



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Five 31-9

P_FIVE 31-9

P_FIVE 31-9

Plan: PLAN #1 1-13-10 RHS

Standard Planning Report

13 January, 2010



P_FIVE 31-9
COLORADO NORTHERN ZONE - 83
SECTION 9 T4N R66W
1964 FNL 513 FWL
LAT: 40° 19' 41.628 N
LONG: 104° 47' 27.744 W



Azimuths to True North
Magnetic North: 9.06°
Magnetic Field
Strength: 53241.7nT
Dip Angle: 67.04°
Date: 1/13/2010
Model: IGRF2010

WELL DETAILS: P_FIVE 31-9

+N/-S	+E/-W	Northing	Easting	Ground Level:	4699.00	Latitude	Longitude	Slot
0.00	0.00	1363205.16	3197659.63			40° 19' 41.628 N	104° 47' 27.744 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3600.00	3643.55	PARKMAN
4105.00	4156.67	SUSSEX
4720.00	4781.55	SHANNON
6917.00	6992.32	NIO A
7233.00	7308.32	CODELL

SECTION DETAILS

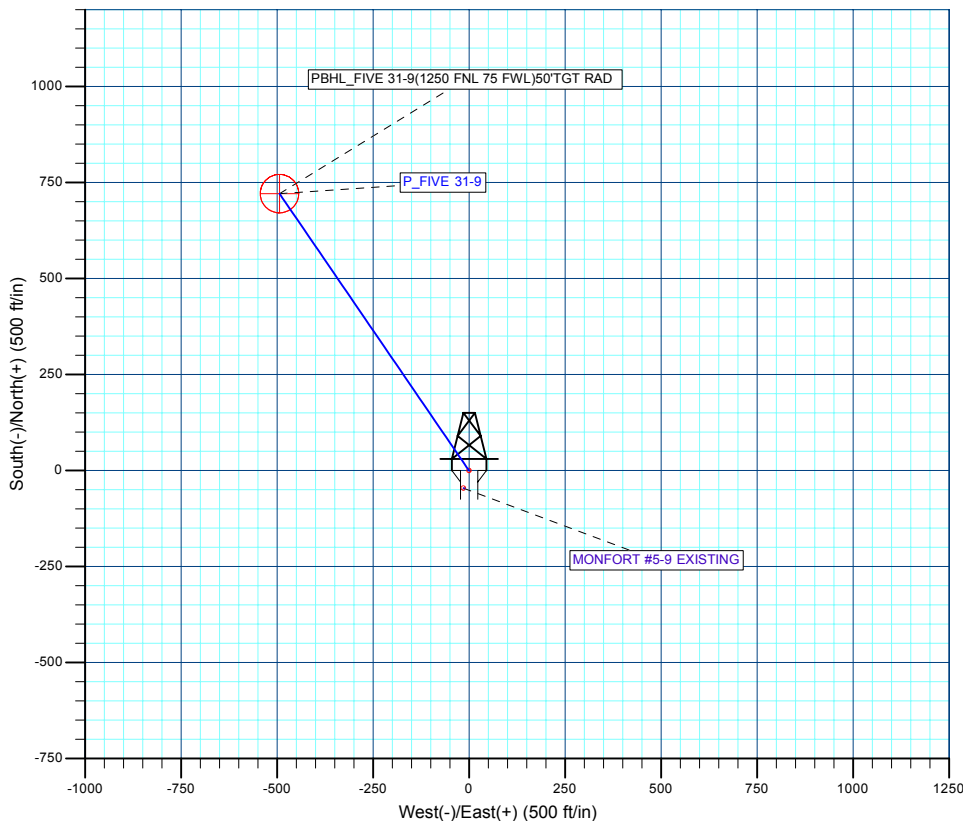
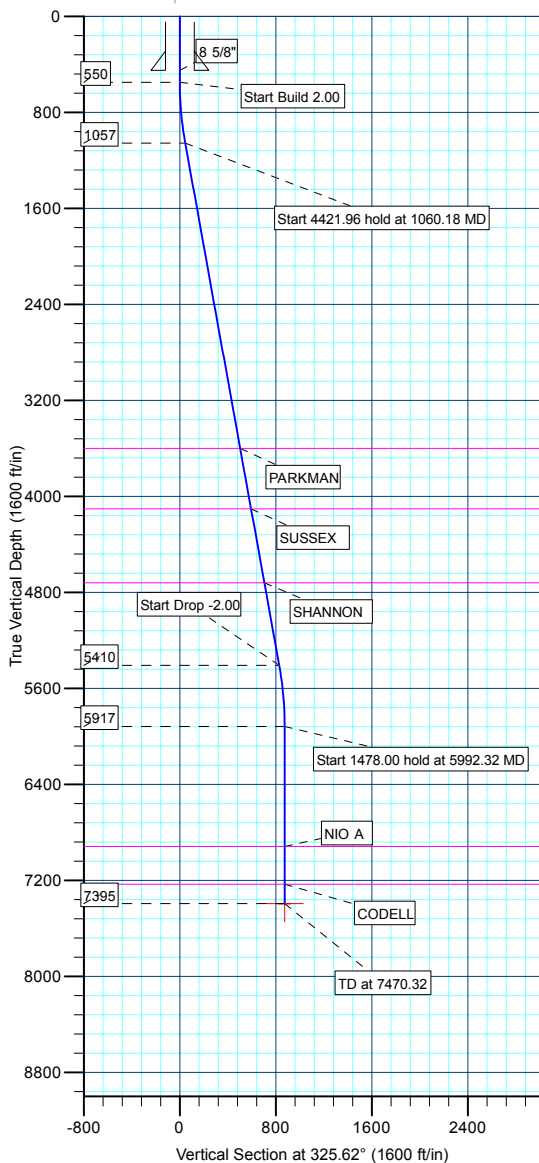
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
550.00	0.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	
1060.18	10.20	325.62	1057.49	37.39	-25.58	2.00	325.62	45.31		
5482.14	10.20	325.62	5409.51	683.91	-467.89	0.00	0.00	828.64		
5992.32	0.00	0.00	5917.00	721.30	-493.47	2.00	180.00	873.95		
7470.32	0.00	0.00	7395.00	721.30	-493.47	0.00	0.00	873.95		PBHL_FIVE 31-9(1250 FNL 75 FWL)50'TGT RAD

