

ENSIGN

Directional

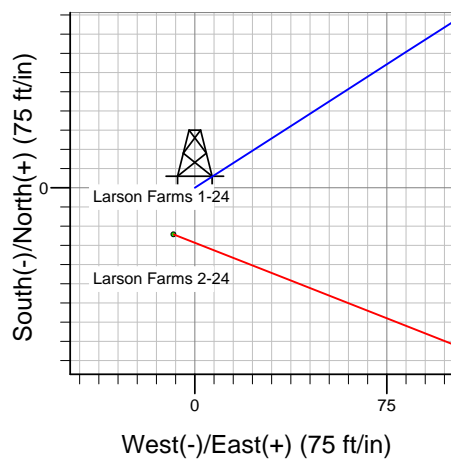
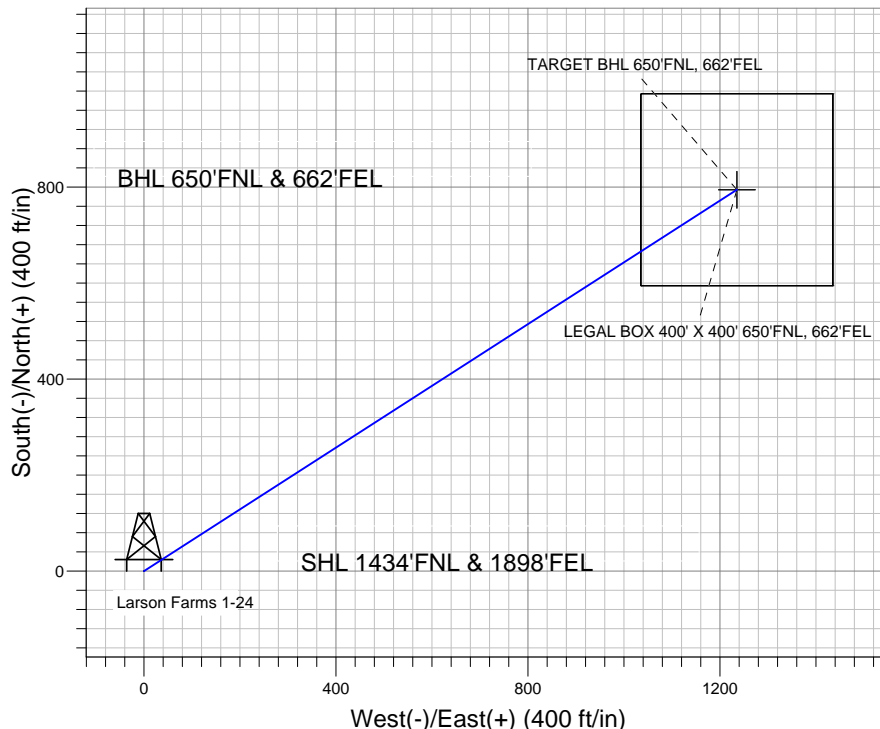
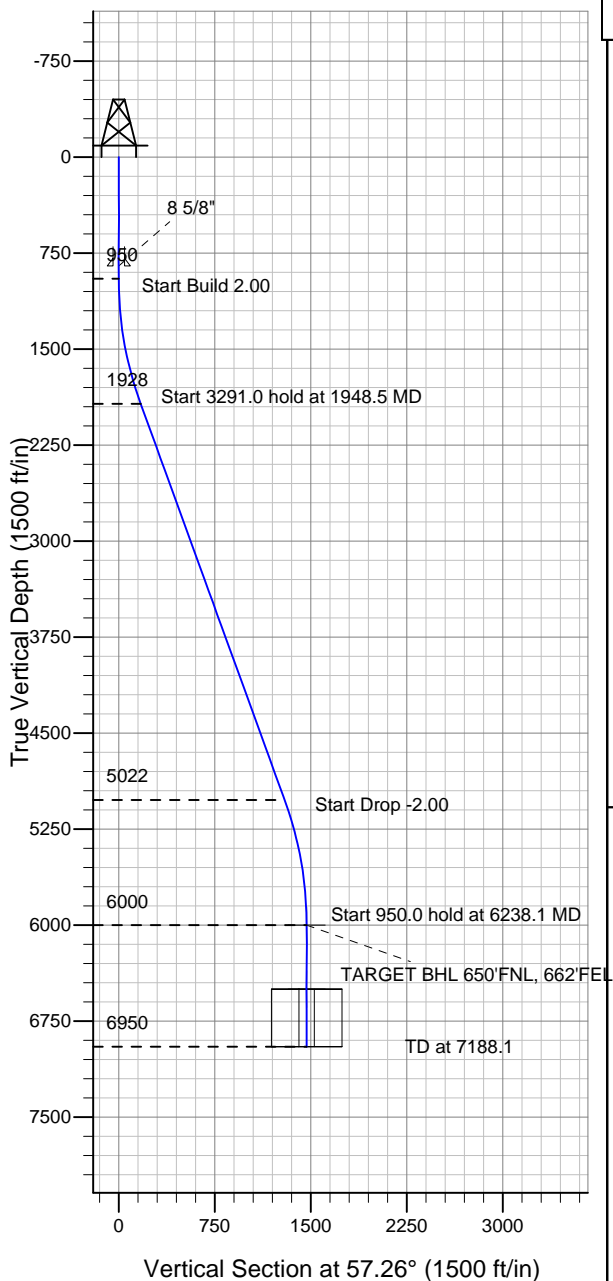
Well Name: Larson Farms 1-24

