

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Frank Trust 14-36H**

Surface Location: Frank Trust 14-36H Pad Sec.36-T7N-R61W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4797.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1436870.53	3371082.03	40° 31' 29.795 N	104° 9' 54.389 W	

RKB Ensign 32 - 14' WELL @ 4811.0ft (RKB Ensign 32 - 14')

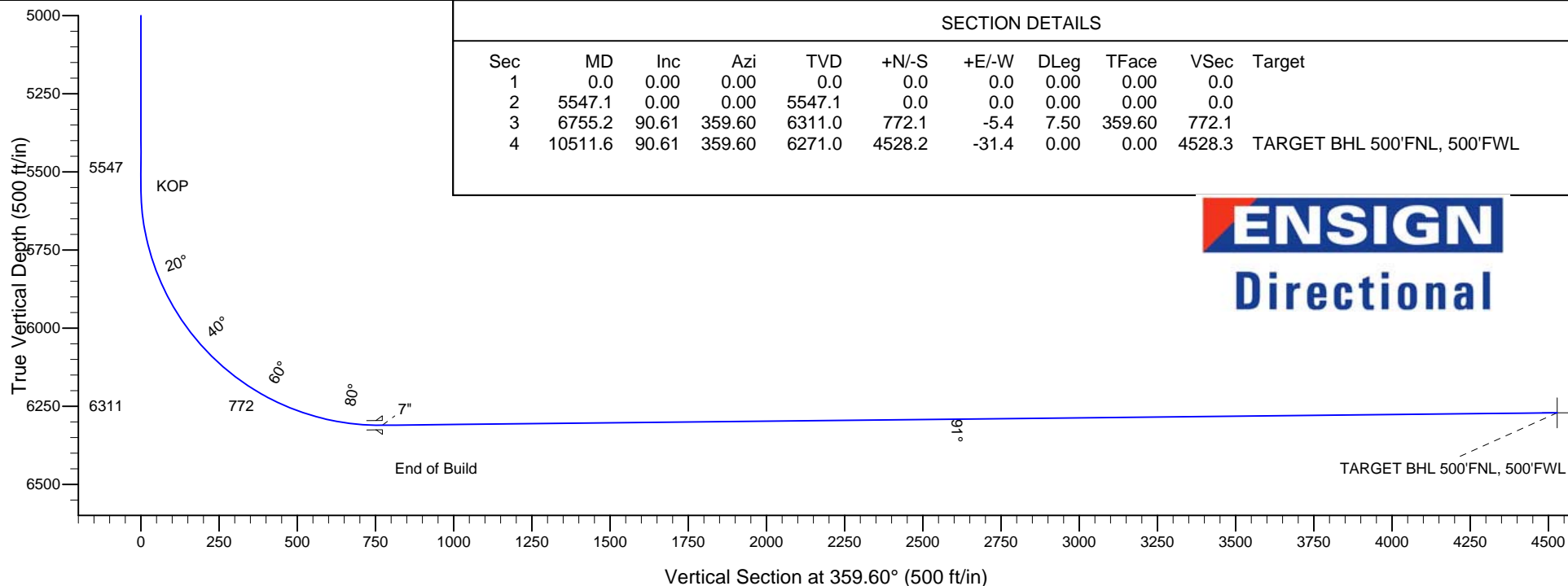
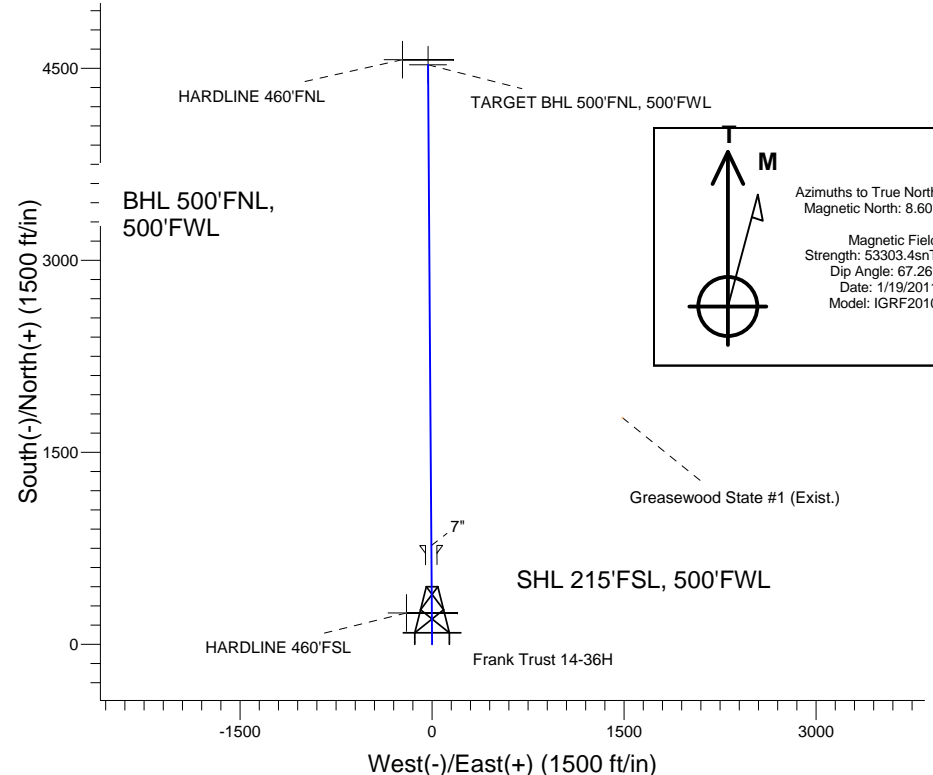
WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
HARDLINE 460'FNL	1.0	4568.2	-231.4	Polygon
HARDLINE 460'FSL	1.0	245.0	-200.0	Polygon
TARGET BHL 500'FNL, 500'FWL	6271.0	4528.2	-31.4	Point

Frank Trust 14-36H Pad Sec.36-T7N-R61W
Frank Trust 14-36H
Plan #1 (1-19-11)
17:29, January 21 2011

ANNOTATIONS

TVD	MD	Annotation
5547.0	5547.0	KOP
6311.0	6755.2	End of Build



ENSIGN
Directional



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T7N-R61W

Frank Trust 14-36H Pad Sec.36-T7N-R61W

Frank Trust 14-36H

Wellbore #1

Plan: Plan #1 (1-19-11)

Standard Planning Report

21 January, 2011

Database:	Landmark	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Project:	SEC.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	North Reference:	True
Well:	Frank Trust 14-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-19-11)		

