

ENSIGN

Directional

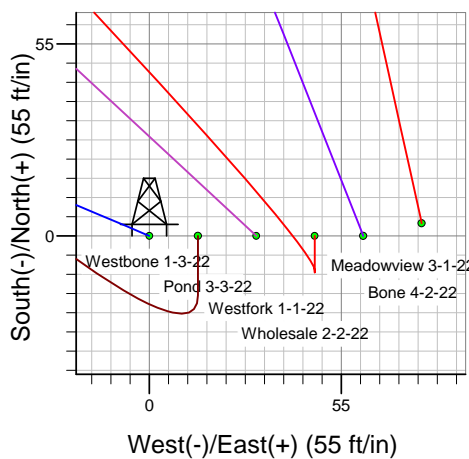
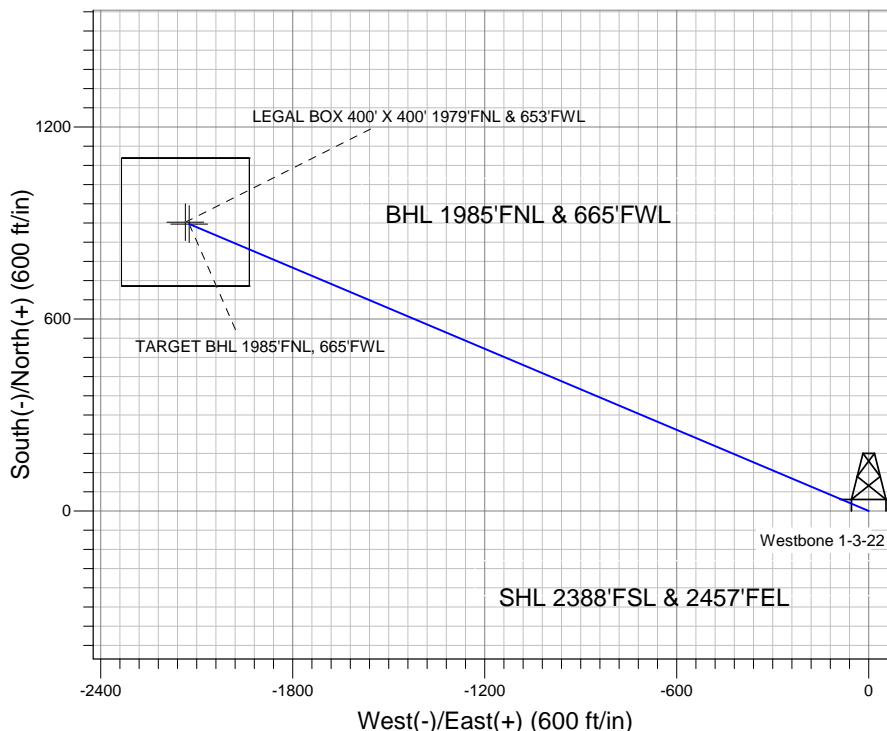
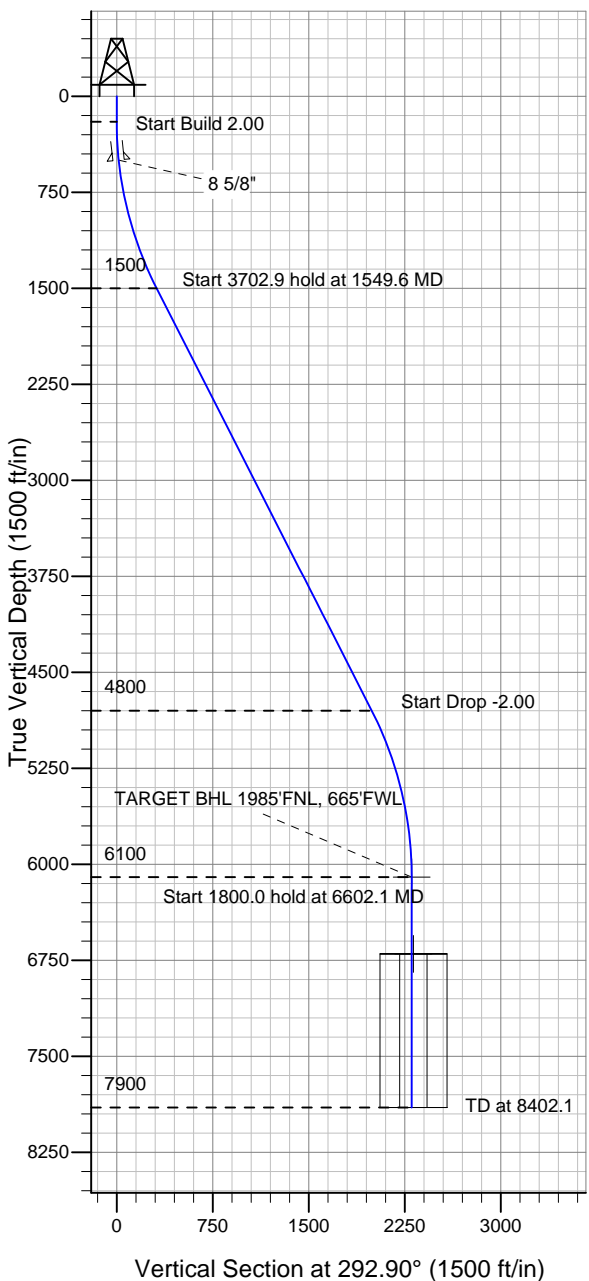
Well Name: Westbone 1-3-22

Surface Location: T-Bone 5-3-22 Pad Sec.22-T5N-R66W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4804.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1383707.63 3204741.67 40.384350 -104.765030
 Original Well Elev WELL @ 4817.0ft (Original Well Elev)

