

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_DECHANT 4-19 HZ PAD**

**DECHANT 3-19**

**DECHANT 3-19**

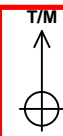
**Plan: DECHANT 3-19 (wp02)**

## **Standard Planning Report**

**17 November, 2010**



Project: COLORADO NORTHERN ZONE - 83  
 Site: WELD\_DECHANT 4-19 HZ PAD  
 Well: DECHANT 3-19  
 Wellbore: DECHANT 3-19  
 Section:  
 SHL:  
 Design: DECHANT 3-19 (wp02)  
 Latitude: 40.117717  
 Longitude: -104.601552  
 GL: 4981.00  
 KB: (17' RKB + 4981' GL) @ 4998.00ft



Azimuths to True North  
 Magnetic North: 0.00°  
 Magnetic Field  
 Strength: 0.05nT  
 Dip Angle: 0.00°  
 Date: 10/26/2010  
 Model: USER DEFINED



**Weatherford®**

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
741.00	741.00	BASE FOX HILLS
3626.00	3705.27	PARKMAN
4023.00	4120.11	SUSSEX
4696.00	4823.34	SHANNON
6925.00	7299.07	NIOBARA A
6984.00	7479.50	NIOBARA B

#### WELL DETAILS: DECHANT 3-19

+N/-S	+E/-W	Northing	Ground Level: Easting	4981.00 Latitude	Longitude	Slot
0.00	0.00	1287001.23	3251264.66	40.117717	-104.601552	

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

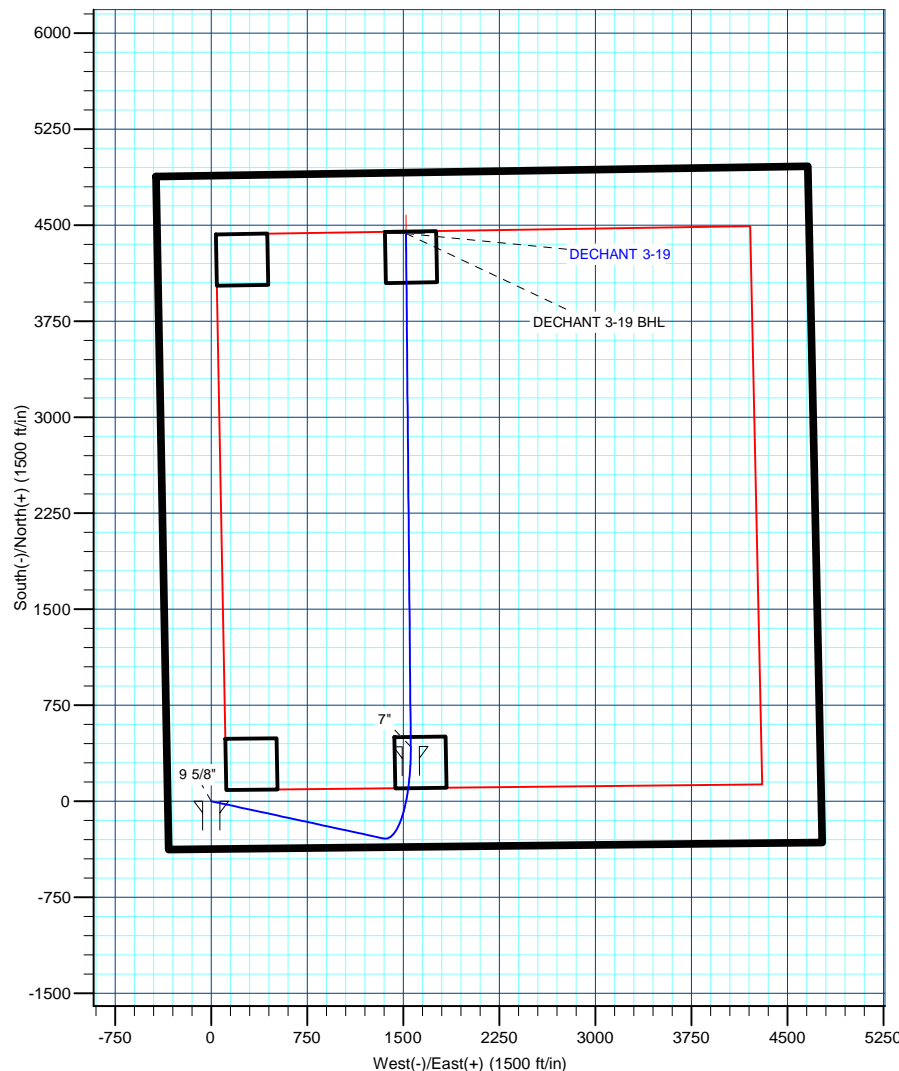
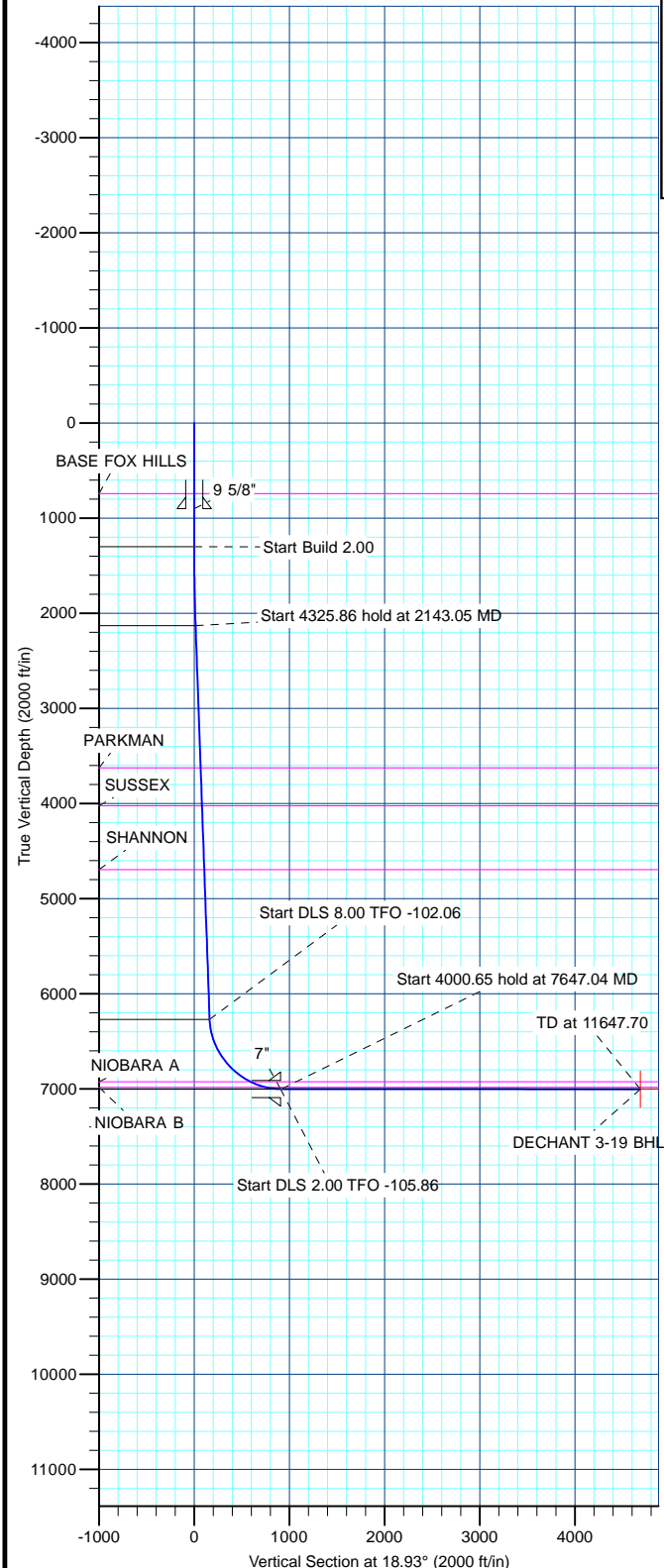
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Point	Shape
DECHANT 3-19 BHL	7004.00	4433.34	1520.85	40.129887	-104.596113		