Project	SEC.36-T7N-R61W, 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						Frank Trust 14-36H Pad Sec.36-T7N-R61W											
Site Position:						Northing:			1,436,870.54 ft			Latitude:			40° 31' 29.795 N		
From:			Lat/Long			Easting:			3,371,082.03 ft			Longitude:			104° 9' 54.389 W		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.86 °		

Well	Frank Trust 14-36H					
Well Position	+N-S	0.0 ft	Northing:	1,436,870.53 ft	Latitude:	40° 31' 29.795 N
	+E-W	0.0 ft	Easting:	3,371,082.03 ft	Longitude:	104° 9' 54.389 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,797.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/19/2011	8.60	67.26	53,303

Design	Plan #1 (1-19-11)			
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	359.60

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	
5,547.1	0.00	0.00	5,547.1	0.0	0.0	0.00	0.00	0.00	0.00	
6,755.2	90.61	359.60	6,311.0	772.1	-5.4	7.50	7.50	0.00	359.60	
10,511.6	90.61	359.60	6,271.0	4,528.2	-31.4	0.00	0.00	0.00	0.00	TARGET BHL 500'I

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Project:	SEC.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	North Reference:	True
Well:	Frank Trust 14-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-19-11)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
HARDLINE 460'FNL - HARDLINE 460'FSL									
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
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
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00

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Well:	Frank Trust 14-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-19-11)		

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	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.00	0.00	2,720.0	0.0	0.0	0.0	0.00	0.00	0.00
2,760.0	0.00	0.00	2,760.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,840.0	0.00	0.00	2,840.0	0.0	0.0	0.0	0.00	0.00	0.00
2,880.0	0.00	0.00	2,880.0	0.0	0.0	0.0	0.00	0.00	0.00
2,920.0	0.00	0.00	2,920.0	0.0	0.0	0.0	0.00	0.00	0.00
2,960.0	0.00	0.00	2,960.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,040.0	0.00	0.00	3,040.0	0.0	0.0	0.0	0.00	0.00	0.00
3,080.0	0.00	0.00	3,080.0	0.0	0.0	0.0	0.00	0.00	0.00
3,120.0	0.00	0.00	3,120.0	0.0	0.0	0.0	0.00	0.00	0.00
3,160.0	0.00	0.00	3,160.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,240.0	0.00	0.00	3,240.0	0.0	0.0	0.0	0.00	0.00	0.00
3,280.0	0.00	0.00	3,280.0	0.0	0.0	0.0	0.00	0.00	0.00
3,320.0	0.00	0.00	3,320.0	0.0	0.0	0.0	0.00	0.00	0.00
3,360.0	0.00	0.00	3,360.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,440.0	0.00	0.00	3,440.0	0.0	0.0	0.0	0.00	0.00	0.00
3,480.0	0.00	0.00	3,480.0	0.0	0.0	0.0	0.00	0.00	0.00
3,520.0	0.00	0.00	3,520.0	0.0	0.0	0.0	0.00	0.00	0.00
3,560.0	0.00	0.00	3,560.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,640.0	0.00	0.00	3,640.0	0.0	0.0	0.0	0.00	0.00	0.00
3,680.0	0.00	0.00	3,680.0	0.0	0.0	0.0	0.00	0.00	0.00
3,720.0	0.00	0.00	3,720.0	0.0	0.0	0.0	0.00	0.00	0.00
3,760.0	0.00	0.00	3,760.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,840.0	0.00	0.00	3,840.0	0.0	0.0	0.0	0.00	0.00	0.00
3,880.0	0.00	0.00	3,880.0	0.0	0.0	0.0	0.00	0.00	0.00
3,920.0	0.00	0.00	3,920.0	0.0	0.0	0.0	0.00	0.00	0.00
3,960.0	0.00	0.00	3,960.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,040.0	0.00	0.00	4,040.0	0.0	0.0	0.0	0.00	0.00	0.00
4,080.0	0.00	0.00	4,080.0	0.0	0.0	0.0	0.00	0.00	0.00
4,120.0	0.00	0.00	4,120.0	0.0	0.0	0.0	0.00	0.00	0.00

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Wellbore:	Wellbore #1		
Design:	Plan #1 (1-19-11)		

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	0.00	0.00	4,160.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,240.0	0.00	0.00	4,240.0	0.0	0.0	0.0	0.00	0.00	0.00
4,280.0	0.00	0.00	4,280.0	0.0	0.0	0.0	0.00	0.00	0.00
4,320.0	0.00	0.00	4,320.0	0.0	0.0	0.0	0.00	0.00	0.00
4,360.0	0.00	0.00	4,360.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,440.0	0.00	0.00	4,440.0	0.0	0.0	0.0	0.00	0.00	0.00
4,480.0	0.00	0.00	4,480.0	0.0	0.0	0.0	0.00	0.00	0.00
4,520.0	0.00	0.00	4,520.0	0.0	0.0	0.0	0.00	0.00	0.00
4,560.0	0.00	0.00	4,560.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,640.0	0.00	0.00	4,640.0	0.0	0.0	0.0	0.00	0.00	0.00
4,680.0	0.00	0.00	4,680.0	0.0	0.0	0.0	0.00	0.00	0.00
4,720.0	0.00	0.00	4,720.0	0.0	0.0	0.0	0.00	0.00	0.00
4,760.0	0.00	0.00	4,760.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,840.0	0.00	0.00	4,840.0	0.0	0.0	0.0	0.00	0.00	0.00
4,880.0	0.00	0.00	4,880.0	0.0	0.0	0.0	0.00	0.00	0.00
4,920.0	0.00	0.00	4,920.0	0.0	0.0	0.0	0.00	0.00	0.00
4,960.0	0.00	0.00	4,960.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,040.0	0.00	0.00	5,040.0	0.0	0.0	0.0	0.00	0.00	0.00
5,080.0	0.00	0.00	5,080.0	0.0	0.0	0.0	0.00	0.00	0.00
5,120.0	0.00	0.00	5,120.0	0.0	0.0	0.0	0.00	0.00	0.00
5,160.0	0.00	0.00	5,160.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,240.0	0.00	0.00	5,240.0	0.0	0.0	0.0	0.00	0.00	0.00
5,280.0	0.00	0.00	5,280.0	0.0	0.0	0.0	0.00	0.00	0.00
5,320.0	0.00	0.00	5,320.0	0.0	0.0	0.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,360.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,440.0	0.0	0.0	0.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,480.0	0.0	0.0	0.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,520.0	0.0	0.0	0.0	0.00	0.00	0.00
5,547.0	0.00	0.00	5,547.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP									
5,547.1	0.00	0.00	5,547.1	0.0	0.0	0.0	0.00	0.00	0.00
5,560.0	0.97	359.60	5,560.0	0.1	0.0	0.1	7.50	7.50	0.00
5,600.0	3.97	359.60	5,600.0	1.8	0.0	1.8	7.50	7.50	0.00
5,640.0	6.97	359.60	5,639.8	5.6	0.0	5.6	7.50	7.50	0.00
5,680.0	9.97	359.60	5,679.3	11.5	-0.1	11.5	7.50	7.50	0.00
5,720.0	12.97	359.60	5,718.5	19.5	-0.1	19.5	7.50	7.50	0.00
5,760.0	15.97	359.60	5,757.3	29.5	-0.2	29.5	7.50	7.50	0.00
5,800.0	18.97	359.60	5,795.4	41.5	-0.3	41.5	7.50	7.50	0.00
5,840.0	21.97	359.60	5,832.9	55.5	-0.4	55.5	7.50	7.50	0.00
5,880.0	24.97	359.60	5,869.6	71.4	-0.5	71.4	7.50	7.50	0.00
5,920.0	27.97	359.60	5,905.4	89.2	-0.6	89.2	7.50	7.50	0.00
5,960.0	30.97	359.60	5,940.2	108.9	-0.8	108.9	7.50	7.50	0.00
6,000.0	33.97	359.60	5,973.9	130.4	-0.9	130.4	7.50	7.50	0.00
6,040.0	36.97	359.60	6,006.5	153.6	-1.1	153.6	7.50	7.50	0.00
6,080.0	39.97	359.60	6,037.8	178.5	-1.2	178.5	7.50	7.50	0.00
6,120.0	42.97	359.60	6,067.8	204.9	-1.4	204.9	7.50	7.50	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Project:	SEC.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	North Reference:	True
Well:	Frank Trust 14-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-19-11)		

