

Well Name: **Hudco 39-18**

Surface Location: Hudco 9-18 Pad Sec.18-T2N-R65W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

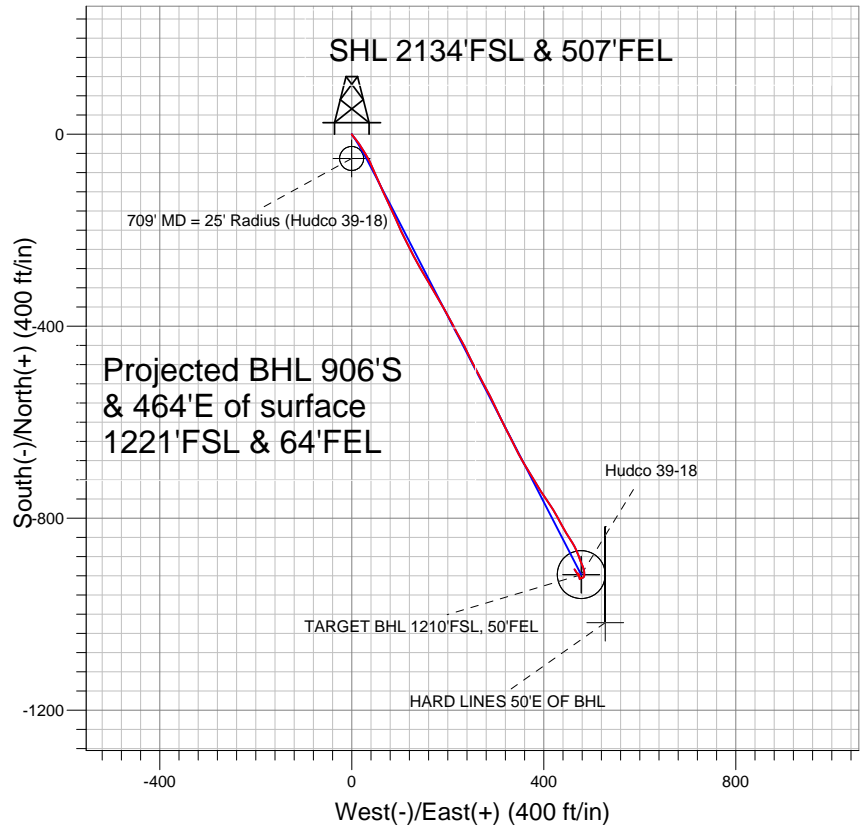
Ground Elevation: 4981.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1293832.37	3223915.29	40.137188	-104.699119

Original Well Elev WELL @ 4995.0ft (Original Well Elev)