Mineral Resources Inc



T-Bone 5-3-22 Pad Sec.22-T5N-R66W
 Westbone 1-3-22
 Plan #1 (5-16-11)
 13:01, June 02 2011



Azimuths to True North
 Magnetic North: 8.87°

Magnetic Field
 Strength: 53127.2snT
 Dip Angle: 67.04°
 Date: 6/2/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1985'FNL, 665'FWL	6100.0	896.7	-2123.2	40.386811	-104.772651	Point
LEGAL BOX 400' X 400' 1979'FNL & 653'FWL	6700.0	902.7	-2135.2	40.386828	-104.772695	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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1549.6	26.99	292.90	1500.2	121.4	-287.5	2.00	292.90	312.1	
4	5252.5	26.99	292.90	4799.8	775.3	-1835.7	0.00	0.00	1992.7	
5	6602.1	0.00	0.00	6100.0	896.7	-2123.2	2.00	180.00	2304.7	TARGET BHL 1985'FNL, 665'FWL
6	8402.1	0.00	0.00	7900.0	896.7	-2123.2	0.00	0.00	2304.7	



Directional

Mineral Resources Inc

SEC.22-T5N-R66W

T-Bone 5-3-22 Pad Sec.22-T5N-R66W

Westbone 1-3-22

Wellbore #1

Plan: Plan #1 (5-16-11)

Standard Planning Report

02 June, 2011

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,549.6	26.99	292.90	1,500.2	121.4	-287.5	2.00	2.00	0.00	292.90	
5,252.5	26.99	292.90	4,799.8	775.3	-1,835.7	0.00	0.00	0.00	0.00	
6,602.1	0.00	0.00	6,100.0	896.7	-2,123.2	2.00	-2.00	0.00	180.00	TARGET BHL 1985
8,402.1	0.00	0.00	7,900.0	896.7	-2,123.2	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Westbone 1-3-22
Company:	Mineral Resources Inc	TVD Reference:	WELL @ 4817.0ft (Original Well Elev)
Project:	SEC.22-T5N-R66W	MD Reference:	WELL @ 4817.0ft (Original Well Elev)
Site:	T-Bone 5-3-22 Pad Sec.22-T5N-R66W	North Reference:	True
Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-16-11)		

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	0.80	292.90	240.0	0.1	-0.3	0.3	2.00	2.00	0.00
280.0	1.60	292.90	280.0	0.4	-1.0	1.1	2.00	2.00	0.00
320.0	2.40	292.90	320.0	1.0	-2.3	2.5	2.00	2.00	0.00
360.0	3.20	292.90	359.9	1.7	-4.1	4.5	2.00	2.00	0.00
400.0	4.00	292.90	399.8	2.7	-6.4	7.0	2.00	2.00	0.00
440.0	4.80	292.90	439.7	3.9	-9.3	10.0	2.00	2.00	0.00
480.0	5.60	292.90	479.6	5.3	-12.6	13.7	2.00	2.00	0.00
500.6	6.01	292.90	500.0	6.1	-14.5	15.8	2.00	2.00	0.00
8 5/8"									
520.0	6.40	292.90	519.3	6.9	-16.4	17.9	2.00	2.00	0.00
560.0	7.20	292.90	559.1	8.8	-20.8	22.6	2.00	2.00	0.00
600.0	8.00	292.90	598.7	10.8	-25.7	27.9	2.00	2.00	0.00
640.0	8.80	292.90	638.3	13.1	-31.1	33.7	2.00	2.00	0.00
680.0	9.60	292.90	677.8	15.6	-37.0	40.1	2.00	2.00	0.00
720.0	10.40	292.90	717.1	18.3	-43.4	47.1	2.00	2.00	0.00
760.0	11.20	292.90	756.4	21.2	-50.3	54.6	2.00	2.00	0.00
800.0	12.00	292.90	795.6	24.4	-57.7	62.6	2.00	2.00	0.00
840.0	12.80	292.90	834.7	27.7	-65.6	71.2	2.00	2.00	0.00
880.0	13.60	292.90	873.6	31.3	-74.0	80.3	2.00	2.00	0.00
920.0	14.40	292.90	912.4	35.0	-82.9	90.0	2.00	2.00	0.00
960.0	15.20	292.90	951.1	39.0	-92.3	100.2	2.00	2.00	0.00
1,000.0	16.00	292.90	989.6	43.2	-102.2	111.0	2.00	2.00	0.00
1,040.0	16.80	292.90	1,028.0	47.6	-112.6	122.3	2.00	2.00	0.00
1,080.0	17.60	292.90	1,066.2	52.2	-123.5	134.1	2.00	2.00	0.00
1,120.0	18.40	292.90	1,104.3	57.0	-134.9	146.5	2.00	2.00	0.00
1,160.0	19.20	292.90	1,142.1	62.0	-146.8	159.3	2.00	2.00	0.00
1,200.0	20.00	292.90	1,179.8	67.2	-159.2	172.8	2.00	2.00	0.00
1,240.0	20.80	292.90	1,217.3	72.6	-172.0	186.7	2.00	2.00	0.00
1,280.0	21.60	292.90	1,254.6	78.3	-185.3	201.2	2.00	2.00	0.00
1,320.0	22.40	292.90	1,291.7	84.1	-199.1	216.2	2.00	2.00	0.00
1,360.0	23.20	292.90	1,328.6	90.1	-213.4	231.7	2.00	2.00	0.00
1,400.0	24.00	292.90	1,365.2	96.4	-228.2	247.7	2.00	2.00	0.00
1,440.0	24.80	292.90	1,401.6	102.8	-243.4	264.2	2.00	2.00	0.00
1,480.0	25.60	292.90	1,437.8	109.4	-259.1	281.2	2.00	2.00	0.00
1,520.0	26.40	292.90	1,473.8	116.2	-275.2	298.8	2.00	2.00	0.00
1,549.6	26.99	292.90	1,500.2	121.4	-287.5	312.1	2.00	2.00	0.00
1,560.0	26.99	292.90	1,509.5	123.2	-291.8	316.8	0.00	0.00	0.00
1,600.0	26.99	292.90	1,545.1	130.3	-308.5	334.9	0.00	0.00	0.00
1,640.0	26.99	292.90	1,580.8	137.4	-325.3	353.1	0.00	0.00	0.00
1,680.0	26.99	292.90	1,616.4	144.4	-342.0	371.2	0.00	0.00	0.00
1,720.0	26.99	292.90	1,652.1	151.5	-358.7	389.4	0.00	0.00	0.00
1,760.0	26.99	292.90	1,687.7	158.6	-375.4	407.6	0.00	0.00	0.00
1,800.0	26.99	292.90	1,723.4	165.6	-392.2	425.7	0.00	0.00	0.00
1,840.0	26.99	292.90	1,759.0	172.7	-408.9	443.9	0.00	0.00	0.00
1,880.0	26.99	292.90	1,794.6	179.8	-425.6	462.0	0.00	0.00	0.00
1,920.0	26.99	292.90	1,830.3	186.8	-442.3	480.2	0.00	0.00	0.00
1,960.0	26.99	292.90	1,865.9	193.9	-459.1	498.3	0.00	0.00	0.00
2,000.0	26.99	292.90	1,901.6	200.9	-475.8	516.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Westbone 1-3-22
Company:	Mineral Resources Inc	TVD Reference:	WELL @ 4817.0ft (Original Well Elev)
Project:	SEC.22-T5N-R66W	MD Reference:	WELL @ 4817.0ft (Original Well Elev)
Site:	T-Bone 5-3-22 Pad Sec.22-T5N-R66W	North Reference:	True
Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-16-11)		

