



PDC Energy, Inc.

Weld Co., CO

Sec.29-T4N-R66W

Wiedeman 29K-243

Wellbore #1

Plan: Design #2

Standard Planning Report

17 August, 2014

Archer



PDC Energy, Inc.
Project: Weld Co., CO
Site: Sec.29-T4N-R66W
Well: Wiedeman 29K-243
Wellbore: Wellbore #1
Design: Design #2
Lat: 40° 16' 53.292 N
Long: 104° 48' 26.676 W
Pad GL: 4762.00
KB: WELL @ 4775.00usft (Original Well Elev)

Archer

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	Start 3682.77 hold at 1020.82 MD
1020.82	6.42	303.97	1020.15	10.03	-14.88	2.00	303.97	-10.03	Start Drop -2.00
4703.59	6.42	303.97	4679.85	239.97	-356.22	0.00	0.00	-239.97	Start 1344.99 hold at 5024.41 MD
5024.41	0.00	0.00	5000.00	250.00	-371.10	2.00	180.00	-250.00	Start Build 7.50
6369.40	0.00	0.00	6344.99	250.00	-371.10	0.00	0.00	-250.00	Start 3841.74 hold at 7578.13 MD
7578.13	90.65	180.00	7108.88	-522.67	-371.11	7.50	180.00	522.67	TD at 11419.86
11419.86	90.65	180.00	7065.00	-4364.16	-371.13	0.00	0.00	4364.16	

WELL DETAILS: Wiedeman 29K-243

+N/-S	+E/-W	Northing	Ground Level: Easting	4762.00 Latitude	Longitude	Slot
0.00	0.00	1346135.408	3193228.775	40° 16' 53.292 N	104° 48' 26.676 W	

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Wiedeman 29K-243	7065.00	-4364.16	-371.13	40° 16' 10.164 N	104° 48' 31.464 W	Point

CASING DETAILS

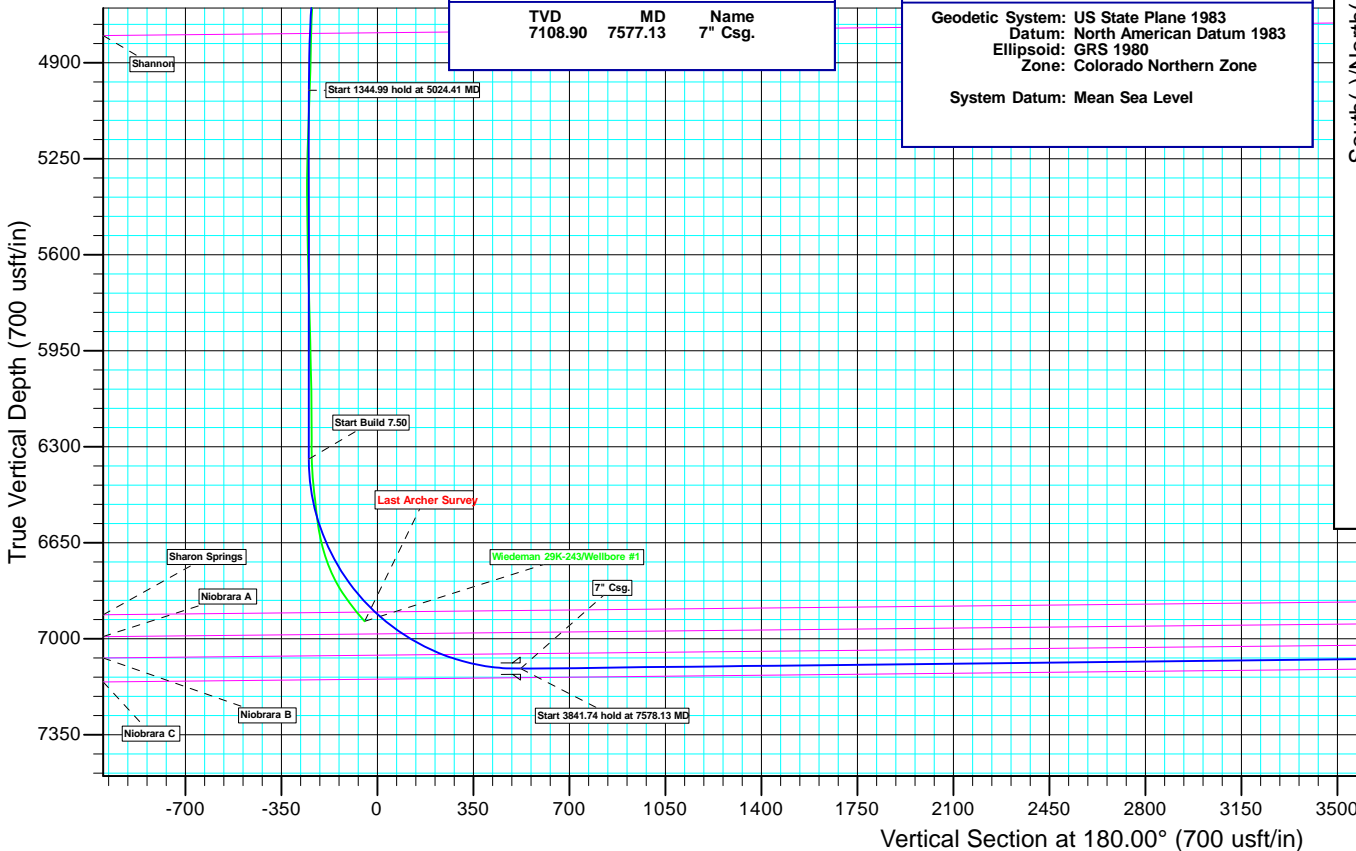
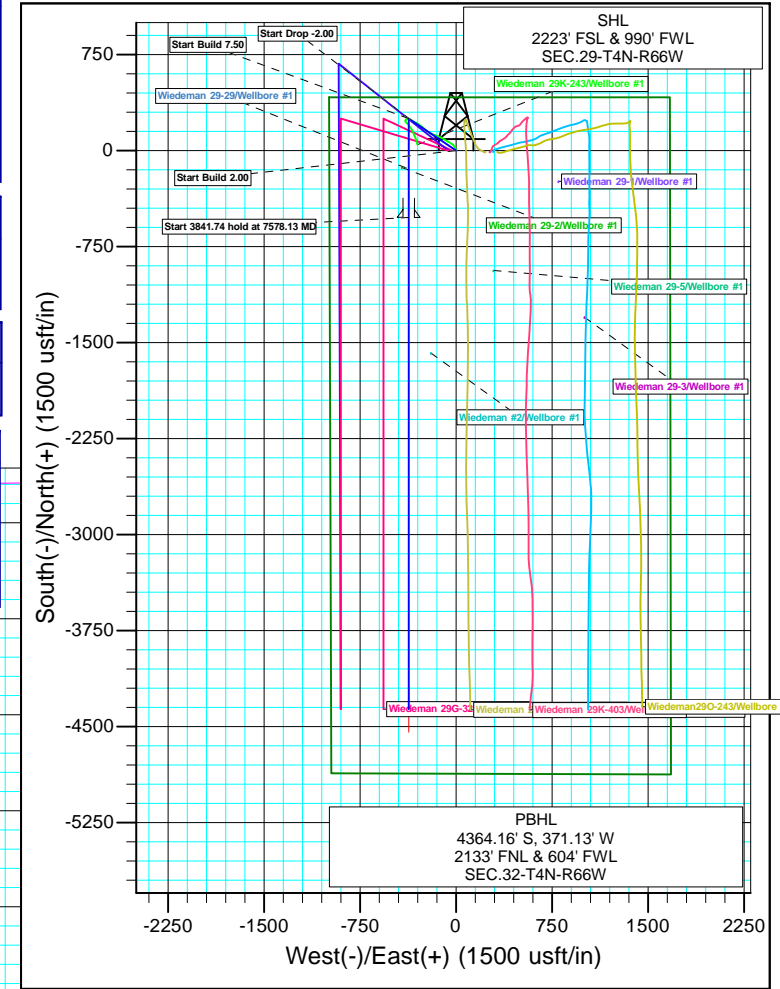
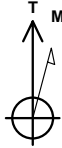
TVD	MD	Name
7108.90	7577.13	7" Csg.

