

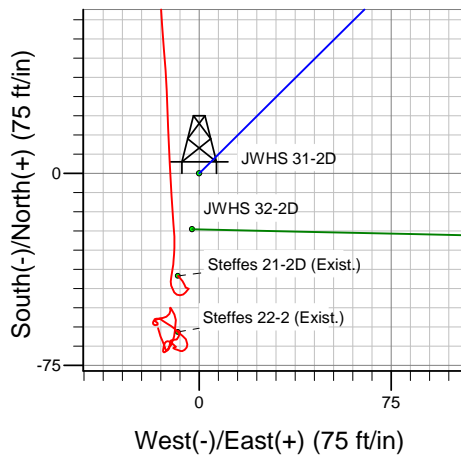
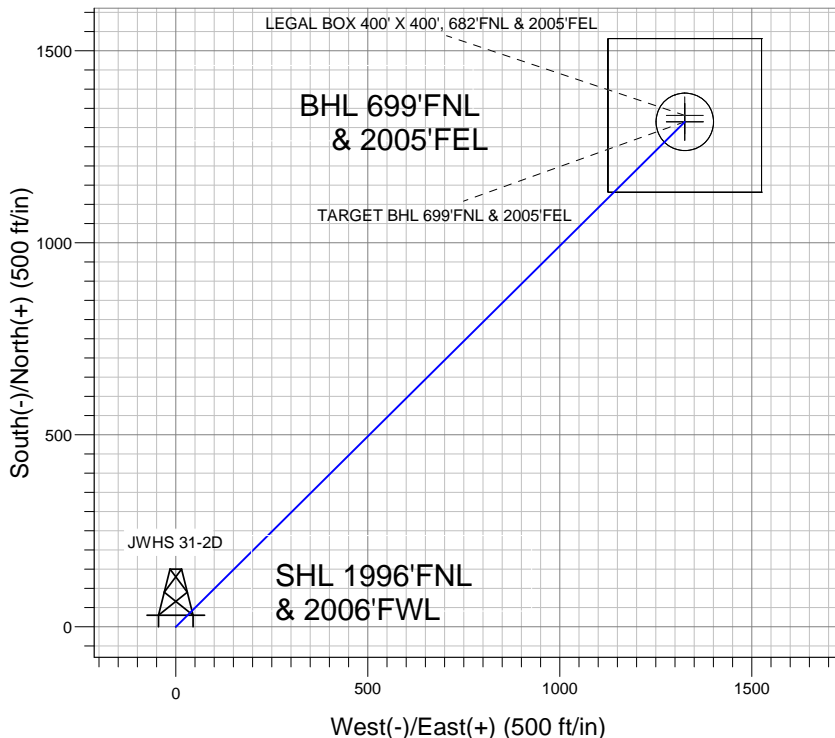
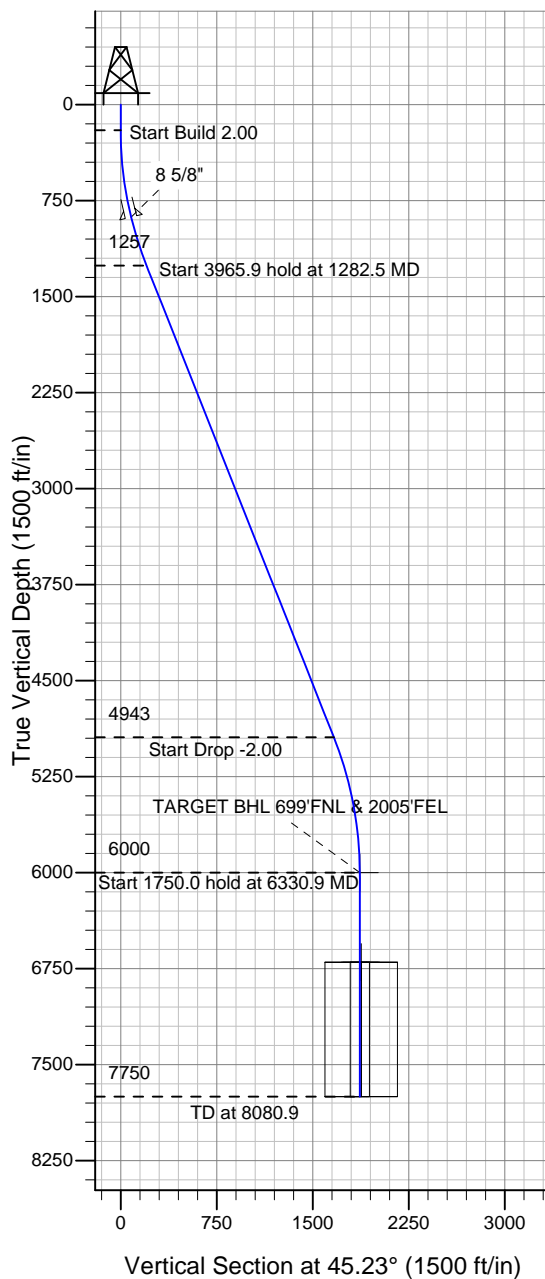
Well Name: JWHS 31-2D

Surface Location: JWHS 31-2D Pad Sec.2-T3N-R68W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4999.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1336995.37	3147175.25	40.257250	-104.972670	
Original Well Elev WELL @ 5012.0ft (Original Well Elev)						

Apollo Operating, LLC.



JWHS 31-2D Pad Sec.2-T3N-R68W
JWHS 31-2D
Plan #1 (6-6-12)
15:27, June 06 2012



Azimuths to True North
Magnetic North: 8.83°
Magnetic Field
Strength: 52929.6snT
Dip Angle: 66.87°
Date: 6/6/2012
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 699'FNL & 2005'FEL	6000.0	1315.2	1325.7	40.260860	-104.967920	Point
LEGAL BOX 400' X 400', 682'FNL & 2005'FEL	6700.0	1332.2	1325.7	40.260907	-104.967920	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 699'FNL & 2005'FEL	6700.0	1315.2	1325.7	40.260860	-104.967920	Circle (Radius: 75.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1282.5	21.65	45.23	1256.9	142.3	143.5	2.00	45.23	202.1	
4	5248.4	21.65	45.23	4943.1	1172.8	1182.2	0.00	0.00	1665.3	
5	6330.9	0.00	0.00	6000.0	1315.2	1325.7	2.00	180.00	1867.4	TARGET BHL 699'FNL & 2005'FEL
6	8080.9	0.00	0.00	7750.0	1315.2	1325.7	0.00	0.00	1867.4	



Apollo Operating, LLC.

SEC.2-T3N-R68W

JWHS 31-2D Pad Sec.2-T3N-R68W

JWHS 31-2D

Wellbore #1

Plan: Plan #1 (6-6-12)