#### SECTION DETAILS

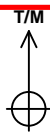
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	
3	2143.05	16.86	102.20	2130.94	-26.03	120.37	2.00	102.20	14.44	
4	6468.91	16.86	102.20	6270.83	-291.18	1346.76	0.00	0.00	161.58	
5	7639.19	90.00	359.62	7001.00	425.00	1558.00	8.00	-102.06	907.56	
6	7647.04	89.96	359.47	7001.00	432.86	1557.94	2.00	-105.86	914.97	
	17647.70	89.96	359.47	7004.00	4433.34	1520.85	0.00	0.00	4686.95	DECHANT 3-19 BHL

#### CASING DETAILS

TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7001.00	7639.19	7"	7



Project: COLORADO NORTHERN TIRE - 83  
Site: WELD\_DECHANT 4-19 HZ PAD  
Well: DECHANT 3-19  
Wellbore: DECHANT 3-19  
Section:  
SHL:  
Design: DECHANT 3-19 (wp02)  
Latitude: 40.117717  
Longitude: -104.601552  
GL: 4981.00  
KB: (17' RKB + 4981' GL) @ 4998.00ft



Azimuths to True North  
Magnetic North: 0.00°  
Magnetic Field  
Strength: 0.05nT  
Dip Angle: 0.00°  
Date: 10/26/2010  
Model: USER DEFINED



Weatherford®

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
741.00	741.00	BASE FOX HILLS
3626.00	3705.27	PARKMAN
4023.00	4120.11	SUSSEX
4696.00	4823.34	SHANNON
6925.00	7299.07	NIOBARA A
6984.00	7479.50	NIOBARA B

#### WELL DETAILS: DECHANT 3-19

+N/-S	+E/-W	Northing	Ground Level: Easting	4981.00 Latitude	Longitude	Slot
0.00	0.00	1287001.23	3251264.66	40.117717	-104.601552	

