

ENSIGN

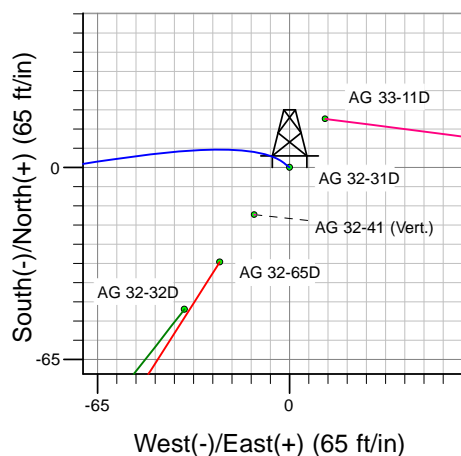
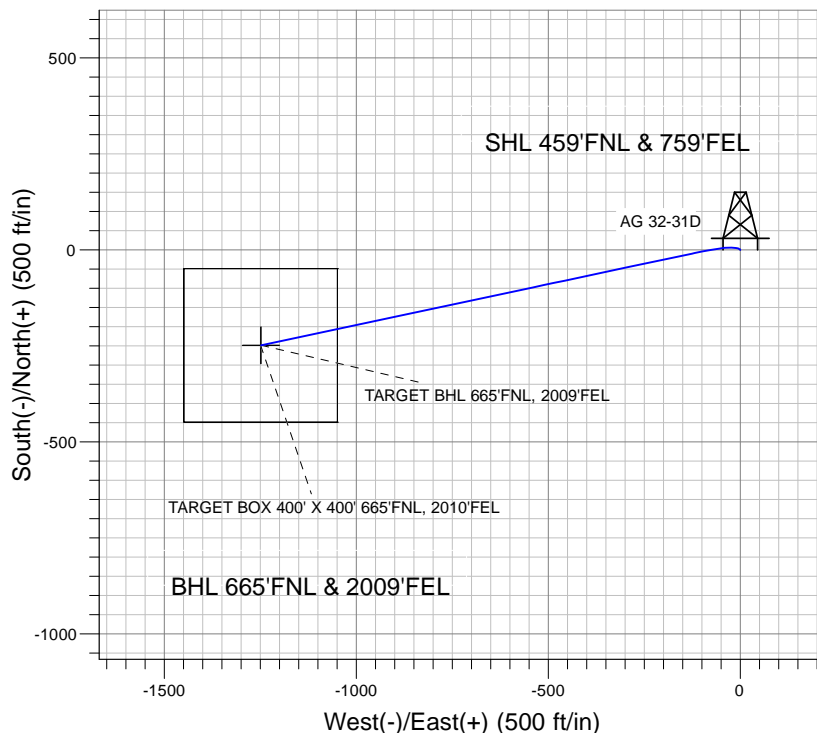
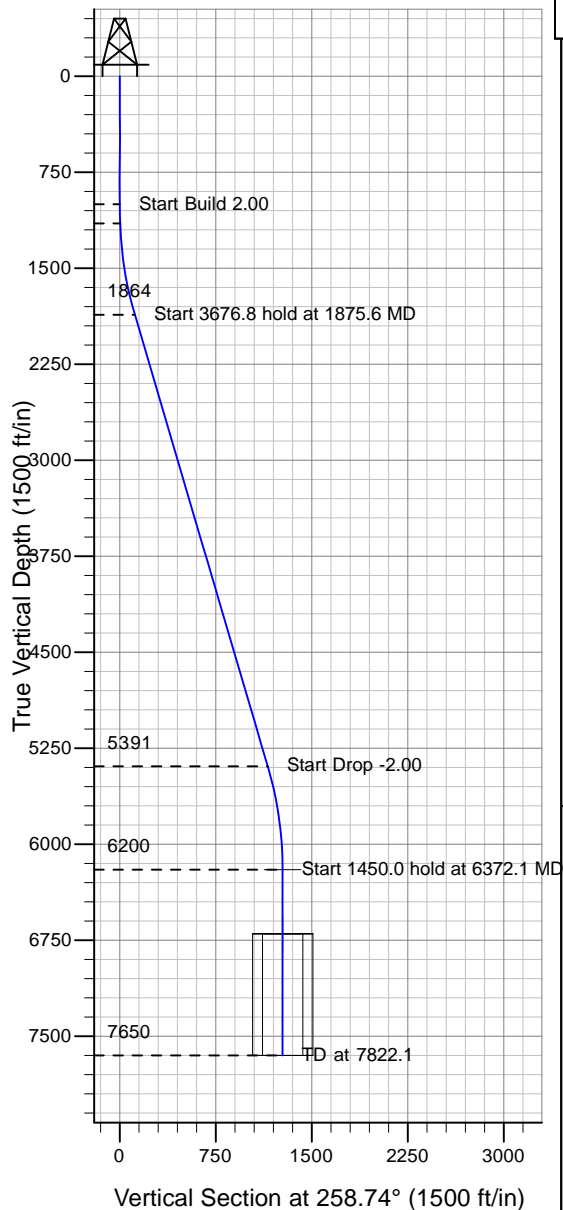
Directional

Well Name: AG 32-31D

Surface Location: AG 32-31D Pad Sec.32-T6N-R66W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4712.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1407791.04 3196163.75 40° 27' 2.333 N 104° 47' 42.482 W
 Original Well Elev WELL @ 4726.0ft (Original Well Elev)

ORR ENERGY



AG 32-31D Pad Sec.32-T6N-R66W
 AG 32-31D
 Plan #1 (2-9-10)
 14:34, February 10 2010



Azimuths to True North
 Magnetic North: 9.04°
 Magnetic Field
 Strength: 53328.3snT
 Dip Angle: 67.14°
 Date: 12/31/2009
 Model: IGRF200510

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 665'FNL, 2009'FEL	6200.0	-248.6	-1248.5	40° 26' 59.876 N	104° 47' 58.632 W	Point
TARGET BOX 400' X 400' 665'FNL, 2010'FEL	6700.0	-248.6	-1249.5	40° 26' 59.876 N	104° 47' 58.645 W	Rectangle (Sides: L400.0 W400.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1150.0	3.00	305.00	1149.9	2.3	-3.2	2.00	305.00	2.7	
4	1875.6	16.39	257.98	1864.1	-8.2	-119.5	2.00	-55.49	118.8	
5	5552.4	16.39	257.98	5391.4	-224.3	-1134.6	0.00	0.00	1156.5	
6	6372.1	0.00	0.00	6200.0	-248.6	-1248.5	2.00	180.00	1273.0	TARGET BHL 665'FNL, 2009'FEL
7	7822.1	0.00	0.00	7650.0	-248.6	-1248.5	0.00	0.00	1273.0	



ORR ENERGY

SEC.32-T6N-R66W

AG 32-31D Pad Sec.32-T6N-R66W

AG 32-31D

Wellbore #1

Plan: Plan #1 (2-9-10)

Standard Planning Report

10 February, 2010

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well AG 32-31D
Company:	ORR ENERGY	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Project:	SEC.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site:	AG 32-31D Pad Sec.32-T6N-R66W	North Reference:	True
Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-9-10)		

Project	SEC.32-T6N-R66W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

AG 32-31D Pad Sec.32-T6N-R66W					
Site Position:		Northing:	1,407,791.05ft	Latitude:	40° 27' 2.333 N
From:	Lat/Long	Easting:	3,196,163.75ft	Longitude:	104° 47' 42.482 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.46 °

