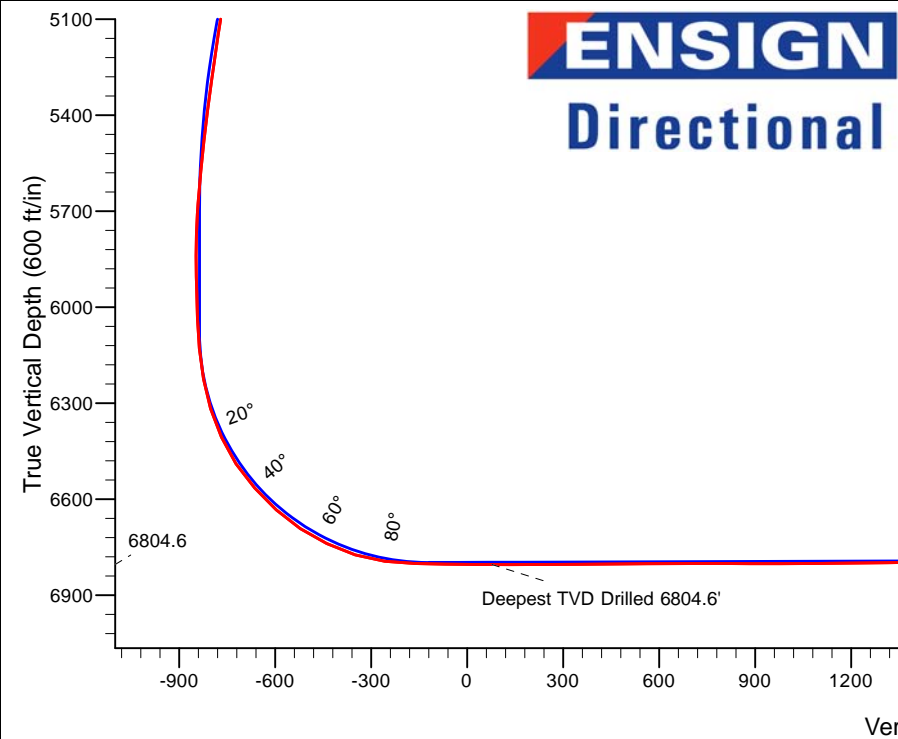
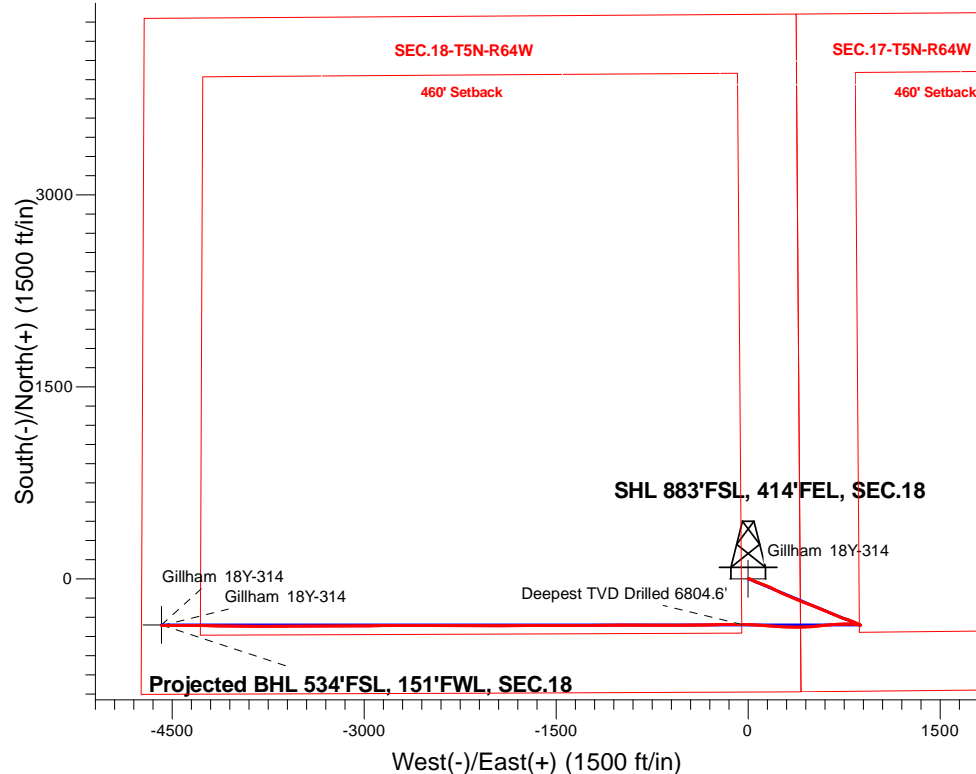