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)
6,160.0	45.97	359.60	6,096.3	233.0	-1.6	233.0	7.50	7.50	0.00
6,200.0	48.97	359.60	6,123.4	262.4	-1.8	262.4	7.50	7.50	0.00
6,240.0	51.97	359.60	6,148.8	293.3	-2.0	293.3	7.50	7.50	0.00
6,280.0	54.97	359.60	6,172.6	325.4	-2.3	325.4	7.50	7.50	0.00
6,320.0	57.97	359.60	6,194.7	358.7	-2.5	358.8	7.50	7.50	0.00
6,360.0	60.97	359.60	6,215.0	393.2	-2.7	393.2	7.50	7.50	0.00
6,400.0	63.97	359.60	6,233.5	428.7	-3.0	428.7	7.50	7.50	0.00
6,440.0	66.97	359.60	6,250.1	465.0	-3.2	465.1	7.50	7.50	0.00
6,480.0	69.97	359.60	6,264.8	502.2	-3.5	502.3	7.50	7.50	0.00
6,520.0	72.97	359.60	6,277.5	540.2	-3.7	540.2	7.50	7.50	0.00
6,560.0	75.97	359.60	6,288.2	578.7	-4.0	578.7	7.50	7.50	0.00
6,600.0	78.97	359.60	6,296.9	617.7	-4.3	617.8	7.50	7.50	0.00
6,640.0	81.97	359.60	6,303.5	657.2	-4.6	657.2	7.50	7.50	0.00
6,680.0	84.97	359.60	6,308.1	696.9	-4.8	696.9	7.50	7.50	0.00
6,720.0	87.97	359.60	6,310.6	736.8	-5.1	736.9	7.50	7.50	0.00
6,755.2	90.61	359.60	6,311.0	772.0	-5.4	772.1	7.50	7.50	0.00
End of Build - 7"									
6,760.0	90.61	359.60	6,310.9	776.8	-5.4	776.9	0.04	0.04	0.00
6,800.0	90.61	359.60	6,310.5	816.8	-5.7	816.9	0.00	0.00	0.00
6,840.0	90.61	359.60	6,310.1	856.8	-5.9	856.8	0.00	0.00	0.00
6,880.0	90.61	359.60	6,309.7	896.8	-6.2	896.8	0.00	0.00	0.00
6,920.0	90.61	359.60	6,309.2	936.8	-6.5	936.8	0.00	0.00	0.00
6,960.0	90.61	359.60	6,308.8	976.8	-6.8	976.8	0.00	0.00	0.00
7,000.0	90.61	359.60	6,308.4	1,016.8	-7.1	1,016.8	0.00	0.00	0.00
7,040.0	90.61	359.60	6,308.0	1,056.8	-7.3	1,056.8	0.00	0.00	0.00
7,080.0	90.61	359.60	6,307.5	1,096.8	-7.6	1,096.8	0.00	0.00	0.00
7,120.0	90.61	359.60	6,307.1	1,136.8	-7.9	1,136.8	0.00	0.00	0.00
7,160.0	90.61	359.60	6,306.7	1,176.8	-8.2	1,176.8	0.00	0.00	0.00
7,200.0	90.61	359.60	6,306.3	1,216.8	-8.4	1,216.8	0.00	0.00	0.00
7,240.0	90.61	359.60	6,305.8	1,256.8	-8.7	1,256.8	0.00	0.00	0.00
7,280.0	90.61	359.60	6,305.4	1,296.8	-9.0	1,296.8	0.00	0.00	0.00
7,320.0	90.61	359.60	6,305.0	1,336.8	-9.3	1,336.8	0.00	0.00	0.00
7,360.0	90.61	359.60	6,304.6	1,376.8	-9.5	1,376.8	0.00	0.00	0.00
7,400.0	90.61	359.60	6,304.1	1,416.8	-9.8	1,416.8	0.00	0.00	0.00
7,440.0	90.61	359.60	6,303.7	1,456.8	-10.1	1,456.8	0.00	0.00	0.00
7,480.0	90.61	359.60	6,303.3	1,496.8	-10.4	1,496.8	0.00	0.00	0.00
7,520.0	90.61	359.60	6,302.8	1,536.8	-10.7	1,536.8	0.00	0.00	0.00
7,560.0	90.61	359.60	6,302.4	1,576.8	-10.9	1,576.8	0.00	0.00	0.00
7,600.0	90.61	359.60	6,302.0	1,616.8	-11.2	1,616.8	0.00	0.00	0.00
7,640.0	90.61	359.60	6,301.6	1,656.8	-11.5	1,656.8	0.00	0.00	0.00
7,680.0	90.61	359.60	6,301.1	1,696.8	-11.8	1,696.8	0.00	0.00	0.00
7,720.0	90.61	359.60	6,300.7	1,736.8	-12.0	1,736.8	0.00	0.00	0.00
7,760.0	90.61	359.60	6,300.3	1,776.8	-12.3	1,776.8	0.00	0.00	0.00
7,800.0	90.61	359.60	6,299.9	1,816.7	-12.6	1,816.8	0.00	0.00	0.00
7,840.0	90.61	359.60	6,299.4	1,856.7	-12.9	1,856.8	0.00	0.00	0.00
7,880.0	90.61	359.60	6,299.0	1,896.7	-13.2	1,896.8	0.00	0.00	0.00
7,920.0	90.61	359.60	6,298.6	1,936.7	-13.4	1,936.8	0.00	0.00	0.00
7,960.0	90.61	359.60	6,298.2	1,976.7	-13.7	1,976.8	0.00	0.00	0.00
8,000.0	90.61	359.60	6,297.7	2,016.7	-14.0	2,016.8	0.00	0.00	0.00
8,040.0	90.61	359.60	6,297.3	2,056.7	-14.3	2,056.8	0.00	0.00	0.00
8,080.0	90.61	359.60	6,296.9	2,096.7	-14.5	2,096.8	0.00	0.00	0.00
8,120.0	90.61	359.60	6,296.5	2,136.7	-14.8	2,136.8	0.00	0.00	0.00
8,160.0	90.61	359.60	6,296.0	2,176.7	-15.1	2,176.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Project:	SEC.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	North Reference:	True
Well:	Frank Trust 14-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-19-11)		