Well	AG 32-31D					
Well Position	+N-S	0.0 ft	Northing:	1,407,791.04 ft	Latitude:	40° 27' 2.333 N
	+E-W	0.0 ft	Easting:	3,196,163.75 ft	Longitude:	104° 47' 42.482 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,712.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.04	67.14	53,328

Design	Plan #1 (2-9-10)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	258.74

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,150.0	3.00	305.00	1,149.9	2.3	-3.2	2.00	2.00	0.00	305.00	
1,875.6	16.39	257.98	1,864.1	-8.2	-119.5	2.00	1.85	-6.48	-55.49	
5,552.4	16.39	257.98	5,391.4	-224.3	-1,134.6	0.00	0.00	0.00	0.00	
6,372.1	0.00	0.00	6,200.0	-248.6	-1,248.5	2.00	-2.00	0.00	180.00	TARGET BHL 665'I
7,822.1	0.00	0.00	7,650.0	-248.6	-1,248.5	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well AG 32-31D
Company:	ORR ENERGY	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Project:	SEC.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site:	AG 32-31D Pad Sec.32-T6N-R66W	North Reference:	True
Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-9-10)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
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	0.80	305.00	1,040.0	0.2	-0.2	0.2	2.00	2.00	0.00
1,080.0	1.60	305.00	1,080.0	0.6	-0.9	0.8	2.00	2.00	0.00
1,120.0	2.40	305.00	1,120.0	1.4	-2.1	1.7	2.00	2.00	0.00
1,150.0	3.00	305.00	1,149.9	2.3	-3.2	2.7	2.00	2.00	0.00
1,160.0	3.12	301.97	1,159.9	2.5	-3.7	3.1	2.00	1.18	-30.32
1,200.0	3.66	291.98	1,199.8	3.6	-5.8	5.0	2.00	1.36	-24.97
1,240.0	4.28	284.73	1,239.8	4.5	-8.4	7.4	2.00	1.56	-18.13
1,280.0	4.96	279.38	1,279.6	5.1	-11.5	10.3	2.00	1.69	-13.37
1,320.0	5.67	275.33	1,319.4	5.6	-15.2	13.8	2.00	1.77	-10.11
1,360.0	6.40	272.20	1,359.2	5.9	-19.4	17.9	2.00	1.82	-7.85
1,400.0	7.14	269.70	1,398.9	5.9	-24.1	22.5	2.00	1.86	-6.23
1,440.0	7.90	267.68	1,438.6	5.8	-29.4	27.7	2.00	1.89	-5.05
1,480.0	8.66	266.01	1,478.2	5.5	-35.1	33.4	2.00	1.91	-4.17
1,520.0	9.43	264.61	1,517.7	5.0	-41.4	39.6	2.00	1.92	-3.50
1,560.0	10.20	263.42	1,557.1	4.3	-48.2	46.4	2.00	1.93	-2.97
1,600.0	10.98	262.40	1,596.4	3.3	-55.4	53.7	2.00	1.94	-2.56
1,640.0	11.76	261.51	1,635.6	2.2	-63.3	61.6	2.00	1.95	-2.22
1,680.0	12.54	260.73	1,674.7	0.9	-71.6	70.0	2.00	1.96	-1.95
1,720.0	13.33	260.04	1,713.7	-0.6	-80.4	79.0	2.00	1.96	-1.72
1,760.0	14.11	259.43	1,752.6	-2.3	-89.7	88.4	2.00	1.97	-1.53
1,800.0	14.90	258.88	1,791.3	-4.1	-99.6	98.5	2.00	1.97	-1.38
1,840.0	15.69	258.38	1,829.9	-6.2	-109.9	109.0	2.00	1.97	-1.24
1,875.6	16.39	257.98	1,864.1	-8.2	-119.5	118.8	2.00	1.98	-1.13
1,880.0	16.39	257.98	1,868.3	-8.5	-120.8	120.1	0.00	0.00	0.00
1,920.0	16.39	257.98	1,906.7	-10.8	-131.8	131.4	0.00	0.00	0.00
1,960.0	16.39	257.98	1,945.1	-13.2	-142.9	142.7	0.00	0.00	0.00
2,000.0	16.39	257.98	1,983.4	-15.5	-153.9	154.0	0.00	0.00	0.00
2,040.0	16.39	257.98	2,021.8	-17.9	-164.9	165.3	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well AG 32-31D
Company:	ORR ENERGY	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Project:	SEC.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site:	AG 32-31D Pad Sec.32-T6N-R66W	North Reference:	True
Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-9-10)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,080.0	16.39	257.98	2,060.2	-20.2	-176.0	176.5	0.00	0.00	0.00
2,120.0	16.39	257.98	2,098.6	-22.6	-187.0	187.8	0.00	0.00	0.00
2,160.0	16.39	257.98	2,136.9	-24.9	-198.1	199.1	0.00	0.00	0.00
2,200.0	16.39	257.98	2,175.3	-27.3	-209.1	210.4	0.00	0.00	0.00
2,240.0	16.39	257.98	2,213.7	-29.7	-220.1	221.7	0.00	0.00	0.00
2,280.0	16.39	257.98	2,252.1	-32.0	-231.2	233.0	0.00	0.00	0.00
2,320.0	16.39	257.98	2,290.4	-34.4	-242.2	244.3	0.00	0.00	0.00
2,360.0	16.39	257.98	2,328.8	-36.7	-253.3	255.6	0.00	0.00	0.00
2,400.0	16.39	257.98	2,367.2	-39.1	-264.3	266.9	0.00	0.00	0.00
2,440.0	16.39	257.98	2,405.6	-41.4	-275.4	278.1	0.00	0.00	0.00
2,480.0	16.39	257.98	2,443.9	-43.8	-286.4	289.4	0.00	0.00	0.00
2,520.0	16.39	257.98	2,482.3	-46.1	-297.4	300.7	0.00	0.00	0.00
2,560.0	16.39	257.98	2,520.7	-48.5	-308.5	312.0	0.00	0.00	0.00
2,600.0	16.39	257.98	2,559.1	-50.8	-319.5	323.3	0.00	0.00	0.00
2,640.0	16.39	257.98	2,597.4	-53.2	-330.6	334.6	0.00	0.00	0.00
2,680.0	16.39	257.98	2,635.8	-55.5	-341.6	345.9	0.00	0.00	0.00
2,720.0	16.39	257.98	2,674.2	-57.9	-352.7	357.2	0.00	0.00	0.00
2,760.0	16.39	257.98	2,712.5	-60.2	-363.7	368.5	0.00	0.00	0.00
2,800.0	16.39	257.98	2,750.9	-62.6	-374.7	379.7	0.00	0.00	0.00
2,840.0	16.39	257.98	2,789.3	-64.9	-385.8	391.0	0.00	0.00	0.00
2,880.0	16.39	257.98	2,827.7	-67.3	-396.8	402.3	0.00	0.00	0.00
2,920.0	16.39	257.98	2,866.0	-69.6	-407.9	413.6	0.00	0.00	0.00
2,960.0	16.39	257.98	2,904.4	-72.0	-418.9	424.9	0.00	0.00	0.00
3,000.0	16.39	257.98	2,942.8	-74.3	-430.0	436.2	0.00	0.00	0.00
3,040.0	16.39	257.98	2,981.2	-76.7	-441.0	447.5	0.00	0.00	0.00
3,080.0	16.39	257.98	3,019.5	-79.0	-452.0	458.8	0.00	0.00	0.00
3,120.0	16.39	257.98	3,057.9	-81.4	-463.1	470.1	0.00	0.00	0.00
3,160.0	16.39	257.98	3,096.3	-83.7	-474.1	481.3	0.00	0.00	0.00
3,200.0	16.39	257.98	3,134.7	-86.1	-485.2	492.6	0.00	0.00	0.00
3,240.0	16.39	257.98	3,173.0	-88.4	-496.2	503.9	0.00	0.00	0.00
3,280.0	16.39	257.98	3,211.4	-90.8	-507.2	515.2	0.00	0.00	0.00
3,320.0	16.39	257.98	3,249.8	-93.1	-518.3	526.5	0.00	0.00	0.00
3,360.0	16.39	257.98	3,288.2	-95.5	-529.3	537.8	0.00	0.00	0.00
3,400.0	16.39	257.98	3,326.5	-97.8	-540.4	549.1	0.00	0.00	0.00
3,440.0	16.39	257.98	3,364.9	-100.2	-551.4	560.4	0.00	0.00	0.00
3,480.0	16.39	257.98	3,403.3	-102.5	-562.5	571.7	0.00	0.00	0.00
3,520.0	16.39	257.98	3,441.6	-104.9	-573.5	582.9	0.00	0.00	0.00
3,560.0	16.39	257.98	3,480.0	-107.2	-584.5	594.2	0.00	0.00	0.00
3,600.0	16.39	257.98	3,518.4	-109.6	-595.6	605.5	0.00	0.00	0.00
3,640.0	16.39	257.98	3,556.8	-111.9	-606.6	616.8	0.00	0.00	0.00
3,680.0	16.39	257.98	3,595.1	-114.3	-617.7	628.1	0.00	0.00	0.00
3,720.0	16.39	257.98	3,633.5	-116.6	-628.7	639.4	0.00	0.00	0.00
3,760.0	16.39	257.98	3,671.9	-119.0	-639.8	650.7	0.00	0.00	0.00
3,800.0	16.39	257.98	3,710.3	-121.3	-650.8	662.0	0.00	0.00	0.00
3,840.0	16.39	257.98	3,748.6	-123.7	-661.8	673.3	0.00	0.00	0.00
3,880.0	16.39	257.98	3,787.0	-126.0	-672.9	684.5	0.00	0.00	0.00
3,920.0	16.39	257.98	3,825.4	-128.4	-683.9	695.8	0.00	0.00	0.00
3,960.0	16.39	257.98	3,863.8	-130.7	-695.0	707.1	0.00	0.00	0.00
4,000.0	16.39	257.98	3,902.1	-133.1	-706.0	718.4	0.00	0.00	0.00
4,040.0	16.39	257.98	3,940.5	-135.4	-717.1	729.7	0.00	0.00	0.00
4,080.0	16.39	257.98	3,978.9	-137.8	-728.1	741.0	0.00	0.00	0.00
4,120.0	16.39	257.98	4,017.3	-140.1	-739.1	752.3	0.00	0.00	0.00
4,160.0	16.39	257.98	4,055.6	-142.5	-750.2	763.6	0.00	0.00	0.00
4,200.0	16.39	257.98	4,094.0	-144.8	-761.2	774.9	0.00	0.00	0.00

