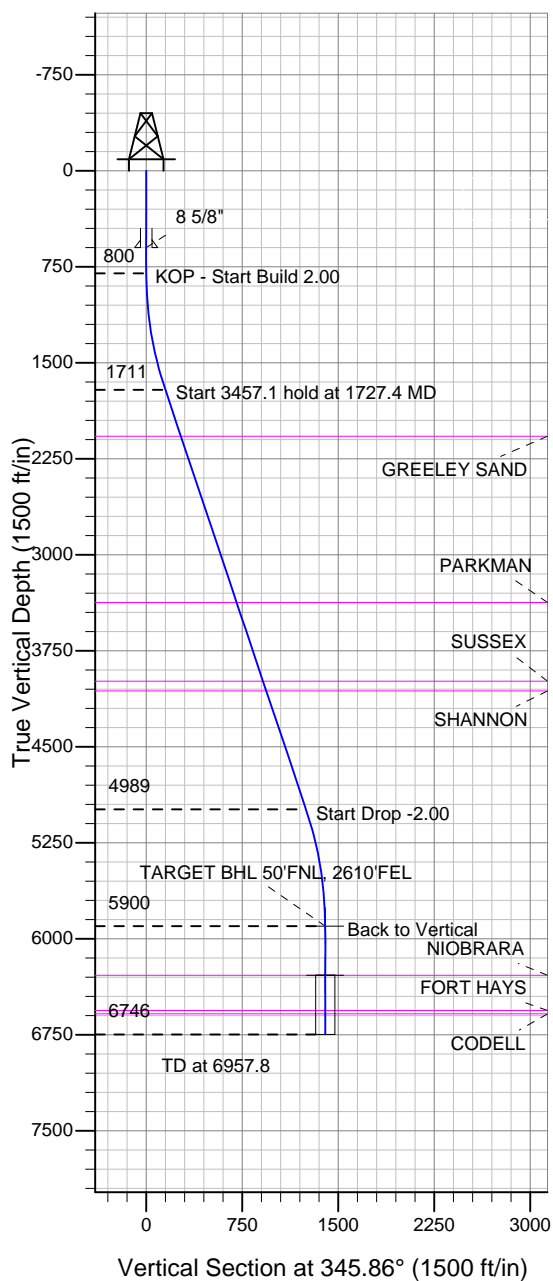


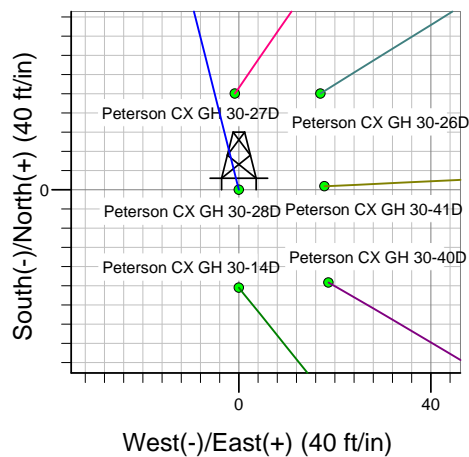
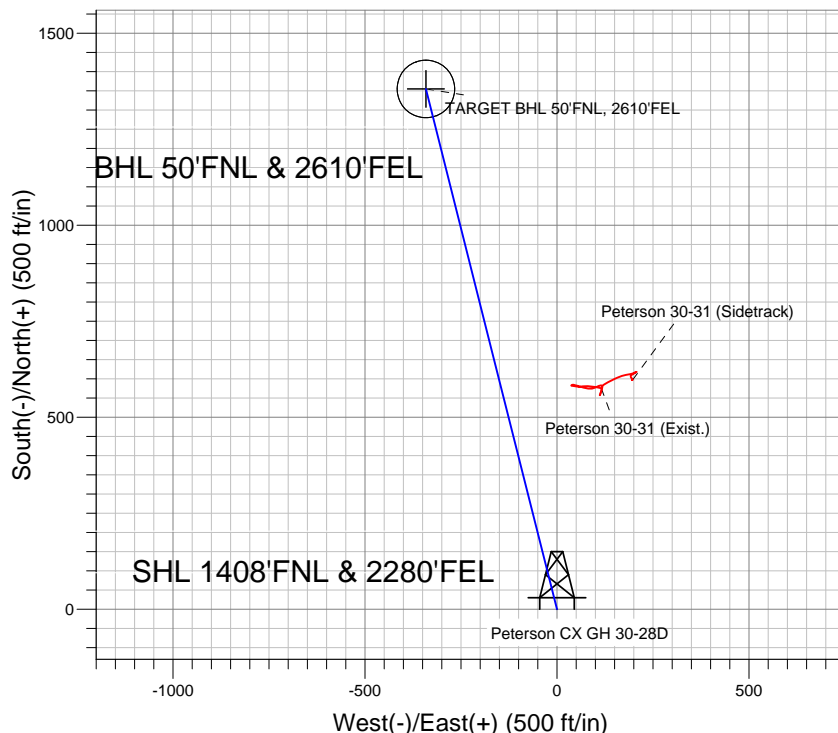
Well Name: Peterson CX GH 30-28D

Surface Location: Peterson CX GH 30-41D Pad Sec.30-T5N-R63W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4574.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1380654.15	3284772.24	40.373792	-104.477889	
		Original Well Elev	WELL @ 4588.0ft (Original Well Elev)			



Great Western



Peterson CX GH 30-41D Pad Sec.30-T5N-R63W
Peterson CX GH 30-28D
Plan #2 (10-11-12)
10:37, October 11 2012



Azimuths to True North
Magnetic North: 8.53°
Magnetic Field
Strength: 53010.5nT
Dip Angle: 67.03°
Date: 10/11/2012
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 50°FNL, 2610°FEL	5900.0	1354.9	-341.3	40.377511	-104.479114	Point
TARGET CIRCLE 50°FNL & 2610°FEL	6284.0	1354.9	-341.3	40.377511	-104.479114	Circle (Radius: 75.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1727.4	18.55	345.86	1711.2	144.3	-36.3	2.00	345.86	148.8	
4	5184.4	18.55	345.86	4988.8	1210.6	-305.0	0.00	0.00	1248.4	
5	6111.8	0.00	0.00	5900.0	1354.9	-341.3	2.00	180.00	1397.2	TARGET BHL 50'FNL, 2610'FEL
6	6957.8	0.00	0.00	6746.0	1354.9	-341.3	0.00	0.00	1397.2	



Great Western

SEC.30-T5N-R63W

Peterson CX GH 30-41D Pad Sec.30-T5N-R63W

Peterson CX GH 30-28D

Wellbore #1

Plan: Plan #2 (10-11-12)

Standard Planning Report

11 October, 2012

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,727.4	18.55	345.86	1,711.2	144.3	-36.3	2.00	2.00	0.00	345.86	
5,184.4	18.55	345.86	4,988.8	1,210.6	-305.0	0.00	0.00	0.00	0.00	
6,111.8	0.00	0.00	5,900.0	1,354.9	-341.3	2.00	-2.00	0.00	180.00	TARGET BHL 50'F
6,957.8	0.00	0.00	6,746.0	1,354.9	-341.3	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Company:	Great Western	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Project:	SEC.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	North Reference:	True
Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-11-12)		

Planned 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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
840.0	0.80	345.86	840.0	0.3	-0.1	0.3	2.00	2.00	0.00
880.0	1.60	345.86	880.0	1.1	-0.3	1.1	2.00	2.00	0.00
920.0	2.40	345.86	920.0	2.4	-0.6	2.5	2.00	2.00	0.00
960.0	3.20	345.86	959.9	4.3	-1.1	4.5	2.00	2.00	0.00
1,000.0	4.00	345.86	999.8	6.8	-1.7	7.0	2.00	2.00	0.00
1,040.0	4.80	345.86	1,039.7	9.7	-2.5	10.0	2.00	2.00	0.00
1,080.0	5.60	345.86	1,079.6	13.3	-3.3	13.7	2.00	2.00	0.00
1,120.0	6.40	345.86	1,119.3	17.3	-4.4	17.9	2.00	2.00	0.00
1,160.0	7.20	345.86	1,159.1	21.9	-5.5	22.6	2.00	2.00	0.00
1,200.0	8.00	345.86	1,198.7	27.0	-6.8	27.9	2.00	2.00	0.00
1,240.0	8.80	345.86	1,238.3	32.7	-8.2	33.7	2.00	2.00	0.00
1,280.0	9.60	345.86	1,277.8	38.9	-9.8	40.1	2.00	2.00	0.00
1,320.0	10.40	345.86	1,317.1	45.6	-11.5	47.1	2.00	2.00	0.00
1,360.0	11.20	345.86	1,356.4	52.9	-13.3	54.6	2.00	2.00	0.00
1,400.0	12.00	345.86	1,395.6	60.7	-15.3	62.6	2.00	2.00	0.00
1,440.0	12.80	345.86	1,434.7	69.0	-17.4	71.2	2.00	2.00	0.00
1,480.0	13.60	345.86	1,473.6	77.9	-19.6	80.3	2.00	2.00	0.00
1,520.0	14.40	345.86	1,512.4	87.3	-22.0	90.0	2.00	2.00	0.00
1,560.0	15.20	345.86	1,551.1	97.2	-24.5	100.2	2.00	2.00	0.00
1,600.0	16.00	345.86	1,589.6	107.6	-27.1	111.0	2.00	2.00	0.00
1,640.0	16.80	345.86	1,628.0	118.6	-29.9	122.3	2.00	2.00	0.00
1,680.0	17.60	345.86	1,666.2	130.0	-32.8	134.1	2.00	2.00	0.00
1,720.0	18.40	345.86	1,704.3	142.0	-35.8	146.5	2.00	2.00	0.00
1,727.4	18.55	345.86	1,711.2	144.3	-36.3	148.8	2.00	2.00	0.00
Start 3457.1 hold at 1727.4 MD									
1,760.0	18.55	345.86	1,742.2	154.4	-38.9	159.2	0.00	0.00	0.00
1,800.0	18.55	345.86	1,780.1	166.7	-42.0	171.9	0.00	0.00	0.00
1,840.0	18.55	345.86	1,818.0	179.0	-45.1	184.6	0.00	0.00	0.00
1,880.0	18.55	345.86	1,856.0	191.4	-48.2	197.3	0.00	0.00	0.00
1,920.0	18.55	345.86	1,893.9	203.7	-51.3	210.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Company:	Great Western	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Project:	SEC.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	North Reference:	True
Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-11-12)		