PROJECT DETAILS: Weld Co., CO

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

Azimuths to True North
Magnetic North: 8.49°

Magnetic Field
Strength: 52760.4snT
Dip Angle: 66.85°
Date: 05/07/2014
Model: IGRF2010



Plan: Design #2 (Wiedeman 29K-243/Wellbore #1)

Created By: Ricky Osburn

Date: 12:07, August 17 2014

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Wiedeman 29K-243
Company:	PDC Energy, Inc.	TVD Reference:	WELL @ 4775.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site:	Sec.29-T4N-R66W	North Reference:	True
Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Project	Weld Co., CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec.29-T4N-R66W			
Site Position:		Northing:	1,346,134.937 usft	Latitude:	40° 16' 53.292 N
From:	Lat/Long	Easting:	3,193,167.398 usft	Longitude:	104° 48' 27.468 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well	Wiedeman 29K-243					
Well Position	+N/-S	-0.01 usft	Northing:	1,346,135.408 usft	Latitude:	40° 16' 53.292 N
	+E/-W	61.38 usft	Easting:	3,193,228.775 usft	Longitude:	104° 48' 26.676 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,762.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	05/07/14	8.49	66.85	52,760

Design	Design #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,020.82	6.42	303.97	1,020.15	10.03	-14.88	2.00	2.00	0.00	303.97	
4,703.59	6.42	303.97	4,679.85	239.97	-356.22	0.00	0.00	0.00	0.00	
5,024.41	0.00	0.00	5,000.00	250.00	-371.10	2.00	-2.00	0.00	180.00	
6,369.40	0.00	0.00	6,344.99	250.00	-371.10	0.00	0.00	0.00	0.00	
7,578.13	90.65	180.00	7,108.88	-522.67	-371.11	7.50	7.50	0.00	180.00	Wiedeman 29K-243
11,419.86	90.65	180.00	7,065.00	-4,364.16	-371.13	0.00	0.00	0.00	0.00	Wiedeman 29K-243

