

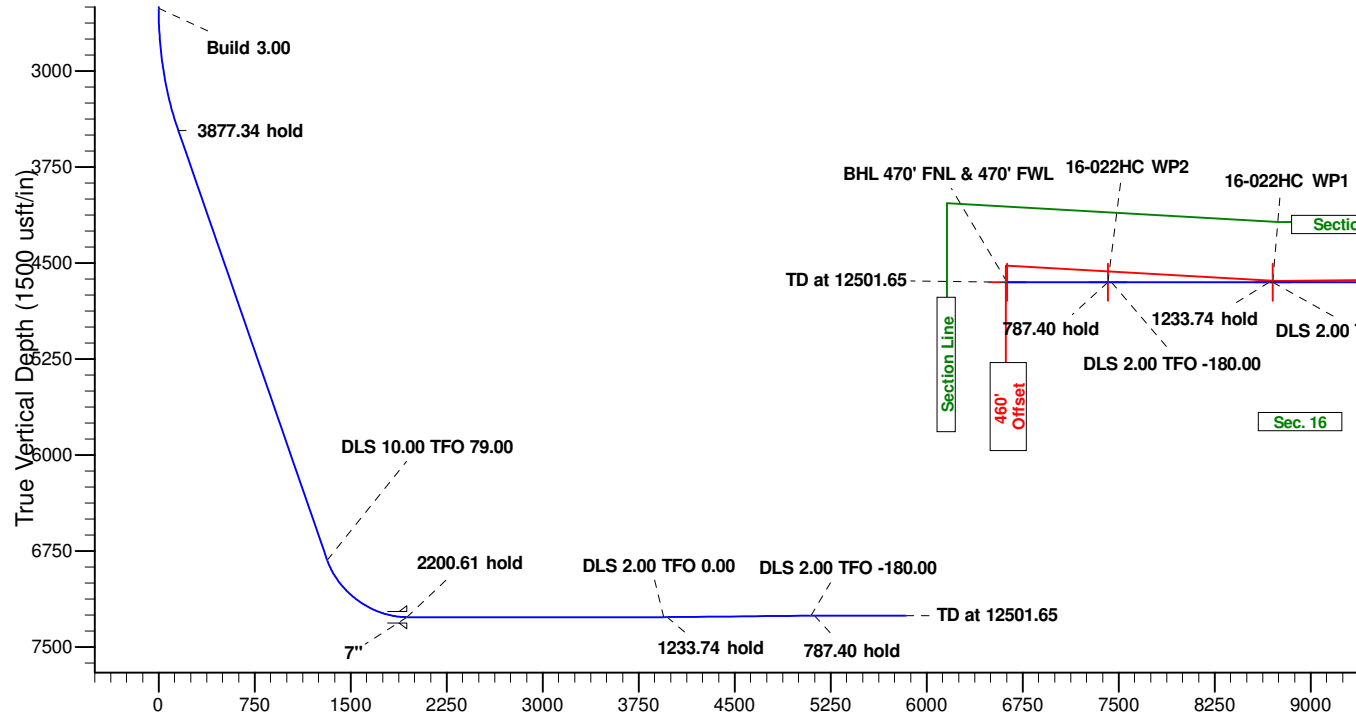


Project: Weld Co., CO
 Site: Sec.10-T6N-R67W
 Well: DeTienne FD 16-022HC
 Wellbore: Wellbore #1
 Design: Design #4
 Lat: 40° 29' 57.548 N
 Long: 104° 53' 12.509 W
 GL: 4838.80
 KB: WELL @ 4855.00usft (Original Well Elev)

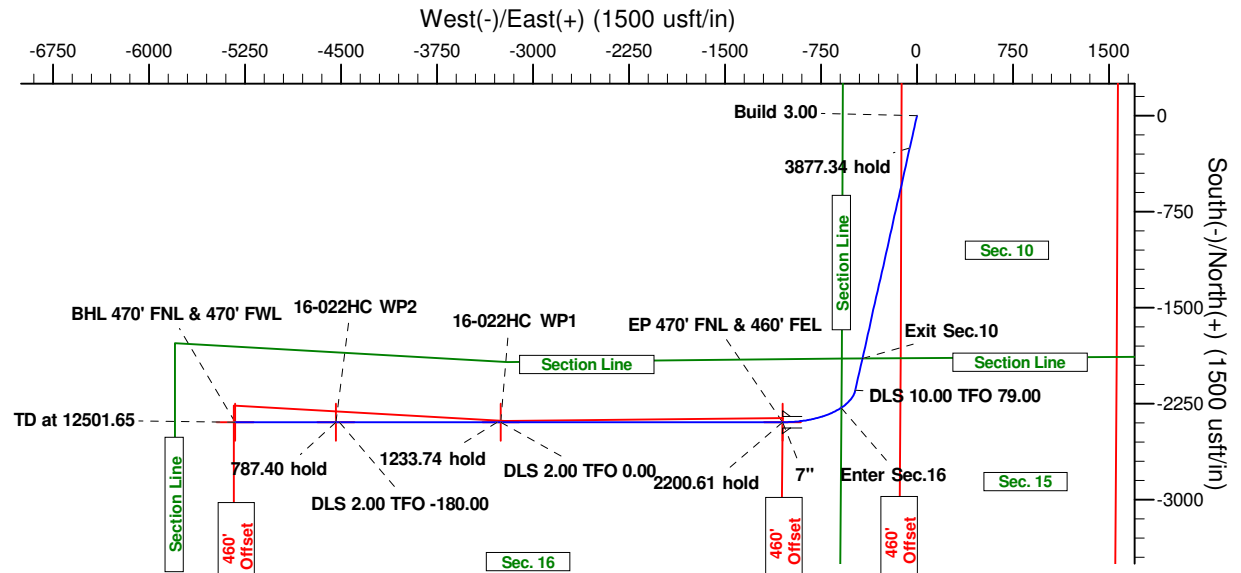


M
 Azimuths to True North
 Magnetic North: 8.54°
 Magnetic Field
 Strength: 52859.3snT
 Dip Angle: 67.01°
 Date: 05/28/2014
 Model: IGRF2010

CASING DETAILS:
 TVD MD Name Size
 7267.00 8225.38 7" 7"



Vertical Section at 245.80° (1500 usft/in)



WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N-S	+E-W	Latitude	Longitude	Shape
16-022HC WP2	7255.00	-2394.00	-4539.59	40° 29' 33.887 N	104° 54' 11.268 W	Point
BHL 470' FNL & 470' FWL	7255.00	-2394.00	-5326.99	40° 29' 33.885 N	104° 54' 21.459 W	Point
16-022HC WP1	7267.00	-2394.00	-3251.38	40° 29' 33.889 N	104° 53' 54.593 W	Point
EP 470' FNL & 460' FEL	7267.00	-2394.00	-1050.77	40° 29' 33.891 N	104° 53' 26.110 W	Point