Slot

Anadarko, Weld County CO



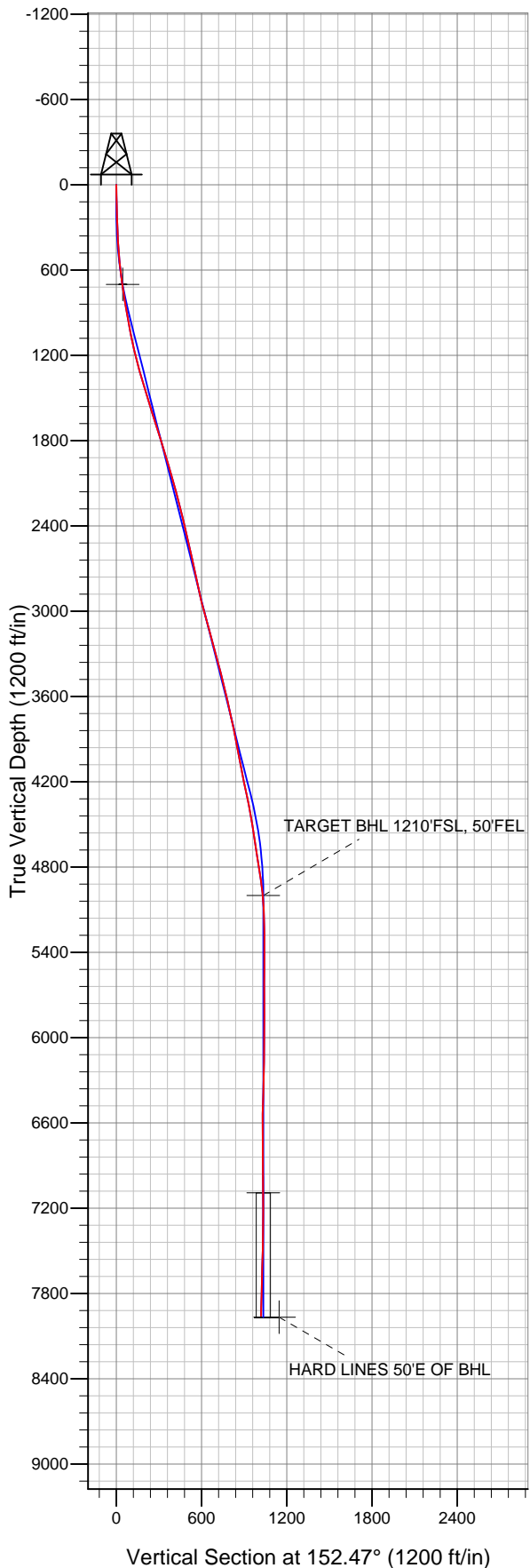
LEGEND

- △ Hudco 39-18, Wellbore #1, Plan #1 (3-15-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 8079'MD & 7958'TVD @ 1018'VS
 1.5 deg Inc 328.5 deg AZ

Project: SEC.18-T2N-R65W
 Site: Hudco 9-18 Pad Sec.18-T2N-R65W
 Well: Hudco 39-18
 Plan: Wellbore #1





Directional

Anadarko, Weld County CO

SEC.18-T2N-R65W

Hudco 9-18 Pad Sec.18-T2N-R65W

Hudco 39-18

Wellbore #1

Survey: Survey #1

Standard Survey Report

01 August, 2011

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Hudco 39-18
Project:	SEC.18-T2N-R65W	TVD Reference:	WELL @ 4995.0ft (Original Well Elev)
Site:	Hudco 9-18 Pad Sec.18-T2N-R65W	MD Reference:	WELL @ 4995.0ft (Original Well Elev)
Well:	Hudco 39-18	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.18-T2N-R65W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Hudco 9-18 Pad Sec.18-T2N-R65W				
Site Position:		Northing:	1,293,849.26ft	Latitude:	40.137235
From:	Lat/Long	Easting:	3,223,888.30ft	Longitude:	-104.699215
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.52 °

Well	Hudco 39-18					
Well Position	+N/-S	0.0 ft	Northing:	1,293,832.37 ft	Latitude:	40.137188
	+E/-W	0.0 ft	Easting:	3,223,915.29 ft	Longitude:	-104.699119
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,981.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/15/2011	8.84	66.86	53,026