Surface Location: Larson Farms 1-24 Pad Sec.24-T6N-R64W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

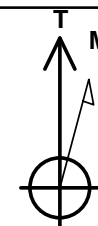
Ground Elevation: 4645.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1417487.22 3279420.10 40.475060 -104.495600
 Original Well Elev WELL @ 4658.0ft (Original Well Elev)

St. James, Weld County CO



Larson Farms 1-24 Pad Sec.24-T6N-R64W
 Larson Farms 1-24
 Plan #1 (7-21-11)
 10:02, July 27 2011



Azimuths to True North
 Magnetic North: 8.71°

Magnetic Field
 Strength: 53189.2snT
 Dip Angle: 67.15°
 Date: 7/26/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 650'FNL, 662'FEL	6000.0	794.2	1235.2	40.477240	-104.491160	Point
LEGAL BOX 400' X 400' 650'FNL, 662'FEL	6500.0	794.2	1235.2	40.477240	-104.491160	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	950.0	0.00	0.00	950.0	0.0	0.0	0.00	0.00	0.0	
3	1948.5	19.97	57.26	1928.4	93.2	144.9	2.00	57.26	172.3	
4	5239.6	19.97	57.26	5021.6	701.1	1090.3	0.00	0.00	1296.3	
5	6238.1	0.00	0.00	6000.0	794.2	1235.2	2.00	180.00	1468.5	TARGET BHL 650'FNL, 662'FEL
6	7188.1	0.00	0.00	6950.0	794.2	1235.2	0.00	0.00	1468.5	



Directional

St. James, Weld County CO

SEC.24-T6N-R64W

Larson Farms 1-24 Pad Sec.24-T6N-R64W

Larson Farms 1-24

Wellbore #1

Plan: Plan #1 (7-21-11)

Standard Planning Report

27 July, 2011

Database:	Landmark	Local Co-ordinate Reference:	Well Larson Farms 1-24
Company:	St. James, Weld County CO	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Project:	SEC.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	North Reference:	True
Well:	Larson Farms 1-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-21-11)		

Project	SEC.24-T6N-R64W, 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

Site		Larson Farms 1-24 Pad Sec.24-T6N-R64W			
Site Position:		Northing:	1,417,487.23ft	Latitude:	40.475060
From:	Lat/Long	Easting:	3,279,420.10ft	Longitude:	-104.495600
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.65 °

Well	Larson Farms 1-24					
Well Position	+N-S	0.0 ft	Northing:	1,417,487.22 ft	Latitude:	40.475060
	+E-W	0.0 ft	Easting:	3,279,420.10 ft	Longitude:	-104.495600
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,645.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/26/2011	8.71	67.15	53,189

Design	Plan #1 (7-21-11)			
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	57.26

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	
950.0	0.00	0.00	950.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,948.5	19.97	57.26	1,928.4	93.2	144.9	2.00	2.00	0.00	57.26	
5,239.6	19.97	57.26	5,021.6	701.1	1,090.3	0.00	0.00	0.00	0.00	
6,238.1	0.00	0.00	6,000.0	794.2	1,235.2	2.00	-2.00	0.00	180.00	TARGET BHL 650'I
7,188.1	0.00	0.00	6,950.0	794.2	1,235.2	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Larson Farms 1-24
Company:	St. James, Weld County CO	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Project:	SEC.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	North Reference:	True
Well:	Larson Farms 1-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-21-11)		

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	0.00	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
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
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.20	57.26	960.0	0.0	0.0	0.0	2.00	2.00	0.00
1,000.0	1.00	57.26	1,000.0	0.2	0.4	0.4	2.00	2.00	0.00
1,040.0	1.80	57.26	1,040.0	0.8	1.2	1.4	2.00	2.00	0.00
1,080.0	2.60	57.26	1,080.0	1.6	2.5	2.9	2.00	2.00	0.00
1,120.0	3.40	57.26	1,119.9	2.7	4.2	5.0	2.00	2.00	0.00
1,160.0	4.20	57.26	1,159.8	4.2	6.5	7.7	2.00	2.00	0.00
1,200.0	5.00	57.26	1,199.7	5.9	9.2	10.9	2.00	2.00	0.00
1,240.0	5.80	57.26	1,239.5	7.9	12.3	14.7	2.00	2.00	0.00
1,280.0	6.60	57.26	1,279.3	10.3	16.0	19.0	2.00	2.00	0.00
1,320.0	7.40	57.26	1,319.0	12.9	20.1	23.9	2.00	2.00	0.00
1,360.0	8.20	57.26	1,358.6	15.8	24.6	29.3	2.00	2.00	0.00
1,400.0	9.00	57.26	1,398.2	19.1	29.7	35.3	2.00	2.00	0.00
1,440.0	9.80	57.26	1,437.6	22.6	35.2	41.8	2.00	2.00	0.00
1,480.0	10.60	57.26	1,477.0	26.4	41.1	48.9	2.00	2.00	0.00
1,520.0	11.40	57.26	1,516.2	30.6	47.5	56.5	2.00	2.00	0.00
1,560.0	12.20	57.26	1,555.4	35.0	54.4	64.7	2.00	2.00	0.00
1,600.0	13.00	57.26	1,594.4	39.7	61.8	73.4	2.00	2.00	0.00
1,640.0	13.80	57.26	1,633.3	44.7	69.6	82.7	2.00	2.00	0.00
1,680.0	14.60	57.26	1,672.1	50.0	77.8	92.5	2.00	2.00	0.00
1,720.0	15.40	57.26	1,710.8	55.6	86.5	102.9	2.00	2.00	0.00
1,760.0	16.20	57.26	1,749.3	61.5	95.7	113.7	2.00	2.00	0.00
1,800.0	17.00	57.26	1,787.6	67.7	105.3	125.2	2.00	2.00	0.00
1,840.0	17.80	57.26	1,825.8	74.2	115.4	137.1	2.00	2.00	0.00
1,880.0	18.60	57.26	1,863.8	80.9	125.9	149.6	2.00	2.00	0.00
1,920.0	19.40	57.26	1,901.6	88.0	136.8	162.7	2.00	2.00	0.00
1,948.5	19.97	57.26	1,928.4	93.2	144.9	172.3	2.00	2.00	0.00
1,960.0	19.97	57.26	1,939.2	95.3	148.2	176.2	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Larson Farms 1-24
Company:	St. James, Weld County CO	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Project:	SEC.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	North Reference:	True
Well:	Larson Farms 1-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-21-11)		