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	
2510.00	0.00	0.00	2510.00	0.00	0.00	0.00	0.00	0.00	Build 3.00
3510.98	30.03	192.66	3465.78	-250.14	-56.16	3.00	192.66	153.76	3877.34 hold
7388.32	30.03	192.66	6822.66	-2143.39	-481.27	0.00	0.00	1317.59	DLS 10.00 TFO 79.00
8225.38	90.00	270.00	7267.00	-2394.00	-1050.77	10.00	79.00	1939.77	2200.61 hold
10425.99	90.00	270.00	7267.00	-2394.00	-3251.38	0.00	0.00	3947.00	DLS 2.00 TFO 0.00
10453.25	90.55	270.00	7266.87	-2394.00	-3278.65	2.00	0.00	3971.87	1233.74 hold
11686.99	90.55	270.00	7255.13	-2394.00	-4512.33	0.00	0.00	5097.14	DLS 2.00 TFO -180.00
11714.25	90.00	270.00	7255.00	-2394.00	-4539.59	2.00	-180.00	5122.00	787.40 hold
12501.65	90.00	270.00	7255.00	-2394.00	-5326.99	0.00	0.00	5840.21	TD at 12501.65



Great Western Oil & Gas

Weld Co., CO

Sec.10-T6N-R67W

DeTienne FD 16-022HC

Wellbore #1

Plan: Design #4

Standard Planning Report - Geographic

20 June, 2014



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

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.10-T6N-R67W			
Site Position:		Northing:	1,425,792.79 usft	Latitude:	40° 30' 2.041 N
From:	Lat/Long	Easting:	3,171,409.11 usft	Longitude:	104° 53' 1.072 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40

Well	DeTienne FD 16-022HC					
Well Position	+N/-S	0.00 usft	Northing:	1,425,332.00 usft	Latitude:	40° 29' 57.548 N
	+E/-W	0.00 usft	Easting:	3,170,528.76 usft	Longitude:	104° 53' 12.509 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,838.80 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	05/28/14	8.54	67.01	52,859

Design	Design #4				
Audit Notes:					
Version:	Phase:	PROTOTYPE		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	245.80	

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	
2,510.00	0.00	0.00	2,510.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,510.98	30.03	192.66	3,465.78	-250.14	-56.16	3.00	3.00	0.00	192.66	
7,388.32	30.03	192.66	6,822.66	-2,143.39	-481.27	0.00	0.00	0.00	0.00	
8,225.38	90.00	270.00	7,267.00	-2,394.00	-1,050.77	10.00	7.16	9.24	79.00	EP 470' FNL & 460' F
10,425.99	90.00	270.00	7,267.00	-2,394.00	-3,251.38	0.00	0.00	0.00	0.00	16-022HC WP1
10,453.25	90.55	270.00	7,266.87	-2,394.00	-3,278.65	2.00	2.00	0.00	0.00	
11,686.99	90.55	270.00	7,255.13	-2,394.00	-4,512.33	0.00	0.00	0.00	0.00	
11,714.25	90.00	270.00	7,255.00	-2,394.00	-4,539.59	2.00	-2.00	0.00	-180.00	16-022HC WP2
12,501.65	90.00	270.00	7,255.00	-2,394.00	-5,326.99	0.00	0.00	0.00	0.00	BHL 470' FNL & 470'

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
100.00	0.00	0.00	100.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
200.00	0.00	0.00	200.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
300.00	0.00	0.00	300.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
400.00	0.00	0.00	400.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
500.00	0.00	0.00	500.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
600.00	0.00	0.00	600.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
700.00	0.00	0.00	700.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
800.00	0.00	0.00	800.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
900.00	0.00	0.00	900.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,100.00	0.00	0.00	1,100.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,200.00	0.00	0.00	1,200.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,300.00	0.00	0.00	1,300.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,400.00	0.00	0.00	1,400.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,500.00	0.00	0.00	1,500.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,600.00	0.00	0.00	1,600.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,700.00	0.00	0.00	1,700.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,800.00	0.00	0.00	1,800.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
1,900.00	0.00	0.00	1,900.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
2,000.00	0.00	0.00	2,000.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
2,100.00	0.00	0.00	2,100.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
2,200.00	0.00	0.00	2,200.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
2,300.00	0.00	0.00	2,300.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
2,400.00	0.00	0.00	2,400.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
2,500.00	0.00	0.00	2,500.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
2,510.00	0.00	0.00	2,510.00	0.00	0.00	1,425,332.00	3,170,528.76	40° 29' 57.548 N	104° 53' 12.509 W
Build 3.00									
2,600.00	2.70	192.66	2,599.97	-2.07	-0.46	1,425,329.93	3,170,528.31	40° 29' 57.528 N	104° 53' 12.515 W
2,700.00	5.70	192.66	2,699.69	-9.21	-2.07	1,425,322.77	3,170,526.76	40° 29' 57.457 N	104° 53' 12.536 W
2,800.00	8.70	192.66	2,798.89	-21.44	-4.81	1,425,310.52	3,170,526.10	40° 29' 57.336 N	104° 53' 12.571 W
2,900.00	11.70	192.66	2,897.30	-38.72	-8.69	1,425,293.22	3,170,520.34	40° 29' 57.166 N	104° 53' 12.621 W
3,000.00	14.70	192.66	2,994.64	-61.00	-13.70	1,425,270.91	3,170,515.49	40° 29' 56.945 N	104° 53' 12.686 W
3,100.00	17.70	192.66	3,090.66	-88.21	-19.81	1,425,243.65	3,170,509.57	40° 29' 56.676 N	104° 53' 12.765 W
3,200.00	20.70	192.66	3,185.09	-120.30	-27.01	1,425,211.52	3,170,502.59	40° 29' 56.359 N	104° 53' 12.858 W
3,300.00	23.70	192.66	3,277.66	-157.16	-35.29	1,425,174.60	3,170,494.56	40° 29' 55.995 N	104° 53' 12.966 W
3,400.00	26.70	192.66	3,368.14	-198.70	-44.61	1,425,133.00	3,170,485.52	40° 29' 55.585 N	104° 53' 13.086 W
3,500.00	29.70	192.66	3,456.26	-244.80	-54.97	1,425,086.82	3,170,475.49	40° 29' 55.129 N	104° 53' 13.220 W
3,510.98	30.03	192.66	3,465.78	-250.14	-56.16	1,425,081.48	3,170,474.33	40° 29' 55.076 N	104° 53' 13.236 W
3877.34 hold									
3,600.00	30.03	192.66	3,542.85	-293.60	-65.92	1,425,037.95	3,170,464.87	40° 29' 54.647 N	104° 53' 13.362 W
3,700.00	30.03	192.66	3,629.43	-342.43	-76.89	1,424,989.04	3,170,454.25	40° 29' 54.164 N	104° 53' 13.504 W
3,800.00	30.03	192.66	3,716.00	-391.26	-87.85	1,424,940.14	3,170,443.62	40° 29' 53.682 N	104° 53' 13.646 W
3,900.00	30.03	192.66	3,802.58	-440.09	-98.82	1,424,891.24	3,170,432.99	40° 29' 53.199 N	104° 53' 13.788 W
4,000.00	30.03	192.66	3,889.16	-488.92	-109.78	1,424,842.33	3,170,422.37	40° 29' 52.717 N	104° 53' 13.930 W
4,100.00	30.03	192.66	3,975.73	-537.75	-120.74	1,424,793.43	3,170,411.74	40° 29' 52.234 N	104° 53' 14.072 W
4,200.00	30.03	192.66	4,062.31	-586.58	-131.71	1,424,744.53	3,170,401.12	40° 29' 51.752 N	104° 53' 14.214 W
4,300.00	30.03	192.66	4,148.89	-635.40	-142.67	1,424,695.62	3,170,390.49	40° 29' 51.269 N	104° 53' 14.356 W
4,400.00	30.03	192.66	4,235.46	-684.23	-153.63	1,424,646.72	3,170,379.86	40° 29' 50.787 N	104° 53' 14.498 W
4,500.00	30.03	192.66	4,322.04	-733.06	-164.60	1,424,597.82	3,170,369.24	40° 29' 50.304 N	104° 53' 14.639 W
4,600.00	30.03	192.66	4,408.62	-781.89	-175.56	1,424,548.91	3,170,358.61	40° 29' 49.822 N	104° 53' 14.781 W
4,700.00	30.03	192.66	4,495.19	-830.72	-186.53	1,424,500.01	3,170,347.99	40° 29' 49.339 N	104° 53' 14.923 W
4,800.00	30.03	192.66	4,581.77	-879.55	-197.49	1,424,451.11	3,170,337.36	40° 29' 48.857 N	104° 53' 15.065 W
4,900.00	30.03	192.66	4,668.35	-928.38	-208.45	1,424,402.20	3,170,326.74	40° 29' 48.374 N	104° 53' 15.207 W