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Project:	SEC.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site:	AG 32-31D Pad Sec.32-T6N-R66W	North Reference:	True
Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-9-10)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,240.0	16.39	257.98	4,132.4	-147.2	-772.3	786.1	0.00	0.00	0.00
4,280.0	16.39	257.98	4,170.7	-149.5	-783.3	797.4	0.00	0.00	0.00
4,320.0	16.39	257.98	4,209.1	-151.9	-794.4	808.7	0.00	0.00	0.00
4,360.0	16.39	257.98	4,247.5	-154.2	-805.4	820.0	0.00	0.00	0.00
4,400.0	16.39	257.98	4,285.9	-156.6	-816.4	831.3	0.00	0.00	0.00
4,440.0	16.39	257.98	4,324.2	-158.9	-827.5	842.6	0.00	0.00	0.00
4,480.0	16.39	257.98	4,362.6	-161.3	-838.5	853.9	0.00	0.00	0.00
4,520.0	16.39	257.98	4,401.0	-163.6	-849.6	865.2	0.00	0.00	0.00
4,560.0	16.39	257.98	4,439.4	-166.0	-860.6	876.5	0.00	0.00	0.00
4,600.0	16.39	257.98	4,477.7	-168.3	-871.6	887.7	0.00	0.00	0.00
4,640.0	16.39	257.98	4,516.1	-170.7	-882.7	899.0	0.00	0.00	0.00
4,680.0	16.39	257.98	4,554.5	-173.0	-893.7	910.3	0.00	0.00	0.00
4,720.0	16.39	257.98	4,592.9	-175.4	-904.8	921.6	0.00	0.00	0.00
4,760.0	16.39	257.98	4,631.2	-177.7	-915.8	932.9	0.00	0.00	0.00
4,800.0	16.39	257.98	4,669.6	-180.1	-926.9	944.2	0.00	0.00	0.00
4,840.0	16.39	257.98	4,708.0	-182.4	-937.9	955.5	0.00	0.00	0.00
4,880.0	16.39	257.98	4,746.4	-184.8	-948.9	966.8	0.00	0.00	0.00
4,920.0	16.39	257.98	4,784.7	-187.1	-960.0	978.1	0.00	0.00	0.00
4,960.0	16.39	257.98	4,823.1	-189.5	-971.0	989.3	0.00	0.00	0.00
5,000.0	16.39	257.98	4,861.5	-191.9	-982.1	1,000.6	0.00	0.00	0.00
5,040.0	16.39	257.98	4,899.8	-194.2	-993.1	1,011.9	0.00	0.00	0.00
5,080.0	16.39	257.98	4,938.2	-196.6	-1,004.2	1,023.2	0.00	0.00	0.00
5,120.0	16.39	257.98	4,976.6	-198.9	-1,015.2	1,034.5	0.00	0.00	0.00
5,160.0	16.39	257.98	5,015.0	-201.3	-1,026.2	1,045.8	0.00	0.00	0.00
5,200.0	16.39	257.98	5,053.3	-203.6	-1,037.3	1,057.1	0.00	0.00	0.00
5,240.0	16.39	257.98	5,091.7	-206.0	-1,048.3	1,068.4	0.00	0.00	0.00
5,280.0	16.39	257.98	5,130.1	-208.3	-1,059.4	1,079.7	0.00	0.00	0.00
5,320.0	16.39	257.98	5,168.5	-210.7	-1,070.4	1,090.9	0.00	0.00	0.00
5,360.0	16.39	257.98	5,206.8	-213.0	-1,081.5	1,102.2	0.00	0.00	0.00
5,400.0	16.39	257.98	5,245.2	-215.4	-1,092.5	1,113.5	0.00	0.00	0.00
5,440.0	16.39	257.98	5,283.6	-217.7	-1,103.5	1,124.8	0.00	0.00	0.00
5,480.0	16.39	257.98	5,322.0	-220.1	-1,114.6	1,136.1	0.00	0.00	0.00
5,520.0	16.39	257.98	5,360.3	-222.4	-1,125.6	1,147.4	0.00	0.00	0.00
5,552.4	16.39	257.98	5,391.4	-224.3	-1,134.6	1,156.5	0.00	0.00	0.00
5,560.0	16.24	257.98	5,398.7	-224.8	-1,136.7	1,158.7	2.00	-2.00	0.00
5,600.0	15.44	257.98	5,437.2	-227.0	-1,147.3	1,169.6	2.00	-2.00	0.00
5,640.0	14.64	257.98	5,475.8	-229.2	-1,157.5	1,180.0	2.00	-2.00	0.00
5,680.0	13.84	257.98	5,514.6	-231.2	-1,167.1	1,189.8	2.00	-2.00	0.00
5,720.0	13.04	257.98	5,553.5	-233.2	-1,176.2	1,199.1	2.00	-2.00	0.00
5,760.0	12.24	257.98	5,592.5	-235.0	-1,184.8	1,207.9	2.00	-2.00	0.00
5,800.0	11.44	257.98	5,631.7	-236.7	-1,192.8	1,216.1	2.00	-2.00	0.00
5,840.0	10.64	257.98	5,670.9	-238.3	-1,200.3	1,223.7	2.00	-2.00	0.00
5,880.0	9.84	257.98	5,710.3	-239.8	-1,207.3	1,230.8	2.00	-2.00	0.00
5,920.0	9.04	257.98	5,749.7	-241.2	-1,213.7	1,237.4	2.00	-2.00	0.00
5,960.0	8.24	257.98	5,789.3	-242.4	-1,219.6	1,243.4	2.00	-2.00	0.00
6,000.0	7.44	257.98	5,828.9	-243.5	-1,224.9	1,248.9	2.00	-2.00	0.00
6,040.0	6.64	257.98	5,868.6	-244.6	-1,229.7	1,253.8	2.00	-2.00	0.00
6,080.0	5.84	257.98	5,908.4	-245.5	-1,233.9	1,258.1	2.00	-2.00	0.00
6,120.0	5.04	257.98	5,948.2	-246.3	-1,237.7	1,261.9	2.00	-2.00	0.00
6,160.0	4.24	257.98	5,988.1	-246.9	-1,240.8	1,265.2	2.00	-2.00	0.00
6,200.0	3.44	257.98	6,028.0	-247.5	-1,243.4	1,267.8	2.00	-2.00	0.00
6,240.0	2.64	257.98	6,067.9	-247.9	-1,245.5	1,270.0	2.00	-2.00	0.00
6,280.0	1.84	257.98	6,107.9	-248.3	-1,247.0	1,271.5	2.00	-2.00	0.00
6,320.0	1.04	257.98	6,147.9	-248.5	-1,248.0	1,272.5	2.00	-2.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well AG 32-31D
Company:	ORR ENERGY	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Project:	SEC.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site:	AG 32-31D Pad Sec.32-T6N-R66W	North Reference:	True
Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-9-10)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,360.0	0.24	257.98	6,187.9	-248.6	-1,248.5	1,273.0	2.00	-2.00	0.00
6,372.1	0.00	0.00	6,200.0	-248.6	-1,248.5	1,273.0	2.00	-2.00	0.00
TARGET BHL 665'FNL, 2009'FEL									
6,400.0	0.00	0.00	6,227.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,267.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,307.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,347.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,387.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,427.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,467.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,507.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,547.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,587.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,627.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,667.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,872.1	0.00	0.00	6,700.0	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
TARGET BOX 400' X 400' 665'FNL, 2010'FEL									
6,880.0	0.00	0.00	6,707.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,747.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,787.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,827.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,867.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,907.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,120.0	0.00	0.00	6,947.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,160.0	0.00	0.00	6,987.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,027.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,067.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,280.0	0.00	0.00	7,107.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,320.0	0.00	0.00	7,147.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,360.0	0.00	0.00	7,187.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,227.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,440.0	0.00	0.00	7,267.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,480.0	0.00	0.00	7,307.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,520.0	0.00	0.00	7,347.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,387.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,427.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,640.0	0.00	0.00	7,467.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,507.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,720.0	0.00	0.00	7,547.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,760.0	0.00	0.00	7,587.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,627.9	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00
7,822.1	0.00	0.00	7,650.0	-248.6	-1,248.5	1,273.0	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well AG 32-31D
Company:	ORR ENERGY	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Project:	SEC.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site:	AG 32-31D Pad Sec.32-T6N-R66W	North Reference:	True
Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-9-10)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
TARGET BOX 400' X	0.00	0.00	6,700.0	-248.6	-1,249.5	1,407,532.53	3,194,916.31	40° 26' 59.876 N	104° 47' 58.645 W
- plan misses target center by 1.0ft at 6872.1ft MD (6700.0 TVD, -248.6 N, -1248.5 E)									
- Rectangle (sides W400.0 H400.0 D950.0)									
TARGET BHL 665'FN	0.00	0.00	6,200.0	-248.6	-1,248.5	1,407,532.57	3,194,917.32	40° 26' 59.876 N	104° 47' 58.632 W
- plan hits target center									
- Point									



