

US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_PSC PAD (SEC 13 T3N R68W)
PSC 12C-13HZ**

PSC 12C-13HZ

Plan: PSC 12C-13HZ (wp01)

Standard Planning Report

10 March, 2011





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Azimuths to True North

Magnetic North: 8.98°

Magnetic Field

Strength: 53045.2snT

Dip Angle: 66.88°

Date: 3/10/2011

Model: IGRF2010

Project: COLORADO NORTHERN ZONE - 83

Site: WELD_PSC PAD (SEC 13 T3N R68W)

Well: PSC 12C-13HZ

Wellbore: PSC 12C-13HZ

Section: SHL:

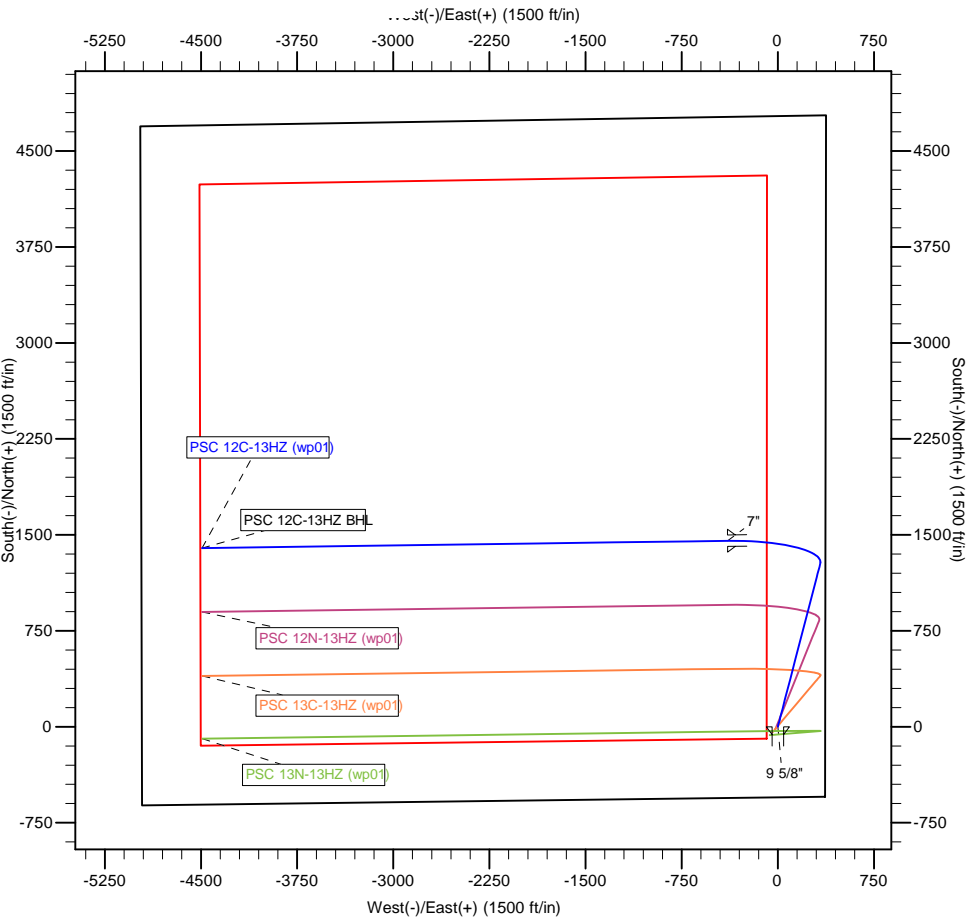
Design: PSC 12C-13HZ (wp01)