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Planned Survey									
Measured			Vertical			Map	Map		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Map	Map	Latitude	Longitude
(usft)	(°)	(°)	(usft)	(usft)	(usft)	Northing	Easting		
						(usft)	(usft)		
5,000.00	30.03	192.66	4,754.92	-977.21	-219.42	1,424,353.30	3,170,316.11	40° 29' 47.892 N	104° 53' 15.349 W
5,100.00	30.03	192.66	4,841.50	-1,026.03	-230.38	1,424,304.40	3,170,305.48	40° 29' 47.409 N	104° 53' 15.491 W
5,200.00	30.03	192.66	4,928.08	-1,074.86	-241.34	1,424,255.49	3,170,294.86	40° 29' 46.927 N	104° 53' 15.633 W
5,300.00	30.03	192.66	5,014.65	-1,123.69	-252.31	1,424,206.59	3,170,284.23	40° 29' 46.444 N	104° 53' 15.775 W
5,400.00	30.03	192.66	5,101.23	-1,172.52	-263.27	1,424,157.68	3,170,273.61	40° 29' 45.962 N	104° 53' 15.917 W
5,500.00	30.03	192.66	5,187.81	-1,221.35	-274.24	1,424,108.78	3,170,262.98	40° 29' 45.479 N	104° 53' 16.059 W
5,600.00	30.03	192.66	5,274.39	-1,270.18	-285.20	1,424,059.88	3,170,252.35	40° 29' 44.996 N	104° 53' 16.200 W
5,700.00	30.03	192.66	5,360.96	-1,319.01	-296.16	1,424,010.97	3,170,241.73	40° 29' 44.514 N	104° 53' 16.342 W
5,800.00	30.03	192.66	5,447.54	-1,367.84	-307.13	1,423,962.07	3,170,231.10	40° 29' 44.031 N	104° 53' 16.484 W
5,900.00	30.03	192.66	5,534.12	-1,416.66	-318.09	1,423,913.17	3,170,220.48	40° 29' 43.549 N	104° 53' 16.626 W
6,000.00	30.03	192.66	5,620.69	-1,465.49	-329.06	1,423,864.26	3,170,209.85	40° 29' 43.066 N	104° 53' 16.768 W
6,100.00	30.03	192.66	5,707.27	-1,514.32	-340.02	1,423,815.36	3,170,199.22	40° 29' 42.584 N	104° 53' 16.910 W
6,200.00	30.03	192.66	5,793.85	-1,563.15	-350.98	1,423,766.46	3,170,188.60	40° 29' 42.101 N	104° 53' 17.052 W
6,300.00	30.03	192.66	5,880.42	-1,611.98	-361.95	1,423,717.55	3,170,177.97	40° 29' 41.619 N	104° 53' 17.194 W
6,400.00	30.03	192.66	5,967.00	-1,660.81	-372.91	1,423,668.65	3,170,167.35	40° 29' 41.136 N	104° 53' 17.336 W
6,500.00	30.03	192.66	6,053.58	-1,709.64	-383.87	1,423,619.75	3,170,156.72	40° 29' 40.654 N	104° 53' 17.478 W
6,600.00	30.03	192.66	6,140.15	-1,758.47	-394.84	1,423,570.84	3,170,146.10	40° 29' 40.171 N	104° 53' 17.620 W
6,700.00	30.03	192.66	6,226.73	-1,807.29	-405.80	1,423,521.94	3,170,135.47	40° 29' 39.689 N	104° 53' 17.761 W
6,800.00	30.03	192.66	6,313.31	-1,856.12	-416.77	1,423,473.04	3,170,124.84	40° 29' 39.206 N	104° 53' 17.903 W
6,884.00	30.03	192.66	6,386.03	-1,897.14	-425.97	1,423,431.96	3,170,115.92	40° 29' 38.801 N	104° 53' 18.023 W
Exit Sec.10									
6,900.00	30.03	192.66	6,399.88	-1,904.95	-427.73	1,423,424.13	3,170,114.22	40° 29' 38.724 N	104° 53' 18.045 W
7,000.00	30.03	192.66	6,486.46	-1,953.78	-438.69	1,423,375.23	3,170,103.59	40° 29' 38.241 N	104° 53' 18.187 W
7,100.00	30.03	192.66	6,573.04	-2,002.61	-449.66	1,423,326.33	3,170,092.97	40° 29' 37.759 N	104° 53' 18.329 W
7,200.00	30.03	192.66	6,659.61	-2,051.44	-460.62	1,423,277.42	3,170,082.34	40° 29' 37.276 N	104° 53' 18.471 W