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)
8,200.0	90.61	359.60	6,295.6	2,216.7	-15.4	2,216.8	0.00	0.00	0.00
8,240.0	90.61	359.60	6,295.2	2,256.7	-15.7	2,256.8	0.00	0.00	0.00
8,280.0	90.61	359.60	6,294.8	2,296.7	-15.9	2,296.8	0.00	0.00	0.00
8,320.0	90.61	359.60	6,294.3	2,336.7	-16.2	2,336.8	0.00	0.00	0.00
8,360.0	90.61	359.60	6,293.9	2,376.7	-16.5	2,376.8	0.00	0.00	0.00
8,400.0	90.61	359.60	6,293.5	2,416.7	-16.8	2,416.8	0.00	0.00	0.00
8,440.0	90.61	359.60	6,293.1	2,456.7	-17.0	2,456.8	0.00	0.00	0.00
8,480.0	90.61	359.60	6,292.6	2,496.7	-17.3	2,496.8	0.00	0.00	0.00
8,520.0	90.61	359.60	6,292.2	2,536.7	-17.6	2,536.8	0.00	0.00	0.00
8,560.0	90.61	359.60	6,291.8	2,576.7	-17.9	2,576.8	0.00	0.00	0.00
8,600.0	90.61	359.60	6,291.4	2,616.7	-18.2	2,616.7	0.00	0.00	0.00
8,640.0	90.61	359.60	6,290.9	2,656.7	-18.4	2,656.7	0.00	0.00	0.00
8,680.0	90.61	359.60	6,290.5	2,696.7	-18.7	2,696.7	0.00	0.00	0.00
8,720.0	90.61	359.60	6,290.1	2,736.7	-19.0	2,736.7	0.00	0.00	0.00
8,760.0	90.61	359.60	6,289.6	2,776.7	-19.3	2,776.7	0.00	0.00	0.00
8,800.0	90.61	359.60	6,289.2	2,816.7	-19.5	2,816.7	0.00	0.00	0.00
8,840.0	90.61	359.60	6,288.8	2,856.7	-19.8	2,856.7	0.00	0.00	0.00
8,880.0	90.61	359.60	6,288.4	2,896.7	-20.1	2,896.7	0.00	0.00	0.00
8,920.0	90.61	359.60	6,287.9	2,936.7	-20.4	2,936.7	0.00	0.00	0.00
8,960.0	90.61	359.60	6,287.5	2,976.7	-20.6	2,976.7	0.00	0.00	0.00
9,000.0	90.61	359.60	6,287.1	3,016.7	-20.9	3,016.7	0.00	0.00	0.00
9,040.0	90.61	359.60	6,286.7	3,056.6	-21.2	3,056.7	0.00	0.00	0.00
9,080.0	90.61	359.60	6,286.2	3,096.6	-21.5	3,096.7	0.00	0.00	0.00
9,120.0	90.61	359.60	6,285.8	3,136.6	-21.8	3,136.7	0.00	0.00	0.00
9,160.0	90.61	359.60	6,285.4	3,176.6	-22.0	3,176.7	0.00	0.00	0.00
9,200.0	90.61	359.60	6,285.0	3,216.6	-22.3	3,216.7	0.00	0.00	0.00
9,240.0	90.61	359.60	6,284.5	3,256.6	-22.6	3,256.7	0.00	0.00	0.00
9,280.0	90.61	359.60	6,284.1	3,296.6	-22.9	3,296.7	0.00	0.00	0.00
9,320.0	90.61	359.60	6,283.7	3,336.6	-23.1	3,336.7	0.00	0.00	0.00
9,360.0	90.61	359.60	6,283.3	3,376.6	-23.4	3,376.7	0.00	0.00	0.00
9,400.0	90.61	359.60	6,282.8	3,416.6	-23.7	3,416.7	0.00	0.00	0.00
9,440.0	90.61	359.60	6,282.4	3,456.6	-24.0	3,456.7	0.00	0.00	0.00
9,480.0	90.61	359.60	6,282.0	3,496.6	-24.3	3,496.7	0.00	0.00	0.00
9,520.0	90.61	359.60	6,281.6	3,536.6	-24.5	3,536.7	0.00	0.00	0.00
9,560.0	90.61	359.60	6,281.1	3,576.6	-24.8	3,576.7	0.00	0.00	0.00
9,600.0	90.61	359.60	6,280.7	3,616.6	-25.1	3,616.7	0.00	0.00	0.00
9,640.0	90.61	359.60	6,280.3	3,656.6	-25.4	3,656.7	0.00	0.00	0.00
9,680.0	90.61	359.60	6,279.9	3,696.6	-25.6	3,696.7	0.00	0.00	0.00
9,720.0	90.61	359.60	6,279.4	3,736.6	-25.9	3,736.7	0.00	0.00	0.00
9,760.0	90.61	359.60	6,279.0	3,776.6	-26.2	3,776.7	0.00	0.00	0.00
9,800.0	90.61	359.60	6,278.6	3,816.6	-26.5	3,816.7	0.00	0.00	0.00
9,840.0	90.61	359.60	6,278.2	3,856.6	-26.8	3,856.7	0.00	0.00	0.00
9,880.0	90.61	359.60	6,277.7	3,896.6	-27.0	3,896.7	0.00	0.00	0.00
9,920.0	90.61	359.60	6,277.3	3,936.6	-27.3	3,936.7	0.00	0.00	0.00
9,960.0	90.61	359.60	6,276.9	3,976.6	-27.6	3,976.7	0.00	0.00	0.00
10,000.0	90.61	359.60	6,276.4	4,016.6	-27.9	4,016.7	0.00	0.00	0.00
10,040.0	90.61	359.60	6,276.0	4,056.6	-28.1	4,056.7	0.00	0.00	0.00
10,080.0	90.61	359.60	6,275.6	4,096.6	-28.4	4,096.7	0.00	0.00	0.00
10,120.0	90.61	359.60	6,275.2	4,136.6	-28.7	4,136.7	0.00	0.00	0.00
10,160.0	90.61	359.60	6,274.7	4,176.6	-29.0	4,176.7	0.00	0.00	0.00
10,200.0	90.61	359.60	6,274.3	4,216.6	-29.2	4,216.7	0.00	0.00	0.00
10,240.0	90.61	359.60	6,273.9	4,256.6	-29.5	4,256.7	0.00	0.00	0.00
10,280.0	90.61	359.60	6,273.5	4,296.5	-29.8	4,296.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Project:	SEC.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	North Reference:	True
Well:	Frank Trust 14-36H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-19-11)		

