.0	16.83	354.35	3,193.5	622.9	-61.6	625.9	0.00	0.00	0.00	
3,320.0	16.83	354.35	3,231.8	634.4	-62.8	637.5	0.00	0.00	0.00	
3,360.0	16.83	354.35	3,270.1	645.9	-63.9	649.1	0.00	0.00	0.00	
3,400.0	16.83	354.35	3,308.4	657.5	-65.0	660.7	0.00	0.00	0.00	
3,440.0	16.83	354.35	3,346.7	669.0	-66.2	672.3	0.00	0.00	0.00	
3,480.0	16.83	354.35	3,385.0	680.5	-67.3	683.8	0.00	0.00	0.00	
3,520.0	16.83	354.35	3,423.2	692.0	-68.5	695.4	0.00	0.00	0.00	
3,560.0	16.83	354.35	3,461.5	703.6	-69.6	707.0	0.00	0.00	0.00	
3,600.0	16.83	354.35	3,499.8	715.1	-70.7	718.6	0.00	0.00	0.00	
3,640.0	16.83	354.35	3,538.1	726.6	-71.9	730.1	0.00	0.00	0.00	
3,680.0	16.83	354.35	3,576.4	738.1	-73.0	741.7	0.00	0.00	0.00	
3,720.0	16.83	354.35	3,614.7	749.6	-74.2	753.3	0.00	0.00	0.00	
3,760.0	16.83	354.35	3,653.0	761.2	-75.3	764.9	0.00	0.00	0.00	
3,800.0	16.83	354.35	3,691.3	772.7	-76.4	776.5	0.00	0.00	0.00	
3,840.0	16.83	354.35	3,729.6	784.2	-77.6	788.0	0.00	0.00	0.00	
3,880.0	16.83	354.35	3,767.8	795.7	-78.7	799.6	0.00	0.00	0.00	
3,920.0	16.83	354.35	3,806.1	807.3	-79.9	811.2	0.00	0.00	0.00	
3,960.0	16.83	354.35	3,844.4	818.8	-81.0	822.8	0.00	0.00	0.00	
4,000.0	16.83	354.35	3,882.7	830.3	-82.1	834.3	0.00	0.00	0.00	
4,040.0	16.83	354.35	3,921.0	841.8	-83.3	845.9	0.00	0.00	0.00	
4,080.0	16.83	354.35	3,959.3	853.3	-84.4	857.5	0.00	0.00	0.00	
4,120.0	16.83	354.35	3,997.6	864.9	-85.6	869.1	0.00	0.00	0.00	
4,160.0	16.83	354.35	4,035.9	876.4	-86.7	880.7	0.00	0.00	0.00	

Database: EDM den0-adp01 Server Data
Company: Mineral Resources Inc
Project: SEC.32-T6N-R65W
Site: Thermo 5-5-32 Pad Sec.32-T6N-R65W
Well: Thermo 5-5-32
Wellbore: Wellbore #1
Design: Plan #2 (8-19-10)

