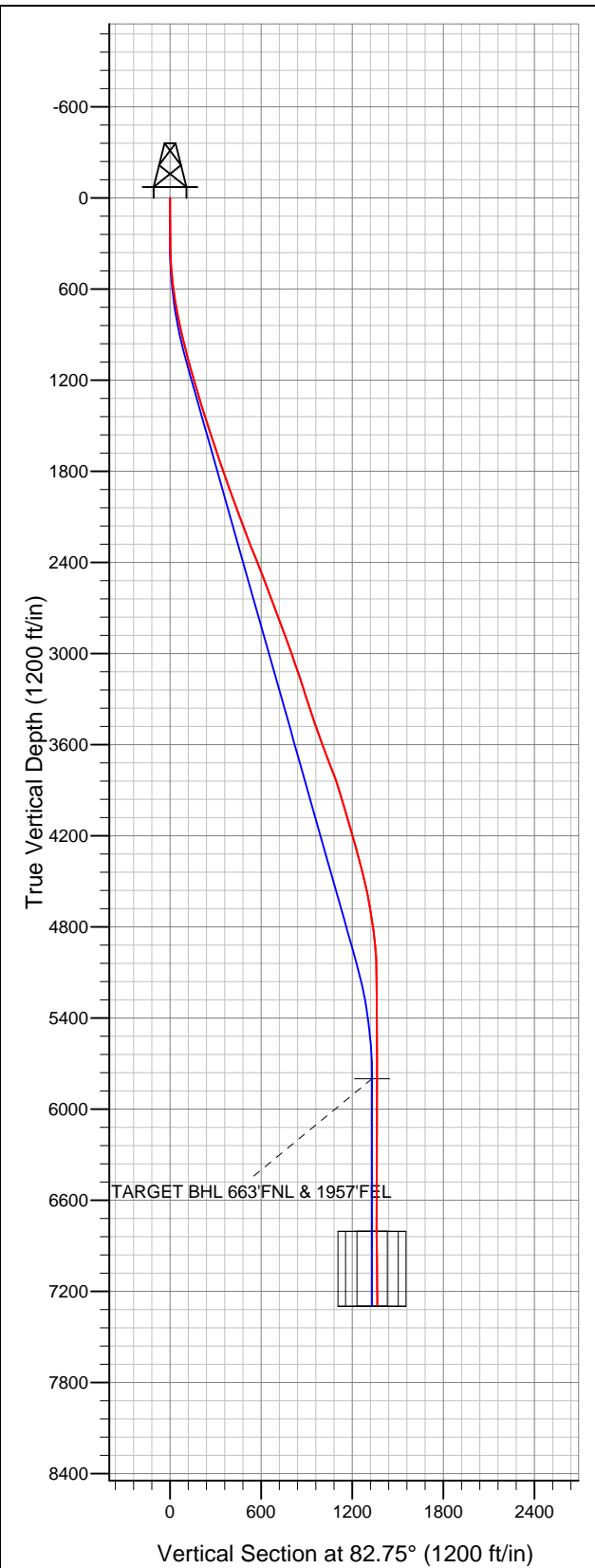


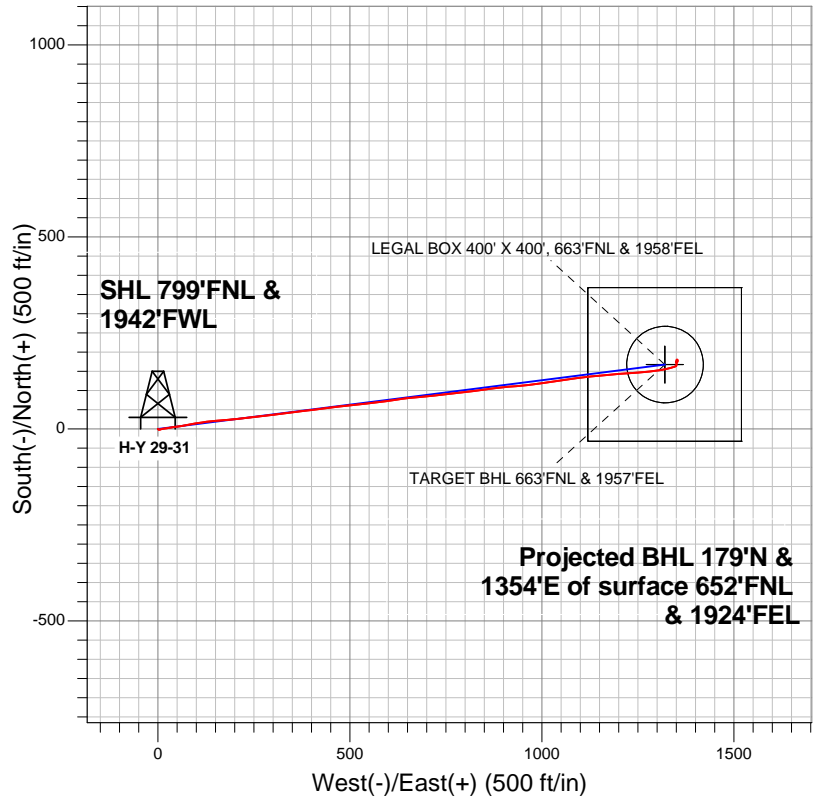
**Well Name: H-Y 29-31**

Surface Location: H-Y (East) Pad Sec.29-T6N-R67W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
Ground Elevation: 4783.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1412016.67	3161528.75	40.462936	-104.919483	
Original Well Elev			WELL @ 4797.0ft (Original Well Elev)			



**Great Western**



**LEGEND**

- Wellbore #1
- H-Y 29-31, Wellbore #1, Plan #2 (7-9-12) R V0
- Survey #1

**Final Survey Plot**

Projected Final Survey -  
7501'MD & 7290'TVD @ 1366'VS  
0.90 deg Inc 153.30 deg AZ

Project: SEC.29-T6N-R67W  
Site: H-Y (East) Pad Sec.29-T6N-R67W  
Well: H-Y 29-31  
Plan: Wellbore #1



## **Great Western**

**SEC.29-T6N-R67W**

**H-Y (East) Pad Sec.29-T6N-R67W**

**H-Y 29-31**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**18 July, 2012**

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well H-Y 29-31
<b>Project:</b>	SEC.29-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4797.0ft (Original Well Elev)
<b>Site:</b>	H-Y (East) Pad Sec.29-T6N-R67W	<b>MD Reference:</b>	WELL @ 4797.0ft (Original Well Elev)
<b>Well:</b>	H-Y 29-31	<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.29-T6N-R67W, Weld County, CO		
<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		H-Y (East) Pad Sec.29-T6N-R67W			
Site Position:		Northing:	1,412,090.58 ft	Latitude:	40.463139 °