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	26.99	292.90	1,937.2	208.0	-492.5	534.6	0.00	0.00	0.00
2,080.0	26.99	292.90	1,972.9	215.1	-509.2	552.8	0.00	0.00	0.00
2,120.0	26.99	292.90	2,008.5	222.1	-526.0	570.9	0.00	0.00	0.00
2,160.0	26.99	292.90	2,044.1	229.2	-542.7	589.1	0.00	0.00	0.00
2,200.0	26.99	292.90	2,079.8	236.3	-559.4	607.3	0.00	0.00	0.00
2,240.0	26.99	292.90	2,115.4	243.3	-576.1	625.4	0.00	0.00	0.00
2,280.0	26.99	292.90	2,151.1	250.4	-592.9	643.6	0.00	0.00	0.00
2,320.0	26.99	292.90	2,186.7	257.5	-609.6	661.7	0.00	0.00	0.00
2,360.0	26.99	292.90	2,222.4	264.5	-626.3	679.9	0.00	0.00	0.00
2,400.0	26.99	292.90	2,258.0	271.6	-643.0	698.0	0.00	0.00	0.00
2,440.0	26.99	292.90	2,293.6	278.6	-659.8	716.2	0.00	0.00	0.00
2,480.0	26.99	292.90	2,329.3	285.7	-676.5	734.3	0.00	0.00	0.00
2,520.0	26.99	292.90	2,364.9	292.8	-693.2	752.5	0.00	0.00	0.00
2,560.0	26.99	292.90	2,400.6	299.8	-709.9	770.6	0.00	0.00	0.00
2,600.0	26.99	292.90	2,436.2	306.9	-726.7	788.8	0.00	0.00	0.00
2,640.0	26.99	292.90	2,471.9	314.0	-743.4	807.0	0.00	0.00	0.00
2,680.0	26.99	292.90	2,507.5	321.0	-760.1	825.1	0.00	0.00	0.00
2,720.0	26.99	292.90	2,543.1	328.1	-776.8	843.3	0.00	0.00	0.00
2,760.0	26.99	292.90	2,578.8	335.1	-793.6	861.4	0.00	0.00	0.00
2,800.0	26.99	292.90	2,614.4	342.2	-810.3	879.6	0.00	0.00	0.00
2,840.0	26.99	292.90	2,650.1	349.3	-827.0	897.7	0.00	0.00	0.00
2,880.0	26.99	292.90	2,685.7	356.3	-843.7	915.9	0.00	0.00	0.00
2,920.0	26.99	292.90	2,721.4	363.4	-860.4	934.0	0.00	0.00	0.00
2,960.0	26.99	292.90	2,757.0	370.5	-877.2	952.2	0.00	0.00	0.00
3,000.0	26.99	292.90	2,792.6	377.5	-893.9	970.3	0.00	0.00	0.00
3,040.0	26.99	292.90	2,828.3	384.6	-910.6	988.5	0.00	0.00	0.00
3,080.0	26.99	292.90	2,863.9	391.7	-927.3	1,006.7	0.00	0.00	0.00
3,120.0	26.99	292.90	2,899.6	398.7	-944.1	1,024.8	0.00	0.00	0.00
3,160.0	26.99	292.90	2,935.2	405.8	-960.8	1,043.0	0.00	0.00	0.00
3,200.0	26.99	292.90	2,970.9	412.8	-977.5	1,061.1	0.00	0.00	0.00
3,240.0	26.99	292.90	3,006.5	419.9	-994.2	1,079.3	0.00	0.00	0.00
3,280.0	26.99	292.90	3,042.1	427.0	-1,011.0	1,097.4	0.00	0.00	0.00
3,320.0	26.99	292.90	3,077.8	434.0	-1,027.7	1,115.6	0.00	0.00	0.00
3,360.0	26.99	292.90	3,113.4	441.1	-1,044.4	1,133.7	0.00	0.00	0.00
3,400.0	26.99	292.90	3,149.1	448.2	-1,061.1	1,151.9	0.00	0.00	0.00
3,440.0	26.99	292.90	3,184.7	455.2	-1,077.9	1,170.1	0.00	0.00	0.00
3,480.0	26.99	292.90	3,220.4	462.3	-1,094.6	1,188.2	0.00	0.00	0.00
3,520.0	26.99	292.90	3,256.0	469.3	-1,111.3	1,206.4	0.00	0.00	0.00
3,560.0	26.99	292.90	3,291.6	476.4	-1,128.0	1,224.5	0.00	0.00	0.00
3,600.0	26.99	292.90	3,327.3	483.5	-1,144.8	1,242.7	0.00	0.00	0.00
3,640.0	26.99	292.90	3,362.9	490.5	-1,161.5	1,260.8	0.00	0.00	0.00
3,680.0	26.99	292.90	3,398.6	497.6	-1,178.2	1,279.0	0.00	0.00	0.00
3,720.0	26.99	292.90	3,434.2	504.7	-1,194.9	1,297.1	0.00	0.00	0.00
3,760.0	26.99	292.90	3,469.9	511.7	-1,211.7	1,315.3	0.00	0.00	0.00
3,800.0	26.99	292.90	3,505.5	518.8	-1,228.4	1,333.4	0.00	0.00	0.00
3,840.0	26.99	292.90	3,541.1	525.9	-1,245.1	1,351.6	0.00	0.00	0.00
3,880.0	26.99	292.90	3,576.8	532.9	-1,261.8	1,369.8	0.00	0.00	0.00
3,920.0	26.99	292.90	3,612.4	540.0	-1,278.6	1,387.9	0.00	0.00	0.00
3,960.0	26.99	292.90	3,648.1	547.0	-1,295.3	1,406.1	0.00	0.00	0.00
4,000.0	26.99	292.90	3,683.7	554.1	-1,312.0	1,424.2	0.00	0.00	0.00
4,040.0	26.99	292.90	3,719.4	561.2	-1,328.7	1,442.4	0.00	0.00	0.00
4,080.0	26.99	292.90	3,755.0	568.2	-1,345.5	1,460.5	0.00	0.00	0.00
4,120.0	26.99	292.90	3,790.6	575.3	-1,362.2	1,478.7	0.00	0.00	0.00
4,160.0	26.99	292.90	3,826.3	582.4	-1,378.9	1,496.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Westbone 1-3-22
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Project:	SEC.22-T5N-R66W	MD Reference:	WELL @ 4817.0ft (Original Well Elev)
Site:	T-Bone 5-3-22 Pad Sec.22-T5N-R66W	North Reference:	True
Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-16-11)		

