ENSIGN Directional

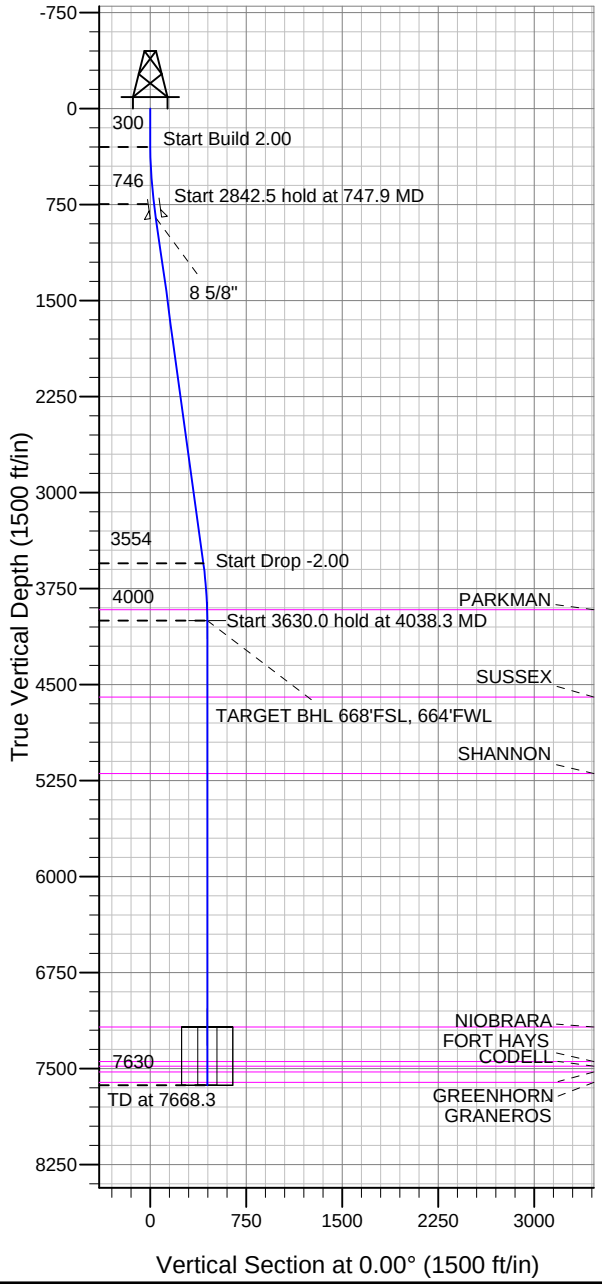
Well Name: Thornton 13-22

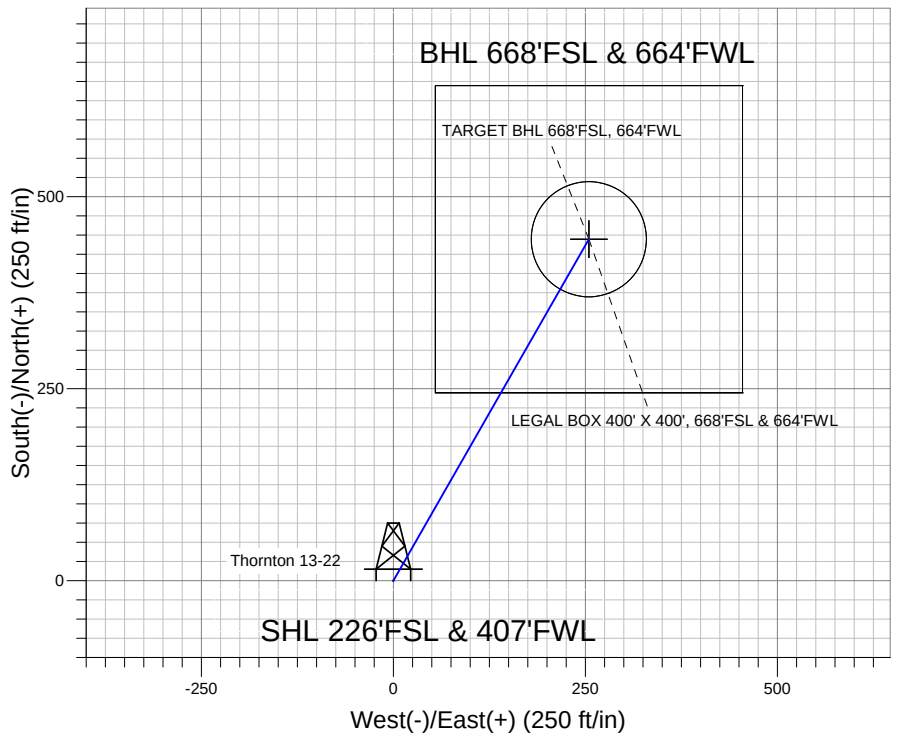
Surface Location: Thornton 13 Pad Sec.22-T7N-R66W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4934.0

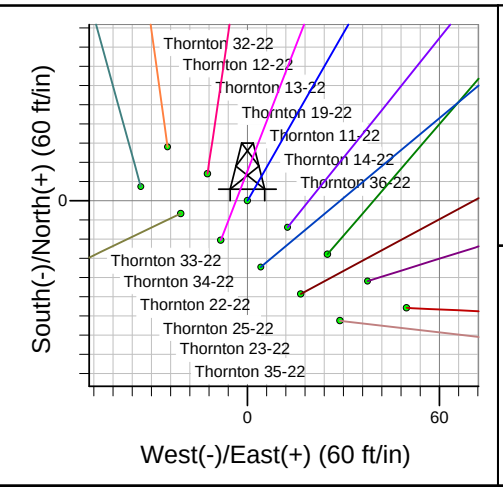
+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1445441.96	3202314.50	40.553858	-104.771923	

Original Well Elev. WELL @ 4950.0ft (Original Well Elev.)

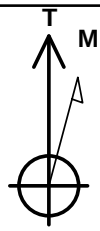
BAYSWATER EXPLORATION & PRODUCTION







Thornton 13 Pad Sec.22-T7N-R66W
Thornton 13-22
Plan #2 (1-30-13)
13:23, February 01 2013



Azimuths to True North
Magnetic North: 8.66°

Magnetic Field
Strength: 53038.6snT
Dip Angle: 67.12°
Date: 1/30/2013
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 668'FSL, 664'FWL	4000.0	444.8	254.5	40.555079	-104.771007	Point
LEGAL BOX 400' X 400', 668'FSL & 664'FWL	7175.0	444.8	254.5	40.555079	-104.771007	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 668'FSL & 664'FWL	7175.0	444.8	254.5	40.555079	-104.771007	Circle (Radius: 75.0)

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	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	747.9	8.96	29.78	746.1	30.3	17.4	2.00	29.78	30.3	
4	3590.4	8.96	29.78	3553.9	414.5	237.2	0.00	0.00	414.5	
5	4038.3	0.00	0.00	4000.0	444.8	254.5	2.00	180.00	444.9	TARGET BHL 668'FSL, 664'FWL
6	7668.3	0.00	0.00	7630.0	444.8	254.5	0.00	0.00	444.9	

BAYSWATER EXPLORATION & PRODUCTION

SEC.22-T7N-R66W
Thornton 13 Pad Sec.22-T7N-R66W
Thornton 13-22

Wellbore #1

Plan: Plan #2 (1-30-13)

Standard Planning Report

01 February, 2013

Database:	Landmark	**Local Co-ordinate Reference:**	Well Thornton 13-22
Company:	BAYSWATER EXPLORATION & PRODUCTION	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Project:	SEC.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site:	Thornton 13 Pad Sec.22-T7N-R66W	**North Reference:**	True
Well:	Thornton 13-22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-30-13)		

Project SEC.22-T7N-R66W, Weld County, CO

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

Site Thornton 13 Pad Sec.22-T7N-R66W

Site Position:		**Northing:**	1,445,425.41 ft	**Latitude:**	40.553812
From:	Lat/Long	**Easting:**	3,202,339.64 ft	**Longitude:**	-104.771833
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.47 °

Well Thornton 13-22

Well Position	**+N/-S**	16.8 ft	**Northing:**	1,445,441.96 ft	**Latitude:**	40.553858
	+E/-W	-25.0 ft	**Easting:**	3,202,314.50 ft	**Longitude:**	-104.771923
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,934.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/30/2013	8.66	67.12	53,039

Design Plan #2 (1-30-13)

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	0.00

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
747.9	8.96	29.78	746.1	30.3	17.4	2.00	2.00	0.00	29.78	
3,590.4	8.96	29.78	3,553.9	414.5	237.2	0.00	0.00	0.00	0.00	
4,038.3	0.00	0.00	4,000.0	444.8	254.5	2.00	-2.00	0.00	180.00	TARGET BHL 668'F
7,668.3	0.00	0.00	7,630.0	444.8	254.5	0.00	0.00	0.00	0.00	

Database:	Landmark	**Local Co-ordinate Reference:**	Well Thornton 13-22
Company:	BAYSWATER EXPLORATION & PRODUCTION	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Project:	SEC.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site:	Thornton 13 Pad Sec.22-T7N-R66W	**North Reference:**	True
Well:	Thornton 13-22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-30-13)		