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)
10,320.0	90.61	359.60	6,273.0	4,336.5	-30.1	4,336.7	0.00	0.00	0.00
10,360.0	90.61	359.60	6,272.6	4,376.5	-30.4	4,376.6	0.00	0.00	0.00
10,400.0	90.61	359.60	6,272.2	4,416.5	-30.6	4,416.6	0.00	0.00	0.00
10,440.0	90.61	359.60	6,271.8	4,456.5	-30.9	4,456.6	0.00	0.00	0.00
10,480.0	90.61	359.60	6,271.3	4,496.5	-31.2	4,496.6	0.00	0.00	0.00
10,511.6	90.61	359.60	6,271.0	4,528.2	-31.4	4,528.3	0.00	0.00	0.00
TARGET BHL 500'FNL, 500'FWL									

Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
HARDLINE 460'FNL	0.00	0.00	1.0	4,568.2	-231.4	1,441,434.58	3,370,781.90	40° 32' 14.935 N	104° 9' 57.386 W
- plan misses target center by 4574.1ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,441,434.58	3,370,781.90		
Point 2			1.0	0.0	400.0	1,441,440.60	3,371,181.84		
HARDLINE 460'FSL	0.00	0.00	1.0	245.0	-200.0	1,437,112.48	3,370,878.37	40° 31' 32.216 N	104° 9' 56.979 W
- plan misses target center by 316.3ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,437,112.48	3,370,878.37		
Point 2			1.0	0.0	400.0	1,437,118.51	3,371,278.31		
TARGET BHL 500'FN	0.00	0.00	6,271.0	4,528.2	-31.4	1,441,397.55	3,370,982.46	40° 32' 14.539 N	104° 9' 54.796 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,755.2	6,311.0	7"	7	8-3/4

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,547.0	5,547.0	0.0	0.0	KOP
6,755.2	6,311.0	772.0	-5.4	End of Build



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T7N-R61W

Frank Trust 14-36H Pad Sec.36-T7N-R61W

Frank Trust 14-36H

Wellbore #1

Plan #1 (1-19-11)

Anticollision Report

21 January, 2011



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Project:	SEC.36-T7N-R61W	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Reference Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frank Trust 14-36H	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 (1-19-11)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (1-19-11)		
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 1/21/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,511.6	Plan #1 (1-19-11) (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						
Frank Trust 14-36H Pad Sec.36-T7N-R61W						
Greasewood State #1 (Exist.) - Wellbore #1 - Design #1	7,744.9	6,311.0	1,498.3	1,448.0	29.806	CC, ES
Greasewood State #1 (Exist.) - Wellbore #1 - Design #1	8,600.0	6,311.0	1,725.2	1,659.3	26.200	SF

Offset Design		Frank Trust 14-36H Pad Sec.36-T7N-R61W - Greasewood State #1 (Exist.) - Wellbore #1 - Design #1										Offset Site Error:		0.0 ft	
Survey Program:		0-MWD										Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth Vertical 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			
0.0	0.0	35.0	35.0	0.0	0.0	39.98	1,771.7	1,485.8	2,312.3	2,312.3	0.04	N/A			
100.0	100.0	135.0	135.0	0.1	0.2	39.98	1,771.7	1,485.8	2,312.3	2,312.0	0.30	7,620.462			
200.0	200.0	235.0	235.0	0.3	0.4	39.98	1,771.7	1,485.8	2,312.3	2,311.6	0.75	3,070.932			
300.0	300.0	335.0	335.0	0.6	0.6	39.98	1,771.7	1,485.8	2,312.3	2,311.1	1.20	1,922.920			
400.0	400.0	435.0	435.0	0.8	0.9	39.98	1,771.7	1,485.8	2,312.3	2,310.7	1.65	1,399.677			
500.0	500.0	535.0	535.0	1.0	1.1	39.98	1,771.7	1,485.8	2,312.3	2,310.2	2.10	1,100.281			
600.0	600.0	635.0	635.0	1.2	1.3	39.98	1,771.7	1,485.8	2,312.3	2,309.8	2.55	906.399			
700.0	700.0	735.0	735.0	1.5	1.5	39.98	1,771.7	1,485.8	2,312.3	2,309.3	3.00	770.609			
800.0	800.0	835.0	835.0	1.7	1.8	39.98	1,771.7	1,485.8	2,312.3	2,308.9	3.45	670.203			
900.0	900.0	935.0	935.0	1.9	2.0	39.98	1,771.7	1,485.8	2,312.3	2,308.4	3.90	592.947			
1,000.0	1,000.0	1,035.0	1,035.0	2.1	2.2	39.98	1,771.7	1,485.8	2,312.3	2,308.0	4.35	531.660			
1,100.0	1,100.0	1,135.0	1,135.0	2.4	2.4	39.98	1,771.7	1,485.8	2,312.3	2,307.5	4.80	481.856			
1,200.0	1,200.0	1,235.0	1,235.0	2.6	2.7	39.98	1,771.7	1,485.8	2,312.3	2,307.1	5.25	440.583			
1,300.0	1,300.0	1,335.0	1,335.0	2.8	2.9	39.98	1,771.7	1,485.8	2,312.3	2,306.6	5.70	405.823			
1,400.0	1,400.0	1,435.0	1,435.0	3.0	3.1	39.98	1,771.7	1,485.8	2,312.3	2,306.2	6.15	376.147			
1,500.0	1,500.0	1,535.0	1,535.0	3.3	3.3	39.98	1,771.7	1,485.8	2,312.3	2,305.7	6.60	350.515			
1,600.0	1,600.0	1,635.0	1,635.0	3.5	3.6	39.98	1,771.7	1,485.8	2,312.3	2,305.3	7.05	328.154			
1,700.0	1,700.0	1,735.0	1,735.0	3.7	3.8	39.98	1,771.7	1,485.8	2,312.3	2,304.8	7.50	308.474			
1,800.0	1,800.0	1,835.0	1,835.0	3.9	4.0	39.98	1,771.7	1,485.8	2,312.3	2,304.4	7.95	291.022			
1,900.0	1,900.0	1,935.0	1,935.0	4.2	4.2	39.98	1,771.7	1,485.8	2,312.3	2,303.9	8.40	275.438			
2,000.0	2,000.0	2,035.0	2,035.0	4.4	4.5	39.98	1,771.7	1,485.8	2,312.3	2,303.5	8.84	261.439			
2,100.0	2,100.0	2,135.0	2,135.0	4.6	4.7	39.98	1,771.7	1,485.8	2,312.3	2,303.0	9.29	248.794			
2,200.0	2,200.0	2,235.0	2,235.0	4.8	4.9	39.98	1,771.7	1,485.8	2,312.3	2,302.6	9.74	237.315			
2,300.0	2,300.0	2,335.0	2,335.0	5.1	5.1	39.98	1,771.7	1,485.8	2,312.3	2,302.1	10.19	226.849			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Project:	SEC.36-T7N-R61W	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Reference Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frank Trust 14-36H	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 (1-19-11)	Offset TVD Reference:	Offset Datum