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	26.99	292.90	3,861.9	589.4	-1,395.6	1,515.0	0.00	0.00	0.00
4,240.0	26.99	292.90	3,897.6	596.5	-1,412.3	1,533.1	0.00	0.00	0.00
4,280.0	26.99	292.90	3,933.2	603.6	-1,429.1	1,551.3	0.00	0.00	0.00
4,320.0	26.99	292.90	3,968.9	610.6	-1,445.8	1,569.5	0.00	0.00	0.00
4,360.0	26.99	292.90	4,004.5	617.7	-1,462.5	1,587.6	0.00	0.00	0.00
4,400.0	26.99	292.90	4,040.1	624.7	-1,479.2	1,605.8	0.00	0.00	0.00
4,440.0	26.99	292.90	4,075.8	631.8	-1,496.0	1,623.9	0.00	0.00	0.00
4,480.0	26.99	292.90	4,111.4	638.9	-1,512.7	1,642.1	0.00	0.00	0.00
4,520.0	26.99	292.90	4,147.1	645.9	-1,529.4	1,660.2	0.00	0.00	0.00
4,560.0	26.99	292.90	4,182.7	653.0	-1,546.1	1,678.4	0.00	0.00	0.00
4,600.0	26.99	292.90	4,218.3	660.1	-1,562.9	1,696.5	0.00	0.00	0.00
4,640.0	26.99	292.90	4,254.0	667.1	-1,579.6	1,714.7	0.00	0.00	0.00
4,680.0	26.99	292.90	4,289.6	674.2	-1,596.3	1,732.8	0.00	0.00	0.00
4,720.0	26.99	292.90	4,325.3	681.2	-1,613.0	1,751.0	0.00	0.00	0.00
4,760.0	26.99	292.90	4,360.9	688.3	-1,629.8	1,769.2	0.00	0.00	0.00
4,800.0	26.99	292.90	4,396.6	695.4	-1,646.5	1,787.3	0.00	0.00	0.00
4,840.0	26.99	292.90	4,432.2	702.4	-1,663.2	1,805.5	0.00	0.00	0.00
4,880.0	26.99	292.90	4,467.8	709.5	-1,679.9	1,823.6	0.00	0.00	0.00
4,920.0	26.99	292.90	4,503.5	716.6	-1,696.7	1,841.8	0.00	0.00	0.00
4,960.0	26.99	292.90	4,539.1	723.6	-1,713.4	1,859.9	0.00	0.00	0.00
5,000.0	26.99	292.90	4,574.8	730.7	-1,730.1	1,878.1	0.00	0.00	0.00
5,040.0	26.99	292.90	4,610.4	737.8	-1,746.8	1,896.2	0.00	0.00	0.00
5,080.0	26.99	292.90	4,646.1	744.8	-1,763.6	1,914.4	0.00	0.00	0.00
5,120.0	26.99	292.90	4,681.7	751.9	-1,780.3	1,932.5	0.00	0.00	0.00
5,160.0	26.99	292.90	4,717.3	758.9	-1,797.0	1,950.7	0.00	0.00	0.00
5,200.0	26.99	292.90	4,753.0	766.0	-1,813.7	1,968.9	0.00	0.00	0.00
5,240.0	26.99	292.90	4,788.6	773.1	-1,830.5	1,987.0	0.00	0.00	0.00
5,252.5	26.99	292.90	4,799.8	775.3	-1,835.7	1,992.7	0.00	0.00	0.00
5,280.0	26.44	292.90	4,824.3	780.1	-1,847.1	2,005.0	2.00	-2.00	0.00
5,320.0	25.64	292.90	4,860.3	786.9	-1,863.2	2,022.6	2.00	-2.00	0.00
5,360.0	24.84	292.90	4,896.5	793.6	-1,879.0	2,039.7	2.00	-2.00	0.00
5,400.0	24.04	292.90	4,932.9	800.0	-1,894.2	2,056.2	2.00	-2.00	0.00
5,440.0	23.24	292.90	4,969.5	806.2	-1,909.0	2,072.3	2.00	-2.00	0.00
5,480.0	22.44	292.90	5,006.4	812.3	-1,923.3	2,087.8	2.00	-2.00	0.00
5,520.0	21.64	292.90	5,043.5	818.1	-1,937.1	2,102.8	2.00	-2.00	0.00
5,560.0	20.84	292.90	5,080.7	823.8	-1,950.5	2,117.3	2.00	-2.00	0.00
5,600.0	20.04	292.90	5,118.2	829.2	-1,963.3	2,131.3	2.00	-2.00	0.00
5,640.0	19.24	292.90	5,155.9	834.4	-1,975.7	2,144.7	2.00	-2.00	0.00
5,680.0	18.44	292.90	5,193.7	839.4	-1,987.6	2,157.6	2.00	-2.00	0.00
5,720.0	17.64	292.90	5,231.8	844.3	-1,999.0	2,170.0	2.00	-2.00	0.00
5,760.0	16.84	292.90	5,270.0	848.9	-2,010.0	2,181.9	2.00	-2.00	0.00
5,800.0	16.04	292.90	5,308.3	853.3	-2,020.4	2,193.2	2.00	-2.00	0.00
5,840.0	15.24	292.90	5,346.9	857.5	-2,030.3	2,204.0	2.00	-2.00	0.00
5,880.0	14.44	292.90	5,385.5	861.5	-2,039.8	2,214.2	2.00	-2.00	0.00
5,920.0	13.64	292.90	5,424.3	865.2	-2,048.7	2,223.9	2.00	-2.00	0.00
5,960.0	12.84	292.90	5,463.3	868.8	-2,057.1	2,233.1	2.00	-2.00	0.00
6,000.0	12.04	292.90	5,502.3	872.2	-2,065.1	2,241.7	2.00	-2.00	0.00
6,040.0	11.24	292.90	5,541.5	875.3	-2,072.5	2,249.8	2.00	-2.00	0.00
6,080.0	10.44	292.90	5,580.8	878.2	-2,079.5	2,257.3	2.00	-2.00	0.00
6,120.0	9.64	292.90	5,620.2	880.9	-2,085.9	2,264.3	2.00	-2.00	0.00
6,160.0	8.84	292.90	5,659.7	883.4	-2,091.8	2,270.7	2.00	-2.00	0.00
6,200.0	8.04	292.90	5,699.2	885.7	-2,097.2	2,276.6	2.00	-2.00	0.00
6,240.0	7.24	292.90	5,738.9	887.8	-2,102.1	2,281.9	2.00	-2.00	0.00
6,280.0	6.44	292.90	5,778.6	889.7	-2,106.5	2,286.7	2.00	-2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Westbone 1-3-22
Company:	Mineral Resources Inc	TVD Reference:	WELL @ 4817.0ft (Original Well Elev)
Project:	SEC.22-T5N-R66W	MD Reference:	WELL @ 4817.0ft (Original Well Elev)
Site:	T-Bone 5-3-22 Pad Sec.22-T5N-R66W	North Reference:	True
Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-16-11)		