CASING DETAILS

TVD	MD	Name	Size
450.00	450.00	8 5/8"	8.62

KB ELEV:WELL @ 4714.00ft (Original Well Elev)

GRD ELEV: 4699.00



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7395.00	721.30	-493.47	1363922.49	3197160.4140	19° 48.756 N 104° 47' 34.116 W		Circle (Radius: 50.00)

Plan: PLAN #1 1-13-10 RHS (P_FIVE 31-9/P_FIVE 31-9)

Created By: Robert H. Scott

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FIVE 31-9
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site:	WELD_Five 31-9	North Reference:	True
Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FIVE 31-9		
Design:	PLAN #1 1-13-10 RHS		

Project	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site						WELD_Five 31-9, SECTION 9 T4N R66W											
Site Position:			Northing:			1,363,205.16 ft			Latitude:			40° 19' 41.628 N					
From:			Lat/Long			Easting:			3,197,659.63 ft			Longitude:			104° 47' 27.744 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.46 °		

Well	P_FIVE 31-9					
Well Position	+N/-S	0.00 ft	Northing:	1,363,205.16 ft	Latitude:	40° 19' 41.628 N
	+E/-W	0.00 ft	Easting:	3,197,659.63 ft	Longitude:	104° 47' 27.744 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,699.00 ft

Wellbore	P_FIVE 31-9				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/13/2010	9.06	67.04	53,242

Design	PLAN #1 1-13-10 RHS			
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	325.62

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	
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,060.18	10.20	325.62	1,057.49	37.39	-25.58	2.00	2.00	0.00	325.62	
5,482.14	10.20	325.62	5,409.51	683.91	-467.89	0.00	0.00	0.00	0.00	
5,992.32	0.00	0.00	5,917.00	721.30	-493.47	2.00	-2.00	0.00	180.00	
7,470.32	0.00	0.00	7,395.00	721.30	-493.47	0.00	0.00	0.00	0.00	PBHL_FIVE 31-9(1.

