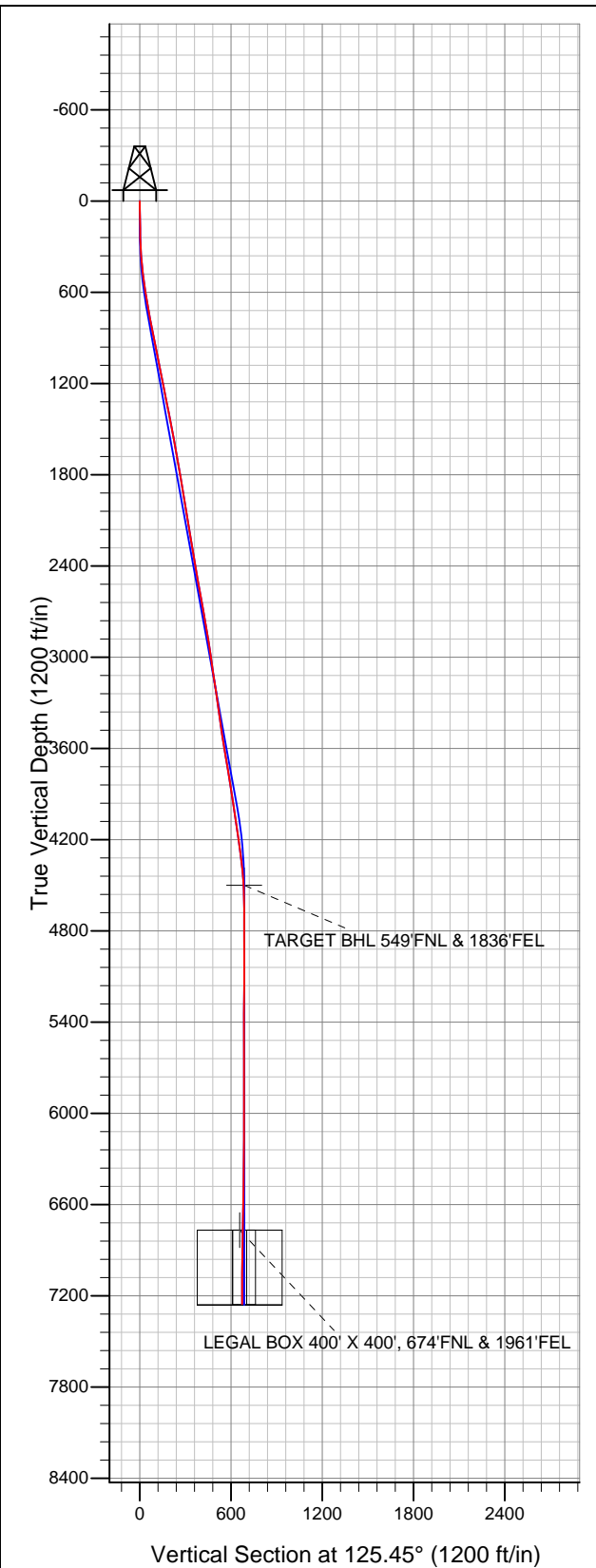


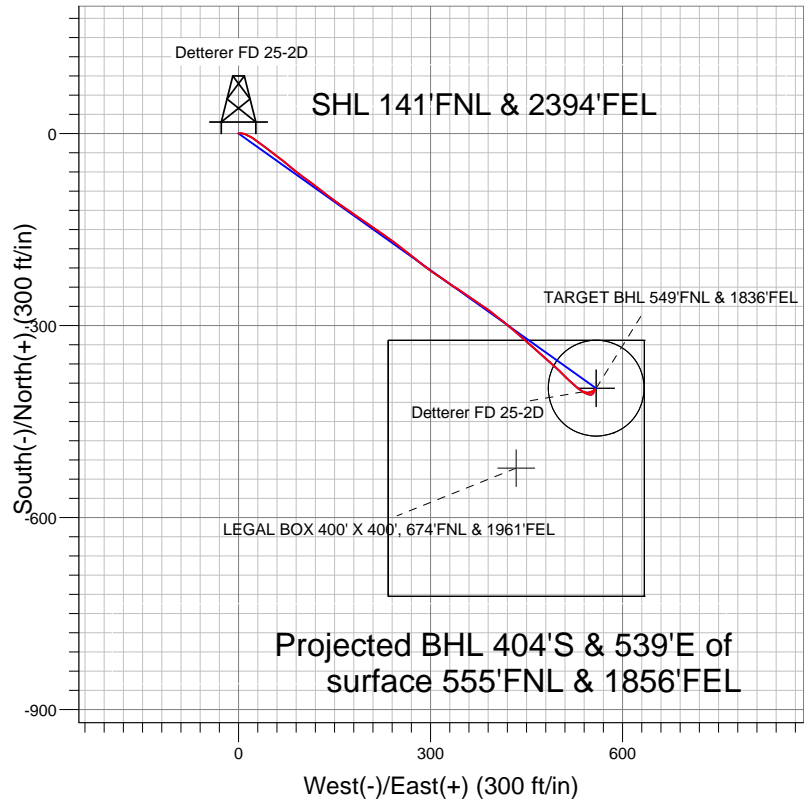


# Well Name: Dettterer FD 25-2D

Surface Location: Dettterer FD 25-6D Pad Sec.25-T6N-R67W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
Ground Elevation: 4744.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1412893.62 3183328.31 40.464925 -104.841117  
Original Well Elev WELL @ 4758.0ft (Original Well Elev)



## Great Western



### LEGEND

- Detterer FD 25-2D, Wellbore #1, Plan #1 (11-16-12) R V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7311'MD & 7254'TVD @ 673'VS  
0.1 deg Inc 130.0 deg AZ

Project: SEC.25-T6N-R67W  
Site: Dettterer FD 25-6D Pad Sec.25-T6N-R67W  
Well: Dettterer FD 25-2D  
Plan: Wellbore #1



## **Great Western**

**SEC.25-T6N-R67W**

**Detterer FD 25-6D Pad Sec.25-T6N-R67W**

**Detterer FD 25-2D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**21 November, 2012**

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Dettterer FD 25-2D
<b>Project:</b>	SEC.25-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4758.0ft (Original Well Elev)
<b>Site:</b>	Dettterer FD 25-6D Pad Sec.25-T6N-R67W	<b>MD Reference:</b>	WELL @ 4758.0ft (Original Well Elev)
<b>Well:</b>	Dettterer FD 25-2D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.25-T6N-R67W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Dettterer FD 25-6D Pad Sec.25-T6N-R67W			