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)
2,000.0	19.97	57.26	1,976.8	102.7	159.7	189.8	0.00	0.00	0.00
2,040.0	19.97	57.26	2,014.4	110.1	171.2	203.5	0.00	0.00	0.00
2,080.0	19.97	57.26	2,052.0	117.5	182.7	217.2	0.00	0.00	0.00
2,120.0	19.97	57.26	2,089.6	124.8	194.2	230.8	0.00	0.00	0.00
2,160.0	19.97	57.26	2,127.2	132.2	205.6	244.5	0.00	0.00	0.00
2,200.0	19.97	57.26	2,164.8	139.6	217.1	258.2	0.00	0.00	0.00
2,240.0	19.97	57.26	2,202.4	147.0	228.6	271.8	0.00	0.00	0.00
2,280.0	19.97	57.26	2,240.0	154.4	240.1	285.5	0.00	0.00	0.00
2,320.0	19.97	57.26	2,277.6	161.8	251.6	299.1	0.00	0.00	0.00
2,360.0	19.97	57.26	2,315.2	169.2	263.1	312.8	0.00	0.00	0.00
2,400.0	19.97	57.26	2,352.8	176.6	274.6	326.5	0.00	0.00	0.00
2,440.0	19.97	57.26	2,390.4	184.0	286.1	340.1	0.00	0.00	0.00
2,480.0	19.97	57.26	2,427.9	191.3	297.6	353.8	0.00	0.00	0.00
2,520.0	19.97	57.26	2,465.5	198.7	309.1	367.4	0.00	0.00	0.00
2,560.0	19.97	57.26	2,503.1	206.1	320.6	381.1	0.00	0.00	0.00
2,600.0	19.97	57.26	2,540.7	213.5	332.0	394.8	0.00	0.00	0.00
2,640.0	19.97	57.26	2,578.3	220.9	343.5	408.4	0.00	0.00	0.00
2,680.0	19.97	57.26	2,615.9	228.3	355.0	422.1	0.00	0.00	0.00
2,720.0	19.97	57.26	2,653.5	235.7	366.5	435.8	0.00	0.00	0.00
2,760.0	19.97	57.26	2,691.1	243.1	378.0	449.4	0.00	0.00	0.00
2,800.0	19.97	57.26	2,728.7	250.5	389.5	463.1	0.00	0.00	0.00
2,840.0	19.97	57.26	2,766.3	257.8	401.0	476.7	0.00	0.00	0.00
2,880.0	19.97	57.26	2,803.9	265.2	412.5	490.4	0.00	0.00	0.00
2,920.0	19.97	57.26	2,841.5	272.6	424.0	504.1	0.00	0.00	0.00
2,960.0	19.97	57.26	2,879.1	280.0	435.5	517.7	0.00	0.00	0.00
3,000.0	19.97	57.26	2,916.7	287.4	447.0	531.4	0.00	0.00	0.00
3,040.0	19.97	57.26	2,954.3	294.8	458.4	545.0	0.00	0.00	0.00
3,080.0	19.97	57.26	2,991.9	302.2	469.9	558.7	0.00	0.00	0.00
3,120.0	19.97	57.26	3,029.5	309.6	481.4	572.4	0.00	0.00	0.00
3,160.0	19.97	57.26	3,067.1	316.9	492.9	586.0	0.00	0.00	0.00
3,200.0	19.97	57.26	3,104.7	324.3	504.4	599.7	0.00	0.00	0.00
3,240.0	19.97	57.26	3,142.2	331.7	515.9	613.4	0.00	0.00	0.00
3,280.0	19.97	57.26	3,179.8	339.1	527.4	627.0	0.00	0.00	0.00
3,320.0	19.97	57.26	3,217.4	346.5	538.9	640.7	0.00	0.00	0.00
3,360.0	19.97	57.26	3,255.0	353.9	550.4	654.3	0.00	0.00	0.00
3,400.0	19.97	57.26	3,292.6	361.3	561.9	668.0	0.00	0.00	0.00
3,440.0	19.97	57.26	3,330.2	368.7	573.4	681.7	0.00	0.00	0.00
3,480.0	19.97	57.26	3,367.8	376.1	584.8	695.3	0.00	0.00	0.00
3,520.0	19.97	57.26	3,405.4	383.4	596.3	709.0	0.00	0.00	0.00
3,560.0	19.97	57.26	3,443.0	390.8	607.8	722.6	0.00	0.00	0.00
3,600.0	19.97	57.26	3,480.6	398.2	619.3	736.3	0.00	0.00	0.00
3,640.0	19.97	57.26	3,518.2	405.6	630.8	750.0	0.00	0.00	0.00
3,680.0	19.97	57.26	3,555.8	413.0	642.3	763.6	0.00	0.00	0.00
3,720.0	19.97	57.26	3,593.4	420.4	653.8	777.3	0.00	0.00	0.00
3,760.0	19.97	57.26	3,631.0	427.8	665.3	791.0	0.00	0.00	0.00
3,800.0	19.97	57.26	3,668.6	435.2	676.8	804.6	0.00	0.00	0.00
3,840.0	19.97	57.26	3,706.2	442.6	688.3	818.3	0.00	0.00	0.00
3,880.0	19.97	57.26	3,743.8	449.9	699.8	831.9	0.00	0.00	0.00
3,920.0	19.97	57.26	3,781.4	457.3	711.3	845.6	0.00	0.00	0.00
3,960.0	19.97	57.26	3,819.0	464.7	722.7	859.3	0.00	0.00	0.00
4,000.0	19.97	57.26	3,856.5	472.1	734.2	872.9	0.00	0.00	0.00
4,040.0	19.97	57.26	3,894.1	479.5	745.7	886.6	0.00	0.00	0.00
4,080.0	19.97	57.26	3,931.7	486.9	757.2	900.2	0.00	0.00	0.00
4,120.0	19.97	57.26	3,969.3	494.3	768.7	913.9	0.00	0.00	0.00