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FIVE 31-9
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site:	WELD_Five 31-9	North Reference:	True
Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FIVE 31-9		
Design:	PLAN #1 1-13-10 RHS		

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)
Start Build 2.00									
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	1.00	325.62	600.00	0.36	-0.25	0.44	2.00	2.00	0.00
700.00	3.00	325.62	699.93	3.24	-2.22	3.93	2.00	2.00	0.00
800.00	5.00	325.62	799.68	9.00	-6.16	10.90	2.00	2.00	0.00
900.00	7.00	325.62	899.13	17.62	-12.06	21.35	2.00	2.00	0.00
1,000.00	9.00	325.62	998.15	29.11	-19.92	35.27	2.00	2.00	0.00
Start 4421.96 hold at 1060.18 MD									
1,060.18	10.20	325.62	1,057.49	37.39	-25.58	45.31	2.00	2.00	0.00
1,100.00	10.20	325.62	1,096.68	43.22	-29.57	52.36	0.00	0.00	0.00
1,200.00	10.20	325.62	1,195.10	57.84	-39.57	70.08	0.00	0.00	0.00
1,300.00	10.20	325.62	1,293.51	72.46	-49.57	87.79	0.00	0.00	0.00
1,400.00	10.20	325.62	1,391.93	87.08	-59.57	105.51	0.00	0.00	0.00
1,500.00	10.20	325.62	1,490.35	101.70	-69.58	123.22	0.00	0.00	0.00
1,600.00	10.20	325.62	1,588.77	116.32	-79.58	140.94	0.00	0.00	0.00
1,700.00	10.20	325.62	1,687.19	130.94	-89.58	158.65	0.00	0.00	0.00
1,800.00	10.20	325.62	1,785.61	145.56	-99.58	176.36	0.00	0.00	0.00
1,900.00	10.20	325.62	1,884.03	160.18	-109.59	194.08	0.00	0.00	0.00
2,000.00	10.20	325.62	1,982.44	174.80	-119.59	211.79	0.00	0.00	0.00
2,100.00	10.20	325.62	2,080.86	189.42	-129.59	229.51	0.00	0.00	0.00
2,200.00	10.20	325.62	2,179.28	204.04	-139.59	247.22	0.00	0.00	0.00
2,300.00	10.20	325.62	2,277.70	218.66	-149.60	264.94	0.00	0.00	0.00
2,400.00	10.20	325.62	2,376.12	233.28	-159.60	282.65	0.00	0.00	0.00
2,500.00	10.20	325.62	2,474.54	247.90	-169.60	300.37	0.00	0.00	0.00
2,600.00	10.20	325.62	2,572.95	262.52	-179.60	318.08	0.00	0.00	0.00
2,700.00	10.20	325.62	2,671.37	277.15	-189.61	335.80	0.00	0.00	0.00
2,800.00	10.20	325.62	2,769.79	291.77	-199.61	353.51	0.00	0.00	0.00
2,900.00	10.20	325.62	2,868.21	306.39	-209.61	371.23	0.00	0.00	0.00
3,000.00	10.20	325.62	2,966.63	321.01	-219.61	388.94	0.00	0.00	0.00
3,100.00	10.20	325.62	3,065.05	335.63	-229.62	406.66	0.00	0.00	0.00
3,200.00	10.20	325.62	3,163.47	350.25	-239.62	424.37	0.00	0.00	0.00
3,300.00	10.20	325.62	3,261.88	364.87	-249.62	442.09	0.00	0.00	0.00
3,400.00	10.20	325.62	3,360.30	379.49	-259.62	459.80	0.00	0.00	0.00
3,500.00	10.20	325.62	3,458.72	394.11	-269.63	477.51	0.00	0.00	0.00
3,600.00	10.20	325.62	3,557.14	408.73	-279.63	495.23	0.00	0.00	0.00
PARKMAN									
3,643.55	10.20	325.62	3,600.00	415.10	-283.98	502.94	0.00	0.00	0.00
3,700.00	10.20	325.62	3,655.56	423.35	-289.63	512.94	0.00	0.00	0.00
3,800.00	10.20	325.62	3,753.98	437.97	-299.63	530.66	0.00	0.00	0.00
3,900.00	10.20	325.62	3,852.39	452.59	-309.64	548.37	0.00	0.00	0.00
4,000.00	10.20	325.62	3,950.81	467.21	-319.64	566.09	0.00	0.00	0.00
4,100.00	10.20	325.62	4,049.23	481.83	-329.64	583.80	0.00	0.00	0.00
SUSSEX									
4,156.67	10.20	325.62	4,105.00	490.12	-335.31	593.84	0.00	0.00	0.00
4,200.00	10.20	325.62	4,147.65	496.45	-339.64	601.52	0.00	0.00	0.00
4,300.00	10.20	325.62	4,246.07	511.07	-349.65	619.23	0.00	0.00	0.00
4,400.00	10.20	325.62	4,344.49	525.69	-359.65	636.95	0.00	0.00	0.00
4,500.00	10.20	325.62	4,442.90	540.31	-369.65	654.66	0.00	0.00	0.00
4,600.00	10.20	325.62	4,541.32	554.94	-379.65	672.38	0.00	0.00	0.00
4,700.00	10.20	325.62	4,639.74	569.56	-389.66	690.09	0.00	0.00	0.00
SHANNON									
4,781.55	10.20	325.62	4,720.00	581.48	-397.81	704.54	0.00	0.00	0.00
4,800.00	10.20	325.62	4,738.16	584.18	-399.66	707.81	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FIVE 31-9
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site:	WELD_Five 31-9	North Reference:	True
Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FIVE 31-9		
Design:	PLAN #1 1-13-10 RHS		

