

PDC ENERGY

**WELD COUNTY, COLORADO
SW NW SEC. 10 T5N R64W 6th P.M.
WACKER 10F-234**

ORIGINAL WELLBORE

03 February, 2016

Plan: PROPOSAL #1



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WACKER 10F-234
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4624.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4624.0usft (Original Well Elev)
Site:	SW NW SEC. 10 T5N R64W 6th P.M.	North Reference:	True
Well:	WACKER 10F-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Project	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

Site	SW NW SEC. 10 T5N R64W 6th P.M.		
Site Position:		Northing:	1,395,629.17 usft
From:	Lat/Long	Easting:	3,266,123.73 usft
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft
		Latitude:	40.415467
		Longitude:	-104.544238
		Grid Convergence:	0.62 °

Well	WACKER 10F-234		
Well Position	+N/-S	-44.8 usft	Northing:
	+E/-W	-0.3 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	03/02/2016	8.24	66.94	52,581

Design	PROPOSAL #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,635.0	0.0	0.0	272.34

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	-4,624.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	-3,324.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,899.9	12.00	41.19	1,895.6	-2,728.4	47.1	41.2	2.00	2.00	0.00	41.19	
3,473.0	12.00	41.19	3,434.2	-1,189.8	293.2	256.6	0.00	0.00	0.00	0.00	
4,072.9	0.00	0.00	4,029.8	-594.2	340.3	297.8	2.00	-2.00	0.00	180.00	
5,971.9	0.00	0.00	5,928.8	1,304.8	340.3	297.8	0.00	0.00	0.00	0.00	KOP - WACKER 1C
7,097.8	90.07	270.00	6,645.0	2,021.0	340.3	-419.3	8.00	8.00	-7.99	270.00	LANDING PNT *NE
14,995.1	90.07	270.00	6,635.0	2,011.0	340.3	-8,316.6	0.00	0.00	0.00	0.00	BHL *NEW* - WAC

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Well:	WACKER 10F-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 2062ft FNL & 397ft FWL of Sec 10										
0.0	0.00	0.00	0.0	4,624.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,524.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,424.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,324.00	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,224.00	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	4,124.00	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	4,024.00	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	3,924.00	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	3,824.00	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	3,724.00	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	3,624.00	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	3,524.00	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	3,424.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