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
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.40	29.78	320.0	0.1	0.0	0.1	2.00	2.00	0.00
360.0	1.20	29.78	360.0	0.5	0.3	0.5	2.00	2.00	0.00
400.0	2.00	29.78	400.0	1.5	0.9	1.5	2.00	2.00	0.00
440.0	2.80	29.78	439.9	3.0	1.7	3.0	2.00	2.00	0.00
480.0	3.60	29.78	479.9	4.9	2.8	4.9	2.00	2.00	0.00
520.0	4.40	29.78	519.8	7.3	4.2	7.3	2.00	2.00	0.00
560.0	5.20	29.78	559.6	10.2	5.9	10.2	2.00	2.00	0.00
600.0	6.00	29.78	599.5	13.6	7.8	13.6	2.00	2.00	0.00
640.0	6.80	29.78	639.2	17.5	10.0	17.5	2.00	2.00	0.00
680.0	7.60	29.78	678.9	21.8	12.5	21.8	2.00	2.00	0.00
720.0	8.40	29.78	718.5	26.7	15.3	26.7	2.00	2.00	0.00
747.9	8.96	29.78	746.1	30.3	17.4	30.3	2.00	2.00	0.00
760.0	8.96	29.78	758.0	32.0	18.3	32.0	0.00	0.00	0.00
800.0	8.96	29.78	797.5	37.4	21.4	37.4	0.00	0.00	0.00
840.0	8.96	29.78	837.1	42.8	24.5	42.8	0.00	0.00	0.00
880.0	8.96	29.78	876.6	48.2	27.6	48.2	0.00	0.00	0.00
920.0	8.96	29.78	916.1	53.6	30.7	53.6	0.00	0.00	0.00
960.0	8.96	29.78	955.6	59.0	33.8	59.0	0.00	0.00	0.00
1,000.0	8.96	29.78	995.1	64.4	36.9	64.4	0.00	0.00	0.00
1,040.0	8.96	29.78	1,034.6	69.8	39.9	69.8	0.00	0.00	0.00
1,080.0	8.96	29.78	1,074.1	75.2	43.0	75.2	0.00	0.00	0.00
1,120.0	8.96	29.78	1,113.6	80.6	46.1	80.6	0.00	0.00	0.00
1,160.0	8.96	29.78	1,153.2	86.0	49.2	86.0	0.00	0.00	0.00
1,200.0	8.96	29.78	1,192.7	91.4	52.3	91.4	0.00	0.00	0.00
1,240.0	8.96	29.78	1,232.2	96.8	55.4	96.8	0.00	0.00	0.00
1,280.0	8.96	29.78	1,271.7	102.2	58.5	102.3	0.00	0.00	0.00
1,320.0	8.96	29.78	1,311.2	107.7	61.6	107.7	0.00	0.00	0.00
1,360.0	8.96	29.78	1,350.7	113.1	64.7	113.1	0.00	0.00	0.00
1,400.0	8.96	29.78	1,390.2	118.5	67.8	118.5	0.00	0.00	0.00
1,440.0	8.96	29.78	1,429.7	123.9	70.9	123.9	0.00	0.00	0.00
1,480.0	8.96	29.78	1,469.2	129.3	74.0	129.3	0.00	0.00	0.00
1,520.0	8.96	29.78	1,508.8	134.7	77.1	134.7	0.00	0.00	0.00
1,560.0	8.96	29.78	1,548.3	140.1	80.2	140.1	0.00	0.00	0.00
1,600.0	8.96	29.78	1,587.8	145.5	83.3	145.5	0.00	0.00	0.00
1,640.0	8.96	29.78	1,627.3	150.9	86.3	150.9	0.00	0.00	0.00
1,680.0	8.96	29.78	1,666.8	156.3	89.4	156.3	0.00	0.00	0.00
1,720.0	8.96	29.78	1,706.3	161.7	92.5	161.7	0.00	0.00	0.00
1,760.0	8.96	29.78	1,745.8	167.1	95.6	167.1	0.00	0.00	0.00
1,800.0	8.96	29.78	1,785.3	172.5	98.7	172.5	0.00	0.00	0.00
1,840.0	8.96	29.78	1,824.9	177.9	101.8	177.9	0.00	0.00	0.00
1,880.0	8.96	29.78	1,864.4	183.3	104.9	183.3	0.00	0.00	0.00
1,920.0	8.96	29.78	1,903.9	188.7	108.0	188.8	0.00	0.00	0.00
1,960.0	8.96	29.78	1,943.4	194.2	111.1	194.2	0.00	0.00	0.00
2,000.0	8.96	29.78	1,982.9	199.6	114.2	199.6	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Thornton 13-22
Company:	BAYSWATER EXPLORATION & PRODUCTION	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Project:	SEC.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site:	Thornton 13 Pad Sec.22-T7N-R66W	**North Reference:**	True
Well:	Thornton 13-22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-30-13)		

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	8.96	29.78	2,022.4	205.0	117.3	205.0	0.00	0.00	0.00
2,080.0	8.96	29.78	2,061.9	210.4	120.4	210.4	0.00	0.00	0.00
2,120.0	8.96	29.78	2,101.4	215.8	123.5	215.8	0.00	0.00	0.00
2,160.0	8.96	29.78	2,141.0	221.2	126.6	221.2	0.00	0.00	0.00
2,200.0	8.96	29.78	2,180.5	226.6	129.7	226.6	0.00	0.00	0.00
2,240.0	8.96	29.78	2,220.0	232.0	132.7	232.0	0.00	0.00	0.00
2,280.0	8.96	29.78	2,259.5	237.4	135.8	237.4	0.00	0.00	0.00
2,320.0	8.96	29.78	2,299.0	242.8	138.9	242.8	0.00	0.00	0.00
2,360.0	8.96	29.78	2,338.5	248.2	142.0	248.2	0.00	0.00	0.00
2,400.0	8.96	29.78	2,378.0	253.6	145.1	253.6	0.00	0.00	0.00
2,440.0	8.96	29.78	2,417.5	259.0	148.2	259.0	0.00	0.00	0.00
2,480.0	8.96	29.78	2,457.0	264.4	151.3	264.4	0.00	0.00	0.00
2,520.0	8.96	29.78	2,496.6	269.8	154.4	269.9	0.00	0.00	0.00
2,560.0	8.96	29.78	2,536.1	275.2	157.5	275.3	0.00	0.00	0.00
2,600.0	8.96	29.78	2,575.6	280.7	160.6	280.7	0.00	0.00	0.00
2,640.0	8.96	29.78	2,615.1	286.1	163.7	286.1	0.00	0.00	0.00
2,680.0	8.96	29.78	2,654.6	291.5	166.8	291.5	0.00	0.00	0.00
2,720.0	8.96	29.78	2,694.1	296.9	169.9	296.9	0.00	0.00	0.00
2,760.0	8.96	29.78	2,733.6	302.3	173.0	302.3	0.00	0.00	0.00
2,800.0	8.96	29.78	2,773.1	307.7	176.1	307.7	0.00	0.00	0.00
2,840.0	8.96	29.78	2,812.7	313.1	179.2	313.1	0.00	0.00	0.00
2,880.0	8.96	29.78	2,852.2	318.5	182.2	318.5	0.00	0.00	0.00
2,920.0	8.96	29.78	2,891.7	323.9	185.3	323.9	0.00	0.00	0.00
2,960.0	8.96	29.78	2,931.2	329.3	188.4	329.3	0.00	0.00	0.00
3,000.0	8.96	29.78	2,970.7	334.7	191.5	334.7	0.00	0.00	0.00
3,040.0	8.96	29.78	3,010.2	340.1	194.6	340.1	0.00	0.00	0.00
3,080.0	8.96	29.78	3,049.7	345.5	197.7	345.5	0.00	0.00	0.00
3,120.0	8.96	29.78	3,089.2	350.9	200.8	351.0	0.00	0.00	0.00
3,160.0	8.96	29.78	3,128.8	356.3	203.9	356.4	0.00	0.00	0.00
3,200.0	8.96	29.78	3,168.3	361.7	207.0	361.8	0.00	0.00	0.00
3,240.0	8.96	29.78	3,207.8	367.2	210.1	367.2	0.00	0.00	0.00
3,280.0	8.96	29.78	3,247.3	372.6	213.2	372.6	0.00	0.00	0.00
3,320.0	8.96	29.78	3,286.8	378.0	216.3	378.0	0.00	0.00	0.00
3,360.0	8.96	29.78	3,326.3	383.4	219.4	383.4	0.00	0.00	0.00
3,400.0	8.96	29.78	3,365.8	388.8	222.5	388.8	0.00	0.00	0.00
3,440.0	8.96	29.78	3,405.3	394.2	225.6	394.2	0.00	0.00	0.00
3,480.0	8.96	29.78	3,444.8	399.6	228.6	399.6	0.00	0.00	0.00
3,520.0	8.96	29.78	3,484.4	405.0	231.7	405.0	0.00	0.00	0.00
3,560.0	8.96	29.78	3,523.9	410.4	234.8	410.4	0.00	0.00	0.00
3,590.4	8.96	29.78	3,553.9	414.5	237.2	414.5	0.00	0.00	0.00
3,600.0	8.77	29.78	3,563.4	415.8	237.9	415.8	2.00	-2.00	0.00
3,640.0	7.97	29.78	3,603.0	420.9	240.8	420.9	2.00	-2.00	0.00
3,680.0	7.17	29.78	3,642.6	425.4	243.4	425.4	2.00	-2.00	0.00
3,720.0	6.37	29.78	3,682.3	429.5	245.8	429.5	2.00	-2.00	0.00
3,760.0	5.57	29.78	3,722.1	433.1	247.8	433.1	2.00	-2.00	0.00
3,800.0	4.77	29.78	3,762.0	436.2	249.6	436.3	2.00	-2.00	0.00
3,840.0	3.97	29.78	3,801.8	438.9	251.1	438.9	2.00	-2.00	0.00
3,880.0	3.17	29.78	3,841.8	441.1	252.4	441.1	2.00	-2.00	0.00
3,920.0	2.37	29.78	3,881.7	442.7	253.3	442.7	2.00	-2.00	0.00
3,960.0	1.57	29.78	3,921.7	443.9	254.0	443.9	2.00	-2.00	0.00
4,000.0	0.77	29.78	3,961.7	444.6	254.4	444.6	2.00	-2.00	0.00
4,038.3	0.00	0.00	4,000.0	444.8	254.5	444.9	2.00	-2.00	0.00
4,040.0	0.00	0.00	4,001.7	444.8	254.5	444.9	0.00	0.00	0.00

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Project:	SEC.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site:	Thornton 13 Pad Sec.22-T7N-R66W	**North Reference:**	True
Well:	Thornton 13-22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-30-13)		