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Project:	SEC.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	North Reference:	True
Well:	Larson Farms 1-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-21-11)		

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)
4,160.0	19.97	57.26	4,006.9	501.7	780.2	927.6	0.00	0.00	0.00
4,200.0	19.97	57.26	4,044.5	509.1	791.7	941.2	0.00	0.00	0.00
4,240.0	19.97	57.26	4,082.1	516.4	803.2	954.9	0.00	0.00	0.00
4,280.0	19.97	57.26	4,119.7	523.8	814.7	968.5	0.00	0.00	0.00
4,320.0	19.97	57.26	4,157.3	531.2	826.2	982.2	0.00	0.00	0.00
4,360.0	19.97	57.26	4,194.9	538.6	837.7	995.9	0.00	0.00	0.00
4,400.0	19.97	57.26	4,232.5	546.0	849.1	1,009.5	0.00	0.00	0.00
4,440.0	19.97	57.26	4,270.1	553.4	860.6	1,023.2	0.00	0.00	0.00
4,480.0	19.97	57.26	4,307.7	560.8	872.1	1,036.9	0.00	0.00	0.00
4,520.0	19.97	57.26	4,345.3	568.2	883.6	1,050.5	0.00	0.00	0.00
4,560.0	19.97	57.26	4,382.9	575.6	895.1	1,064.2	0.00	0.00	0.00
4,600.0	19.97	57.26	4,420.5	582.9	906.6	1,077.8	0.00	0.00	0.00
4,640.0	19.97	57.26	4,458.1	590.3	918.1	1,091.5	0.00	0.00	0.00
4,680.0	19.97	57.26	4,495.7	597.7	929.6	1,105.2	0.00	0.00	0.00
4,720.0	19.97	57.26	4,533.3	605.1	941.1	1,118.8	0.00	0.00	0.00
4,760.0	19.97	57.26	4,570.8	612.5	952.6	1,132.5	0.00	0.00	0.00
4,800.0	19.97	57.26	4,608.4	619.9	964.1	1,146.1	0.00	0.00	0.00
4,840.0	19.97	57.26	4,646.0	627.3	975.5	1,159.8	0.00	0.00	0.00
4,880.0	19.97	57.26	4,683.6	634.7	987.0	1,173.5	0.00	0.00	0.00
4,920.0	19.97	57.26	4,721.2	642.1	998.5	1,187.1	0.00	0.00	0.00
4,960.0	19.97	57.26	4,758.8	649.4	1,010.0	1,200.8	0.00	0.00	0.00
5,000.0	19.97	57.26	4,796.4	656.8	1,021.5	1,214.5	0.00	0.00	0.00
5,040.0	19.97	57.26	4,834.0	664.2	1,033.0	1,228.1	0.00	0.00	0.00
5,080.0	19.97	57.26	4,871.6	671.6	1,044.5	1,241.8	0.00	0.00	0.00
5,120.0	19.97	57.26	4,909.2	679.0	1,056.0	1,255.4	0.00	0.00	0.00
5,160.0	19.97	57.26	4,946.8	686.4	1,067.5	1,269.1	0.00	0.00	0.00
5,200.0	19.97	57.26	4,984.4	693.8	1,079.0	1,282.8	0.00	0.00	0.00
5,239.6	19.97	57.26	5,021.6	701.1	1,090.3	1,296.3	0.00	0.00	0.00
5,240.0	19.96	57.26	5,022.0	701.2	1,090.5	1,296.4	2.00	-2.00	0.00
5,280.0	19.16	57.26	5,059.7	708.4	1,101.7	1,309.8	2.00	-2.00	0.00
5,320.0	18.36	57.26	5,097.5	715.4	1,112.5	1,322.7	2.00	-2.00	0.00
5,360.0	17.56	57.26	5,135.6	722.0	1,122.9	1,335.0	2.00	-2.00	0.00
5,400.0	16.76	57.26	5,173.8	728.4	1,132.8	1,346.8	2.00	-2.00	0.00
5,440.0	15.96	57.26	5,212.2	734.5	1,142.3	1,358.1	2.00	-2.00	0.00
5,480.0	15.16	57.26	5,250.7	740.3	1,151.3	1,368.8	2.00	-2.00	0.00
5,520.0	14.36	57.26	5,289.4	745.8	1,159.9	1,379.0	2.00	-2.00	0.00
5,560.0	13.56	57.26	5,328.2	751.0	1,168.0	1,388.7	2.00	-2.00	0.00
5,600.0	12.76	57.26	5,367.2	756.0	1,175.7	1,397.8	2.00	-2.00	0.00
5,640.0	11.96	57.26	5,406.2	760.6	1,182.9	1,406.3	2.00	-2.00	0.00
5,680.0	11.16	57.26	5,445.4	764.9	1,189.6	1,414.4	2.00	-2.00	0.00
5,720.0	10.36	57.26	5,484.7	769.0	1,195.9	1,421.8	2.00	-2.00	0.00
5,760.0	9.56	57.26	5,524.1	772.7	1,201.7	1,428.7	2.00	-2.00	0.00
5,800.0	8.76	57.26	5,563.6	776.2	1,207.1	1,435.1	2.00	-2.00	0.00
5,840.0	7.96	57.26	5,603.2	779.3	1,212.0	1,440.9	2.00	-2.00	0.00
5,880.0	7.16	57.26	5,642.8	782.2	1,216.4	1,446.2	2.00	-2.00	0.00
5,920.0	6.36	57.26	5,682.6	784.7	1,220.4	1,450.9	2.00	-2.00	0.00
5,960.0	5.56	57.26	5,722.3	787.0	1,223.9	1,455.1	2.00	-2.00	0.00
6,000.0	4.76	57.26	5,762.2	788.9	1,226.9	1,458.7	2.00	-2.00	0.00
6,040.0	3.96	57.26	5,802.1	790.5	1,229.5	1,461.7	2.00	-2.00	0.00
6,080.0	3.16	57.26	5,842.0	791.9	1,231.6	1,464.2	2.00	-2.00	0.00
6,120.0	2.36	57.26	5,881.9	792.9	1,233.2	1,466.1	2.00	-2.00	0.00
6,160.0	1.56	57.26	5,921.9	793.7	1,234.3	1,467.5	2.00	-2.00	0.00
6,200.0	0.76	57.26	5,961.9	794.1	1,235.0	1,468.3	2.00	-2.00	0.00
6,238.1	0.00	0.00	6,000.0	794.2	1,235.2	1,468.5	2.00	-2.00	-150.34