Latitude: 40.220588

Longitude: -104.943128

GL: 4872.00

KB: 17' RKB + 4872' GL @ 4889.00ft



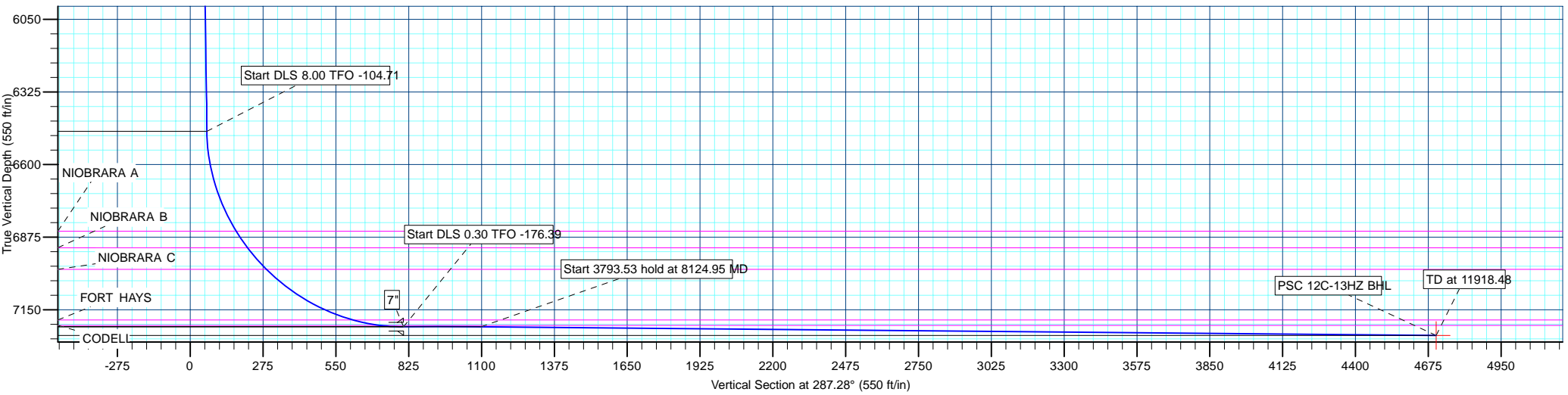
WELL DETAILS: PSC 12C-13HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4872.00 Latitude	40.220588 Longitude	Slot
0.00	0.00	1323690.61	3155504.04		-104.943128	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1050.00	0.00	0.00	1050.00	0.00	0.00	0.00	0.00	0.00	
1780.44	14.61	14.55	1772.55	89.65	23.27	2.00	14.55	4.41	
6638.54	14.61	14.55	6473.59	1275.63	331.14	0.00	0.00	62.69	
7816.39	90.43	269.27	7214.00	1454.00	-391.00	8.00	-104.71	805.22	
8124.95	89.50	269.21	7214.18	1449.89	-699.53	0.30	-176.39	1098.61	
11918.48	89.50	269.21	7247.00	1397.45	-4492.56	0.00	0.00	4704.88	PSC 12C-13HZ BHL

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
PSC 12C-13HZ BHL	7247.00	1397.45	-4492.56	40.224423	-104.959217	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
269.00	269.00	FOX HILLS
3998.00	4080.24	PARKMAN
4346.00	4439.87	SUSSEX
6852.00	7043.44	NIOBRARA A
6915.00	7119.80	NIOBRARA B
6997.00	7228.82	NIOBRARA C
7188.00	7614.21	FORT HAYS
7209.00	7724.71	CODELL

CASING DETAILS			
TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7214.00	7816.39	7"	7



Database:	edm5000p	Local Co-ordinate Reference:	Well PSC 12C-13HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4872' GL @ 4889.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4872' GL @ 4889.00ft
Site:	WELD_PSC PAD (SEC 13 T3N R68W)	North Reference:	True
Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PSC 12C-13HZ		
Design:	PSC 12C-13HZ (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_PSC PAD (SEC 13 T3N R68W)				
Site Position:		Northing:	1,323,668.63 ft	Latitude:	40.220528
From:	Lat/Long	Easting:	3,155,483.24 ft	Longitude:	-104.943203
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.36 °

Well	PSC 12C-13HZ					
Well Position	+N-S	21.85 ft	Northing:	1,323,690.61 ft	Latitude:	40.220588
	+E-W	20.94 ft	Easting:	3,155,504.04 ft	Longitude:	-104.943128
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,872.00 ft

Wellbore	PSC 12C-13HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/10/2011	8.98	66.88	53,045