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)
4,080.0	0.00	0.00	4,041.7	444.8	254.5	444.9	0.00	0.00	0.00
4,120.0	0.00	0.00	4,081.7	444.8	254.5	444.9	0.00	0.00	0.00
4,160.0	0.00	0.00	4,121.7	444.8	254.5	444.9	0.00	0.00	0.00
4,200.0	0.00	0.00	4,161.7	444.8	254.5	444.9	0.00	0.00	0.00
4,240.0	0.00	0.00	4,201.7	444.8	254.5	444.9	0.00	0.00	0.00
4,280.0	0.00	0.00	4,241.7	444.8	254.5	444.9	0.00	0.00	0.00
4,320.0	0.00	0.00	4,281.7	444.8	254.5	444.9	0.00	0.00	0.00
4,360.0	0.00	0.00	4,321.7	444.8	254.5	444.9	0.00	0.00	0.00
4,400.0	0.00	0.00	4,361.7	444.8	254.5	444.9	0.00	0.00	0.00
4,440.0	0.00	0.00	4,401.7	444.8	254.5	444.9	0.00	0.00	0.00
4,480.0	0.00	0.00	4,441.7	444.8	254.5	444.9	0.00	0.00	0.00
4,520.0	0.00	0.00	4,481.7	444.8	254.5	444.9	0.00	0.00	0.00
4,560.0	0.00	0.00	4,521.7	444.8	254.5	444.9	0.00	0.00	0.00
4,600.0	0.00	0.00	4,561.7	444.8	254.5	444.9	0.00	0.00	0.00
4,640.0	0.00	0.00	4,601.7	444.8	254.5	444.9	0.00	0.00	0.00
4,680.0	0.00	0.00	4,641.7	444.8	254.5	444.9	0.00	0.00	0.00
4,720.0	0.00	0.00	4,681.7	444.8	254.5	444.9	0.00	0.00	0.00
4,760.0	0.00	0.00	4,721.7	444.8	254.5	444.9	0.00	0.00	0.00
4,800.0	0.00	0.00	4,761.7	444.8	254.5	444.9	0.00	0.00	0.00
4,840.0	0.00	0.00	4,801.7	444.8	254.5	444.9	0.00	0.00	0.00
4,880.0	0.00	0.00	4,841.7	444.8	254.5	444.9	0.00	0.00	0.00
4,920.0	0.00	0.00	4,881.7	444.8	254.5	444.9	0.00	0.00	0.00
4,960.0	0.00	0.00	4,921.7	444.8	254.5	444.9	0.00	0.00	0.00
5,000.0	0.00	0.00	4,961.7	444.8	254.5	444.9	0.00	0.00	0.00
5,040.0	0.00	0.00	5,001.7	444.8	254.5	444.9	0.00	0.00	0.00
5,080.0	0.00	0.00	5,041.7	444.8	254.5	444.9	0.00	0.00	0.00
5,120.0	0.00	0.00	5,081.7	444.8	254.5	444.9	0.00	0.00	0.00
5,160.0	0.00	0.00	5,121.7	444.8	254.5	444.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,161.7	444.8	254.5	444.9	0.00	0.00	0.00
5,240.0	0.00	0.00	5,201.7	444.8	254.5	444.9	0.00	0.00	0.00
5,280.0	0.00	0.00	5,241.7	444.8	254.5	444.9	0.00	0.00	0.00
5,320.0	0.00	0.00	5,281.7	444.8	254.5	444.9	0.00	0.00	0.00
5,360.0	0.00	0.00	5,321.7	444.8	254.5	444.9	0.00	0.00	0.00
5,400.0	0.00	0.00	5,361.7	444.8	254.5	444.9	0.00	0.00	0.00
5,440.0	0.00	0.00	5,401.7	444.8	254.5	444.9	0.00	0.00	0.00
5,480.0	0.00	0.00	5,441.7	444.8	254.5	444.9	0.00	0.00	0.00
5,520.0	0.00	0.00	5,481.7	444.8	254.5	444.9	0.00	0.00	0.00
5,560.0	0.00	0.00	5,521.7	444.8	254.5	444.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,561.7	444.8	254.5	444.9	0.00	0.00	0.00
5,640.0	0.00	0.00	5,601.7	444.8	254.5	444.9	0.00	0.00	0.00
5,680.0	0.00	0.00	5,641.7	444.8	254.5	444.9	0.00	0.00	0.00
5,720.0	0.00	0.00	5,681.7	444.8	254.5	444.9	0.00	0.00	0.00
5,760.0	0.00	0.00	5,721.7	444.8	254.5	444.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,761.7	444.8	254.5	444.9	0.00	0.00	0.00
5,840.0	0.00	0.00	5,801.7	444.8	254.5	444.9	0.00	0.00	0.00
5,880.0	0.00	0.00	5,841.7	444.8	254.5	444.9	0.00	0.00	0.00
5,920.0	0.00	0.00	5,881.7	444.8	254.5	444.9	0.00	0.00	0.00
5,960.0	0.00	0.00	5,921.7	444.8	254.5	444.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,961.7	444.8	254.5	444.9	0.00	0.00	0.00
6,040.0	0.00	0.00	6,001.7	444.8	254.5	444.9	0.00	0.00	0.00
6,080.0	0.00	0.00	6,041.7	444.8	254.5	444.9	0.00	0.00	0.00
6,120.0	0.00	0.00	6,081.7	444.8	254.5	444.9	0.00	0.00	0.00
6,160.0	0.00	0.00	6,121.7	444.8	254.5	444.9	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Thornton 13-22
Company:	BAYSWATER EXPLORATION & PRODUCTION	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Project:	SEC.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site:	Thornton 13 Pad Sec.22-T7N-R66W	**North Reference:**	True
Well:	Thornton 13-22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-30-13)		

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)
6,200.0	0.00	0.00	6,161.7	444.8	254.5	444.9	0.00	0.00	0.00
6,240.0	0.00	0.00	6,201.7	444.8	254.5	444.9	0.00	0.00	0.00
6,280.0	0.00	0.00	6,241.7	444.8	254.5	444.9	0.00	0.00	0.00
6,320.0	0.00	0.00	6,281.7	444.8	254.5	444.9	0.00	0.00	0.00
6,360.0	0.00	0.00	6,321.7	444.8	254.5	444.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,361.7	444.8	254.5	444.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,401.7	444.8	254.5	444.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,441.7	444.8	254.5	444.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,481.7	444.8	254.5	444.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,521.7	444.8	254.5	444.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,561.7	444.8	254.5	444.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,601.7	444.8	254.5	444.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,641.7	444.8	254.5	444.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,681.7	444.8	254.5	444.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,721.7	444.8	254.5	444.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,761.7	444.8	254.5	444.9	0.00	0.00	0.00
6,840.0	0.00	0.00	6,801.7	444.8	254.5	444.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,841.7	444.8	254.5	444.9	0.00	0.00	0.00
6,920.0	0.00	0.00	6,881.7	444.8	254.5	444.9	0.00	0.00	0.00
6,960.0	0.00	0.00	6,921.7	444.8	254.5	444.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,961.7	444.8	254.5	444.9	0.00	0.00	0.00
7,040.0	0.00	0.00	7,001.7	444.8	254.5	444.9	0.00	0.00	0.00
7,080.0	0.00	0.00	7,041.7	444.8	254.5	444.9	0.00	0.00	0.00
7,120.0	0.00	0.00	7,081.7	444.8	254.5	444.9	0.00	0.00	0.00
7,160.0	0.00	0.00	7,121.7	444.8	254.5	444.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,161.7	444.8	254.5	444.9	0.00	0.00	0.00
7,240.0	0.00	0.00	7,201.7	444.8	254.5	444.9	0.00	0.00	0.00
7,280.0	0.00	0.00	7,241.7	444.8	254.5	444.9	0.00	0.00	0.00
7,320.0	0.00	0.00	7,281.7	444.8	254.5	444.9	0.00	0.00	0.00
7,360.0	0.00	0.00	7,321.7	444.8	254.5	444.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,361.7	444.8	254.5	444.9	0.00	0.00	0.00
7,440.0	0.00	0.00	7,401.7	444.8	254.5	444.9	0.00	0.00	0.00
7,480.0	0.00	0.00	7,441.7	444.8	254.5	444.9	0.00	0.00	0.00
7,520.0	0.00	0.00	7,481.7	444.8	254.5	444.9	0.00	0.00	0.00
7,560.0	0.00	0.00	7,521.7	444.8	254.5	444.9	0.00	0.00	0.00
7,600.0	0.00	0.00	7,561.7	444.8	254.5	444.9	0.00	0.00	0.00
7,640.0	0.00	0.00	7,601.7	444.8	254.5	444.9	0.00	0.00	0.00
7,668.3	0.00	0.00	7,630.0	444.8	254.5	444.9	0.00	0.00	0.00

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
858.2	855.0	8 5/8"	8-5/8	12-1/4

Database:	Landmark	**Local Co-ordinate Reference:**	Well Thornton 13-22
Company:	BAYSWATER EXPLORATION & PRODUCTION	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Project:	SEC.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site:	Thornton 13 Pad Sec.22-T7N-R66W	**North Reference:**	True
Well:	Thornton 13-22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-30-13)		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,953.3	3,915.0	PARKMAN		0.00	
4,635.3	4,597.0	SUSSEX		0.00	
5,233.3	5,195.0	SHANNON		0.00	
7,213.3	7,175.0	NIOBRARA		0.00	
7,483.3	7,445.0	FORT HAYS		0.00	
7,519.3	7,481.0	CODELL		0.00	
7,565.3	7,527.0	GREENHORN		0.00	
7,646.3	7,608.0	GRANEROS		0.00	

ENSIGN
Directional

BAYSWATER EXPLORATION & PRODUCTION

SEC.22-T7N-R66W
Thornton 13 Pad Sec.22-T7N-R66W
Thornton 13-22

Wellbore #1
Plan #2 (1-30-13)

Anticollision Report

01 February, 2013

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Reference Plan #2 (1-30-13)