From:	Lat/Long	Easting:	3,161,521.31 ft	Longitude:	-104.919508 °
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.38 °

Well	H-Y 29-31					
Well Position	+N/-S	0.0 ft	Northing:	1,412,016.67 ft	Latitude:	40.462936
	+E/-W	0.0 ft	Easting:	3,161,528.75 ft	Longitude:	-104.919483
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,783.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/9/2012	8.81	67.04	53,036

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	82.75

Survey Program		Date	7/17/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
87.0	7,501.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey	Wellbore Data									
	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)
Main Wellbore	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	87.0	0.90	113.70	87.0	-0.3	0.6	0.6	1.03	1.03	0.00
	181.0	1.10	132.40	181.0	-1.2	2.0	1.8	0.40	0.21	19.89
	275.0	0.50	153.80	275.0	-2.2	2.8	2.5	0.70	-0.64	22.77
	366.0	1.70	63.50	366.0	-1.9	4.2	3.9	1.95	1.32	-99.23
	457.0	4.10	75.60	456.8	-0.5	8.6	8.4	2.71	2.64	13.30
	548.0	6.10	79.80	547.5	1.2	16.5	16.5	2.23	2.20	4.62
	639.0	8.30	81.80	637.7	3.0	27.7	27.9	2.43	2.42	2.20
	730.0	10.10	81.80	727.6	5.0	42.1	42.4	1.98	1.98	0.00
	824.0	12.10	80.50	819.8	7.8	60.0	60.5	2.14	2.13	-1.38
	860.0	12.70	80.50	855.0	9.1	67.6	68.2	1.67	1.67	0.00
	917.0	13.10	79.80	910.5	11.3	80.2	81.0	0.75	0.70	-1.23
1,012.0	14.80	79.80	1,002.7	15.3	102.7	103.8	1.79	1.79	0.00	