Design	PSC 12C-13HZ (wp01)				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	287.28	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,780.44	14.61	14.55	1,772.55	89.65	23.27	2.00	2.00	0.00	14.55	
6,638.54	14.61	14.55	6,473.59	1,275.63	331.14	0.00	0.00	0.00	0.00	
7,816.39	90.43	269.27	7,214.00	1,454.00	-391.00	8.00	6.44	-8.94	-104.71	
8,124.95	89.50	269.21	7,214.18	1,449.89	-699.53	0.30	-0.30	-0.02	-176.39	
11,918.48	89.50	269.21	7,247.00	1,397.45	-4,492.56	0.00	0.00	0.00	0.00	PSC 12C-13HZ BH

Database:	edm5000p	Local Co-ordinate Reference:	Well PSC 12C-13HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4872' GL @ 4889.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4872' GL @ 4889.00ft
Site:	WELD_PSC PAD (SEC 13 T3N R68W)	North Reference:	True
Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PSC 12C-13HZ		
Design:	PSC 12C-13HZ (wp01)		

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)
0.00	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
269.00	0.00	0.00	269.00	0.00	0.00	0.00	0.00	0.00	0.00
FOX HILLS									
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
9 5/8"									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	1.00	14.55	1,100.00	0.42	0.11	0.02	2.00	2.00	0.00
1,200.00	3.00	14.55	1,199.93	3.80	0.99	0.19	2.00	2.00	0.00
1,300.00	5.00	14.55	1,299.68	10.55	2.74	0.52	2.00	2.00	0.00
1,400.00	7.00	14.55	1,399.13	20.67	5.37	1.02	2.00	2.00	0.00
1,500.00	9.00	14.55	1,498.15	34.14	8.86	1.68	2.00	2.00	0.00
1,600.00	11.00	14.55	1,596.63	50.95	13.23	2.50	2.00	2.00	0.00
1,700.00	13.00	14.55	1,694.44	71.07	18.45	3.49	2.00	2.00	0.00
1,780.44	14.61	14.55	1,772.55	89.65	23.27	4.41	2.00	2.00	0.00
Start 4858.11 hold at 1780.44 MD									
1,800.00	14.61	14.55	1,791.48	94.42	24.51	4.64	0.00	0.00	0.00
1,900.00	14.61	14.55	1,888.25	118.83	30.85	5.84	0.00	0.00	0.00
2,000.00	14.61	14.55	1,985.01	143.25	37.19	7.04	0.00	0.00	0.00
2,100.00	14.61	14.55	2,081.78	167.66	43.52	8.24	0.00	0.00	0.00
2,200.00	14.61	14.55	2,178.55	192.07	49.86	9.44	0.00	0.00	0.00
2,300.00	14.61	14.55	2,275.31	216.48	56.20	10.64	0.00	0.00	0.00
2,400.00	14.61	14.55	2,372.08	240.90	62.53	11.84	0.00	0.00	0.00
2,500.00	14.61	14.55	2,468.85	265.31	68.87	13.04	0.00	0.00	0.00
2,600.00	14.61	14.55	2,565.62	289.72	75.21	14.24	0.00	0.00	0.00
2,700.00	14.61	14.55	2,662.38	314.13	81.55	15.44	0.00	0.00	0.00
2,800.00	14.61	14.55	2,759.15	338.55	87.88	16.64	0.00	0.00	0.00
2,900.00	14.61	14.55	2,855.92	362.96	94.22	17.84	0.00	0.00	0.00
3,000.00	14.61	14.55	2,952.68	387.37	100.56	19.04	0.00	0.00	0.00
3,100.00	14.61	14.55	3,049.45	411.78	106.90	20.24	0.00	0.00	0.00
3,200.00	14.61	14.55	3,146.22	436.20	113.23	21.44	0.00	0.00	0.00
3,300.00	14.61	14.55	3,242.99	460.61	119.57	22.64	0.00	0.00	0.00
3,400.00	14.61	14.55	3,339.75	485.02	125.91	23.84	0.00	0.00	0.00
3,500.00	14.61	14.55	3,436.52	509.43	132.25	25.03	0.00	0.00	0.00
3,600.00	14.61	14.55	3,533.29	533.85	138.58	26.23	0.00	0.00	0.00
3,700.00	14.61	14.55	3,630.05	558.26	144.92	27.43	0.00	0.00	0.00
3,800.00	14.61	14.55	3,726.82	582.67	151.26	28.63	0.00	0.00	0.00
3,900.00	14.61	14.55	3,823.59	607.08	157.59	29.83	0.00	0.00	0.00
4,000.00	14.61	14.55	3,920.35	631.50	163.93	31.03	0.00	0.00	0.00
4,080.24	14.61	14.55	3,998.00	651.08	169.02	32.00	0.00	0.00	0.00
PARKMAN									
4,100.00	14.61	14.55	4,017.12	655.91	170.27	32.23	0.00	0.00	0.00
4,200.00	14.61	14.55	4,113.89	680.32	176.61	33.43	0.00	0.00	0.00
4,300.00	14.61	14.55	4,210.66	704.73	182.94	34.63	0.00	0.00	0.00
4,400.00	14.61	14.55	4,307.42	729.15	189.28	35.83	0.00	0.00	0.00