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

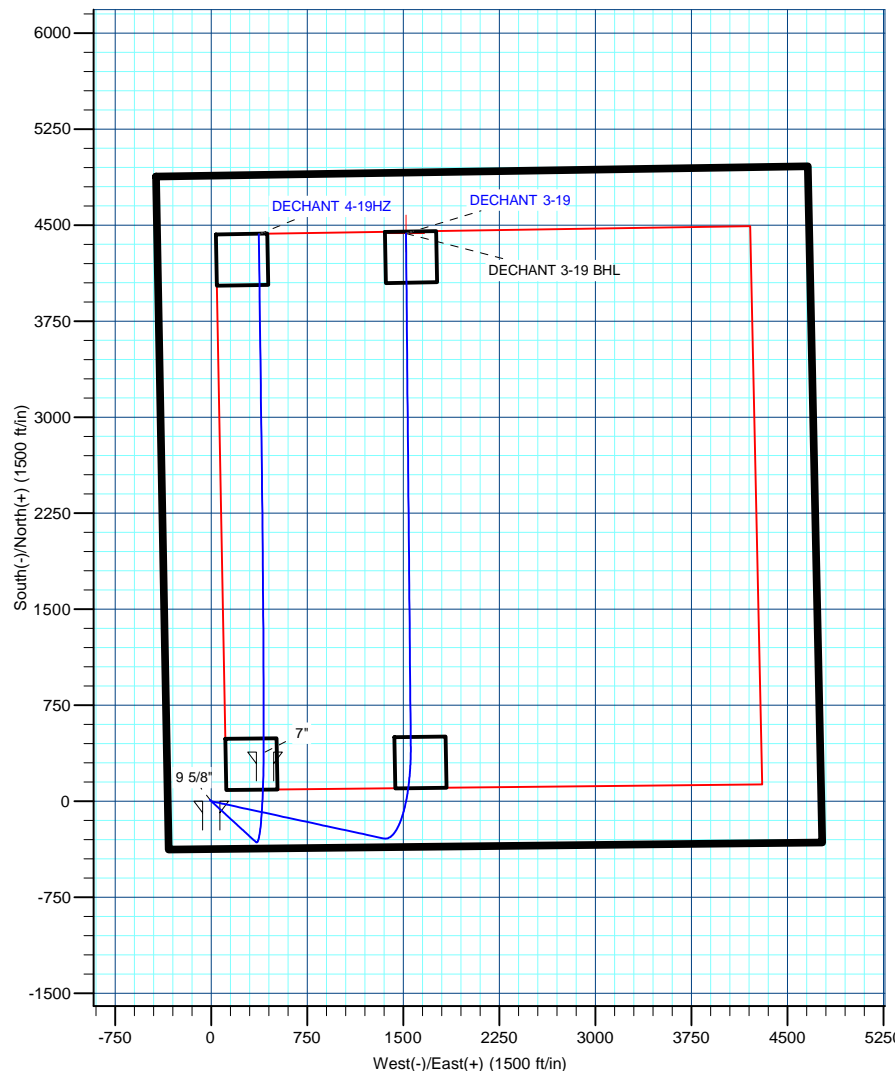
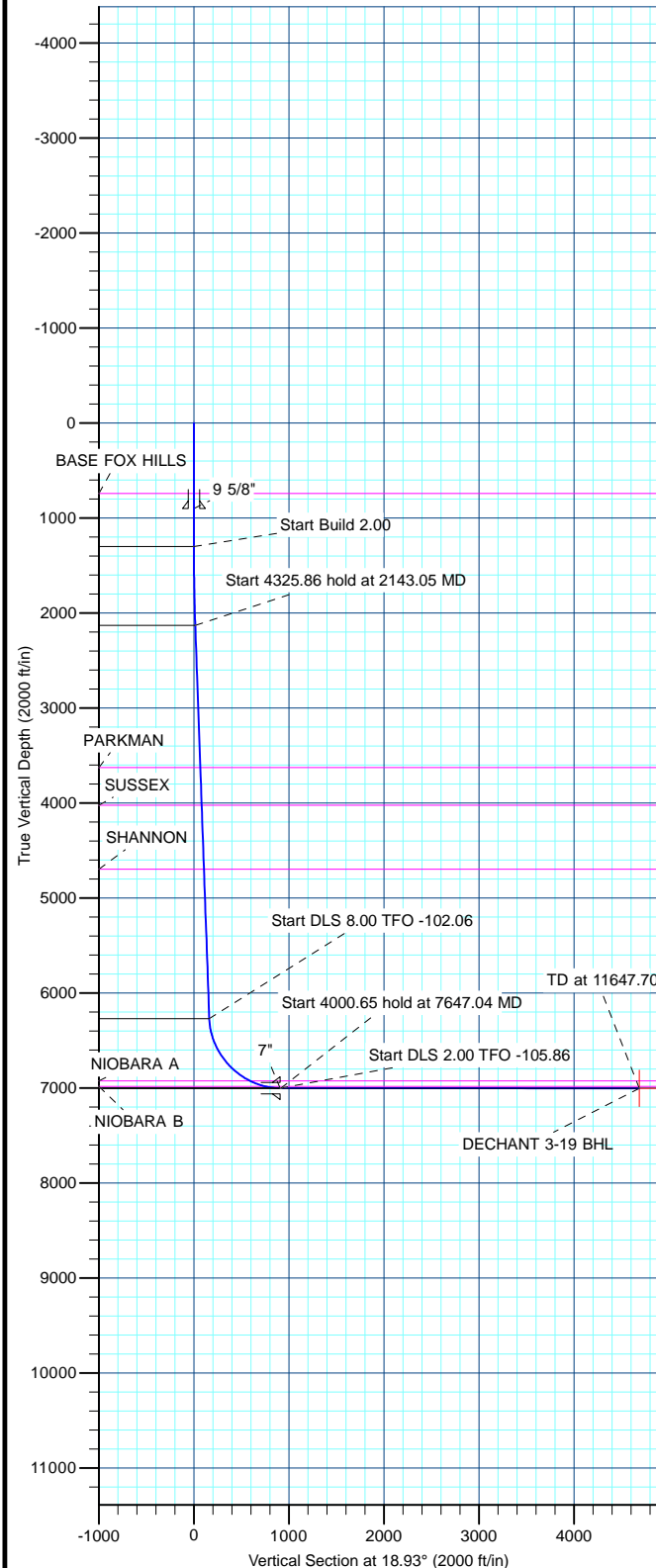
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Point	Shape
DECHANT 3-19 BHL	7004.00	4433.34	1520.85	40.129887	-104.596113		