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	152.47	

Survey Program	Date	8/1/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
144.0	8,079.0	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	
144.0	1.30	143.90	144.0	-1.3	1.0	1.6	0.90	0.90	0.00	
233.0	2.00	149.50	233.0	-3.5	2.3	4.2	0.81	0.79	6.29	
324.0	2.70	135.80	323.9	-6.4	4.6	7.8	0.98	0.77	-15.05	
415.0	3.60	143.10	414.7	-10.2	7.9	12.7	1.08	0.99	8.02	
507.0	4.90	142.70	506.5	-15.6	12.0	19.4	1.41	1.41	-0.43	
599.0	6.70	145.60	598.0	-23.2	17.4	28.6	1.98	1.96	3.15	
691.0	7.60	148.00	689.3	-32.8	23.6	40.0	1.03	0.98	2.61	
702.0	7.77	148.35	700.2	-34.0	24.4	41.5	1.57	1.51	3.14	
709' MD = 25' Radius (Hudco 39-18)										
783.0	9.00	150.50	780.3	-44.2	30.4	53.3	1.57	1.52	2.66	
875.0	10.00	153.80	871.1	-57.6	37.5	68.4	1.24	1.09	3.59	
915.0	10.20	154.90	910.4	-64.0	40.5	75.4	0.69	0.50	2.75	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Hudco 39-18
Project:	SEC.18-T2N-R65W	TVD Reference:	WELL @ 4995.0ft (Original Well Elev)
Site:	Hudco 9-18 Pad Sec.18-T2N-R65W	MD Reference:	WELL @ 4995.0ft (Original Well Elev)
Well:	Hudco 39-18	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)
976.0	10.40	154.50	970.5	-73.8	45.2	86.3	0.35	0.33	-0.66
1,071.0	11.60	157.30	1,063.7	-90.4	52.6	104.4	1.38	1.26	2.95
1,166.0	12.50	156.10	1,156.6	-108.6	60.4	124.2	0.98	0.95	-1.26
1,262.0	14.40	154.70	1,250.0	-128.9	69.7	146.5	2.01	1.98	-1.46
1,356.0	16.20	155.40	1,340.6	-151.4	80.2	171.3	1.92	1.91	0.74
1,452.0	17.10	156.00	1,432.6	-176.4	91.5	198.7	0.95	0.94	0.63
1,547.0	17.40	155.00	1,523.3	-202.1	103.2	226.9	0.44	0.32	-1.05
1,642.0	17.50	153.10	1,614.0	-227.7	115.6	255.3	0.61	0.11	-2.00
1,737.0	17.80	152.30	1,704.5	-253.3	128.8	284.1	0.41	0.32	-0.84
1,832.0	17.00	150.70	1,795.2	-278.2	142.4	312.6	0.98	-0.84	-1.68
1,928.0	17.50	148.70	1,886.8	-302.8	156.8	341.0	0.81	0.52	-2.08
2,023.0	15.80	148.90	1,977.9	-326.1	170.9	368.1	1.79	-1.79	0.21
2,118.0	16.40	151.50	2,069.1	-349.0	183.9	394.5	0.99	0.63	2.74
2,213.0	15.30	149.90	2,160.5	-371.6	196.6	420.4	1.25	-1.16	-1.68
2,309.0	14.20	152.90	2,253.4	-393.0	208.3	444.8	1.39	-1.15	3.13
2,405.0	13.30	151.30	2,346.6	-413.2	219.0	467.6	1.02	-0.94	-1.67
2,501.0	13.10	150.30	2,440.1	-432.3	229.7	489.5	0.32	-0.21	-1.04
2,596.0	13.20	154.80	2,532.6	-451.5	239.7	511.1	1.08	0.11	4.74
2,691.0	12.40	154.00	2,625.2	-470.5	248.7	532.2	0.86	-0.84	-0.84
2,786.0	11.60	152.50	2,718.1	-488.1	257.6	551.9	0.90	-0.84	-1.58
2,882.0	12.40	151.50	2,812.0	-505.7	267.0	571.9	0.86	0.83	-1.04
2,977.0	13.00	151.20	2,904.7	-524.1	277.0	592.8	0.64	0.63	-0.32
3,072.0	15.10	153.80	2,996.9	-544.5	287.6	615.8	2.31	2.21	2.74
3,167.0	15.90	154.50	3,088.4	-567.4	298.7	641.2	0.86	0.84	0.74
3,262.0	15.40	154.30	3,179.9	-590.5	309.8	666.8	0.53	-0.53	-0.21
3,358.0	14.70	153.20	3,272.6	-612.9	320.8	691.7	0.79	-0.73	-1.15
3,453.0	14.50	152.60	3,364.5	-634.2	331.7	715.7	0.26	-0.21	-0.63
3,548.0	14.80	154.40	3,456.4	-655.7	342.4	739.7	0.57	0.32	1.89
3,643.0	13.80	150.20	3,548.5	-676.4	353.3	763.1	1.52	-1.05	-4.42
3,738.0	12.70	147.30	3,641.0	-695.1	364.6	784.9	1.35	-1.16	-3.05
3,833.0	12.20	149.60	3,733.7	-712.5	375.3	805.3	0.74	-0.53	2.42
3,928.0	11.60	149.70	3,826.7	-729.4	385.2	824.9	0.63	-0.63	0.11
4,023.0	10.80	146.40	3,919.9	-745.1	394.9	843.3	1.08	-0.84	-3.47
4,119.0	10.60	145.90	4,014.2	-759.9	404.9	861.0	0.23	-0.21	-0.52
4,214.0	11.30	145.70	4,107.5	-774.8	415.0	878.9	0.74	0.74	-0.21
4,309.0	11.80	151.20	4,200.6	-791.0	424.9	897.8	1.27	0.53	5.79
4,404.0	12.70	151.80	4,293.4	-808.7	434.5	918.0	0.96	0.95	0.63
4,499.0	10.30	150.30	4,386.5	-825.3	443.7	936.9	2.55	-2.53	-1.58
4,594.0	9.10	146.20	4,480.1	-838.9	452.1	952.9	1.46	-1.26	-4.32
4,689.0	9.50	149.70	4,573.9	-851.9	460.2	968.2	0.73	0.42	3.68
4,785.0	8.50	153.90	4,668.7	-865.2	467.3	983.2	1.25	-1.04	4.38
4,880.0	8.70	159.00	4,762.6	-878.2	473.0	997.3	0.83	0.21	5.37
4,975.0	9.10	160.20	4,856.5	-891.9	478.1	1,011.9	0.46	0.42	1.26
5,070.0	6.70	161.50	4,950.6	-904.3	482.4	1,024.8	2.53	-2.53	1.37
5,120.3	5.36	166.93	5,000.6	-909.3	483.9	1,030.0	2.90	-2.67	10.79
TARGET BHL 1210'FSL, 50'FEL									
5,166.0	4.20	174.80	5,046.1	-913.1	484.5	1,033.6	2.90	-2.53	17.22
5,260.0	3.10	192.80	5,140.0	-919.0	484.3	1,038.8	1.68	-1.17	19.15
5,355.0	0.90	218.60	5,234.9	-922.1	483.2	1,041.0	2.45	-2.32	27.16
5,450.0	0.50	217.80	5,329.9	-923.0	482.5	1,041.5	0.42	-0.42	-0.84
5,545.0	1.70	250.10	5,424.9	-923.8	480.9	1,041.5	1.37	1.26	34.00
5,641.0	0.60	285.50	5,520.8	-924.1	479.1	1,040.9	1.31	-1.15	36.88
5,736.0	0.60	252.40	5,615.8	-924.2	478.1	1,040.5	0.36	0.00	-34.84
5,831.0	0.80	239.50	5,710.8	-924.6	477.1	1,040.5	0.27	0.21	-13.58