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4872' GL @ 4889.00ft
Site:	WELD_PSC PAD (SEC 13 T3N R68W)	North Reference:	True
Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PSC 12C-13HZ		
Design:	PSC 12C-13HZ (wp01)		

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)
4,439.87	14.61	14.55	4,346.00	738.88	191.81	36.31	0.00	0.00	0.00
SUSSEX									
4,500.00	14.61	14.55	4,404.19	753.56	195.62	37.03	0.00	0.00	0.00
4,600.00	14.61	14.55	4,500.96	777.97	201.96	38.23	0.00	0.00	0.00
4,700.00	14.61	14.55	4,597.72	802.38	208.29	39.43	0.00	0.00	0.00
4,800.00	14.61	14.55	4,694.49	826.80	214.63	40.63	0.00	0.00	0.00
4,900.00	14.61	14.55	4,791.26	851.21	220.97	41.83	0.00	0.00	0.00
5,000.00	14.61	14.55	4,888.03	875.62	227.31	43.03	0.00	0.00	0.00
5,100.00	14.61	14.55	4,984.79	900.03	233.64	44.23	0.00	0.00	0.00
5,200.00	14.61	14.55	5,081.56	924.45	239.98	45.43	0.00	0.00	0.00
5,300.00	14.61	14.55	5,178.33	948.86	246.32	46.63	0.00	0.00	0.00
5,400.00	14.61	14.55	5,275.09	973.27	252.65	47.83	0.00	0.00	0.00
5,500.00	14.61	14.55	5,371.86	997.68	258.99	49.03	0.00	0.00	0.00
5,600.00	14.61	14.55	5,468.63	1,022.10	265.33	50.23	0.00	0.00	0.00
5,700.00	14.61	14.55	5,565.40	1,046.51	271.67	51.43	0.00	0.00	0.00
5,800.00	14.61	14.55	5,662.16	1,070.92	278.00	52.63	0.00	0.00	0.00
5,900.00	14.61	14.55	5,758.93	1,095.33	284.34	53.83	0.00	0.00	0.00
6,000.00	14.61	14.55	5,855.70	1,119.75	290.68	55.03	0.00	0.00	0.00
6,100.00	14.61	14.55	5,952.46	1,144.16	297.02	56.23	0.00	0.00	0.00
6,200.00	14.61	14.55	6,049.23	1,168.57	303.35	57.43	0.00	0.00	0.00
6,300.00	14.61	14.55	6,146.00	1,192.98	309.69	58.63	0.00	0.00	0.00
6,400.00	14.61	14.55	6,242.76	1,217.40	316.03	59.83	0.00	0.00	0.00
6,500.00	14.61	14.55	6,339.53	1,241.81	322.36	61.03	0.00	0.00	0.00
6,600.00	14.61	14.55	6,436.30	1,266.22	328.70	62.23	0.00	0.00	0.00
6,638.54	14.61	14.55	6,473.59	1,275.63	331.14	62.69	0.00	0.00	0.00
Start DLS 8.00 TFO -104.71									
6,700.00	14.16	354.75	6,533.16	1,290.63	332.40	65.94	8.00	-0.72	-32.22
6,800.00	16.76	326.00	6,629.67	1,314.81	323.21	81.91	8.00	2.60	-28.75
6,900.00	22.06	307.74	6,724.04	1,338.30	300.25	110.80	8.00	5.30	-18.26
7,000.00	28.60	296.85	6,814.43	1,360.64	263.98	152.07	8.00	6.54	-10.88
7,043.44	31.63	293.47	6,852.00	1,369.88	244.25	173.65	8.00	6.99	-7.77
NIORARA A									
7,100.00	35.70	289.87	6,899.07	1,381.40	215.11	204.90	8.00	7.18	-6.37
7,119.80	37.14	288.77	6,915.00	1,385.28	204.02	216.64	8.00	7.29	-5.54
NIORARA B									
7,200.00	43.08	284.98	6,976.32	1,400.17	154.59	268.26	8.00	7.40	-4.73
7,228.82	45.23	283.82	6,997.00	1,405.16	135.15	288.31	8.00	7.49	-4.02
NIORARA C									
7,300.00	50.61	281.29	7,044.69	1,416.59	83.59	340.94	8.00	7.55	-3.55
7,400.00	58.24	278.33	7,102.83	1,430.34	3.50	421.50	8.00	7.63	-2.96
7,500.00	65.93	275.83	7,149.61	1,441.16	-84.12	508.38	8.00	7.69	-2.51
7,600.00	73.65	273.60	7,184.13	1,448.82	-177.57	599.89	8.00	7.72	-2.22
7,614.21	74.75	273.31	7,188.00	1,449.64	-191.22	613.17	8.00	7.74	-2.11
FORT HAYS									
7,700.00	81.40	271.55	7,205.71	1,453.18	-275.04	694.25	8.00	7.75	-2.04
7,724.71	83.32	271.06	7,209.00	1,453.74	-299.52	717.79	8.00	7.75	-1.99
CODELL									
7,800.00	89.16	269.59	7,213.94	1,454.16	-374.61	789.62	8.00	7.76	-1.96
7,816.39	90.43	269.27	7,214.00	1,454.00	-391.00	805.22	8.00	7.76	-1.95
Start DLS 0.30 TFO -176.39 - 7"									
7,900.00	90.18	269.25	7,213.56	1,452.92	-474.60	884.73	0.30	-0.30	-0.02
8,000.00	89.88	269.23	7,213.51	1,451.59	-574.59	979.81	0.30	-0.30	-0.02
8,100.00	89.58	269.21	7,213.98	1,450.24	-674.58	1,074.89	0.30	-0.30	-0.02