Site Position:		Northing:	1,412,893.64 ft	Latitude:	40.464925
From:	Lat/Long	Easting:	3,183,328.31 ft	Longitude:	-104.841117
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.43 °

Well	Dettterer FD 25-2D					
Well Position	+N/-S	0.0 ft	Northing:	1,412,893.62 ft	Latitude:	40.464925
	+E/-W	0.0 ft	Easting:	3,183,328.31 ft	Longitude:	-104.841117
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,744.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/16/2012	8.72	67.04	53,008

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	125.45	

<b>Survey Program</b>	<b>Date</b>	11/21/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
88.0	7,311.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
88.0	1.10	75.00	88.0	0.2	0.8	0.5	1.25	1.25	0.00	
180.0	1.30	91.00	180.0	0.4	2.7	2.0	0.42	0.22	17.39	
271.0	2.40	95.90	270.9	0.2	5.6	4.5	1.22	1.21	5.38	
362.0	3.80	111.20	361.8	-1.1	10.3	9.0	1.77	1.54	16.81	
453.0	6.10	118.60	452.4	-4.5	17.4	16.8	2.62	2.53	8.13	
544.0	7.90	125.10	542.8	-10.4	26.8	27.8	2.16	1.98	7.14	
605.0	9.60	127.90	603.1	-15.9	34.2	37.1	2.87	2.79	4.59	
661.0	10.60	127.00	658.2	-21.9	42.0	46.9	1.81	1.79	-1.61	
756.0	10.50	127.00	751.6	-32.4	55.9	64.3	0.11	-0.11	0.00	
851.0	10.90	128.80	844.9	-43.2	69.8	81.9	0.55	0.42	1.89	
946.0	10.70	129.50	938.2	-54.4	83.6	99.7	0.25	-0.21	0.74	
1,041.0	11.60	126.80	1,031.5	-65.8	98.1	118.0	1.10	0.95	-2.84	