PDC Energy Inc. DJ Basin

Well Name: **Gillham 18Y-314**
 Surface Location: Gillham 5N64W18XY Pad Sec.18-T5N-R64W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4625.0
 +N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1387807.463254886.38 40.394323 -104.584883
 Ensign Rig #158 - RKB - 23'WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')

FINAL SURVEY

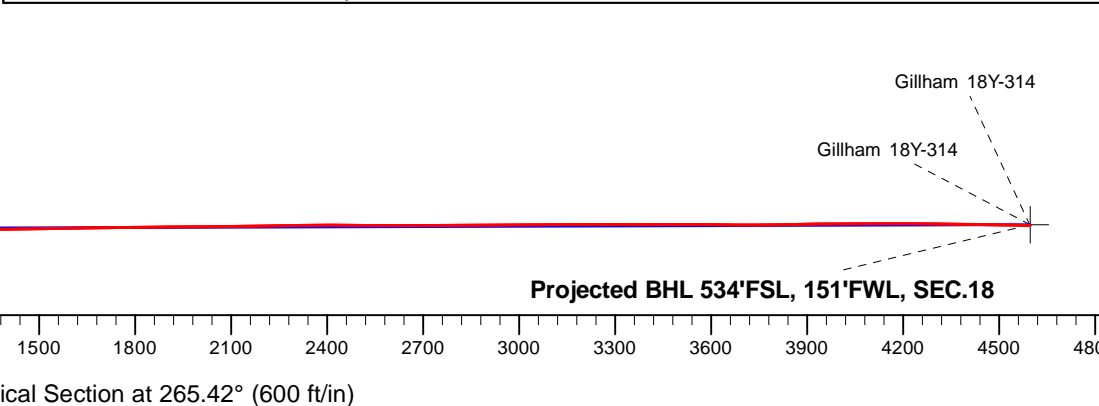
Projected Bottom Hole Location
12,052'MD 6786'TVD 367'S & 4582'W of SHL
89.0 degree Incl @ 269.2 degree AZM



Gillham 5N64W18XY Pad Sec.18-T5N-R64W
 Gillham 18Y-314
 Gillham 18Y-314 Wellbore #1
 14:21, June 06 2017

ANNOTATIONS		
TVD	MD	Annotation
6804.6	7518.1	Deepest TVD Drilled 6804.6'

LEGEND	
	Gillham 18Y-314, Gillham 18Y-314 Wellbore #1, Plan #1 (5-31-17)R V0
	Gillham 18Y-314 Wellbore #1
	Survey #1





PDC Energy Inc. DJ Basin

SEC.18-T5N-R64W

Gillham 5N64W18XY Pad Sec.18-T5N-R64W

Gillham 18Y-314

Gillham 18Y-314 Wellbore #1

Survey: Survey #1

Standard Survey Report

06 June, 2017



Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Gillham 18Y-314
Project:	SEC.18-T5N-R64W	TVD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Site:	Gillham 5N64W18XY Pad Sec.18-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Well:	Gillham 18Y-314	North Reference:	True
Wellbore:	Gillham 18Y-314 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Gillham 18Y-314 Wellbore #1	Database:	US_EDM

Project	SEC.18-T5N-R64W, 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	Gillham 5N64W18XY Pad Sec.18-T5N-R64W				
Site Position:		Northing:	1,387,807.30 usft	Latitude:	40.394325
From:	Lat/Long	Easting:	3,254,796.41 usft	Longitude:	-104.585206
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.59 °

Well	Gillham 18Y-314					
Well Position	+N/-S	0.0 ft	Northing:	1,387,807.46 usft	Latitude:	40.394323
	+E/-W	0.0 ft	Easting:	3,254,886.38 usft	Longitude:	-104.584883
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,625.0 ft

Wellbore	Gillham 18Y-314 Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/31/2017	7.96	66.87	52,521

Design	Gillham 18Y-314 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	265.42	