Standard Planning Report

06 June, 2012

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,282.5	21.65	45.23	1,256.9	142.3	143.5	2.00	2.00	0.00	45.23	
5,248.4	21.65	45.23	4,943.1	1,172.8	1,182.2	0.00	0.00	0.00	0.00	
6,330.9	0.00	0.00	6,000.0	1,315.2	1,325.7	2.00	-2.00	0.00	180.00	TARGET BHL 699°
8,080.9	0.00	0.00	7,750.0	1,315.2	1,325.7	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well JWHS 31-2D
Company:	Apollo Operating, LLC.	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Project:	SEC.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	North Reference:	True
Well:	JWHS 31-2D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-6-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.80	45.23	240.0	0.2	0.2	0.3	2.00	2.00	0.00
280.0	1.60	45.23	280.0	0.8	0.8	1.1	2.00	2.00	0.00
320.0	2.40	45.23	320.0	1.8	1.8	2.5	2.00	2.00	0.00
360.0	3.20	45.23	359.9	3.1	3.2	4.5	2.00	2.00	0.00
400.0	4.00	45.23	399.8	4.9	5.0	7.0	2.00	2.00	0.00
440.0	4.80	45.23	439.7	7.1	7.1	10.0	2.00	2.00	0.00
480.0	5.60	45.23	479.6	9.6	9.7	13.7	2.00	2.00	0.00
520.0	6.40	45.23	519.3	12.6	12.7	17.9	2.00	2.00	0.00
560.0	7.20	45.23	559.1	15.9	16.0	22.6	2.00	2.00	0.00
600.0	8.00	45.23	598.7	19.6	19.8	27.9	2.00	2.00	0.00
640.0	8.80	45.23	638.3	23.8	23.9	33.7	2.00	2.00	0.00
680.0	9.60	45.23	677.8	28.3	28.5	40.1	2.00	2.00	0.00
720.0	10.40	45.23	717.1	33.1	33.4	47.1	2.00	2.00	0.00
760.0	11.20	45.23	756.4	38.4	38.7	54.6	2.00	2.00	0.00
800.0	12.00	45.23	795.6	44.1	44.4	62.6	2.00	2.00	0.00
840.0	12.80	45.23	834.7	50.1	50.5	71.2	2.00	2.00	0.00
880.0	13.60	45.23	873.6	56.6	57.0	80.3	2.00	2.00	0.00
886.6	13.73	45.23	880.0	57.7	58.1	81.9	2.00	2.00	0.00
8 5/8"									
920.0	14.40	45.23	912.4	63.4	63.9	90.0	2.00	2.00	0.00
960.0	15.20	45.23	951.1	70.6	71.1	100.2	2.00	2.00	0.00
1,000.0	16.00	45.23	989.6	78.2	78.8	111.0	2.00	2.00	0.00
1,040.0	16.80	45.23	1,028.0	86.1	86.8	122.3	2.00	2.00	0.00
1,080.0	17.60	45.23	1,066.2	94.4	95.2	134.1	2.00	2.00	0.00
1,120.0	18.40	45.23	1,104.3	103.1	104.0	146.5	2.00	2.00	0.00
1,160.0	19.20	45.23	1,142.1	112.2	113.1	159.3	2.00	2.00	0.00
1,200.0	20.00	45.23	1,179.8	121.7	122.7	172.8	2.00	2.00	0.00
1,240.0	20.80	45.23	1,217.3	131.5	132.5	186.7	2.00	2.00	0.00
1,280.0	21.60	45.23	1,254.6	141.7	142.8	201.2	2.00	2.00	0.00
1,282.5	21.65	45.23	1,256.9	142.3	143.5	202.1	2.00	2.00	0.00
1,320.0	21.65	45.23	1,291.8	152.1	153.3	215.9	0.00	0.00	0.00
1,360.0	21.65	45.23	1,329.0	162.5	163.8	230.7	0.00	0.00	0.00
1,400.0	21.65	45.23	1,366.1	172.9	174.2	245.4	0.00	0.00	0.00
1,440.0	21.65	45.23	1,403.3	183.3	184.7	260.2	0.00	0.00	0.00
1,480.0	21.65	45.23	1,440.5	193.7	195.2	275.0	0.00	0.00	0.00
1,520.0	21.65	45.23	1,477.7	204.0	205.7	289.7	0.00	0.00	0.00
1,560.0	21.65	45.23	1,514.8	214.4	216.2	304.5	0.00	0.00	0.00
1,600.0	21.65	45.23	1,552.0	224.8	226.6	319.2	0.00	0.00	0.00
1,640.0	21.65	45.23	1,589.2	235.2	237.1	334.0	0.00	0.00	0.00
1,680.0	21.65	45.23	1,626.4	245.6	247.6	348.8	0.00	0.00	0.00
1,720.0	21.65	45.23	1,663.6	256.0	258.1	363.5	0.00	0.00	0.00
1,760.0	21.65	45.23	1,700.7	266.4	268.5	378.3	0.00	0.00	0.00
1,800.0	21.65	45.23	1,737.9	276.8	279.0	393.0	0.00	0.00	0.00
1,840.0	21.65	45.23	1,775.1	287.2	289.5	407.8	0.00	0.00	0.00
1,880.0	21.65	45.23	1,812.3	297.6	300.0	422.5	0.00	0.00	0.00
1,920.0	21.65	45.23	1,849.4	308.0	310.4	437.3	0.00	0.00	0.00
1,960.0	21.65	45.23	1,886.6	318.4	320.9	452.1	0.00	0.00	0.00
2,000.0	21.65	45.23	1,923.8	328.8	331.4	466.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well JWHS 31-2D
Company:	Apollo Operating, LLC.	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Project:	SEC.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	North Reference:	True
Well:	JWHS 31-2D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-6-12)		