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Wiedeman 29K-243
Company:	PDC Energy, Inc.	TVD Reference:	WELL @ 4775.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site:	Sec.29-T4N-R66W	North Reference:	True
Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50.00	0.00	0.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
750.00	1.00	303.97	750.00	0.24	-0.36	-0.24	2.00	2.00	0.00
800.00	2.00	303.97	799.98	0.98	-1.45	-0.98	2.00	2.00	0.00
850.00	3.00	303.97	849.93	2.19	-3.26	-2.19	2.00	2.00	0.00
900.00	4.00	303.97	899.84	3.90	-5.79	-3.90	2.00	2.00	0.00
950.00	5.00	303.97	949.68	6.09	-9.04	-6.09	2.00	2.00	0.00
1,000.00	6.00	303.97	999.45	8.77	-13.02	-8.77	2.00	2.00	0.00
Start 3682.77 hold at 1020.82 MD									
1,020.82	6.42	303.97	1,020.15	10.03	-14.88	-10.03	2.00	2.00	0.00
1,050.00	6.42	303.97	1,049.15	11.85	-17.59	-11.85	0.00	0.00	0.00
1,100.00	6.42	303.97	1,098.83	14.97	-22.22	-14.97	0.00	0.00	0.00
1,150.00	6.42	303.97	1,148.52	18.09	-26.86	-18.09	0.00	0.00	0.00
1,200.00	6.42	303.97	1,198.21	21.21	-31.49	-21.21	0.00	0.00	0.00
1,250.00	6.42	303.97	1,247.89	24.34	-36.12	-24.34	0.00	0.00	0.00
1,300.00	6.42	303.97	1,297.58	27.46	-40.76	-27.46	0.00	0.00	0.00
1,350.00	6.42	303.97	1,347.27	30.58	-45.39	-30.58	0.00	0.00	0.00
1,400.00	6.42	303.97	1,396.95	33.70	-50.03	-33.70	0.00	0.00	0.00
1,450.00	6.42	303.97	1,446.64	36.82	-54.66	-36.82	0.00	0.00	0.00
1,500.00	6.42	303.97	1,496.33	39.95	-59.30	-39.95	0.00	0.00	0.00
1,550.00	6.42	303.97	1,546.02	43.07	-63.93	-43.07	0.00	0.00	0.00
1,600.00	6.42	303.97	1,595.70	46.19	-68.56	-46.19	0.00	0.00	0.00
1,650.00	6.42	303.97	1,645.39	49.31	-73.20	-49.31	0.00	0.00	0.00
1,700.00	6.42	303.97	1,695.08	52.43	-77.83	-52.43	0.00	0.00	0.00
1,750.00	6.42	303.97	1,744.76	55.56	-82.47	-55.56	0.00	0.00	0.00
1,800.00	6.42	303.97	1,794.45	58.68	-87.10	-58.68	0.00	0.00	0.00
1,850.00	6.42	303.97	1,844.14	61.80	-91.73	-61.80	0.00	0.00	0.00
1,900.00	6.42	303.97	1,893.82	64.92	-96.37	-64.92	0.00	0.00	0.00
1,950.00	6.42	303.97	1,943.51	68.04	-101.00	-68.04	0.00	0.00	0.00
2,000.00	6.42	303.97	1,993.20	71.17	-105.64	-71.17	0.00	0.00	0.00
2,050.00	6.42	303.97	2,042.88	74.29	-110.27	-74.29	0.00	0.00	0.00
2,100.00	6.42	303.97	2,092.57	77.41	-114.91	-77.41	0.00	0.00	0.00
2,150.00	6.42	303.97	2,142.26	80.53	-119.54	-80.53	0.00	0.00	0.00
2,200.00	6.42	303.97	2,191.94	83.65	-124.17	-83.65	0.00	0.00	0.00
2,250.00	6.42	303.97	2,241.63	86.77	-128.81	-86.77	0.00	0.00	0.00
2,300.00	6.42	303.97	2,291.32	89.90	-133.44	-89.90	0.00	0.00	0.00
2,350.00	6.42	303.97	2,341.00	93.02	-138.08	-93.02	0.00	0.00	0.00
2,400.00	6.42	303.97	2,390.69	96.14	-142.71	-96.14	0.00	0.00	0.00
2,450.00	6.42	303.97	2,440.38	99.26	-147.35	-99.26	0.00	0.00	0.00
2,500.00	6.42	303.97	2,490.06	102.38	-151.98	-102.38	0.00	0.00	0.00