Database:	Landmark	Local Co-ordinate Reference:	Well Larson Farms 1-24
Company:	St. James, Weld County CO	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Project:	SEC.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	North Reference:	True
Well:	Larson Farms 1-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-21-11)		

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)
TARGET BHL 650'FNL, 662'FEL									
6,240.0	0.00	0.00	6,001.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,280.0	0.00	0.00	6,041.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,320.0	0.00	0.00	6,081.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,360.0	0.00	0.00	6,121.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,161.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,440.0	0.00	0.00	6,201.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,480.0	0.00	0.00	6,241.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,520.0	0.00	0.00	6,281.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,321.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,361.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,401.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,441.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,720.0	0.00	0.00	6,481.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,738.1	0.00	0.00	6,500.0	794.2	1,235.2	1,468.5	0.00	0.00	0.00
LEGAL BOX 400' X 400' 650'FNL, 662'FEL									
6,760.0	0.00	0.00	6,521.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,561.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,840.0	0.00	0.00	6,601.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,641.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,681.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,721.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,761.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
7,040.0	0.00	0.00	6,801.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
7,080.0	0.00	0.00	6,841.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
7,120.0	0.00	0.00	6,881.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
7,160.0	0.00	0.00	6,921.9	794.2	1,235.2	1,468.5	0.00	0.00	0.00
7,188.1	0.00	0.00	6,950.0	794.2	1,235.2	1,468.5	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LEGAL BOX 400' X 400'	0.00	0.00	6,500.0	794.2	1,235.2	1,418,295.33	3,280,646.18	40.477240	-104.491160
- hit/miss target									
- Shape									
- plan misses target center by 0.1ft at 6738.1ft MD (6500.0 TVD, 794.2 N, 1235.2 E)									
- Rectangle (sides W400.0 H400.0 D450.0)									
TARGET BHL 650'FN	0.00	0.00	6,000.0	794.2	1,235.2	1,418,295.38	3,280,646.21	40.477240	-104.491160
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
850.0	850.0	8 5/8"	8-5/8	12-1/4	



Directional

St. James, Weld County CO

SEC.24-T6N-R64W

Larson Farms 1-24 Pad Sec.24-T6N-R64W

Larson Farms 1-24

Wellbore #1

Plan #1 (7-21-11)

Anticollision Report

27 July, 2011

Company:	St. James, Weld County CO	Local Co-ordinate Reference:	Well Larson Farms 1-24
Project:	SEC.24-T6N-R64W	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Reference Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Larson Farms 1-24	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 (7-21-11)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (7-21-11)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 7/27/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,188.1	Plan #1 (7-21-11) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Larson Farms 1-24 Pad Sec.24-T6N-R64W						
Larson Farms 2-24 - Wellbore #1 - Plan #1 (7-21-11)	950.0	949.0	20.0	18.0	9.906 CC, ES	
Larson Farms 2-24 - Wellbore #1 - Plan #1 (7-21-11)	1,000.0	999.0	20.4	18.3	9.572 SF	