ORR ENERGY

SEC.32-T6N-R66W

AG 32-31D Pad Sec.32-T6N-R66W

AG 32-31D

Wellbore #1

Plan #1 (2-9-10)

Anticollision Report

10 February, 2010

Company:	ORR ENERGY	Local Co-ordinate Reference:	Well AG 32-31D
Project:	SEC.32-T6N-R66W	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Reference Site:	AG 32-31D Pad Sec.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Plan #1 (2-9-10)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (2-9-10)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCSWA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 2,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	2/10/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,821.7	Plan #1 (2-9-10) (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							
AG 32-31D Pad Sec.32-T6N-R66W							
AG 32-41 (Vert.) - Wellbore #1 - Design #1	1,061.4	1,061.4	20.0	15.5	4.429	CC	
AG 32-41 (Vert.) - Wellbore #1 - Design #1	1,100.0	1,100.0	20.0	15.3	4.273	ES	
AG 32-41 (Vert.) - Wellbore #1 - Design #1	1,300.0	1,299.5	21.4	15.9	3.858	SF	
AG 33-11D - Wellbore #1 - Plan #1 (2-9-10)	800.0	800.0	20.3	17.0	6.077	CC, ES	
AG 33-11D - Wellbore #1 - Plan #1 (2-9-10)	900.0	899.6	21.2	17.4	5.615	SF	