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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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)
5,926.0	0.70	226.00	5,805.8	-925.4	476.1	1,040.7	0.21	-0.11	-14.21
6,021.0	0.50	223.60	5,900.8	-926.1	475.4	1,041.0	0.21	-0.21	-2.53
6,116.0	0.10	220.80	5,995.8	-926.5	475.1	1,041.1	0.42	-0.42	-2.95
6,211.0	0.70	353.00	6,090.8	-925.9	474.9	1,040.6	0.81	0.63	139.16
6,307.0	1.00	344.80	6,186.8	-924.5	474.6	1,039.2	0.34	0.31	-8.54
6,402.0	1.40	344.20	6,281.8	-922.6	474.1	1,037.3	0.42	0.42	-0.63
6,497.0	2.00	340.20	6,376.7	-920.0	473.2	1,034.5	0.64	0.63	-4.21
6,592.0	2.20	345.00	6,471.7	-916.6	472.2	1,031.1	0.28	0.21	5.05
6,687.0	0.30	221.80	6,566.7	-915.1	471.6	1,029.4	2.50	-2.00	-129.68
6,782.0	0.40	173.10	6,661.7	-915.6	471.4	1,029.8	0.32	0.11	-51.26
6,878.0	0.50	134.90	6,757.6	-916.2	471.8	1,030.5	0.32	0.10	-39.79
6,973.0	0.40	171.50	6,852.6	-916.8	472.1	1,031.2	0.31	-0.11	38.53
7,068.0	0.60	159.60	6,947.6	-917.6	472.3	1,032.0	0.24	0.21	-12.53
7,163.0	0.50	180.70	7,042.6	-918.5	472.5	1,032.9	0.24	-0.11	22.21
7,211.4	0.40	176.98	7,091.0	-918.9	472.5	1,033.2	0.22	-0.21	-7.69
TARGET CIRCLE 1210'FLS & 50'FEL									
7,258.0	0.30	171.00	7,137.6	-919.2	472.5	1,033.5	0.22	-0.21	-12.83
7,353.0	0.30	220.00	7,232.6	-919.6	472.4	1,033.8	0.26	0.00	51.58
7,449.0	0.80	327.40	7,328.6	-919.2	471.9	1,033.3	0.97	0.52	111.88
7,544.0	1.00	338.20	7,423.6	-917.9	471.2	1,031.8	0.28	0.21	11.37
7,639.0	1.30	331.40	7,518.6	-916.2	470.4	1,029.9	0.35	0.32	-7.16
7,734.0	1.50	331.10	7,613.6	-914.1	469.3	1,027.5	0.21	0.21	-0.32
7,829.0	1.80	324.50	7,708.5	-911.8	467.8	1,024.8	0.37	0.32	-6.95
7,924.0	1.60	326.30	7,803.5	-909.5	466.2	1,022.0	0.22	-0.21	1.89
8,020.0	1.40	321.60	7,899.5	-907.5	464.8	1,019.5	0.24	-0.21	-4.90
8,079.0	1.50	328.50	7,958.4	-906.3	463.9	1,018.1	0.34	0.17	11.69
HARD LINES 50'E OF BHL									

Checked By: _____ Approved By: _____ Date: _____