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	21.65	45.23	1,961.0	339.2	341.9	481.6	0.00	0.00	0.00
2,080.0	21.65	45.23	1,998.2	349.6	352.4	496.3	0.00	0.00	0.00
2,120.0	21.65	45.23	2,035.3	360.0	362.8	511.1	0.00	0.00	0.00
2,160.0	21.65	45.23	2,072.5	370.3	373.3	525.8	0.00	0.00	0.00
2,200.0	21.65	45.23	2,109.7	380.7	383.8	540.6	0.00	0.00	0.00
2,240.0	21.65	45.23	2,146.9	391.1	394.3	555.4	0.00	0.00	0.00
2,280.0	21.65	45.23	2,184.1	401.5	404.7	570.1	0.00	0.00	0.00
2,320.0	21.65	45.23	2,221.2	411.9	415.2	584.9	0.00	0.00	0.00
2,360.0	21.65	45.23	2,258.4	422.3	425.7	599.6	0.00	0.00	0.00
2,400.0	21.65	45.23	2,295.6	432.7	436.2	614.4	0.00	0.00	0.00
2,440.0	21.65	45.23	2,332.8	443.1	446.6	629.1	0.00	0.00	0.00
2,480.0	21.65	45.23	2,369.9	453.5	457.1	643.9	0.00	0.00	0.00
2,520.0	21.65	45.23	2,407.1	463.9	467.6	658.7	0.00	0.00	0.00
2,560.0	21.65	45.23	2,444.3	474.3	478.1	673.4	0.00	0.00	0.00
2,600.0	21.65	45.23	2,481.5	484.7	488.6	688.2	0.00	0.00	0.00
2,640.0	21.65	45.23	2,518.7	495.1	499.0	702.9	0.00	0.00	0.00
2,680.0	21.65	45.23	2,555.8	505.5	509.5	717.7	0.00	0.00	0.00
2,720.0	21.65	45.23	2,593.0	515.9	520.0	732.5	0.00	0.00	0.00
2,760.0	21.65	45.23	2,630.2	526.2	530.5	747.2	0.00	0.00	0.00
2,800.0	21.65	45.23	2,667.4	536.6	540.9	762.0	0.00	0.00	0.00
2,840.0	21.65	45.23	2,704.5	547.0	551.4	776.7	0.00	0.00	0.00
2,880.0	21.65	45.23	2,741.7	557.4	561.9	791.5	0.00	0.00	0.00
2,920.0	21.65	45.23	2,778.9	567.8	572.4	806.2	0.00	0.00	0.00
2,960.0	21.65	45.23	2,816.1	578.2	582.8	821.0	0.00	0.00	0.00
3,000.0	21.65	45.23	2,853.3	588.6	593.3	835.8	0.00	0.00	0.00
3,040.0	21.65	45.23	2,890.4	599.0	603.8	850.5	0.00	0.00	0.00
3,080.0	21.65	45.23	2,927.6	609.4	614.3	865.3	0.00	0.00	0.00
3,120.0	21.65	45.23	2,964.8	619.8	624.7	880.0	0.00	0.00	0.00
3,160.0	21.65	45.23	3,002.0	630.2	635.2	894.8	0.00	0.00	0.00
3,200.0	21.65	45.23	3,039.1	640.6	645.7	909.5	0.00	0.00	0.00
3,240.0	21.65	45.23	3,076.3	651.0	656.2	924.3	0.00	0.00	0.00
3,280.0	21.65	45.23	3,113.5	661.4	666.7	939.1	0.00	0.00	0.00
3,320.0	21.65	45.23	3,150.7	671.8	677.1	953.8	0.00	0.00	0.00
3,360.0	21.65	45.23	3,187.9	682.2	687.6	968.6	0.00	0.00	0.00
3,400.0	21.65	45.23	3,225.0	692.5	698.1	983.3	0.00	0.00	0.00
3,440.0	21.65	45.23	3,262.2	702.9	708.6	998.1	0.00	0.00	0.00
3,480.0	21.65	45.23	3,299.4	713.3	719.0	1,012.8	0.00	0.00	0.00
3,520.0	21.65	45.23	3,336.6	723.7	729.5	1,027.6	0.00	0.00	0.00
3,560.0	21.65	45.23	3,373.8	734.1	740.0	1,042.4	0.00	0.00	0.00
3,600.0	21.65	45.23	3,410.9	744.5	750.5	1,057.1	0.00	0.00	0.00
3,640.0	21.65	45.23	3,448.1	754.9	760.9	1,071.9	0.00	0.00	0.00
3,680.0	21.65	45.23	3,485.3	765.3	771.4	1,086.6	0.00	0.00	0.00
3,720.0	21.65	45.23	3,522.5	775.7	781.9	1,101.4	0.00	0.00	0.00
3,760.0	21.65	45.23	3,559.6	786.1	792.4	1,116.2	0.00	0.00	0.00
3,800.0	21.65	45.23	3,596.8	796.5	802.9	1,130.9	0.00	0.00	0.00
3,840.0	21.65	45.23	3,634.0	806.9	813.3	1,145.7	0.00	0.00	0.00
3,880.0	21.65	45.23	3,671.2	817.3	823.8	1,160.4	0.00	0.00	0.00
3,920.0	21.65	45.23	3,708.4	827.7	834.3	1,175.2	0.00	0.00	0.00
3,960.0	21.65	45.23	3,745.5	838.1	844.8	1,189.9	0.00	0.00	0.00
4,000.0	21.65	45.23	3,782.7	848.5	855.2	1,204.7	0.00	0.00	0.00
4,040.0	21.65	45.23	3,819.9	858.8	865.7	1,219.5	0.00	0.00	0.00
4,080.0	21.65	45.23	3,857.1	869.2	876.2	1,234.2	0.00	0.00	0.00
4,120.0	21.65	45.23	3,894.2	879.6	886.7	1,249.0	0.00	0.00	0.00
4,160.0	21.65	45.23	3,931.4	890.0	897.1	1,263.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well JWHS 31-2D
Company:	Apollo Operating, LLC.	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Project:	SEC.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	North Reference:	True
Well:	JWHS 31-2D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-6-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,200.0	21.65	45.23	3,968.6	900.4	907.6	1,278.5	0.00	0.00	0.00
4,240.0	21.65	45.23	4,005.8	910.8	918.1	1,293.2	0.00	0.00	0.00
4,280.0	21.65	45.23	4,043.0	921.2	928.6	1,308.0	0.00	0.00	0.00
4,320.0	21.65	45.23	4,080.1	931.6	939.1	1,322.8	0.00	0.00	0.00
4,360.0	21.65	45.23	4,117.3	942.0	949.5	1,337.5	0.00	0.00	0.00
4,400.0	21.65	45.23	4,154.5	952.4	960.0	1,352.3	0.00	0.00	0.00
4,440.0	21.65	45.23	4,191.7	962.8	970.5	1,367.0	0.00	0.00	0.00
4,480.0	21.65	45.23	4,228.8	973.2	981.0	1,381.8	0.00	0.00	0.00
4,520.0	21.65	45.23	4,266.0	983.6	991.4	1,396.5	0.00	0.00	0.00
4,560.0	21.65	45.23	4,303.2	994.0	1,001.9	1,411.3	0.00	0.00	0.00
4,600.0	21.65	45.23	4,340.4	1,004.4	1,012.4	1,426.1	0.00	0.00	0.00
4,640.0	21.65	45.23	4,377.6	1,014.8	1,022.9	1,440.8	0.00	0.00	0.00
4,680.0	21.65	45.23	4,414.7	1,025.1	1,033.3	1,455.6	0.00	0.00	0.00
4,720.0	21.65	45.23	4,451.9	1,035.5	1,043.8	1,470.3	0.00	0.00	0.00
4,760.0	21.65	45.23	4,489.1	1,045.9	1,054.3	1,485.1	0.00	0.00	0.00
4,800.0	21.65	45.23	4,526.3	1,056.3	1,064.8	1,499.9	0.00	0.00	0.00
4,840.0	21.65	45.23	4,563.4	1,066.7	1,075.2	1,514.6	0.00	0.00	0.00
4,880.0	21.65	45.23	4,600.6	1,077.1	1,085.7	1,529.4	0.00	0.00	0.00
4,920.0	21.65	45.23	4,637.8	1,087.5	1,096.2	1,544.1	0.00	0.00	0.00
4,960.0	21.65	45.23	4,675.0	1,097.9	1,106.7	1,558.9	0.00	0.00	0.00
5,000.0	21.65	45.23	4,712.2	1,108.3	1,117.2	1,573.6	0.00	0.00	0.00
5,040.0	21.65	45.23	4,749.3	1,118.7	1,127.6	1,588.4	0.00	0.00	0.00
5,080.0	21.65	45.23	4,786.5	1,129.1	1,138.1	1,603.2	0.00	0.00	0.00
5,120.0	21.65	45.23	4,823.7	1,139.5	1,148.6	1,617.9	0.00	0.00	0.00
5,160.0	21.65	45.23	4,860.9	1,149.9	1,159.1	1,632.7	0.00	0.00	0.00
5,200.0	21.65	45.23	4,898.1	1,160.3	1,169.5	1,647.4	0.00	0.00	0.00
5,240.0	21.65	45.23	4,935.2	1,170.7	1,180.0	1,662.2	0.00	0.00	0.00
5,248.4	21.65	45.23	4,943.1	1,172.8	1,182.2	1,665.3	0.00	0.00	0.00
5,280.0	21.02	45.23	4,972.5	1,180.9	1,190.4	1,676.8	2.00	-2.00	0.00
5,320.0	20.22	45.23	5,009.9	1,190.9	1,200.4	1,690.9	2.00	-2.00	0.00
5,360.0	19.42	45.23	5,047.5	1,200.4	1,210.0	1,704.4	2.00	-2.00	0.00
5,400.0	18.62	45.23	5,085.4	1,209.6	1,219.3	1,717.5	2.00	-2.00	0.00
5,440.0	17.82	45.23	5,123.3	1,218.4	1,228.1	1,730.0	2.00	-2.00	0.00
5,480.0	17.02	45.23	5,161.5	1,226.8	1,236.6	1,741.9	2.00	-2.00	0.00
5,520.0	16.22	45.23	5,199.8	1,234.9	1,244.8	1,753.4	2.00	-2.00	0.00
5,560.0	15.42	45.23	5,238.3	1,242.6	1,252.5	1,764.3	2.00	-2.00	0.00
5,600.0	14.62	45.23	5,277.0	1,249.9	1,259.9	1,774.7	2.00	-2.00	0.00
5,640.0	13.82	45.23	5,315.7	1,256.8	1,266.8	1,784.5	2.00	-2.00	0.00
5,680.0	13.02	45.23	5,354.6	1,263.3	1,273.4	1,793.8	2.00	-2.00	0.00
5,720.0	12.22	45.23	5,393.7	1,269.5	1,279.6	1,802.5	2.00	-2.00	0.00
5,760.0	11.42	45.23	5,432.8	1,275.2	1,285.4	1,810.7	2.00	-2.00	0.00
5,800.0	10.62	45.23	5,472.1	1,280.6	1,290.9	1,818.3	2.00	-2.00	0.00
5,840.0	9.82	45.23	5,511.5	1,285.6	1,295.9	1,825.4	2.00	-2.00	0.00
5,880.0	9.02	45.23	5,550.9	1,290.2	1,300.6	1,832.0	2.00	-2.00	0.00
5,920.0	8.22	45.23	5,590.5	1,294.5	1,304.8	1,838.0	2.00	-2.00	0.00
5,960.0	7.42	45.23	5,630.1	1,298.3	1,308.7	1,843.4	2.00	-2.00	0.00
6,000.0	6.62	45.23	5,669.8	1,301.7	1,312.1	1,848.3	2.00	-2.00	0.00
6,040.0	5.82	45.23	5,709.6	1,304.8	1,315.2	1,852.6	2.00	-2.00	0.00
6,080.0	5.02	45.23	5,749.4	1,307.4	1,317.9	1,856.4	2.00	-2.00	0.00
6,120.0	4.22	45.23	5,789.2	1,309.7	1,320.2	1,859.6	2.00	-2.00	0.00
6,160.0	3.42	45.23	5,829.2	1,311.6	1,322.1	1,862.3	2.00	-2.00	0.00
6,200.0	2.62	45.23	5,869.1	1,313.1	1,323.6	1,864.4	2.00	-2.00	0.00
6,240.0	1.82	45.23	5,909.1	1,314.2	1,324.7	1,866.0	2.00	-2.00	0.00
6,280.0	1.02	45.23	5,949.1	1,314.9	1,325.4	1,866.9	2.00	-2.00	0.00

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,320.0	0.22	45.23	5,989.1	1,315.2	1,325.7	1,867.4	2.00	-2.00	0.00
6,330.9	0.00	0.00	6,000.0	1,315.2	1,325.7	1,867.4	2.00	-2.00	-413.32
TARGET BHL 699'FNL & 2005'FEL									
6,360.0	0.00	0.00	6,029.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,400.0	0.00	0.00	6,069.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,440.0	0.00	0.00	6,109.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,480.0	0.00	0.00	6,149.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,520.0	0.00	0.00	6,189.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,560.0	0.00	0.00	6,229.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,600.0	0.00	0.00	6,269.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,640.0	0.00	0.00	6,309.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,680.0	0.00	0.00	6,349.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,720.0	0.00	0.00	6,389.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,760.0	0.00	0.00	6,429.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,800.0	0.00	0.00	6,469.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,840.0	0.00	0.00	6,509.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,880.0	0.00	0.00	6,549.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,920.0	0.00	0.00	6,589.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
6,960.0	0.00	0.00	6,629.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,000.0	0.00	0.00	6,669.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,030.9	0.00	0.00	6,700.0	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
TARGET CIRCLE 699'FNL & 2005'FEL - LEGAL BOX 400' X 400', 682'FNL & 2005'FEL									
7,040.0	0.00	0.00	6,709.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,080.0	0.00	0.00	6,749.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,120.0	0.00	0.00	6,789.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,160.0	0.00	0.00	6,829.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,200.0	0.00	0.00	6,869.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,240.0	0.00	0.00	6,909.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,280.0	0.00	0.00	6,949.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,320.0	0.00	0.00	6,989.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,360.0	0.00	0.00	7,029.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,400.0	0.00	0.00	7,069.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,440.0	0.00	0.00	7,109.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,480.0	0.00	0.00	7,149.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,520.0	0.00	0.00	7,189.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,560.0	0.00	0.00	7,229.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,600.0	0.00	0.00	7,269.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,640.0	0.00	0.00	7,309.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,680.0	0.00	0.00	7,349.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,720.0	0.00	0.00	7,389.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,760.0	0.00	0.00	7,429.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,800.0	0.00	0.00	7,469.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,840.0	0.00	0.00	7,509.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,880.0	0.00	0.00	7,549.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,920.0	0.00	0.00	7,589.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
7,960.0	0.00	0.00	7,629.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
8,000.0	0.00	0.00	7,669.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
8,040.0	0.00	0.00	7,709.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
8,080.0	0.00	0.00	7,749.1	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00
8,080.9	0.00	0.00	7,750.0	1,315.2	1,325.7	1,867.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well JWHS 31-2D
Company:	Apollo Operating, LLC.	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Project:	SEC.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	North Reference:	True
Well:	JWHS 31-2D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-6-12)		