AG 32-31D Pad Sec.32-T6N-R66W - AG 32-41 (Vert.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													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		
0.0	0.0	0.0	0.0	0.0	0.0	-143.12	-16.0	-12.0	20.0					
100.0	100.0	100.0	100.0	0.1	0.1	-143.12	-16.0	-12.0	20.0	19.8	0.19	103.433		
200.0	200.0	200.0	200.0	0.3	0.3	-143.12	-16.0	-12.0	20.0	19.4	0.64	31.102		
300.0	300.0	300.0	300.0	0.5	0.5	-143.12	-16.0	-12.0	20.0	18.9	1.09	18.303		
400.0	400.0	400.0	400.0	0.8	0.8	-143.12	-16.0	-12.0	20.0	18.5	1.54	12.967		
500.0	500.0	500.0	500.0	1.0	1.0	-143.12	-16.0	-12.0	20.0	18.0	1.99	10.040		
600.0	600.0	600.0	600.0	1.2	1.2	-143.12	-16.0	-12.0	20.0	17.6	2.44	8.191		
700.0	700.0	700.0	700.0	1.4	1.4	-143.12	-16.0	-12.0	20.0	17.1	2.89	6.917		
800.0	800.0	800.0	800.0	1.7	1.7	-143.12	-16.0	-12.0	20.0	16.7	3.34	5.986		
900.0	900.0	900.0	900.0	1.9	1.9	-143.12	-16.0	-12.0	20.0	16.2	3.79	5.276		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-143.12	-16.0	-12.0	20.0	15.8	4.24	4.716		
1,061.4	1,061.4	1,061.4	1,061.4	2.3	2.3	-90.00	-16.0	-12.0	20.0	15.5	4.51	4.429 CC		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-93.11	-16.0	-12.0	20.0	15.3	4.68	4.273 ES		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-94.33	-16.0	-12.0	20.6	15.4	5.12	4.015		
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-100.71	-16.0	-12.0	21.4	15.9	5.55	3.858 SF		
1,400.0	1,398.9	1,398.9	1,398.9	3.0	3.0	-118.47	-16.0	-12.0	25.0	19.1	5.98	4.191		
1,500.0	1,497.9	1,497.9	1,497.9	3.2	3.2	-135.87	-16.0	-12.0	33.7	27.3	6.39	5.275		
1,600.0	1,596.4	1,596.4	1,596.4	3.5	3.5	-147.94	-16.0	-12.0	47.6	40.8	6.79	7.000		
1,700.0	1,694.2	1,694.2	1,694.2	3.9	3.7	-155.60	-16.0	-12.0	65.9	58.7	7.19	9.167		
1,800.0	1,791.3	1,791.3	1,791.3	4.2	3.9	-160.57	-16.0	-12.0	88.4	80.8	7.59	11.641		
1,900.0	1,887.5	1,887.5	1,887.5	4.7	4.1	-164.20	-16.0	-12.0	114.5	106.5	8.00	14.307		
2,000.0	1,983.4	1,983.4	1,983.4	5.2	4.3	-167.30	-16.0	-12.0	141.9	133.4	8.45	16.790		

Company:	ORR ENERGY	Local Co-ordinate Reference:	Well AG 32-31D
Project:	SEC.32-T6N-R66W	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Reference Site:	AG 32-31D Pad Sec.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Plan #1 (2-9-10)	Offset TVD Reference:	Offset Datum

AG 32-31D Pad Sec.32-T6N-R66W - AG 32-41 (Vert.) - 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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
2,100.0	2,079.4	2,079.4	2,079.4	5.7	4.5	-169.40	-16.0	-12.0	169.6	160.7	8.91	19.032		
2,200.0	2,175.3	2,175.3	2,175.3	6.2	4.8	-170.90	-16.0	-12.0	197.4	188.1	9.38	21.055		
2,300.0	2,271.2	2,271.2	2,271.2	6.8	5.0	-172.04	-16.0	-12.0	225.4	215.5	9.85	22.884		
2,400.0	2,367.2	2,367.2	2,367.2	7.3	5.2	-172.92	-16.0	-12.0	253.4	243.0	10.32	24.542		
2,500.0	2,463.1	2,463.1	2,463.1	7.9	5.4	-173.63	-16.0	-12.0	281.4	270.6	10.80	26.049		
2,600.0	2,559.1	2,559.1	2,559.1	8.5	5.6	-174.21	-16.0	-12.0	309.5	298.2	11.29	27.424		
2,700.0	2,655.0	2,655.0	2,655.0	9.0	5.8	-174.69	-16.0	-12.0	337.6	325.8	11.77	28.681		
2,800.0	2,750.9	2,750.9	2,750.9	9.6	6.1	-175.10	-16.0	-12.0	365.7	353.5	12.26	29.835		
2,900.0	2,846.9	2,846.9	2,846.9	10.2	6.3	-175.45	-16.0	-12.0	393.9	381.1	12.75	30.897		
3,000.0	2,942.8	2,942.8	2,942.8	10.8	6.5	-175.75	-16.0	-12.0	422.0	408.8	13.24	31.877		
3,100.0	3,038.7	3,038.7	3,038.7	11.4	6.7	-176.02	-16.0	-12.0	450.2	436.4	13.73	32.784		
3,200.0	3,134.7	3,134.7	3,134.7	12.0	6.9	-176.25	-16.0	-12.0	478.3	464.1	14.22	33.626		
3,300.0	3,230.6	3,230.6	3,230.6	12.6	7.1	-176.46	-16.0	-12.0	506.5	491.8	14.72	34.409		
3,400.0	3,326.5	3,326.5	3,326.5	13.1	7.3	-176.65	-16.0	-12.0	534.7	519.5	15.22	35.138		
3,500.0	3,422.5	3,422.5	3,422.5	13.7	7.6	-176.82	-16.0	-12.0	562.9	547.1	15.71	35.820		
3,600.0	3,518.4	3,518.4	3,518.4	14.3	7.8	-176.97	-16.0	-12.0	591.0	574.8	16.21	36.458		
3,700.0	3,614.3	3,614.3	3,614.3	14.9	8.0	-177.11	-16.0	-12.0	619.2	602.5	16.71	37.056		
3,800.0	3,710.3	3,710.3	3,710.3	15.5	8.2	-177.23	-16.0	-12.0	647.4	630.2	17.21	37.618		
3,900.0	3,806.2	3,806.2	3,806.2	16.1	8.4	-177.35	-16.0	-12.0	675.6	657.9	17.71	38.147		
4,000.0	3,902.1	3,902.1	3,902.1	16.7	8.6	-177.46	-16.0	-12.0	703.8	685.6	18.21	38.645		
4,100.0	3,998.1	3,998.1	3,998.1	17.3	8.9	-177.55	-16.0	-12.0	732.0	713.3	18.71	39.116		
4,200.0	4,094.0	4,094.0	4,094.0	17.9	9.1	-177.64	-16.0	-12.0	760.2	741.0	19.22	39.562		
4,300.0	4,189.9	4,189.9	4,189.9	18.5	9.3	-177.73	-16.0	-12.0	788.4	768.7	19.72	39.983		
4,400.0	4,285.9	4,285.9	4,285.9	19.1	9.5	-177.81	-16.0	-12.0	816.6	796.4	20.22	40.383		
4,500.0	4,381.8	4,381.8	4,381.8	19.7	9.7	-177.88	-16.0	-12.0	844.8	824.1	20.73	40.762		
4,600.0	4,477.7	4,477.7	4,477.7	20.3	9.9	-177.95	-16.0	-12.0	873.0	851.8	21.23	41.123		
4,700.0	4,573.7	4,573.7	4,573.7	20.9	10.2	-178.01	-16.0	-12.0	901.3	879.5	21.73	41.466		
4,800.0	4,669.6	4,669.6	4,669.6	21.5	10.4	-178.07	-16.0	-12.0	929.5	907.2	22.24	41.794		
4,900.0	4,765.5	4,765.5	4,765.5	22.1	10.6	-178.13	-16.0	-12.0	957.7	934.9	22.74	42.105		
5,000.0	4,861.5	4,861.5	4,861.5	22.7	10.8	-178.18	-16.0	-12.0	985.9	962.6	23.25	42.403		
5,100.0	4,957.4	4,957.4	4,957.4	23.4	11.0	-178.23	-16.0	-12.0	1,014.1	990.3	23.76	42.688		
5,200.0	5,053.3	5,053.3	5,053.3	24.0	11.2	-178.28	-16.0	-12.0	1,042.3	1,018.0	24.26	42.960		
5,300.0	5,149.3	5,149.3	5,149.3	24.6	11.4	-178.33	-16.0	-12.0	1,070.5	1,045.8	24.77	43.220		
5,400.0	5,245.2	5,245.2	5,245.2	25.2	11.7	-178.37	-16.0	-12.0	1,098.7	1,073.5	25.28	43.470		
5,500.0	5,341.1	5,341.1	5,341.1	25.8	11.9	-178.41	-16.0	-12.0	1,127.0	1,101.2	25.78	43.709		
5,600.0	5,437.2	5,437.2	5,437.2	26.3	12.1	-178.46	-16.0	-12.0	1,154.8	1,128.5	26.33	43.853		
5,700.0	5,534.0	5,534.0	5,534.0	26.7	12.3	-178.50	-16.0	-12.0	1,179.7	1,152.8	26.89	43.877		
5,800.0	5,631.7	5,631.7	5,631.7	27.1	12.5	-178.54	-16.0	-12.0	1,201.3	1,173.9	27.40	43.834		
5,900.0	5,730.0	5,730.0	5,730.0	27.4	12.8	-178.57	-16.0	-12.0	1,219.4	1,191.5	27.89	43.729		
6,000.0	5,828.9	5,828.9	5,828.9	27.7	13.0	-178.60	-16.0	-12.0	1,234.1	1,205.7	28.33	43.565		
6,100.0	5,928.3	5,928.3	5,928.3	27.9	13.2	-178.61	-16.0	-12.0	1,245.3	1,216.5	28.73	43.345		
6,200.0	6,028.0	6,028.0	6,028.0	28.1	13.4	-178.63	-16.0	-12.0	1,253.0	1,223.9	29.09	43.073		
6,300.0	6,127.9	6,127.9	6,127.9	28.2	13.6	-178.63	-16.0	-12.0	1,257.3	1,227.9	29.41	42.749		
6,400.0	6,227.9	6,227.9	6,227.9	28.3	13.9	79.35	-16.0	-12.0	1,258.2	1,228.5	29.73	42.322		
6,500.0	6,327.9	6,327.9	6,327.9	28.4	14.1	79.35	-16.0	-12.0	1,258.2	1,228.1	30.12	41.771		
6,600.0	6,427.9	6,427.9	6,427.9	28.5	14.3	79.35	-16.0	-12.0	1,258.2	1,227.7	30.51	41.232		
6,700.0	6,527.9	6,527.9	6,527.9	28.7	14.5	79.35	-16.0	-12.0	1,258.2	1,227.3	30.91	40.705		
6,800.0	6,627.9	6,627.9	6,627.9	28.8	14.8	79.35	-16.0	-12.0	1,258.2	1,226.9	31.31	40.189		
6,900.0	6,727.9	6,727.9	6,727.9	28.9	15.0	79.35	-16.0	-12.0	1,258.2	1,226.5	31.70	39.685		
7,000.0	6,827.9	6,827.9	6,827.9	29.0	15.2	79.35	-16.0	-12.0	1,258.2	1,226.1	32.10	39.192		
7,100.0	6,927.9	6,927.9	6,927.9	29.1	15.4	79.35	-16.0	-12.0	1,258.2	1,225.7	32.50	38.709		
7,153.8	6,981.7	6,981.7	6,981.7	29.1	15.6	79.35	-16.0	-12.0	1,258.2	1,225.5	32.72	38.454		