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)
6,320.0	5.64	292.90	5,818.4	891.3	-2,110.4	2,290.9	2.00	-2.00	0.00
6,360.0	4.84	292.90	5,858.2	892.7	-2,113.7	2,294.5	2.00	-2.00	0.00
6,400.0	4.04	292.90	5,898.1	893.9	-2,116.6	2,297.6	2.00	-2.00	0.00
6,440.0	3.24	292.90	5,938.0	894.9	-2,118.9	2,300.2	2.00	-2.00	0.00
6,480.0	2.44	292.90	5,977.9	895.7	-2,120.8	2,302.1	2.00	-2.00	0.00
6,520.0	1.64	292.90	6,017.9	896.2	-2,122.1	2,303.6	2.00	-2.00	0.00
6,560.0	0.84	292.90	6,057.9	896.6	-2,122.9	2,304.4	2.00	-2.00	0.00
6,600.0	0.04	292.90	6,097.9	896.7	-2,123.2	2,304.7	2.00	-2.00	0.00
6,602.1	0.00	0.00	6,100.0	896.7	-2,123.2	2,304.7	2.00	-2.00	0.00
TARGET BHL 1985'FNL, 665'FWL									
6,640.0	0.00	0.00	6,137.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,177.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,217.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,257.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,297.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,337.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,377.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,417.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,457.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,497.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,040.0	0.00	0.00	6,537.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,080.0	0.00	0.00	6,577.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,120.0	0.00	0.00	6,617.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,160.0	0.00	0.00	6,657.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,200.0	0.00	0.00	6,697.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,202.1	0.00	0.00	6,700.0	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
LEGAL BOX 400' X 400' 1979'FNL & 653'FWL									
7,240.0	0.00	0.00	6,737.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,280.0	0.00	0.00	6,777.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,320.0	0.00	0.00	6,817.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,360.0	0.00	0.00	6,857.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,400.0	0.00	0.00	6,897.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,440.0	0.00	0.00	6,937.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,480.0	0.00	0.00	6,977.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,520.0	0.00	0.00	7,017.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,560.0	0.00	0.00	7,057.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,600.0	0.00	0.00	7,097.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,640.0	0.00	0.00	7,137.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,680.0	0.00	0.00	7,177.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,720.0	0.00	0.00	7,217.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,760.0	0.00	0.00	7,257.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,800.0	0.00	0.00	7,297.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,840.0	0.00	0.00	7,337.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,880.0	0.00	0.00	7,377.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,920.0	0.00	0.00	7,417.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
7,960.0	0.00	0.00	7,457.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,000.0	0.00	0.00	7,497.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,040.0	0.00	0.00	7,537.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,080.0	0.00	0.00	7,577.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,120.0	0.00	0.00	7,617.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,160.0	0.00	0.00	7,657.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,200.0	0.00	0.00	7,697.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,240.0	0.00	0.00	7,737.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00
8,280.0	0.00	0.00	7,777.9	896.7	-2,123.2	2,304.7	0.00	0.00	0.00