Local Co-ordinate Reference: Well Thermo 5-5-32
TVD Reference: WELL @ 4654.0ft (Original Well Elev)
MD Reference: WELL @ 4654.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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)
4,200.0	16.83	354.35	4,074.1	887.9	-87.8	892.2	0.00	0.00	0.00
4,240.0	16.83	354.35	4,112.4	899.4	-89.0	903.8	0.00	0.00	0.00
4,280.0	16.83	354.35	4,150.7	911.0	-90.1	915.4	0.00	0.00	0.00
4,320.0	16.83	354.35	4,189.0	922.5	-91.3	927.0	0.00	0.00	0.00
4,360.0	16.83	354.35	4,227.3	934.0	-92.4	938.6	0.00	0.00	0.00
4,400.0	16.83	354.35	4,265.6	945.5	-93.5	950.1	0.00	0.00	0.00
4,440.0	16.83	354.35	4,303.9	957.0	-94.7	961.7	0.00	0.00	0.00
4,480.0	16.83	354.35	4,342.2	968.6	-95.8	973.3	0.00	0.00	0.00
4,520.0	16.83	354.35	4,380.4	980.1	-97.0	984.9	0.00	0.00	0.00
4,560.0	16.83	354.35	4,418.7	991.6	-98.1	996.4	0.00	0.00	0.00
4,600.0	16.83	354.35	4,457.0	1,003.1	-99.2	1,008.0	0.00	0.00	0.00
4,640.0	16.83	354.35	4,495.3	1,014.7	-100.4	1,019.6	0.00	0.00	0.00
4,680.0	16.83	354.35	4,533.6	1,026.2	-101.5	1,031.2	0.00	0.00	0.00
4,720.0	16.83	354.35	4,571.9	1,037.7	-102.7	1,042.8	0.00	0.00	0.00
4,760.0	16.83	354.35	4,610.2	1,049.2	-103.8	1,054.3	0.00	0.00	0.00
4,800.0	16.83	354.35	4,648.5	1,060.7	-104.9	1,065.9	0.00	0.00	0.00
4,840.0	16.83	354.35	4,686.7	1,072.3	-106.1	1,077.5	0.00	0.00	0.00
4,880.0	16.83	354.35	4,725.0	1,083.8	-107.2	1,089.1	0.00	0.00	0.00
4,920.0	16.83	354.35	4,763.3	1,095.3	-108.4	1,100.7	0.00	0.00	0.00
4,960.0	16.83	354.35	4,801.6	1,106.8	-109.5	1,112.2	0.00	0.00	0.00
5,000.0	16.83	354.35	4,839.9	1,118.4	-110.6	1,123.8	0.00	0.00	0.00
5,040.0	16.83	354.35	4,878.2	1,129.9	-111.8	1,135.4	0.00	0.00	0.00
5,080.0	16.83	354.35	4,916.5	1,141.4	-112.9	1,147.0	0.00	0.00	0.00
5,120.0	16.83	354.35	4,954.8	1,152.9	-114.1	1,158.5	0.00	0.00	0.00
5,136.7	16.83	354.35	4,970.7	1,157.7	-114.5	1,163.4	0.00	0.00	0.00
5,160.0	16.36	354.35	4,993.1	1,164.4	-115.2	1,170.0	2.00	-2.00	0.00
5,200.0	15.56	354.35	5,031.5	1,175.3	-116.3	1,181.0	2.00	-2.00	0.00
5,240.0	14.76	354.35	5,070.1	1,185.7	-117.3	1,191.5	2.00	-2.00	0.00
5,280.0	13.96	354.35	5,108.9	1,195.6	-118.3	1,201.4	2.00	-2.00	0.00
5,320.0	13.16	354.35	5,147.8	1,204.9	-119.2	1,210.8	2.00	-2.00	0.00
5,360.0	12.36	354.35	5,186.8	1,213.7	-120.1	1,219.6	2.00	-2.00	0.00
5,400.0	11.56	354.35	5,225.9	1,222.0	-120.9	1,227.9	2.00	-2.00	0.00
5,440.0	10.76	354.35	5,265.2	1,229.7	-121.7	1,235.7	2.00	-2.00	0.00
5,480.0	9.96	354.35	5,304.5	1,236.8	-122.4	1,242.9	2.00	-2.00	0.00
5,520.0	9.16	354.35	5,343.9	1,243.4	-123.0	1,249.5	2.00	-2.00	0.00
5,560.0	8.36	354.35	5,383.5	1,249.5	-123.6	1,255.6	2.00	-2.00	0.00
5,600.0	7.56	354.35	5,423.1	1,255.0	-124.2	1,261.1	2.00	-2.00	0.00
5,640.0	6.76	354.35	5,462.8	1,260.0	-124.7	1,266.1	2.00	-2.00	0.00
5,680.0	5.96	354.35	5,502.5	1,264.4	-125.1	1,270.5	2.00	-2.00	0.00
5,720.0	5.16	354.35	5,542.3	1,268.2	-125.5	1,274.4	2.00	-2.00	0.00
5,760.0	4.36	354.35	5,582.2	1,271.5	-125.8	1,277.7	2.00	-2.00	0.00
5,800.0	3.56	354.35	5,622.1	1,274.3	-126.1	1,280.5	2.00	-2.00	0.00
5,840.0	2.76	354.35	5,662.1	1,276.5	-126.3	1,282.7	2.00	-2.00	0.00
5,880.0	1.96	354.35	5,702.0	1,278.1	-126.4	1,284.4	2.00	-2.00	0.00
5,920.0	1.16	354.35	5,742.0	1,279.2	-126.6	1,285.4	2.00	-2.00	0.00
5,960.0	0.36	354.35	5,782.0	1,279.7	-126.6	1,286.0	2.00	-2.00	0.00
5,978.0	0.00	0.00	5,800.0	1,279.8	-126.6	1,286.0	2.00	-2.00	0.00
TARGET BHL1981'FSL, 1945'FEL									
6,000.0	0.00	0.00	5,822.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,862.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,902.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,120.0	0.00	0.00	5,942.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,160.0	0.00	0.00	5,982.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,022.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Thermo 5-5-32
Company:	Mineral Resources Inc	TVD Reference:	WELL @ 4654.0ft (Original Well Elev)
Project:	SEC.32-T6N-R65W	MD Reference:	WELL @ 4654.0ft (Original Well Elev)
Site:	Thermo 5-5-32 Pad Sec.32-T6N-R65W	North Reference:	True
Well:	Thermo 5-5-32	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (8-19-10)		

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)
6,240.0	0.00	0.00	6,062.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,102.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,142.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,182.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,222.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,262.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,302.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,342.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,382.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,422.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,462.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,502.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,542.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,582.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,622.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,662.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,878.0	0.00	0.00	6,700.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
LEGAL BOX 400' X 400' 1988'FSL, 1963'FEL									
6,880.0	0.00	0.00	6,702.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,742.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,782.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,822.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,862.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,902.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,120.0	0.00	0.00	6,942.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,160.0	0.00	0.00	6,982.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,022.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,062.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,280.0	0.00	0.00	7,102.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,320.0	0.00	0.00	7,142.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,360.0	0.00	0.00	7,182.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00
7,393.0	0.00	0.00	7,215.0	1,279.8	-126.6	1,286.0	0.00	0.00	0.00

Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
TARGET BHL1981'F5 - plan hits target center - Point	0.00	0.00	5,800.0	1,279.8	-126.6	1,404,907.49	3,226,900.30	40° 26' 31.235 N	104° 41' 5.247 W
LEGAL BOX 400' X 400' - plan misses target center by 19.3ft at 6878.0ft MD (6700.0 TVD, 1279.8 N, -126.6 E) - Rectangle (sides W400.0 H400.0 D515.0)	0.00	0.00	6,700.0	1,286.8	-144.6	1,404,914.35	3,226,882.24	40° 26' 31.305 N	104° 41' 5.480 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
440.0	440.0	8 5/8"	8-5/8	12-1/4

Database: EDM den0-adp01 Server Data
Company: Mineral Resources Inc
Project: SEC.32-T6N-R65W
Site: Thermo 5-5-32 Pad Sec.32-T6N-R65W
Well: Thermo 5-5-32
Wellbore: Wellbore #1
Design: Plan #2 (8-19-10)

Local Co-ordinate Reference: Well Thermo 5-5-32
TVD Reference: WELL @ 4654.0ft (Original Well Elev)
MD Reference: WELL @ 4654.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature