

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_PCHR PAD

PEHR 14-1

PEHR 14-1

Plan: PEHR 14-1 (wp01)

Standard Planning Report

09 November, 2011

Project: COLORADO NORTHERN ZONE - 83
Site: WELD_PHR PAD
Well: PEHR 14-1
Wellbore: PEHR 14-1
Section:
SHL:
Design: PEHR 14-1 (wp01)
Latitude: 40.076872
Longitude: -104.847772
GL: 4944.00
KB: gl +rkb @ 4959.00ft

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4124.00	4325.54	PRKM TOP
4521.00	4747.85	SX TOP
7217.00	7531.21	NI A TOP
7536.00	7850.21	CDL TOP
7623.00	7937.21	GH TOP
7977.00	8291.21	J TOP
8149.00	8463.21	DK TOP

WELL DETAILS: PEHR 14-1

+N/-S	+E/-W	Northing	Ground Level: Easting	4944.00 Latitude	Longitude	Slot
0.00	0.00	1271520.60	3182516.40	40.076872	-104.847772	

CASING DETAILS

TVD	MD	Name	Size
915.00	919.82	8-5/8"	8-5/8



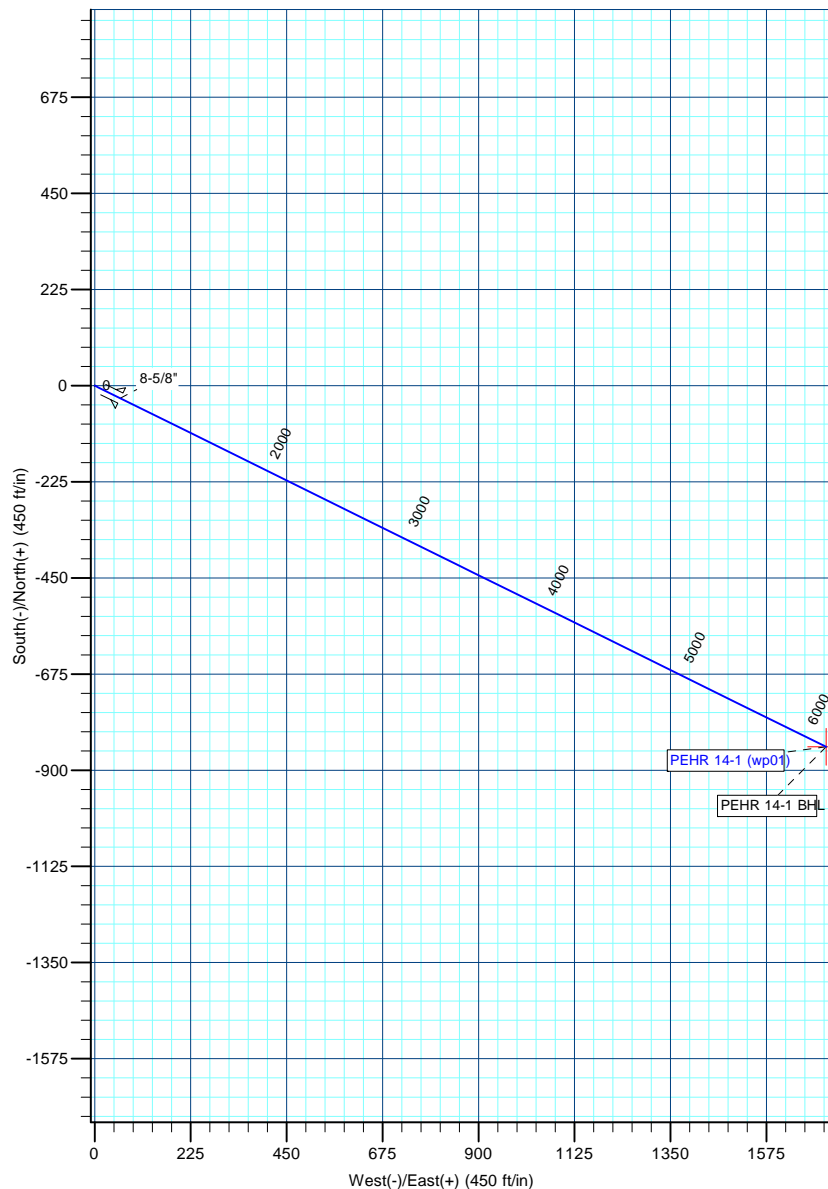
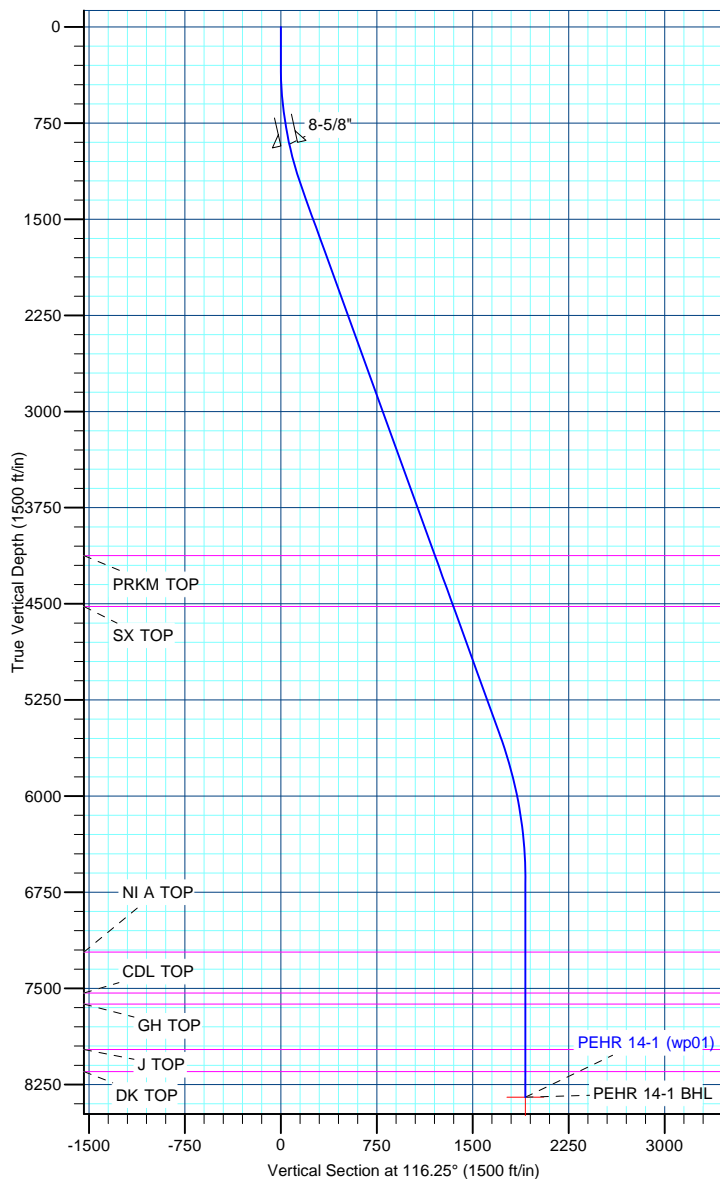
Azimuths to True North
Magnetic North: 8.95°
Magnetic Field
Strength: 53007.4snT
Dip Angle: 66.79°
Date: 12/2/2010
Model: IGRF2010

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PEHR 14-1 BHL	8349.00	-845.40	1714.63	1270687.84	3184237.20	40.074551	-104.841645

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	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
1296.93	19.94	116.25	1276.93	-75.94	154.02	2.00	116.25	171.72
5823.86	19.94	116.25	5532.51	-758.61	1538.61	0.00	0.00	1715.46
6963.21	0.00	0.00	6649.00	-845.40	1714.63	1.75	180.00	1911.71
8663.21	0.00	0.00	8349.00	-845.40	1714.63	0.00	0.00	1911.71



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PEHR 14-1
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl +rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl +rkb @ 4959.00ft
Site:	WELD_PEHR PAD	North Reference:	True
Well:	PEHR 14-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 14-1		
Design:	PEHR 14-1 (wp01)		

