



Well Name: **Murdock 34SW-BL**

Surface Location: Murdock 34SW-BL Pad Sec.34-T5N-R68W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 5058.0

+N/-S +E/-W
0.0 0.0

Northing
1371227.25

Easting
3140742.39

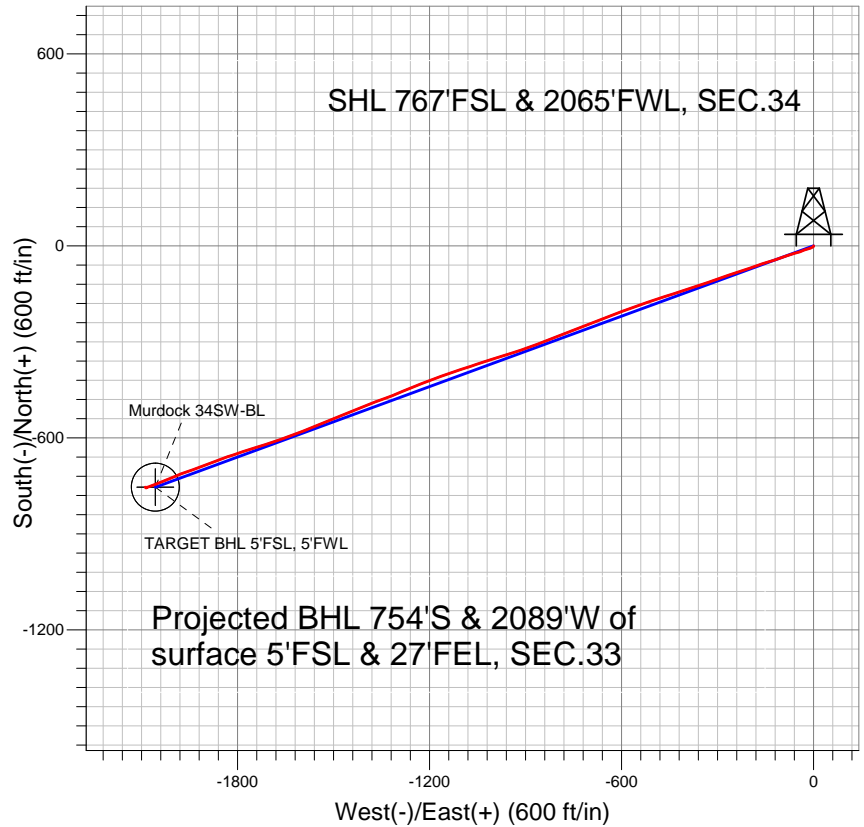
Latitude
40.351320

Longitude
-104.995020

Slot

Original Well Elev WELL @ 5071.0ft (Original Well Elev)

Apollo Operating, LLC.



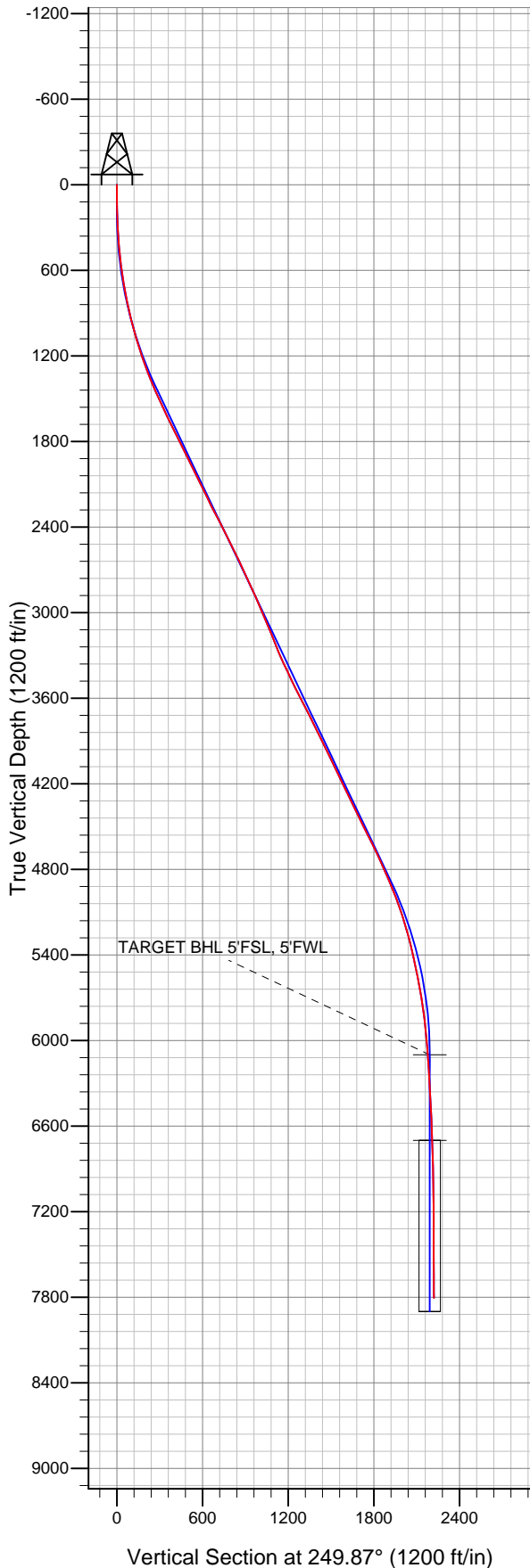
LEGEND

- Murdock 34SW-BL, Wellbore #1, Plan #1 (6-19-12) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8250'MD & 7805'TVD @ 2221'VS
0.6 deg Inc 310.7 deg AZ

Project: SEC.34-T5N-68W
Site: Murdock 34SW-BL Pad Sec.34-T5N-R68W
Well: Murdock 34SW-BL
Plan: Wellbore #1





Directional

Apollo Operating, LLC.

SEC.34-T5N-68W

Murdock 34SW-BL Pad Sec.34-T5N-R68W

Murdock 34SW-BL

Wellbore #1

Survey: Survey #1

Standard Survey Report

29 October, 2012

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well Murdock 34SW-BL
Project:	SEC.34-T5N-68W	TVD Reference:	WELL @ 5071.0ft (Original Well Elev)
Site:	Murdock 34SW-BL Pad Sec.34-T5N-R68W	MD Reference:	WELL @ 5071.0ft (Original Well Elev)
Well:	Murdock 34SW-BL	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.34-T5N-68W		
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		Murdock 34SW-BL Pad Sec.34-T5N-R68W			
Site Position:		Northing:	1,371,227.26ft	Latitude:	40.351320
From:	Lat/Long	Easting:	3,140,742.39ft	Longitude:	-104.995020
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.33 °

Well	Murdock 34SW-BL					
Well Position	+N/-S	0.0 ft	Northing:	1,371,227.25 ft	Latitude:	40.351320
	+E/-W	0.0 ft	Easting:	3,140,742.39 ft	Longitude:	-104.995020
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,058.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/18/2012	8.80	66.93	52,938

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	249.87	

Survey Program	Date	10/29/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
109.0	8,250.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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	
109.0	0.60	175.00	109.0	-0.6	0.0	0.1	0.55	0.55	0.00	
230.0	1.90	224.90	230.0	-2.6	-1.3	2.1	1.31	1.07	41.24	
358.0	4.00	247.70	357.8	-5.8	-6.9	8.5	1.85	1.64	17.81	
485.0	6.00	253.40	484.3	-9.4	-17.4	19.6	1.62	1.57	4.49	
567.0	7.50	250.40	565.7	-12.4	-26.5	29.2	1.88	1.83	-3.66	
648.0	7.90	248.40	646.0	-16.2	-36.7	40.1	0.59	0.49	-2.47	
776.0	10.90	255.10	772.3	-22.6	-56.6	60.9	2.49	2.34	5.23	
904.0	13.50	250.50	897.4	-30.7	-82.4	87.9	2.17	2.03	-3.59	
1,032.0	15.70	252.00	1,021.2	-41.0	-112.9	120.1	1.74	1.72	1.17	
1,161.0	17.40	252.00	1,144.9	-52.4	-147.9	156.9	1.32	1.32	0.00	
1,289.0	19.60	250.70	1,266.3	-65.4	-186.3	197.5	1.75	1.72	-1.02	
1,417.0	22.60	252.80	1,385.7	-79.8	-230.1	243.5	2.42	2.34	1.64	