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)
4,900.00	10.20	325.62	4,836.58	598.80	-409.66	725.52	0.00	0.00	0.00
5,000.00	10.20	325.62	4,935.00	613.42	-419.66	743.23	0.00	0.00	0.00
5,100.00	10.20	325.62	5,033.42	628.04	-429.67	760.95	0.00	0.00	0.00
5,200.00	10.20	325.62	5,131.83	642.66	-439.67	778.66	0.00	0.00	0.00
5,300.00	10.20	325.62	5,230.25	657.28	-449.67	796.38	0.00	0.00	0.00
5,400.00	10.20	325.62	5,328.67	671.90	-459.67	814.09	0.00	0.00	0.00
Start Drop -2.00									
5,482.14	10.20	325.62	5,409.51	683.91	-467.89	828.64	0.00	0.00	0.00
5,500.00	9.85	325.62	5,427.10	686.48	-469.64	831.75	2.00	-2.00	0.00
5,600.00	7.85	325.62	5,525.90	699.17	-478.33	847.13	2.00	-2.00	0.00
5,700.00	5.85	325.62	5,625.19	709.01	-485.06	859.05	2.00	-2.00	0.00
5,800.00	3.85	325.62	5,724.82	715.98	-489.83	867.50	2.00	-2.00	0.00
5,900.00	1.85	325.62	5,824.70	720.08	-492.63	872.47	2.00	-2.00	0.00
Start 1478.00 hold at 5992.32 MD									
5,992.32	0.00	0.00	5,917.00	721.30	-493.47	873.95	2.00	-2.00	0.00
6,000.00	0.00	0.00	5,924.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,100.00	0.00	0.00	6,024.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,200.00	0.00	0.00	6,124.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,300.00	0.00	0.00	6,224.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,400.00	0.00	0.00	6,324.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,500.00	0.00	0.00	6,424.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,600.00	0.00	0.00	6,524.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,700.00	0.00	0.00	6,624.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,800.00	0.00	0.00	6,724.68	721.30	-493.47	873.95	0.00	0.00	0.00
6,900.00	0.00	0.00	6,824.68	721.30	-493.47	873.95	0.00	0.00	0.00
NIO A									
6,992.32	0.00	0.00	6,917.00	721.30	-493.47	873.95	0.00	0.00	0.00
7,000.00	0.00	0.00	6,924.68	721.30	-493.47	873.95	0.00	0.00	0.00
7,100.00	0.00	0.00	7,024.68	721.30	-493.47	873.95	0.00	0.00	0.00
7,200.00	0.00	0.00	7,124.68	721.30	-493.47	873.95	0.00	0.00	0.00
7,300.00	0.00	0.00	7,224.68	721.30	-493.47	873.95	0.00	0.00	0.00
CODELL									
7,308.32	0.00	0.00	7,233.00	721.30	-493.47	873.95	0.00	0.00	0.00
7,400.00	0.00	0.00	7,324.68	721.30	-493.47	873.95	0.00	0.00	0.00
TD at 7470.32 - PBHL_FIVE 31-9(1250 FNL 75 FWL)50'TGT RAD									
7,470.32	0.00	0.00	7,395.00	721.30	-493.47	873.95	0.00	0.00	0.00

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									
PBHL_FIVE 31-9(125	0.00	0.00	7,395.00	721.30	-493.47	1,363,922.49	3,197,160.41	40° 19' 48.756 N	104° 47' 34.116 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FIVE 31-9
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site:	WELD_Five 31-9	North Reference:	True
Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FIVE 31-9		
Design:	PLAN #1 1-13-10 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
450.00	450.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,643.55	3,600.00	PARKMAN				
4,156.67	4,105.00	SUSSEX				
4,781.55	4,720.00	SHANNON				
6,992.32	6,917.00	NIO A				
7,308.32	7,233.00	CODELL				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
550.00	550.00	0.00	0.00	Start Build 2.00	
1,060.18	1,057.49	37.39	-25.58	Start 4421.96 hold at 1060.18 MD	
5,482.14	5,409.51	683.91	-467.89	Start Drop -2.00	
5,992.32	5,917.00	721.30	-493.47	Start 1478.00 hold at 5992.32 MD	
7,470.32	7,395.00	721.30	-493.47	TD at 7470.32	