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_PEHR PAD			
Site Position:		Northing:	1,271,518.67 usft	Latitude:	40.076867
From:	Lat/Long	Easting:	3,182,496.55 usft	Longitude:	-104.847843
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.42 °

Well	PEHR 14-1					
Well Position	+N/-S	1.79 ft	Northing:	1,271,520.60 usft	Latitude:	40.076872
	+E/-W	19.87 ft	Easting:	3,182,516.41 usft	Longitude:	-104.847772
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,944.00 ft

Wellbore	PEHR 14-1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/2/2010	8.95	66.79	53,007

Design	PEHR 14-1 (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	73.99	0.00	0.00	116.25

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,296.93	19.94	116.25	1,276.93	-75.94	154.02	2.00	2.00	0.00	116.25	
5,823.86	19.94	116.25	5,532.51	-758.61	1,538.61	0.00	0.00	0.00	0.00	
6,963.21	0.00	0.00	6,649.00	-845.40	1,714.63	1.75	-1.75	0.00	180.00	
8,663.21	0.00	0.00	8,349.00	-845.40	1,714.63	0.00	0.00	0.00	0.00	PEHR 14-1 BHL

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PEHR 14-1
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl +rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl +rkb @ 4959.00ft
Site:	WELD_PEHR PAD	North Reference:	True
Well:	PEHR 14-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 14-1		
Design:	PEHR 14-1 (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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	2.00	116.25	399.98	-0.77	1.57	1.75	2.00	2.00	0.00
500.00	4.00	116.25	499.84	-3.09	6.26	6.98	2.00	2.00	0.00
600.00	6.00	116.25	599.45	-6.94	14.08	15.69	2.00	2.00	0.00
700.00	8.00	116.25	698.70	-12.33	25.01	27.88	2.00	2.00	0.00
800.00	10.00	116.25	797.47	-19.25	39.04	43.52	2.00	2.00	0.00
900.00	12.00	116.25	895.62	-27.68	56.15	62.60	2.00	2.00	0.00
919.82	12.40	116.25	915.00	-29.54	59.91	66.79	2.00	2.00	0.00
8-5/8"									
1,000.00	14.00	116.25	993.06	-37.63	76.32	85.10	2.00	2.00	0.00
1,100.00	16.00	116.25	1,089.64	-49.08	99.54	110.98	2.00	2.00	0.00
1,200.00	18.00	116.25	1,185.27	-62.00	125.76	140.21	2.00	2.00	0.00
1,296.93	19.94	116.25	1,276.93	-75.94	154.02	171.72	2.00	2.00	0.00
1,300.00	19.94	116.25	1,279.82	-76.40	154.96	172.77	0.00	0.00	0.00
1,400.00	19.94	116.25	1,373.82	-91.48	185.54	206.87	0.00	0.00	0.00
1,500.00	19.94	116.25	1,467.83	-106.56	216.13	240.97	0.00	0.00	0.00
1,600.00	19.94	116.25	1,561.83	-121.64	246.71	275.07	0.00	0.00	0.00
1,700.00	19.94	116.25	1,655.84	-136.72	277.30	309.17	0.00	0.00	0.00
1,800.00	19.94	116.25	1,749.85	-151.80	307.88	343.27	0.00	0.00	0.00
1,900.00	19.94	116.25	1,843.85	-166.88	338.47	377.37	0.00	0.00	0.00
2,000.00	19.94	116.25	1,937.86	-181.96	369.06	411.48	0.00	0.00	0.00
2,100.00	19.94	116.25	2,031.86	-197.04	399.64	445.58	0.00	0.00	0.00
2,200.00	19.94	116.25	2,125.87	-212.12	430.23	479.68	0.00	0.00	0.00
2,300.00	19.94	116.25	2,219.87	-227.20	460.81	513.78	0.00	0.00	0.00
2,400.00	19.94	116.25	2,313.88	-242.28	491.40	547.88	0.00	0.00	0.00
2,500.00	19.94	116.25	2,407.89	-257.36	521.98	581.98	0.00	0.00	0.00
2,600.00	19.94	116.25	2,501.89	-272.44	552.57	616.08	0.00	0.00	0.00
2,700.00	19.94	116.25	2,595.90	-287.52	583.16	650.18	0.00	0.00	0.00