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 1/31/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,668.3	Plan #2 (1-30-13) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Thornton 13 Pad Sec.22-T7N-R66W						
Thornton 12-22 - Wellbore #1 - Plan #2 (1-30-13)	235.0	235.0	15.1	14.2	18.099	CC
Thornton 12-22 - Wellbore #1 - Plan #2 (1-30-13)	300.0	299.9	15.2	14.1	13.570	ES
Thornton 12-22 - Wellbore #1 - Plan #2 (1-30-13)	600.0	598.7	23.4	20.8	9.229	SF
Thornton 19-22 - Wellbore #1 - Plan #2 (1-30-13)	300.0	300.0	15.1	13.9	13.394	CC
Thornton 19-22 - Wellbore #1 - Plan #2 (1-30-13)	400.0	400.0	15.3	13.7	9.719	ES
Thornton 19-22 - Wellbore #1 - Plan #2 (1-30-13)	1,600.0	1,604.9	42.1	32.9	4.545	SF
Thornton 22-22 - Wellbore #1 - Plan #1 (1-30-13)	300.0	300.0	14.9	13.8	13.286	CC
Thornton 22-22 - Wellbore #1 - Plan #1 (1-30-13)	1,223.9	1,228.7	20.1	13.5	3.042	ES, SF
Thornton 25-22 - Wellbore #1 - Plan #1 (1-30-13)	300.0	300.0	21.2	20.1	18.847	CC, ES
Thornton 25-22 - Wellbore #1 - Plan #1 (1-30-13)	2,300.0	2,311.9	118.7	104.1	8.168	SF
Thornton 34-22 - Wellbore #1 - Plan #1 (1-30-13)	300.0	300.0	21.2	20.1	18.885	CC, ES
Thornton 34-22 - Wellbore #1 - Plan #1 (1-30-13)	500.0	499.8	26.3	24.3	12.974	SF

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 12-22 - Wellbore #1 - Plan #2 (1-30-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-56.19	8.4	-12.5	15.1	15.1	0.00	N/A	
100.0	100.0	100.0	100.0	0.1	0.1	-56.19	8.4	-12.5	15.1	14.8	0.22	66.961	
200.0	200.0	200.0	200.0	0.3	0.3	-56.19	8.4	-12.5	15.1	14.4	0.67	22.320	
235.0	235.0	235.0	235.0	0.4	0.4	-56.19	8.4	-12.5	15.1	14.2	0.83	18.099	CC
300.0	300.0	299.9	299.9	0.6	0.6	-54.71	8.8	-12.4	15.2	14.1	1.12	13.570	ES
400.0	400.0	399.6	399.5	0.8	0.8	-79.78	12.2	-11.9	16.7	15.1	1.57	10.624	
500.0	499.8	499.2	498.9	1.0	1.0	-77.44	19.1	-10.9	19.4	17.4	2.03	9.551	
600.0	599.5	598.7	597.9	1.3	1.3	-77.01	29.3	-9.4	23.4	20.8	2.53	9.229	SF
700.0	698.7	698.1	696.3	1.5	1.6	-77.74	43.0	-7.4	28.4	25.4	3.08	9.233	
800.0	797.5	797.3	794.0	1.8	1.9	-78.34	59.9	-4.9	34.8	31.1	3.70	9.403	
900.0	896.3	896.2	890.7	2.2	2.3	-75.44	80.2	-1.9	43.0	38.6	4.36	9.866	
1,000.0	995.1	994.5	986.2	2.5	2.7	-70.58	103.5	1.6	53.4	48.4	5.02	10.637	
1,100.0	1,093.9	1,092.1	1,080.0	2.9	3.2	-65.24	129.9	5.5	66.5	60.9	5.68	11.719	
1,200.0	1,192.7	1,188.7	1,172.0	3.2	3.8	-60.18	159.2	9.8	82.6	76.3	6.31	13.087	
1,300.0	1,291.4	1,284.1	1,261.8	3.6	4.4	-55.72	191.0	14.5	101.8	94.9	6.93	14.694	

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

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 12-22 - Wellbore #1 - Plan #2 (1-30-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,400.0	1,390.2	1,380.3	1,351.4	3.9	5.0	-51.99	225.5	19.6	123.7	116.1	7.53	16.417	
1,500.0	1,489.0	1,477.5	1,441.9	4.3	5.7	-49.30	260.7	24.8	146.1	138.0	8.14	17.944	
1,600.0	1,587.8	1,574.8	1,532.5	4.6	6.3	-47.33	295.8	30.0	168.8	160.1	8.76	19.274	
1,700.0	1,686.6	1,672.0	1,623.0	5.0	7.0	-45.83	331.0	35.2	191.6	182.3	9.38	20.434	
1,800.0	1,785.3	1,769.3	1,713.5	5.3	7.7	-44.64	366.1	40.4	214.6	204.6	10.00	21.451	
1,900.0	1,884.1	1,866.5	1,804.0	5.7	8.4	-43.69	401.3	45.6	237.6	226.9	10.63	22.348	
2,000.0	1,982.9	1,963.8	1,894.6	6.1	9.1	-42.90	436.4	50.8	260.6	249.4	11.26	23.145	
2,100.0	2,081.7	2,061.0	1,985.1	6.4	9.7	-42.24	471.6	56.0	283.7	271.8	11.89	23.855	
2,200.0	2,180.5	2,158.3	2,075.6	6.8	10.4	-41.68	506.7	61.2	306.9	294.3	12.53	24.492	
2,300.0	2,279.2	2,255.5	2,166.1	7.1	11.1	-41.20	541.9	66.4	330.0	316.8	13.16	25.067	
2,400.0	2,378.0	2,352.8	2,256.7	7.5	11.8	-40.78	577.0	71.6	353.2	339.4	13.80	25.587	
2,500.0	2,476.8	2,450.0	2,347.2	7.9	12.5	-40.42	612.2	76.8	376.3	361.9	14.44	26.060	
2,600.0	2,575.6	2,547.3	2,437.7	8.2	13.2	-40.09	647.3	82.0	399.5	384.5	15.08	26.493	
2,700.0	2,674.4	2,644.5	2,528.2	8.6	13.9	-39.80	682.5	87.2	422.7	407.0	15.72	26.889	
2,800.0	2,773.1	2,741.8	2,618.8	9.0	14.6	-39.54	717.6	92.4	446.0	429.6	16.36	27.253	
2,900.0	2,871.9	2,839.0	2,709.3	9.3	15.3	-39.31	752.8	97.6	469.2	452.2	17.01	27.589	
3,000.0	2,970.7	2,936.3	2,799.8	9.7	16.0	-39.10	787.9	102.8	492.4	474.8	17.65	27.900	
3,100.0	3,069.5	3,033.5	2,890.4	10.0	16.7	-38.91	823.1	108.0	515.6	497.4	18.29	28.189	
3,200.0	3,168.3	3,130.8	2,980.9	10.4	17.4	-38.73	858.2	113.2	538.9	519.9	18.94	28.457	
3,300.0	3,267.0	3,228.0	3,071.4	10.8	18.0	-38.57	893.4	118.4	562.1	542.5	19.58	28.708	
3,400.0	3,365.8	3,325.3	3,161.9	11.1	18.7	-38.42	928.5	123.6	585.4	565.2	20.23	28.942	
3,500.0	3,464.6	3,422.5	3,252.5	11.5	19.4	-38.29	963.7	128.8	608.6	587.8	20.87	29.161	
3,600.0	3,563.4	3,519.8	3,343.0	11.9	20.1	-38.19	998.8	134.0	631.9	610.4	21.51	29.372	
3,700.0	3,662.5	3,616.6	3,433.1	12.1	20.8	-38.27	1,033.8	139.2	656.7	634.7	22.06	29.773	
3,800.0	3,762.0	3,712.6	3,522.5	12.4	21.5	-38.22	1,068.5	144.4	684.3	661.7	22.54	30.355	
3,900.0	3,861.7	3,807.7	3,611.0	12.5	22.2	-38.07	1,102.9	149.4	714.4	691.5	22.96	31.110	
4,000.0	3,961.7	3,901.8	3,698.6	12.7	22.9	-37.82	1,136.9	154.5	747.3	724.0	23.33	32.034	
4,100.0	4,061.7	3,995.0	3,785.4	12.8	23.5	-7.46	1,170.6	159.5	782.4	758.7	23.66	33.062	
4,200.0	4,161.7	4,088.1	3,872.0	13.0	24.2	-6.77	1,204.2	164.4	817.7	793.7	24.03	34.024	
4,300.0	4,261.7	4,181.2	3,958.7	13.1	24.9	-6.13	1,237.9	169.4	853.2	828.8	24.42	34.944	
4,400.0	4,361.7	4,274.3	4,045.3	13.3	25.5	-5.54	1,271.5	174.4	888.8	864.0	24.81	35.824	
4,500.0	4,461.7	4,367.3	4,132.0	13.4	26.2	-4.99	1,305.2	179.4	924.4	899.2	25.21	36.664	
4,600.0	4,561.7	4,460.4	4,218.6	13.6	26.9	-4.49	1,338.8	184.3	960.1	934.5	25.62	37.469	
4,700.0	4,661.7	4,553.5	4,305.3	13.8	27.5	-4.02	1,372.5	189.3	995.9	969.8	26.04	38.238	