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	
3	2143.05	16.86	102.20	2130.94	-26.03	120.37	2.00	102.20	14.44	
4	6468.91	16.86	102.20	6270.83	-291.18	1346.76	0.00	0.00	161.58	
5	7639.19	90.00	359.62	7001.00	425.00	1558.00	8.00	-102.06	907.56	
6	7647.04	89.96	359.47	7001.00	432.86	1557.94	2.00	-105.86	914.97	
7	11647.70	89.96	359.47	7004.00	4433.34	1520.85	0.00	0.00	4686.95	DECHANT 3-19 BHL

#### CASING DETAILS

TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7001.00	7639.19	7"	7



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DECHANT 3-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Site:</b>	WELD_DECHANT 4-19 HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DECHANT 3-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DECHANT 3-19		
<b>Design:</b>	DECHANT 3-19 (wp02)		

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

Site		WELD_DECHANT 4-19 HZ PAD			
Site Position:		Northing:	1,287,012.05 ft	Latitude:	40.117747
From:	Lat/Long	Easting:	3,251,253.09 ft	Longitude:	-104.601593
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.58 °

Well	DECHANT 3-19					
Well Position	+N-S	-10.95 ft	Northing:	1,287,001.23 ft	Latitude:	40.117717
	+E-W	11.47 ft	Easting:	3,251,264.66 ft	Longitude:	-104.601552
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,981.00 ft

<b>Wellbore</b>	DECHANT 3-19				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	10/26/2010	0.00	0.00	0

<b>Design</b>	DECHANT 3-19 (wp02)				
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<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	18.93	

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	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,143.05	16.86	102.20	2,130.94	-26.03	120.37	2.00	2.00	0.00	102.20	
6,468.91	16.86	102.20	6,270.83	-291.18	1,346.76	0.00	0.00	0.00	0.00	
7,639.19	90.00	359.62	7,001.00	425.00	1,558.00	8.00	6.25	-8.77	-102.06	
7,647.04	89.96	359.47	7,001.00	432.86	1,557.94	2.00	-0.55	-1.92	-105.86	
11,647.70	89.96	359.47	7,004.00	4,433.34	1,520.85	0.00	0.00	0.00	0.00	DECHANT 3-19 BH

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DECHANT 3-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Site:</b>	WELD_DECHANT 4-19 HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DECHANT 3-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DECHANT 3-19		
<b>Design:</b>	DECHANT 3-19 (wp02)		

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
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
741.00	0.00	0.00	741.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>BASE FOX HILLS</b>									
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
<b>9 5/8"</b>									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,400.00	2.00	102.20	1,399.98	-0.37	1.71	0.20	2.00	2.00	0.00
1,500.00	4.00	102.20	1,499.84	-1.47	6.82	0.82	2.00	2.00	0.00
1,600.00	6.00	102.20	1,599.45	-3.32	15.34	1.84	2.00	2.00	0.00
1,700.00	8.00	102.20	1,698.70	-5.89	27.25	3.27	2.00	2.00	0.00
1,800.00	10.00	102.20	1,797.47	-9.20	42.54	5.10	2.00	2.00	0.00
1,900.00	12.00	102.20	1,895.62	-13.23	61.19	7.34	2.00	2.00	0.00
2,000.00	14.00	102.20	1,993.06	-17.98	83.17	9.98	2.00	2.00	0.00
2,100.00	16.00	102.20	2,089.64	-23.45	108.47	13.01	2.00	2.00	0.00
2,143.05	16.86	102.20	2,130.94	-26.03	120.37	14.44	2.00	2.00	0.00
<b>Start 4325.86 hold at 2143.05 MD</b>									
2,200.00	16.86	102.20	2,185.44	-29.52	136.52	16.38	0.00	0.00	0.00
2,300.00	16.86	102.20	2,281.14	-35.65	164.87	19.78	0.00	0.00	0.00
2,400.00	16.86	102.20	2,376.84	-41.78	193.22	23.18	0.00	0.00	0.00
2,500.00	16.86	102.20	2,472.54	-47.90	221.57	26.58	0.00	0.00	0.00
2,600.00	16.86	102.20	2,568.24	-54.03	249.92	29.98	0.00	0.00	0.00
2,700.00	16.86	102.20	2,663.94	-60.16	278.27	33.39	0.00	0.00	0.00
2,800.00	16.86	102.20	2,759.64	-66.29	306.62	36.79	0.00	0.00	0.00
2,900.00	16.86	102.20	2,855.34	-72.42	334.97	40.19	0.00	0.00	0.00
3,000.00	16.86	102.20	2,951.05	-78.55	363.32	43.59	0.00	0.00	0.00
3,100.00	16.86	102.20	3,046.75	-84.68	391.67	46.99	0.00	0.00	0.00
3,200.00	16.86	102.20	3,142.45	-90.81	420.02	50.39	0.00	0.00	0.00
3,300.00	16.86	102.20	3,238.15	-96.94	448.37	53.79	0.00	0.00	0.00
3,400.00	16.86	102.20	3,333.85	-103.07	476.72	57.20	0.00	0.00	0.00
3,500.00	16.86	102.20	3,429.55	-109.20	505.07	60.60	0.00	0.00	0.00
3,600.00	16.86	102.20	3,525.25	-115.33	533.42	64.00	0.00	0.00	0.00
3,700.00	16.86	102.20	3,620.95	-121.46	561.77	67.40	0.00	0.00	0.00
3,705.27	16.86	102.20	3,626.00	-121.78	563.26	67.58	0.00	0.00	0.00
<b>PARKMAN</b>									
3,800.00	16.86	102.20	3,716.65	-127.59	590.12	70.80	0.00	0.00	0.00
3,900.00	16.86	102.20	3,812.36	-133.72	618.47	74.20	0.00	0.00	0.00
4,000.00	16.86	102.20	3,908.06	-139.85	646.82	77.60	0.00	0.00	0.00
4,100.00	16.86	102.20	4,003.76	-145.98	675.17	81.01	0.00	0.00	0.00
4,120.11	16.86	102.20	4,023.00	-147.21	680.87	81.69	0.00	0.00	0.00
<b>SUSSEX</b>									
4,200.00	16.86	102.20	4,099.46	-152.11	703.52	84.41	0.00	0.00	0.00