Planned 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)
1,960.0	18.55	345.86	1,931.8	216.0	-54.4	222.8	0.00	0.00	0.00
2,000.0	18.55	345.86	1,969.7	228.4	-57.5	235.5	0.00	0.00	0.00
2,040.0	18.55	345.86	2,007.7	240.7	-60.6	248.2	0.00	0.00	0.00
2,080.0	18.55	345.86	2,045.6	253.1	-63.7	261.0	0.00	0.00	0.00
2,107.9	18.55	345.86	2,072.0	261.7	-65.9	269.8	0.00	0.00	0.00
GREELEY SAND									
2,120.0	18.55	345.86	2,083.5	265.4	-66.9	273.7	0.00	0.00	0.00
2,160.0	18.55	345.86	2,121.4	277.7	-70.0	286.4	0.00	0.00	0.00
2,200.0	18.55	345.86	2,159.3	290.1	-73.1	299.1	0.00	0.00	0.00
2,240.0	18.55	345.86	2,197.3	302.4	-76.2	311.9	0.00	0.00	0.00
2,280.0	18.55	345.86	2,235.2	314.7	-79.3	324.6	0.00	0.00	0.00
2,320.0	18.55	345.86	2,273.1	327.1	-82.4	337.3	0.00	0.00	0.00
2,360.0	18.55	345.86	2,311.0	339.4	-85.5	350.0	0.00	0.00	0.00
2,400.0	18.55	345.86	2,349.0	351.8	-88.6	362.7	0.00	0.00	0.00
2,440.0	18.55	345.86	2,386.9	364.1	-91.7	375.5	0.00	0.00	0.00
2,480.0	18.55	345.86	2,424.8	376.4	-94.8	388.2	0.00	0.00	0.00
2,520.0	18.55	345.86	2,462.7	388.8	-97.9	400.9	0.00	0.00	0.00
2,560.0	18.55	345.86	2,500.6	401.1	-101.0	413.6	0.00	0.00	0.00
2,600.0	18.55	345.86	2,538.6	413.4	-104.1	426.4	0.00	0.00	0.00
2,640.0	18.55	345.86	2,576.5	425.8	-107.3	439.1	0.00	0.00	0.00
2,680.0	18.55	345.86	2,614.4	438.1	-110.4	451.8	0.00	0.00	0.00
2,720.0	18.55	345.86	2,652.3	450.5	-113.5	464.5	0.00	0.00	0.00
2,760.0	18.55	345.86	2,690.3	462.8	-116.6	477.3	0.00	0.00	0.00
2,800.0	18.55	345.86	2,728.2	475.1	-119.7	490.0	0.00	0.00	0.00
2,840.0	18.55	345.86	2,766.1	487.5	-122.8	502.7	0.00	0.00	0.00
2,880.0	18.55	345.86	2,804.0	499.8	-125.9	515.4	0.00	0.00	0.00
2,920.0	18.55	345.86	2,841.9	512.2	-129.0	528.1	0.00	0.00	0.00
2,960.0	18.55	345.86	2,879.9	524.5	-132.1	540.9	0.00	0.00	0.00
3,000.0	18.55	345.86	2,917.8	536.8	-135.2	553.6	0.00	0.00	0.00
3,040.0	18.55	345.86	2,955.7	549.2	-138.3	566.3	0.00	0.00	0.00
3,080.0	18.55	345.86	2,993.6	561.5	-141.4	579.0	0.00	0.00	0.00
3,120.0	18.55	345.86	3,031.6	573.8	-144.6	591.8	0.00	0.00	0.00
3,160.0	18.55	345.86	3,069.5	586.2	-147.7	604.5	0.00	0.00	0.00
3,200.0	18.55	345.86	3,107.4	598.5	-150.8	617.2	0.00	0.00	0.00
3,240.0	18.55	345.86	3,145.3	610.9	-153.9	629.9	0.00	0.00	0.00
3,280.0	18.55	345.86	3,183.2	623.2	-157.0	642.7	0.00	0.00	0.00
3,320.0	18.55	345.86	3,221.2	635.5	-160.1	655.4	0.00	0.00	0.00
3,360.0	18.55	345.86	3,259.1	647.9	-163.2	668.1	0.00	0.00	0.00
3,400.0	18.55	345.86	3,297.0	660.2	-166.3	680.8	0.00	0.00	0.00
3,440.0	18.55	345.86	3,334.9	672.5	-169.4	693.6	0.00	0.00	0.00
3,479.1	18.55	345.86	3,372.0	684.6	-172.5	706.0	0.00	0.00	0.00
PARKMAN									
3,480.0	18.55	345.86	3,372.9	684.9	-172.5	706.3	0.00	0.00	0.00
3,520.0	18.55	345.86	3,410.8	697.2	-175.6	719.0	0.00	0.00	0.00
3,560.0	18.55	345.86	3,448.7	709.6	-178.7	731.7	0.00	0.00	0.00
3,600.0	18.55	345.86	3,486.6	721.9	-181.8	744.4	0.00	0.00	0.00
3,640.0	18.55	345.86	3,524.6	734.2	-185.0	757.2	0.00	0.00	0.00
3,680.0	18.55	345.86	3,562.5	746.6	-188.1	769.9	0.00	0.00	0.00
3,720.0	18.55	345.86	3,600.4	758.9	-191.2	782.6	0.00	0.00	0.00
3,760.0	18.55	345.86	3,638.3	771.2	-194.3	795.3	0.00	0.00	0.00
3,800.0	18.55	345.86	3,676.2	783.6	-197.4	808.1	0.00	0.00	0.00
3,840.0	18.55	345.86	3,714.2	795.9	-200.5	820.8	0.00	0.00	0.00
3,880.0	18.55	345.86	3,752.1	808.3	-203.6	833.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Company:	Great Western	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Project:	SEC.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	North Reference:	True
Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-11-12)		