Company:	ORR ENERGY	Local Co-ordinate Reference:	Well AG 32-31D
Project:	SEC.32-T6N-R66W	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Reference Site:	AG 32-31D Pad Sec.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Plan #1 (2-9-10)	Offset TVD Reference:	Offset Datum

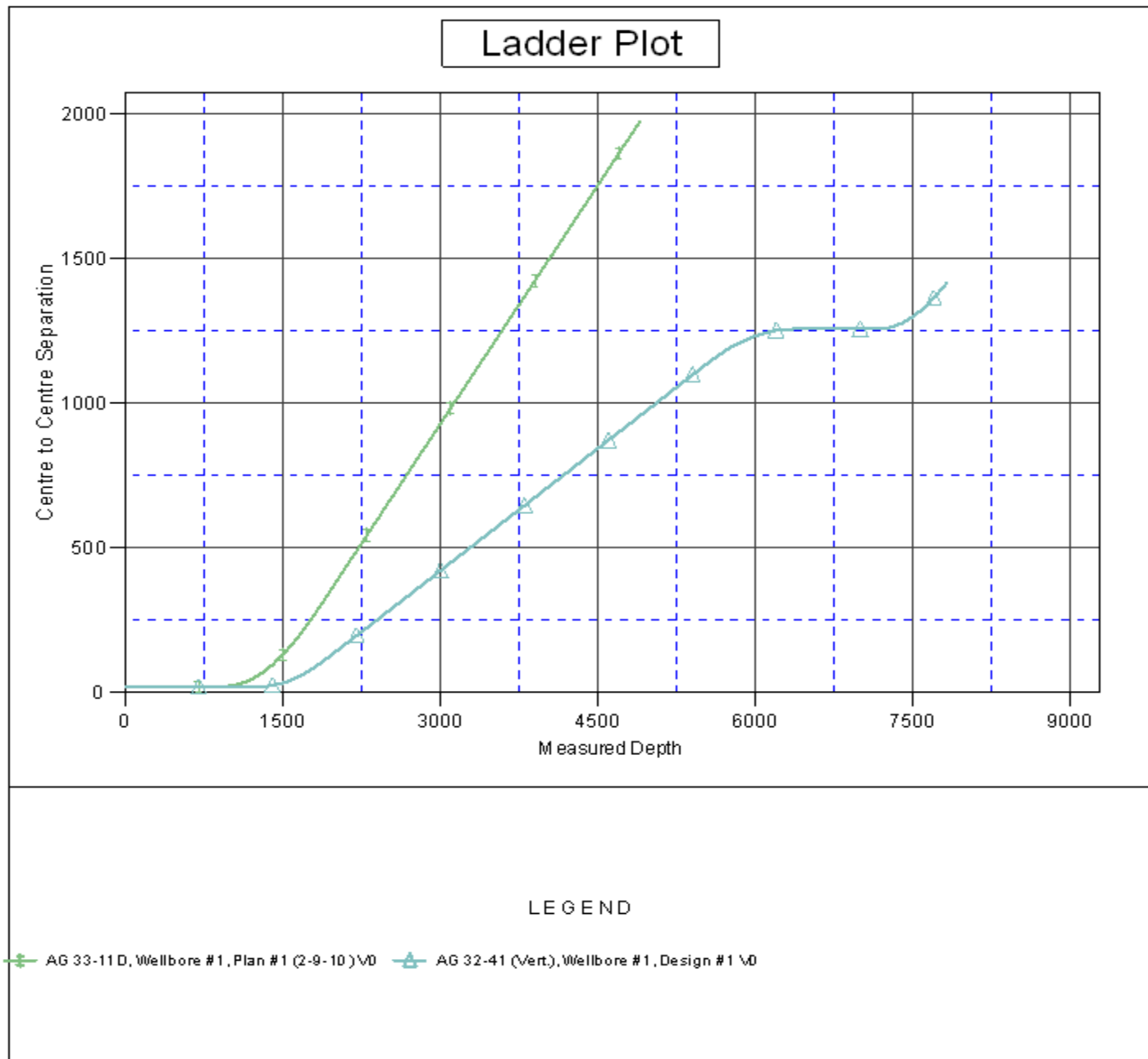
Offset Design AG 32-31D Pad Sec.32-T6N-R66W - AG 32-41 (Vert.) - Wellbore #1 - Design #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,200.0	7,027.9	7,000.0	7,000.0	29.2	15.6	79.35	-16.0	-12.0	1,258.5	1,225.6	32.84	38.319	
7,300.0	7,127.9	7,000.0	7,000.0	29.3	15.6	79.35	-16.0	-12.0	1,264.7	1,231.6	33.02	38.300	
7,400.0	7,227.9	7,000.0	7,000.0	29.4	15.6	79.35	-16.0	-12.0	1,278.6	1,245.4	33.20	38.515	
7,500.0	7,327.9	7,000.0	7,000.0	29.5	15.6	79.35	-16.0	-12.0	1,300.2	1,266.8	33.38	38.953	
7,600.0	7,427.9	7,000.0	7,000.0	29.7	15.6	79.35	-16.0	-12.0	1,328.9	1,295.4	33.56	39.600	
7,700.0	7,527.9	7,000.0	7,000.0	29.8	15.6	79.35	-16.0	-12.0	1,364.4	1,330.7	33.74	40.439	
7,800.0	7,627.9	7,000.0	7,000.0	29.9	15.6	79.35	-16.0	-12.0	1,406.1	1,372.2	33.92	41.450	
7,822.1	7,650.0	7,000.0	7,000.0	29.9	15.6	79.35	-16.0	-12.0	1,416.2	1,382.2	33.94	41.721	