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Wiedeman 29K-243
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Project:	Weld Co., CO	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site:	Sec.29-T4N-R66W	North Reference:	True
Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,550.00	6.42	303.97	2,539.75	105.51	-156.61	-105.51	0.00	0.00	0.00	
2,600.00	6.42	303.97	2,589.44	108.63	-161.25	-108.63	0.00	0.00	0.00	
2,650.00	6.42	303.97	2,639.12	111.75	-165.88	-111.75	0.00	0.00	0.00	
2,700.00	6.42	303.97	2,688.81	114.87	-170.52	-114.87	0.00	0.00	0.00	
2,750.00	6.42	303.97	2,738.50	117.99	-175.15	-117.99	0.00	0.00	0.00	
2,800.00	6.42	303.97	2,788.18	121.12	-179.78	-121.12	0.00	0.00	0.00	
2,850.00	6.42	303.97	2,837.87	124.24	-184.42	-124.24	0.00	0.00	0.00	
2,900.00	6.42	303.97	2,887.56	127.36	-189.05	-127.36	0.00	0.00	0.00	
2,950.00	6.42	303.97	2,937.25	130.48	-193.69	-130.48	0.00	0.00	0.00	
3,000.00	6.42	303.97	2,986.93	133.60	-198.32	-133.60	0.00	0.00	0.00	
3,050.00	6.42	303.97	3,036.62	136.73	-202.96	-136.73	0.00	0.00	0.00	
3,100.00	6.42	303.97	3,086.31	139.85	-207.59	-139.85	0.00	0.00	0.00	
3,150.00	6.42	303.97	3,135.99	142.97	-212.22	-142.97	0.00	0.00	0.00	
3,200.00	6.42	303.97	3,185.68	146.09	-216.86	-146.09	0.00	0.00	0.00	
3,250.00	6.42	303.97	3,235.37	149.21	-221.49	-149.21	0.00	0.00	0.00	
3,300.00	6.42	303.97	3,285.05	152.34	-226.13	-152.34	0.00	0.00	0.00	
3,350.00	6.42	303.97	3,334.74	155.46	-230.76	-155.46	0.00	0.00	0.00	
3,400.00	6.42	303.97	3,384.43	158.58	-235.40	-158.58	0.00	0.00	0.00	
3,450.00	6.42	303.97	3,434.11	161.70	-240.03	-161.70	0.00	0.00	0.00	
3,500.00	6.42	303.97	3,483.80	164.82	-244.66	-164.82	0.00	0.00	0.00	
3,550.00	6.42	303.97	3,533.49	167.95	-249.30	-167.95	0.00	0.00	0.00	
3,600.00	6.42	303.97	3,583.17	171.07	-253.93	-171.07	0.00	0.00	0.00	
3,650.00	6.42	303.97	3,632.86	174.19	-258.57	-174.19	0.00	0.00	0.00	
Parkman										
3,699.24	6.42	303.97	3,681.79	177.26	-263.13	-177.26	0.00	0.00	0.00	
3,700.00	6.42	303.97	3,682.55	177.31	-263.20	-177.31	0.00	0.00	0.00	
3,750.00	6.42	303.97	3,732.23	180.43	-267.83	-180.43	0.00	0.00	0.00	
3,800.00	6.42	303.97	3,781.92	183.55	-272.47	-183.55	0.00	0.00	0.00	
3,850.00	6.42	303.97	3,831.61	186.68	-277.10	-186.68	0.00	0.00	0.00	
3,900.00	6.42	303.97	3,881.29	189.80	-281.74	-189.80	0.00	0.00	0.00	
3,950.00	6.42	303.97	3,930.98	192.92	-286.37	-192.92	0.00	0.00	0.00	
4,000.00	6.42	303.97	3,980.67	196.04	-291.01	-196.04	0.00	0.00	0.00	
4,050.00	6.42	303.97	4,030.35	199.16	-295.64	-199.16	0.00	0.00	0.00	
4,100.00	6.42	303.97	4,080.04	202.29	-300.27	-202.29	0.00	0.00	0.00	
4,150.00	6.42	303.97	4,129.73	205.41	-304.91	-205.41	0.00	0.00	0.00	
4,200.00	6.42	303.97	4,179.42	208.53	-309.54	-208.53	0.00	0.00	0.00	
4,250.00	6.42	303.97	4,229.10	211.65	-314.18	-211.65	0.00	0.00	0.00	
4,300.00	6.42	303.97	4,278.79	214.77	-318.81	-214.77	0.00	0.00	0.00	
Sussex										
4,305.42	6.42	303.97	4,284.18	215.11	-319.31	-215.11	0.00	0.00	0.00	
4,350.00	6.42	303.97	4,328.48	217.90	-323.44	-217.90	0.00	0.00	0.00	
4,400.00	6.42	303.97	4,378.16	221.02	-328.08	-221.02	0.00	0.00	0.00	
4,450.00	6.42	303.97	4,427.85	224.14	-332.71	-224.14	0.00	0.00	0.00	
4,500.00	6.42	303.97	4,477.54	227.26	-337.35	-227.26	0.00	0.00	0.00	
4,550.00	6.42	303.97	4,527.22	230.38	-341.98	-230.38	0.00	0.00	0.00	
4,600.00	6.42	303.97	4,576.91	233.51	-346.62	-233.51	0.00	0.00	0.00	
4,650.00	6.42	303.97	4,626.60	236.63	-351.25	-236.63	0.00	0.00	0.00	
4,700.00	6.42	303.97	4,676.28	239.75	-355.88	-239.75	0.00	0.00	0.00	
Start Drop -2.00										
4,703.59	6.42	303.97	4,679.85	239.97	-356.22	-239.97	0.00	0.00	0.00	
4,750.00	5.49	303.97	4,726.01	242.66	-360.21	-242.66	2.00	-2.00	0.00	
4,800.00	4.49	303.97	4,775.82	245.09	-363.81	-245.09	2.00	-2.00	0.00	
Shannon										