1,300.0	0.00	0.00	1,300.0	3,324.00	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	2.00	41.19	1,400.0	3,224.02	1.3	1.1	-1.1	2.00	2.00	0.00
1,500.0	4.00	41.19	1,499.8	3,124.16	5.3	4.6	-4.4	2.00	2.00	0.00
1,600.0	6.00	41.19	1,599.5	3,024.55	11.8	10.3	-9.8	2.00	2.00	0.00
1,700.0	8.00	41.19	1,698.7	2,925.30	21.0	18.4	-17.5	2.00	2.00	0.00
1,800.0	10.00	41.19	1,797.5	2,826.53	32.8	28.7	-27.3	2.00	2.00	0.00
EOB TO 12° INC										
1,899.9	12.00	41.19	1,895.6	2,728.43	47.1	41.2	-39.3	2.00	2.00	0.00
1,900.0	12.00	41.19	1,895.6	2,728.38	47.1	41.2	-39.3	0.00	0.00	0.00
2,000.0	12.00	41.19	1,993.4	2,630.56	62.8	54.9	-52.3	0.00	0.00	0.00
2,100.0	12.00	41.19	2,091.3	2,532.75	78.4	68.6	-65.3	0.00	0.00	0.00
2,200.0	12.00	41.19	2,189.1	2,434.93	94.0	82.3	-78.4	0.00	0.00	0.00
2,300.0	12.00	41.19	2,286.9	2,337.12	109.7	96.0	-91.4	0.00	0.00	0.00
2,400.0	12.00	41.19	2,384.7	2,239.30	125.3	109.7	-104.5	0.00	0.00	0.00
2,500.0	12.00	41.19	2,482.5	2,141.49	141.0	123.4	-117.5	0.00	0.00	0.00
2,600.0	12.00	41.19	2,580.3	2,043.67	156.6	137.1	-130.5	0.00	0.00	0.00
2,700.0	12.00	41.19	2,678.1	1,945.86	172.3	150.8	-143.6	0.00	0.00	0.00
2,800.0	12.00	41.19	2,776.0	1,848.04	187.9	164.4	-156.6	0.00	0.00	0.00
2,900.0	12.00	41.19	2,873.8	1,750.23	203.6	178.1	-169.7	0.00	0.00	0.00
3,000.0	12.00	41.19	2,971.6	1,652.41	219.2	191.8	-182.7	0.00	0.00	0.00
3,100.0	12.00	41.19	3,069.4	1,554.60	234.8	205.5	-195.7	0.00	0.00	0.00
3,200.0	12.00	41.19	3,167.2	1,456.78	250.5	219.2	-208.8	0.00	0.00	0.00
3,300.0	12.00	41.19	3,265.0	1,358.96	266.1	232.9	-221.8	0.00	0.00	0.00
3,400.0	12.00	41.19	3,362.9	1,261.15	281.8	246.6	-234.9	0.00	0.00	0.00
PARKMAN SANDSTONE										
3,468.6	12.00	41.19	3,430.0	1,194.00	292.5	256.0	-243.8	0.00	0.00	0.00
END OF TANGENT										
3,473.0	12.00	41.19	3,434.2	1,189.77	293.2	256.6	-244.4	0.00	0.00	0.00
3,500.0	11.46	41.19	3,460.7	1,163.31	297.3	260.2	-247.8	2.00	-2.00	0.00
3,600.0	9.46	41.19	3,559.0	1,064.97	311.0	272.2	-259.2	2.00	-2.00	0.00
3,700.0	7.46	41.19	3,657.9	966.07	322.1	281.8	-268.4	2.00	-2.00	0.00
3,800.0	5.46	41.19	3,757.3	866.71	330.5	289.2	-275.5	2.00	-2.00	0.00
3,900.0	3.46	41.19	3,857.0	767.01	336.4	294.4	-280.4	2.00	-2.00	0.00
4,000.0	1.46	41.19	3,956.9	667.11	339.6	297.2	-283.1	2.00	-2.00	0.00
EOD TO VERTICAL										
4,072.9	0.00	0.00	4,029.8	594.20	340.3	297.8	-283.6	2.00	-2.00	0.00
4,100.0	0.00	0.00	4,056.9	567.12	340.3	297.8	-283.6	0.00	0.00	0.00
4,200.0	0.00	0.00	4,156.9	467.12	340.3	297.8	-283.6	0.00	0.00	0.00