Company:	ORR ENERGY	Local Co-ordinate Reference:	Well AG 32-31D
Project:	SEC.32-T6N-R66W	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Reference Site:	AG 32-31D Pad Sec.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Plan #1 (2-9-10)	Offset TVD Reference:	Offset Datum

Offset Design AG 32-31D Pad Sec.32-T6N-R66W - AG 33-11D - Wellbore #1 - Plan #1 (2-9-10)													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	36.13	16.4	12.0	20.3					
100.0	100.0	100.0	100.0	0.1	0.1	36.13	16.4	12.0	20.3	20.1	0.19	105.006		
200.0	200.0	200.0	200.0	0.3	0.3	36.13	16.4	12.0	20.3	19.7	0.64	31.575		
300.0	300.0	300.0	300.0	0.5	0.5	36.13	16.4	12.0	20.3	19.2	1.09	18.581		
400.0	400.0	400.0	400.0	0.8	0.8	36.13	16.4	12.0	20.3	18.8	1.54	13.164		
500.0	500.0	500.0	500.0	1.0	1.0	36.13	16.4	12.0	20.3	18.3	1.99	10.192		
600.0	600.0	600.0	600.0	1.2	1.2	36.13	16.4	12.0	20.3	17.9	2.44	8.315		
700.0	700.0	700.0	700.0	1.4	1.4	36.13	16.4	12.0	20.3	17.4	2.89	7.022		
800.0	800.0	800.0	800.0	1.7	1.7	36.13	16.4	12.0	20.3	17.0	3.34	6.077 CC, ES		
900.0	900.0	899.6	899.6	1.9	1.9	40.24	16.2	13.7	21.2	17.4	3.77	5.615 SF		
1,000.0	1,000.0	999.0	998.8	2.1	2.1	50.51	15.5	18.8	24.4	20.2	4.20	5.813		
1,100.0	1,100.0	1,097.7	1,097.2	2.3	2.3	119.81	14.4	27.3	31.8	27.2	4.63	6.869		
1,200.0	1,199.8	1,195.1	1,193.9	2.6	2.5	145.94	12.9	38.9	46.1	41.0	5.06	9.105		
1,300.0	1,299.5	1,290.6	1,288.2	2.8	2.8	167.72	11.0	53.5	68.0	62.6	5.47	12.440		
1,400.0	1,398.9	1,383.6	1,379.6	3.0	3.1	178.52	8.8	70.7	96.8	91.0	5.88	16.479		
1,500.0	1,497.9	1,473.7	1,467.5	3.2	3.4	-175.52	6.3	90.2	131.9	125.6	6.28	21.001		
1,600.0	1,596.4	1,560.3	1,551.4	3.5	3.8	-171.90	3.5	111.4	172.8	166.2	6.68	25.875		
1,700.0	1,694.2	1,643.2	1,631.1	3.9	4.2	-169.51	0.6	134.2	219.4	212.3	7.07	31.006		
1,800.0	1,791.3	1,726.6	1,710.7	4.2	4.6	-167.85	-2.6	158.8	270.7	263.2	7.46	36.265		
1,900.0	1,887.5	1,810.6	1,790.8	4.7	5.1	-167.04	-5.9	183.9	324.9	317.0	7.87	41.287		
2,000.0	1,883.4	1,894.1	1,870.5	5.2	5.6	-167.41	-9.1	208.7	379.9	371.6	8.31	45.689		
2,100.0	2,079.4	1,977.6	1,950.1	5.7	6.1	-167.68	-12.3	233.6	434.9	426.1	8.77	49.571		
2,200.0	2,175.3	2,061.2	2,029.8	6.2	6.6	-167.89	-15.5	258.5	489.8	480.6	9.24	53.011		
2,300.0	2,271.2	2,144.7	2,109.4	6.8	7.1	-168.06	-18.7	283.3	544.8	535.1	9.72	56.069		
2,400.0	2,367.2	2,228.2	2,189.1	7.3	7.6	-168.19	-22.0	308.2	599.8	589.6	10.20	58.799		
2,500.0	2,463.1	2,311.7	2,268.7	7.9	8.1	-168.31	-25.2	333.1	654.8	644.1	10.69	61.245		
2,600.0	2,559.1	2,395.2	2,348.4	8.5	8.6	-168.40	-28.4	358.0	709.8	698.7	11.19	63.444		
2,700.0	2,655.0	2,478.7	2,428.1	9.0	9.1	-168.49	-31.6	382.8	764.8	753.2	11.69	65.426		
2,800.0	2,750.9	2,562.2	2,507.7	9.6	9.6	-168.56	-34.9	407.7	819.9	807.7	12.20	67.223		
2,900.0	2,846.9	2,645.7	2,587.4	10.2	10.1	-168.62	-38.1	432.6	874.9	862.2	12.71	68.856		
3,000.0	2,942.8	2,729.2	2,667.0	10.8	10.7	-168.68	-41.3	457.5	929.9	916.6	13.22	70.346		
3,100.0	3,038.7	2,812.7	2,746.7	11.4	11.2	-168.73	-44.5	482.3	984.9	971.1	13.73	71.709		
3,200.0	3,134.7	2,896.2	2,826.3	12.0	11.7	-168.77	-47.7	507.2	1,039.9	1,025.6	14.25	72.959		
3,300.0	3,230.6	2,979.8	2,906.0	12.6	12.2	-168.81	-51.0	532.1	1,094.9	1,080.1	14.77	74.109		
3,400.0	3,326.5	3,063.3	2,985.6	13.1	12.8	-168.84	-54.2	557.0	1,149.9	1,134.6	15.30	75.170		
3,500.0	3,422.5	3,146.8	3,065.3	13.7	13.3	-168.88	-57.4	581.8	1,204.9	1,189.1	15.82	76.151		
3,600.0	3,518.4	3,230.3	3,144.9	14.3	13.8	-168.91	-60.6	606.7	1,259.9	1,243.6	16.35	77.061		
3,700.0	3,614.3	3,313.8	3,224.6	14.9	14.4	-168.93	-63.8	631.6	1,314.9	1,298.0	16.88	77.906		
3,800.0	3,710.3	3,397.3	3,304.2	15.5	14.9	-168.96	-67.1	656.4	1,369.9	1,352.5	17.41	78.693		
3,900.0	3,806.2	3,480.8	3,383.9	16.1	15.4	-168.98	-70.3	681.3	1,424.9	1,407.0	17.94	79.427		
4,000.0	3,902.1	3,564.3	3,463.6	16.7	15.9	-169.00	-73.5	706.2	1,479.9	1,461.5	18.47	80.114		
4,100.0	3,998.1	3,647.8	3,543.2	17.3	16.5	-169.02	-76.7	731.1	1,535.0	1,515.9	19.01	80.756		
4,200.0	4,094.0	3,731.3	3,622.9	17.9	17.0	-169.04	-79.9	755.9	1,590.0	1,570.4	19.54	81.359		
4,300.0	4,189.9	3,814.8	3,702.5	18.5	17.5	-169.06	-83.2	780.8	1,645.0	1,624.9	20.08	81.926		
4,400.0	4,285.9	3,898.4	3,782.2	19.1	18.1	-169.07	-86.4	805.7	1,700.0	1,679.4	20.62	82.459		
4,500.0	4,381.8	3,981.9	3,861.8	19.7	18.6	-169.09	-89.6	830.6	1,755.0	1,733.8	21.15	82.962		
4,600.0	4,477.7	4,065.4	3,941.5	20.3	19.1	-169.10	-92.8	855.4	1,810.0	1,788.3	21.69	83.436		
4,700.0	4,573.7	4,148.9	4,021.1	20.9	19.7	-169.12	-96.1	880.3	1,865.0	1,842.8	22.23	83.884		
4,800.0	4,669.6	4,232.4	4,100.8	21.5	20.2	-169.13	-99.3	905.2	1,920.0	1,897.2	22.77	84.308		
4,900.0	4,765.5	4,315.9	4,180.4	22.1	20.7	-169.14	-102.5	930.1	1,975.0	1,951.7	23.32	84.709		