7,300.00	30.03	192.66	6,746.19	-2,100.27	-471.58	1,423,228.52	3,170,071.71	40° 29' 36.794 N	104° 53' 18.613 W
7,388.32	30.03	192.66	6,822.66	-2,143.39	-481.27	1,423,185.33	3,170,062.33	40° 29' 36.367 N	104° 53' 18.738 W
DLS 10.00 TFO 79.00									
7,400.00	30.27	194.93	6,832.76	-2,149.09	-482.67	1,423,179.62	3,170,060.97	40° 29' 36.311 N	104° 53' 18.756 W
7,450.00	31.73	204.22	6,875.64	-2,173.27	-491.31	1,423,155.38	3,170,052.49	40° 29' 36.072 N	104° 53' 18.868 W
7,500.00	33.81	212.63	6,917.70	-2,197.00	-504.22	1,423,131.57	3,170,039.75	40° 29' 35.838 N	104° 53' 19.035 W
7,550.00	36.40	220.08	6,958.62	-2,220.08	-521.28	1,423,108.37	3,170,022.85	40° 29' 35.610 N	104° 53' 19.256 W
7,600.00	39.39	226.61	6,998.09	-2,242.34	-542.38	1,423,085.96	3,170,001.91	40° 29' 35.390 N	104° 53' 19.529 W
7,650.00	42.70	232.32	7,035.81	-2,263.61	-567.34	1,423,064.52	3,169,977.09	40° 29' 35.179 N	104° 53' 19.852 W
7,692.00	45.68	236.58	7,065.93	-2,280.60	-591.16	1,423,047.37	3,169,953.39	40° 29' 35.012 N	104° 53' 20.161 W
Enter Sec.16									
7,700.00	46.26	237.34	7,071.49	-2,283.73	-595.98	1,423,044.20	3,169,948.59	40° 29' 34.981 N	104° 53' 20.223 W
7,750.00	50.02	241.77	7,104.86	-2,302.55	-628.09	1,423,025.16	3,169,916.61	40° 29' 34.795 N	104° 53' 20.639 W
7,800.00	53.92	245.74	7,135.66	-2,319.93	-663.41	1,423,007.54	3,169,881.41	40° 29' 34.623 N	104° 53' 21.096 W
7,850.00	57.95	249.32	7,163.67	-2,335.72	-701.68	1,422,991.48	3,169,843.26	40° 29' 34.467 N	104° 53' 21.591 W
7,900.00	62.06	252.60	7,188.67	-2,349.82	-742.60	1,422,977.10	3,169,802.43	40° 29' 34.328 N	104° 53' 22.121 W
7,950.00	66.25	255.63	7,210.46	-2,362.11	-785.87	1,422,964.51	3,169,759.24	40° 29' 34.206 N	104° 53' 22.681 W
8,000.00	70.50	258.48	7,228.89	-2,372.50	-831.16	1,422,953.80	3,169,714.03	40° 29' 34.103 N	104° 53' 23.267 W
8,050.00	74.78	261.18	7,243.80	-2,380.92	-878.12	1,422,945.07	3,169,667.13	40° 29' 34.020 N	104° 53' 23.875 W
8,100.00	79.10	263.77	7,255.10	-2,387.29	-926.39	1,422,938.36	3,169,618.90	40° 29' 33.957 N	104° 53' 24.500 W
8,150.00	83.44	266.28	7,262.69	-2,391.57	-975.61	1,422,933.74	3,169,569.71	40° 29' 33.915 N	104° 53' 25.137 W
8,200.00	87.79	268.75	7,266.51	-2,393.72	-1,025.40	1,422,931.24	3,169,519.94	40° 29' 33.894 N	104° 53' 25.781 W
8,225.38	90.00	270.00	7,267.00	-2,394.00	-1,050.77	1,422,930.79	3,169,494.57	40° 29' 33.891 N	104° 53' 26.110 W
2200.61 hold - 7"									
8,300.00	90.00	270.00	7,267.00	-2,394.00	-1,125.39	1,422,930.27	3,169,419.95	40° 29' 33.891 N	104° 53' 27.075 W
8,400.00	90.00	270.00	7,267.00	-2,394.00	-1,225.39	1,422,929.58	3,169,319.95	40° 29' 33.891 N	104° 53' 28.370 W
8,500.00	90.00	270.00	7,267.00	-2,394.00	-1,325.39	1,422,928.89	3,169,219.96	40° 29' 33.891 N	104° 53' 29.664 W
8,600.00	90.00	270.00	7,267.00	-2,394.00	-1,425.39	1,422,928.20	3,169,119.96	40° 29' 33.891 N	104° 53' 30.959 W
8,700.00	90.00	270.00	7,267.00	-2,394.00	-1,525.39	1,422,927.51	3,169,019.96	40° 29' 33.891 N	104° 53' 32.253 W