Offset Design Frank Trust 14-36H Pad Sec.36-T7N-R61W - Greasewood State #1 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,400.0	2,400.0	2,435.0	2,435.0	5.3	5.4	39.98		1,771.7	1,485.8	2,312.3	2,301.7	10.64	217.268	
2,500.0	2,500.0	2,535.0	2,535.0	5.5	5.6	39.98		1,771.7	1,485.8	2,312.3	2,301.2	11.09	208.462	
2,600.0	2,600.0	2,635.0	2,635.0	5.7	5.8	39.98		1,771.7	1,485.8	2,312.3	2,300.8	11.54	200.343	
2,700.0	2,700.0	2,735.0	2,735.0	6.0	6.0	39.98		1,771.7	1,485.8	2,312.3	2,300.3	11.99	192.833	
2,800.0	2,800.0	2,835.0	2,835.0	6.2	6.3	39.98		1,771.7	1,485.8	2,312.3	2,299.9	12.44	185.865	
2,900.0	2,900.0	2,935.0	2,935.0	6.4	6.5	39.98		1,771.7	1,485.8	2,312.3	2,299.4	12.89	179.383	
3,000.0	3,000.0	3,035.0	3,035.0	6.6	6.7	39.98		1,771.7	1,485.8	2,312.3	2,299.0	13.34	173.338	
3,100.0	3,100.0	3,135.0	3,135.0	6.9	6.9	39.98		1,771.7	1,485.8	2,312.3	2,298.5	13.79	167.687	
3,200.0	3,200.0	3,235.0	3,235.0	7.1	7.2	39.98		1,771.7	1,485.8	2,312.3	2,298.1	14.24	162.393	
3,300.0	3,300.0	3,335.0	3,335.0	7.3	7.4	39.98		1,771.7	1,485.8	2,312.3	2,297.6	14.69	157.423	
3,400.0	3,400.0	3,435.0	3,435.0	7.5	7.6	39.98		1,771.7	1,485.8	2,312.3	2,297.2	15.14	152.749	
3,500.0	3,500.0	3,535.0	3,535.0	7.8	7.8	39.98		1,771.7	1,485.8	2,312.3	2,296.7	15.59	148.344	
3,600.0	3,600.0	3,635.0	3,635.0	8.0	8.1	39.98		1,771.7	1,485.8	2,312.3	2,296.3	16.04	144.185	
3,700.0	3,700.0	3,735.0	3,735.0	8.2	8.3	39.98		1,771.7	1,485.8	2,312.3	2,295.8	16.49	140.254	
3,800.0	3,800.0	3,835.0	3,835.0	8.4	8.5	39.98		1,771.7	1,485.8	2,312.3	2,295.4	16.94	136.531	
3,900.0	3,900.0	3,935.0	3,935.0	8.7	8.7	39.98		1,771.7	1,485.8	2,312.3	2,294.9	17.39	133.001	
4,000.0	4,000.0	4,035.0	4,035.0	8.9	9.0	39.98		1,771.7	1,485.8	2,312.3	2,294.5	17.84	129.649	
4,100.0	4,100.0	4,135.0	4,135.0	9.1	9.2	39.98		1,771.7	1,485.8	2,312.3	2,294.0	18.28	126.461	
4,200.0	4,200.0	4,235.0	4,235.0	9.3	9.4	39.98		1,771.7	1,485.8	2,312.3	2,293.6	18.73	123.427	
4,300.0	4,300.0	4,335.0	4,335.0	9.6	9.6	39.98		1,771.7	1,485.8	2,312.3	2,293.1	19.18	120.535	
4,400.0	4,400.0	4,435.0	4,435.0	9.8	9.9	39.98		1,771.7	1,485.8	2,312.3	2,292.7	19.63	117.775	
4,500.0	4,500.0	4,535.0	4,535.0	10.0	10.1	39.98		1,771.7	1,485.8	2,312.3	2,292.2	20.08	115.138	
4,600.0	4,600.0	4,635.0	4,635.0	10.2	10.3	39.98		1,771.7	1,485.8	2,312.3	2,291.8	20.53	112.618	
4,700.0	4,700.0	4,735.0	4,735.0	10.5	10.5	39.98		1,771.7	1,485.8	2,312.3	2,291.3	20.98	110.205	
4,800.0	4,800.0	4,835.0	4,835.0	10.7	10.8	39.98		1,771.7	1,485.8	2,312.3	2,290.9	21.43	107.893	
4,900.0	4,900.0	4,935.0	4,935.0	10.9	11.0	39.98		1,771.7	1,485.8	2,312.3	2,290.4	21.88	105.677	
5,000.0	5,000.0	5,035.0	5,035.0	11.1	11.2	39.98		1,771.7	1,485.8	2,312.3	2,290.0	22.33	103.549	