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 BHL 699'FN	0.00	0.00	6,000.0	1,315.2	1,325.7	1,338,318.35	3,148,493.04	40.260860	-104.967920
- plan hits target center									
- Point									
TARGET CIRCLE 699'	0.00	0.00	6,700.0	1,315.2	1,325.7	1,338,318.35	3,148,493.04	40.260860	-104.967920
- plan hits target center									
- Circle (radius 75.0)									
LEGAL BOX 400' X 400'	0.00	0.00	6,700.0	1,332.2	1,325.7	1,338,335.37	3,148,492.94	40.260907	-104.967920
- plan misses target center by 17.0ft at 7030.9ft MD (6700.0 TVD, 1315.2 N, 1325.7 E)									
- Rectangle (sides W400.0 H400.0 D1,050.0)									

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(ft)	(ft)	Name	(")	(")
	886.6	880.0	8 5/8"	8-5/8	12-1/4



Apollo Operating, LLC.

SEC.2-T3N-R68W

JWHS 31-2D Pad Sec.2-T3N-R68W

JWHS 31-2D

Wellbore #1

Plan #1 (6-6-12)

Anticollision Report

06 June, 2012

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Offset Design JWHS 31-2D Pad Sec.2-T3N-R68W - JWHS 32-2D - Wellbore #1 - Plan #1 (6-6-12)													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		
2,000.0	1,923.8	1,964.2	1,923.6	9.9	7.6	134.42	-28.9	320.7	357.9	342.4	15.45	23.164		
2,100.0	2,016.8	2,060.6	2,016.2	10.6	8.2	134.19	-29.5	347.6	384.4	367.8	16.59	23.173		
2,200.0	2,109.7	2,157.0	2,108.8	11.4	8.7	133.99	-30.1	374.4	411.0	393.2	17.73	23.176		
2,300.0	2,202.6	2,253.4	2,201.4	12.1	9.3	133.82	-30.7	401.2	437.5	418.6	18.88	23.177		
2,400.0	2,295.6	2,349.8	2,294.0	12.9	9.9	133.66	-31.3	428.0	464.1	444.0	20.02	23.175		
2,500.0	2,388.5	2,446.2	2,386.6	13.6	10.4	133.52	-31.9	454.8	490.6	469.5	21.17	23.171		
2,600.0	2,481.5	2,542.6	2,479.2	14.3	11.0	133.40	-32.5	481.7	517.2	494.9	22.32	23.167		
2,700.0	2,574.4	2,639.0	2,571.8	15.1	11.6	133.29	-33.1	508.5	543.8	520.3	23.48	23.161		
2,800.0	2,667.4	2,735.4	2,664.4	15.8	12.1	133.19	-33.6	535.3	570.3	545.7	24.63	23.155		
2,900.0	2,760.3	2,831.8	2,757.0	16.6	12.7	133.09	-34.2	562.1	596.9	571.1	25.78	23.149		
3,000.0	2,853.3	2,928.2	2,849.6	17.3	13.3	133.01	-34.8	589.0	623.5	596.5	26.94	23.143		
3,100.0	2,946.2	3,024.6	2,942.2	18.1	13.9	132.93	-35.4	615.8	650.0	621.9	28.09	23.137		
3,200.0	3,039.1	3,121.0	3,034.8	18.8	14.4	132.86	-36.0	642.6	676.6	647.3	29.25	23.130		
3,300.0	3,132.1	3,217.4	3,127.4	19.6	15.0	132.79	-36.6	669.4	703.2	672.8	30.41	23.124		
3,400.0	3,225.0	3,313.8	3,219.9	20.3	15.6	132.73	-37.2	696.2	729.7	698.2	31.57	23.118		
3,500.0	3,318.0	3,410.2	3,312.5	21.0	16.1	132.68	-37.8	723.1	756.3	723.6	32.72	23.112		
3,600.0	3,410.9	3,506.6	3,405.1	21.8	16.7	132.62	-38.3	749.9	782.9	749.0	33.88	23.106		
3,700.0	3,503.9	3,603.0	3,497.7	22.5	17.3	132.57	-38.9	776.7	809.4	774.4	35.04	23.100		
3,800.0	3,596.8	3,699.4	3,590.3	23.3	17.8	132.53	-39.5	803.5	836.0	799.8	36.20	23.095		
3,900.0	3,689.8	3,795.8	3,682.9	24.0	18.4	132.48	-40.1	830.3	862.6	825.2	37.36	23.089		
4,000.0	3,782.7	3,892.2	3,775.5	24.8	19.0	132.44	-40.7	857.2	889.2	850.7	38.52	23.084		
4,100.0	3,875.7	3,988.6	3,868.1	25.5	19.6	132.40	-41.3	884.0	915.7	876.1	39.68	23.079		
4,200.0	3,968.6	4,085.0	3,960.7	26.3	20.1	132.37	-41.9	910.8	942.3	901.5	40.84	23.074		
4,300.0	4,061.5	4,181.4	4,053.3	27.0	20.7	132.33	-42.5	937.6	968.9	926.9	42.00	23.069		
4,400.0	4,154.5	4,277.8	4,145.9	27.8	21.3	132.30	-43.0	964.4	995.5	952.3	43.16	23.065		
4,500.0	4,247.4	4,374.2	4,238.5	28.5	21.9	132.27	-43.6	991.3	1,022.0	977.7	44.32	23.060		
4,600.0	4,340.4	4,470.6	4,331.1	29.3	22.4	132.24	-44.2	1,018.1	1,048.6	1,003.1	45.48	23.056		
4,700.0	4,433.3	4,567.0	4,423.7	30.0	23.0	132.21	-44.8	1,044.9	1,075.2	1,028.6	46.64	23.051		
4,800.0	4,526.3	4,663.4	4,516.3	30.7	23.6	132.19	-45.4	1,071.7	1,101.8	1,054.0	47.81	23.047		
4,900.0	4,619.2	4,759.8	4,608.9	31.5	24.1	132.16	-46.0	1,098.5	1,128.4	1,079.4	48.97	23.043		
5,000.0	4,712.2	4,856.2	4,701.5	32.2	24.7	132.14	-46.6	1,125.4	1,154.9	1,104.8	50.13	23.039		
5,100.0	4,805.1	4,952.6	4,794.1	33.0	25.3	132.11	-47.2	1,152.2	1,181.5	1,130.2	51.29	23.036		
5,200.0	4,898.1	5,049.0	4,886.6	33.7	25.9	132.09	-47.7	1,179.0	1,208.1	1,155.6	52.45	23.032		
5,248.4	4,943.1	5,095.7	4,931.5	34.1	26.1	132.08	-48.0	1,192.0	1,221.0	1,167.9	53.01	23.030		
5,300.0	4,991.2	5,145.5	4,979.3	34.4	26.4	132.26	-48.3	1,205.8	1,234.4	1,180.8	53.61	23.026		
5,400.0	5,085.4	5,243.6	5,073.7	35.0	26.9	132.53	-48.9	1,232.2	1,258.6	1,204.0	54.59	23.055		
5,500.0	5,180.7	5,342.6	5,170.0	35.5	27.3	132.79	-49.4	1,255.7	1,280.4	1,225.0	55.44	23.098		
5,600.0	5,277.0	5,442.3	5,267.6	35.9	27.7	133.06	-49.9	1,275.9	1,299.9	1,243.7	56.18	23.137		
5,700.0	5,374.1	5,542.4	5,366.3	36.3	28.0	133.32	-50.2	1,292.8	1,316.8	1,260.0	56.82	23.173		
5,800.0	5,472.1	5,642.9	5,465.9	36.6	28.2	133.59	-50.5	1,306.2	1,331.3	1,273.9	57.36	23.208		
5,900.0	5,570.7	5,743.7	5,566.2	36.9	28.4	133.86	-50.7	1,316.2	1,343.2	1,285.4	57.79	23.242		
6,000.0	5,669.8	5,844.7	5,666.9	37.2	28.6	134.13	-50.9	1,322.7	1,352.7	1,294.6	58.12	23.275		
6,100.0	5,769.3	5,945.7	5,767.9	37.4	28.7	134.40	-51.0	1,325.6	1,359.6	1,301.3	58.34	23.307		
6,200.0	5,869.1	6,045.9	5,868.1	37.6	28.8	134.65	-51.0	1,325.8	1,364.0	1,305.6	58.48	23.325		
6,300.0	5,969.1	6,145.9	5,968.1	37.7	28.9	134.76	-51.0	1,325.8	1,366.0	1,307.4	58.60	23.309		
6,330.9	6,000.0	6,176.8	5,999.0	37.7	28.9	180.00	-51.0	1,325.8	1,366.1	1,307.5	58.64	23.297		
6,400.0	6,069.1	6,245.9	6,068.1	37.7	29.0	180.00	-51.0	1,325.8	1,366.1	1,307.4	58.77	23.247		
6,500.0	6,169.1	6,345.9	6,168.1	37.8	29.1	180.00	-51.0	1,325.8	1,366.1	1,307.2	58.96	23.170		
6,600.0	6,269.1	6,445.9	6,268.1	37.9	29.2	180.00	-51.0	1,325.8	1,366.1	1,307.0	59.16	23.093		
6,700.0	6,369.1	6,545.9	6,368.1	38.0	29.3	180.00	-51.0	1,325.8	1,366.1	1,306.8	59.36	23.015		
6,800.0	6,469.1	6,645.9	6,468.1	38.0	29.4	180.00	-51.0	1,325.8	1,366.1	1,306.6	59.56	22.937		
6,900.0	6,569.1	6,745.9	6,568.1	38.1	29.5	180.00	-51.0	1,325.8	1,366.1	1,306.4	59.77	22.858		