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,800.00	90.00	270.00	7,267.00	-2,394.00	-1,625.39	1,422,926.82	3,168,919.96	40° 29' 33.891 N	104° 53' 33.547 W
8,900.00	90.00	270.00	7,267.00	-2,394.00	-1,725.39	1,422,926.12	3,168,819.97	40° 29' 33.890 N	104° 53' 34.842 W
9,000.00	90.00	270.00	7,267.00	-2,394.00	-1,825.39	1,422,925.43	3,168,719.97	40° 29' 33.890 N	104° 53' 36.136 W
9,100.00	90.00	270.00	7,267.00	-2,394.00	-1,925.39	1,422,924.74	3,168,619.97	40° 29' 33.890 N	104° 53' 37.430 W
9,200.00	90.00	270.00	7,267.00	-2,394.00	-2,025.39	1,422,924.05	3,168,519.97	40° 29' 33.890 N	104° 53' 38.725 W
9,300.00	90.00	270.00	7,267.00	-2,394.00	-2,125.39	1,422,923.36	3,168,419.98	40° 29' 33.890 N	104° 53' 40.019 W
9,400.00	90.00	270.00	7,267.00	-2,394.00	-2,225.39	1,422,922.67	3,168,319.98	40° 29' 33.890 N	104° 53' 41.313 W
9,500.00	90.00	270.00	7,267.00	-2,394.00	-2,325.39	1,422,921.97	3,168,219.98	40° 29' 33.890 N	104° 53' 42.608 W
9,600.00	90.00	270.00	7,267.00	-2,394.00	-2,425.39	1,422,921.28	3,168,119.98	40° 29' 33.890 N	104° 53' 43.902 W
9,700.00	90.00	270.00	7,267.00	-2,394.00	-2,525.39	1,422,920.59	3,168,019.99	40° 29' 33.890 N	104° 53' 45.197 W
9,800.00	90.00	270.00	7,267.00	-2,394.00	-2,625.39	1,422,919.90	3,167,919.99	40° 29' 33.890 N	104° 53' 46.491 W
9,900.00	90.00	270.00	7,267.00	-2,394.00	-2,725.39	1,422,919.21	3,167,819.99	40° 29' 33.890 N	104° 53' 47.785 W
10,000.00	90.00	270.00	7,267.00	-2,394.00	-2,825.39	1,422,918.52	3,167,719.99	40° 29' 33.889 N	104° 53' 49.080 W
10,100.00	90.00	270.00	7,267.00	-2,394.00	-2,925.39	1,422,917.83	3,167,620.00	40° 29' 33.889 N	104° 53' 50.374 W
10,200.00	90.00	270.00	7,267.00	-2,394.00	-3,025.39	1,422,917.13	3,167,520.00	40° 29' 33.889 N	104° 53' 51.668 W
10,300.00	90.00	270.00	7,267.00	-2,394.00	-3,125.39	1,422,916.44	3,167,420.00	40° 29' 33.889 N	104° 53' 52.963 W
10,400.00	90.00	270.00	7,267.00	-2,394.00	-3,225.39	1,422,915.75	3,167,320.00	40° 29' 33.889 N	104° 53' 54.257 W
10,425.99	90.00	270.00	7,267.00	-2,394.00	-3,251.38	1,422,915.57	3,167,294.01	40° 29' 33.889 N	104° 53' 54.593 W
DLS 2.00 TFO 0.00									
10,453.25	90.55	270.00	7,266.87	-2,394.00	-3,278.65	1,422,915.38	3,167,266.75	40° 29' 33.889 N	104° 53' 54.946 W
1233.74 hold									
10,500.00	90.55	270.00	7,266.43	-2,394.00	-3,325.39	1,422,915.06	3,167,220.01	40° 29' 33.889 N	104° 53' 55.551 W
10,600.00	90.55	270.00	7,265.47	-2,394.00	-3,425.39	1,422,914.37	3,167,120.01	40° 29' 33.889 N	104° 53' 56.846 W
10,700.00	90.55	270.00	7,264.52	-2,394.00	-3,525.38	1,422,913.68	3,167,020.02	40° 29' 33.889 N	104° 53' 58.140 W
10,800.00	90.55	270.00	7,263.57	-2,394.00	-3,625.38	1,422,912.99	3,166,920.03	40° 29' 33.888 N	104° 53' 59.434 W
10,900.00	90.55	270.00	7,262.62	-2,394.00	-3,725.37	1,422,912.29	3,166,820.03	40° 29' 33.888 N	104° 54' 0.729 W
11,000.00	90.55	270.00	7,261.67	-2,394.00	-3,825.37	1,422,911.60	3,166,720.04	40° 29' 33.888 N	104° 54' 2.023 W
11,100.00	90.55	270.00	7,260.72	-2,394.00	-3,925.36	1,422,910.91	3,166,620.05	40° 29' 33.888 N	104° 54' 3.317 W
11,200.00	90.55	270.00	7,259.76	-2,394.00	-4,025.36	1,422,910.22	3,166,520.06	40° 29' 33.888 N	104° 54' 4.612 W
11,300.00	90.55	270.00	7,258.81	-2,394.00	-4,125.35	1,422,909.53	3,166,420.06	40° 29' 33.888 N	104° 54' 5.906 W
11,400.00	90.55	270.00	7,257.86	-2,394.00	-4,225.35	1,422,908.84	3,166,320.07	40° 29' 33.887 N	104° 54' 7.200 W
11,500.00	90.55	270.00	7,256.91	-2,394.00	-4,325.35	1,422,908.15	3,166,220.08	40° 29' 33.887 N	104° 54' 8.494 W
11,600.00	90.55	270.00	7,255.96	-2,394.00	-4,425.34	1,422,907.45	3,166,120.08	40° 29' 33.887 N	104° 54' 9.789 W
11,686.99	90.55	270.00	7,255.13	-2,394.00	-4,512.33	1,422,906.85	3,166,033.10	40° 29' 33.887 N	104° 54' 10.915 W
DLS 2.00 TFO -180.00									
11,700.00	90.29	270.00	7,255.04	-2,394.00	-4,525.34	1,422,906.76	3,166,020.09	40° 29' 33.887 N	104° 54' 11.083 W
11,714.25	90.00	270.00	7,255.00	-2,394.00	-4,539.59	1,422,906.66	3,166,005.84	40° 29' 33.887 N	104° 54' 11.268 W
787.40 hold									
11,800.00	90.00	270.00	7,255.00	-2,394.00	-4,625.34	1,422,906.07	3,165,920.09	40° 29' 33.887 N	104° 54' 12.377 W
11,900.00	90.00	270.00	7,255.00	-2,394.00	-4,725.34	1,422,905.38	3,165,820.09	40° 29' 33.887 N	104° 54' 13.672 W
12,000.00	90.00	270.00	7,255.00	-2,394.00	-4,825.34	1,422,904.69	3,165,720.10	40° 29' 33.886 N	104° 54' 14.966 W
12,100.00	90.00	270.00	7,255.00	-2,394.00	-4,925.34	1,422,904.00	3,165,620.10	40° 29' 33.886 N	104° 54' 16.260 W
12,200.00	90.00	270.00	7,255.00	-2,394.00	-5,025.34	1,422,903.30	3,165,520.10	40° 29' 33.886 N	104° 54' 17.555 W
12,300.00	90.00	270.00	7,255.00	-2,394.00	-5,125.34	1,422,902.61	3,165,420.10	40° 29' 33.886 N	104° 54' 18.849 W
12,400.00	90.00	270.00	7,255.00	-2,394.00	-5,225.34	1,422,901.92	3,165,320.11	40° 29' 33.886 N	104° 54' 20.144 W
12,501.65	90.00	270.00	7,255.00	-2,394.00	-5,326.99	1,422,901.22	3,165,218.46	40° 29' 33.885 N	104° 54' 21.459 W
TD at 12501.65									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
16-022HC WP2 - plan hits target center - Point	0.00	0.00	7,255.00	-2,394.00	-4,539.59	1,422,906.66	3,166,005.84	40° 29' 33.887 N	104° 54' 11.268 W
BHL 470' FNL & 470' FV - plan hits target center - Point	0.00	0.00	7,255.00	-2,394.00	-5,326.99	1,422,901.22	3,165,218.46	40° 29' 33.885 N	104° 54' 21.459 W
EP 470' FNL & 460' FEL - plan hits target center - Point	0.00	0.00	7,267.00	-2,394.00	-1,050.77	1,422,930.79	3,169,494.57	40° 29' 33.891 N	104° 53' 26.110 W
16-022HC WP1 - plan hits target center - Point	0.00	0.00	7,267.00	-2,394.00	-3,251.38	1,422,915.57	3,167,294.01	40° 29' 33.889 N	104° 53' 54.593 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
8,225.38	7,267.00	7"		7	7-1/2