Planned 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)
3,920.0	18.55	345.86	3,790.0	820.6	-206.7	846.2	0.00	0.00	0.00
3,960.0	18.55	345.86	3,827.9	832.9	-209.8	859.0	0.00	0.00	0.00
4,000.0	18.55	345.86	3,865.9	845.3	-212.9	871.7	0.00	0.00	0.00
4,040.0	18.55	345.86	3,903.8	857.6	-216.0	884.4	0.00	0.00	0.00
4,080.0	18.55	345.86	3,941.7	869.9	-219.1	897.1	0.00	0.00	0.00
4,120.0	18.55	345.86	3,979.6	882.3	-222.3	909.8	0.00	0.00	0.00
4,126.7	18.55	345.86	3,986.0	884.4	-222.8	912.0	0.00	0.00	0.00
SUSSEX									
4,160.0	18.55	345.86	4,017.5	894.6	-225.4	922.6	0.00	0.00	0.00
4,200.0	18.55	345.86	4,055.5	907.0	-228.5	935.3	0.00	0.00	0.00
4,207.9	18.55	345.86	4,063.0	909.4	-229.1	937.8	0.00	0.00	0.00
SHANNON									
4,240.0	18.55	345.86	4,093.4	919.3	-231.6	948.0	0.00	0.00	0.00
4,280.0	18.55	345.86	4,131.3	931.6	-234.7	960.7	0.00	0.00	0.00
4,320.0	18.55	345.86	4,169.2	944.0	-237.8	973.5	0.00	0.00	0.00
4,360.0	18.55	345.86	4,207.2	956.3	-240.9	986.2	0.00	0.00	0.00
4,400.0	18.55	345.86	4,245.1	968.7	-244.0	998.9	0.00	0.00	0.00
4,440.0	18.55	345.86	4,283.0	981.0	-247.1	1,011.6	0.00	0.00	0.00
4,480.0	18.55	345.86	4,320.9	993.3	-250.2	1,024.4	0.00	0.00	0.00
4,520.0	18.55	345.86	4,358.8	1,005.7	-253.3	1,037.1	0.00	0.00	0.00
4,560.0	18.55	345.86	4,396.8	1,018.0	-256.4	1,049.8	0.00	0.00	0.00
4,600.0	18.55	345.86	4,434.7	1,030.3	-259.5	1,062.5	0.00	0.00	0.00
4,640.0	18.55	345.86	4,472.6	1,042.7	-262.7	1,075.3	0.00	0.00	0.00
4,680.0	18.55	345.86	4,510.5	1,055.0	-265.8	1,088.0	0.00	0.00	0.00
4,720.0	18.55	345.86	4,548.5	1,067.4	-268.9	1,100.7	0.00	0.00	0.00
4,760.0	18.55	345.86	4,586.4	1,079.7	-272.0	1,113.4	0.00	0.00	0.00
4,800.0	18.55	345.86	4,624.3	1,092.0	-275.1	1,126.1	0.00	0.00	0.00
4,840.0	18.55	345.86	4,662.2	1,104.4	-278.2	1,138.9	0.00	0.00	0.00
4,880.0	18.55	345.86	4,700.1	1,116.7	-281.3	1,151.6	0.00	0.00	0.00
4,920.0	18.55	345.86	4,738.1	1,129.0	-284.4	1,164.3	0.00	0.00	0.00
4,960.0	18.55	345.86	4,776.0	1,141.4	-287.5	1,177.0	0.00	0.00	0.00
5,000.0	18.55	345.86	4,813.9	1,153.7	-290.6	1,189.8	0.00	0.00	0.00
5,040.0	18.55	345.86	4,851.8	1,166.1	-293.7	1,202.5	0.00	0.00	0.00
5,080.0	18.55	345.86	4,889.8	1,178.4	-296.8	1,215.2	0.00	0.00	0.00
5,120.0	18.55	345.86	4,927.7	1,190.7	-300.0	1,227.9	0.00	0.00	0.00
5,160.0	18.55	345.86	4,965.6	1,203.1	-303.1	1,240.7	0.00	0.00	0.00
5,184.4	18.55	345.86	4,988.8	1,210.6	-305.0	1,248.4	0.00	0.00	0.00
Start Drop -2.00									
5,200.0	18.24	345.86	5,003.5	1,215.4	-306.2	1,253.3	2.00	-2.00	0.00
5,240.0	17.44	345.86	5,041.6	1,227.3	-309.2	1,265.6	2.00	-2.00	0.00
5,280.0	16.64	345.86	5,079.9	1,238.6	-312.0	1,277.3	2.00	-2.00	0.00
5,320.0	15.84	345.86	5,118.3	1,249.5	-314.7	1,288.5	2.00	-2.00	0.00
5,360.0	15.04	345.86	5,156.8	1,259.8	-317.3	1,299.1	2.00	-2.00	0.00
5,400.0	14.24	345.86	5,195.5	1,269.6	-319.8	1,309.2	2.00	-2.00	0.00
5,440.0	13.44	345.86	5,234.4	1,278.9	-322.2	1,318.8	2.00	-2.00	0.00
5,480.0	12.64	345.86	5,273.3	1,287.6	-324.4	1,327.8	2.00	-2.00	0.00
5,520.0	11.84	345.86	5,312.4	1,295.8	-326.4	1,336.3	2.00	-2.00	0.00
5,560.0	11.04	345.86	5,351.6	1,303.5	-328.4	1,344.2	2.00	-2.00	0.00
5,600.0	10.24	345.86	5,390.9	1,310.7	-330.2	1,351.6	2.00	-2.00	0.00
5,640.0	9.44	345.86	5,430.4	1,317.3	-331.8	1,358.5	2.00	-2.00	0.00
5,680.0	8.64	345.86	5,469.9	1,323.4	-333.4	1,364.7	2.00	-2.00	0.00
5,720.0	7.84	345.86	5,509.4	1,328.9	-334.8	1,370.5	2.00	-2.00	0.00
5,760.0	7.04	345.86	5,549.1	1,334.0	-336.0	1,375.6	2.00	-2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Company:	Great Western	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Project:	SEC.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	North Reference:	True
Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-11-12)		

Planned 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)
5,800.0	6.24	345.86	5,588.8	1,338.5	-337.2	1,380.3	2.00	-2.00	0.00
5,840.0	5.44	345.86	5,628.6	1,342.4	-338.2	1,384.3	2.00	-2.00	0.00
5,880.0	4.64	345.86	5,668.5	1,345.8	-339.0	1,387.8	2.00	-2.00	0.00
5,920.0	3.84	345.86	5,708.4	1,348.7	-339.7	1,390.8	2.00	-2.00	0.00
5,960.0	3.04	345.86	5,748.3	1,351.0	-340.3	1,393.2	2.00	-2.00	0.00
6,000.0	2.24	345.86	5,788.3	1,352.8	-340.8	1,395.0	2.00	-2.00	0.00
6,040.0	1.44	345.86	5,828.2	1,354.0	-341.1	1,396.3	2.00	-2.00	0.00
6,080.0	0.64	345.86	5,868.2	1,354.7	-341.3	1,397.0	2.00	-2.00	0.00
6,111.8	0.00	0.00	5,900.0	1,354.9	-341.3	1,397.2	2.00	-2.00	0.00
Back to Vertical - TARGET BHL 50'FNL, 2610'FEL									
6,120.0	0.00	0.00	5,908.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,160.0	0.00	0.00	5,948.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,200.0	0.00	0.00	5,988.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,240.0	0.00	0.00	6,028.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,280.0	0.00	0.00	6,068.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,320.0	0.00	0.00	6,108.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,360.0	0.00	0.00	6,148.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,188.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,440.0	0.00	0.00	6,228.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,480.0	0.00	0.00	6,268.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,495.8	0.00	0.00	6,284.0	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
NIORARA - TARGET CIRCLE 50'FNL & 2610'FEL									
6,520.0	0.00	0.00	6,308.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,560.0	0.00	0.00	6,348.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,388.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,640.0	0.00	0.00	6,428.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,680.0	0.00	0.00	6,468.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,720.0	0.00	0.00	6,508.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,760.0	0.00	0.00	6,548.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,770.8	0.00	0.00	6,559.0	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
FORT HAYS									
6,797.8	0.00	0.00	6,586.0	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
CODELL									
6,800.0	0.00	0.00	6,588.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,840.0	0.00	0.00	6,628.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,880.0	0.00	0.00	6,668.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,920.0	0.00	0.00	6,708.2	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
6,957.8	0.00	0.00	6,746.0	1,354.9	-341.3	1,397.2	0.00	0.00	0.00
TD at 6957.8									

Targets

Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET CIRCLE 50'	- plan hits target center - Circle (radius 75.0)	0.00	0.00	6,284.0	1,354.9	-341.3	1,382,004.95	3,284,415.36	40.377511	-104.479114
TARGET BHL 50'FNL	- plan hits target center - Point	0.00	0.00	5,900.0	1,354.9	-341.3	1,382,004.95	3,284,415.36	40.377511	-104.479114

Database:	Landmark	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Company:	Great Western	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Project:	SEC.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	North Reference:	True
Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-11-12)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
600.0	600.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,107.9	2,072.0	GREELEY SAND		0.00	
3,479.1	3,372.0	PARKMAN		0.00	
4,126.7	3,986.0	SUSSEX		0.00	
4,207.9	4,063.0	SHANNON		0.00	
6,495.8	6,284.0	NIOBRARA		0.00	
6,770.8	6,559.0	FORT HAYS		0.00	
6,797.8	6,586.0	CODELL		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP - Start Build 2.00
1,727.4	1,711.2	144.3	-36.3	Start 3457.1 hold at 1727.4 MD
5,184.4	4,988.8	1,210.6	-305.0	Start Drop -2.00
6,111.8	5,900.0	1,354.9	-341.3	Back to Vertical
6,957.8	6,746.0	1,354.9	-341.3	TD at 6957.8



Great Western

SEC.30-T5N-R63W

Peterson CX GH 30-41D Pad Sec.30-T5N-R63W

Peterson CX GH 30-28D

Wellbore #1

Plan #2 (10-11-12)