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Dettterer FD 25-2D
<b>Project:</b>	SEC.25-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4758.0ft (Original Well Elev)
<b>Site:</b>	Dettterer FD 25-6D Pad Sec.25-T6N-R67W	<b>MD Reference:</b>	WELL @ 4758.0ft (Original Well Elev)
<b>Well:</b>	Dettterer FD 25-2D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,135.0	11.80	125.80	1,123.5	-77.0	113.4	137.1	0.30	0.21	-1.06	
1,230.0	11.40	128.30	1,216.6	-88.6	128.7	156.2	0.68	-0.42	2.63	
1,325.0	10.60	127.40	1,309.8	-99.7	143.0	174.3	0.86	-0.84	-0.95	
1,420.0	10.70	124.60	1,403.2	-110.0	157.2	191.8	0.55	0.11	-2.95	
1,515.0	11.00	126.00	1,496.5	-120.3	171.8	209.7	0.42	0.32	1.47	
1,609.0	11.00	123.70	1,588.8	-130.6	186.5	227.7	0.47	0.00	-2.45	
1,704.0	10.00	124.70	1,682.2	-140.3	200.8	245.0	1.07	-1.05	1.05	
1,799.0	9.60	125.40	1,775.8	-149.6	214.1	261.1	0.44	-0.42	0.74	
1,894.0	9.30	123.00	1,869.5	-158.4	227.0	276.7	0.52	-0.32	-2.53	
1,992.0	10.00	128.80	1,966.1	-168.0	240.2	293.1	1.22	0.71	5.92	
2,086.0	9.70	126.30	2,058.7	-177.8	253.0	309.2	0.56	-0.32	-2.66	
2,181.0	8.90	127.70	2,152.5	-187.0	265.2	324.5	0.88	-0.84	1.47	
2,276.0	9.30	129.80	2,246.3	-196.4	276.9	339.5	0.55	0.42	2.21	
2,371.0	9.00	128.10	2,340.1	-205.9	288.7	354.6	0.43	-0.32	-1.79	
2,466.0	9.60	125.10	2,433.8	-215.1	301.0	370.0	0.81	0.63	-3.16	
2,560.0	11.00	123.30	2,526.3	-224.5	314.9	386.8	1.53	1.49	-1.91	
2,655.0	10.50	125.30	2,619.6	-234.5	329.6	404.5	0.66	-0.53	2.11	
2,750.0	9.30	121.90	2,713.2	-243.5	343.2	420.8	1.40	-1.26	-3.58	
2,845.0	9.70	124.70	2,806.9	-252.2	356.2	436.5	0.64	0.42	2.95	
2,940.0	9.30	125.10	2,900.6	-261.1	369.1	452.1	0.43	-0.42	0.42	
3,034.0	8.50	122.80	2,993.5	-269.3	381.2	466.7	0.93	-0.85	-2.45	
3,129.0	7.90	128.80	3,087.5	-277.2	392.2	480.2	1.10	-0.63	6.32	
3,224.0	8.40	127.50	3,181.5	-285.5	402.7	493.7	0.56	0.53	-1.37	
3,319.0	8.30	127.20	3,275.5	-293.8	413.7	507.4	0.11	-0.11	-0.32	
3,413.0	8.30	131.80	3,368.6	-302.5	424.2	521.0	0.71	0.00	4.89	
3,507.0	8.40	130.50	3,461.6	-311.4	434.5	534.6	0.23	0.11	-1.38	
3,602.0	8.70	132.30	3,555.5	-320.8	445.0	548.6	0.42	0.32	1.89	
3,697.0	9.30	129.00	3,649.3	-330.5	456.3	563.4	0.83	0.63	-3.47	
3,792.0	9.70	132.60	3,743.0	-340.7	468.2	579.0	0.75	0.42	3.79	