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Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SUSSEX SANDSTONE										
4,283.1	0.00	0.00	4,240.0	384.00	340.3	297.8	-283.6	0.00	0.00	0.00
4,300.0	0.00	0.00	4,256.9	367.12	340.3	297.8	-283.6	0.00	0.00	0.00
4,400.0	0.00	0.00	4,356.9	267.12	340.3	297.8	-283.6	0.00	0.00	0.00
4,500.0	0.00	0.00	4,456.9	167.12	340.3	297.8	-283.6	0.00	0.00	0.00
4,600.0	0.00	0.00	4,556.9	67.12	340.3	297.8	-283.6	0.00	0.00	0.00
4,700.0	0.00	0.00	4,656.9	-32.88	340.3	297.8	-283.6	0.00	0.00	0.00
4,800.0	0.00	0.00	4,756.9	-132.88	340.3	297.8	-283.6	0.00	0.00	0.00
4,900.0	0.00	0.00	4,856.9	-232.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,000.0	0.00	0.00	4,956.9	-332.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,100.0	0.00	0.00	5,056.9	-432.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,200.0	0.00	0.00	5,156.9	-532.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,300.0	0.00	0.00	5,256.9	-632.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,400.0	0.00	0.00	5,356.9	-732.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,500.0	0.00	0.00	5,456.9	-832.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,600.0	0.00	0.00	5,556.9	-932.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,700.0	0.00	0.00	5,656.9	-1,032.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,756.9	-1,132.88	340.3	297.8	-283.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,856.9	-1,232.88	340.3	297.8	-283.6	0.00	0.00	0.00
KOP (8°/100ft BUR)										
5,971.9	0.00	0.00	5,928.8	-1,304.80	340.3	297.8	-283.6	0.00	0.00	0.00
6,000.0	2.25	270.00	5,956.9	-1,332.87	340.3	297.2	-283.1	8.00	8.00	0.00
6,100.0	10.25	270.00	6,056.2	-1,432.20	340.3	286.4	-272.2	8.00	8.00	0.00
6,200.0	18.25	270.00	6,153.0	-1,529.04	340.3	261.8	-247.7	8.00	8.00	0.00
6,300.0	26.25	270.00	6,245.5	-1,621.53	340.3	224.0	-209.9	8.00	8.00	0.00
6,400.0	34.25	270.00	6,331.8	-1,707.84	340.3	173.6	-159.6	8.00	8.00	0.00
6,500.0	42.25	270.00	6,410.3	-1,786.31	340.3	111.8	-97.8	8.00	8.00	0.00
SHARON SPRINGS										
6,527.1	44.41	270.00	6,430.0	-1,806.00	340.3	93.2	-79.2	8.00	8.00	0.00
6,600.0	50.25	270.00	6,479.4	-1,855.41	340.3	39.6	-25.7	8.00	8.00	0.00
NIORARA A										
6,633.1	52.90	270.00	6,500.0	-1,876.00	340.3	13.7	0.3	8.00	8.00	0.00
6,700.0	58.25	270.00	6,537.8	-1,913.80	340.3	-41.5	55.4	8.00	8.00	0.00
6,800.0	66.25	270.00	6,584.3	-1,960.33	340.3	-129.9	143.7	8.00	8.00	0.00
NIORARA B										
6,841.7	69.58	270.00	6,600.0	-1,976.00	340.3	-168.5	182.3	8.00	8.00	0.00
6,900.0	74.25	270.00	6,618.1	-1,994.10	340.3	-223.9	237.7	8.00	8.00	0.00
7,000.0	82.25	270.00	6,638.5	-2,014.45	340.3	-321.8	335.4	8.00	8.00	0.00
LANDING PNT *NEW*: 1720ft FNL & 20ft FEL of Sec 9										
7,097.8	90.07	270.00	6,645.0	-2,021.00	340.3	-419.3	432.9	8.00	8.00	0.00
7,100.0	90.07	270.00	6,645.0	-2,021.00	340.3	-421.5	435.0	0.00	0.00	0.00
7,200.0	90.07	270.00	6,644.9	-2,020.87	340.3	-521.5	535.0	0.00	0.00	0.00
7,300.0	90.07	270.00	6,644.7	-2,020.75	340.3	-621.5	634.9	0.00	0.00	0.00
7,400.0	90.07	270.00	6,644.6	-2,020.62	340.3	-721.5	734.8	0.00	0.00	0.00
7,500.0	90.07	270.00	6,644.5	-2,020.49	340.3	-821.5	834.7	0.00	0.00	0.00
7,600.0	90.07	270.00	6,644.4	-2,020.37	340.3	-921.5	934.6	0.00	0.00	0.00
7,700.0	90.07	270.00	6,644.2	-2,020.24	340.3	-1,021.5	1,034.5	0.00	0.00	0.00
7,800.0	90.07	270.00	6,644.1	-2,020.12	340.3	-1,121.5	1,134.5	0.00	0.00	0.00
7,900.0	90.07	270.00	6,644.0	-2,019.99	340.3	-1,221.5	1,234.4	0.00	0.00	0.00
8,000.0	90.07	270.00	6,643.9	-2,019.87	340.3	-1,321.5	1,334.3	0.00	0.00	0.00
8,100.0	90.07	270.00	6,643.7	-2,019.74	340.3	-1,421.5	1,434.2	0.00	0.00	0.00
8,200.0	90.07	270.00	6,643.6	-2,019.62	340.3	-1,521.5	1,534.1	0.00	0.00	0.00
8,300.0	90.07	270.00	6,643.5	-2,019.49	340.3	-1,621.5	1,634.0	0.00	0.00	0.00