Offset Design		Larson Farms 1-24 Pad Sec.24-T6N-R64W - Larson Farms 2-24 - Wellbore #1 - Plan #1 (7-21-11)										Offset Site Error: 0.0 ft	
Survey Program: 0-Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0		-155.39	-18.2	-8.3	20.1				
100.0	100.0	99.0	99.0	0.1		-155.39	-18.2	-8.3	20.0	19.9	0.11	178.008	
200.0	200.0	199.0	199.0	0.3		-155.39	-18.2	-8.3	20.0	19.7	0.34	59.406	
300.0	300.0	299.0	299.0	0.6		-155.39	-18.2	-8.3	20.0	19.5	0.56	35.652	
400.0	400.0	399.0	399.0	0.8		-155.39	-18.2	-8.3	20.0	19.3	0.79	25.468	
500.0	500.0	499.0	499.0	1.0		-155.39	-18.2	-8.3	20.0	19.0	1.01	19.810	
600.0	600.0	599.0	599.0	1.2		-155.39	-18.2	-8.3	20.0	18.8	1.24	16.209	
700.0	700.0	699.0	699.0	1.5		-155.39	-18.2	-8.3	20.0	18.6	1.46	13.715	
800.0	800.0	799.0	799.0	1.7		-155.39	-18.2	-8.3	20.0	18.4	1.69	11.887	
900.0	900.0	899.0	899.0	1.9		-155.39	-18.2	-8.3	20.0	18.1	1.91	10.489	
950.0	950.0	949.0	949.0	2.0		-155.39	-18.2	-8.3	20.0	18.0	2.02	9.906 CC, ES	
1,000.0	1,000.0	999.0	999.0	2.1		148.01	-18.2	-8.3	20.4	18.3	2.13	9.572 SF	
1,100.0	1,099.9	1,098.9	1,098.9	2.3		152.50	-18.2	-8.3	23.4	21.1	2.35	9.995	
1,200.0	1,199.7	1,198.8	1,198.8	2.6		157.89	-18.4	-8.0	29.7	27.1	2.56	11.605	
1,300.0	1,299.1	1,298.7	1,298.6	2.8		158.71	-19.6	-4.8	38.6	35.8	2.78	13.895	
1,400.0	1,398.2	1,398.4	1,398.1	3.1		156.73	-22.2	1.7	49.8	46.8	3.00	16.609	
1,500.0	1,496.6	1,497.8	1,496.9	3.4		153.66	-25.9	11.3	63.6	60.4	3.24	19.641	
1,600.0	1,594.4	1,596.7	1,594.9	3.7		150.35	-30.9	24.0	80.1	76.6	3.50	22.875	
1,700.0	1,691.5	1,695.0	1,691.7	4.1		147.17	-37.1	39.8	99.4	95.6	3.80	26.175	
1,800.0	1,787.6	1,792.6	1,787.2	4.5		144.25	-44.4	58.5	121.5	117.4	4.13	29.391	
1,900.0	1,882.7	1,889.2	1,881.1	5.0		141.64	-52.9	79.9	146.6	142.0	4.53	32.392	
1,948.5	1,928.4	1,935.8	1,926.0	5.3		140.48	-57.4	91.3	159.8	155.0	4.74	33.739	
2,000.0	1,976.8	1,985.0	1,973.2	5.6		139.40	-62.4	104.1	174.2	169.2	4.98	34.982	
2,100.0	2,070.8	2,080.2	2,063.9	6.2		137.06	-72.9	131.0	202.5	197.0	5.49	36.887	
2,200.0	2,164.8	2,175.1	2,153.5	6.9		134.58	-84.4	160.2	231.3	225.3	6.04	38.282	