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

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Offset Design JWHS 31-2D Pad Sec.2-T3N-R68W - JWHS 32-2D - Wellbore #1 - Plan #1 (6-6-12)												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
7,000.0	6,669.1	6,845.9	6,668.1	38.2	29.6	180.00	-51.0	1,325.8	1,366.1	1,306.2	59.98	22.778	
7,100.0	6,769.1	6,945.9	6,768.1	38.3	29.7	180.00	-51.0	1,325.8	1,366.1	1,306.0	60.19	22.699	
7,200.0	6,869.1	7,045.9	6,868.1	38.4	29.8	180.00	-51.0	1,325.8	1,366.1	1,305.7	60.40	22.618	
7,300.0	6,969.1	7,145.9	6,968.1	38.4	29.9	180.00	-51.0	1,325.8	1,366.1	1,305.5	60.62	22.538	
7,400.0	7,069.1	7,245.9	7,068.1	38.5	30.0	180.00	-51.0	1,325.8	1,366.1	1,305.3	60.83	22.457	
7,500.0	7,169.1	7,345.9	7,168.1	38.6	30.2	180.00	-51.0	1,325.8	1,366.1	1,305.1	61.06	22.375	
7,600.0	7,269.1	7,445.9	7,268.1	38.7	30.3	180.00	-51.0	1,325.8	1,366.1	1,304.9	61.28	22.294	
7,700.0	7,369.1	7,545.9	7,368.1	38.8	30.4	180.00	-51.0	1,325.8	1,366.1	1,304.6	61.51	22.212	
7,800.0	7,469.1	7,645.9	7,468.1	38.9	30.5	180.00	-51.0	1,325.8	1,366.1	1,304.4	61.73	22.130	
7,900.0	7,569.1	7,745.9	7,568.1	39.0	30.6	180.00	-51.0	1,325.8	1,366.1	1,304.2	61.96	22.047	
8,000.0	7,669.1	7,845.9	7,668.1	39.1	30.7	180.00	-51.0	1,325.8	1,366.1	1,303.9	62.20	21.964	
8,080.9	7,750.0	7,926.8	7,749.0	39.1	30.8	180.00	-51.0	1,325.8	1,366.1	1,303.8	62.39	21.897	

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Offset Design JWHS 31-2D Pad Sec.2-T3N-R68W - Steffes 21-2D (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 101-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-168.20	-40.1	-8.4	41.0					
100.0	100.0	98.6	98.6	0.1	0.1	-169.29	-40.7	-7.7	41.5	41.2	0.23	183.996		
200.0	200.0	198.4	198.3	0.3	0.3	-171.28	-42.3	-6.5	42.8	42.1	0.66	64.389		
300.0	300.0	298.5	298.5	0.6	0.5	143.55	-43.7	-5.7	45.5	44.4	1.10	41.429		
400.0	399.8	398.7	398.6	0.8	0.7	146.52	-44.5	-5.4	50.5	49.0	1.54	32.870		
500.0	499.5	498.5	498.5	1.0	0.9	150.96	-44.7	-5.2	58.1	56.1	1.99	29.218		
600.0	598.7	597.7	597.6	1.3	1.2	155.21	-44.9	-4.5	69.0	66.6	2.44	28.256		
700.0	697.5	696.7	696.6	1.6	1.4	159.38	-45.1	-4.3	83.5	80.6	2.90	28.791		
800.0	795.6	794.6	794.5	2.0	1.6	162.97	-45.0	-4.0	101.4	98.0	3.36	30.177		
900.0	893.1	889.8	889.7	2.5	1.8	165.98	-45.6	-4.7	124.1	120.2	3.82	32.443		
1,000.0	989.6	985.3	985.3	3.0	2.0	168.39	-47.3	-6.2	151.6	147.3	4.29	35.372		
1,100.0	1,085.3	1,083.7	1,083.6	3.5	2.2	170.88	-47.4	-8.8	181.9	177.2	4.74	38.347		
1,200.0	1,179.8	1,182.0	1,181.9	4.1	2.4	173.01	-45.1	-10.6	213.4	208.3	5.19	41.135		
1,282.5	1,256.9	1,263.2	1,263.0	4.7	2.6	174.36	-42.5	-11.2	241.1	235.5	5.56	43.345		
1,300.0	1,273.2	1,280.8	1,280.6	4.8	2.6	174.62	-41.8	-11.1	247.0	241.4	5.65	43.732		
1,400.0	1,366.1	1,377.4	1,377.1	5.5	2.8	175.85	-37.2	-10.3	279.9	273.8	6.14	45.596		
1,500.0	1,459.1	1,477.5	1,477.0	6.2	3.0	177.07	-31.1	-9.8	312.2	305.5	6.65	46.966		
1,600.0	1,552.0	1,575.8	1,574.9	7.0	3.2	178.47	-22.1	-9.8	342.7	335.5	7.16	47.850		
1,700.0	1,645.0	1,675.9	1,674.3	7.7	3.5	179.99	-10.7	-10.8	372.6	364.9	7.70	48.409		
1,800.0	1,737.9	1,774.8	1,772.3	8.4	3.7	-178.59	2.0	-11.4	401.4	393.1	8.25	48.667		
1,900.0	1,830.9	1,875.5	1,872.0	9.2	4.0	-177.18	16.6	-12.2	429.5	420.6	8.83	48.654		
2,000.0	1,923.8	1,974.0	1,969.3	9.9	4.3	-175.87	32.0	-12.7	456.8	447.4	9.42	48.468		
2,100.0	2,016.8	2,075.3	2,069.0	10.6	4.6	-174.44	49.9	-13.9	483.5	473.5	10.07	48.035		
2,200.0	2,109.7	2,183.1	2,174.5	11.4	5.0	-172.81	71.9	-15.3	508.9	498.1	10.77	47.240		
2,300.0	2,202.6	2,292.7	2,281.2	12.1	5.4	-171.17	97.1	-15.1	531.9	520.3	11.53	46.118		
2,400.0	2,295.6	2,397.2	2,382.2	12.9	5.8	-169.53	123.8	-14.8	553.6	541.3	12.34	44.855		
2,500.0	2,388.5	2,502.3	2,482.5	13.6	6.3	-167.54	155.3	-15.7	574.2	560.9	13.27	43.275		
2,600.0	2,481.5	2,603.3	2,577.8	14.3	6.8	-165.47	188.5	-17.3	594.2	580.0	14.25	41.692		
2,700.0	2,574.4	2,691.7	2,661.6	15.1	7.2	-163.89	216.7	-18.0	614.8	599.7	15.15	40.571		
2,800.0	2,667.4	2,794.9	2,760.2	15.8	7.7	-162.40	246.8	-18.5	637.0	620.8	16.15	39.450		
2,900.0	2,760.3	2,890.5	2,851.0	16.6	8.2	-160.93	277.2	-18.5	657.9	640.8	17.16	38.339		
3,000.0	2,853.3	3,004.0	2,958.8	17.3	8.8	-159.38	312.6	-18.0	679.1	660.8	18.30	37.104		
3,100.0	2,946.2	3,090.5	3,040.9	18.1	9.3	-158.28	339.9	-16.5	699.3	680.1	19.29	36.252		
3,200.0	3,039.1	3,181.7	3,127.8	18.8	9.7	-157.27	367.1	-15.7	721.3	701.0	20.29	35.556		
3,300.0	3,132.1	3,288.6	3,230.2	19.6	10.3	-156.27	397.9	-14.0	743.2	721.9	21.38	34.764		
3,400.0	3,225.0	3,388.5	3,325.7	20.3	10.8	-155.37	427.4	-11.5	764.3	741.8	22.45	34.043		
3,500.0	3,318.0	3,484.8	3,417.6	21.0	11.3	-154.55	455.7	-8.9	785.3	761.8	23.51	33.408		
3,600.0	3,410.9	3,587.4	3,515.0	21.8	11.9	-153.54	488.2	-6.8	806.3	781.6	24.70	32.644		
3,700.0	3,503.9	3,681.0	3,603.2	22.5	12.4	-152.57	519.2	-5.2	827.4	801.5	25.88	31.970		
3,800.0	3,596.8	3,772.0	3,688.4	23.3	13.0	-151.51	551.4	-4.9	849.2	822.1	27.12	31.316		
3,900.0	3,689.8	3,866.0	3,775.8	24.0	13.6	-150.35	586.0	-5.5	871.8	843.4	28.42	30.676		
4,000.0	3,782.7	3,955.2	3,859.1	24.8	14.2	-149.35	618.0	-6.3	895.1	865.5	29.64	30.197		
4,100.0	3,875.7	4,034.1	3,933.6	25.5	14.6	-148.67	643.7	-7.2	920.0	889.3	30.71	29.955		
4,200.0	3,968.6	4,129.5	4,025.3	26.3	15.1	-148.20	669.9	-8.2	946.2	914.4	31.77	29.780		
4,300.0	4,061.5	4,225.9	4,118.6	27.0	15.5	-147.90	694.3	-8.4	972.2	939.4	32.78	29.653		
4,400.0	4,154.5	4,313.1	4,202.6	27.8	16.0	-147.55	717.5	-9.3	998.6	964.8	33.79	29.548		
4,500.0	4,247.4	4,406.2	4,291.7	28.5	16.5	-147.07	744.2	-11.5	1,025.8	990.9	34.91	29.384		
4,600.0	4,340.4	4,514.6	4,395.1	29.3	17.1	-146.46	776.8	-14.0	1,052.8	1,016.6	36.17	29.108		
4,700.0	4,433.3	4,617.8	4,493.6	30.0	17.7	-145.93	807.8	-15.1	1,078.6	1,041.3	37.37	28.868		
4,800.0	4,526.3	4,700.5	4,572.4	30.7	18.1	-145.50	832.9	-16.3	1,104.9	1,066.4	38.45	28.737		
4,900.0	4,619.2	4,808.5	4,674.4	31.5	18.8	-144.82	868.2	-18.8	1,131.6	1,091.8	39.79	28.441		
5,000.0	4,712.2	4,907.2	4,767.5	32.2	19.4	-144.23	900.7	-20.2	1,157.5	1,116.4	41.05	28.196		