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Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PSC 12C-13HZ		
Design:	PSC 12C-13HZ (wp01)		

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)
8,124.95	89.50	269.21	7,214.18	1,449.89	-699.53	1,098.61	0.30	-0.30	-0.02
Start 3793.53 hold at 8124.95 MD									
8,200.00	89.50	269.21	7,214.83	1,448.85	-774.57	1,169.95	0.00	0.00	0.00
8,300.00	89.50	269.21	7,215.70	1,447.47	-874.56	1,265.02	0.00	0.00	0.00
8,400.00	89.50	269.21	7,216.56	1,446.09	-974.54	1,360.08	0.00	0.00	0.00
8,500.00	89.50	269.21	7,217.43	1,444.71	-1,074.53	1,455.14	0.00	0.00	0.00
8,600.00	89.50	269.21	7,218.29	1,443.32	-1,174.52	1,550.21	0.00	0.00	0.00
8,700.00	89.50	269.21	7,219.16	1,441.94	-1,274.50	1,645.27	0.00	0.00	0.00
8,800.00	89.50	269.21	7,220.02	1,440.56	-1,374.49	1,740.34	0.00	0.00	0.00
8,900.00	89.50	269.21	7,220.89	1,439.18	-1,474.48	1,835.40	0.00	0.00	0.00
9,000.00	89.50	269.21	7,221.75	1,437.79	-1,574.46	1,930.46	0.00	0.00	0.00
9,100.00	89.50	269.21	7,222.62	1,436.41	-1,674.45	2,025.53	0.00	0.00	0.00
9,200.00	89.50	269.21	7,223.48	1,435.03	-1,774.44	2,120.59	0.00	0.00	0.00
9,300.00	89.50	269.21	7,224.35	1,433.65	-1,874.42	2,215.65	0.00	0.00	0.00
9,400.00	89.50	269.21	7,225.21	1,432.26	-1,974.41	2,310.72	0.00	0.00	0.00
9,500.00	89.50	269.21	7,226.08	1,430.88	-2,074.40	2,405.78	0.00	0.00	0.00
9,600.00	89.50	269.21	7,226.94	1,429.50	-2,174.38	2,500.85	0.00	0.00	0.00
9,700.00	89.50	269.21	7,227.81	1,428.12	-2,274.37	2,595.91	0.00	0.00	0.00
9,800.00	89.50	269.21	7,228.67	1,426.73	-2,374.36	2,690.97	0.00	0.00	0.00
9,900.00	89.50	269.21	7,229.54	1,425.35	-2,474.34	2,786.04	0.00	0.00	0.00
10,000.00	89.50	269.21	7,230.40	1,423.97	-2,574.33	2,881.10	0.00	0.00	0.00
10,100.00	89.50	269.21	7,231.27	1,422.59	-2,674.32	2,976.16	0.00	0.00	0.00
10,200.00	89.50	269.21	7,232.13	1,421.20	-2,774.30	3,071.23	0.00	0.00	0.00
10,300.00	89.50	269.21	7,233.00	1,419.82	-2,874.29	3,166.29	0.00	0.00	0.00
10,400.00	89.50	269.21	7,233.86	1,418.44	-2,974.28	3,261.36	0.00	0.00	0.00
10,500.00	89.50	269.21	7,234.73	1,417.06	-3,074.26	3,356.42	0.00	0.00	0.00
10,600.00	89.50	269.21	7,235.59	1,415.67	-3,174.25	3,451.48	0.00	0.00	0.00
10,700.00	89.50	269.21	7,236.46	1,414.29	-3,274.24	3,546.55	0.00	0.00	0.00
10,800.00	89.50	269.21	7,237.32	1,412.91	-3,374.22	3,641.61	0.00	0.00	0.00
10,900.00	89.50	269.21	7,238.19	1,411.53	-3,474.21	3,736.67	0.00	0.00	0.00
11,000.00	89.50	269.21	7,239.05	1,410.14	-3,574.20	3,831.74	0.00	0.00	0.00
11,100.00	89.50	269.21	7,239.92	1,408.76	-3,674.18	3,926.80	0.00	0.00	0.00
11,200.00	89.50	269.21	7,240.78	1,407.38	-3,774.17	4,021.87	0.00	0.00	0.00
11,300.00	89.50	269.21	7,241.65	1,406.00	-3,874.16	4,116.93	0.00	0.00	0.00
11,400.00	89.50	269.21	7,242.51	1,404.61	-3,974.14	4,211.99	0.00	0.00	0.00
11,500.00	89.50	269.21	7,243.38	1,403.23	-4,074.13	4,307.06	0.00	0.00	0.00
11,600.00	89.50	269.21	7,244.24	1,401.85	-4,174.12	4,402.12	0.00	0.00	0.00
11,700.00	89.50	269.21	7,245.11	1,400.47	-4,274.10	4,497.19	0.00	0.00	0.00
11,800.00	89.50	269.21	7,245.98	1,399.08	-4,374.09	4,592.25	0.00	0.00	0.00
11,900.00	89.50	269.21	7,246.84	1,397.70	-4,474.08	4,687.31	0.00	0.00	0.00
11,918.48	89.50	269.21	7,247.00	1,397.45	-4,492.56	4,704.88	0.00	0.00	0.00
TD at 11918.48 - PSC 12C-13HZ BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PSC 12C-13HZ BHL	0.00	0.00	7,247.00	1,397.45	-4,492.56	1,325,059.81	3,151,002.80	40.224423	-104.959217
- plan hits target center									
- Point									

Database:	edm5000p	Local Co-ordinate Reference:	Well PSC 12C-13HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4872' GL @ 4889.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4872' GL @ 4889.00ft
Site:	WELD_PSC PAD (SEC 13 T3N R68W)	North Reference:	True
Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PSC 12C-13HZ		
Design:	PSC 12C-13HZ (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (")	Hole Diameter (")
900.00	900.00	9 5/8"		9-5/8	12-1/4
7,816.39	7,214.00	7"		7	8-3/4