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
2,510.00	2,510.00	0.00	0.00	Build 3.00	
3,510.98	3,465.78	-250.14	-56.16	3877.34 hold	
6,884.00	6,386.03	-1,897.14	-425.97	Exit Sec.10	
7,388.32	6,822.66	-2,143.39	-481.27	DLS 10.00 TFO 79.00	
7,692.00	7,065.93	-2,280.60	-591.16	Enter Sec.16	
8,225.38	7,267.00	-2,394.00	-1,050.77	2200.61 hold	
10,425.99	7,267.00	-2,394.00	-3,251.38	DLS 2.00 TFO 0.00	
10,453.25	7,266.87	-2,394.00	-3,278.65	1233.74 hold	
11,686.99	7,255.13	-2,394.00	-4,512.33	DLS 2.00 TFO -180.00	
11,714.25	7,255.00	-2,394.00	-4,539.59	787.40 hold	
12,501.65	7,255.00	-2,394.00	-5,326.99	TD at 12501.65	



Great Western Oil & Gas

Weld Co., CO

Sec.10-T6N-R67W

DeTienne FD 16-022HC

Wellbore #1

Plan: Design #4

Standard Planning Report

20 June, 2014



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

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.10-T6N-R67W				
Site Position:		Northing:	1,425,792.79 usft	Latitude:	40° 30' 2.041 N
From:	Lat/Long	Easting:	3,171,409.11 usft	Longitude:	104° 53' 1.072 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40

Well	DeTienne FD 16-022HC					
Well Position	+N/-S	-454.66 usft	Northing:	1,425,332.00 usft	Latitude:	40° 29' 57.548 N
	+E/-W	-883.53 usft	Easting:	3,170,528.76 usft	Longitude:	104° 53' 12.509 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,838.80 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	05/28/14	8.54	67.01	52,859

Design	Design #4			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	245.80

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	
2,510.00	0.00	0.00	2,510.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,510.98	30.03	192.66	3,465.78	-250.14	-56.16	3.00	3.00	0.00	192.66	
7,388.32	30.03	192.66	6,822.66	-2,143.39	-481.27	0.00	0.00	0.00	0.00	
8,225.38	90.00	270.00	7,267.00	-2,394.00	-1,050.77	10.00	7.16	9.24	79.00	EP 470' FNL & 460' F
10,425.99	90.00	270.00	7,267.00	-2,394.00	-3,251.38	0.00	0.00	0.00	0.00	16-022HC WP1
10,453.25	90.55	270.00	7,266.87	-2,394.00	-3,278.65	2.00	2.00	0.00	0.00	
11,686.99	90.55	270.00	7,255.13	-2,394.00	-4,512.33	0.00	0.00	0.00	0.00	
11,714.25	90.00	270.00	7,255.00	-2,394.00	-4,539.59	2.00	-2.00	0.00	-180.00	16-022HC WP2
12,501.65	90.00	270.00	7,255.00	-2,394.00	-5,326.99	0.00	0.00	0.00	0.00	BHL 470' FNL & 470'

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

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
100.00	0.00	0.00	100.00	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
300.00	0.00	0.00	300.00	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
500.00	0.00	0.00	500.00	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
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,510.00	0.00	0.00	2,510.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 3.00									
2,600.00	2.70	192.66	2,599.97	-2.07	-0.46	1.27	3.00	3.00	0.00
2,700.00	5.70	192.66	2,699.69	-9.21	-2.07	5.66	3.00	3.00	0.00
2,800.00	8.70	192.66	2,798.89	-21.44	-4.81	13.18	3.00	3.00	0.00
2,900.00	11.70	192.66	2,897.30	-38.72	-8.69	23.80	3.00	3.00	0.00
3,000.00	14.70	192.66	2,994.64	-61.00	-13.70	37.50	3.00	3.00	0.00
3,100.00	17.70	192.66	3,090.66	-88.21	-19.81	54.23	3.00	3.00	0.00
3,200.00	20.70	192.66	3,185.09	-120.30	-27.01	73.95	3.00	3.00	0.00
3,300.00	23.70	192.66	3,277.66	-157.16	-35.29	96.61	3.00	3.00	0.00
3,400.00	26.70	192.66	3,368.14	-198.70	-44.61	122.14	3.00	3.00	0.00
3,500.00	29.70	192.66	3,456.26	-244.80	-54.97	150.48	3.00	3.00	0.00
3,510.98	30.03	192.66	3,465.78	-250.14	-56.16	153.76	3.00	3.00	0.00
3877.34 hold									
3,600.00	30.03	192.66	3,542.85	-293.60	-65.92	180.48	0.00	0.00	0.00
3,700.00	30.03	192.66	3,629.43	-342.43	-76.89	210.50	0.00	0.00	0.00
3,800.00	30.03	192.66	3,716.00	-391.26	-87.85	240.52	0.00	0.00	0.00
3,900.00	30.03	192.66	3,802.58	-440.09	-98.82	270.53	0.00	0.00	0.00
4,000.00	30.03	192.66	3,889.16	-488.92	-109.78	300.55	0.00	0.00	0.00
4,100.00	30.03	192.66	3,975.73	-537.75	-120.74	330.56	0.00	0.00	0.00
4,200.00	30.03	192.66	4,062.31	-586.58	-131.71	360.58	0.00	0.00	0.00
4,300.00	30.03	192.66	4,148.89	-635.40	-142.67	390.60	0.00	0.00	0.00
4,400.00	30.03	192.66	4,235.46	-684.23	-153.63	420.61	0.00	0.00	0.00
4,500.00	30.03	192.66	4,322.04	-733.06	-164.60	450.63	0.00	0.00	0.00
4,600.00	30.03	192.66	4,408.62	-781.89	-175.56	480.64	0.00	0.00	0.00
4,700.00	30.03	192.66	4,495.19	-830.72	-186.53	510.66	0.00	0.00	0.00
4,800.00	30.03	192.66	4,581.77	-879.55	-197.49	540.68	0.00	0.00	0.00
4,900.00	30.03	192.66	4,668.35	-928.38	-208.45	570.69	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