Database:	edm5000p	Local Co-ordinate Reference:	Well DECHANT 3-19
Company:	US ROCKIES REGION PLANNING	TVD Reference:	(17' RKB + 4981' GL) @ 4998.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	(17' RKB + 4981' GL) @ 4998.00ft
Site:	WELD_DECHANT 4-19 HZ PAD	North Reference:	True
Well:	DECHANT 3-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	DECHANT 3-19		
Design:	DECHANT 3-19 (wp02)		

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)
4,300.00	16.86	102.20	4,195.16	-158.24	731.87	87.81	0.00	0.00	0.00
4,400.00	16.86	102.20	4,290.86	-164.37	760.22	91.21	0.00	0.00	0.00
4,500.00	16.86	102.20	4,386.56	-170.49	788.57	94.61	0.00	0.00	0.00
4,600.00	16.86	102.20	4,482.26	-176.62	816.92	98.01	0.00	0.00	0.00
4,700.00	16.86	102.20	4,577.96	-182.75	845.27	101.41	0.00	0.00	0.00
4,800.00	16.86	102.20	4,673.67	-188.88	873.62	104.82	0.00	0.00	0.00
4,823.34	16.86	102.20	4,696.00	-190.31	880.24	105.61	0.00	0.00	0.00
<b>SHANNON</b>									
4,900.00	16.86	102.20	4,769.37	-195.01	901.97	108.22	0.00	0.00	0.00
5,000.00	16.86	102.20	4,865.07	-201.14	930.32	111.62	0.00	0.00	0.00
5,100.00	16.86	102.20	4,960.77	-207.27	958.67	115.02	0.00	0.00	0.00
5,200.00	16.86	102.20	5,056.47	-213.40	987.02	118.42	0.00	0.00	0.00
5,300.00	16.86	102.20	5,152.17	-219.53	1,015.37	121.82	0.00	0.00	0.00
5,400.00	16.86	102.20	5,247.87	-225.66	1,043.72	125.22	0.00	0.00	0.00
5,500.00	16.86	102.20	5,343.57	-231.79	1,072.07	128.63	0.00	0.00	0.00
5,600.00	16.86	102.20	5,439.27	-237.92	1,100.42	132.03	0.00	0.00	0.00
5,700.00	16.86	102.20	5,534.98	-244.05	1,128.77	135.43	0.00	0.00	0.00
5,800.00	16.86	102.20	5,630.68	-250.18	1,157.12	138.83	0.00	0.00	0.00
5,900.00	16.86	102.20	5,726.38	-256.31	1,185.47	142.23	0.00	0.00	0.00
6,000.00	16.86	102.20	5,822.08	-262.44	1,213.82	145.63	0.00	0.00	0.00
6,100.00	16.86	102.20	5,917.78	-268.57	1,242.17	149.03	0.00	0.00	0.00
6,200.00	16.86	102.20	6,013.48	-274.70	1,270.52	152.43	0.00	0.00	0.00
6,300.00	16.86	102.20	6,109.18	-280.83	1,298.87	155.84	0.00	0.00	0.00
6,400.00	16.86	102.20	6,204.88	-286.96	1,327.22	159.24	0.00	0.00	0.00
6,468.91	16.86	102.20	6,270.83	-291.18	1,346.76	161.58	0.00	0.00	0.00
<b>Start DLS 8.00 TFO -102.06</b>									
6,500.00	16.52	93.62	6,300.62	-292.41	1,355.58	163.28	8.00	-1.11	-27.61
6,600.00	17.81	66.62	6,396.31	-287.23	1,383.85	177.35	8.00	1.30	-26.99
6,700.00	22.05	46.52	6,490.41	-268.21	1,411.56	204.33	8.00	4.24	-20.10
6,800.00	27.92	33.55	6,581.08	-235.73	1,438.16	243.69	8.00	5.87	-12.97
6,900.00	34.60	25.01	6,666.55	-190.41	1,463.15	294.67	8.00	6.68	-8.54
7,000.00	41.70	19.01	6,745.17	-133.14	1,486.02	356.26	8.00	7.10	-6.00
7,100.00	49.03	14.50	6,815.39	-65.03	1,506.35	427.28	8.00	7.33	-4.51
7,200.00	56.50	10.91	6,875.87	12.59	1,523.72	506.34	8.00	7.47	-3.59
7,299.07	63.99	7.92	6,925.00	97.38	1,537.69	591.07	8.00	7.56	-3.02
<b>NIOBARA A</b>									
7,300.00	64.06	7.89	6,925.41	98.21	1,537.81	591.90	8.00	7.59	-2.81
7,319.39	65.54	7.35	6,933.66	115.60	1,540.13	609.10	8.00	7.60	-2.77
<b>DECHANT 3-19 HEEL</b>									
7,400.00	71.68	5.24	6,963.05	190.17	1,548.33	682.29	8.00	7.62	-2.62
7,479.50	77.76	3.30	6,984.00	266.61	1,554.02	756.44	8.00	7.65	-2.44
<b>NIOBARA B</b>									
7,500.00	79.33	2.82	6,988.07	286.67	1,555.09	775.76	8.00	7.66	-2.36
7,600.00	86.99	0.51	6,999.97	385.83	1,557.96	870.49	8.00	7.67	-2.31
7,639.19	90.00	359.62	7,001.00	425.01	1,558.00	907.56	8.00	7.67	-2.27
<b>Start DLS 2.00 TFO -105.86 - 7"</b>									
7,647.04	89.96	359.47	7,001.00	432.86	1,557.94	914.97	2.00	-0.55	-1.92
<b>Start 4000.65 hold at 7647.04 MD</b>									
7,700.00	89.96	359.47	7,001.04	485.81	1,557.45	964.90	0.00	0.00	0.00
7,800.00	89.96	359.47	7,001.12	585.81	1,556.52	1,059.18	0.00	0.00	0.00
7,900.00	89.96	359.47	7,001.19	685.81	1,555.59	1,153.47	0.00	0.00	0.00
8,000.00	89.96	359.47	7,001.27	785.80	1,554.67	1,247.75	0.00	0.00	0.00
8,100.00	89.96	359.47	7,001.34	885.80	1,553.74	1,342.03	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DECHANT 3-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Site:</b>	WELD_DECHANT 4-19 HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DECHANT 3-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DECHANT 3-19		
<b>Design:</b>	DECHANT 3-19 (wp02)		