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

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Offset Design JWHS 31-2D Pad Sec.2-T3N-R68W - Steffes 21-2D (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 101-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
5,100.0	4,805.1	5,012.8	4,868.0	33.0	20.0	-143.74	933.3	-20.7	1,183.0	1,140.7	42.28	27.978	
5,200.0	4,898.1	5,118.7	4,969.8	33.7	20.5	-143.46	962.6	-19.8	1,207.8	1,164.4	43.41	27.823	
5,248.4	4,943.1	5,170.2	5,019.5	34.1	20.7	-143.38	976.0	-18.9	1,219.6	1,175.7	43.93	27.762	
5,300.0	4,991.2	5,227.1	5,074.5	34.4	21.0	-143.43	990.4	-17.6	1,231.5	1,187.0	44.49	27.680	
5,400.0	5,085.4	5,323.1	5,167.4	35.0	21.5	-143.49	1,014.5	-14.7	1,252.0	1,206.6	45.44	27.551	
5,500.0	5,180.7	5,419.5	5,261.5	35.5	21.9	-143.58	1,035.3	-12.3	1,270.8	1,224.5	46.31	27.445	
5,600.0	5,277.0	5,537.2	5,376.4	35.9	22.4	-143.54	1,059.8	-7.2	1,285.2	1,237.9	47.22	27.217	
5,700.0	5,374.1	5,620.8	5,458.6	36.3	22.7	-143.55	1,075.3	-3.3	1,296.9	1,249.0	47.90	27.077	
5,800.0	5,472.1	5,702.8	5,539.6	36.6	23.0	-143.60	1,087.3	-0.4	1,307.5	1,259.0	48.46	26.982	
5,900.0	5,570.7	5,796.7	5,632.9	36.9	23.2	-143.70	1,097.2	2.7	1,316.1	1,267.1	48.93	26.895	
6,000.0	5,669.8	5,904.0	5,739.7	37.2	23.5	-143.74	1,107.0	6.7	1,321.8	1,272.4	49.38	26.767	
6,100.0	5,769.3	6,022.3	5,857.5	37.4	23.7	-143.70	1,116.2	12.5	1,323.7	1,273.9	49.81	26.577	
6,200.0	5,869.1	6,105.4	5,940.3	37.6	23.9	-143.62	1,121.7	17.0	1,322.5	1,272.4	50.10	26.396	
6,300.0	5,969.1	6,185.4	6,020.2	37.7	24.0	-143.50	1,125.5	20.2	1,320.1	1,269.8	50.33	26.229	
6,330.9	6,000.0	6,211.1	6,045.7	37.7	24.1	-98.23	1,126.6	21.0	1,319.1	1,268.7	50.40	26.175	
6,400.0	6,069.1	6,271.1	6,105.8	37.7	24.2	-98.14	1,128.7	22.6	1,316.9	1,266.3	50.59	26.033	
6,500.0	6,169.1	6,359.5	6,194.1	37.8	24.3	-98.07	1,130.8	24.5	1,314.5	1,263.6	50.84	25.855	
6,600.0	6,269.1	6,447.5	6,282.1	37.9	24.4	-98.02	1,132.0	25.7	1,313.0	1,261.9	51.07	25.708	
6,700.0	6,369.1	6,537.6	6,372.2	38.0	24.5	-98.00	1,132.5	26.2	1,312.3	1,261.0	51.29	25.585	
6,773.5	6,442.5	6,607.0	6,441.6	38.0	24.6	-97.98	1,132.9	26.2	1,312.2	1,260.7	51.46	25.500	
6,800.0	6,469.1	6,632.3	6,466.9	38.0	24.7	-97.98	1,133.1	26.2	1,312.2	1,260.7	51.52	25.469	
6,900.0	6,569.1	6,728.2	6,562.8	38.1	24.8	-97.95	1,133.7	25.9	1,312.5	1,260.7	51.76	25.359	
7,000.0	6,669.1	6,826.0	6,660.5	38.2	24.9	-97.92	1,134.2	25.3	1,313.0	1,261.0	52.00	25.251	
7,100.0	6,769.1	6,928.5	6,763.1	38.3	25.0	-97.90	1,134.7	24.6	1,313.5	1,261.3	52.24	25.143	
7,200.0	6,869.1	7,028.7	6,863.2	38.4	25.1	-97.89	1,134.8	24.4	1,313.7	1,261.2	52.47	25.036	
7,300.0	6,969.1	7,123.5	6,958.1	38.4	25.3	-97.90	1,134.5	23.8	1,314.4	1,261.7	52.69	24.945	
7,400.0	7,069.1	7,224.8	7,059.4	38.5	25.4	-97.91	1,134.3	23.1	1,315.1	1,262.2	52.92	24.848	
7,500.0	7,169.1	7,337.1	7,171.6	38.6	25.5	-97.89	1,134.7	22.7	1,315.5	1,262.3	53.19	24.732	
7,600.0	7,269.1	7,437.9	7,272.4	38.7	25.7	-97.84	1,135.9	23.0	1,315.0	1,261.5	53.46	24.596	
7,645.0	7,314.1	7,478.5	7,313.1	38.7	25.7	-97.81	1,136.5	23.0	1,314.9	1,261.3	53.58	24.540	
7,700.0	7,369.1	7,525.7	7,360.2	38.8	25.8	-97.79	1,137.0	22.8	1,315.1	1,261.4	53.72	24.480	
7,800.0	7,469.1	7,645.0	7,479.5	38.9	25.9	-97.76	1,137.6	22.7	1,315.1	1,261.1	54.01	24.351	
7,843.5	7,512.5	7,677.0	7,511.5	38.9	26.0	-97.75	1,137.8	22.9	1,314.8	1,260.7	54.10	24.301	
7,900.0	7,569.1	7,677.0	7,511.5	39.0	26.0	-97.75	1,137.8	22.9	1,316.0	1,261.8	54.17	24.293 SF	
8,000.0	7,669.1	7,677.0	7,511.5	39.1	26.0	-97.75	1,137.8	22.9	1,324.1	1,269.8	54.29	24.388	
8,080.9	7,750.0	7,677.0	7,511.5	39.1	26.0	-97.75	1,137.8	22.9	1,336.1	1,281.7	54.39	24.565	