2,800.00	19.94	116.25	2,689.90	-302.60	613.74	684.29	0.00	0.00	0.00
2,900.00	19.94	116.25	2,783.91	-317.68	644.33	718.39	0.00	0.00	0.00
3,000.00	19.94	116.25	2,877.92	-332.76	674.91	752.49	0.00	0.00	0.00
3,100.00	19.94	116.25	2,971.92	-347.84	705.50	786.59	0.00	0.00	0.00
3,200.00	19.94	116.25	3,065.93	-362.93	736.08	820.69	0.00	0.00	0.00
3,300.00	19.94	116.25	3,159.93	-378.01	766.67	854.79	0.00	0.00	0.00
3,400.00	19.94	116.25	3,253.94	-393.09	797.26	888.89	0.00	0.00	0.00
3,500.00	19.94	116.25	3,347.94	-408.17	827.84	923.00	0.00	0.00	0.00
3,600.00	19.94	116.25	3,441.95	-423.25	858.43	957.10	0.00	0.00	0.00
3,700.00	19.94	116.25	3,535.96	-438.33	889.01	991.20	0.00	0.00	0.00
3,800.00	19.94	116.25	3,629.96	-453.41	919.60	1,025.30	0.00	0.00	0.00
3,900.00	19.94	116.25	3,723.97	-468.49	950.18	1,059.40	0.00	0.00	0.00
4,000.00	19.94	116.25	3,817.97	-483.57	980.77	1,093.50	0.00	0.00	0.00
4,100.00	19.94	116.25	3,911.98	-498.65	1,011.36	1,127.60	0.00	0.00	0.00
4,200.00	19.94	116.25	4,005.99	-513.73	1,041.94	1,161.70	0.00	0.00	0.00
4,300.00	19.94	116.25	4,099.99	-528.81	1,072.53	1,195.81	0.00	0.00	0.00
4,325.54	19.94	116.25	4,124.00	-532.66	1,080.34	1,204.51	0.00	0.00	0.00
PRKM TOP									
4,400.00	19.94	116.25	4,194.00	-543.89	1,103.11	1,229.91	0.00	0.00	0.00
4,500.00	19.94	116.25	4,288.00	-558.97	1,133.70	1,264.01	0.00	0.00	0.00
4,600.00	19.94	116.25	4,382.01	-574.05	1,164.28	1,298.11	0.00	0.00	0.00
4,700.00	19.94	116.25	4,476.02	-589.13	1,194.87	1,332.21	0.00	0.00	0.00
4,747.85	19.94	116.25	4,521.00	-596.35	1,209.51	1,348.53	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl +rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl +rkb @ 4959.00ft
Site:	WELD_PHR PAD	North Reference:	True
Well:	PEHR 14-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 14-1		
Design:	PEHR 14-1 (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SX TOP									
4,800.00	19.94	116.25	4,570.02	-604.21	1,225.46	1,366.31	0.00	0.00	0.00
4,900.00	19.94	116.25	4,664.03	-619.29	1,256.04	1,400.41	0.00	0.00	0.00
5,000.00	19.94	116.25	4,758.03	-634.37	1,286.63	1,434.51	0.00	0.00	0.00
5,100.00	19.94	116.25	4,852.04	-649.45	1,317.21	1,468.62	0.00	0.00	0.00
5,200.00	19.94	116.25	4,946.04	-664.53	1,347.80	1,502.72	0.00	0.00	0.00
5,300.00	19.94	116.25	5,040.05	-679.61	1,378.38	1,536.82	0.00	0.00	0.00
5,400.00	19.94	116.25	5,134.06	-694.69	1,408.97	1,570.92	0.00	0.00	0.00
5,500.00	19.94	116.25	5,228.06	-709.77	1,439.56	1,605.02	0.00	0.00	0.00
5,600.00	19.94	116.25	5,322.07	-724.85	1,470.14	1,639.12	0.00	0.00	0.00
5,700.00	19.94	116.25	5,416.07	-739.93	1,500.73	1,673.22	0.00	0.00	0.00
5,800.00	19.94	116.25	5,510.08	-755.01	1,531.31	1,707.33	0.00	0.00	0.00
5,823.86	19.94	116.25	5,532.51	-758.61	1,538.61	1,715.46	0.00	0.00	0.00
5,900.00	18.61	116.25	5,604.38	-769.72	1,561.15	1,740.59	1.75	-1.75	0.00
6,000.00	16.86	116.25	5,699.63	-783.19	1,588.46	1,771.05	1.75	-1.75	0.00
6,100.00	15.11	116.25	5,795.76	-795.36	1,613.16	1,798.58	1.75	-1.75	0.00
6,200.00	13.36	116.25	5,892.69	-806.24	1,635.20	1,823.16	1.75	-1.75	0.00
6,300.00	11.61	116.25	5,990.32	-815.79	1,654.59	1,844.77	1.75	-1.75	0.00
6,400.00	9.86	116.25	6,088.57	-824.03	1,671.29	1,863.39	1.75	-1.75	0.00