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Five 31-9

P_FIVE 31-9

P_FIVE 31-9

PLAN #1 1-13-10 RHS

Anticollision Report

13 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FIVE 31-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Reference Site:	WELD_Five 31-9	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FIVE 31-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 1-13-10 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 1/13/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,470.32	PLAN #1 1-13-10 RHS (P_FIVE 31-9)	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						
WELD_Five 31-9						
MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING	550.00	531.00	47.80	27.45	2.349	CC
MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING	700.00	680.93	50.31	23.64	1.887	ES
MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING	800.00	780.68	55.18	24.34	1.789	SF

Offset Design WELD_Five 31-9 - MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
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	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-162.34	-45.54	-14.50	51.43				
100.00	100.00	81.00	81.00	0.10	1.62	-162.34	-45.54	-14.50	47.80	46.08	1.72	27.861	
200.00	200.00	181.00	181.00	0.32	5.24	-162.34	-45.54	-14.50	47.80	42.24	5.56	8.596	
300.00	300.00	281.00	281.00	0.55	9.24	-162.34	-45.54	-14.50	47.80	38.01	9.79	4.885	
400.00	400.00	381.00	381.00	0.77	13.24	-162.34	-45.54	-14.50	47.80	33.79	14.01	3.412	
500.00	500.00	481.00	481.00	0.99	17.24	-162.34	-45.54	-14.50	47.80	29.56	18.23	2.621	
550.00	550.00	531.00	531.00	1.11	19.24	-162.34	-45.54	-14.50	47.80	27.45	20.35	2.349	CC
600.00	600.00	581.00	581.00	1.22	21.24	-128.37	-45.54	-14.50	48.07	25.61	22.46	2.140	
700.00	699.93	680.93	680.93	1.44	25.24	-131.45	-45.54	-14.50	50.31	23.64	26.66	1.887	ES
800.00	799.68	780.68	780.68	1.67	29.23	-136.82	-45.54	-14.50	55.18	24.34	30.84	1.789	SF
900.00	899.13	880.13	880.13	1.92	33.21	-143.20	-45.54	-14.50	63.22	28.26	34.96	1.808	
1,000.00	998.15	979.15	979.15	2.20	37.17	-149.46	-45.54	-14.50	74.85	35.87	38.98	1.920	
1,060.18	1,057.49	1,038.49	1,038.49	2.38	39.54	-152.87	-45.54	-14.50	83.68	42.33	41.35	2.024	
1,100.00	1,096.68	1,077.68	1,077.68	2.51	41.11	-154.91	-45.54	-14.50	90.03	47.05	42.98	2.095	
1,200.00	1,195.10	1,176.10	1,176.10	2.85	45.04	-158.95	-45.54	-14.50	106.38	59.30	47.08	2.260	
1,300.00	1,293.51	1,274.51	1,274.51	3.21	48.98	-161.91	-45.54	-14.50	123.10	71.92	51.18	2.405	
1,400.00	1,391.93	1,372.93	1,372.93	3.57	52.92	-164.16	-45.54	-14.50	140.07	84.78	55.29	2.533	
1,500.00	1,490.35	1,471.35	1,471.35	3.94	56.85	-165.92	-45.54	-14.50	157.21	97.80	59.41	2.646	
1,600.00	1,588.77	1,569.77	1,569.77	4.32	60.79	-167.33	-45.54	-14.50	174.46	110.93	63.53	2.746	
1,700.00	1,687.19	1,668.19	1,668.19	4.70	64.73	-168.49	-45.54	-14.50	191.79	124.15	67.65	2.835	
1,800.00	1,785.61	1,766.61	1,766.61	5.08	68.66	-169.46	-45.54	-14.50	209.19	137.42	71.77	2.915	
1,900.00	1,884.03	1,865.03	1,865.03	5.46	72.60	-170.28	-45.54	-14.50	226.64	150.75	75.89	2.986	
2,000.00	1,982.44	1,963.44	1,963.44	5.85	76.54	-170.98	-45.54	-14.50	244.12	164.11	80.01	3.051	