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Offset Design JWHS 31-2D Pad Sec.2-T3N-R68W - Steffes 22-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 101-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		
0.0	0.0	0.0	0.0	0.0	0.0	-172.30	-61.9	-8.4	62.5					
100.0	100.0	98.2	98.2	0.1	0.1	-172.15	-61.7	-8.5	62.3	62.1	0.22	279.451		
188.9	188.9	186.9	186.9	0.3	0.3	-172.27	-61.6	-8.4	62.1	61.5	0.60	103.141 CC		
200.0	200.0	198.0	198.0	0.3	0.3	-172.34	-61.6	-8.3	62.1	61.5	0.65	95.599 ES		
300.0	300.0	297.7	297.7	0.6	0.5	142.80	-61.9	-7.7	63.7	62.7	1.08	58.789		
400.0	399.8	396.8	396.8	0.8	0.7	145.23	-62.9	-7.7	69.0	67.4	1.54	44.937		
500.0	499.5	496.4	496.4	1.0	0.9	149.11	-64.5	-8.4	78.0	76.1	1.99	39.133		
600.0	598.7	596.4	596.3	1.3	1.2	153.43	-65.0	-9.2	89.4	87.0	2.45	36.505		
700.0	697.5	695.0	694.9	1.6	1.4	157.63	-65.1	-10.1	104.1	101.2	2.91	35.822 SF		
800.0	795.6	792.9	792.9	2.0	1.6	161.29	-65.2	-11.1	122.6	119.2	3.37	36.419		
900.0	893.1	889.3	889.2	2.5	1.8	163.92	-66.0	-11.3	144.9	141.0	3.83	37.828		
1,000.0	989.6	986.5	986.4	3.0	2.0	166.05	-67.5	-11.7	171.5	167.2	4.30	39.911		
1,100.0	1,085.3	1,084.7	1,084.6	3.5	2.2	167.94	-67.3	-11.3	199.7	194.9	4.76	41.975		
1,200.0	1,179.8	1,179.2	1,179.1	4.1	2.4	169.48	-66.9	-10.9	231.1	225.8	5.22	44.299		
1,282.5	1,256.9	1,257.4	1,257.3	4.7	2.5	170.62	-66.4	-10.8	259.6	254.0	5.60	46.336		
1,300.0	1,273.2	1,274.3	1,274.2	4.8	2.6	170.87	-66.2	-10.7	265.8	260.1	5.69	46.730		
1,400.0	1,366.1	1,370.2	1,370.1	5.5	2.8	172.10	-64.7	-10.1	300.8	294.6	6.18	48.687		
1,500.0	1,459.1	1,464.2	1,464.1	6.2	3.0	173.14	-62.5	-9.7	335.4	328.7	6.67	50.270		
1,600.0	1,552.0	1,557.1	1,557.0	7.0	3.2	174.02	-60.3	-9.4	370.2	363.1	7.17	51.616		
1,700.0	1,645.0	1,650.3	1,650.1	7.7	3.4	174.72	-58.3	-9.2	405.3	397.6	7.68	52.786		
1,800.0	1,737.9	1,742.1	1,741.9	8.4	3.6	175.35	-56.2	-9.3	440.5	432.3	8.19	53.820		
1,900.0	1,830.9	1,833.0	1,832.8	9.2	3.7	175.97	-54.2	-10.2	476.4	467.7	8.69	54.798		
2,000.0	1,923.8	1,922.6	1,922.4	9.9	3.9	176.46	-52.6	-11.2	512.6	503.4	9.20	55.720		
2,100.0	2,016.8	2,010.9	2,010.7	10.6	4.1	176.68	-52.9	-11.4	549.9	540.2	9.71	56.646		
2,200.0	2,109.7	2,101.8	2,101.5	11.4	4.3	176.79	-54.0	-11.3	587.5	577.3	10.22	57.478		
2,300.0	2,202.6	2,190.3	2,190.1	12.1	4.5	176.94	-55.2	-11.9	625.6	614.9	10.73	58.293		
2,400.0	2,295.6	2,282.3	2,282.0	12.9	4.7	177.13	-56.3	-13.2	664.2	653.0	11.25	59.037		
2,500.0	2,388.5	2,381.3	2,381.0	13.6	4.9	177.38	-56.4	-14.6	702.0	690.3	11.78	59.616		
2,600.0	2,481.5	2,468.6	2,468.4	14.3	5.1	177.55	-56.7	-15.7	740.0	727.7	12.28	60.246		
2,700.0	2,574.4	2,557.4	2,557.1	15.1	5.3	177.73	-57.4	-17.4	778.5	765.7	12.80	60.839		
2,800.0	2,667.4	2,660.5	2,660.1	15.8	5.5	177.80	-58.8	-18.1	816.7	803.4	13.33	61.255		
2,900.0	2,760.3	2,766.5	2,766.2	16.6	5.7	177.82	-59.3	-16.8	853.2	839.3	13.87	61.506		
3,000.0	2,853.3	2,857.0	2,856.6	17.3	5.9	177.90	-58.9	-16.2	889.3	874.9	14.39	61.805		
3,100.0	2,946.2	2,944.5	2,944.1	18.1	6.1	178.02	-58.3	-16.5	925.9	911.0	14.90	62.123		
3,200.0	3,039.1	3,037.8	3,037.4	18.8	6.3	178.16	-57.7	-17.3	962.9	947.4	15.43	62.397		
3,300.0	3,132.1	3,139.3	3,139.0	19.6	6.5	178.27	-56.9	-17.3	999.3	983.3	15.97	62.580		
3,400.0	3,225.0	3,233.0	3,232.6	20.3	6.7	178.27	-56.8	-16.0	1,035.2	1,018.7	16.49	62.775		
3,500.0	3,318.0	3,319.7	3,319.3	21.0	6.9	178.29	-56.9	-15.2	1,071.5	1,054.5	17.00	63.016		
3,600.0	3,410.9	3,412.9	3,412.6	21.8	7.1	178.26	-57.8	-13.9	1,108.1	1,090.6	17.53	63.205		
3,700.0	3,503.9	3,506.9	3,506.5	22.5	7.3	178.21	-58.9	-12.2	1,144.7	1,126.6	18.06	63.378		
3,800.0	3,596.8	3,598.2	3,597.8	23.3	7.4	178.18	-59.9	-10.8	1,181.2	1,162.6	18.59	63.552		
3,900.0	3,689.8	3,689.6	3,689.2	24.0	7.6	178.14	-61.0	-9.3	1,217.9	1,198.8	19.11	63.722		
4,000.0	3,782.7	3,778.6	3,778.1	24.8	7.8	178.10	-62.4	-7.9	1,254.9	1,235.2	19.64	63.908		
4,100.0	3,875.7	3,879.0	3,878.5	25.5	8.0	178.06	-63.6	-6.4	1,291.6	1,271.4	20.18	64.005		
4,200.0	3,968.6	3,964.0	3,963.5	26.3	8.2	178.03	-64.8	-5.2	1,328.5	1,307.8	20.69	64.201		
4,300.0	4,061.5	4,038.3	4,037.8	27.0	8.4	178.01	-66.3	-4.7	1,366.3	1,345.1	21.19	64.479		
4,400.0	4,154.5	4,118.7	4,118.2	27.8	8.5	178.01	-68.3	-5.1	1,405.1	1,383.4	21.70	64.757		
4,500.0	4,247.4	4,235.4	4,234.8	28.5	8.8	178.10	-69.5	-7.2	1,443.9	1,421.6	22.27	64.836		
4,600.0	4,340.4	4,331.9	4,331.4	29.3	9.0	178.20	-69.0	-8.4	1,481.2	1,458.4	22.80	64.973		
4,700.0	4,433.3	4,421.8	4,421.3	30.0	9.2	178.29	-68.7	-9.4	1,518.6	1,495.3	23.32	65.129		
4,800.0	4,526.3	4,530.0	4,529.4	30.7	9.4	178.36	-68.3	-10.2	1,555.7	1,531.9	23.87	65.171		
4,900.0	4,619.2	4,630.9	4,630.4	31.5	9.6	178.40	-67.9	-9.7	1,592.1	1,567.6	24.41	65.221		