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 19-22 - Wellbore #1 - Plan #2 (1-30-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	123.83	-8.4	12.5	15.1	15.1	0.00	N/A	
100.0	100.0	100.0	100.0	0.1	0.1	123.83	-8.4	12.5	15.1	14.8	0.22	66.971	
200.0	200.0	200.0	200.0	0.3	0.3	123.83	-8.4	12.5	15.1	14.4	0.67	22.324	
300.0	300.0	300.0	300.0	0.6	0.6	123.83	-8.4	12.5	15.1	13.9	1.12	13.394	CC
400.0	400.0	400.0	400.0	0.8	0.8	100.58	-8.4	12.5	15.3	13.7	1.57	9.719	ES
500.0	499.8	499.8	499.8	1.0	1.0	118.11	-8.4	12.5	17.0	15.0	2.03	8.404	
600.0	599.5	599.5	599.5	1.3	1.2	137.98	-8.4	12.5	22.5	20.0	2.49	9.022	
700.0	698.7	699.6	699.6	1.5	1.5	150.56	-7.0	13.6	31.2	28.3	2.96	10.570	
800.0	797.5	800.1	799.9	1.8	1.7	156.56	-2.9	16.9	40.6	37.2	3.41	11.904	
900.0	896.3	901.2	900.6	2.2	1.9	158.42	4.0	22.4	47.6	43.7	3.89	12.251	
1,000.0	995.1	1,002.6	1,001.3	2.5	2.2	157.87	13.7	30.2	51.6	47.2	4.38	11.762	
1,100.0	1,093.9	1,104.2	1,101.6	2.9	2.5	155.35	26.1	40.2	52.5	47.6	4.92	10.678	
1,200.0	1,192.7	1,205.5	1,201.0	3.2	2.8	150.56	41.3	52.4	50.8	45.3	5.52	9.195	
1,300.0	1,291.4	1,306.5	1,299.4	3.6	3.2	142.48	59.2	66.8	46.9	40.6	6.25	7.502	
1,400.0	1,390.2	1,406.8	1,396.2	3.9	3.7	129.29	79.7	83.1	42.2	35.0	7.19	5.862	
1,500.0	1,489.0	1,506.3	1,491.2	4.3	4.2	109.14	102.5	101.5	39.3	31.0	8.34	4.715	
1,508.2	1,497.1	1,514.4	1,498.9	4.3	4.2	107.19	104.5	103.1	39.3	30.9	8.44	4.660	
1,600.0	1,587.8	1,604.9	1,584.9	4.6	4.7	86.37	126.6	120.8	42.1	32.9	9.27	4.545	SF
1,700.0	1,686.6	1,703.5	1,678.6	5.0	5.3	68.72	150.7	140.1	50.5	40.7	9.78	5.162	
1,800.0	1,785.3	1,802.1	1,772.2	5.3	5.9	56.79	174.8	159.5	62.2	52.1	10.13	6.138	
1,900.0	1,884.1	1,900.8	1,865.9	5.7	6.4	48.82	198.9	178.8	75.7	65.2	10.49	7.219	
2,000.0	1,982.9	1,999.4	1,959.5	6.1	7.0	43.33	223.0	198.2	90.3	79.4	10.89	8.290	
2,100.0	2,081.7	2,098.0	2,053.2	6.4	7.6	39.38	247.1	217.5	105.4	94.1	11.32	9.307	
2,200.0	2,180.5	2,196.7	2,146.9	6.8	8.2	36.42	271.2	236.8	120.9	109.1	11.79	10.254	
2,300.0	2,279.2	2,295.3	2,240.5	7.1	8.9	34.14	295.3	256.2	136.6	124.3	12.27	11.128	
2,400.0	2,378.0	2,393.9	2,334.2	7.5	9.5	32.33	319.4	275.5	152.5	139.7	12.78	11.934	
2,500.0	2,476.8	2,492.5	2,427.8	7.9	10.1	30.87	343.5	294.9	168.5	155.2	13.29	12.675	
2,600.0	2,575.6	2,591.2	2,521.5	8.2	10.7	29.66	367.6	314.2	184.6	170.8	13.82	13.359	
2,700.0	2,674.4	2,689.8	2,615.2	8.6	11.3	28.64	391.7	333.5	200.8	186.4	14.35	13.989	
2,800.0	2,773.1	2,788.4	2,708.8	9.0	11.9	27.77	415.8	352.9	217.0	202.1	14.89	14.572	
2,900.0	2,871.9	2,887.0	2,802.5	9.3	12.5	27.03	439.9	372.2	233.3	217.8	15.44	15.112	
3,000.0	2,970.7	2,985.7	2,896.1	9.7	13.2	26.38	464.0	391.5	249.6	233.6	15.98	15.614	
3,100.0	3,069.5	3,084.3	2,989.8	10.0	13.8	25.81	488.1	410.9	265.9	249.4	16.53	16.080	
3,200.0	3,168.3	3,182.9	3,083.5	10.4	14.4	25.31	512.2	430.2	282.2	265.1	17.09	16.516	
3,300.0	3,267.0	3,281.5	3,177.1	10.8	15.0	24.86	536.3	449.6	298.6	281.0	17.65	16.922	
3,400.0	3,365.8	3,380.2	3,270.8	11.1	15.6	24.46	560.4	468.9	315.0	296.8	18.20	17.303	
3,500.0	3,464.6	3,478.8	3,364.4	11.5	16.3	24.10	584.5	488.2	331.4	312.6	18.77	17.660	
3,600.0	3,563.4	3,577.4	3,458.1	11.9	16.9	23.78	608.6	507.6	347.8	328.5	19.32	17.999	
3,700.0	3,662.5	3,675.7	3,551.4	12.1	17.5	23.50	632.6	526.8	366.1	346.3	19.79	18.497	
3,800.0	3,762.0	3,773.3	3,644.1	12.4	18.1	23.08	656.5	546.0	387.6	367.4	20.21	19.181	
3,900.0	3,861.7	3,870.1	3,736.0	12.5	18.7	22.56	680.1	565.0	412.2	391.6	20.57	20.042	
4,000.0	3,961.7	3,965.9	3,827.1	12.7	19.3	21.96	703.5	583.8	440.0	419.2	20.88	21.075	
4,100.0	4,061.7	4,061.0	3,917.3	12.8	19.9	50.98	726.8	602.4	470.4	449.2	21.21	22.177	
4,200.0	4,161.7	4,155.9	4,007.5	13.0	20.5	50.22	750.0	621.0	501.2	479.6	21.61	23.191	
4,300.0	4,261.7	4,250.9	4,097.7	13.1	21.1	49.55	773.2	639.6	532.0	509.9	22.02	24.156	
4,400.0	4,361.7	4,345.9	4,187.9	13.3	21.7	48.95	796.4	658.3	562.8	540.4	22.44	25.077	
4,500.0	4,461.7	4,440.8	4,278.1	13.4	22.3	48.42	819.6	676.9	593.7	570.9	22.88	25.954	
4,600.0	4,561.7	4,535.8	4,368.2	13.6	22.9	47.93	842.8	695.5	624.7	601.4	23.32	26.792	
4,700.0	4,661.7	4,630.8	4,458.4	13.8	23.5	47.50	866.0	714.1	655.7	631.9	23.76	27.593	
4,800.0	4,761.7	4,725.7	4,548.6	13.9	24.1	47.10	889.2	732.7	686.7	662.5	24.21	28.358	
4,900.0	4,861.7	4,820.7	4,638.8	14.1	24.8	46.74	912.4	751.4	717.7	693.1	24.67	29.090	

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

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 19-22 - Wellbore #1 - Plan #2 (1-30-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,961.7	4,915.7	4,729.0	14.3	25.4	46.40	935.6	770.0	748.8	723.7	25.13	29.792	
5,100.0	5,061.7	5,010.6	4,819.2	14.4	26.0	46.10	958.8	788.6	779.9	754.3	25.60	30.464	
5,200.0	5,161.7	5,105.6	4,909.3	14.6	26.6	45.81	982.0	807.2	811.0	784.9	26.07	31.109	
5,300.0	5,261.7	5,200.6	4,999.5	14.8	27.2	45.55	1,005.2	825.8	842.1	815.6	26.54	31.728	
5,400.0	5,361.7	5,335.4	5,128.5	14.9	27.9	45.23	1,035.9	850.5	871.1	844.1	27.08	32.164	
5,500.0	5,461.7	5,475.2	5,264.0	15.1	28.4	44.98	1,062.7	872.0	895.6	868.0	27.61	32.442	
5,600.0	5,561.7	5,618.2	5,404.1	15.3	28.9	44.78	1,084.8	889.6	915.2	887.1	28.11	32.554	
5,700.0	5,661.7	5,763.7	5,548.0	15.4	29.3	44.64	1,101.6	903.1	930.0	901.4	28.60	32.512	
5,800.0	5,761.7	5,911.1	5,694.7	15.6	29.6	44.55	1,112.7	912.1	939.7	910.6	29.07	32.321	
5,900.0	5,861.7	6,059.5	5,843.0	15.8	29.8	44.51	1,118.0	916.4	944.2	914.7	29.51	31.993	
6,000.0	5,961.7	6,178.2	5,961.7	16.0	29.9	44.51	1,118.5	916.7	944.6	914.7	29.90	31.591	
6,100.0	6,061.7	6,278.2	6,061.7	16.2	30.0	44.51	1,118.5	916.7	944.6	914.3	30.28	31.200	
6,200.0	6,161.7	6,378.2	6,161.7	16.3	30.1	44.51	1,118.5	916.7	944.6	913.9	30.65	30.814	
6,300.0	6,261.7	6,478.2	6,261.7	16.5	30.2	44.51	1,118.5	916.7	944.6	913.6	31.04	30.436	
6,400.0	6,361.7	6,578.2	6,361.7	16.7	30.3	44.51	1,118.5	916.7	944.6	913.2	31.42	30.065	
6,500.0	6,461.7	6,678.2	6,461.7	16.9	30.4	44.51	1,118.5	916.7	944.6	912.8	31.80	29.702	
6,600.0	6,561.7	6,778.2	6,561.7	17.1	30.5	44.51	1,118.5	916.7	944.6	912.4	32.19	29.346	
6,700.0	6,661.7	6,878.2	6,661.7	17.3	30.6	44.51	1,118.5	916.7	944.6	912.0	32.58	28.997	
6,800.0	6,761.7	6,978.2	6,761.7	17.4	30.7	44.51	1,118.5	916.7	944.6	911.6	32.96	28.655	
6,900.0	6,861.7	7,078.2	6,861.7	17.6	30.8	44.51	1,118.5	916.7	944.6	911.2	33.35	28.320	
7,000.0	6,961.7	7,178.2	6,961.7	17.8	30.9	44.51	1,118.5	916.7	944.6	910.9	33.75	27.992	
7,100.0	7,061.7	7,278.2	7,061.7	18.0	31.0	44.51	1,118.5	916.7	944.6	910.5	34.14	27.670	
7,200.0	7,161.7	7,378.2	7,161.7	18.2	31.1	44.51	1,118.5	916.7	944.6	910.1	34.53	27.354	
7,300.0	7,261.7	7,478.2	7,261.7	18.4	31.3	44.51	1,118.5	916.7	944.6	909.7	34.93	27.044	
7,400.0	7,361.7	7,578.2	7,361.7	18.6	31.4	44.51	1,118.5	916.7	944.6	909.3	35.32	26.740	
7,500.0	7,461.7	7,678.2	7,461.7	18.8	31.5	44.51	1,118.5	916.7	944.6	908.9	35.72	26.443	
7,600.0	7,561.7	7,778.2	7,561.7	19.0	31.6	44.51	1,118.5	916.7	944.6	908.5	36.12	26.150	
7,643.7	7,605.4	7,822.0	7,605.4	19.0	31.6	44.51	1,118.5	916.7	944.6	908.3	36.30	26.025	
7,668.3	7,630.0	7,841.6	7,625.0	19.1	31.7	44.51	1,118.5	916.7	944.6	908.2	36.39	25.961	