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)
5,000.00	30.03	192.66	4,754.92	-977.21	-219.42	600.71	0.00	0.00	0.00
5,100.00	30.03	192.66	4,841.50	-1,026.03	-230.38	630.72	0.00	0.00	0.00
5,200.00	30.03	192.66	4,928.08	-1,074.86	-241.34	660.74	0.00	0.00	0.00
5,300.00	30.03	192.66	5,014.65	-1,123.69	-252.31	690.76	0.00	0.00	0.00
5,400.00	30.03	192.66	5,101.23	-1,172.52	-263.27	720.77	0.00	0.00	0.00
5,500.00	30.03	192.66	5,187.81	-1,221.35	-274.24	750.79	0.00	0.00	0.00
5,600.00	30.03	192.66	5,274.39	-1,270.18	-285.20	780.80	0.00	0.00	0.00
5,700.00	30.03	192.66	5,360.96	-1,319.01	-296.16	810.82	0.00	0.00	0.00
5,800.00	30.03	192.66	5,447.54	-1,367.84	-307.13	840.84	0.00	0.00	0.00
5,900.00	30.03	192.66	5,534.12	-1,416.66	-318.09	870.85	0.00	0.00	0.00
6,000.00	30.03	192.66	5,620.69	-1,465.49	-329.06	900.87	0.00	0.00	0.00
6,100.00	30.03	192.66	5,707.27	-1,514.32	-340.02	930.89	0.00	0.00	0.00
6,200.00	30.03	192.66	5,793.85	-1,563.15	-350.98	960.90	0.00	0.00	0.00
6,300.00	30.03	192.66	5,880.42	-1,611.98	-361.95	990.92	0.00	0.00	0.00
6,400.00	30.03	192.66	5,967.00	-1,660.81	-372.91	1,020.93	0.00	0.00	0.00
6,500.00	30.03	192.66	6,053.58	-1,709.64	-383.87	1,050.95	0.00	0.00	0.00
6,600.00	30.03	192.66	6,140.15	-1,758.47	-394.84	1,080.97	0.00	0.00	0.00
6,700.00	30.03	192.66	6,226.73	-1,807.29	-405.80	1,110.98	0.00	0.00	0.00
6,800.00	30.03	192.66	6,313.31	-1,856.12	-416.77	1,141.00	0.00	0.00	0.00
6,884.00	30.03	192.66	6,386.03	-1,897.14	-425.97	1,166.21	0.00	0.00	0.00
Exit Sec.10									
6,900.00	30.03	192.66	6,399.88	-1,904.95	-427.73	1,171.01	0.00	0.00	0.00
7,000.00	30.03	192.66	6,486.46	-1,953.78	-438.69	1,201.03	0.00	0.00	0.00
7,100.00	30.03	192.66	6,573.04	-2,002.61	-449.66	1,231.05	0.00	0.00	0.00
7,200.00	30.03	192.66	6,659.61	-2,051.44	-460.62	1,261.06	0.00	0.00	0.00
7,300.00	30.03	192.66	6,746.19	-2,100.27	-471.58	1,291.08	0.00	0.00	0.00
7,388.32	30.03	192.66	6,822.66	-2,143.39	-481.27	1,317.59	0.00	0.00	0.00
DLS 10.00 TFO 79.00									
7,400.00	30.27	194.93	6,832.76	-2,149.09	-482.67	1,321.20	10.00	2.08	19.48
7,450.00	31.73	204.22	6,875.64	-2,173.27	-491.31	1,339.00	10.00	2.92	18.59
7,500.00	33.81	212.63	6,917.70	-2,197.00	-504.22	1,360.50	10.00	4.15	16.82
7,550.00	36.40	220.08	6,958.62	-2,220.08	-521.28	1,385.52	10.00	5.17	14.90
7,600.00	39.39	226.61	6,998.09	-2,242.34	-542.38	1,413.89	10.00	5.98	13.06
7,650.00	42.70	232.32	7,035.81	-2,263.61	-567.34	1,445.38	10.00	6.62	11.42
7,692.00	45.68	236.58	7,065.93	-2,280.60	-591.16	1,474.07	10.00	7.09	10.13
Enter Sec.16									
7,700.00	46.26	237.34	7,071.49	-2,283.73	-595.98	1,479.75	10.00	7.30	9.50
7,750.00	50.02	241.77	7,104.86	-2,302.55	-628.09	1,516.75	10.00	7.51	8.87
7,800.00	53.92	245.74	7,135.66	-2,319.93	-663.41	1,556.09	10.00	7.81	7.93
7,850.00	57.95	249.32	7,163.67	-2,335.72	-701.68	1,597.47	10.00	8.05	7.17
7,900.00	62.06	252.60	7,188.67	-2,349.82	-742.60	1,640.58	10.00	8.23	6.56
7,950.00	66.25	255.63	7,210.46	-2,362.11	-785.87	1,685.08	10.00	8.38	6.07
8,000.00	70.50	258.48	7,228.89	-2,372.50	-831.16	1,730.65	10.00	8.49	5.69
8,050.00	74.78	261.18	7,243.80	-2,380.92	-878.12	1,776.93	10.00	8.57	5.40
8,100.00	79.10	263.77	7,255.10	-2,387.29	-926.39	1,823.57	10.00	8.63	5.18
8,150.00	83.44	266.28	7,262.69	-2,391.57	-975.61	1,870.22	10.00	8.68	5.03
8,200.00	87.79	268.75	7,266.51	-2,393.72	-1,025.40	1,916.52	10.00	8.70	4.94
8,225.38	90.00	270.00	7,267.00	-2,394.00	-1,050.77	1,939.78	10.00	8.71	4.91
2200.61 hold - 7"									
8,300.00	90.00	270.00	7,267.00	-2,394.00	-1,125.39	2,007.84	0.00	0.00	0.00
8,400.00	90.00	270.00	7,267.00	-2,394.00	-1,225.39	2,099.05	0.00	0.00	0.00
8,500.00	90.00	270.00	7,267.00	-2,394.00	-1,325.39	2,190.26	0.00	0.00	0.00
8,600.00	90.00	270.00	7,267.00	-2,394.00	-1,425.39	2,281.48	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