6,500.00	8.11	116.25	6,187.34	-830.93	1,685.29	1,879.00	1.75	-1.75	0.00
6,600.00	6.36	116.25	6,286.54	-836.50	1,696.58	1,891.59	1.75	-1.75	0.00
6,700.00	4.61	116.25	6,386.08	-840.72	1,705.14	1,901.14	1.75	-1.75	0.00
6,800.00	2.86	116.25	6,485.86	-843.60	1,710.98	1,907.65	1.75	-1.75	0.00
6,900.00	1.11	116.25	6,585.80	-845.13	1,714.08	1,911.10	1.75	-1.75	0.00
6,963.21	0.00	0.00	6,649.00	-845.40	1,714.63	1,911.71	1.75	-1.75	0.00
7,000.00	0.00	0.00	6,685.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,100.00	0.00	0.00	6,785.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,200.00	0.00	0.00	6,885.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,300.00	0.00	0.00	6,985.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,400.00	0.00	0.00	7,085.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,500.00	0.00	0.00	7,185.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,531.21	0.00	0.00	7,217.00	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
NI A TOP									
7,600.00	0.00	0.00	7,285.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,700.00	0.00	0.00	7,385.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,800.00	0.00	0.00	7,485.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,850.21	0.00	0.00	7,536.00	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
CDL TOP									
7,900.00	0.00	0.00	7,585.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
7,937.21	0.00	0.00	7,623.00	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
GH TOP									
8,000.00	0.00	0.00	7,685.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
8,100.00	0.00	0.00	7,785.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
8,200.00	0.00	0.00	7,885.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
8,291.21	0.00	0.00	7,977.00	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
J TOP									
8,300.00	0.00	0.00	7,985.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
8,400.00	0.00	0.00	8,085.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
8,463.21	0.00	0.00	8,149.00	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
DK TOP									
8,500.00	0.00	0.00	8,185.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
8,600.00	0.00	0.00	8,285.79	-845.40	1,714.63	1,911.71	0.00	0.00	0.00
8,663.21	0.00	0.00	8,349.00	-845.40	1,714.63	1,911.71	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PEHR 14-1
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl +rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl +rkb @ 4959.00ft
Site:	WELD_PEHR PAD	North Reference:	True
Well:	PEHR 14-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 14-1		
Design:	PEHR 14-1 (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
PEHR 14-1 BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PEHR 14-1 BHL	0.00	0.00	8,349.00	-845.40	1,714.63	1,270,687.84	3,184,237.20	40.074551	-104.841645
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
919.82	915.00	8-5/8"	8-5/8	11	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,325.54	4,124.00	PRKM TOP				
4,747.85	4,521.00	SX TOP				
7,531.21	7,217.00	NI A TOP				
7,850.21	7,536.00	CDL TOP				
7,937.21	7,623.00	GH TOP				
8,291.21	7,977.00	J TOP				
8,463.21	8,149.00	DK TOP				