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 22-22 - Wellbore #1 - Plan #1 (1-30-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-146.06	-12.4	-8.3	14.9	14.9	0.00	N/A	
100.0	100.0	100.0	100.0	0.1	0.1	-146.06	-12.4	-8.3	14.9	14.7	0.22	66.429	
200.0	200.0	200.0	200.0	0.3	0.3	-146.06	-12.4	-8.3	14.9	14.3	0.67	22.143	
300.0	300.0	300.0	300.0	0.6	0.6	-146.06	-12.4	-8.3	14.9	13.8	1.12	13.286	CC
400.0	400.0	400.0	400.0	0.8	0.8	-176.27	-12.4	-8.3	16.7	15.1	1.58	10.573	
500.0	499.8	500.5	500.5	1.0	1.0	-176.16	-10.7	-7.7	20.2	18.2	2.03	9.948	
600.0	599.5	601.2	601.1	1.3	1.2	-174.80	-5.8	-5.8	23.8	21.3	2.48	9.586	
700.0	698.7	702.0	701.5	1.5	1.5	-172.68	2.5	-2.6	27.4	24.5	2.93	9.350	
800.0	797.5	803.0	801.6	1.8	1.8	-169.95	14.0	1.8	30.7	27.3	3.40	9.039	
900.0	896.3	903.9	901.4	2.2	2.1	-165.60	28.9	7.6	31.2	27.3	3.90	8.011	
1,000.0	995.1	1,004.8	1,000.3	2.5	2.4	-158.18	47.0	14.5	28.8	24.3	4.46	6.462	
1,100.0	1,093.9	1,105.2	1,098.1	2.9	2.8	-144.36	68.2	22.7	24.3	19.1	5.19	4.684	
1,200.0	1,192.7	1,205.0	1,194.5	3.2	3.3	-117.31	92.5	32.1	20.3	14.0	6.31	3.225	
1,223.9	1,216.2	1,228.7	1,217.2	3.3	3.4	-108.44	98.7	34.5	20.1	13.5	6.61	3.042	ES, SF
1,300.0	1,291.4	1,304.0	1,289.0	3.6	3.8	-79.08	119.6	42.5	22.9	15.7	7.27	3.157	
1,400.0	1,390.2	1,401.8	1,381.5	3.9	4.4	-52.25	149.4	54.0	34.9	27.4	7.52	4.648	
1,500.0	1,489.0	1,498.3	1,471.6	4.3	5.0	-38.50	181.7	66.5	53.4	45.6	7.77	6.873	
1,600.0	1,587.8	1,593.4	1,559.1	4.6	5.7	-31.02	216.2	79.8	76.4	68.2	8.15	9.370	
1,700.0	1,686.6	1,686.7	1,643.9	5.0	6.4	-26.47	252.7	93.9	103.0	94.4	8.60	11.977	
1,800.0	1,785.3	1,778.3	1,725.7	5.3	7.1	-23.46	291.1	108.7	133.0	123.9	9.10	14.626	
1,900.0	1,884.1	1,868.8	1,805.4	5.7	7.9	-21.31	331.3	124.2	166.2	156.6	9.62	17.276	
2,000.0	1,982.9	1,962.7	1,887.4	6.1	8.8	-19.76	373.8	140.6	200.4	190.3	10.17	19.717	
2,100.0	2,081.7	2,056.5	1,969.4	6.4	9.6	-18.65	416.3	156.9	234.8	224.0	10.73	21.887	
2,200.0	2,180.5	2,150.4	2,051.5	6.8	10.5	-17.83	458.8	173.3	269.2	257.9	11.30	23.823	
2,300.0	2,279.2	2,244.2	2,133.5	7.1	11.3	-17.20	501.3	189.7	303.6	291.7	11.88	25.558	
2,400.0	2,378.0	2,338.0	2,215.6	7.5	12.2	-16.70	543.8	206.1	338.1	325.6	12.47	27.119	
2,500.0	2,476.8	2,431.9	2,297.6	7.9	13.1	-16.28	586.3	222.5	372.6	359.5	13.06	28.531	
2,600.0	2,575.6	2,525.7	2,379.7	8.2	13.9	-15.94	628.7	238.9	407.0	393.4	13.65	29.813	
2,700.0	2,674.4	2,619.5	2,461.7	8.6	14.8	-15.65	671.2	255.3	441.6	427.3	14.25	30.982	
2,800.0	2,773.1	2,713.4	2,543.7	9.0	15.7	-15.41	713.7	271.6	476.1	461.2	14.85	32.051	
2,900.0	2,871.9	2,807.2	2,625.8	9.3	16.6	-15.19	756.2	288.0	510.6	495.1	15.46	33.033	
3,000.0	2,970.7	2,901.0	2,707.8	9.7	17.4	-15.01	798.7	304.4	545.1	529.1	16.06	33.937	
3,100.0	3,069.5	2,994.9	2,789.9	10.0	18.3	-14.84	841.2	320.8	579.7	563.0	16.67	34.772	
3,200.0	3,168.3	3,088.7	2,871.9	10.4	19.2	-14.70	883.7	337.2	614.2	596.9	17.28	35.545	
3,300.0	3,267.0	3,182.6	2,953.9	10.8	20.1	-14.57	926.2	353.6	648.7	630.8	17.89	36.264	
3,400.0	3,365.8	3,276.4	3,036.0	11.1	20.9	-14.45	968.7	369.9	683.3	664.8	18.50	36.932	
3,500.0	3,464.6	3,370.2	3,118.0	11.5	21.8	-14.34	1,011.2	386.3	717.8	698.7	19.11	37.557	
3,600.0	3,563.4	3,464.1	3,200.1	11.9	22.7	-14.26	1,053.7	402.7	752.4	732.7	19.72	38.158	
3,700.0	3,662.5	3,557.2	3,281.5	12.1	23.6	-14.33	1,095.9	419.0	788.8	768.6	20.18	39.079	
3,800.0	3,762.0	3,649.0	3,361.7	12.4	24.4	-14.36	1,137.4	435.0	828.4	807.8	20.61	40.199	
3,900.0	3,861.7	3,739.4	3,440.8	12.5	25.3	-14.37	1,178.4	450.8	871.0	850.0	20.98	41.514	
4,000.0	3,961.7	3,828.2	3,518.5	12.7	26.1	-14.36	1,218.6	466.3	916.7	895.4	21.31	43.022	
4,100.0	4,061.7	3,915.8	3,595.0	12.8	26.9	15.60	1,258.3	481.6	964.9	943.2	21.71	44.449	