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (")	Hole Diameter (")	
500.6	500.0	8 5/8"		8-5/8	12-1/4	



Directional

Mineral Resources Inc

SEC.22-T5N-R66W

T-Bone 5-3-22 Pad Sec.22-T5N-R66W

Westbone 1-3-22

Wellbore #1

Plan #1 (5-16-11)

Anticollision Report

02 June, 2011

Company:	Mineral Resources Inc	Local Co-ordinate Reference:	Well Westbone 1-3-22
Project:	SEC.22-T5N-R66W	TVD Reference:	WELL @ 4817.0ft (Original Well Elev)
Reference Site:	T-Bone 5-3-22 Pad Sec.22-T5N-R66W	MD Reference:	WELL @ 4817.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-16-11)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
2,200.0	2,079.8	2,200.4	2,164.6	13.4	7.2	169.45	162.1	-219.7	357.7	346.0	11.71	30.539	
2,300.0	2,168.9	2,297.7	2,258.5	14.3	7.7	168.83	178.9	-239.1	380.2	367.7	12.51	30.405	
2,400.0	2,258.0	2,395.1	2,352.3	15.3	8.2	168.28	195.8	-258.6	402.8	389.5	13.31	30.265	
2,500.0	2,347.1	2,492.4	2,446.2	16.3	8.8	167.78	212.6	-278.1	425.4	411.3	14.12	30.123	
2,600.0	2,436.2	2,589.8	2,540.1	17.3	9.3	167.34	229.5	-297.6	448.0	433.1	14.94	29.983	
2,700.0	2,525.3	2,687.2	2,634.0	18.3	9.8	166.94	246.3	-317.0	470.6	454.9	15.77	29.845	
2,800.0	2,614.4	2,784.5	2,727.9	19.3	10.4	166.58	263.2	-336.5	493.3	476.7	16.60	29.712	
2,900.0	2,703.5	2,881.9	2,821.8	20.3	10.9	166.25	280.0	-356.0	516.0	498.5	17.44	29.583	
3,000.0	2,792.6	2,979.2	2,915.7	21.2	11.4	165.94	296.9	-375.5	538.7	520.4	18.28	29.460	
3,100.0	2,881.7	3,076.6	3,009.5	22.2	12.0	165.67	313.7	-394.9	561.4	542.2	19.13	29.342	
3,200.0	2,970.9	3,173.9	3,103.4	23.2	12.5	165.41	330.6	-414.4	584.1	564.1	19.98	29.230	
3,300.0	3,060.0	3,271.3	3,197.3	24.2	13.0	165.17	347.4	-433.9	606.8	586.0	20.84	29.122	
3,400.0	3,149.1	3,368.6	3,291.2	25.2	13.6	164.95	364.3	-453.4	629.6	607.9	21.69	29.020	
3,500.0	3,238.2	3,466.0	3,385.1	26.2	14.1	164.75	381.1	-472.8	652.3	629.7	22.55	28.923	
3,600.0	3,327.3	3,563.3	3,479.0	27.2	14.6	164.55	398.0	-492.3	675.0	651.6	23.41	28.830	
3,700.0	3,416.4	3,660.7	3,572.9	28.2	15.2	164.37	414.8	-511.8	697.8	673.5	24.28	28.742	
3,800.0	3,505.5	3,758.0	3,666.7	29.2	15.7	164.21	431.7	-531.3	720.6	695.4	25.14	28.658	
3,900.0	3,594.6	3,855.4	3,760.6	30.2	16.3	164.05	448.5	-550.8	743.3	717.3	26.01	28.578	
4,000.0	3,683.7	3,952.7	3,854.5	31.1	16.8	163.90	465.4	-570.2	766.1	739.2	26.88	28.501	
4,100.0	3,772.8	4,050.1	3,948.4	32.1	17.3	163.76	482.2	-589.7	788.9	761.1	27.75	28.428	
4,200.0	3,861.9	4,147.5	4,042.3	33.1	17.9	163.63	499.1	-609.2	811.7	783.1	28.62	28.359	
4,300.0	3,951.0	4,244.8	4,136.2	34.1	18.4	163.51	515.9	-628.7	834.5	805.0	29.49	28.292	
4,400.0	4,040.1	4,342.2	4,230.1	35.1	19.0	163.39	532.8	-648.1	857.3	826.9	30.37	28.229	
4,500.0	4,129.2	4,439.5	4,323.9	36.1	19.5	163.28	549.6	-667.6	880.1	848.8	31.24	28.168	
4,600.0	4,218.3	4,536.9	4,417.8	37.1	20.0	163.17	566.5	-687.1	902.9	870.7	32.12	28.110	
4,700.0	4,307.5	4,634.2	4,511.7	38.1	20.6	163.07	583.3	-706.6	925.7	892.7	33.00	28.054	
4,800.0	4,396.6	4,731.6	4,605.6	39.1	21.1	162.97	600.2	-726.0	948.5	914.6	33.87	28.001	
4,900.0	4,485.7	4,828.9	4,699.5	40.1	21.7	162.88	617.0	-745.5	971.3	936.5	34.75	27.949	
5,000.0	4,574.8	4,926.3	4,793.4	41.1	22.2	162.79	633.9	-765.0	994.1	958.4	35.63	27.900	
5,100.0	4,663.9	5,023.6	4,887.2	42.1	22.8	162.71	650.7	-784.5	1,016.9	980.4	36.51	27.853	
5,200.0	4,753.0	5,121.0	4,981.1	43.0	23.3	162.63	667.6	-803.9	1,039.7	1,002.3	37.39	27.807	
5,252.5	4,799.8	5,172.1	5,030.4	43.6	23.6	162.59	676.4	-814.2	1,051.7	1,013.8	37.85	27.784	
5,300.0	4,842.3	5,218.4	5,075.1	44.0	23.8	162.61	684.4	-823.4	1,062.1	1,023.8	38.29	27.736	
5,400.0	4,932.9	5,316.4	5,169.6	44.7	24.4	162.60	701.4	-843.0	1,081.8	1,042.6	39.20	27.595	
5,500.0	5,024.9	5,400.0	5,250.2	45.4	24.8	162.56	715.9	-859.8	1,098.3	1,058.2	40.02	27.440	
5,600.0	5,118.2	5,484.5	5,332.1	46.1	25.2	162.49	729.5	-875.6	1,112.9	1,072.1	40.74	27.315	
5,700.0	5,212.7	5,559.5	5,405.2	46.6	25.5	162.47	740.4	-888.1	1,126.4	1,085.0	41.35	27.243	
5,800.0	5,308.3	5,634.5	5,478.8	47.2	25.7	162.45	749.9	-899.1	1,138.7	1,096.8	41.87	27.195	
5,900.0	5,404.9	5,700.0	5,543.3	47.6	25.9	162.45	757.2	-907.6	1,149.9	1,107.6	42.30	27.187	
6,000.0	5,502.3	5,784.2	5,626.7	48.0	26.2	162.45	765.2	-916.8	1,159.8	1,117.1	42.69	27.167	
6,100.0	5,600.5	5,859.0	5,701.0	48.3	26.3	162.46	771.0	-923.4	1,168.6	1,125.6	42.98	27.188	
6,200.0	5,699.2	5,933.8	5,775.4	48.6	26.5	162.49	775.4	-928.6	1,176.2	1,133.0	43.20	27.229	
6,300.0	5,798.5	6,000.0	5,841.5	48.8	26.6	162.52	778.3	-932.0	1,182.6	1,139.3	43.32	27.298	
6,400.0	5,898.1	6,083.2	5,924.6	49.0	26.7	162.57	780.5	-934.5	1,187.8	1,144.4	43.39	27.372	
6,500.0	5,997.9	6,158.6	6,000.0	49.1	26.8	162.62	781.2	-935.3	1,191.8	1,148.4	43.38	27.471	
6,602.1	6,100.0	6,259.6	6,101.0	49.2	26.9	95.55	781.2	-935.3	1,193.5	1,150.1	43.36	27.527	
6,700.0	6,197.9	6,357.5	6,198.9	49.2	27.0	95.55	781.2	-935.3	1,193.5	1,149.9	43.60	27.377	
6,800.0	6,297.9	6,457.5	6,298.9	49.3	27.1	95.55	781.2	-935.3	1,193.5	1,149.6	43.84	27.221	
6,900.0	6,397.9	6,557.5	6,398.9	49.4	27.2	95.55	781.2	-935.3	1,193.5	1,149.4	44.10	27.065	
7,000.0	6,497.9	6,657.5	6,498.9	49.4	27.4	95.55	781.2	-935.3	1,193.5	1,149.1	44.35	26.909	
7,100.0	6,597.9	6,757.5	6,598.9	49.5	27.5	95.55	781.2	-935.3	1,193.5	1,148.9	44.61	26.753	
7,200.0	6,697.9	6,857.5	6,698.9	49.6	27.6	95.55	781.2	-935.3	1,193.5	1,148.6	44.87	26.597	