Survey Program	Date	6/6/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
157.0	12,052.0	Survey #1 (Gillham 18Y-314 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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
157.0	0.40	82.70	157.0	0.1	0.5	-0.5	0.25	0.25	0.00	
253.0	0.40	66.80	253.0	0.2	1.2	-1.2	0.12	0.00	-16.56	
348.0	0.20	95.00	348.0	0.4	1.7	-1.7	0.26	-0.21	29.68	
444.0	0.50	44.50	444.0	0.6	2.1	-2.2	0.42	0.31	-52.60	
539.0	0.40	75.10	539.0	1.0	2.7	-2.8	0.27	-0.11	32.21	
635.0	0.40	117.80	635.0	1.0	3.3	-3.4	0.30	0.00	44.48	
730.0	0.40	80.40	730.0	0.9	4.0	-4.0	0.27	0.00	-39.37	
827.0	1.50	116.20	827.0	0.4	5.4	-5.4	1.24	1.13	36.91	
922.0	3.80	108.70	921.9	-1.2	9.5	-9.4	2.44	2.42	-7.89	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Gillham 18Y-314
Project:	SEC.18-T5N-R64W	TVD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Site:	Gillham 5N64W18XY Pad Sec.18-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Well:	Gillham 18Y-314	North Reference:	True
Wellbore:	Gillham 18Y-314 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Gillham 18Y-314 Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,017.0	5.50	111.80	1,016.5	-3.9	16.7	-16.4	1.81	1.79	3.26	
1,113.0	7.20	111.10	1,112.0	-7.8	26.6	-25.9	1.77	1.77	-0.73	
1,209.0	8.60	115.40	1,207.0	-13.0	38.7	-37.6	1.58	1.46	4.48	
1,305.0	10.60	116.20	1,301.7	-20.0	53.1	-51.4	2.09	2.08	0.83	
1,401.0	11.90	115.20	1,395.8	-28.1	70.0	-67.5	1.37	1.35	-1.04	
1,497.0	10.00	113.60	1,490.1	-35.7	86.6	-83.5	2.00	-1.98	-1.67	
1,615.0	9.80	108.90	1,606.3	-43.0	105.5	-101.7	0.71	-0.17	-3.98	
1,690.0	9.00	103.40	1,680.3	-46.5	117.2	-113.2	1.60	-1.07	-7.33	
1,786.0	10.30	108.00	1,775.0	-50.8	132.7	-128.2	1.57	1.35	4.79	
1,882.0	11.30	111.00	1,869.3	-56.9	149.7	-144.6	1.19	1.04	3.13	
1,976.0	12.00	114.30	1,961.3	-64.2	167.2	-161.5	1.03	0.74	3.51	
2,072.0	13.20	118.90	2,055.0	-73.6	185.9	-179.4	1.63	1.25	4.79	
2,168.0	12.70	119.00	2,148.6	-84.0	204.7	-197.3	0.52	-0.52	0.10	
2,264.0	11.90	117.80	2,242.4	-93.7	222.7	-214.5	0.87	-0.83	-1.25	
2,359.0	12.80	114.30	2,335.2	-102.6	240.9	-232.0	1.23	0.95	-3.68	
2,455.0	12.60	112.50	2,428.8	-111.0	260.3	-250.6	0.46	-0.21	-1.88	
2,550.0	12.20	112.70	2,521.6	-118.9	279.1	-268.7	0.42	-0.42	0.21	
2,646.0	13.70	114.00	2,615.2	-127.4	298.9	-287.7	1.59	1.56	1.35	
2,741.0	13.80	114.10	2,707.5	-136.6	319.5	-307.6	0.11	0.11	0.11	
2,836.0	12.80	114.10	2,799.9	-145.5	339.4	-326.7	1.05	-1.05	0.00	
2,932.0	12.60	112.40	2,893.6	-153.9	358.8	-345.4	0.44	-0.21	-1.77	
3,028.0	13.90	113.10	2,987.0	-162.4	379.1	-364.9	1.36	1.35	0.73	
3,124.0	12.60	112.40	3,080.4	-170.9	399.4	-384.5	1.36	-1.35	-0.73	
3,220.0	11.30	109.90	3,174.4	-178.1	417.9	-402.4	1.46	-1.35	-2.60	