5,100.0	5,100.0	5,135.0	5,135.0	11.4	11.4	39.98		1,771.7	1,485.8	2,312.3	2,289.5	22.78	101.506	
5,200.0	5,200.0	5,235.0	5,235.0	11.6	11.7	39.98		1,771.7	1,485.8	2,312.3	2,289.1	23.23	99.542	
5,300.0	5,300.0	5,335.0	5,335.0	11.8	11.9	39.98		1,771.7	1,485.8	2,312.3	2,288.6	23.68	97.652	
5,400.0	5,400.0	5,435.0	5,435.0	12.0	12.1	39.98		1,771.7	1,485.8	2,312.3	2,288.2	24.13	95.833	
5,500.0	5,500.0	5,535.0	5,535.0	12.2	12.3	39.98		1,771.7	1,485.8	2,312.3	2,287.7	24.58	94.080	
5,547.1	5,547.1	5,582.1	5,582.1	12.4	12.4	39.98		1,771.7	1,485.8	2,312.3	2,287.5	24.79	93.276	
5,550.0	5,550.0	5,585.0	5,585.0	12.4	12.4	40.38		1,771.7	1,485.8	2,312.3	2,287.5	24.80	93.227	
5,600.0	5,600.0	5,635.0	5,635.0	12.5	12.6	40.48		1,771.7	1,485.8	2,310.9	2,285.9	25.00	92.441	
5,650.0	5,649.7	5,684.7	5,684.7	12.6	12.7	40.75		1,771.7	1,485.8	2,307.0	2,281.9	25.14	91.755	
5,700.0	5,699.0	5,734.0	5,734.0	12.7	12.8	41.20		1,771.7	1,485.8	2,300.7	2,275.5	25.24	91.158	
5,750.0	5,747.6	5,782.6	5,782.6	12.8	12.9	41.83		1,771.7	1,485.8	2,292.0	2,266.7	25.29	90.628	
5,800.0	5,795.4	5,830.4	5,830.4	12.9	13.0	42.65		1,771.7	1,485.8	2,280.9	2,255.6	25.30	90.135	
5,850.0	5,842.1	5,877.1	5,877.1	13.0	13.1	43.66		1,771.7	1,485.8	2,267.5	2,242.2	25.30	89.640	
5,900.0	5,887.6	5,922.6	5,922.6	13.2	13.2	44.87		1,771.7	1,485.8	2,251.9	2,226.6	25.28	89.094	
5,950.0	5,931.6	5,966.6	5,966.6	13.3	13.3	46.29		1,771.7	1,485.8	2,234.2	2,209.0	25.26	88.439	
6,000.0	5,973.9	6,008.9	6,008.9	13.5	13.4	47.92		1,771.7	1,485.8	2,214.6	2,189.3	25.28	87.610	
6,050.0	6,014.5	6,049.5	6,049.5	13.6	13.5	49.78		1,771.7	1,485.8	2,193.1	2,167.8	25.34	86.540	
6,100.0	6,053.0	6,088.0	6,088.0	13.8	13.6	51.86		1,771.7	1,485.8	2,170.0	2,144.5	25.48	85.167	
6,150.0	6,089.3	6,124.3	6,124.3	14.1	13.7	54.17		1,771.7	1,485.8	2,145.3	2,119.6	25.71	83.449	
6,200.0	6,123.4	6,158.4	6,158.4	14.4	13.7	56.70		1,771.7	1,485.8	2,119.2	2,093.2	26.05	81.367	
6,250.0	6,154.9	6,189.9	6,189.9	14.7	13.8	59.44		1,771.7	1,485.8	2,092.0	2,065.5	26.50	78.943	
6,300.0	6,183.9	6,218.9	6,218.9	15.0	13.9	62.37		1,771.7	1,485.8	2,063.8	2,036.7	27.07	76.232	
6,350.0	6,210.1	6,245.1	6,245.1	15.4	13.9	65.46		1,771.7	1,485.8	2,034.7	2,007.0	27.75	73.322	
6,400.0	6,233.5	6,268.5	6,268.5	15.9	14.0	68.67		1,771.7	1,485.8	2,005.1	1,976.6	28.52	70.317	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Project:	SEC.36-T7N-R61W	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Reference Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frank Trust 14-36H	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 (1-19-11)	Offset TVD Reference:	Offset Datum