Anticollision Report

11 October, 2012

Company:	Great Western	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Project:	SEC.30-T5N-R63W	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Reference Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-11-12)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (10-11-12)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	10/11/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	6,957.8	Plan #2 (10-11-12) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Peterson CX GH 30-41D Pad Sec.30-T5N-R63W						
Peterson 30-31 (Exist.) - Wellbore #1 - Wellbore #1	2,965.0	2,886.5	254.1	237.1	14.963	CC
Peterson 30-31 (Exist.) - Wellbore #1 - Wellbore #1	3,000.0	2,919.9	254.3	237.1	14.742	ES
Peterson 30-31 (Exist.) - Wellbore #1 - Wellbore #1	3,200.0	3,110.8	264.2	245.7	14.267	SF
Peterson 30-31 (Sidetrack) - Wellbore #1 - Wellbore #1	2,634.0	2,537.0	298.9	285.1	21.603	CC, ES
Peterson 30-31 (Sidetrack) - Wellbore #1 - Wellbore #1	3,200.0	3,086.6	347.2	328.4	18.463	SF
Peterson CX GH 30-14D - Wellbore #1 - Plan #1 (7-25-1)	400.0	400.0	20.4	18.8	12.969	CC, ES
Peterson CX GH 30-14D - Wellbore #1 - Plan #1 (7-25-1)	600.0	598.6	26.2	23.7	10.809	SF
Peterson CX GH 30-26D - Wellbore #1 - Plan #1 (7-25-1)	200.0	200.0	26.3	25.6	38.957	CC, ES
Peterson CX GH 30-26D - Wellbore #1 - Plan #1 (7-25-1)	500.0	496.3	41.3	39.3	20.364	SF
Peterson CX GH 30-27D - Wellbore #1 - Plan #1 (7-25-1)	400.0	400.0	20.1	18.5	12.746	CC, ES
Peterson CX GH 30-27D - Wellbore #1 - Plan #1 (7-25-1)	600.0	598.6	25.9	23.5	10.484	SF
Peterson CX GH 30-41D - Wellbore #1 - Plan #1 (7-25-1)	400.0	400.0	17.8	16.3	11.343	CC, ES
Peterson CX GH 30-41D - Wellbore #1 - Plan #1 (7-25-1)	500.0	499.3	19.6	17.6	9.740	SF

Offset Design												
Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson 30-31 (Exist.) - Wellbore #1 - Wellbore #1												
Survey Program: 1047-MWD												
Reference		Offset		Semi Major Axis			Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.0	0.0	0.0	0.0	0.0	0.0	11.33	557.4	111.7	568.5			
100.0	100.0	99.0	99.0	0.1	0.1	11.33	557.5	111.7	568.6	568.3	0.22	2,538.181
200.0	200.0	198.0	198.0	0.3	0.2	11.33	557.7	111.8	568.8	568.3	0.56	1,015.423
300.0	300.0	296.9	296.9	0.6	0.3	11.34	558.1	111.9	569.3	568.4	0.90	635.089
400.0	400.0	395.9	395.9	0.8	0.4	11.35	558.7	112.2	569.9	568.7	1.23	462.376
500.0	500.0	494.9	494.9	1.0	0.6	11.36	559.5	112.5	570.7	569.1	1.57	363.803
600.0	600.0	593.9	593.9	1.2	0.7	11.38	560.4	112.8	571.7	569.8	1.90	300.117
700.0	700.0	692.8	692.8	1.5	0.8	11.40	561.5	113.2	572.9	570.6	2.24	255.618
800.0	800.0	791.8	791.8	1.7	0.9	11.42	562.8	113.7	574.2	571.6	2.58	222.797
900.0	900.0	890.8	890.7	1.9	1.0	25.66	564.2	114.2	574.1	571.2	2.91	197.017
1,000.0	999.8	989.7	989.6	2.1	1.1	25.94	565.8	114.8	571.1	567.9	3.25	175.542
1,100.0	1,099.5	1,089.1	1,089.0	2.4	1.3	26.40	567.5	115.5	565.2	561.5	3.64	155.417
1,200.0	1,198.7	1,189.1	1,189.0	2.6	1.5	27.07	569.3	116.1	556.1	552.0	4.08	136.403
1,300.0	1,297.5	1,288.7	1,288.6	2.9	1.7	27.96	570.9	116.6	543.8	539.3	4.52	120.260

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Great Western	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Project:	SEC.30-T5N-R63W	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Reference Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson 30-31 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 1047-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
1,400.0	1,395.6	1,387.7	1,387.6	3.2	1.9	29.09	572.3	117.1	528.5	523.6	4.98	106.191	
1,500.0	1,493.1	1,486.0	1,485.9	3.6	2.1	30.51	573.7	117.4	510.3	504.9	5.45	93.662	
1,600.0	1,589.6	1,583.5	1,583.3	4.0	2.3	32.26	575.0	117.8	489.4	483.4	5.95	82.306	
1,700.0	1,685.3	1,679.9	1,679.8	4.5	2.5	34.42	576.2	118.0	465.8	459.4	6.48	71.878	
1,727.4	1,711.2	1,706.2	1,706.0	4.6	2.5	35.10	576.5	118.0	459.0	452.4	6.64	69.166	
1,800.0	1,780.1	1,775.6	1,775.5	5.0	2.7	36.78	577.3	118.1	440.7	433.7	7.07	62.298	
1,900.0	1,874.9	1,871.2	1,871.1	5.6	2.9	39.33	578.3	118.2	416.2	408.4	7.72	53.931	
2,000.0	1,969.7	1,966.8	1,966.6	6.1	3.1	42.18	579.1	118.3	392.4	384.0	8.41	46.680	
2,100.0	2,064.5	2,062.3	2,062.1	6.7	3.3	45.36	579.9	118.2	369.5	360.4	9.14	40.409	
2,200.0	2,159.3	2,157.8	2,157.6	7.3	3.5	48.93	580.7	118.1	347.8	337.9	9.94	35.004	
2,300.0	2,254.1	2,253.2	2,253.0	7.9	3.7	52.93	581.3	117.9	327.6	316.8	10.79	30.373	
2,400.0	2,349.0	2,348.5	2,348.4	8.5	3.9	57.40	581.8	117.7	309.0	297.3	11.69	26.444	
2,500.0	2,443.8	2,443.9	2,443.7	9.1	4.1	62.37	582.3	117.4	292.5	279.9	12.63	23.156	
2,600.0	2,538.6	2,539.2	2,539.0	9.7	4.3	67.84	582.6	117.0	278.4	264.8	13.61	20.460	
2,700.0	2,633.4	2,634.4	2,634.2	10.4	4.5	73.80	582.9	116.6	267.2	252.6	14.59	18.314	
2,800.0	2,728.2	2,729.6	2,729.4	11.0	4.7	80.16	583.0	116.0	259.3	243.7	15.55	16.674	
2,900.0	2,823.0	2,824.7	2,824.5	11.6	4.9	86.81	583.1	115.5	254.9	238.4	16.45	15.499	
2,965.0	2,884.6	2,886.5	2,886.3	12.0	5.0	91.22	583.1	115.1	254.1	237.1	16.98	14.963 CC	
3,000.0	2,917.8	2,919.9	2,919.7	12.2	5.0	93.60	583.1	114.8	254.3	237.1	17.25	14.742 ES	
3,100.0	3,012.6	3,015.3	3,015.2	12.9	5.3	100.37	583.0	114.0	257.5	239.5	17.95	14.346	
3,200.0	3,107.4	3,110.8	3,110.6	13.5	5.5	106.93	582.7	112.9	264.2	245.7	18.52	14.267 SF	
3,300.0	3,202.2	3,206.1	3,205.9	14.1	5.7	113.14	582.2	111.7	274.3	255.3	18.98	14.455	
3,400.0	3,297.0	3,301.4	3,301.2	14.7	5.9	118.93	581.7	110.1	287.4	268.1	19.34	14.864	
3,500.0	3,391.8	3,396.6	3,396.4	15.4	6.1	124.23	581.0	108.4	303.2	283.6	19.63	15.449	
3,600.0	3,486.6	3,491.8	3,491.5	16.0	6.3	129.05	580.1	106.4	321.3	301.4	19.87	16.171	
3,700.0	3,581.4	3,586.9	3,586.6	16.6	6.5	133.39	579.1	104.2	341.4	321.3	20.08	16.997	
3,800.0	3,676.2	3,681.9	3,681.6	17.3	6.7	137.30	578.0	101.8	363.1	342.8	20.29	17.896	
3,900.0	3,771.0	3,776.9	3,776.5	17.9	6.9	140.81	576.7	99.2	386.2	365.7	20.49	18.846	
4,000.0	3,865.9	3,873.8	3,873.3	18.5	7.1	144.02	575.4	96.2	410.4	389.7	20.71	19.819	
4,100.0	3,960.7	3,971.8	3,971.4	19.2	7.3	146.92	574.6	92.6	435.0	414.0	20.94	20.771	
4,200.0	4,055.5	4,070.3	4,069.7	19.8	7.5	149.52	574.2	88.3	459.7	438.5	21.19	21.689	
4,300.0	4,150.3	4,169.1	4,168.4	20.4	7.7	151.87	574.4	83.5	484.4	462.9	21.47	22.566	
4,400.0	4,245.1	4,268.3	4,267.5	21.1	8.0	154.02	575.1	78.1	509.1	487.3	21.76	23.399	
4,500.0	4,339.9	4,367.9	4,366.8	21.7	8.2	155.99	576.3	72.0	533.6	511.5	22.06	24.183	
4,600.0	4,434.7	4,467.8	4,466.5	22.3	8.4	157.80	578.0	65.3	557.8	535.4	22.39	24.917	
4,700.0	4,529.5	4,568.0	4,566.4	23.0	8.6	159.49	580.2	58.0	581.8	559.1	22.73	25.602	
4,800.0	4,624.3	4,662.9	4,661.0	23.6	8.8	160.98	582.7	50.6	605.7	582.6	23.08	26.249	
4,900.0	4,719.1	4,747.0	4,744.9	24.2	9.0	162.22	584.1	44.5	630.9	607.5	23.44	26.922	
5,000.0	4,813.9	4,826.2	4,823.9	24.9	9.2	163.23	584.1	40.4	658.9	635.0	23.81	27.669	
5,100.0	4,908.7	4,910.2	4,907.9	25.5	9.4	164.14	583.2	37.7	688.9	664.7	24.21	28.459	
5,184.4	4,988.8	4,986.7	4,984.4	26.0	9.5	164.77	582.6	37.1	715.2	690.6	24.56	29.115	
5,200.0	5,003.5	5,000.9	4,998.6	26.1	9.5	164.90	582.5	37.2	720.0	695.4	24.64	29.224	
5,300.0	5,099.0	5,092.9	5,090.6	26.6	9.7	165.56	582.1	38.3	749.6	724.6	25.09	29.878	
5,400.0	5,195.5	5,186.7	5,184.3	27.0	9.9	166.07	581.7	40.0	776.4	750.9	25.53	30.412	
5,500.0	5,292.9	5,280.9	5,278.6	27.4	10.1	166.41	581.2	42.5	800.3	774.3	25.95	30.835	
5,600.0	5,390.9	5,380.1	5,377.7	27.8	10.3	166.65	581.0	45.5	820.9	794.5	26.37	31.133	
5,700.0	5,489.6	5,476.1	5,473.7	28.1	10.5	166.80	580.6	48.7	838.3	811.6	26.75	31.343	
5,800.0	5,588.8	5,576.3	5,573.8	28.3	10.7	166.90	580.1	51.5	852.3	825.2	27.10	31.448	
5,900.0	5,688.4	5,672.2	5,669.6	28.5	10.9	166.92	579.5	54.6	863.2	835.8	27.42	31.482	
6,000.0	5,788.3	5,775.9	5,773.3	28.7	11.1	166.88	578.6	57.7	870.8	843.1	27.72	31.415	
6,100.0	5,888.2	5,880.0	5,877.3	28.8	11.3	166.70	579.1	61.4	874.2	846.2	28.00	31.226	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Great Western	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Project:	SEC.30-T5N-R63W	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Reference Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson 30-31 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 1047-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
6,111.8	5,900.0	5,891.4	5,888.7	28.8	11.3	152.54	579.1	61.9	874.3	846.3	28.02	31.200		
6,200.0	5,988.2	5,977.2	5,974.4	28.9	11.5	152.30	579.8	65.7	875.6	847.2	28.36	30.877		
6,300.0	6,088.2	6,073.3	6,070.4	29.0	11.7	151.98	580.5	70.7	877.4	848.6	28.75	30.513		
6,400.0	6,188.2	6,157.0	6,153.9	29.1	11.8	151.60	581.3	77.0	880.1	850.9	29.14	30.204		
6,500.0	6,288.2	6,243.7	6,240.2	29.2	12.0	151.17	580.6	85.0	885.2	855.6	29.54	29.967		
6,600.0	6,388.2	6,350.2	6,346.3	29.3	12.2	150.69	579.5	94.0	890.2	860.2	29.99	29.683		
6,700.0	6,488.2	6,457.7	6,453.6	29.4	12.5	150.32	578.3	101.3	894.5	864.1	30.44	29.392		
6,800.0	6,588.2	6,561.3	6,556.9	29.5	12.7	150.03	577.3	107.1	898.1	867.3	30.86	29.101		
6,900.0	6,688.2	6,664.9	6,660.4	29.6	12.9	149.78	576.3	112.2	901.4	870.2	31.29	28.811		
6,957.8	6,746.0	6,724.3	6,719.8	29.6	13.0	149.66	575.8	114.8	903.2	871.6	31.53	28.645		