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)
8,700.00	90.00	270.00	7,267.00	-2,394.00	-1,525.39	2,372.69	0.00	0.00	0.00
8,800.00	90.00	270.00	7,267.00	-2,394.00	-1,625.39	2,463.90	0.00	0.00	0.00
8,900.00	90.00	270.00	7,267.00	-2,394.00	-1,725.39	2,555.11	0.00	0.00	0.00
9,000.00	90.00	270.00	7,267.00	-2,394.00	-1,825.39	2,646.32	0.00	0.00	0.00
9,100.00	90.00	270.00	7,267.00	-2,394.00	-1,925.39	2,737.54	0.00	0.00	0.00
9,200.00	90.00	270.00	7,267.00	-2,394.00	-2,025.39	2,828.75	0.00	0.00	0.00
9,300.00	90.00	270.00	7,267.00	-2,394.00	-2,125.39	2,919.96	0.00	0.00	0.00
9,400.00	90.00	270.00	7,267.00	-2,394.00	-2,225.39	3,011.17	0.00	0.00	0.00
9,500.00	90.00	270.00	7,267.00	-2,394.00	-2,325.39	3,102.39	0.00	0.00	0.00
9,600.00	90.00	270.00	7,267.00	-2,394.00	-2,425.39	3,193.60	0.00	0.00	0.00
9,700.00	90.00	270.00	7,267.00	-2,394.00	-2,525.39	3,284.81	0.00	0.00	0.00
9,800.00	90.00	270.00	7,267.00	-2,394.00	-2,625.39	3,376.02	0.00	0.00	0.00
9,900.00	90.00	270.00	7,267.00	-2,394.00	-2,725.39	3,467.23	0.00	0.00	0.00
10,000.00	90.00	270.00	7,267.00	-2,394.00	-2,825.39	3,558.45	0.00	0.00	0.00
10,100.00	90.00	270.00	7,267.00	-2,394.00	-2,925.39	3,649.66	0.00	0.00	0.00
10,200.00	90.00	270.00	7,267.00	-2,394.00	-3,025.39	3,740.87	0.00	0.00	0.00
10,300.00	90.00	270.00	7,267.00	-2,394.00	-3,125.39	3,832.08	0.00	0.00	0.00
10,400.00	90.00	270.00	7,267.00	-2,394.00	-3,225.39	3,923.30	0.00	0.00	0.00
10,425.99	90.00	270.00	7,267.00	-2,394.00	-3,251.38	3,947.00	0.00	0.00	0.00
DLS 2.00 TFO 0.00									
10,453.25	90.55	270.00	7,266.87	-2,394.00	-3,278.65	3,971.87	2.00	2.00	0.00
1233.74 hold									
10,500.00	90.55	270.00	7,266.43	-2,394.00	-3,325.39	4,014.51	0.00	0.00	0.00
10,600.00	90.55	270.00	7,265.47	-2,394.00	-3,425.39	4,105.71	0.00	0.00	0.00
10,700.00	90.55	270.00	7,264.52	-2,394.00	-3,525.38	4,196.92	0.00	0.00	0.00
10,800.00	90.55	270.00	7,263.57	-2,394.00	-3,625.38	4,288.13	0.00	0.00	0.00
10,900.00	90.55	270.00	7,262.62	-2,394.00	-3,725.37	4,379.34	0.00	0.00	0.00
11,000.00	90.55	270.00	7,261.67	-2,394.00	-3,825.37	4,470.55	0.00	0.00	0.00
11,100.00	90.55	270.00	7,260.72	-2,394.00	-3,925.36	4,561.76	0.00	0.00	0.00
11,200.00	90.55	270.00	7,259.76	-2,394.00	-4,025.36	4,652.96	0.00	0.00	0.00
11,300.00	90.55	270.00	7,258.81	-2,394.00	-4,125.35	4,744.17	0.00	0.00	0.00
11,400.00	90.55	270.00	7,257.86	-2,394.00	-4,225.35	4,835.38	0.00	0.00	0.00
11,500.00	90.55	270.00	7,256.91	-2,394.00	-4,325.35	4,926.59	0.00	0.00	0.00
11,600.00	90.55	270.00	7,255.96	-2,394.00	-4,425.34	5,017.80	0.00	0.00	0.00
11,686.99	90.55	270.00	7,255.13	-2,394.00	-4,512.33	5,097.14	0.00	0.00	0.00
DLS 2.00 TFO -180.00									
11,700.00	90.29	270.00	7,255.04	-2,394.00	-4,525.34	5,109.00	2.00	-2.00	0.00
11,714.25	90.00	270.00	7,255.00	-2,394.00	-4,539.59	5,122.00	2.00	-2.00	0.00
787.40 hold									
11,800.00	90.00	270.00	7,255.00	-2,394.00	-4,625.34	5,200.22	0.00	0.00	0.00
11,900.00	90.00	270.00	7,255.00	-2,394.00	-4,725.34	5,291.43	0.00	0.00	0.00
12,000.00	90.00	270.00	7,255.00	-2,394.00	-4,825.34	5,382.64	0.00	0.00	0.00
12,100.00	90.00	270.00	7,255.00	-2,394.00	-4,925.34	5,473.85	0.00	0.00	0.00
12,200.00	90.00	270.00	7,255.00	-2,394.00	-5,025.34	5,565.07	0.00	0.00	0.00
12,300.00	90.00	270.00	7,255.00	-2,394.00	-5,125.34	5,656.28	0.00	0.00	0.00
12,400.00	90.00	270.00	7,255.00	-2,394.00	-5,225.34	5,747.49	0.00	0.00	0.00
12,501.65	90.00	270.00	7,255.00	-2,394.00	-5,326.99	5,840.21	0.00	0.00	0.00
TD at 12501.65									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well DeTienne FD 16-022HC
Company:	Great Western Oil & Gas	TVD Reference:	WELL @ 4855.00usft (Original Well Elev)
Project:	Weld Co., CO	MD Reference:	WELL @ 4855.00usft (Original Well Elev)
Site:	Sec.10-T6N-R67W	North Reference:	True
Well:	DeTienne FD 16-022HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
16-022HC WP2 - plan hits target center - Point	0.00	0.00	7,255.00	-2,394.00	-4,539.59	1,422,906.66	3,166,005.84	40° 29' 33.887 N	104° 54' 11.268 W
BHL 470' FNL & 470' FV - plan hits target center - Point	0.00	0.00	7,255.00	-2,394.00	-5,326.99	1,422,901.22	3,165,218.46	40° 29' 33.885 N	104° 54' 21.459 W
EP 470' FNL & 460' FEL - plan hits target center - Point	0.00	0.00	7,267.00	-2,394.00	-1,050.77	1,422,930.79	3,169,494.57	40° 29' 33.891 N	104° 53' 26.110 W
16-022HC WP1 - plan hits target center - Point	0.00	0.00	7,267.00	-2,394.00	-3,251.38	1,422,915.57	3,167,294.01	40° 29' 33.889 N	104° 53' 54.593 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
8,225.38	7,267.00	7"		7	7-1/2

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
2,510.00	2,510.00	0.00	0.00	Build 3.00	
3,510.98	3,465.78	-250.14	-56.16	3877.34 hold	
6,884.00	6,386.03	-1,897.14	-425.97	Exit Sec.10	
7,388.32	6,822.66	-2,143.39	-481.27	DLS 10.00 TFO 79.00	
7,692.00	7,065.93	-2,280.60	-591.16	Enter Sec.16	
8,225.38	7,267.00	-2,394.00	-1,050.77	2200.61 hold	
10,425.99	7,267.00	-2,394.00	-3,251.38	DLS 2.00 TFO 0.00	
10,453.25	7,266.87	-2,394.00	-3,278.65	1233.74 hold	
11,686.99	7,255.13	-2,394.00	-4,512.33	DLS 2.00 TFO -180.00	
11,714.25	7,255.00	-2,394.00	-4,539.59	787.40 hold	
12,501.65	7,255.00	-2,394.00	-5,326.99	TD at 12501.65	