Company:	ORR ENERGY	Local Co-ordinate Reference:	Well AG 32-31D
Project:	SEC.32-T6N-R66W	TVD Reference:	WELL @ 4726.0ft (Original Well Elev)
Reference Site:	AG 32-31D Pad Sec.32-T6N-R66W	MD Reference:	WELL @ 4726.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	AG 32-31D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Plan #1 (2-9-10)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4726.0ft (Original Well Elev) Coordinates are relative to: AG 32-31D
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.46°

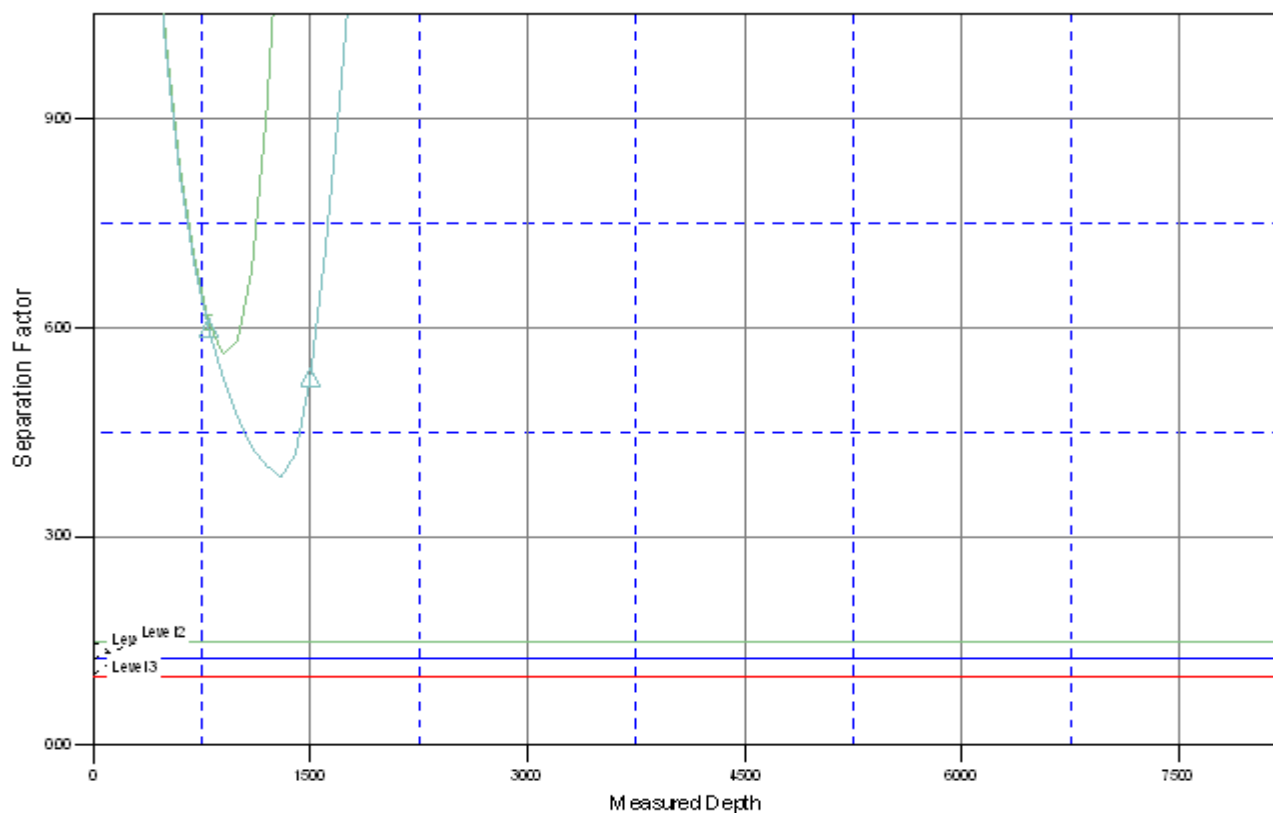


Company: ORR ENERGY
Project: SEC.32-T6N-R66W
Reference Site: AG 32-31D Pad Sec.32-T6N-R66W
Site Error: 0.0ft
Reference Well: AG 32-31D
Well Error: 0.0ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1 (2-9-10)

Local Co-ordinate Reference: Well AG 32-31D
TVD Reference: WELL @ 4726.0ft (Original Well Elev)
MD Reference: WELL @ 4726.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM den0-adp01 Server Data
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4726.0ft (Original Well Elev) Coordinates are relative to: AG 32-31D
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.46°

Separation Factor Plot



LEGEND

AG 33-11 D, Wellbore #1, Plan #1 (2-9-10) \0 AG 32-41 (Vert.), Wellbore #1, Design #1 \0