Company:	Great Western	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Project:	SEC.30-T5N-R63W	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Reference Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson 30-31 (Sidetrack) - Wellbore #1 - Wellbore													Offset Site Error:	0.0 ft
Survey Program: 1047-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	11.33	11.33	557.4	111.7	568.5				
100.0	100.0	99.0	99.0	0.1	0.1	11.33	11.33	557.5	111.7	568.6	568.3	0.22	2,538.181	
200.0	200.0	198.0	198.0	0.3	0.2	11.33	11.33	557.7	111.8	568.8	568.3	0.56	1,015.423	
300.0	300.0	296.9	296.9	0.6	0.3	11.34	11.34	558.1	111.9	569.3	568.4	0.90	635.089	
400.0	400.0	395.9	395.9	0.8	0.4	11.35	11.35	558.7	112.2	569.9	568.7	1.23	462.376	
500.0	500.0	494.9	494.9	1.0	0.6	11.36	11.36	559.5	112.5	570.7	569.1	1.57	363.803	
600.0	600.0	593.9	593.9	1.2	0.7	11.38	11.38	560.4	112.8	571.7	569.8	1.90	300.117	
700.0	700.0	692.8	692.8	1.5	0.8	11.40	11.40	561.5	113.2	572.9	570.6	2.24	255.618	
800.0	800.0	791.8	791.8	1.7	0.9	11.42	11.42	562.8	113.7	574.2	571.6	2.58	222.797	
900.0	900.0	890.8	890.7	1.9	1.0	25.66	25.66	564.2	114.2	574.1	571.2	2.91	197.017	
1,000.0	999.8	989.7	989.6	2.1	1.1	25.94	25.94	565.8	114.8	571.1	567.9	3.25	175.542	
1,100.0	1,099.5	1,089.1	1,089.0	2.4	1.3	26.40	26.40	567.5	115.5	565.2	561.5	3.64	155.430	
1,200.0	1,198.7	1,189.1	1,189.0	2.6	1.5	27.07	27.07	569.3	116.1	556.1	552.0	4.08	136.438	
1,300.0	1,297.5	1,288.7	1,288.6	2.9	1.7	27.96	27.96	570.9	116.6	543.8	539.3	4.52	120.310	
1,400.0	1,395.6	1,387.7	1,387.6	3.2	1.9	29.09	29.09	572.3	117.1	528.5	523.6	4.97	106.252	
1,500.0	1,493.1	1,486.0	1,485.9	3.6	2.1	30.51	30.51	573.7	117.5	510.3	504.9	5.44	93.727	
1,600.0	1,589.6	1,583.5	1,583.3	4.0	2.3	32.26	32.26	575.0	117.8	489.4	483.4	5.94	82.369	
1,700.0	1,685.3	1,680.0	1,679.8	4.5	2.5	34.42	34.42	576.2	118.0	465.8	459.4	6.48	71.936	
1,727.4	1,711.2	1,706.2	1,706.0	4.6	2.5	35.10	35.10	576.5	118.0	459.0	452.4	6.63	69.223	
1,800.0	1,780.1	1,775.6	1,775.5	5.0	2.7	36.78	36.78	577.3	118.2	440.7	433.7	7.07	62.348	
1,900.0	1,874.9	1,871.2	1,871.1	5.6	2.9	39.33	39.33	578.2	118.3	416.1	408.4	7.71	53.974	
2,000.0	1,969.7	1,966.8	1,966.6	6.1	3.1	42.18	42.18	579.1	118.3	392.4	384.0	8.40	46.716	
2,100.0	2,064.5	2,062.3	2,062.1	6.7	3.3	45.36	45.36	579.9	118.2	369.5	360.4	9.14	40.438	
2,200.0	2,159.3	2,157.8	2,157.6	7.3	3.5	48.93	48.93	580.6	118.1	347.8	337.9	9.93	35.028	
2,300.0	2,254.1	2,251.2	2,251.0	7.9	3.7	52.87	52.87	581.3	118.2	327.8	317.0	10.77	30.433	
2,400.0	2,349.0	2,332.3	2,332.1	8.5	3.8	56.74	56.74	583.0	119.8	311.8	300.2	11.62	26.830	
2,500.0	2,443.8	2,415.6	2,415.2	9.1	4.0	61.17	61.17	586.9	124.9	302.5	290.0	12.52	24.155	
2,600.0	2,538.6	2,505.2	2,504.1	9.7	4.2	66.48	66.48	591.3	133.9	299.1	285.7	13.50	22.163	
2,634.0	2,570.8	2,537.0	2,535.7	10.0	4.3	68.38	68.38	593.1	137.2	298.9	285.1	13.84	21.603 CC, ES	
2,700.0	2,633.4	2,599.3	2,597.6	10.4	4.5	72.09	72.09	596.5	143.7	299.7	285.2	14.50	20.674	
2,800.0	2,728.2	2,694.1	2,691.7	11.0	4.7	77.69	77.69	601.7	153.8	303.6	288.1	15.47	19.627	
2,900.0	2,823.0	2,788.1	2,785.1	11.6	5.0	83.25	83.25	605.9	164.4	310.8	294.4	16.39	18.959	
3,000.0	2,917.8	2,883.9	2,880.1	12.2	5.2	88.87	88.87	608.9	175.6	321.3	304.0	17.26	18.611	
3,100.0	3,012.6	2,983.5	2,979.1	12.9	5.4	94.43	94.43	611.2	186.3	333.9	315.8	18.07	18.476	
3,200.0	3,107.4	3,086.6	3,081.8	13.5	5.7	99.79	99.79	613.2	195.2	347.2	328.4	18.81	18.463 SF	
3,300.0	3,202.2	3,192.6	3,187.6	14.1	5.9	104.84	104.84	615.3	201.3	360.4	340.9	19.48	18.503	
3,400.0	3,297.0	3,296.0	3,291.0	14.7	6.1	109.52	109.52	617.0	204.3	373.1	353.1	20.08	18.586	
3,500.0	3,391.8	3,387.8	3,382.7	15.4	6.3	113.51	113.51	617.7	206.2	387.4	366.8	20.61	18.792	
3,600.0	3,486.6	3,490.3	3,485.2	16.0	6.5	117.78	117.78	617.7	207.6	403.1	382.1	21.08	19.124	
3,700.0	3,581.4	3,589.9	3,584.8	16.6	6.7	121.73	121.73	617.4	207.2	419.3	397.8	21.49	19.508	
3,800.0	3,676.2	3,685.7	3,680.7	17.3	6.9	125.24	125.24	617.2	206.3	436.6	414.7	21.88	19.959	
3,900.0	3,771.0	3,783.0	3,777.9	17.9	7.1	128.57	128.57	617.1	204.7	454.9	432.7	22.22	20.470	
4,000.0	3,865.9	3,872.8	3,867.7	18.5	7.3	131.46	131.46	616.5	203.5	475.1	452.6	22.56	21.061	
4,100.0	3,960.7	3,965.9	3,960.8	19.2	7.5	134.21	134.21	615.7	202.8	497.2	474.3	22.88	21.732	
4,200.0	4,055.5	4,060.8	4,055.7	19.8	7.6	136.75	136.75	615.0	202.3	520.5	497.3	23.19	22.442	
4,300.0	4,150.3	4,159.4	4,154.3	20.4	7.8	139.22	139.22	614.1	201.3	544.3	520.8	23.49	23.175	
4,400.0	4,245.1	4,258.1	4,253.0	21.1	8.0	141.63	141.63	612.7	198.6	568.1	544.3	23.76	23.908	
4,500.0	4,339.9	4,349.5	4,344.3	21.7	8.2	143.61	143.61	611.8	196.8	593.0	568.9	24.06	24.640	
4,600.0	4,434.7	4,445.1	4,439.9	22.3	8.4	145.45	145.45	611.6	195.2	618.2	593.8	24.38	25.353	
4,700.0	4,529.5	4,528.8	4,523.5	23.0	8.6	146.95	146.95	610.6	194.6	645.3	620.6	24.72	26.104	
4,800.0	4,624.3	4,633.3	4,628.0	23.6	8.8	148.61	148.61	610.2	194.1	672.6	647.5	25.06	26.841	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson 30-31 (Sidetrack) - Wellbore #1 - Wellbore													Offset Site Error:	0.0 ft
Survey Program: 1047-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
4,900.0	4,719.1	4,725.8	4,720.6	24.2	9.0	149.96	610.1	193.6	700.0	674.6	25.41	27.542		
5,000.0	4,813.9	4,820.5	4,815.3	24.9	9.2	151.25	609.8	193.0	727.8	702.0	25.78	28.236		
5,100.0	4,908.7	4,911.6	4,906.3	25.5	9.3	152.40	609.4	192.5	756.2	730.0	26.14	28.923		
5,184.4	4,988.8	4,986.4	4,981.2	26.0	9.5	153.29	608.6	192.3	780.9	754.4	26.46	29.513		
5,200.0	5,003.5	5,001.7	4,996.4	26.1	9.5	153.51	608.4	192.3	785.4	758.9	26.52	29.622		
5,300.0	5,099.0	5,099.8	5,094.6	26.6	9.7	154.75	607.5	192.3	813.0	786.1	26.86	30.266		
5,400.0	5,195.5	5,194.3	5,189.1	27.0	9.9	155.74	606.8	192.2	837.5	810.3	27.21	30.777		
5,500.0	5,292.9	5,282.5	5,277.2	27.4	10.1	156.54	605.5	192.4	859.9	832.3	27.55	31.214		
5,600.0	5,390.9	5,376.3	5,371.0	27.8	10.3	157.24	603.3	192.9	880.0	852.1	27.87	31.573		
5,700.0	5,489.6	5,482.2	5,476.9	28.1	10.5	157.78	602.0	194.2	896.5	868.3	28.21	31.779		
5,800.0	5,588.8	5,580.6	5,575.2	28.3	10.7	158.18	600.8	195.0	909.7	881.2	28.52	31.896		
5,900.0	5,688.4	5,684.0	5,678.6	28.5	10.9	158.51	599.3	195.3	919.6	890.7	28.81	31.915		
6,000.0	5,788.3	5,786.5	5,781.2	28.7	11.1	158.71	598.5	195.6	925.6	896.5	29.09	31.823		
6,100.0	5,888.2	5,888.7	5,883.3	28.8	11.4	158.77	597.9	196.0	928.3	899.0	29.34	31.641		
6,111.8	5,900.0	5,901.1	5,895.8	28.8	11.4	144.63	597.8	196.1	928.4	899.0	29.37	31.612		
6,200.0	5,988.2	5,990.7	5,985.4	28.9	11.6	144.64	597.5	196.2	928.7	899.0	29.68	31.294		
6,300.0	6,088.2	6,090.9	6,085.6	29.0	11.8	144.66	597.1	196.1	929.0	899.0	30.03	30.932		
6,400.0	6,188.2	6,192.5	6,187.2	29.1	12.0	144.69	596.7	195.8	929.2	898.8	30.39	30.573		
6,500.0	6,288.2	6,299.9	6,294.5	29.2	12.2	144.70	596.7	195.4	928.9	898.2	30.77	30.191		
6,600.0	6,388.2	6,395.8	6,390.5	29.3	12.4	144.68	597.3	195.4	928.5	897.4	31.13	29.829		
6,700.0	6,488.2	6,494.2	6,488.8	29.4	12.6	144.64	597.8	196.0	928.3	896.8	31.50	29.474		
6,717.8	6,506.0	6,511.3	6,506.0	29.4	12.6	144.63	597.9	196.1	928.3	896.8	31.56	29.412		
6,800.0	6,588.2	6,590.7	6,585.4	29.5	12.8	144.59	598.1	196.6	928.4	896.6	31.86	29.138		
6,900.0	6,688.2	6,688.3	6,683.0	29.6	13.0	144.56	598.1	197.4	928.9	896.7	32.23	28.821		
6,957.8	6,746.0	6,744.0	6,738.7	29.6	13.1	144.54	598.0	197.7	929.3	896.8	32.44	28.643		