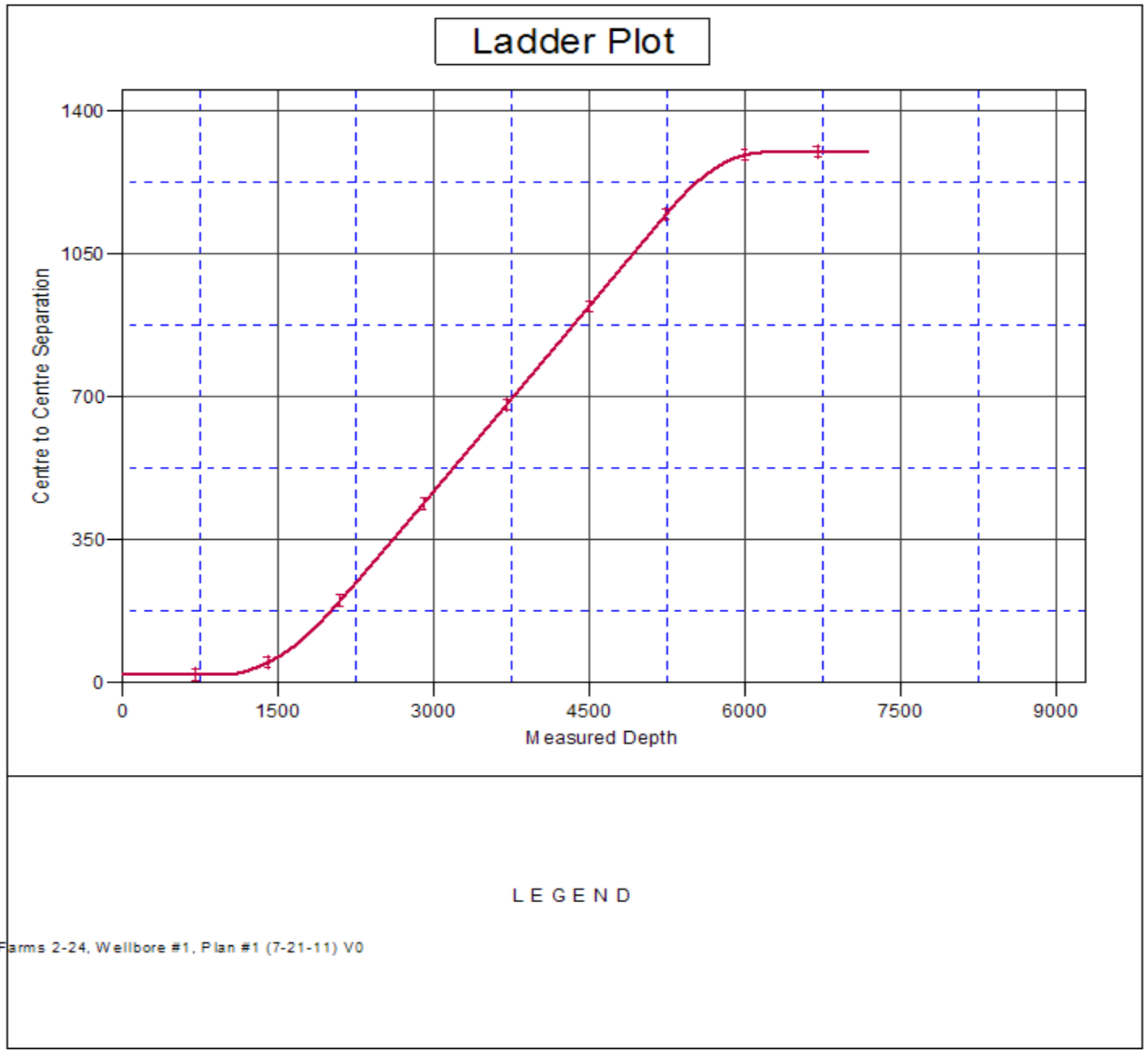
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	St. James, Weld County CO	Local Co-ordinate Reference:	Well Larson Farms 1-24
Project:	SEC.24-T6N-R64W	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Reference Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Larson Farms 1-24	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 (7-21-11)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0ft
Survey Program: 0-												Offset Well Error:	0.0ft
Reference													
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
2,300.0	2,258.8	2,270.4	2,243.3	7.5		132.56	-96.0	189.9	260.6	254.0	6.62	39.375	
2,400.0	2,352.8	2,365.7	2,333.1	8.1		130.95	-107.7	219.6	290.1	282.9	7.21	40.251	
2,500.0	2,446.7	2,460.9	2,422.8	8.8		129.63	-119.3	249.2	319.8	312.0	7.81	40.964	
2,600.0	2,540.7	2,556.2	2,512.6	9.5		128.53	-131.0	278.9	349.6	341.2	8.41	41.552	
2,700.0	2,634.7	2,651.4	2,602.4	10.1		127.61	-142.6	308.6	379.5	370.5	9.03	42.042	
2,800.0	2,728.7	2,746.7	2,692.2	10.8		126.82	-154.3	338.2	409.5	399.8	9.65	42.455	
2,900.0	2,822.7	2,842.0	2,781.9	11.5		126.14	-165.9	367.9	439.5	429.3	10.27	42.808	
3,000.0	2,916.7	2,937.2	2,871.7	12.2		125.55	-177.5	397.6	469.6	458.7	10.89	43.111	
3,100.0	3,010.7	3,032.5	2,961.5	12.9		125.03	-189.2	427.2	499.8	488.2	11.52	43.374	
3,200.0	3,104.7	3,127.7	3,051.2	13.6		124.56	-200.8	456.9	529.9	517.8	12.15	43.604	
3,300.0	3,198.6	3,223.0	3,141.0	14.2		124.15	-212.5	486.6	560.1	547.3	12.79	43.807	
3,400.0	3,292.6	3,318.2	3,230.8	14.9		123.78	-224.1	516.2	590.3	576.9	13.42	43.987	
3,500.0	3,386.6	3,413.5	3,320.5	15.6		123.44	-235.8	545.9	620.6	606.5	14.06	44.147	
3,600.0	3,480.6	3,508.8	3,410.3	16.3		123.14	-247.4	575.6	650.8	636.1	14.69	44.290	
3,700.0	3,574.6	3,604.0	3,500.1	17.0		122.86	-259.1	605.2	681.1	665.8	15.33	44.420	
3,800.0	3,668.6	3,699.3	3,589.8	17.7		122.61	-270.7	634.9	711.4	695.4	15.97	44.536	
3,900.0	3,762.6	3,794.5	3,679.6	18.4		122.38	-282.3	664.6	741.7	725.1	16.61	44.643	
4,000.0	3,856.5	3,889.8	3,769.4	19.1		122.16	-294.0	694.2	772.0	754.7	17.25	44.740	
4,100.0	3,950.5	3,985.1	3,859.2	19.8		121.97	-305.6	723.9	802.3	784.4	17.90	44.828	
4,200.0	4,044.5	4,080.3	3,948.9	20.5		121.78	-317.3	753.6	832.6	814.1	18.54	44.910	
4,300.0	4,138.5	4,175.6	4,038.7	21.2		121.61	-328.9	783.2	862.9	843.8	19.18	44.985	
4,400.0	4,232.5	4,270.8	4,128.5	21.9		121.45	-340.6	812.9	893.3	873.4	19.83	45.055	
4,500.0	4,326.5	4,366.1	4,218.2	22.6		121.30	-352.2	842.6	923.6	903.1	20.47	45.119	
4,600.0	4,420.5	4,461.4	4,308.0	23.3		121.16	-363.9	872.2	954.0	932.8	21.12	45.179	
4,700.0	4,514.5	4,556.6	4,397.8	24.0		121.03	-375.5	901.9	984.3	962.6	21.76	45.234	
4,800.0	4,608.4	4,651.9	4,487.5	24.7		120.91	-387.2	931.6	1,014.7	992.3	22.41	45.286	
4,900.0	4,702.4	4,747.1	4,577.3	25.4		120.79	-398.8	961.2	1,045.0	1,022.0	23.05	45.335	
5,000.0	4,796.4	4,842.4	4,667.1	26.1		120.68	-410.4	990.9	1,075.4	1,051.7	23.70	45.380	
5,100.0	4,890.4	4,937.7	4,756.9	26.8		120.58	-422.1	1,020.6	1,105.8	1,081.4	24.34	45.423	