2,100.00	2,080.86	2,061.86	2,061.86	6.24	80.47	-171.59	-45.54	-14.50	261.64	177.50	84.14	3.110	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FIVE 31-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Reference Site:	WELD_Five 31-9	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FIVE 31-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Five 31-9 - MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis			Distance								Warning
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	
2,200.00	2,179.28	2,160.28	2,160.28	6.63	84.41	-172.12	-45.54	-14.50	279.18	190.92	88.26	3.163	
2,300.00	2,277.70	2,258.70	2,258.70	7.02	88.35	-172.59	-45.54	-14.50	296.74	204.35	92.39	3.212	
2,400.00	2,376.12	2,357.12	2,357.12	7.41	92.28	-173.01	-45.54	-14.50	314.32	217.81	96.52	3.257	
2,500.00	2,474.54	2,455.54	2,455.54	7.81	96.22	-173.38	-45.54	-14.50	331.92	231.27	100.64	3.298	
2,600.00	2,572.95	2,553.95	2,553.95	8.20	100.16	-173.71	-45.54	-14.50	349.52	244.75	104.77	3.336	
2,700.00	2,671.37	2,652.37	2,652.37	8.60	104.09	-174.01	-45.54	-14.50	367.14	258.24	108.90	3.371	
2,800.00	2,769.79	2,750.79	2,750.79	8.99	108.03	-174.29	-45.54	-14.50	384.76	271.74	113.03	3.404	
2,900.00	2,868.21	2,849.21	2,849.21	9.39	111.97	-174.54	-45.54	-14.50	402.40	285.24	117.16	3.435	
3,000.00	2,966.63	2,947.63	2,947.63	9.78	115.91	-174.77	-45.54	-14.50	420.04	298.75	121.28	3.463	
3,100.00	3,065.05	3,046.05	3,046.05	10.18	119.84	-174.98	-45.54	-14.50	437.68	312.27	125.41	3.490	
3,200.00	3,163.47	3,144.47	3,144.47	10.57	123.78	-175.18	-45.54	-14.50	455.34	325.79	129.54	3.515	
3,300.00	3,261.88	3,242.88	3,242.88	10.97	127.72	-175.36	-45.54	-14.50	472.99	339.32	133.67	3.538	
3,400.00	3,360.30	3,341.30	3,341.30	11.37	131.65	-175.52	-45.54	-14.50	490.65	352.85	137.80	3.561	
3,500.00	3,458.72	3,439.72	3,439.72	11.76	135.59	-175.68	-45.54	-14.50	508.32	366.39	141.93	3.581	
3,600.00	3,557.14	3,538.14	3,538.14	12.16	139.53	-175.83	-45.54	-14.50	525.98	379.92	146.06	3.601	
3,700.00	3,655.56	3,636.56	3,636.56	12.56	143.46	-175.96	-45.54	-14.50	543.65	393.46	150.19	3.620	
3,800.00	3,753.98	3,734.98	3,734.98	12.96	147.40	-176.09	-45.54	-14.50	561.33	407.01	154.32	3.637	
3,900.00	3,852.39	3,833.39	3,833.39	13.35	151.34	-176.21	-45.54	-14.50	579.00	420.55	158.45	3.654	
4,000.00	3,950.81	3,931.81	3,931.81	13.75	155.27	-176.32	-45.54	-14.50	596.68	434.10	162.58	3.670	
4,100.00	4,049.23	4,030.23	4,030.23	14.15	159.21	-176.43	-45.54	-14.50	614.36	447.65	166.71	3.685	
4,200.00	4,147.65	4,128.65	4,128.65	14.55	163.15	-176.53	-45.54	-14.50	632.05	461.20	170.84	3.700	
4,300.00	4,246.07	4,227.07	4,227.07	14.95	167.08	-176.62	-45.54	-14.50	649.73	474.76	174.97	3.713	
4,400.00	4,344.49	4,325.49	4,325.49	15.35	171.02	-176.71	-45.54	-14.50	667.41	488.31	179.10	3.726	
4,500.00	4,442.90	4,423.90	4,423.90	15.74	174.96	-176.80	-45.54	-14.50	685.10	501.87	183.23	3.739	
4,600.00	4,541.32	4,522.32	4,522.32	16.14	178.89	-176.88	-45.54	-14.50	702.79	515.43	187.37	3.751	
4,700.00	4,639.74	4,620.74	4,620.74	16.54	182.83	-176.95	-45.54	-14.50	720.48	528.98	191.50	3.762	
4,800.00	4,738.16	4,719.16	4,719.16	16.94	186.77	-177.03	-45.54	-14.50	738.17	542.54	195.63	3.773	
4,900.00	4,836.58	4,817.58	4,817.58	17.34	190.70	-177.10	-45.54	-14.50	755.86	556.11	199.76	3.784	
5,000.00	4,935.00	4,916.00	4,916.00	17.74	194.64	-177.16	-45.54	-14.50	773.56	569.67	203.89	3.794	
5,100.00	5,033.42	5,014.42	5,014.42	18.14	198.58	-177.23	-45.54	-14.50	791.25	583.23	208.02	3.804	