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)
8,200.00	89.96	359.47	7,001.42	985.79	1,552.81	1,436.32	0.00	0.00	0.00
8,300.00	89.96	359.47	7,001.49	1,085.79	1,551.88	1,530.60	0.00	0.00	0.00
8,400.00	89.96	359.47	7,001.57	1,185.78	1,550.96	1,624.89	0.00	0.00	0.00
8,500.00	89.96	359.47	7,001.64	1,285.78	1,550.03	1,719.17	0.00	0.00	0.00
8,600.00	89.96	359.47	7,001.72	1,385.77	1,549.10	1,813.45	0.00	0.00	0.00
8,700.00	89.96	359.47	7,001.79	1,485.77	1,548.18	1,907.74	0.00	0.00	0.00
8,800.00	89.96	359.47	7,001.87	1,585.77	1,547.25	2,002.02	0.00	0.00	0.00
8,900.00	89.96	359.47	7,001.94	1,685.76	1,546.32	2,096.31	0.00	0.00	0.00
9,000.00	89.96	359.47	7,002.02	1,785.76	1,545.40	2,190.59	0.00	0.00	0.00
9,100.00	89.96	359.47	7,002.09	1,885.75	1,544.47	2,284.88	0.00	0.00	0.00
9,200.00	89.96	359.47	7,002.17	1,985.75	1,543.54	2,379.16	0.00	0.00	0.00
9,300.00	89.96	359.47	7,002.24	2,085.74	1,542.62	2,473.44	0.00	0.00	0.00
9,400.00	89.96	359.47	7,002.32	2,185.74	1,541.69	2,567.73	0.00	0.00	0.00
9,500.00	89.96	359.47	7,002.39	2,285.74	1,540.76	2,662.01	0.00	0.00	0.00
9,600.00	89.96	359.47	7,002.47	2,385.73	1,539.83	2,756.30	0.00	0.00	0.00
9,700.00	89.96	359.47	7,002.54	2,485.73	1,538.91	2,850.58	0.00	0.00	0.00
9,800.00	89.96	359.47	7,002.62	2,585.72	1,537.98	2,944.86	0.00	0.00	0.00
9,900.00	89.96	359.47	7,002.69	2,685.72	1,537.05	3,039.15	0.00	0.00	0.00
10,000.00	89.96	359.47	7,002.77	2,785.71	1,536.13	3,133.43	0.00	0.00	0.00
10,100.00	89.96	359.47	7,002.84	2,885.71	1,535.20	3,227.72	0.00	0.00	0.00
10,200.00	89.96	359.47	7,002.92	2,985.71	1,534.27	3,322.00	0.00	0.00	0.00
10,300.00	89.96	359.47	7,002.99	3,085.70	1,533.35	3,416.29	0.00	0.00	0.00
10,400.00	89.96	359.47	7,003.07	3,185.70	1,532.42	3,510.57	0.00	0.00	0.00
10,500.00	89.96	359.47	7,003.14	3,285.69	1,531.49	3,604.85	0.00	0.00	0.00
10,600.00	89.96	359.47	7,003.22	3,385.69	1,530.56	3,699.14	0.00	0.00	0.00
10,700.00	89.96	359.47	7,003.29	3,485.68	1,529.64	3,793.42	0.00	0.00	0.00
10,800.00	89.96	359.47	7,003.37	3,585.68	1,528.71	3,887.71	0.00	0.00	0.00
10,900.00	89.96	359.47	7,003.44	3,685.68	1,527.78	3,981.99	0.00	0.00	0.00
11,000.00	89.96	359.47	7,003.51	3,785.67	1,526.86	4,076.27	0.00	0.00	0.00
11,100.00	89.96	359.47	7,003.59	3,885.67	1,525.93	4,170.56	0.00	0.00	0.00
11,200.00	89.96	359.47	7,003.66	3,985.66	1,525.00	4,264.84	0.00	0.00	0.00
11,300.00	89.96	359.47	7,003.74	4,085.66	1,524.08	4,359.13	0.00	0.00	0.00
11,400.00	89.96	359.47	7,003.81	4,185.65	1,523.15	4,453.41	0.00	0.00	0.00
11,500.00	89.96	359.47	7,003.89	4,285.65	1,522.22	4,547.70	0.00	0.00	0.00
11,600.00	89.96	359.47	7,003.96	4,385.65	1,521.30	4,641.98	0.00	0.00	0.00
11,647.70	89.96	359.47	7,004.00	4,433.34	1,520.85	4,686.95	0.00	0.00	0.00
TD at 11647.70 - DECHANT 3-19 BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
DECHANT 3-19 BHL	0.00	0.58	7,004.00	4,433.34	1,520.85	1,291,449.75	3,252,740.52	40.129887	-104.596113
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DECHANT 3-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Site:</b>	WELD_DECHANT 4-19 HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DECHANT 3-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DECHANT 3-19		
<b>Design:</b>	DECHANT 3-19 (wp02)		