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Wiedeman 29K-243
Company:	PDC Energy, Inc.	TVD Reference:	WELL @ 4775.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site:	Sec.29-T4N-R66W	North Reference:	True
Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,816.72	4.15	303.97	4,792.49	245.80	-364.86	-245.80	2.00	-2.00	0.00
4,850.00	3.49	303.97	4,825.70	247.03	-366.70	-247.03	2.00	-2.00	0.00
4,900.00	2.49	303.97	4,875.63	248.49	-368.86	-248.49	2.00	-2.00	0.00
4,950.00	1.49	303.97	4,925.60	249.46	-370.30	-249.46	2.00	-2.00	0.00
5,000.00	0.49	303.97	4,975.59	249.94	-371.01	-249.94	2.00	-2.00	0.00
Start 1344.99 hold at 5024.41 MD									
5,024.41	0.00	0.00	5,000.00	250.00	-371.10	-250.00	2.00	-2.00	0.00
5,050.00	0.00	0.00	5,025.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,075.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,150.00	0.00	0.00	5,125.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,175.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,250.00	0.00	0.00	5,225.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,275.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,350.00	0.00	0.00	5,325.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,375.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,450.00	0.00	0.00	5,425.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,475.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,550.00	0.00	0.00	5,525.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,575.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,650.00	0.00	0.00	5,625.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,675.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,750.00	0.00	0.00	5,725.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,775.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,850.00	0.00	0.00	5,825.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,875.59	250.00	-371.10	-250.00	0.00	0.00	0.00
5,950.00	0.00	0.00	5,925.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,975.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,050.00	0.00	0.00	6,025.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,075.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,150.00	0.00	0.00	6,125.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,175.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,250.00	0.00	0.00	6,225.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,275.59	250.00	-371.10	-250.00	0.00	0.00	0.00
6,350.00	0.00	0.00	6,325.59	250.00	-371.10	-250.00	0.00	0.00	0.00
Start Build 7.50									
6,369.40	0.00	0.00	6,344.99	250.00	-371.10	-250.00	0.00	0.00	0.00
6,400.00	2.30	180.00	6,375.58	249.39	-371.10	-249.39	7.50	7.50	0.00
6,450.00	6.05	180.00	6,425.44	245.75	-371.10	-245.75	7.50	7.50	0.00
6,500.00	9.80	180.00	6,474.96	238.86	-371.10	-238.86	7.50	7.50	0.00
6,550.00	13.55	180.00	6,523.91	228.75	-371.10	-228.75	7.50	7.50	0.00
6,600.00	17.30	180.00	6,572.10	215.46	-371.10	-215.46	7.50	7.50	0.00
6,650.00	21.05	180.00	6,619.32	199.04	-371.10	-199.04	7.50	7.50	0.00
6,700.00	24.80	180.00	6,665.37	179.58	-371.10	-179.58	7.50	7.50	0.00
6,750.00	28.55	180.00	6,710.04	157.14	-371.10	-157.14	7.50	7.50	0.00
6,800.00	32.30	180.00	6,753.15	131.82	-371.10	-131.82	7.50	7.50	0.00
6,850.00	36.05	180.00	6,794.51	103.75	-371.10	-103.75	7.50	7.50	0.00
6,900.00	39.80	180.00	6,833.95	73.02	-371.10	-73.02	7.50	7.50	0.00
6,950.00	43.55	180.00	6,871.29	39.79	-371.10	-39.79	7.50	7.50	0.00
Sharon Springs									
6,993.70	46.82	180.00	6,902.09	8.79	-371.10	-8.79	7.50	7.50	0.00
7,000.00	47.30	180.00	6,906.38	4.18	-371.10	-4.18	7.50	7.50	0.00
7,050.00	51.05	180.00	6,939.06	-33.64	-371.10	33.64	7.50	7.50	0.00
7,100.00	54.80	180.00	6,969.20	-73.53	-371.10	73.53	7.50	7.50	0.00