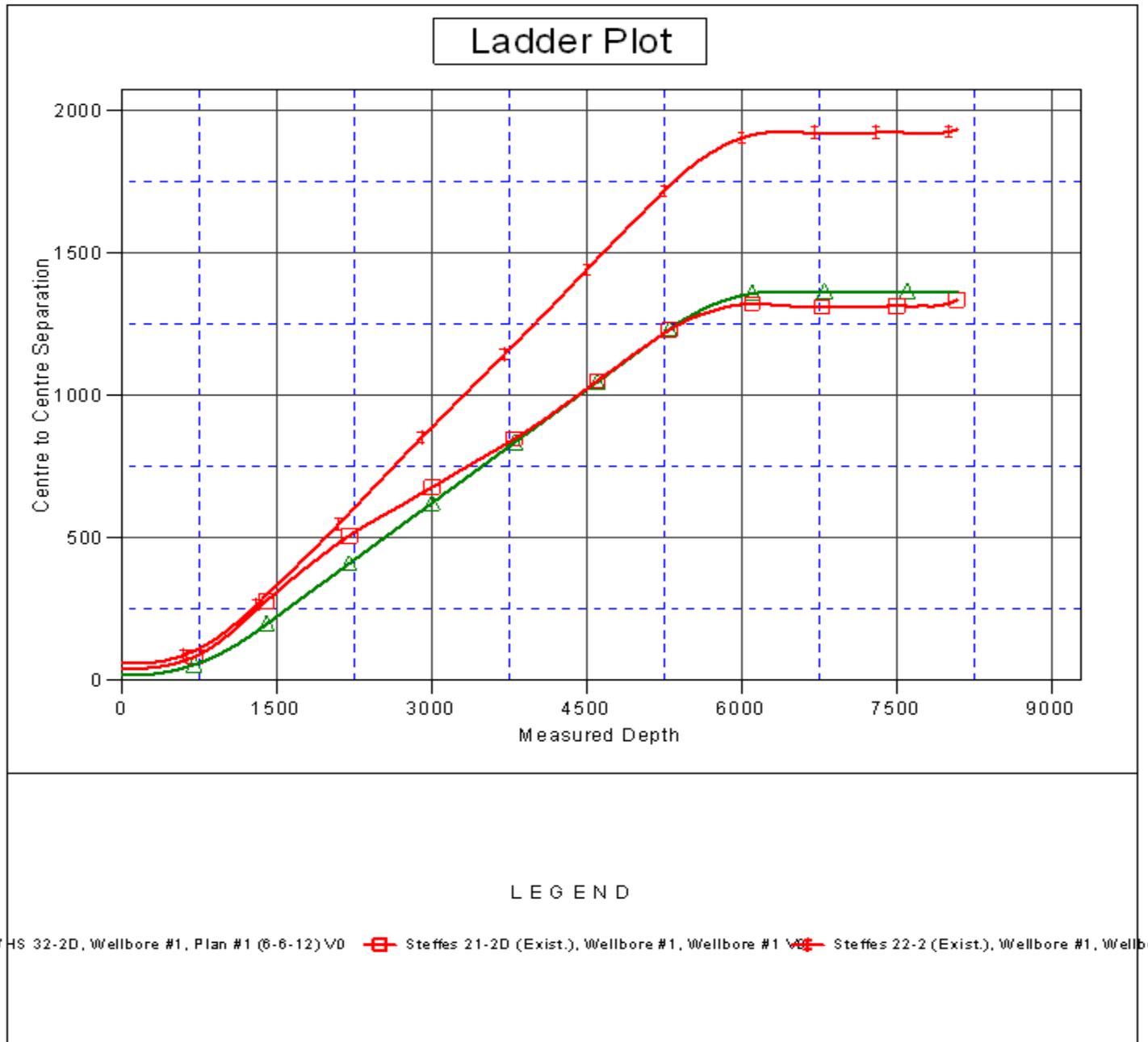
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Offset Design JWHS 31-2D Pad Sec.2-T3N-R68W - Steffes 22-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 101-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		
5,000.0	4,712.2	4,716.9	4,716.3	32.2	9.8	178.42	-67.8	-9.1	1,628.4	1,603.5	24.93	65.330		
5,100.0	4,805.1	4,799.9	4,799.3	33.0	10.0	178.46	-67.7	-9.1	1,665.2	1,639.8	25.44	65.460		
5,200.0	4,898.1	4,898.0	4,897.5	33.7	10.2	178.50	-67.7	-9.4	1,702.2	1,676.2	25.98	65.523		
5,248.4	4,943.1	4,942.2	4,941.6	34.1	10.3	178.53	-67.4	-9.5	1,720.0	1,693.8	26.23	65.566		
5,300.0	4,991.2	4,987.5	4,986.9	34.4	10.4	178.56	-67.2	-9.8	1,738.7	1,712.1	26.55	65.490		
5,400.0	5,085.4	5,085.1	5,084.5	35.0	10.6	178.63	-66.8	-10.4	1,772.3	1,745.2	27.13	65.328		
5,500.0	5,180.7	5,179.6	5,179.0	35.5	10.8	178.69	-66.2	-10.9	1,802.5	1,774.8	27.66	65.165		
5,600.0	5,277.0	5,269.7	5,269.1	35.9	11.0	178.75	-65.8	-11.4	1,829.5	1,801.4	28.14	65.007		
5,700.0	5,374.1	5,365.3	5,364.7	36.3	11.2	178.79	-65.6	-12.2	1,853.5	1,824.9	28.59	64.819		
5,800.0	5,472.1	5,458.8	5,458.2	36.6	11.4	178.83	-65.7	-12.8	1,874.1	1,845.1	28.99	64.636		
5,900.0	5,570.7	5,548.7	5,548.2	36.9	11.5	178.85	-66.2	-13.3	1,891.6	1,862.3	29.34	64.466		
6,000.0	5,669.8	5,648.9	5,648.3	37.2	11.8	178.85	-67.3	-13.8	1,906.0	1,876.3	29.67	64.249		
6,100.0	5,769.3	5,748.5	5,747.9	37.4	12.0	178.84	-68.5	-14.0	1,916.8	1,886.8	29.94	64.020		
6,200.0	5,869.1	5,858.2	5,857.6	37.6	12.2	178.83	-69.5	-14.2	1,923.9	1,893.7	30.19	63.731		
6,300.0	5,969.1	5,973.3	5,972.7	37.7	12.4	178.81	-69.9	-13.7	1,926.6	1,896.2	30.40	63.386		
6,330.9	6,000.0	6,001.9	6,001.3	37.7	12.5	-135.96	-69.9	-13.6	1,926.7	1,896.3	30.44	63.302		
6,400.0	6,069.1	6,074.6	6,074.0	37.7	12.6	-135.96	-69.9	-13.5	1,926.6	1,896.0	30.68	62.789		
6,500.0	6,169.1	6,187.6	6,187.0	37.8	12.9	-135.97	-69.3	-12.7	1,925.8	1,894.7	31.07	61.985		
6,600.0	6,269.1	6,280.6	6,279.9	37.9	13.1	-135.97	-68.7	-12.0	1,924.8	1,893.4	31.41	61.274		
6,700.0	6,369.1	6,375.1	6,374.5	38.0	13.3	-135.97	-68.4	-11.8	1,924.4	1,892.6	31.77	60.581		
6,800.0	6,469.1	6,475.0	6,474.4	38.0	13.5	-135.96	-68.0	-11.7	1,924.0	1,891.9	32.13	59.883		
6,900.0	6,569.1	6,570.5	6,569.8	38.1	13.7	-135.96	-67.7	-11.5	1,923.7	1,891.2	32.48	59.218		
6,957.8	6,626.8	6,625.5	6,624.8	38.2	13.8	-135.96	-67.7	-11.5	1,923.7	1,891.0	32.69	58.843		
7,000.0	6,669.1	6,667.7	6,667.1	38.2	13.9	-135.96	-67.7	-11.5	1,923.7	1,890.8	32.85	58.563		
7,005.6	6,674.7	6,673.3	6,672.7	38.2	13.9	-135.96	-67.7	-11.5	1,923.7	1,890.8	32.87	58.526		
7,100.0	6,769.1	6,763.9	6,763.3	38.3	14.1	-135.96	-67.7	-11.6	1,923.7	1,890.5	33.21	57.925		
7,200.0	6,869.1	6,857.4	6,856.8	38.4	14.3	-135.96	-67.9	-11.9	1,924.1	1,890.5	33.57	57.317		
7,300.0	6,969.1	6,954.0	6,953.4	38.4	14.5	-135.97	-68.5	-12.2	1,924.7	1,890.8	33.93	56.720		
7,400.0	7,069.1	7,054.2	7,053.6	38.5	14.7	-135.97	-69.2	-12.5	1,925.5	1,891.2	34.31	56.125		
7,500.0	7,169.1	7,195.2	7,194.5	38.6	15.0	-135.92	-67.5	-13.5	1,925.1	1,890.3	34.76	55.379		
7,600.0	7,269.1	7,279.4	7,278.7	38.7	15.2	-135.86	-65.5	-14.4	1,924.1	1,889.0	35.10	54.817		
7,700.0	7,369.1	7,388.3	7,387.6	38.8	15.4	-135.79	-63.2	-15.3	1,923.2	1,887.7	35.49	54.187		
7,800.0	7,469.1	7,488.3	7,487.6	38.9	15.6	-135.73	-61.2	-15.9	1,922.2	1,886.3	35.86	53.595		
7,854.2	7,523.3	7,522.0	7,521.3	38.9	15.7	-135.72	-60.5	-16.1	1,921.7	1,885.7	36.03	53.343		
7,900.0	7,569.1	7,522.0	7,521.3	39.0	15.7	-135.72	-60.5	-16.1	1,922.2	1,886.1	36.10	53.245		
8,000.0	7,669.1	7,522.0	7,521.3	39.1	15.7	-135.72	-60.5	-16.1	1,927.2	1,891.0	36.27	53.134		
8,080.9	7,750.0	7,522.0	7,521.3	39.1	15.7	-135.72	-60.5	-16.1	1,935.0	1,898.6	36.41	53.148		

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5012.0ft (Original Well Elev) Coordinates are relative to: JWHS 31-2D
 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: 0.34°



Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well JWHS 31-2D
Project:	SEC.2-T3N-R68W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	JWHS 31-2D Pad Sec.2-T3N-R68W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	JWHS 31-2D	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 (6-6-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5012.0ft (Original Well Elev) Coordinates are relative to: JWHS 31-2D
 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: 0.34°