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well H-Y 29-31
<b>Project:</b>	SEC.29-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4797.0ft (Original Well Elev)
<b>Site:</b>	H-Y (East) Pad Sec.29-T6N-R67W	<b>MD Reference:</b>	WELL @ 4797.0ft (Original Well Elev)
<b>Well:</b>	H-Y 29-31	<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)	
1,107.0	15.50	83.00	1,094.4	19.0	127.2	128.6	1.15	0.74	3.37	
1,201.0	15.90	84.60	1,184.9	21.8	152.5	154.1	0.63	0.43	1.70	
1,296.0	16.50	86.50	1,276.1	23.8	179.0	180.5	0.84	0.63	2.00	
1,391.0	17.20	84.10	1,367.1	26.1	206.4	208.0	1.04	0.74	-2.53	
1,486.0	18.10	83.70	1,457.6	29.2	235.0	236.8	0.96	0.95	-0.42	
1,581.0	18.00	82.10	1,547.9	32.8	264.2	266.3	0.53	-0.11	-1.68	
1,676.0	18.40	83.00	1,638.2	36.6	293.7	295.9	0.51	0.42	0.95	
1,771.0	18.50	83.70	1,728.3	40.1	323.5	326.0	0.26	0.11	0.74	
1,866.0	19.80	83.40	1,818.0	43.6	354.5	357.2	1.37	1.37	-0.32	
1,957.0	19.40	81.60	1,903.8	47.6	384.8	387.7	0.80	-0.44	-1.98	
2,052.0	20.30	83.40	1,993.1	51.8	416.7	419.9	1.15	0.95	1.89	
2,147.0	20.30	82.80	2,082.2	55.8	449.5	452.9	0.22	0.00	-0.63	
2,242.0	20.70	83.40	2,171.2	59.8	482.5	486.2	0.48	0.42	0.63	
2,337.0	20.70	83.50	2,260.1	63.6	515.8	519.7	0.04	0.00	0.11	
2,432.0	21.80	83.90	2,348.6	67.4	550.1	554.2	1.17	1.16	0.42	
2,527.0	22.10	82.80	2,436.7	71.5	585.3	589.7	0.54	0.32	-1.16	
2,621.0	21.00	81.40	2,524.1	76.2	619.5	624.2	1.29	-1.17	-1.49	
2,716.0	20.00	83.70	2,613.1	80.5	652.5	657.5	1.35	-1.05	2.42	
2,811.0	20.60	84.90	2,702.2	83.8	685.3	690.4	0.77	0.63	1.26	
2,906.0	21.10	83.70	2,791.0	87.2	719.0	724.2	0.69	0.53	-1.26	
3,001.0	19.80	83.50	2,880.0	90.9	751.9	757.4	1.37	-1.37	-0.21	
3,096.0	20.10	83.00	2,969.3	94.7	784.1	789.8	0.36	0.32	-0.53	
3,191.0	19.00	83.40	3,058.8	98.5	815.7	821.6	1.17	-1.16	0.42	
3,286.0	18.70	82.50	3,148.7	102.2	846.2	852.3	0.44	-0.32	-0.95	
3,379.0	17.70	82.50	3,237.1	106.0	874.9	881.3	1.08	-1.08	0.00	
3,473.0	18.30	85.30	3,326.5	109.1	903.8	910.4	1.12	0.64	2.98	
3,568.0	17.90	84.40	3,416.8	111.7	933.2	939.9	0.51	-0.42	-0.95	
3,663.0	19.50	83.50	3,506.8	115.0	963.5	970.3	1.71	1.68	-0.95	
3,757.0	20.20	82.30	3,595.2	118.9	995.2	1,002.2	0.86	0.74	-1.28	
3,852.0	21.30	81.80	3,684.0	123.6	1,028.5	1,035.9	1.17	1.16	-0.53	
3,946.0	20.60	81.80	3,771.8	128.4	1,061.8	1,069.5	0.74	-0.74	0.00	
4,041.0	18.80	82.80	3,861.2	132.7	1,093.5	1,101.5	1.93	-1.89	1.05	