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Wiedeman 29K-243
Company:	PDC Energy, Inc.	TVD Reference:	WELL @ 4775.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site:	Sec.29-T4N-R66W	North Reference:	True
Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Niobrara A									
7,121.01	56.37	180.00	6,981.08	-90.86	-371.10	90.86	7.50	7.50	0.00
7,150.00	58.55	180.00	6,996.67	-115.30	-371.10	115.30	7.50	7.50	0.00
7,200.00	62.30	180.00	7,021.35	-158.77	-371.10	158.77	7.50	7.50	0.00
7,250.00	66.05	180.00	7,043.13	-203.77	-371.10	203.77	7.50	7.50	0.00
Niobrara B									
7,287.71	68.87	180.00	7,057.58	-238.59	-371.10	238.59	7.50	7.50	0.00
7,300.00	69.80	180.00	7,061.92	-250.09	-371.10	250.09	7.50	7.50	0.00
7,350.00	73.55	180.00	7,077.64	-297.55	-371.10	297.55	7.50	7.50	0.00
7,400.00	77.30	180.00	7,090.23	-345.93	-371.10	345.93	7.50	7.50	0.00
7,450.00	81.05	180.00	7,099.62	-395.03	-371.10	395.03	7.50	7.50	0.00
7,500.00	84.80	180.00	7,105.78	-444.64	-371.10	444.64	7.50	7.50	0.00
7,550.00	88.55	180.00	7,108.69	-494.55	-371.11	494.55	7.50	7.50	0.00
7" Csg.									
7,577.13	90.58	180.00	7,108.90	-521.67	-371.11	521.67	7.50	7.50	0.00
Start 3841.74 hold at 7578.13 MD									
7,578.13	90.65	180.00	7,108.88	-522.67	-371.11	522.67	7.50	7.50	0.00
7,600.00	90.65	180.00	7,108.63	-544.54	-371.11	544.54	0.00	0.00	0.00
7,650.00	90.65	180.00	7,108.06	-594.54	-371.11	594.54	0.00	0.00	0.00
7,700.00	90.65	180.00	7,107.49	-644.54	-371.11	644.54	0.00	0.00	0.00
7,750.00	90.65	180.00	7,106.92	-694.53	-371.11	694.53	0.00	0.00	0.00
7,800.00	90.65	180.00	7,106.35	-744.53	-371.11	744.53	0.00	0.00	0.00
7,850.00	90.65	180.00	7,105.78	-794.53	-371.11	794.53	0.00	0.00	0.00
7,900.00	90.65	180.00	7,105.21	-844.52	-371.11	844.52	0.00	0.00	0.00
7,950.00	90.65	180.00	7,104.64	-894.52	-371.11	894.52	0.00	0.00	0.00
8,000.00	90.65	180.00	7,104.07	-944.52	-371.11	944.52	0.00	0.00	0.00
8,050.00	90.65	180.00	7,103.49	-994.51	-371.11	994.51	0.00	0.00	0.00
8,100.00	90.65	180.00	7,102.92	-1,044.51	-371.11	1,044.51	0.00	0.00	0.00
8,150.00	90.65	180.00	7,102.35	-1,094.51	-371.11	1,094.51	0.00	0.00	0.00
8,200.00	90.65	180.00	7,101.78	-1,144.50	-371.11	1,144.50	0.00	0.00	0.00
8,250.00	90.65	180.00	7,101.21	-1,194.50	-371.11	1,194.50	0.00	0.00	0.00
8,300.00	90.65	180.00	7,100.64	-1,244.50	-371.11	1,244.50	0.00	0.00	0.00
8,350.00	90.65	180.00	7,100.07	-1,294.49	-371.11	1,294.49	0.00	0.00	0.00
8,400.00	90.65	180.00	7,099.50	-1,344.49	-371.11	1,344.49	0.00	0.00	0.00
8,450.00	90.65	180.00	7,098.93	-1,394.49	-371.11	1,394.49	0.00	0.00	0.00
8,500.00	90.65	180.00	7,098.35	-1,444.48	-371.11	1,444.48	0.00	0.00	0.00
8,550.00	90.65	180.00	7,097.78	-1,494.48	-371.11	1,494.48	0.00	0.00	0.00
8,600.00	90.65	180.00	7,097.21	-1,544.48	-371.11	1,544.48	0.00	0.00	0.00
8,650.00	90.65	180.00	7,096.64	-1,594.47	-371.11	1,594.47	0.00	0.00	0.00
8,700.00	90.65	180.00	7,096.07	-1,644.47	-371.11	1,644.47	0.00	0.00	0.00
8,750.00	90.65	180.00	7,095.50	-1,694.47	-371.11	1,694.47	0.00	0.00	0.00
8,800.00	90.65	180.00	7,094.93	-1,744.46	-371.11	1,744.46	0.00	0.00	0.00
8,850.00	90.65	180.00	7,094.36	-1,794.46	-371.11	1,794.46	0.00	0.00	0.00
8,900.00	90.65	180.00	7,093.79	-1,844.46	-371.11	1,844.46	0.00	0.00	0.00
8,950.00	90.65	180.00	7,093.21	-1,894.45	-371.11	1,894.45	0.00	0.00	0.00
9,000.00	90.65	180.00	7,092.64	-1,944.45	-371.12	1,944.45	0.00	0.00	0.00
9,050.00	90.65	180.00	7,092.07	-1,994.45	-371.12	1,994.45	0.00	0.00	0.00
9,100.00	90.65	180.00	7,091.50	-2,044.44	-371.12	2,044.44	0.00	0.00	0.00
9,150.00	90.65	180.00	7,090.93	-2,094.44	-371.12	2,094.44	0.00	0.00	0.00
9,200.00	90.65	180.00	7,090.36	-2,144.44	-371.12	2,144.44	0.00	0.00	0.00
9,250.00	90.65	180.00	7,089.79	-2,194.43	-371.12	2,194.43	0.00	0.00	0.00
9,300.00	90.65	180.00	7,089.22	-2,244.43	-371.12	2,244.43	0.00	0.00	0.00
9,350.00	90.65	180.00	7,088.65	-2,294.43	-371.12	2,294.43	0.00	0.00	0.00