3,316.0	11.50	110.40	3,268.5	-184.6	435.7	-419.6	0.23	0.21	0.52	
3,412.0	12.00	112.00	3,362.5	-191.7	454.0	-437.2	0.62	0.52	1.67	
3,509.0	10.60	108.90	3,457.6	-198.4	471.8	-454.4	1.57	-1.44	-3.20	
3,604.0	11.70	111.70	3,550.8	-204.7	489.0	-471.1	1.29	1.16	2.95	
3,701.0	13.50	114.10	3,645.4	-213.0	508.4	-489.8	1.93	1.86	2.47	
3,797.0	13.50	113.30	3,738.8	-222.0	529.0	-509.6	0.19	0.00	-0.83	
3,892.0	13.50	112.90	3,831.2	-230.7	549.4	-529.2	0.10	0.00	-0.42	
3,989.0	13.20	112.20	3,925.5	-239.3	570.0	-549.1	0.35	-0.31	-0.72	
4,085.0	12.00	110.60	4,019.2	-247.0	589.5	-568.0	1.30	-1.25	-1.67	
4,181.0	13.40	112.00	4,112.9	-254.6	609.2	-586.9	1.49	1.46	1.46	
4,277.0	12.00	110.30	4,206.5	-262.3	628.9	-605.9	1.51	-1.46	-1.77	
4,373.0	13.30	114.30	4,300.2	-270.3	648.3	-624.7	1.63	1.35	4.17	
4,468.0	12.40	113.10	4,392.8	-278.8	667.6	-643.3	0.99	-0.95	-1.26	
4,564.0	13.10	113.40	4,486.4	-287.1	687.1	-662.0	0.73	0.73	0.31	
4,660.0	11.60	111.00	4,580.2	-294.9	706.1	-680.3	1.65	-1.56	-2.50	
4,756.0	12.00	113.60	4,674.2	-302.4	724.3	-697.8	0.69	0.42	2.71	
4,852.0	10.60	110.80	4,768.3	-309.5	741.7	-714.6	1.57	-1.46	-2.92	
4,948.0	9.90	105.30	4,862.8	-314.8	757.9	-730.3	1.25	-0.73	-5.73	
5,045.0	10.50	104.10	4,958.3	-319.2	774.5	-746.5	0.66	0.62	-1.24	
5,141.0	10.60	112.60	5,052.6	-324.7	791.1	-762.7	1.62	0.10	8.85	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Gillham 18Y-314
Project:	SEC.18-T5N-R64W	TVD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Site:	Gillham 5N64W18XY Pad Sec.18-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Well:	Gillham 18Y-314	North Reference:	True
Wellbore:	Gillham 18Y-314 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Gillham 18Y-314 Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,237.0	9.20	110.10	5,147.2	-330.7	806.5	-777.5	1.53	-1.46	-2.60	
5,333.0	9.20	109.70	5,242.0	-336.0	820.9	-791.5	0.07	0.00	-0.42	
5,429.0	8.40	116.10	5,336.9	-341.6	834.4	-804.5	1.32	-0.83	6.67	
5,526.0	8.40	121.50	5,432.8	-348.4	846.8	-816.3	0.81	0.00	5.57	
5,622.0	7.60	116.80	5,527.9	-355.0	858.5	-827.4	1.08	-0.83	-4.90	
5,718.0	5.20	116.40	5,623.3	-359.8	868.0	-836.6	2.50	-2.50	-0.42	
5,746.0	5.10	116.20	5,651.2	-360.9	870.3	-838.7	0.36	-0.36	-0.71	
5,842.0	2.80	84.60	5,746.9	-362.5	876.5	-844.7	3.21	-2.40	-32.92	
5,938.0	0.60	310.70	5,842.9	-362.0	878.4	-846.7	3.38	-2.29	-139.48	
6,034.0	1.60	284.10	5,938.9	-361.3	876.7	-845.1	1.14	1.04	-27.71	
6,129.0	1.50	296.20	6,033.9	-360.5	874.3	-842.8	0.36	-0.11	12.74	
6,225.0	6.20	279.70	6,129.6	-359.0	868.1	-836.7	4.98	4.90	-17.19	
6,321.0	9.70	273.90	6,224.7	-357.6	854.9	-823.7	3.74	3.65	-6.04	
6,416.0	17.40	273.40	6,317.0	-356.2	832.7	-801.6	8.11	8.11	-0.53	
6,512.0	24.20	275.00	6,406.7	-353.7	798.7	-768.0	7.11	7.08	1.67	