3,887.0	9.60	132.80	3,836.7	-351.5	479.9	594.8	0.11	-0.11	0.21	
3,981.0	7.90	130.70	3,929.6	-361.0	490.5	609.0	1.84	-1.81	-2.23	
4,076.0	8.40	135.10	4,023.6	-370.2	500.4	622.3	0.84	0.53	4.63	
4,171.0	9.10	134.40	4,117.5	-380.4	510.6	636.6	0.75	0.74	-0.74	
4,266.0	8.40	130.90	4,211.4	-390.2	521.3	650.9	0.93	-0.74	-3.68	
4,361.0	7.10	129.80	4,305.5	-398.5	531.0	663.7	1.38	-1.37	-1.16	
4,455.0	6.20	117.40	4,398.9	-404.5	540.0	674.5	1.80	-0.96	-13.19	
4,550.0	3.30	105.00	4,493.6	-407.6	547.2	682.2	3.22	-3.05	-13.05	
4,556.9	3.16	103.76	4,500.4	-407.7	547.6	682.5	2.34	-2.11	-18.12	
TARGET BHL 549°FNL & 1836°FEL										
4,645.0	1.60	68.70	4,588.5	-407.8	551.1	685.4	2.34	-1.76	-39.77	
4,831.0	0.90	31.90	4,774.5	-405.7	554.3	686.8	0.55	-0.38	-19.78	
5,021.0	0.60	13.50	4,964.4	-403.4	555.3	686.3	0.20	-0.16	-9.68	
5,211.0	0.40	12.10	5,154.4	-401.8	555.6	685.7	0.11	-0.11	-0.74	
5,400.0	0.40	10.40	5,343.4	-400.5	555.9	685.1	0.01	0.00	-0.90	
5,590.0	0.40	55.10	5,533.4	-399.5	556.6	685.1	0.16	0.00	23.53	
5,779.0	0.20	169.40	5,722.4	-399.4	557.2	685.5	0.27	-0.11	60.48	
5,969.0	0.40	208.80	5,912.4	-400.3	556.9	685.9	0.15	0.11	20.74	
6,156.0	0.70	237.80	6,099.4	-401.5	555.6	685.5	0.21	0.16	15.51	
6,346.0	1.00	251.50	6,289.4	-402.7	553.1	684.1	0.19	0.16	7.21	
6,535.0	1.20	248.30	6,478.4	-403.9	549.7	682.0	0.11	0.11	-1.69	
6,725.0	1.40	260.10	6,668.3	-405.0	545.5	679.3	0.18	0.11	6.21	
6,824.4	1.24	277.05	6,767.7	-405.1	543.3	677.5	0.42	-0.17	17.05	
TARGET CIRCLE 549°FNL & 1836°FEL										
6,826.3	1.23	277.40	6,769.5	-405.1	543.2	677.5	0.42	-0.10	19.07	

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Detterer FD 25-2D
<b>Project:</b>	SEC.25-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4758.0ft (Original Well Elev)
<b>Site:</b>	Detterer FD 25-6D Pad Sec.25-T6N-R67W	<b>MD Reference:</b>	WELL @ 4758.0ft (Original Well Elev)
<b>Well:</b>	Detterer FD 25-2D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
LEGAL BOX 400' X 400', 674'FNL & 1961'FEL									
6,914.0	1.20	294.90	6,857.3	-404.6	541.5	675.8	0.42	-0.04	19.94
7,104.0	0.40	291.60	7,047.2	-403.5	539.0	673.2	0.42	-0.42	-1.74
7,262.0	0.10	143.00	7,205.2	-403.4	538.6	672.8	0.31	-0.19	-94.05
7,311.0	0.10	130.00	7,254.2	-403.5	538.7	672.8	0.05	0.00	-26.53

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_