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Wiedeman 29K-243
Company:	PDC Energy, Inc.	TVD Reference:	WELL @ 4775.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site:	Sec.29-T4N-R66W	North Reference:	True
Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,400.00	90.65	180.00	7,088.08	-2,344.42	-371.12	2,344.42	0.00	0.00	0.00	
9,450.00	90.65	180.00	7,087.50	-2,394.42	-371.12	2,394.42	0.00	0.00	0.00	
9,500.00	90.65	180.00	7,086.93	-2,444.42	-371.12	2,444.42	0.00	0.00	0.00	
9,550.00	90.65	180.00	7,086.36	-2,494.41	-371.12	2,494.41	0.00	0.00	0.00	
9,600.00	90.65	180.00	7,085.79	-2,544.41	-371.12	2,544.41	0.00	0.00	0.00	
9,650.00	90.65	180.00	7,085.22	-2,594.41	-371.12	2,594.41	0.00	0.00	0.00	
9,700.00	90.65	180.00	7,084.65	-2,644.41	-371.12	2,644.41	0.00	0.00	0.00	
9,750.00	90.65	180.00	7,084.08	-2,694.40	-371.12	2,694.40	0.00	0.00	0.00	
9,800.00	90.65	180.00	7,083.51	-2,744.40	-371.12	2,744.40	0.00	0.00	0.00	
9,850.00	90.65	180.00	7,082.94	-2,794.40	-371.12	2,794.40	0.00	0.00	0.00	
9,900.00	90.65	180.00	7,082.36	-2,844.39	-371.12	2,844.39	0.00	0.00	0.00	
9,950.00	90.65	180.00	7,081.79	-2,894.39	-371.12	2,894.39	0.00	0.00	0.00	
10,000.00	90.65	180.00	7,081.22	-2,944.39	-371.12	2,944.39	0.00	0.00	0.00	
10,050.00	90.65	180.00	7,080.65	-2,994.38	-371.12	2,994.38	0.00	0.00	0.00	
10,100.00	90.65	180.00	7,080.08	-3,044.38	-371.12	3,044.38	0.00	0.00	0.00	
10,150.00	90.65	180.00	7,079.51	-3,094.38	-371.12	3,094.38	0.00	0.00	0.00	
10,200.00	90.65	180.00	7,078.94	-3,144.37	-371.12	3,144.37	0.00	0.00	0.00	
10,250.00	90.65	180.00	7,078.37	-3,194.37	-371.12	3,194.37	0.00	0.00	0.00	
10,300.00	90.65	180.00	7,077.80	-3,244.37	-371.12	3,244.37	0.00	0.00	0.00	
10,350.00	90.65	180.00	7,077.22	-3,294.36	-371.12	3,294.36	0.00	0.00	0.00	
10,400.00	90.65	180.00	7,076.65	-3,344.36	-371.12	3,344.36	0.00	0.00	0.00	
10,450.00	90.65	180.00	7,076.08	-3,394.36	-371.13	3,394.36	0.00	0.00	0.00	
10,500.00	90.65	180.00	7,075.51	-3,444.35	-371.13	3,444.35	0.00	0.00	0.00	
10,550.00	90.65	180.00	7,074.94	-3,494.35	-371.13	3,494.35	0.00	0.00	0.00	
10,600.00	90.65	180.00	7,074.37	-3,544.35	-371.13	3,544.35	0.00	0.00	0.00	
10,650.00	90.65	180.00	7,073.80	-3,594.34	-371.13	3,594.34	0.00	0.00	0.00	
10,700.00	90.65	180.00	7,073.23	-3,644.34	-371.13	3,644.34	0.00	0.00	0.00	
10,750.00	90.65	180.00	7,072.66	-3,694.34	-371.13	3,694.34	0.00	0.00	0.00	
10,800.00	90.65	180.00	7,072.08	-3,744.33	-371.13	3,744.33	0.00	0.00	0.00	
10,850.00	90.65	180.00	7,071.51	-3,794.33	-371.13	3,794.33	0.00	0.00	0.00	
10,900.00	90.65	180.00	7,070.94	-3,844.33	-371.13	3,844.33	0.00	0.00	0.00	
10,950.00	90.65	180.00	7,070.37	-3,894.32	-371.13	3,894.32	0.00	0.00	0.00	
11,000.00	90.65	180.00	7,069.80	-3,944.32	-371.13	3,944.32	0.00	0.00	0.00	
11,050.00	90.65	180.00	7,069.23	-3,994.32	-371.13	3,994.32	0.00	0.00	0.00	
11,100.00	90.65	180.00	7,068.66	-4,044.31	-371.13	4,044.31	0.00	0.00	0.00	
11,150.00	90.65	180.00	7,068.09	-4,094.31	-371.13	4,094.31	0.00	0.00	0.00	
11,200.00	90.65	180.00	7,067.52	-4,144.31	-371.13	4,144.31	0.00	0.00	0.00	
11,250.00	90.65	180.00	7,066.94	-4,194.30	-371.13	4,194.30	0.00	0.00	0.00	
11,300.00	90.65	180.00	7,066.37	-4,244.30	-371.13	4,244.30	0.00	0.00	0.00	
11,350.00	90.65	180.00	7,065.80	-4,294.30	-371.13	4,294.30	0.00	0.00	0.00	
11,400.00	90.65	180.00	7,065.23	-4,344.29	-371.13	4,344.29	0.00	0.00	0.00	
TD at 11419.86										
11,419.86	90.65	180.00	7,065.00	-4,364.16	-371.13	4,364.16	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape										
Wiedeman 29K-243	0.00	0.00	7,065.00	-4,364.16	-371.13	1,341,768.485	3,192,891.740	40° 16' 10.164 N		
- plan hits target center										
- Point								104° 48' 31.464 W		

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Wiedeman 29K-243
Company:	PDC Energy, Inc.	TVD Reference:	WELL @ 4775.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site:	Sec.29-T4N-R66W	North Reference:	True
Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
7,577.13	7,108.90	7" Csg.	7	8-3/4	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,699.24	3,680.00	Parkman		-0.58	180.00	
4,305.42	4,282.00	Sussex		-0.58	180.00	
4,816.72	4,790.00	Shannon		-0.58	180.00	
6,993.70	6,902.00	Sharon Springs		-0.58	180.00	
7,121.01	6,982.00	Niobrara A		-0.58	180.00	
7,287.71	7,060.00	Niobrara B		-0.58	180.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
700.00	700.00	0.00	0.00	Start Build 2.00	
1,020.82	1,020.15	10.03	-14.88	Start 3682.77 hold at 1020.82 MD	
4,703.59	4,679.85	239.97	-356.22	Start Drop -2.00	
5,024.41	5,000.00	250.00	-371.10	Start 1344.99 hold at 5024.41 MD	
6,369.40	6,344.99	250.00	-371.10	Start Build 7.50	
7,578.13	7,108.88	-522.67	-371.11	Start 3841.74 hold at 7578.13 MD	
11,419.86	7,065.00	-4,364.16	-371.13	TD at 11419.86	



PDC Energy, Inc.