6,607.0	33.60	268.50	6,489.7	-352.6	753.0	-722.4	10.42	9.89	-6.84	
6,703.0	41.90	266.20	6,565.6	-355.5	694.3	-663.7	8.77	8.65	-2.40	
6,799.0	47.70	264.80	6,633.7	-360.8	626.9	-596.1	6.13	6.04	-1.46	
6,894.0	56.60	264.20	6,691.9	-368.0	552.3	-521.2	9.38	9.37	-0.63	
6,989.0	64.20	265.70	6,738.8	-375.2	470.1	-438.7	8.12	8.00	1.58	
7,085.0	72.70	270.60	6,774.1	-378.0	381.0	-349.6	10.04	8.85	5.10	
7,180.0	82.80	271.60	6,794.2	-376.2	288.3	-257.3	10.68	10.63	1.05	
7,276.0	88.90	274.30	6,801.1	-371.3	192.7	-162.5	6.95	6.35	2.81	
7,371.0	88.90	274.40	6,803.0	-364.1	98.0	-68.6	0.11	0.00	0.11	
7,467.0	89.50	272.20	6,804.3	-358.6	2.2	26.4	2.38	0.63	-2.29	
7,518.1	89.82	270.75	6,804.6	-357.2	-48.9	77.3	2.91	0.63	-2.84	
Deepest TVD Drilled 6804.6'										
7,562.0	90.10	269.50	6,804.6	-357.1	-92.8	121.0	2.91	0.63	-2.84	
7,658.0	90.00	269.20	6,804.5	-358.2	-188.8	216.8	0.33	-0.10	-0.31	
7,753.0	90.60	268.50	6,804.0	-360.1	-283.8	311.6	0.97	0.63	-0.74	
7,848.0	90.60	269.90	6,803.1	-361.5	-378.8	406.4	1.47	0.00	1.47	
7,944.0	90.30	269.90	6,802.3	-361.6	-474.8	502.1	0.31	-0.31	0.00	
8,039.0	90.30	269.30	6,801.8	-362.3	-569.8	596.8	0.63	0.00	-0.63	
8,135.0	90.30	269.30	6,801.3	-363.5	-665.7	692.6	0.00	0.00	0.00	
8,231.0	89.80	270.40	6,801.2	-363.7	-761.7	788.3	1.26	-0.52	1.15	
8,327.0	89.50	270.20	6,801.8	-363.2	-857.7	884.0	0.38	-0.31	-0.21	
8,423.0	90.50	270.40	6,801.8	-362.7	-953.7	979.6	1.06	1.04	0.21	
8,518.0	90.20	269.20	6,801.2	-363.1	-1,048.7	1,074.4	1.30	-0.32	-1.26	
8,614.0	90.80	269.50	6,800.4	-364.1	-1,144.7	1,170.1	0.70	0.63	0.31	
8,709.0	90.60	269.30	6,799.2	-365.1	-1,239.7	1,264.9	0.30	-0.21	-0.21	
8,805.0	90.80	270.50	6,798.1	-365.3	-1,335.7	1,360.6	1.27	0.21	1.25	
8,900.0	90.80	270.00	6,796.7	-364.9	-1,430.7	1,455.2	0.53	0.00	-0.53	
8,996.0	91.10	269.90	6,795.1	-365.0	-1,526.7	1,550.9	0.33	0.31	-0.10	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Gillham 18Y-314
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Site:	Gillham 5N64W18XY Pad Sec.18-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Well:	Gillham 18Y-314	North Reference:	True
Wellbore:	Gillham 18Y-314 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Gillham 18Y-314 Wellbore #1	Database:	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,092.0	91.50	269.70	6,793.0	-365.3	-1,622.7	1,646.6	0.47	0.42	-0.21
9,187.0	90.20	270.20	6,791.5	-365.4	-1,717.6	1,741.3	1.47	-1.37	0.53
9,283.0	90.40	269.90	6,791.0	-365.3	-1,813.6	1,837.0	0.38	0.21	-0.31
9,379.0	90.50	269.30	6,790.3	-366.0	-1,909.6	1,932.7	0.63	0.10	-0.63
9,474.0	90.70	269.20	6,789.3	-367.2	-2,004.6	2,027.5	0.24	0.21	-0.11
9,570.0	90.70	269.90	6,788.1	-368.0	-2,100.6	2,123.3	0.73	0.00	0.73
9,666.0	91.00	269.50	6,786.7	-368.5	-2,196.6	2,219.0	0.52	0.31	-0.42