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 25-22 - Wellbore #1 - Plan #1 (1-30-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	168.65	-20.8	4.2	21.2				
100.0	100.0	100.0	100.0	0.1	0.1	168.65	-20.8	4.2	21.2	21.0	0.22	94.234	
200.0	200.0	200.0	200.0	0.3	0.3	168.65	-20.8	4.2	21.2	20.5	0.67	31.411	
300.0	300.0	300.0	300.0	0.6	0.6	168.65	-20.8	4.2	21.2	20.1	1.12	18.847	CC, ES
400.0	400.0	400.0	400.0	0.8	0.8	141.78	-20.8	4.2	22.5	20.9	1.58	14.299	
500.0	499.8	499.8	499.8	1.0	1.0	148.66	-20.8	4.2	26.8	24.8	2.03	13.207	
600.0	599.5	599.5	599.5	1.3	1.2	156.12	-20.8	4.2	34.6	32.1	2.49	13.875	
700.0	698.7	698.7	698.7	1.5	1.5	162.21	-20.8	4.2	46.0	43.0	2.95	15.575	
800.0	797.5	797.5	797.5	1.8	1.7	166.56	-20.8	4.2	60.6	57.2	3.41	17.781	
900.0	896.3	896.3	896.3	2.2	1.9	169.29	-20.8	4.2	75.9	72.0	3.87	19.624	
1,000.0	995.1	995.1	995.1	2.5	2.1	171.11	-20.8	4.2	91.2	86.9	4.32	21.093	
1,100.0	1,093.9	1,097.0	1,097.0	2.9	2.3	172.02	-19.7	5.4	105.2	100.5	4.79	21.993	
1,200.0	1,192.7	1,199.9	1,199.8	3.2	2.6	171.86	-16.3	9.5	116.1	110.9	5.25	22.131	
1,300.0	1,291.4	1,303.4	1,302.9	3.6	2.8	170.91	-10.5	16.5	123.9	118.2	5.73	21.638	
1,400.0	1,390.2	1,407.2	1,405.8	3.9	3.1	169.23	-2.3	26.4	128.6	122.4	6.22	20.659	
1,500.0	1,489.0	1,511.0	1,508.3	4.3	3.4	166.79	8.3	39.1	130.3	123.6	6.75	19.303	
1,600.0	1,587.8	1,614.6	1,609.9	4.6	3.7	163.45	21.3	54.6	129.4	122.1	7.33	17.662	
1,700.0	1,686.6	1,717.7	1,710.2	5.0	4.1	159.01	36.5	72.9	126.1	118.1	7.97	15.820	
1,800.0	1,785.3	1,820.0	1,808.8	5.3	4.5	153.16	53.8	93.7	121.1	112.4	8.73	13.868	
1,900.0	1,884.1	1,921.3	1,905.5	5.7	5.0	145.51	73.3	117.0	115.3	105.6	9.66	11.937	
2,000.0	1,982.9	2,021.3	1,999.8	6.1	5.5	135.73	94.6	142.6	110.1	99.3	10.79	10.198	
2,100.0	2,081.7	2,119.9	2,091.6	6.4	6.1	123.77	117.6	170.2	107.5	95.3	12.11	8.875	
2,111.4	2,092.9	2,131.0	2,101.9	6.5	6.2	122.29	120.3	173.5	107.4	95.2	12.26	8.759	
2,200.0	2,180.5	2,216.8	2,180.6	6.8	6.8	110.30	142.2	199.7	109.7	96.3	13.43	8.168	
2,300.0	2,279.2	2,311.9	2,266.5	7.1	7.5	96.73	168.2	230.9	118.7	104.1	14.53	8.168	SF
2,400.0	2,378.0	2,405.0	2,349.3	7.5	8.3	84.51	195.4	263.6	135.1	119.8	15.30	8.827	
2,500.0	2,476.8	2,496.0	2,428.9	7.9	9.1	74.38	223.7	297.5	158.4	142.6	15.82	10.013	
2,600.0	2,575.6	2,584.7	2,505.1	8.2	10.0	66.36	252.7	332.4	187.8	171.6	16.21	11.580	
2,700.0	2,674.4	2,671.2	2,578.0	8.6	10.9	60.10	282.5	368.1	222.1	205.6	16.56	13.413	
2,800.0	2,773.1	2,760.0	2,651.8	9.0	11.8	55.05	314.2	406.1	260.2	243.3	16.91	15.381	
2,900.0	2,871.9	2,850.1	2,726.6	9.3	12.8	51.18	346.3	444.7	299.7	282.4	17.31	17.316	
3,000.0	2,970.7	2,940.3	2,801.5	9.7	13.8	48.20	378.5	483.3	340.1	322.3	17.74	19.173	
3,100.0	3,069.5	3,030.5	2,876.4	10.0	14.8	45.84	410.6	521.9	381.1	362.9	18.20	20.937	
3,200.0	3,168.3	3,120.6	2,951.2	10.4	15.8	43.93	442.8	560.5	422.6	403.9	18.70	22.603	
3,300.0	3,267.0	3,210.8	3,026.1	10.8	16.9	42.36	475.0	599.0	464.4	445.2	19.21	24.171	
3,400.0	3,365.8	3,300.9	3,101.0	11.1	17.9	41.04	507.1	637.6	506.5	486.7	19.75	25.646	
3,500.0	3,464.6	3,391.1	3,175.8	11.5	18.9	39.93	539.3	676.2	548.7	528.4	20.30	27.031	
3,600.0	3,563.4	3,481.2	3,250.7	11.9	19.9	39.03	571.4	714.8	591.1	570.3	20.87	28.330	
3,700.0	3,662.5	3,570.6	3,324.9	12.1	20.9	38.69	603.3	753.1	635.1	613.7	21.40	29.672	
3,800.0	3,762.0	3,658.4	3,397.8	12.4	22.0	38.31	634.6	790.7	681.7	659.8	21.89	31.148	
3,900.0	3,861.7	3,744.7	3,469.5	12.5	22.9	37.92	665.4	827.6	730.8	708.5	22.31	32.756	
4,000.0	3,961.7	3,829.3	3,539.7	12.7	23.9	37.54	695.6	863.8	782.6	759.9	22.69	34.497	
4,100.0	4,061.7	3,912.5	3,608.8	12.8	24.9	66.50	725.3	899.4	836.4	813.4	22.99	36.389	
4,200.0	4,161.7	3,995.5	3,677.8	13.0	25.8	65.50	754.9	935.0	890.7	867.4	23.30	38.234	
4,300.0	4,261.7	4,078.6	3,746.7	13.1	26.8	64.62	784.5	970.5	945.1	921.5	23.63	39.999	
4,400.0	4,361.7	4,161.6	3,815.7	13.3	27.7	63.83	814.1	1,006.0	999.6	975.7	23.98	41.686	

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 34-22 - Wellbore #1 - Plan #1 (1-30-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-100.88	-4.0	-20.8	21.2				
100.0	100.0	100.0	100.0	0.1	0.1	-100.88	-4.0	-20.8	21.2	21.0	0.22	94.424	
200.0	200.0	200.0	200.0	0.3	0.3	-100.88	-4.0	-20.8	21.2	20.5	0.67	31.475	
300.0	300.0	300.0	300.0	0.6	0.6	-100.88	-4.0	-20.8	21.2	20.1	1.12	18.885	CC, ES
400.0	400.0	400.0	400.0	0.8	0.8	-134.03	-4.0	-20.8	22.4	20.8	1.57	14.234	
500.0	499.8	499.8	499.8	1.0	1.0	-142.20	-4.0	-20.8	26.3	24.3	2.03	12.974	SF
600.0	599.5	599.5	599.5	1.3	1.2	-151.26	-4.0	-20.8	33.6	31.1	2.49	13.520	
700.0	698.7	698.7	698.7	1.5	1.5	-158.71	-4.0	-20.8	44.7	41.8	2.95	15.166	
800.0	797.5	797.5	797.5	1.8	1.7	-164.01	-4.0	-20.8	59.1	55.7	3.40	17.363	
900.0	896.3	896.3	896.3	2.2	1.9	-167.32	-4.0	-20.8	74.2	70.4	3.86	19.224	
1,000.0	995.1	995.1	995.1	2.5	2.1	-169.51	-4.0	-20.8	89.5	85.2	4.32	20.717	
1,100.0	1,093.9	1,093.9	1,093.9	2.9	2.3	-171.06	-4.0	-20.8	104.8	100.1	4.78	21.934	
1,200.0	1,192.7	1,192.7	1,192.7	3.2	2.6	-172.21	-4.0	-20.8	120.3	115.0	5.24	22.941	
1,300.0	1,291.4	1,291.4	1,291.4	3.6	2.8	-173.10	-4.0	-20.8	135.7	130.0	5.71	23.786	
1,400.0	1,390.2	1,390.2	1,390.2	3.9	3.0	-173.81	-4.0	-20.8	151.2	145.0	6.17	24.505	
1,500.0	1,489.0	1,489.0	1,489.0	4.3	3.2	-174.39	-4.0	-20.8	166.7	160.0	6.63	25.122	
1,600.0	1,587.8	1,587.8	1,587.8	4.6	3.5	-174.87	-4.0	-20.8	182.2	175.1	7.10	25.659	
1,700.0	1,686.6	1,686.6	1,686.6	5.0	3.7	-175.27	-4.0	-20.8	197.7	190.1	7.57	26.128	
1,800.0	1,785.3	1,785.3	1,785.3	5.3	3.9	-175.62	-4.0	-20.8	213.2	205.2	8.03	26.543	
1,900.0	1,884.1	1,884.1	1,884.1	5.7	4.1	-175.91	-4.0	-20.8	228.7	220.2	8.50	26.912	
2,000.0	1,982.9	1,982.9	1,982.9	6.1	4.3	-176.17	-4.0	-20.8	244.3	235.3	8.97	27.242	
2,100.0	2,081.7	2,075.8	2,075.8	6.4	4.5	-176.28	-4.4	-21.7	260.7	251.3	9.41	27.714	
2,200.0	2,180.5	2,166.6	2,166.5	6.8	4.7	-176.06	-6.1	-25.2	279.9	270.0	9.84	28.456	
2,300.0	2,279.2	2,256.3	2,255.9	7.1	4.9	-175.59	-9.0	-31.2	301.7	291.4	10.26	29.399	
2,400.0	2,378.0	2,344.7	2,343.9	7.5	5.1	-174.93	-13.0	-39.5	326.1	315.4	10.69	30.506	
2,500.0	2,476.8	2,431.8	2,430.2	7.9	5.3	-174.16	-18.1	-50.1	353.2	342.1	11.12	31.756	
2,600.0	2,575.6	2,521.2	2,518.4	8.2	5.5	-173.28	-24.5	-63.2	382.7	371.1	11.57	33.087	
2,700.0	2,674.4	2,616.4	2,612.2	8.6	5.7	-172.43	-31.4	-77.7	412.8	400.8	12.02	34.342	
2,800.0	2,773.1	2,711.6	2,706.0	9.0	6.0	-171.71	-38.4	-92.2	443.0	430.5	12.48	35.495	
2,900.0	2,871.9	2,806.8	2,799.9	9.3	6.3	-171.07	-45.4	-106.6	473.2	460.3	12.94	36.561	
3,000.0	2,970.7	2,902.0	2,893.7	9.7	6.5	-170.51	-52.4	-121.1	503.5	490.1	13.41	37.545	
3,100.0	3,069.5	2,997.2	2,987.5	10.0	6.8	-170.01	-59.4	-135.6	533.8	519.9	13.88	38.457	
3,200.0	3,168.3	3,092.4	3,081.4	10.4	7.1	-169.57	-66.3	-150.0	564.2	549.8	14.35	39.304	
3,300.0	3,267.0	3,187.6	3,175.2	10.8	7.4	-169.17	-73.3	-164.5	594.5	579.7	14.83	40.092	
3,400.0	3,365.8	3,282.8	3,269.0	11.1	7.8	-168.82	-80.3	-179.0	624.9	609.6	15.31	40.826	
3,500.0	3,464.6	3,378.0	3,362.9	11.5	8.1	-168.49	-87.3	-193.4	655.4	639.6	15.79	41.513	
3,600.0	3,563.4	3,473.2	3,456.7	11.9	8.4	-168.21	-94.2	-207.9	685.8	669.5	16.27	42.149	
3,700.0	3,662.5	3,569.0	3,551.1	12.1	8.7	-168.02	-101.3	-222.5	714.3	697.6	16.74	42.680	
3,800.0	3,762.0	3,665.6	3,646.4	12.4	9.1	-167.79	-108.4	-237.2	739.5	722.3	17.18	43.037	
3,900.0	3,861.7	3,763.1	3,742.4	12.5	9.4	-167.50	-115.5	-252.0	761.5	743.9	17.61	43.237	
4,000.0	3,961.7	3,861.2	3,839.1	12.7	9.8	-167.17	-122.7	-266.9	780.1	762.1	18.02	43.297	
4,100.0	4,061.7	3,959.7	3,936.2	12.8	10.1	-136.98	-129.9	-281.9	796.1	777.7	18.43	43.188	
4,200.0	4,161.7	4,064.4	4,039.5	13.0	10.5	-136.52	-137.5	-297.7	811.8	792.9	18.89	42.969	
4,300.0	4,261.7	4,199.7	4,173.4	13.1	10.9	-136.06	-145.6	-314.4	824.7	805.3	19.40	42.518	
4,400.0	4,361.7	4,336.5	4,309.6	13.3	11.2	-135.77	-151.0	-325.5	833.2	813.3	19.89	41.899	
4,500.0	4,461.7	4,474.1	4,447.2	13.4	11.5	-135.63	-153.5	-330.8	837.2	816.8	20.36	41.113	
4,600.0	4,561.7	4,588.6	4,561.7	13.6	11.7	-135.62	-153.7	-331.2	837.5	816.7	20.79	40.291	
4,700.0	4,661.7	4,688.6	4,661.7	13.8	11.8	-135.62	-153.7	-331.2	837.5	816.3	21.19	39.518	
4,800.0	4,761.7	4,788.6	4,761.7	13.9	12.0	-135.62	-153.7	-331.2	837.5	815.9	21.60	38.769	
4,900.0	4,861.7	4,888.6	4,861.7	14.1	12.2	-135.62	-153.7	-331.2	837.5	815.5	22.01	38.045	
5,000.0	4,961.7	4,988.6	4,961.7	14.3	12.4	-135.62	-153.7	-331.2	837.5	815.1	22.43	37.345	