Company:	Apollo Operating, LLC.	Local Co-ordinate Reference:	Well Murdock 34SW-BL
Project:	SEC.34-T5N-68W	TVD Reference:	WELL @ 5071.0ft (Original Well Elev)
Site:	Murdock 34SW-BL Pad Sec.34-T5N-R68W	MD Reference:	WELL @ 5071.0ft (Original Well Elev)
Well:	Murdock 34SW-BL	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)	
1,545.0	24.60	249.80	1,503.0	-96.2	-278.6	294.7	1.82	1.56	-2.34	
1,674.0	25.80	251.30	1,619.7	-114.5	-330.4	349.6	1.05	0.93	1.16	
1,802.0	26.30	252.00	1,734.7	-132.2	-383.8	405.8	0.46	0.39	0.55	
1,930.0	26.50	251.80	1,849.3	-149.9	-437.9	462.7	0.17	0.16	-0.16	
2,058.0	26.20	251.60	1,964.0	-167.7	-491.8	519.5	0.24	-0.23	-0.16	
2,187.0	26.30	251.30	2,079.7	-185.9	-545.9	576.5	0.13	0.08	-0.23	
2,315.0	25.90	249.30	2,194.7	-204.9	-598.9	632.8	0.76	-0.31	-1.56	
2,443.0	27.70	249.50	2,308.9	-225.2	-652.9	690.5	1.41	1.41	0.16	
2,571.0	27.20	248.40	2,422.5	-246.3	-708.0	749.5	0.56	-0.39	-0.86	
2,700.0	25.90	247.70	2,537.9	-267.9	-761.5	807.1	1.04	-1.01	-0.54	
2,828.0	25.50	248.40	2,653.3	-288.6	-813.0	862.6	0.39	-0.31	0.55	
2,956.0	24.60	249.80	2,769.2	-308.0	-863.6	916.8	0.84	-0.70	1.09	
3,084.0	23.90	251.40	2,885.9	-325.5	-913.2	969.4	0.75	-0.55	1.25	
3,213.0	23.00	252.70	3,004.3	-341.3	-962.0	1,020.7	0.80	-0.70	1.01	
3,341.0	22.10	253.00	3,122.5	-355.8	-1,008.9	1,069.7	0.71	-0.70	0.23	
3,469.0	21.90	250.70	3,241.2	-370.7	-1,054.4	1,117.6	0.69	-0.16	-1.80	
3,597.0	24.80	252.50	3,358.7	-386.7	-1,102.6	1,168.3	2.33	2.27	1.41	
3,726.0	25.90	250.50	3,475.2	-404.2	-1,154.9	1,223.5	1.08	0.85	-1.55	
3,854.0	27.20	248.40	3,589.7	-424.3	-1,208.5	1,280.7	1.25	1.02	-1.64	
3,982.0	26.90	247.60	3,703.7	-446.1	-1,262.5	1,338.9	0.37	-0.23	-0.63	
4,110.0	26.70	248.10	3,818.0	-467.9	-1,315.9	1,396.6	0.24	-0.16	0.39	
4,239.0	25.50	250.90	3,933.8	-487.8	-1,369.1	1,453.3	1.33	-0.93	2.17	
4,367.0	25.50	247.70	4,049.4	-507.2	-1,420.6	1,508.4	1.08	0.00	-2.50	
4,495.0	26.10	246.50	4,164.6	-528.9	-1,471.9	1,564.0	0.62	0.47	-0.94	
4,623.0	25.80	247.40	4,279.7	-550.8	-1,523.4	1,620.0	0.39	-0.23	0.70	
4,752.0	25.70	249.50	4,395.9	-571.4	-1,575.6	1,676.0	0.71	-0.08	1.63	
4,880.0	26.30	249.30	4,510.9	-591.2	-1,628.1	1,732.1	0.47	0.47	-0.16	
5,009.0	27.20	251.60	4,626.1	-610.6	-1,682.8	1,790.1	1.06	0.70	1.78	