#### 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
7,639.19	7,001.00	7"	7	8-3/4

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
741.00	741.00	BASE FOX HILLS		0.00	
3,705.27	3,626.00	PARKMAN		0.00	
4,120.11	4,023.00	SUSSEX		0.00	
4,823.34	4,696.00	SHANNON		0.00	
7,299.07	6,925.00	NIOBARA A		0.00	
7,479.50	6,984.00	NIOBARA B		0.00	

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,300.00	1,300.00	0.00	0.00	Start Build 2.00
2,143.05	2,130.94	-26.03	120.37	Start 4325.86 hold at 2143.05 MD
6,468.91	6,270.83	-291.18	1,346.76	Start DLS 8.00 TFO -102.06
7,639.19	7,001.00	425.00	1,558.00	Start DLS 2.00 TFO -105.86
7,647.04	7,001.00	432.86	1,557.94	Start 4000.65 hold at 7647.04 MD
11,647.70	7,004.00	4,433.34	1,520.85	TD at 11647.70



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83  
WELD\_DECHANT 4-19 HZ PAD  
DECHANT 3-19**

**DECHANT 3-19  
DECHANT 3-19 (wp02)**

## **Anticollision Summary Report**

**17 November, 2010**



# APC

## Anticollision Summary Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well DECHANT 3-19
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Reference Site:</b>	WELD_DECHANT 4-19 HZ PAD	<b>MD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	DECHANT 3-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DECHANT 3-19	<b>Database:</b>	edm5000p
<b>Reference Design:</b>	DECHANT 3-19 (wp02)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	DECHANT 3-19 (wp02)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.00 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

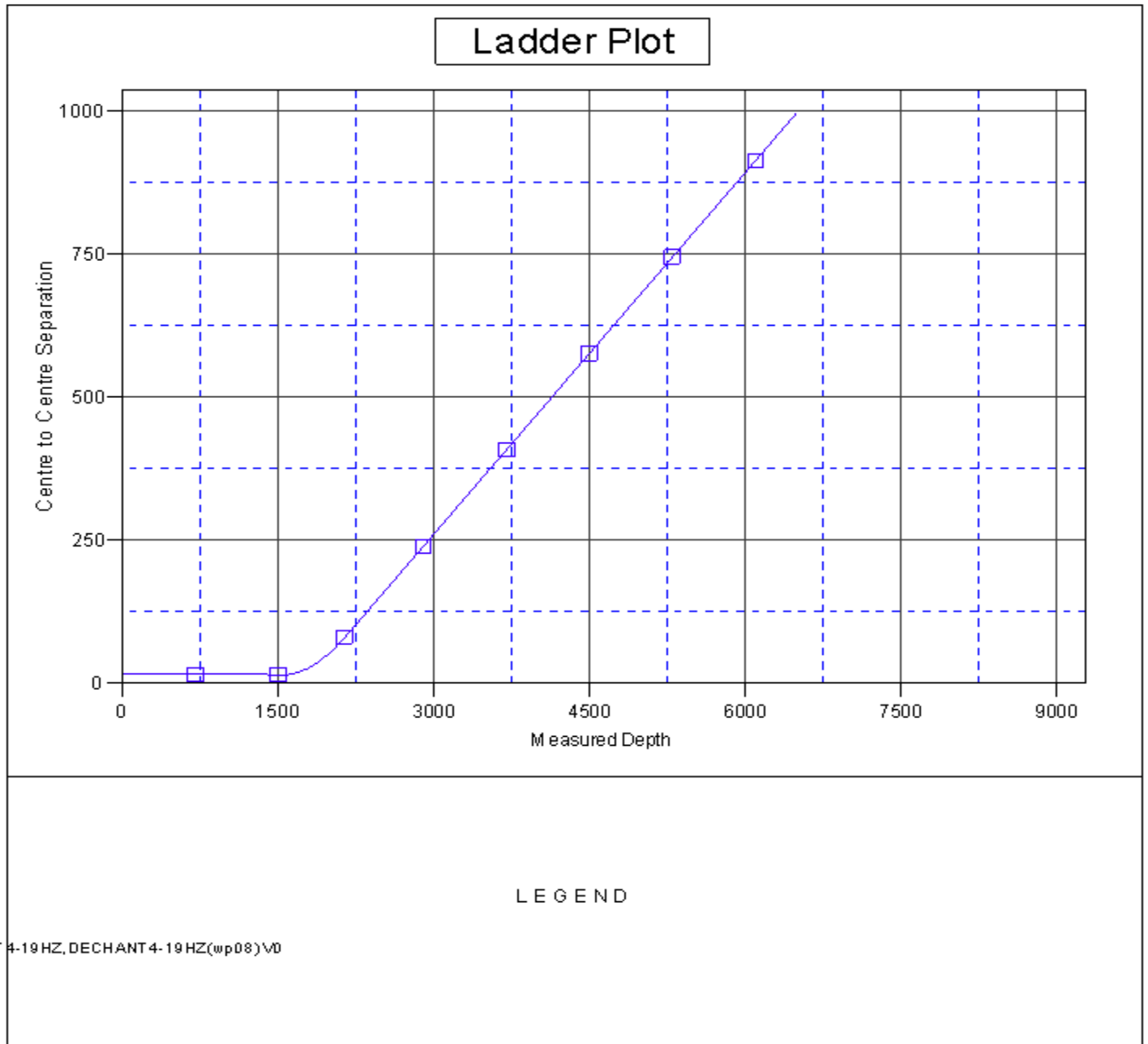
<b>Survey Tool Program</b>	<b>Date</b> 11/17/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	11,647.69	DECHANT 3-19 (wp02) (DECHANT 3-19)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
WELD_DECHANT 4-19 HZ PAD						
DECHANT 4-19 HZ - DECHANT 4-19HZ - DECHANT 4-	1,525.13	1,526.28	15.16	8.71	2.351	CC, ES
DECHANT 4-19 HZ - DECHANT 4-19HZ - DECHANT 4-	1,600.00	1,601.39	15.61	8.88	2.322	SF