Company:	Great Western	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Project:	SEC.30-T5N-R63W	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Reference Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson CX GH 30-14D - Wellbore #1 - Plan #1 (7-													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis Reference	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	180.00	-20.4	0.0	20.4				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	180.00	-20.4	0.0	20.4	20.2	0.22	90.785	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	180.00	-20.4	0.0	20.4	19.7	0.67	30.262	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	180.00	-20.4	0.0	20.4	19.3	1.12	18.157	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	180.00	-20.4	0.0	20.4	18.8	1.57	12.969 CC, ES	
500.0	500.0	499.4	499.4	1.0	1.0	177.15		-21.7	1.1	21.8	19.8	2.00	10.895	
600.0	600.0	598.6	598.4	1.2	1.2	170.49		-25.8	4.3	26.2	23.7	2.42	10.809 SF	
700.0	700.0	697.3	696.7	1.5	1.4	163.39		-32.4	9.7	34.0	31.1	2.86	11.876	
800.0	800.0	795.3	794.0	1.7	1.7	157.68		-41.6	17.1	45.4	42.1	3.31	13.694	
900.0	900.0	892.1	889.6	1.9	2.0	167.99		-53.2	26.4	62.0	58.2	3.77	16.465	
1,000.0	999.8	986.9	982.8	2.1	2.3	165.89		-67.1	37.6	85.3	81.1	4.23	20.174	
1,100.0	1,099.5	1,079.2	1,072.8	2.4	2.7	164.79		-82.8	50.3	115.1	110.4	4.69	24.528	
1,200.0	1,198.7	1,168.4	1,159.2	2.6	3.1	164.21		-100.2	64.3	151.0	145.8	5.15	29.325	
1,300.0	1,297.5	1,254.2	1,241.6	2.9	3.6	163.89		-118.8	79.3	192.7	187.1	5.60	34.432	
1,400.0	1,395.6	1,336.2	1,319.6	3.2	4.0	163.68		-138.5	95.1	240.1	234.0	6.04	39.720	
1,500.0	1,493.1	1,421.7	1,400.6	3.6	4.6	163.58		-159.9	112.4	291.6	285.1	6.48	45.034	
1,600.0	1,589.6	1,505.6	1,480.1	4.0	5.1	163.58		-180.9	129.3	346.0	339.1	6.91	50.088	
1,700.0	1,685.3	1,587.6	1,557.7	4.5	5.6	163.61		-201.4	145.8	403.1	395.8	7.33	54.973	
1,727.4	1,711.2	1,609.7	1,578.6	4.6	5.8	163.63		-207.0	150.3	419.3	411.8	7.45	56.290	
1,800.0	1,780.1	1,668.2	1,634.0	5.0	6.2	163.93		-221.6	162.1	462.3	454.5	7.80	59.271	
1,900.0	1,874.9	1,748.7	1,710.2	5.6	6.7	164.27		-241.7	178.3	521.6	513.3	8.29	62.902	
2,000.0	1,969.7	1,829.2	1,786.4	6.1	7.2	164.54		-261.9	194.5	581.0	572.2	8.79	66.060	
2,100.0	2,064.5	1,909.6	1,862.6	6.7	7.8	164.76		-282.0	210.8	640.3	631.0	9.30	68.822	
2,200.0	2,159.3	1,990.1	1,938.8	7.3	8.3	164.94		-302.2	227.0	699.6	689.8	9.82	71.246	
2,300.0	2,254.1	2,070.6	2,015.0	7.9	8.8	165.10		-322.3	243.2	758.9	748.6	10.34	73.389	
2,400.0	2,349.0	2,151.1	2,091.3	8.5	9.4	165.23		-342.5	259.5	818.3	807.4	10.87	75.295	
2,500.0	2,443.8	2,231.6	2,167.5	9.1	9.9	165.34		-362.6	275.7	877.6	866.2	11.40	76.999	
2,600.0	2,538.6	2,312.1	2,243.7	9.7	10.5	165.44		-382.8	291.9	936.9	925.0	11.93	78.530	
2,700.0	2,633.4	2,392.5	2,319.9	10.4	11.0	165.53		-402.9	308.2	996.3	983.8	12.47	79.910	