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
269.00	269.00	FOX HILLS		0.00	
4,080.24	3,998.00	PARKMAN		0.00	
4,439.87	4,346.00	SUSSEX		0.00	
7,043.44	6,852.00	NIOBRARA A		0.00	
7,119.80	6,915.00	NIOBRARA B		0.00	
7,228.82	6,997.00	NIOBRARA C		0.00	
7,614.21	7,188.00	FORT HAYS		0.00	
7,724.71	7,209.00	CODELL		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,050.00	1,050.00	0.00	0.00	Start Build 2.00
1,780.44	1,772.55	89.65	23.27	Start 4858.11 hold at 1780.44 MD
6,638.54	6,473.59	1,275.63	331.14	Start DLS 8.00 TFO -104.71
7,816.39	7,214.00	1,454.00	-391.00	Start DLS 0.30 TFO -176.39
8,124.95	7,214.18	1,449.89	-699.53	Start 3793.53 hold at 8124.95 MD
11,918.48	7,247.00	1,397.45	-4,492.56	TD at 11918.48

US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_PSC PAD (SEC 13 T3N R68W)
PSC 12C-13HZ**

**PSC 12C-13HZ
PSC 12C-13HZ (wp01)**

Anticollision Summary Report

10 March, 2011



APC

Anticollision Summary Report



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well PSC 12C-13HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4872' GL @ 4889.00ft
Reference Site:	WELD_PSC PAD (SEC 13 T3N R68W)	MD Reference:	17' RKB + 4872' GL @ 4889.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	PSC 12C-13HZ	Database:	edm5000p
Reference Design:	PSC 12C-13HZ (wp01)	Offset TVD Reference:	Offset Datum

Reference	PSC 12C-13HZ (wp01)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 25.00ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.00 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