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Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,400.0	90.07	270.00	6,643.4	-2,019.36	340.3	-1,721.5	1,733.9	0.00	0.00	0.00
8,500.0	90.07	270.00	6,643.2	-2,019.24	340.3	-1,821.5	1,833.9	0.00	0.00	0.00
8,600.0	90.07	270.00	6,643.1	-2,019.11	340.3	-1,921.5	1,933.8	0.00	0.00	0.00
8,700.0	90.07	270.00	6,643.0	-2,018.99	340.3	-2,021.5	2,033.7	0.00	0.00	0.00
8,800.0	90.07	270.00	6,642.9	-2,018.86	340.3	-2,121.5	2,133.6	0.00	0.00	0.00
8,900.0	90.07	270.00	6,642.7	-2,018.74	340.3	-2,221.5	2,233.5	0.00	0.00	0.00
9,000.0	90.07	270.00	6,642.6	-2,018.61	340.3	-2,321.5	2,333.4	0.00	0.00	0.00
9,100.0	90.07	270.00	6,642.5	-2,018.49	340.3	-2,421.5	2,433.4	0.00	0.00	0.00
9,200.0	90.07	270.00	6,642.4	-2,018.36	340.3	-2,521.5	2,533.3	0.00	0.00	0.00
9,300.0	90.07	270.00	6,642.2	-2,018.23	340.3	-2,621.5	2,633.2	0.00	0.00	0.00
9,400.0	90.07	270.00	6,642.1	-2,018.11	340.3	-2,721.5	2,733.1	0.00	0.00	0.00
9,500.0	90.07	270.00	6,642.0	-2,017.98	340.3	-2,821.5	2,833.0	0.00	0.00	0.00
9,600.0	90.07	270.00	6,641.9	-2,017.86	340.3	-2,921.5	2,932.9	0.00	0.00	0.00
9,700.0	90.07	270.00	6,641.7	-2,017.73	340.3	-3,021.5	3,032.9	0.00	0.00	0.00
9,800.0	90.07	270.00	6,641.6	-2,017.61	340.3	-3,121.5	3,132.8	0.00	0.00	0.00
9,900.0	90.07	270.00	6,641.5	-2,017.48	340.3	-3,221.5	3,232.7	0.00	0.00	0.00
10,000.0	90.07	270.00	6,641.4	-2,017.36	340.3	-3,321.5	3,332.6	0.00	0.00	0.00
10,100.0	90.07	270.00	6,641.2	-2,017.23	340.3	-3,421.5	3,432.5	0.00	0.00	0.00
10,200.0	90.07	270.00	6,641.1	-2,017.10	340.3	-3,521.5	3,532.4	0.00	0.00	0.00
10,300.0	90.07	270.00	6,641.0	-2,016.98	340.3	-3,621.5	3,632.4	0.00	0.00	0.00
10,400.0	90.07	270.00	6,640.9	-2,016.85	340.3	-3,721.5	3,732.3	0.00	0.00	0.00
10,500.0	90.07	270.00	6,640.7	-2,016.73	340.3	-3,821.5	3,832.2	0.00	0.00	0.00
10,600.0	90.07	270.00	6,640.6	-2,016.60	340.3	-3,921.5	3,932.1	0.00	0.00	0.00
10,700.0	90.07	270.00	6,640.5	-2,016.48	340.3	-4,021.5	4,032.0	0.00	0.00	0.00
10,800.0	90.07	270.00	6,640.4	-2,016.35	340.3	-4,121.5	4,131.9	0.00	0.00	0.00
10,900.0	90.07	270.00	6,640.2	-2,016.23	340.3	-4,221.5	4,231.9	0.00	0.00	0.00
11,000.0	90.07	270.00	6,640.1	-2,016.10	340.3	-4,321.5	4,331.8	0.00	0.00	0.00
11,100.0	90.07	270.00	6,640.0	-2,015.97	340.3	-4,421.5	4,431.7	0.00	0.00	0.00
11,200.0	90.07	270.00	6,639.8	-2,015.85	340.3	-4,521.5	4,531.6	0.00	0.00	0.00
11,300.0	90.07	270.00	6,639.7	-2,015.72	340.3	-4,621.5	4,631.5	0.00	0.00	0.00
11,400.0	90.07	270.00	6,639.6	-2,015.60	340.3	-4,721.5	4,731.4	0.00	0.00	0.00
11,500.0	90.07	270.00	6,639.5	-2,015.47	340.3	-4,821.5	4,831.4	0.00	0.00	0.00
11,600.0	90.07	270.00	6,639.3	-2,015.35	340.3	-4,921.5	4,931.3	0.00	0.00	0.00
11,700.0	90.07	270.00	6,639.2	-2,015.22	340.3	-5,021.5	5,031.2	0.00	0.00	0.00
11,800.0	90.07	270.00	6,639.1	-2,015.09	340.3	-5,121.5	5,131.1	0.00	0.00	0.00
11,900.0	90.07	270.00	6,639.0	-2,014.97	340.3	-5,221.5	5,231.0	0.00	0.00	0.00
12,000.0	90.07	270.00	6,638.8	-2,014.84	340.3	-5,321.5	5,330.9	0.00	0.00	0.00
12,100.0	90.07	270.00	6,638.7	-2,014.72	340.3	-5,421.5	5,430.9	0.00	0.00	0.00
12,200.0	90.07	270.00	6,638.6	-2,014.59	340.3	-5,521.5	5,530.8	0.00	0.00	0.00
12,300.0	90.07	270.00	6,638.5	-2,014.47	340.3	-5,621.5	5,630.7	0.00	0.00	0.00