Offset Design Frank Trust 14-36H Pad Sec.36-T7N-R61W - Greasewood State #1 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
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		
6,450.0	6,254.0	6,289.0	6,289.0	16.4	14.0	71.96	1,771.7	1,485.8	1,975.1	1,945.7	29.34	67.318		
6,500.0	6,271.4	6,306.4	6,306.4	16.9	14.1	75.26	1,771.7	1,485.8	1,944.9	1,914.7	30.19	64.413		
6,550.0	6,285.8	6,311.0	6,311.0	17.4	14.1	78.18	1,771.7	1,485.8	1,914.7	1,883.7	31.00	61.769		
6,600.0	6,296.9	6,311.0	6,311.0	18.0	14.1	80.92	1,771.7	1,485.8	1,884.8	1,853.1	31.78	59.302		
6,650.0	6,304.9	6,311.0	6,311.0	18.6	14.1	83.63	1,771.7	1,485.8	1,855.4	1,822.8	32.56	56.983		
6,700.0	6,309.6	6,311.0	6,311.0	19.3	14.1	86.26	1,771.7	1,485.8	1,826.6	1,793.3	33.32	54.826		
6,750.0	6,311.0	6,311.0	6,311.0	20.0	14.1	88.81	1,771.7	1,485.8	1,798.5	1,764.5	34.04	52.834		
6,755.2	6,311.0	6,311.0	6,311.0	20.0	14.1	89.06	1,771.7	1,485.8	1,795.6	1,761.5	34.11	52.635		
6,800.0	6,310.5	6,311.0	6,311.0	20.7	14.1	89.06	1,771.7	1,485.8	1,771.3	1,736.6	34.74	50.991		
6,900.0	6,309.5	6,311.0	6,311.0	22.1	14.1	89.06	1,771.7	1,485.8	1,720.1	1,683.9	36.19	47.530		
7,000.0	6,308.4	6,311.0	6,311.0	23.6	14.1	89.06	1,771.7	1,485.8	1,673.2	1,635.5	37.71	44.373		
7,100.0	6,307.3	6,311.0	6,311.0	25.2	14.1	89.06	1,771.7	1,485.8	1,631.2	1,591.9	39.28	41.524		
7,200.0	6,306.3	6,311.0	6,311.0	26.8	14.1	89.06	1,771.7	1,485.8	1,594.3	1,553.4	40.90	38.977		
7,300.0	6,305.2	6,311.0	6,311.0	28.5	14.1	89.06	1,771.7	1,485.8	1,562.9	1,520.4	42.56	36.721		
7,400.0	6,304.1	6,311.0	6,311.0	30.2	14.1	89.06	1,771.7	1,485.8	1,537.5	1,493.2	44.25	34.743		
7,500.0	6,303.1	6,311.0	6,311.0	31.9	14.1	89.06	1,771.7	1,485.8	1,518.2	1,472.2	45.97	33.025		
7,600.0	6,302.0	6,311.0	6,311.0	33.6	14.1	89.06	1,771.7	1,485.8	1,505.3	1,457.6	47.71	31.550		
7,700.0	6,300.9	6,311.0	6,311.0	35.4	14.1	89.06	1,771.7	1,485.8	1,499.0	1,449.5	49.47	30.300		
7,744.9	6,300.5	6,311.0	6,311.0	36.2	14.1	89.06	1,771.7	1,485.8	1,498.3	1,448.0	50.27	29.806 CC, ES		
7,800.0	6,299.9	6,311.0	6,311.0	37.2	14.1	89.06	1,771.7	1,485.8	1,499.3	1,448.1	51.25	29.257		
7,900.0	6,298.8	6,311.0	6,311.0	39.0	14.1	89.06	1,771.7	1,485.8	1,506.3	1,453.3	53.04	28.401		
8,000.0	6,297.7	6,311.0	6,311.0	40.8	14.1	89.06	1,771.7	1,485.8	1,519.9	1,465.0	54.84	27.714		
8,100.0	6,296.7	6,311.0	6,311.0	42.6	14.1	89.06	1,771.7	1,485.8	1,539.8	1,483.2	56.65	27.179		
8,200.0	6,295.6	6,311.0	6,311.0	44.4	14.1	89.06	1,771.7	1,485.8	1,565.9	1,507.4	58.48	26.778		
8,300.0	6,294.5	6,311.0	6,311.0	46.2	14.1	89.06	1,771.7	1,485.8	1,597.8	1,537.5	60.31	26.494		
8,400.0	6,293.5	6,311.0	6,311.0	48.1	14.1	89.06	1,771.7	1,485.8	1,635.3	1,573.1	62.15	26.312		
8,500.0	6,292.4	6,311.0	6,311.0	49.9	14.1	89.06	1,771.7	1,485.8	1,677.8	1,613.8	63.99	26.218		
8,600.0	6,291.4	6,311.0	6,311.0	51.8	14.1	89.06	1,771.7	1,485.8	1,725.2	1,659.3	65.85	26.200 SF		
8,700.0	6,290.3	6,311.0	6,311.0	53.6	14.1	89.06	1,771.7	1,485.8	1,776.8	1,709.1	67.70	26.245		
8,800.0	6,289.2	6,311.0	6,311.0	55.5	14.1	89.06	1,771.7	1,485.8	1,832.5	1,763.0	69.57	26.343		
8,900.0	6,288.2	6,311.0	6,311.0	57.4	14.1	89.06	1,771.7	1,485.8	1,891.9	1,820.5	71.43	26.485		
9,000.0	6,287.1	6,311.0	6,311.0	59.2	14.1	89.06	1,771.7	1,485.8	1,954.6	1,881.2	73.30	26.665		
9,100.0	6,286.0	6,311.0	6,311.0	61.1	14.1	89.06	1,771.7	1,485.8	2,020.2	1,945.0	75.18	26.874		
9,200.0	6,285.0	6,311.0	6,311.0	63.0	14.1	89.06	1,771.7	1,485.8	2,088.6	2,011.6	77.05	27.107		
9,300.0	6,283.9	6,311.0	6,311.0	64.9	14.1	89.06	1,771.7	1,485.8	2,159.5	2,080.5	78.93	27.359		
9,400.0	6,282.8	6,311.0	6,311.0	66.8	14.1	89.06	1,771.7	1,485.8	2,232.6	2,151.8	80.81	27.626		
9,500.0	6,281.8	6,311.0	6,311.0	68.6	14.1	89.06	1,771.7	1,485.8	2,307.7	2,225.0	82.70	27.905		
9,600.0	6,280.7	6,311.0	6,311.0	70.5	14.1	89.06	1,771.7	1,485.8	2,384.6	2,300.0	84.59	28.192		
9,700.0	6,279.6	6,311.0	6,311.0	72.4	14.1	89.06	1,771.7	1,485.8	2,463.2	2,376.7	86.48	28.485		
9,800.0	6,278.6	6,311.0	6,311.0	74.3	14.1	89.06	1,771.7	1,485.8	2,543.3	2,455.0	88.37	28.781		
9,900.0	6,277.5	6,311.0	6,311.0	76.2	14.1	89.06	1,771.7	1,485.8	2,624.8	2,534.5	90.26	29.080		
10,000.0	6,276.4	6,311.0	6,311.0	78.1	14.1	89.06	1,771.7	1,485.8	2,707.5	2,615.3	92.15	29.380		
10,100.0	6,275.4	6,310.4	6,310.4	80.0	14.1	89.04	1,771.7	1,485.8	2,791.3	2,697.3	94.05	29.680		
10,200.0	6,274.3	6,309.3	6,309.3	81.9	14.1	89.00	1,771.7	1,485.8	2,876.2	2,780.3	95.94	29.978		
10,300.0	6,273.3	6,308.3	6,308.3	83.8	14.1	88.96	1,771.7	1,485.8	2,962.0	2,864.2	97.84	30.275		
10,400.0	6,272.2	6,307.2	6,307.2	85.7	14.1	88.92	1,771.7	1,485.8	3,048.7	2,949.0	99.74	30.568		
10,500.0	6,271.1	6,306.1	6,306.1	87.6	14.1	88.88	1,771.7	1,485.8	3,136.2	3,034.6	101.63	30.858		
10,511.6	6,271.0	6,306.0	6,306.0	87.8	14.1	88.87	1,771.7	1,485.8	3,146.4	3,044.6	101.85	30.891		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Frank Trust 14-36H
Project:	SEC.36-T7N-R61W	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Reference Site:	Frank Trust 14-36H Pad Sec.36-T7N-R61W	MD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Frank Trust 14-36H	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 (1-19-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4811.0ft (RKB Ensign 32 - 1 Coordinates are relative to: Frank Trust 14-36H
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.86°



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Project:	SEC.36-T7N-R61W	TVD Reference:	WELL @ 4811.0ft (RKB Ensign 32 - 14')
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Site Error:	0.0ft	North Reference:	True
Reference Well:	Frank Trust 14-36H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
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