Weld Co., CO

Sec.29-T4N-R66W

Wiedeman 29K-243

Wellbore #1

Design #2

Anticollision Report

17 August, 2014

Archer

Company:	PDC Energy, Inc.	Local Co-ordinate Reference:	Well Wiedeman 29K-243
Project:	Weld Co., CO	TVD Reference:	WELL @ 4775.00usft (Original Well Elev)
Reference Site:	Sec.29-T4N-R66W	MD Reference:	WELL @ 4775.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Wiedeman 29K-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMDBBW
Reference Design:	Design #2	Offset TVD Reference:	Reference Datum

Reference	Design #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 30.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	08/17/14		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	11,419.80	Design #2 (Wellbore #1)	MWD	MWD v3:standard declination	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sec.29-T4N-R66W						
Wiedeman #2 - Wellbore #1 - Wellbore #1	8,636.53	7,081.80	173.01	129.49	3.976	CC
Wiedeman #2 - Wellbore #1 - Wellbore #1	8,640.00	7,081.76	173.05	129.47	3.971	ES, SF
Wiedeman 29-1 - Wellbore #1 - Wellbore #1	690.00	677.00	833.37	831.19	381.422	CC
Wiedeman 29-1 - Wellbore #1 - Wellbore #1	720.00	707.00	833.44	831.15	364.750	ES
Wiedeman 29-1 - Wellbore #1 - Wellbore #1	8,430.00	7,086.15	1,628.74	1,588.81	40.789	SF
Wiedeman 29-2 - Wellbore #1 - Wellbore #1	7,168.44	6,994.11	55.77	32.01	2.348	CC, ES, SF
Wiedeman 29-29 - Wellbore #1 - Wellbore #1	7,172.64	6,995.20	22.29	-1.49	0.937	Level 1, CC, ES, SF
Wiedeman 29-3 - Wellbore #1 - Wellbore #1	8,355.99	7,089.00	1,372.76	1,334.07	35.476	CC
Wiedeman 29-3 - Wellbore #1 - Wellbore #1	8,370.00	7,088.84	1,372.84	1,333.90	35.263	ES
Wiedeman 29-3 - Wellbore #1 - Wellbore #1	9,270.00	7,078.56	1,649.18	1,594.23	30.012	SF
Wiedeman 29-5 - Wellbore #1 - Wellbore #1	7,991.70	7,090.16	661.28	628.44	20.140	CC
Wiedeman 29-5 - Wellbore #1 - Wellbore #1	8,010.00	7,089.95	661.53	628.42	19.979	ES
Wiedeman 29-5 - Wellbore #1 - Wellbore #1	8,220.00	7,087.55	699.57	663.14	19.202	SF
Wiedeman 29G-323 - Wellbore #1 - Design #1	490.00	490.00	30.69	28.74	15.749	CC
Wiedeman 29G-323 - Wellbore #1 - Design #1	510.00	509.90	30.71	28.67	15.068	ES
Wiedeman 29G-323 - Wellbore #1 - Design #1	11,419.86	11,510.11	218.06	56.86	1.353	Level 3, SF
Wiedeman 29G-403 - Wellbore #1 - Design #1	1,376.54	1,374.73	36.93	30.91	6.130	CC
Wiedeman 29G-403 - Wellbore #1 - Design #1	1,410.00	1,408.00	37.02	30.83	5.980	ES
Wiedeman 29G-403 - Wellbore #1 - Design #1	11,419.86	12,122.29	574.08	407.86	3.454	SF
Wiedeman 29G-403 - Wellbore #1 - Design #2	190.00	190.00	61.38	60.78	102.278	CC
Wiedeman 29G-403 - Wellbore #1 - Design #2	210.00	209.80	61.40	60.71	89.111	ES
Wiedeman 29G-403 - Wellbore #1 - Design #2	11,419.86	11,633.84	574.85	411.71	3.524	SF
Wiedeman 29K-243 - Wellbore #1 - Wellbore #1	0.00	0.00	0.00			
Wiedeman 29K-243 - Wellbore #1 - Wellbore #1	5,069.40	5,070.10	1.88	-25.77	0.068	Level 1, ES, SF
Wiedeman 29K-323 - Wellbore #1 - Wellbore #1	507.75	506.78	289.57	287.59	146.042	CC
Wiedeman 29K-323 - Wellbore #1 - Wellbore #1	690.00	688.11	290.14	287.35	103.767	ES
Wiedeman 29K-323 - Wellbore #1 - Wellbore #1	11,419.86	11,471.64	1,403.05	1,228.02	8.016	SF
Wiedeman 29K-343 - Wellbore #1 - Wellbore #1	739.35	742.01	223.75	220.71	73.802	CC
Wiedeman 29K-343 - Wellbore #1 - Wellbore #1	750.00	752.65	223.76	220.68	72.678	ES
Wiedeman 29K-343 - Wellbore #1 - Wellbore #1	11,419.86	11,518.78	487.12	312.97	2.797	SF
Wiedeman 29K-403 - Wellbore #1 - Wellbore #1	0.00	0.00	259.70			
Wiedeman 29K-403 - Wellbore #1 - Wellbore #1	60.00	59.39	259.77	259.65	2,284.664	ES
Wiedeman 29K-403 - Wellbore #1 - Wellbore #1	11,419.86	11,565.00	963.96	791.05	5.575	SF
Wiedeman29O-243 - Wellbore #1 - Wellbore #1	0.00	0.00	321.03			
Wiedeman29O-243 - Wellbore #1 - Wellbore #1	11,419.86	11,536.54	1,824.75	1,649.18	10.393	SF