5,200.0	4,984.4	5,032.9	4,846.6	27.5		120.48	-433.7	1,050.2	1,136.1	1,111.1	24.99	45.463	
5,239.6	5,021.6	5,070.6	4,882.1	27.8		120.45	-438.3	1,062.0	1,148.1	1,122.9	25.25	45.479	
5,300.0	5,078.6	5,128.3	4,936.5	28.2		120.69	-445.4	1,079.9	1,166.2	1,140.7	25.54	45.664	
5,400.0	5,173.8	5,240.2	5,042.6	28.7		120.98	-458.4	1,113.0	1,194.1	1,168.2	25.93	46.042	
5,500.0	5,270.1	5,354.6	5,152.4	29.1		121.26	-470.1	1,142.9	1,218.9	1,192.6	26.29	46.362	
5,600.0	5,367.2	5,470.5	5,264.9	29.5		121.51	-480.3	1,168.9	1,240.5	1,213.8	26.60	46.627	
5,700.0	5,465.1	5,587.7	5,379.6	29.9		121.75	-489.0	1,190.9	1,258.8	1,231.9	26.87	46.840	
5,800.0	5,563.6	5,705.8	5,496.2	30.2		121.98	-495.9	1,208.7	1,273.8	1,246.7	27.10	47.000	
5,900.0	5,662.7	5,824.8	5,614.3	30.5		122.19	-501.1	1,222.0	1,285.5	1,258.2	27.29	47.109	
6,000.0	5,762.2	5,944.3	5,733.5	30.7		122.39	-504.6	1,230.8	1,293.8	1,266.4	27.43	47.166	
6,100.0	5,862.0	6,064.1	5,853.2	30.8		122.59	-506.2	1,234.9	1,298.7	1,271.2	27.53	47.171	
6,200.0	5,961.9	6,171.9	5,960.9	31.0		122.73	-506.4	1,235.3	1,300.5	1,272.9	27.60	47.117	
6,238.1	6,000.0	6,209.9	5,999.0	31.0		180.00	-506.4	1,235.3	1,300.6	1,273.0	27.62	47.083	
6,300.0	6,061.9	6,271.9	6,060.9	31.0		180.00	-506.4	1,235.3	1,300.6	1,272.9	27.68	46.984	
6,400.0	6,161.9	6,371.9	6,160.9	31.1		180.00	-506.4	1,235.3	1,300.6	1,272.8	27.79	46.807	
6,500.0	6,261.9	6,471.9	6,260.9	31.2		180.00	-506.4	1,235.3	1,300.6	1,272.7	27.89	46.628	
6,600.0	6,361.9	6,571.9	6,360.9	31.3		180.00	-506.4	1,235.3	1,300.6	1,272.6	28.00	46.449	
6,700.0	6,461.9	6,671.9	6,460.9	31.4		180.00	-506.4	1,235.3	1,300.6	1,272.5	28.11	46.269	
6,800.0	6,561.9	6,771.9	6,560.9	31.5		180.00	-506.4	1,235.3	1,300.6	1,272.4	28.22	46.088	
6,900.0	6,661.9	6,871.9	6,660.9	31.6		180.00	-506.4	1,235.3	1,300.6	1,272.3	28.33	45.906	
7,000.0	6,761.9	6,971.9	6,760.9	31.7		180.00	-506.4	1,235.3	1,300.6	1,272.2	28.44	45.724	
7,100.0	6,861.9	7,071.9	6,860.9	31.8		180.00	-506.4	1,235.3	1,300.6	1,272.1	28.56	45.541	
7,188.1	6,950.0	7,159.9	6,949.0	31.9		180.00	-506.4	1,235.3	1,300.6	1,271.9	28.66	45.379	

Company:	St. James, Weld County CO	Local Co-ordinate Reference:	Well Larson Farms 1-24
Project:	SEC.24-T6N-R64W	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Reference Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Larson Farms 1-24	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 (7-21-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4658.0ft (Original Well Elev) Coordinates are relative to: Larson Farms 1-24
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: 0.65°



Company:	St. James, Weld County CO	Local Co-ordinate Reference:	Well Larson Farms 1-24
Project:	SEC.24-T6N-R64W	TVD Reference:	WELL @ 4658.0ft (Original Well Elev)
Reference Site:	Larson Farms 1-24 Pad Sec.24-T6N-R64W	MD Reference:	WELL @ 4658.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Larson Farms 1-24	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 @ 4658.0ft (Original Well Elev) Coordinates are relative to: Larson Farms 1-24
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