5,137.0	24.40	252.00	4,741.4	-628.0	-1,735.7	1,845.8	2.19	-2.19	0.31	
5,265.0	23.30	252.00	4,858.4	-644.0	-1,784.9	1,897.5	0.86	-0.86	0.00	
5,394.0	21.10	250.90	4,977.9	-659.5	-1,831.1	1,946.2	1.74	-1.71	-0.85	
5,522.0	18.60	249.30	5,098.3	-674.2	-1,872.0	1,989.7	2.00	-1.95	-1.25	
5,651.0	16.10	249.10	5,221.4	-687.9	-1,908.0	2,028.2	1.94	-1.94	-0.16	
5,779.0	13.30	250.50	5,345.2	-699.1	-1,938.4	2,060.6	2.20	-2.19	1.09	
5,907.0	11.80	251.40	5,470.1	-708.2	-1,964.7	2,088.4	1.18	-1.17	0.70	
6,036.0	11.10	246.90	5,596.6	-717.3	-1,988.6	2,114.0	0.88	-0.54	-3.49	
6,164.0	8.90	247.40	5,722.6	-725.9	-2,009.1	2,136.2	1.72	-1.72	0.39	
6,293.0	6.80	247.20	5,850.4	-732.7	-2,025.4	2,153.8	1.63	-1.63	-0.16	
6,421.0	5.40	248.80	5,977.7	-737.8	-2,038.0	2,167.4	1.10	-1.09	1.25	
6,544.9	4.24	250.62	6,101.1	-741.5	-2,047.7	2,177.8	0.95	-0.94	1.47	
TARGET BHL 5'FSL, 5'FWL										
6,549.0	4.20	250.70	6,105.2	-741.6	-2,048.0	2,178.1	0.95	-0.94	1.89	
6,678.0	3.40	245.80	6,233.9	-744.7	-2,056.0	2,186.7	0.67	-0.62	-3.80	
6,806.0	2.80	248.10	6,361.7	-747.4	-2,062.3	2,193.6	0.48	-0.47	1.80	
6,935.0	2.40	248.80	6,490.6	-749.6	-2,067.8	2,199.4	0.31	-0.31	0.54	
7,063.0	2.30	252.80	6,618.5	-751.3	-2,072.7	2,204.7	0.15	-0.08	3.13	
7,144.0	1.98	250.39	6,699.4	-752.3	-2,075.6	2,207.7	0.41	-0.39	-2.98	
TARGET CIRCLE 5'FSL, 5'FWL										
7,191.0	1.80	248.60	6,746.4	-752.8	-2,077.1	2,209.2	0.41	-0.39	-3.80	
7,320.0	1.80	256.40	6,875.3	-754.0	-2,080.9	2,213.3	0.19	0.00	6.05	
7,448.0	1.10	263.90	7,003.3	-754.6	-2,084.1	2,216.5	0.57	-0.55	5.86	
7,577.0	0.40	215.00	7,132.3	-755.1	-2,085.6	2,218.0	0.69	-0.54	-37.91	
7,705.0	0.40	174.60	7,260.3	-755.9	-2,085.8	2,218.5	0.22	0.00	-31.56	
7,833.0	0.10	33.50	7,388.3	-756.3	-2,085.7	2,218.6	0.38	-0.23	-110.23	

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Well:	Murdock 34SW-BL	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)	
7,962.0	0.50	294.50	7,517.3	-756.0	-2,086.1	2,218.9	0.41	0.31	-76.74	
8,090.0	0.60	302.60	7,645.3	-755.4	-2,087.2	2,219.7	0.10	0.08	6.33	
8,205.0	0.60	310.70	7,760.3	-754.6	-2,088.2	2,220.3	0.07	0.00	7.04	
8,250.0	0.60	310.70	7,805.3	-754.3	-2,088.5	2,220.6	0.00	0.00	0.00	

Checked By: _____ Approved By: _____ Date: _____