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

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Thornton 13 Pad Sec.22-T7N-R66W - Thornton 34-22 - Wellbore #1 - Plan #1 (1-30-13)

Offset Site Error: 0.0 ft

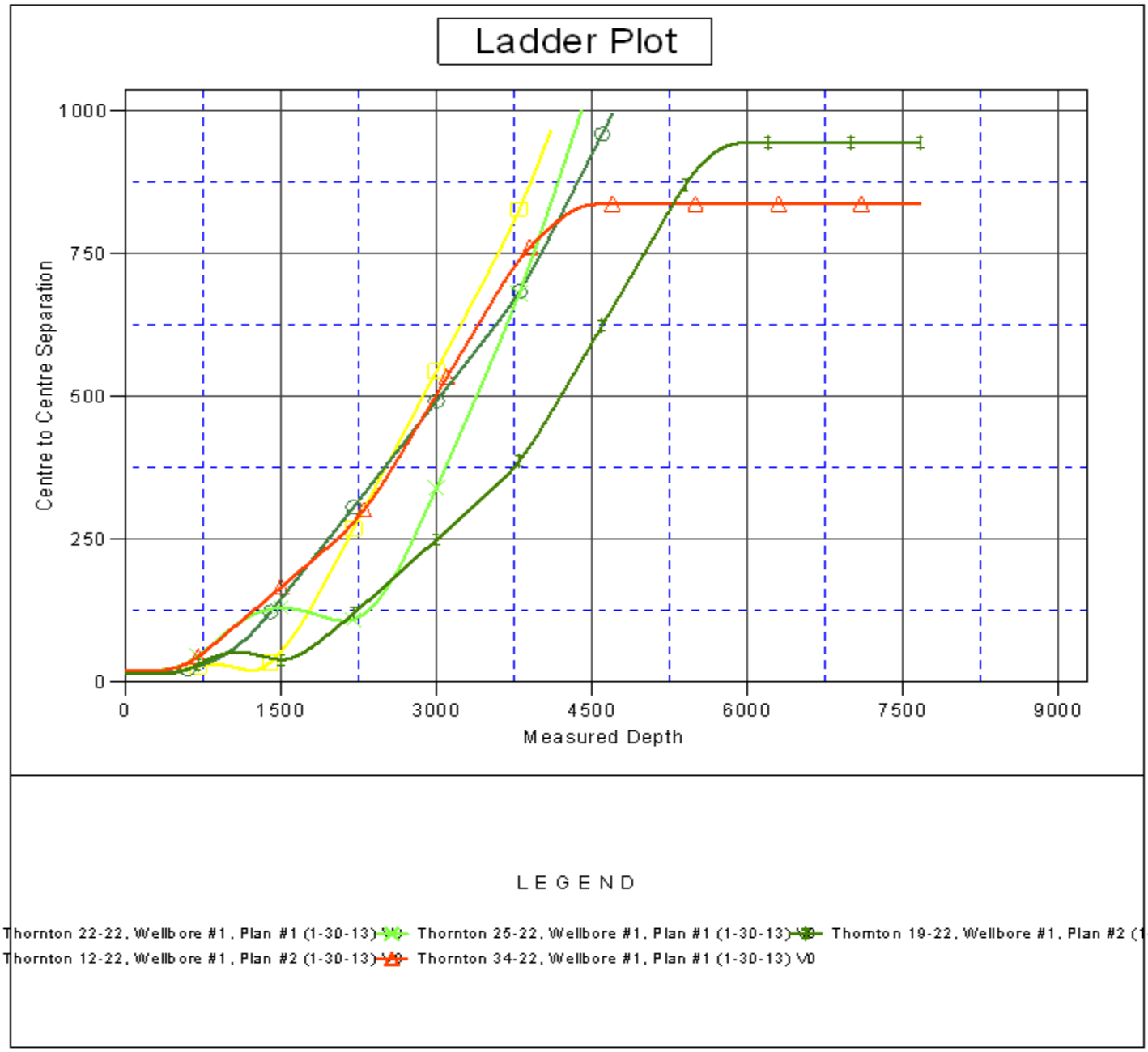
Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,061.7	5,088.6	5,061.7	14.4	12.6	-135.62	-153.7	-331.2	837.5	814.7	22.84	36.668	
5,200.0	5,161.7	5,188.6	5,161.7	14.6	12.8	-135.62	-153.7	-331.2	837.5	814.3	23.26	36.013	
5,300.0	5,261.7	5,288.6	5,261.7	14.8	12.9	-135.62	-153.7	-331.2	837.5	813.8	23.67	35.380	
5,400.0	5,361.7	5,388.6	5,361.7	14.9	13.1	-135.62	-153.7	-331.2	837.5	813.4	24.09	34.766	
5,500.0	5,461.7	5,488.6	5,461.7	15.1	13.3	-135.62	-153.7	-331.2	837.5	813.0	24.51	34.172	
5,600.0	5,561.7	5,588.6	5,561.7	15.3	13.5	-135.62	-153.7	-331.2	837.5	812.6	24.93	33.596	
5,700.0	5,661.7	5,688.6	5,661.7	15.4	13.7	-135.62	-153.7	-331.2	837.5	812.2	25.35	33.039	
5,800.0	5,761.7	5,788.6	5,761.7	15.6	13.9	-135.62	-153.7	-331.2	837.5	811.7	25.77	32.498	
5,900.0	5,861.7	5,888.6	5,861.7	15.8	14.1	-135.62	-153.7	-331.2	837.5	811.3	26.19	31.973	
6,000.0	5,961.7	5,988.6	5,961.7	16.0	14.3	-135.62	-153.7	-331.2	837.5	810.9	26.62	31.464	
6,100.0	6,061.7	6,088.6	6,061.7	16.2	14.5	-135.62	-153.7	-331.2	837.5	810.5	27.04	30.970	
6,200.0	6,161.7	6,188.6	6,161.7	16.3	14.7	-135.62	-153.7	-331.2	837.5	810.1	27.47	30.491	
6,300.0	6,261.7	6,288.6	6,261.7	16.5	14.9	-135.62	-153.7	-331.2	837.5	809.6	27.89	30.025	
6,400.0	6,361.7	6,388.6	6,361.7	16.7	15.1	-135.62	-153.7	-331.2	837.5	809.2	28.32	29.573	
6,500.0	6,461.7	6,488.6	6,461.7	16.9	15.3	-135.62	-153.7	-331.2	837.5	808.8	28.75	29.133	
6,600.0	6,561.7	6,588.6	6,561.7	17.1	15.5	-135.62	-153.7	-331.2	837.5	808.3	29.18	28.705	
6,700.0	6,661.7	6,688.6	6,661.7	17.3	15.7	-135.62	-153.7	-331.2	837.5	807.9	29.61	28.290	
6,800.0	6,761.7	6,788.6	6,761.7	17.4	15.9	-135.62	-153.7	-331.2	837.5	807.5	30.03	27.885	
6,900.0	6,861.7	6,888.6	6,861.7	17.6	16.1	-135.62	-153.7	-331.2	837.5	807.1	30.46	27.492	
7,000.0	6,961.7	6,988.6	6,961.7	17.8	16.3	-135.62	-153.7	-331.2	837.5	806.6	30.90	27.109	
7,100.0	7,061.7	7,088.6	7,061.7	18.0	16.5	-135.62	-153.7	-331.2	837.5	806.2	31.33	26.736	
7,200.0	7,161.7	7,188.6	7,161.7	18.2	16.7	-135.62	-153.7	-331.2	837.5	805.8	31.76	26.372	
7,300.0	7,261.7	7,288.6	7,261.7	18.4	16.9	-135.62	-153.7	-331.2	837.5	805.3	32.19	26.018	
7,400.0	7,361.7	7,388.6	7,361.7	18.6	17.1	-135.62	-153.7	-331.2	837.5	804.9	32.62	25.673	
7,500.0	7,461.7	7,488.6	7,461.7	18.8	17.3	-135.62	-153.7	-331.2	837.5	804.5	33.06	25.337	
7,600.0	7,561.7	7,588.6	7,561.7	19.0	17.5	-135.62	-153.7	-331.2	837.5	804.0	33.49	25.009	
7,668.3	7,630.0	7,657.0	7,630.0	19.1	17.6	-135.62	-153.7	-331.2	837.5	803.7	33.79	24.790	

Company:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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 #2 (1-30-13)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4950.0ft (Original Well Elev. Coordinates are relative to: Thornton 13-22
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:	BAYSWATER EXPLORATION & PRODUCTION	**Local Co-ordinate Reference:**	Well Thornton 13-22
Project:	SEC.22-T7N-R66W	**TVD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Reference Site:	Thornton 13 Pad Sec.22-T7N-R66W	**MD Reference:**	WELL @ 4950.0ft (Original Well Elev.)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Thornton 13-22	**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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Reference Depths are relative to WELL @ 4950.0ft (Original Well Elev. Coordinates are relative to: Thornton 13-22
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