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well DECHANT 3-19
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Reference Site:</b>	WELD_DECHANT 4-19 HZ PAD	<b>MD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	DECHANT 3-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DECHANT 3-19	<b>Database:</b>	edm5000p
<b>Reference Design:</b>	DECHANT 3-19 (wp02)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to (17' RKB + 4981' GL) @ 4998.00ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

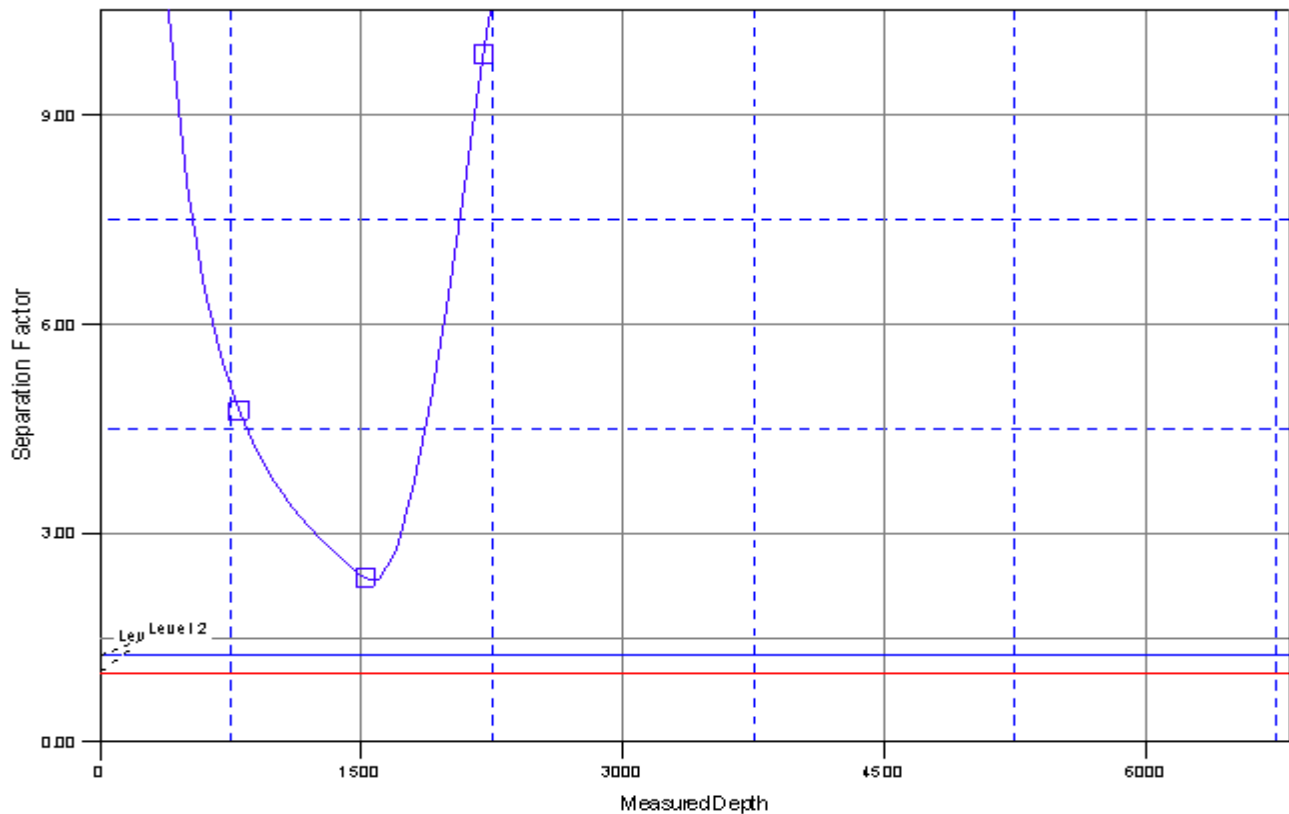
Coordinates are relative to: DECHANT 3-19  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.58°



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well DECHANT 3-19
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Reference Site:</b>	WELD_DECHANT 4-19 HZ PAD	<b>MD Reference:</b>	(17' RKB + 4981' GL) @ 4998.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	DECHANT 3-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DECHANT 3-19	<b>Database:</b>	edm5000p
<b>Reference Design:</b>	DECHANT 3-19 (wp02)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to (17' RKB + 4981' GL) @ 4998.00ft	Coordinates are relative to: DECHANT 3-19
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: 0.58°

## Separation Factor Plot



### LEGEND

IT 4-19 HZ, DECHANT 4-19 HZ(wp08)\V0