4,136.0	15.80	83.00	3,951.9	136.2	1,121.5	1,129.8	3.16	-3.16	0.21	
4,230.0	16.70	84.60	4,042.2	139.0	1,147.7	1,156.0	1.07	0.96	1.70	
4,325.0	16.50	85.30	4,133.2	141.4	1,174.7	1,183.2	0.30	-0.21	0.74	
4,420.0	16.00	85.50	4,224.4	143.5	1,201.2	1,209.7	0.53	-0.53	0.21	
4,514.0	15.40	85.60	4,314.9	145.5	1,226.6	1,235.1	0.64	-0.64	0.11	
4,609.0	14.30	85.80	4,406.7	147.3	1,250.9	1,259.4	1.16	-1.16	0.21	
4,704.0	13.00	84.80	4,499.1	149.1	1,273.2	1,281.8	1.39	-1.37	-1.05	
4,800.0	11.40	83.00	4,592.9	151.3	1,293.4	1,302.1	1.71	-1.67	-1.88	
4,895.0	9.30	79.10	4,686.3	153.9	1,310.2	1,319.2	2.33	-2.21	-4.11	
4,990.0	8.50	76.70	4,780.2	156.9	1,324.6	1,333.8	0.93	-0.84	-2.53	
5,085.0	6.70	76.50	4,874.4	159.8	1,336.8	1,346.3	1.89	-1.89	-0.21	
5,180.0	4.60	69.80	4,968.9	162.5	1,345.8	1,355.5	2.31	-2.21	-7.05	
5,275.0	1.50	28.20	5,063.8	164.9	1,350.0	1,360.0	3.81	-3.26	-43.79	
5,465.0	1.10	354.40	5,253.7	168.9	1,350.9	1,361.5	0.45	-0.21	-17.79	
5,655.0	0.90	16.00	5,443.7	172.1	1,351.2	1,362.1	0.22	-0.11	11.37	
5,844.0	0.80	39.90	5,632.7	174.6	1,352.4	1,363.7	0.19	-0.05	12.65	
6,011.1	0.36	29.85	5,799.8	175.9	1,353.4	1,364.8	0.27	-0.26	-6.01	
TARGET BHL 663°FNL & 1957°FEL										
6,034.0	0.30	26.20	5,822.6	176.0	1,353.5	1,364.9	0.27	-0.25	-15.96	
6,224.0	0.40	219.60	6,012.6	176.0	1,353.3	1,364.7	0.37	0.05	-87.68	
6,413.0	0.60	246.70	6,201.6	175.1	1,352.0	1,363.3	0.16	0.11	14.34	
6,603.0	0.70	226.50	6,391.6	173.9	1,350.2	1,361.4	0.13	0.05	-10.63	

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well H-Y 29-31
<b>Project:</b>	SEC.29-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4797.0ft (Original Well Elev)
<b>Site:</b>	H-Y (East) Pad Sec.29-T6N-R67W	<b>MD Reference:</b>	WELL @ 4797.0ft (Original Well Elev)
<b>Well:</b>	H-Y 29-31	<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)	
7,010.0	1.30	20.00	6,798.6	176.5	1,350.0	1,361.5	0.48	0.15	37.72	
7,017.0	1.29	20.04	6,805.6	176.6	1,350.0	1,361.5	0.16	-0.16	0.62	
TARGET CIRCLE 663'FNL & 1957'FEL - LEGAL BOX 400' X 400', 663'FNL & 1958'FEL										
7,199.0	1.00	21.50	6,987.6	180.0	1,351.3	1,363.2	0.16	-0.16	0.80	
7,388.0	1.00	138.60	7,176.5	180.3	1,353.0	1,365.0	0.90	0.00	61.96	
7,451.0	0.90	153.30	7,239.5	179.5	1,353.6	1,365.4	0.42	-0.16	23.33	
7,501.0	0.90	153.30	7,289.5	178.8	1,354.0	1,365.7	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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