Company:	Great Western	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Project:	SEC.30-T5N-R63W	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Reference Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson CX GH 30-26D - Wellbore #1 - Plan #1 (7-													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	40.32	20.0	17.0	26.3					
100.0	100.0	100.0	100.0	0.1	0.1	40.32	20.0	17.0	26.3	26.0	0.22	116.870		
200.0	200.0	200.0	200.0	0.3	0.3	40.32	20.0	17.0	26.3	25.6	0.67	38.957 CC, ES		
300.0	300.0	299.1	299.1	0.6	0.6	41.39	20.9	18.5	27.9	26.8	1.12	24.948		
400.0	400.0	398.0	397.8	0.8	0.8	43.97	23.6	22.8	32.9	31.3	1.57	20.942		
500.0	500.0	496.3	495.8	1.0	1.0	46.86	28.1	30.0	41.3	39.3	2.03	20.364 SF		
600.0	600.0	594.0	592.8	1.2	1.3	49.36	34.3	40.0	53.2	50.7	2.49	21.348		
700.0	700.0	690.8	688.4	1.5	1.6	51.29	42.2	52.6	68.4	65.5	2.96	23.146		
800.0	800.0	786.5	782.4	1.7	2.0	52.73	51.6	67.8	87.0	83.6	3.43	25.393		
900.0	900.0	880.9	874.5	1.9	2.4	68.37	62.5	85.4	108.2	104.3	3.90	27.771		
1,000.0	999.8	974.1	964.7	2.1	2.8	70.65	74.9	105.3	131.6	127.2	4.37	30.124		
1,100.0	1,099.5	1,065.8	1,052.7	2.4	3.3	73.21	88.6	127.3	157.3	152.5	4.85	32.415		
1,200.0	1,198.7	1,155.9	1,138.2	2.6	3.9	75.78	103.4	151.2	185.6	180.3	5.37	34.598		
1,300.0	1,297.5	1,244.1	1,221.2	2.9	4.5	78.22	119.4	176.8	216.6	210.7	5.92	36.609		
1,400.0	1,395.6	1,330.6	1,301.4	3.2	5.1	80.46	136.3	204.0	250.4	243.8	6.52	38.401		
1,500.0	1,493.1	1,415.0	1,378.9	3.6	5.7	82.46	154.0	232.6	286.9	279.7	7.19	39.923		
1,600.0	1,589.6	1,500.0	1,455.8	4.0	6.5	84.30	173.1	263.3	326.3	318.4	7.94	41.121		
1,700.0	1,685.3	1,577.5	1,525.0	4.5	7.2	85.73	191.5	292.9	368.5	359.8	8.74	42.166		
1,727.4	1,711.2	1,600.0	1,544.9	4.6	7.4	86.13	197.0	301.8	380.5	371.5	8.98	42.386		
1,800.0	1,780.1	1,660.0	1,597.7	5.0	7.9	87.74	212.1	326.0	413.2	403.6	9.66	42.784		
1,900.0	1,874.9	1,747.9	1,675.1	5.6	8.8	89.72	234.2	361.6	458.8	448.2	10.65	43.103		
2,000.0	1,969.7	1,835.9	1,752.4	6.1	9.7	91.34	256.3	397.2	504.8	493.1	11.66	43.276		
2,100.0	2,064.5	1,923.9	1,829.7	6.7	10.5	92.70	278.4	432.8	551.0	538.3	12.71	43.353		
2,200.0	2,159.3	2,011.8	1,907.1	7.3	11.4	93.85	300.6	468.4	597.5	583.7	13.78	43.370		
2,300.0	2,254.1	2,099.8	1,984.4	7.9	12.2	94.83	322.7	504.0	644.1	629.2	14.86	43.350		
2,400.0	2,349.0	2,187.8	2,061.7	8.5	13.1	95.69	344.8	539.6	690.8	674.9	15.95	43.306		
2,500.0	2,443.8	2,275.7	2,139.1	9.1	14.0	96.43	366.9	575.2	737.7	720.6	17.06	43.249		
2,600.0	2,538.6	2,363.7	2,216.4	9.7	14.9	97.09	389.1	610.8	784.6	766.4	18.17	43.185		
2,700.0	2,633.4	2,451.7	2,293.7	10.4	15.7	97.68	411.2	646.4	831.6	812.3	19.29	43.118		
2,800.0	2,728.2	2,539.6	2,371.1	11.0	16.6	98.20	433.3	682.0	878.7	858.3	20.41	43.049		
2,900.0	2,823.0	2,627.6	2,448.4	11.6	17.5	98.67	455.4	717.6	925.8	904.2	21.54	42.981		
3,000.0	2,917.8	2,715.5	2,525.7	12.2	18.4	99.09	477.6	753.2	972.9	950.3	22.67	42.915		

Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson CX GH 30-27D - Wellbore #1 - Plan #1 (7-													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-2.39	20.0	-0.8	20.1					
100.0	100.0	100.0	100.0	0.1	0.1	-2.39	20.0	-0.8	20.1	19.8	0.22	89.224		
200.0	200.0	200.0	200.0	0.3	0.3	-2.39	20.0	-0.8	20.1	19.4	0.67	29.741		
300.0	300.0	300.0	300.0	0.6	0.6	-2.39	20.0	-0.8	20.1	18.9	1.12	17.845		
400.0	400.0	400.0	400.0	0.8	0.8	-2.39	20.0	-0.8	20.1	18.5	1.57	12.746 CC, ES		
500.0	500.0	499.4	499.4	1.0	1.0	0.38	21.5	0.1	21.5	19.4	2.02	10.622		
600.0	600.0	598.6	598.4	1.2	1.2	6.81	25.7	3.1	25.9	23.5	2.47	10.484 SF		
700.0	700.0	697.3	696.7	1.5	1.5	13.60	32.7	7.9	33.8	30.9	2.93	11.546		
800.0	800.0	795.2	794.0	1.7	1.7	19.01	42.4	14.6	45.3	41.9	3.39	13.372		
900.0	900.0	892.5	890.1	1.9	2.0	37.88	54.8	23.1	58.9	55.1	3.85	15.325		
1,000.0	999.8	989.0	984.9	2.1	2.4	42.82	69.7	33.4	73.6	69.3	4.30	17.111		
1,100.0	1,099.5	1,084.7	1,078.2	2.4	2.7	47.64	87.1	45.4	89.7	84.9	4.77	18.804		
1,200.0	1,198.7	1,179.5	1,170.0	2.6	3.2	52.19	106.8	59.0	107.3	102.1	5.26	20.418		
1,300.0	1,297.5	1,273.4	1,259.9	2.9	3.7	56.37	128.8	74.2	126.9	121.1	5.79	21.917		
1,400.0	1,395.6	1,366.1	1,347.9	3.2	4.2	60.15	152.9	90.8	148.4	142.0	6.38	23.251		
1,500.0	1,493.1	1,459.5	1,435.6	3.6	4.8	63.61	179.3	109.1	171.9	164.8	7.06	24.334		
1,600.0	1,589.6	1,556.0	1,525.9	4.0	5.4	67.12	207.2	128.3	195.2	187.4	7.85	24.886		
1,700.0	1,685.3	1,652.3	1,616.1	4.5	6.0	70.63	235.0	147.5	218.2	209.4	8.75	24.944		
1,727.4	1,711.2	1,678.6	1,640.8	4.6	6.2	71.60	242.6	152.7	224.4	215.4	9.01	24.896		
1,800.0	1,780.1	1,748.4	1,706.2	5.0	6.7	74.29	262.7	166.6	241.3	231.5	9.76	24.707		
1,900.0	1,874.9	1,844.6	1,796.2	5.6	7.3	77.44	290.5	185.8	265.1	254.3	10.84	24.460		
2,000.0	1,969.7	1,940.7	1,886.2	6.1	8.0	80.08	318.2	204.9	289.7	277.7	11.95	24.240		
2,100.0	2,064.5	2,036.9	1,976.3	6.7	8.6	82.30	346.0	224.0	314.7	301.6	13.09	24.049		
2,200.0	2,159.3	2,133.0	2,066.3	7.3	9.3	84.20	373.7	243.2	340.1	325.9	14.24	23.887		
2,300.0	2,254.1	2,229.1	2,156.3	7.9	10.0	85.83	401.5	262.3	365.8	350.4	15.40	23.750		
2,400.0	2,349.0	2,325.3	2,246.4	8.5	10.6	87.26	429.2	281.5	391.8	375.2	16.58	23.635		
2,500.0	2,443.8	2,421.4	2,336.4	9.1	11.3	88.50	456.9	300.6	417.9	400.2	17.76	23.537		
2,600.0	2,538.6	2,517.6	2,426.5	9.7	12.0	89.60	484.7	319.8	444.3	425.3	18.94	23.454		
2,700.0	2,633.4	2,613.7	2,516.5	10.4	12.6	90.58	512.4	338.9	470.7	450.6	20.13	23.383		
2,800.0	2,728.2	2,709.8	2,606.5	11.0	13.3	91.45	540.2	358.1	497.3	476.0	21.32	23.323		
2,900.0	2,823.0	2,806.0	2,696.6	11.6	14.0	92.24	567.9	377.2	523.9	501.4	22.52	23.271		
3,000.0	2,917.8	2,902.1	2,786.6	12.2	14.6	92.95	595.7	396.4	550.7	527.0	23.71	23.226		
3,100.0	3,012.6	2,998.3	2,876.6	12.9	15.3	93.59	623.4	415.5	577.5	552.6	24.91	23.187		
3,200.0	3,107.4	3,094.4	2,966.7	13.5	16.0	94.18	651.2	434.7	604.4	578.3	26.11	23.152		
3,300.0	3,202.2	3,190.6	3,056.7	14.1	16.6	94.71	678.9	453.8	631.3	604.0	27.30	23.123		
3,400.0	3,297.0	3,286.7	3,146.8	14.7	17.3	95.21	706.7	473.0	658.3	629.8	28.50	23.097		
3,500.0	3,391.8	3,382.8	3,236.8	15.4	18.0	95.66	734.4	492.1	685.4	655.7	29.70	23.073		
3,600.0	3,486.6	3,479.0	3,326.8	16.0	18.7	96.08	762.2	511.2	712.4	681.5	30.90	23.053		
3,700.0	3,581.4	3,575.1	3,416.9	16.6	19.3	96.47	789.9	530.4	739.5	707.4	32.10	23.035		
3,800.0	3,676.2	3,671.3	3,506.9	17.3	20.0	96.83	817.7	549.5	766.6	733.3	33.31	23.019		
3,900.0	3,771.0	3,767.4	3,596.9	17.9	20.7	97.17	845.4	568.7	793.8	759.3	34.51	23.004		
4,000.0	3,865.9	3,863.5	3,687.0	18.5	21.3	97.48	873.2	587.8	821.0	785.3	35.71	22.991		
4,100.0	3,960.7	3,959.7	3,777.0	19.2	22.0	97.78	900.9	607.0	848.2	811.3	36.91	22.980		
4,200.0	4,055.5	4,055.8	3,867.0	19.8	22.7	98.05	928.7	626.1	875.4	837.3	38.11	22.969		
4,300.0	4,150.3	4,152.0	3,957.1	20.4	23.4	98.31	956.4	645.3	902.6	863.3	39.31	22.960		
4,400.0	4,245.1	4,248.1	4,047.1	21.1	24.0	98.56	984.2	664.4	929.9	889.4	40.52	22.951		
4,500.0	4,339.9	4,344.2	4,137.2	21.7	24.7	98.79	1,011.9	683.6	957.1	915.4	41.72	22.943		
4,600.0	4,434.7	4,440.4	4,227.2	22.3	25.4	99.01	1,039.7	702.7	984.4	941.5	42.92	22.936		

Company:	Great Western	Local Co-ordinate Reference:	Well Peterson CX GH 30-28D
Project:	SEC.30-T5N-R63W	TVD Reference:	WELL @ 4588.0ft (Original Well Elev)
Reference Site:	Peterson CX GH 30-41D Pad Sec.30-T5N-R63W	MD Reference:	WELL @ 4588.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson CX GH 30-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson CX GH 30-41D - Wellbore #1 - Plan #1 (7-													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	87.65	0.7	17.8	17.8	17.8	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	87.65	0.7	17.8	17.8	17.6	0.22	79.404		
200.0	200.0	200.0	200.0	0.3	0.3	87.65	0.7	17.8	17.8	17.2	0.67	26.468		
300.0	300.0	300.0	300.0	0.6	0.6	87.65	0.7	17.8	17.8	16.7	1.12	15.881		
400.0	400.0	400.0	400.0	0.8	0.8	87.65	0.7	17.8	17.8	16.3	1.57	11.343 CC, ES		
500.0	500.0	499.3	499.3	1.0	1.0	87.62	0.8	19.6	19.6	17.6	2.01	9.740 SF		
600.0	600.0	598.4	598.3	1.2	1.2	87.55	1.1	24.7	24.8	22.3	2.45	10.125		
700.0	700.0	697.1	696.5	1.5	1.4	87.49	1.5	33.2	33.4	30.5	2.89	11.554		
800.0	800.0	795.0	793.8	1.7	1.7	87.44	2.0	45.0	45.5	42.1	3.34	13.596		
900.0	900.0	891.9	889.5	1.9	2.0	102.82	2.7	59.9	61.3	57.5	3.80	16.118		
1,000.0	999.8	987.5	983.4	2.1	2.4	105.62	3.6	77.8	81.2	77.0	4.26	19.065		
1,100.0	1,099.5	1,081.2	1,074.8	2.4	2.7	108.65	4.5	98.4	105.7	100.9	4.74	22.312		
1,200.0	1,198.7	1,172.9	1,163.6	2.6	3.2	111.42	5.6	121.4	134.6	129.4	5.23	25.740		
1,300.0	1,297.5	1,262.2	1,249.3	2.9	3.6	113.76	6.8	146.5	168.1	162.3	5.75	29.227		
1,400.0	1,395.6	1,348.9	1,331.7	3.2	4.2	115.66	8.0	173.4	206.1	199.8	6.31	32.673		
1,500.0	1,493.1	1,432.8	1,410.5	3.6	4.7	117.17	9.4	201.8	248.4	241.5	6.90	36.009		
1,600.0	1,589.6	1,513.6	1,485.8	4.0	5.3	118.32	10.8	231.3	294.9	287.3	7.53	39.142		
1,700.0	1,685.3	1,591.3	1,557.3	4.5	5.9	119.17	12.2	261.7	345.4	337.2	8.21	42.083		
1,727.4	1,711.2	1,612.0	1,576.2	4.6	6.1	119.36	12.6	270.1	359.9	351.5	8.40	42.848		
1,800.0	1,780.1	1,666.1	1,625.3	5.0	6.5	120.46	13.7	292.8	399.3	390.4	8.94	44.656		
1,900.0	1,874.9	1,738.7	1,690.5	5.6	7.2	121.57	15.2	324.6	455.4	445.7	9.71	46.920		
2,000.0	1,969.7	1,814.0	1,757.4	6.1	7.9	122.38	16.8	359.2	513.3	502.8	10.51	48.855		
2,100.0	2,064.5	1,895.1	1,829.3	6.7	8.7	123.07	18.6	396.7	571.6	560.3	11.34	50.418		
2,200.0	2,159.3	1,976.3	1,901.2	7.3	9.5	123.63	20.3	434.3	629.9	617.7	12.19	51.694		
2,300.0	2,254.1	2,057.4	1,973.1	7.9	10.3	124.09	22.1	471.8	688.2	675.2	13.05	52.751		
2,400.0	2,349.0	2,138.5	2,045.0	8.5	11.1	124.48	23.8	509.3	746.6	732.7	13.92	53.635		
2,500.0	2,443.8	2,219.6	2,116.8	9.1	11.9	124.82	25.6	546.8	805.0	790.2	14.80	54.382		
2,600.0	2,538.6	2,300.7	2,188.7	9.7	12.7	125.11	27.4	584.3	863.4	847.7	15.69	55.019		
2,700.0	2,633.4	2,381.8	2,260.6	10.4	13.5	125.36	29.1	621.8	921.8	905.2	16.59	55.563		
2,800.0	2,728.2	2,462.9	2,332.5	11.0	14.3	125.59	30.9	659.4	980.2	962.7	17.49	56.035		

Reference Depths are relative to WELL @ 4588.0ft (Original Well Elev) Coordinates are relative to: Peterson CX GH 30-28D
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.66°



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Central Meridian is -105.500000 °
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