12,400.0	90.07	270.00	6,638.3	-2,014.34	340.3	-5,721.5	5,730.6	0.00	0.00	0.00
12,500.0	90.07	270.00	6,638.2	-2,014.22	340.3	-5,821.5	5,830.5	0.00	0.00	0.00
12,600.0	90.07	270.00	6,638.1	-2,014.09	340.3	-5,921.5	5,930.4	0.00	0.00	0.00
12,700.0	90.07	270.00	6,638.0	-2,013.96	340.3	-6,021.5	6,030.3	0.00	0.00	0.00
12,800.0	90.07	270.00	6,637.8	-2,013.84	340.3	-6,121.5	6,130.3	0.00	0.00	0.00
12,900.0	90.07	270.00	6,637.7	-2,013.71	340.3	-6,221.5	6,230.2	0.00	0.00	0.00
13,000.0	90.07	270.00	6,637.6	-2,013.59	340.3	-6,321.5	6,330.1	0.00	0.00	0.00
13,100.0	90.07	270.00	6,637.5	-2,013.46	340.3	-6,421.5	6,430.0	0.00	0.00	0.00
13,200.0	90.07	270.00	6,637.3	-2,013.34	340.3	-6,521.5	6,529.9	0.00	0.00	0.00
13,300.0	90.07	270.00	6,637.2	-2,013.21	340.3	-6,621.5	6,629.8	0.00	0.00	0.00
13,400.0	90.07	270.00	6,637.1	-2,013.09	340.3	-6,721.5	6,729.8	0.00	0.00	0.00
13,500.0	90.07	270.00	6,637.0	-2,012.96	340.3	-6,821.5	6,829.7	0.00	0.00	0.00
13,600.0	90.07	270.00	6,636.8	-2,012.83	340.3	-6,921.5	6,929.6	0.00	0.00	0.00
13,700.0	90.07	270.00	6,636.7	-2,012.71	340.3	-7,021.5	7,029.5	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WACKER 10F-234
Company:	PDC ENERGY	TVD Reference:	KB-EST @ 4624.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB-EST @ 4624.0usft (Original Well Elev)
Site:	SW NW SEC. 10 T5N R64W 6th P.M.	North Reference:	True
Well:	WACKER 10F-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,800.0	90.07	270.00	6,636.6	-2,012.58	340.3	-7,121.5	7,129.4	0.00	0.00	0.00
13,900.0	90.07	270.00	6,636.5	-2,012.46	340.3	-7,221.5	7,229.3	0.00	0.00	0.00
14,000.0	90.07	270.00	6,636.3	-2,012.33	340.3	-7,321.5	7,329.3	0.00	0.00	0.00
14,100.0	90.07	270.00	6,636.2	-2,012.21	340.3	-7,421.5	7,429.2	0.00	0.00	0.00
14,200.0	90.07	270.00	6,636.1	-2,012.08	340.3	-7,521.5	7,529.1	0.00	0.00	0.00
14,300.0	90.07	270.00	6,636.0	-2,011.96	340.3	-7,621.5	7,629.0	0.00	0.00	0.00
14,400.0	90.07	270.00	6,635.8	-2,011.83	340.3	-7,721.5	7,728.9	0.00	0.00	0.00
14,500.0	90.07	270.00	6,635.7	-2,011.70	340.3	-7,821.5	7,828.8	0.00	0.00	0.00
14,600.0	90.07	270.00	6,635.6	-2,011.58	340.3	-7,921.5	7,928.8	0.00	0.00	0.00
14,700.0	90.07	270.00	6,635.5	-2,011.45	340.3	-8,021.5	8,028.7	0.00	0.00	0.00
14,800.0	90.07	270.00	6,635.3	-2,011.33	340.3	-8,121.5	8,128.6	0.00	0.00	0.00
14,900.0	90.07	270.00	6,635.2	-2,011.20	340.3	-8,221.5	8,228.5	0.00	0.00	0.00
BHL *NEW*: 1694.8ft FNL & 2645ft FWL of Sec 8										
14,995.1	90.07	270.00	6,635.0	-2,011.00	340.3	-8,316.6	8,323.6	0.00	0.00	0.00

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,468.6	3,430.0	PARKMAN SANDSTONE			
4,283.1	4,240.0	SUSSEX SANDSTONE			
6,527.1	6,430.0	SHARON SPRINGS			
6,633.1	6,500.0	NIOBRARA A			
6,841.7	6,600.0	NIOBRARA B			

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 2062ft FNL & 397ft FWL of Sec 10
1,300.0	1,300.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,899.9	1,895.6	47.1	41.2	EOB TO 12° INC
3,473.0	3,434.2	293.2	256.6	END OF TANGENT
4,072.9	4,029.8	340.3	297.8	EOD TO VERTICAL
5,971.9	5,928.8	340.3	297.8	KOP (8°/100ft BUR)
7,097.8	6,645.0	340.3	-419.3	LANDING PNT *NEW*: 1720ft FNL & 20ft FEL of Sec 9
14,995.1	6,635.0	340.3	-8,316.6	BHL *NEW*: 1694.8ft FNL & 2645ft FWL of Sec 8