9,762.0	91.20	270.40	6,784.9	-368.6	-2,292.6	2,314.7	0.96	0.21	0.94
9,857.0	89.20	271.30	6,784.5	-367.2	-2,387.6	2,409.2	2.31	-2.11	0.95
9,953.0	90.00	270.60	6,785.2	-365.6	-2,483.5	2,504.8	1.11	0.83	-0.73
10,049.0	89.90	270.40	6,785.3	-364.7	-2,579.5	2,600.4	0.23	-0.10	-0.21
10,144.0	90.30	270.00	6,785.1	-364.4	-2,674.5	2,695.1	0.60	0.42	-0.42
10,240.0	89.40	269.20	6,785.4	-365.1	-2,770.5	2,790.8	1.25	-0.94	-0.83
10,336.0	90.60	269.30	6,785.4	-366.3	-2,866.5	2,886.6	1.25	1.25	0.10
10,431.0	90.90	269.20	6,784.1	-367.6	-2,961.5	2,981.4	0.33	0.32	-0.11
10,527.0	91.00	269.70	6,782.5	-368.5	-3,057.5	3,077.1	0.53	0.10	0.52
10,622.0	89.80	270.60	6,781.9	-368.2	-3,152.5	3,171.8	1.58	-1.26	0.95
10,718.0	89.60	270.20	6,782.4	-367.6	-3,248.5	3,267.5	0.47	-0.21	-0.42
10,814.0	89.90	269.30	6,782.8	-368.0	-3,344.5	3,363.2	0.99	0.31	-0.94
10,909.0	90.70	269.30	6,782.3	-369.1	-3,439.5	3,458.0	0.84	0.84	0.00
11,005.0	89.50	269.00	6,782.1	-370.6	-3,535.5	3,553.8	1.29	-1.25	-0.31
11,101.0	88.90	269.00	6,783.5	-372.2	-3,631.4	3,649.6	0.63	-0.63	0.00
11,197.0	90.50	270.40	6,784.0	-372.7	-3,727.4	3,745.3	2.21	1.67	1.46
11,292.0	91.20	270.00	6,782.6	-372.4	-3,822.4	3,839.9	0.85	0.74	-0.42
11,388.0	90.50	271.30	6,781.1	-371.3	-3,918.4	3,935.5	1.54	-0.73	1.35
11,483.0	90.40	271.10	6,780.4	-369.3	-4,013.4	4,030.0	0.24	-0.11	-0.21
11,578.0	90.70	270.60	6,779.5	-367.9	-4,108.4	4,124.6	0.61	0.32	-0.53
11,674.0	89.30	270.90	6,779.5	-366.7	-4,204.3	4,220.2	1.49	-1.46	0.31
11,770.0	89.20	270.60	6,780.7	-365.4	-4,300.3	4,315.8	0.33	-0.10	-0.31
11,865.0	88.90	269.90	6,782.3	-365.0	-4,395.3	4,410.4	0.80	-0.32	-0.74
11,997.0	89.00	269.20	6,784.7	-366.0	-4,527.3	4,542.1	0.54	0.08	-0.53
12,052.0	89.00	269.20	6,785.7	-366.8	-4,582.3	4,596.9	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 883'FSL, 414'FEL, : - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,387,807.50	3,254,886.38	40.394323	-104.584883
BHL 540'FSL, 150'FWL, - survey misses target center by 6.5ft at 12052.0ft MD (6785.7 TVD, -366.8 N, -4582.3 E) - Point	0.00	0.00	6,783.0	-360.9	-4,583.0	1,387,399.26	3,250,307.57	40.393331	-104.601336

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Gillham 18Y-314
Project:	SEC.18-T5N-R64W	TVD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Site:	Gillham 5N64W18XY Pad Sec.18-T5N-R64W	MD Reference:	WELL @ 4648.0ft (Ensign Rig #158 - RKB - 23')
Well:	Gillham 18Y-314	North Reference:	True
Wellbore:	Gillham 18Y-314 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Gillham 18Y-314 Wellbore #1	Database:	US_EDM

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,518.1	6,804.6	-357.2	-48.9	Deepest TVD Drilled 6804.6'

Checked By: _____ Approved By: _____ Date: _____