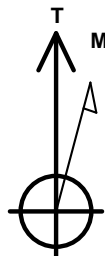


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	1300.0	0.00	0.00	1300.0	0.0	0.0	0.00	0.00	0.0
3	1975.0	13.50	314.23	1968.8	55.2	-56.7	2.00	314.23	79.2
4	4897.8	13.50	314.23	4810.8	531.1	-545.6	0.00	0.00	761.5
5	5797.8	0.00	0.00	5702.5	604.8	-621.2	1.50	180.00	867.0
6	7588.3	0.00	0.00	7493.0	604.8	-621.2	0.00	0.00	867.0



Azimuths to True North
Magnetic North: 9.09°

Magnetic Field
Strength: 53307.2snT
Dip Angle: 67.02°
Date: 4/14/2009
Model: IGRF200510

ROCKIES - PLANNING

COLORADO NORTHERN ZONE - 83

WELD_LUDWIG 4-1 PAD

P_LUDWIG 30-1

P_LUDWIG 30-1

Plan: Plan #2 07-10-09 ZJRA6

Standard Planning Report - Geographic

10 July, 2009

APC

Planning Report - Geographic

Database:	apc_edmp	Local Co-ordinate Reference:	Well P_LUDWIG 30-1
Company:	ROCKIES - PLANNING	TVD Reference:	WELL @ 4872.0ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4872.0ft
Site:	WELD_LUDWIG 4-1 PAD	North Reference:	True
Well:	P_LUDWIG 30-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_LUDWIG 30-1		
Design:	Plan #2 07-10-09 ZJRA6		

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_LUDWIG 4-1 PAD											
Site Position:						Northing:			1,338,112.69ft			Latitude:			40.258970		
From:			Lat/Long			Easting:			3,214,357.77ft			Longitude:			-104.731930		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.50 °		

Well	P_LUDWIG 30-1					
Well Position	+N/-S	0.0 ft	Northing:	1,338,112.69 ft	Latitude:	40.258970
	+E/-W	0.0 ft	Easting:	3,214,357.77 ft	Longitude:	-104.731930
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,872.0 ft

Wellbore	P_LUDWIG 30-1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/14/2009	9.09	67.02	53,307

Design	Plan #2 07-10-09 ZJRA6			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	7,493.0	0.0	0.0	314.23

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	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,975.0	13.50	314.23	1,968.8	55.2	-56.7	2.00	2.00	0.00	314.23	
4,897.8	13.50	314.23	4,810.8	531.1	-545.6	0.00	0.00	0.00	0.00	
5,797.8	0.00	0.00	5,702.5	604.8	-621.2	1.50	-1.50	0.00	180.00	
7,588.3	0.00	0.00	7,493.0	604.8	-621.2	0.00	0.00	0.00	0.00	PBHL_LUDWIG 30

APC

Planning Report - Geographic

Database:	apc_edmp	Local Co-ordinate Reference:	Well P_LUDWIG 30-1
Company:	ROCKIES - PLANNING	TVD Reference:	WELL @ 4872.0ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4872.0ft
Site:	WELD_LUDWIG 4-1 PAD	North Reference:	True
Well:	P_LUDWIG 30-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_LUDWIG 30-1		
Design:	Plan #2 07-10-09 ZJRA6		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,338,112.69	3,214,357.77	40.258970	-104.731930
648.0	0.00	0.00	648.0	0.0	0.0	1,338,112.69	3,214,357.77	40.258970	-104.731930
Surface Casing									
1,300.0	0.00	0.00	1,300.0	0.0	0.0	1,338,112.69	3,214,357.77	40.258970	-104.731930
1,975.0	13.50	314.23	1,968.8	55.2	-56.7	1,338,167.41	3,214,300.58	40.259122	-104.732133
3,907.6	13.50	314.23	3,848.0	369.9	-380.0	1,338,479.30	3,213,974.58	40.259985	-104.733292
Parkman									
4,524.7	13.50	314.23	4,448.0	470.4	-483.2	1,338,578.88	3,213,870.50	40.260261	-104.733661
Sussex									
4,897.8	13.50	314.23	4,810.8	531.1	-545.6	1,338,639.09	3,213,807.57	40.260428	-104.733885
5,797.8	0.00	0.00	5,702.5	604.8	-621.2	1,338,712.05	3,213,731.31	40.260630	-104.734156
7,136.3	0.00	0.00	7,041.0	604.8	-621.2	1,338,712.05	3,213,731.31	40.260630	-104.734156
Niobrara "A"									
7,424.3	0.00	0.00	7,329.0	604.8	-621.2	1,338,712.05	3,213,731.31	40.260630	-104.734156
Codell									
7,588.3	0.00	0.00	7,493.0	604.8	-621.2	1,338,712.05	3,213,731.31	40.260630	-104.734156

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	Latitude	Longitude
PBHL_LUDWIG 30-1	0.00	0.00	7,493.0	604.8	-621.2	1,338,712.05	3,213,731.31	40.260630	-104.734156
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
648.0	648.0	Surface Casing	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,907.6	3,848.0	Parkman		0.00		
4,524.7	4,448.0	Sussex		0.00		
7,136.3	7,041.0	Niobrara "A"		0.00		
7,424.3	7,329.0	Codell		0.00		