5,200.00	5,131.83	5,112.83	5,112.83	18.53	202.51	-177.29	-45.54	-14.50	808.95	596.79	212.15	3.813	
5,300.00	5,230.25	5,211.25	5,211.25	18.93	206.45	-177.35	-45.54	-14.50	826.64	610.36	216.28	3.822	
5,400.00	5,328.67	5,309.67	5,309.67	19.33	210.39	-177.40	-45.54	-14.50	844.34	623.92	220.41	3.831	
5,482.14	5,409.51	5,390.51	5,390.51	19.66	213.62	-177.45	-45.54	-14.50	858.87	635.07	223.81	3.838	
5,500.00	5,427.10	5,408.10	5,408.10	19.72	214.32	-177.46	-45.54	-14.50	861.98	637.23	224.75	3.835	
5,600.00	5,525.90	5,506.90	5,506.90	20.01	218.28	-177.52	-45.54	-14.50	877.34	647.35	229.99	3.815	
5,700.00	5,625.19	5,606.19	5,606.19	20.26	222.25	-177.56	-45.54	-14.50	889.25	654.23	235.02	3.784	
5,800.00	5,724.82	5,705.82	5,705.82	20.46	226.23	-177.59	-45.54	-14.50	897.69	657.90	239.80	3.744	
5,900.00	5,824.70	5,805.70	5,805.70	20.63	230.23	-177.61	-45.54	-14.50	902.66	658.36	244.30	3.695	
5,992.32	5,917.00	5,898.00	5,898.00	20.75	233.92	148.01	-45.54	-14.50	904.14	655.94	248.20	3.643	
6,000.00	5,924.68	5,905.68	5,905.68	20.76	234.23	148.01	-45.54	-14.50	904.14	655.62	248.52	3.638	
6,100.00	6,024.68	6,005.68	6,005.68	20.90	238.23	148.01	-45.54	-14.50	904.14	651.42	252.72	3.578	
6,200.00	6,124.68	6,105.68	6,105.68	21.04	242.23	148.01	-45.54	-14.50	904.14	647.23	256.92	3.519	
6,300.00	6,224.68	6,205.68	6,205.68	21.18	246.23	148.01	-45.54	-14.50	904.14	643.03	261.11	3.463	
6,400.00	6,324.68	6,305.68	6,305.68	21.32	250.23	148.01	-45.54	-14.50	904.14	638.83	265.31	3.408	
6,500.00	6,424.68	6,405.68	6,405.68	21.46	254.23	148.01	-45.54	-14.50	904.14	634.63	269.51	3.355	
6,600.00	6,524.68	6,505.68	6,505.68	21.60	258.23	148.01	-45.54	-14.50	904.14	630.43	273.71	3.303	
6,700.00	6,624.68	6,605.68	6,605.68	21.75	262.23	148.01	-45.54	-14.50	904.14	626.23	277.92	3.253	
6,800.00	6,724.68	6,705.68	6,705.68	21.90	266.23	148.01	-45.54	-14.50	904.14	622.02	282.12	3.205	
6,900.00	6,824.68	6,805.68	6,805.68	22.04	270.23	148.01	-45.54	-14.50	904.14	617.82	286.32	3.158	
7,000.00	6,924.68	6,905.68	6,905.68	22.19	274.23	148.01	-45.54	-14.50	904.14	613.62	290.52	3.112	
7,100.00	7,024.68	7,005.68	7,005.68	22.34	278.23	148.01	-45.54	-14.50	904.14	609.41	294.73	3.068	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FIVE 31-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Reference Site:	WELD_Five 31-9	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FIVE 31-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Five 31-9 - MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING - MONFORT #5-9 EXISTING												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis			Distance								Warning
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	
7,200.00	7,124.68	7,105.68	7,105.68	22.49	282.23	148.01	-45.54	-14.50	904.14	605.21	298.93	3.025	
7,300.00	7,224.68	7,205.68	7,205.68	22.65	286.23	148.01	-45.54	-14.50	904.14	601.00	303.14	2.983	
7,400.00	7,324.68	7,305.68	7,305.68	22.80	290.23	148.01	-45.54	-14.50	904.14	596.80	307.34	2.942	
7,470.32	7,395.00	7,376.00	7,376.00	22.91	293.04	148.01	-45.54	-14.50	904.14	593.84	310.30	2.914	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FIVE 31-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Reference Site:	WELD_Five 31-9	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FIVE 31-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