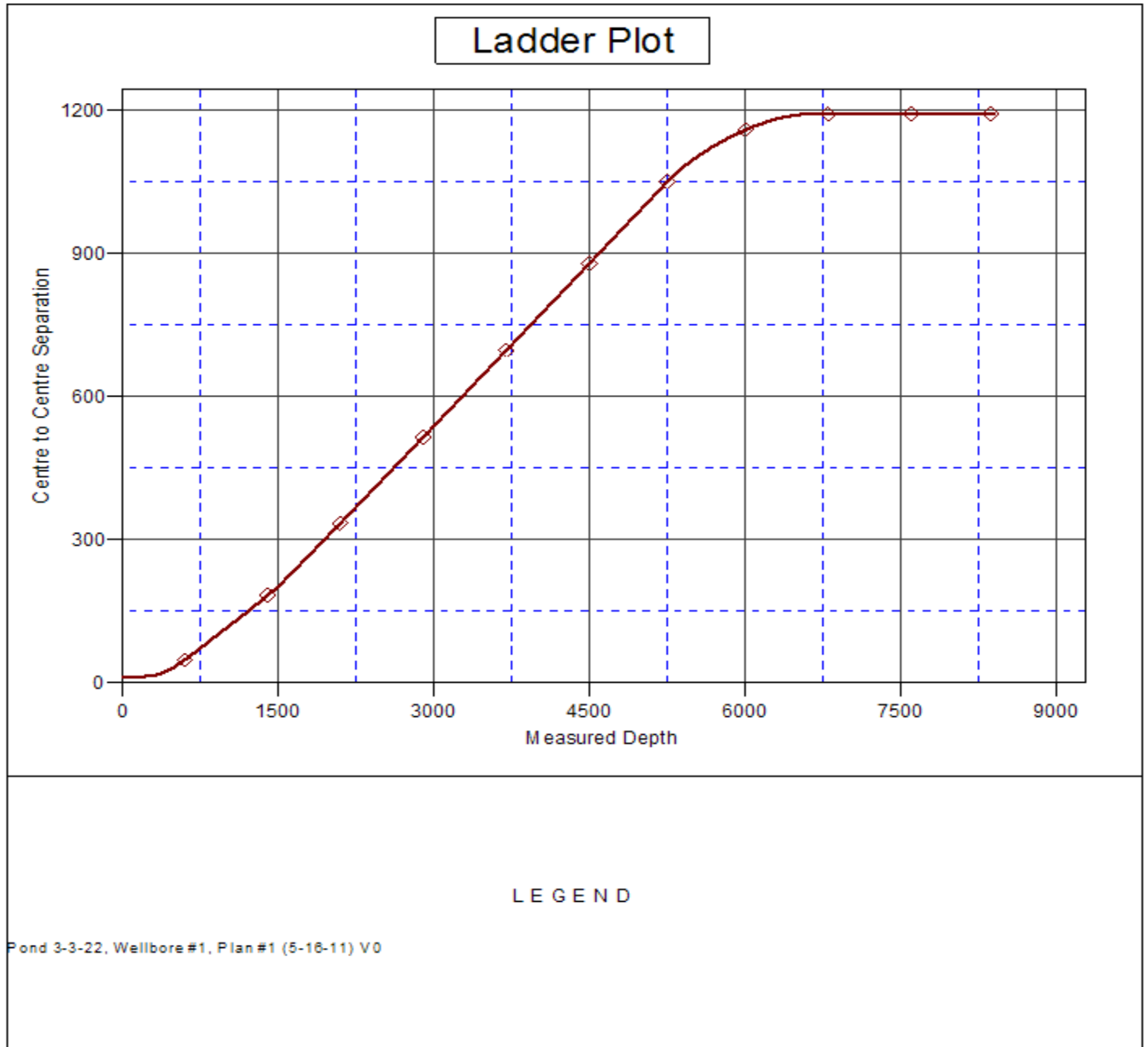
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Mineral Resources Inc	Local Co-ordinate Reference:	Well Westbone 1-3-22
Project:	SEC.22-T5N-R66W	TVD Reference:	WELL @ 4817.0ft (Original Well Elev)
Reference Site:	T-Bone 5-3-22 Pad Sec.22-T5N-R66W	MD Reference:	WELL @ 4817.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-16-11)	Offset TVD Reference:	Offset Datum