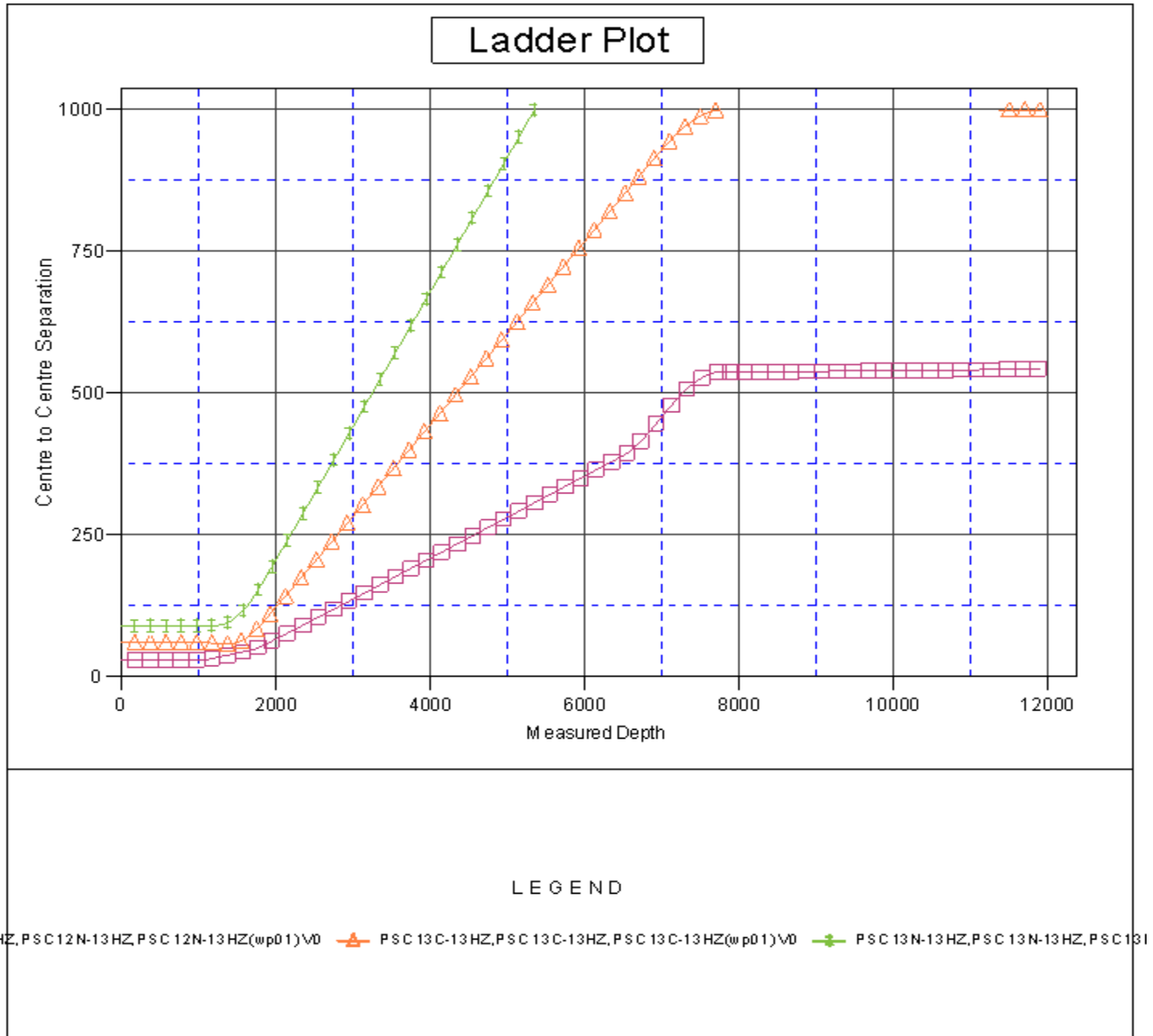
Survey Tool Program	Date 3/10/2011				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	11,918.48	PSC 12C-13HZ (wp01) (PSC 12C-13HZ)	MWD	MWD - Standard	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
WELD_PSC PAD (SEC 13 T3N R68W)						
PSC 12N-13HZ - PSC 12N-13HZ - PSC 12N-13HZ (wp0	1,050.00	1,050.00	30.27	25.81	6.791	CC
PSC 12N-13HZ - PSC 12N-13HZ - PSC 12N-13HZ (wp0	1,075.00	1,075.00	30.36	25.79	6.645	ES
PSC 12N-13HZ - PSC 12N-13HZ - PSC 12N-13HZ (wp0	11,918.48	11,614.34	542.89	324.82	2.489	SF
PSC 13C-13HZ - PSC 13C-13HZ - PSC 13C-13HZ (wp0	1,386.67	1,393.06	58.11	52.16	9.778	CC
PSC 13C-13HZ - PSC 13C-13HZ - PSC 13C-13HZ (wp0	1,400.00	1,406.37	58.14	52.14	9.690	ES
PSC 13C-13HZ - PSC 13C-13HZ - PSC 13C-13HZ (wp0	11,918.48	11,752.38	999.91	762.74	4.216	SF
PSC 13N-13HZ - PSC 13N-13HZ - PSC 13N-13HZ (wp0	1,050.00	1,050.00	90.10	85.64	20.214	CC
PSC 13N-13HZ - PSC 13N-13HZ - PSC 13N-13HZ (wp0	1,150.00	1,152.38	90.30	85.41	18.463	ES
PSC 13N-13HZ - PSC 13N-13HZ - PSC 13N-13HZ (wp0	1,400.00	1,404.11	97.36	91.40	16.334	SF

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well PSC 12C-13HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4872' GL @ 4889.00ft
Reference Site:	WELD_PSC PAD (SEC 13 T3N R68W)	MD Reference:	17' RKB + 4872' GL @ 4889.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	PSC 12C-13HZ	Database:	edm5000p
Reference Design:	PSC 12C-13HZ (wp01)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 17' RKB + 4872' GL @ 4889.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: PSC 12C-13HZ
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.36°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well PSC 12C-13HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4872' GL @ 4889.00ft
Reference Site:	WELD_PSC PAD (SEC 13 T3N R68W)	MD Reference:	17' RKB + 4872' GL @ 4889.00ft
Site Error:	0.00 ft	North Reference:	True
Reference Well:	PSC 12C-13HZ	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	PSC 12C-13HZ	Database:	edm5000p
Reference Design:	PSC 12C-13HZ (wp01)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 17' RKB + 4872' GL @ 4889.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: PSC 12C-13HZ
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.36°