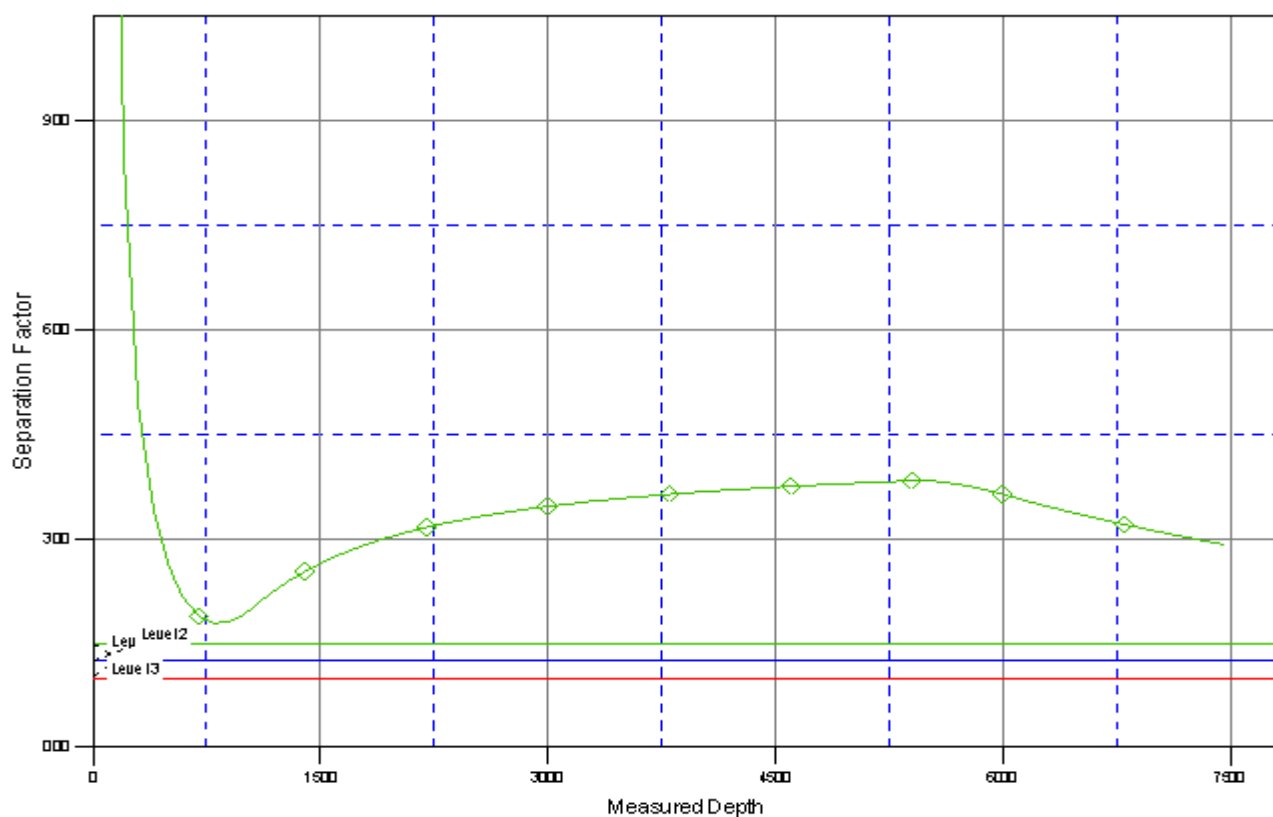
Reference Depths are relative to WELL @ 4714.00ft (Original Well Elev) Coordinates are relative to: P_FIVE 31-9
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.46°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FIVE 31-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4714.00ft (Original Well Elev)
Reference Site:	WELD_Five 31-9	MD Reference:	WELL @ 4714.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_FIVE 31-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FIVE 31-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4714.00ft (Original Well Elev) Coordinates are relative to: P_FIVE 31-9
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.46°

Separation Factor Plot



LEGEND

10 N FORT #5-9 EX ISTING W/D