Offset Design T-Bone 5-3-22 Pad Sec.22-T5N-R66W - Pond 3-3-22 - Wellbore #1 - Plan #1 (5-16-11)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,300.0	6,797.9	6,957.5	6,798.9	49.6	27.7	95.55	781.2	-935.3	1,193.5	1,148.3	45.14	26.441	
7,400.0	6,897.9	7,057.5	6,898.9	49.7	27.8	95.55	781.2	-935.3	1,193.5	1,148.1	45.41	26.285	
7,500.0	6,997.9	7,157.5	6,998.9	49.8	27.9	95.55	781.2	-935.3	1,193.5	1,147.8	45.68	26.129	
7,600.0	7,097.9	7,257.5	7,098.9	49.8	28.1	95.55	781.2	-935.3	1,193.5	1,147.5	45.95	25.974	
7,700.0	7,197.9	7,357.5	7,198.9	49.9	28.2	95.55	781.2	-935.3	1,193.5	1,147.3	46.23	25.819	
7,800.0	7,297.9	7,457.5	7,298.9	50.0	28.3	95.55	781.2	-935.3	1,193.5	1,147.0	46.50	25.664	
7,900.0	7,397.9	7,557.5	7,398.9	50.0	28.4	95.55	781.2	-935.3	1,193.5	1,146.7	46.79	25.510	
8,000.0	7,497.9	7,657.5	7,498.9	50.1	28.5	95.55	781.2	-935.3	1,193.5	1,146.4	47.07	25.356	
8,100.0	7,597.9	7,757.5	7,598.9	50.2	28.7	95.55	781.2	-935.3	1,193.5	1,146.1	47.36	25.202	
8,200.0	7,697.9	7,857.5	7,698.9	50.3	28.8	95.55	781.2	-935.3	1,193.5	1,145.8	47.64	25.050	
8,300.0	7,797.9	7,957.5	7,798.9	50.3	28.9	95.55	781.2	-935.3	1,193.5	1,145.5	47.94	24.897	
8,367.7	7,865.6	8,025.3	7,866.6	50.4	29.0	95.55	781.2	-935.3	1,193.5	1,145.4	48.13	24.795	
8,402.1	7,900.0	8,058.6	7,900.0	50.4	29.1	95.55	781.2	-935.3	1,193.5	1,145.3	48.23	24.744	

Company:	Mineral Resources Inc	Local Co-ordinate Reference:	Well Westbone 1-3-22
Project:	SEC.22-T5N-R66W	TVD Reference:	WELL @ 4817.0ft (Original Well Elev)
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Site Error:	0.0ft	North Reference:	True
Reference Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-16-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4817.0ft (Original Well Elev) Coordinates are relative to: Westbone 1-3-22
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.47°



Company:	Mineral Resources Inc	Local Co-ordinate Reference:	Well Westbone 1-3-22
Project:	SEC.22-T5N-R66W	TVD Reference:	WELL @ 4817.0ft (Original Well Elev)
Reference Site:	T-Bone 5-3-22 Pad Sec.22-T5N-R66W	MD Reference:	WELL @ 4817.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Westbone 1-3-22	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
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