



Lease Review All - Frac Summary

Well Name: HORSETAIL 30F-3108

API Number 051233919900				WPC ID 1CO0761039				Well Permit Number				Field Name DJ Horizontal Niobrara				County Weld		State CO												
Well Configuration Type Lateral/Horizontal				Orig KB Elv (ft) 4,797.40				Ground Elevation (ft) 4,780.40				Casing Flange Elevation (ft)				Tubing Head Elevation (ft)				Total Depth (ftKB) 13,060.0										
Original Spud Date 7/23/2014				Completion Date 1/22/2015				Asset Group Redtail				Responsible Engineer Charles Ohlson				N/S Dist (ft) 2,373.0		N/S Ref FNL		E/W Dist (ft) 2,069.0		E/W Ref FWL								
Lot		Quarter 1 SE		Quarter 2 NW		Quarter 3		Quarter 4		Section 30		Section Suffix		Section Type		Township 10 N		Township N/S Dir		Range 57 W		Meridian								
Lateral/Horizontal - Original Hole, 6/23/2015 1:51:35 PM										Wellbore Sections																				
MD (ftKB)	D (ft K B)	n (K B)	c (K B)	l (K B)	Vertical schematic (actual)	Logs	Wellbore Name																Start Date		Size (in)		Act Top (ftKB)		Act Btm (ftKB)	
							Original Hole																4/23/2014		20		17.0		97.0	
							Original Hole																7/23/2014		13 1/2		97.0		1,630.0	
							Original Hole																7/25/2014		8 3/4		1,630.0		6,084.0	
							Original Hole																7/27/2014		6 1/8		6,084.0		13,060.0	
Conductor Pipe, 97.0ftKB																														
OD (in)		Wt (lb/ft)		Grade		Top (ftKB)		Btm (ftKB)		Len (ft)		Item Des																		
16		84.00		K-55		17.0		97.0		80.00		Casing Joints																		
Surface Csg, 1,610.0ftKB																														
OD (in)		Wt (lb/ft)		Grade		Top (ftKB)		Btm (ftKB)		Len (ft)		Item Des																		
9 5/8		36.00		J-55		17.0		17.0		0.00		Landing Joint																		
9 5/8		36.00		J-55		17.0		24.0		7.00		Wellhead/PUP																		
9 5/8		36.00		J-55		24.0		1,566.5		1,542.51		Casing Joints																		
9 5/8		36.00		J-55		1,566.5		1,568.0		1.50		Float Collar																		
9 5/8		36.00		J-55		1,568.0		1,608.5		40.50		Casing Joints																		
9 5/8		36.00		J-55		1,608.5		1,610.0		1.50		Float Shoe																		
Frac String, 5,003.0ftKB																														
OD (in)		Wt (lb/ft)		Grade		Top (ftKB)		Btm (ftKB)		Len (ft)		Item Des																		
7						17.0		17.6		0.60		Casing Hanger																		
4 1/2						17.6		18.6		1.00		BTC x LTC crossover																		
4 1/2				11.60		18.6		54.8		36.18		4.5# P-110 BTC-TXP 11.6# casing																		
4 1/2						54.8		56.7		1.90		4.5" BTC-TXP spaceout pup jt 8.25', 3.55', 1.55																		
4 1/2				11.60		56.7		4,992.5		4,935.83		4.5# P-110 BTC-TXP 11.6# casing																		
4 1/2						4,992.5		4,998.6		6.12		4.5" P-110,11.6# handing pup jt																		
5 1/4						4,998.6		5,003.0		4.37		Baker Hughes seal assembly																		
Intermediate Csg, 6,069.2ftKB																														
OD (in)		Wt (lb/ft)		Grade		Top (ftKB)		Btm (ftKB)		Len (ft)		Item Des																		
7		29.00		HCL-80		17.0		17.0		0.00		Landing Joint																		
7		29.00		HCL-80		17.0		22.0		5.00		Well head/pup																		
7		29.00		HCL-80		22.0		6,024.7		6,002.73		Casing Joints																		
7		29.00		HCL-80		6,024.7		6,026.2		1.50		Float Collar																		
7		29.00		HCL-80		6,026.2		6,067.7		41.46		Casing Joints																		
7 3/4		29.00		HCL-80		6,067.7		6,069.2		1.50		Float Shoe																		
Liner, 13,050.0ftKB																														
OD (in)		Wt (lb/ft)		Grade		Top (ftKB)		Btm (ftKB)		Len (ft)		Item Des																		
4 1/2		11.60		HCL-80		4,905.6		4,926.3		20.78		ZXP Packer																		
4 1/2		11.60		HCL-80		4,926.3		4,933.0		6.64		Liner Hanger																		
4 1/2		11.60		HCL-80		4,933.0		4,934.5		1.49		Combo Collar																		
4 1/2		11.60		HCL-80		4,934.5		4,940.2		5.76		Casing PUP Joint																		
4 1/2		11.60		HCL-80		4,940.2		12,943.9		8,003.64		Casing Joints																		
4 1/2		11.60		HCL-80		12,943.9		12,955.8		11.94		Alpha Sleeve																		
4 1/2		11.60		HCL-80		12,955.8		13,000.4		44.60		Casing Joints																		
4 1/2		11.60		HCL-80		13,000.4		13,002.0		1.59		Landing Collar																		
4 1/2		11.60		HCL-80		13,002.0		13,003.0		0.98		Float Collar																		
4 1/2		11.60		HCL-80		13,003.0		13,047.5		44.50		Casing Joints																		
4 1/2		11.60		HCL-80		13,047.5		13,050.0		2.53		Float Shoe																		
Cement Stages																														
Des		Pump Start Date				Drill Out Date				Top (ftKB)				Btm (ftKB)				Top Meas Meth												
Conductor Cement		4/23/2014								17.0				97.0				Returns to Surface												
Surface Casing Cement		7/23/2014								17.0				1,610.0				Returns to Surface												
Intermediate Casing Cement		7/27/2014								17.0				6,069.2				Returns to Surface												
Liner Cement		8/1/2014								4,905.0				13,050.0				Returns to Surface												
Perforations																														
Type of Hole				Date				Top (ftKB)				Btm (ftKB)				Zone														
Perforated Liner				1/21/2015				6,097.0				6,099.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,149.0				6,151.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,207.0				6,209.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,264.0				6,266.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,321.0				6,323.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,379.0				6,381.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,436.0				6,438.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,498.0				6,500.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,551.0				6,553.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,608.0				6,610.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,665.0				6,667.0				NIOBRARA, Original Hole														
Perforated Liner				1/21/2015				6,723.0				6,725.0				NIOBRARA, Original Hole														



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Original Spud Date 7/23/2014		Completion Date 1/22/2015		Asset Group Redtail		Responsible Engineer Charles Ohlson			N/S Dist (ft) 2,373.0		N/S Ref FNL	E/W Dist (ft) 2,069.0	E/W Ref FWL
Lot	Quarter 1 SE	Quarter 2 NW	Quarter 3	Quarter 4	Section 30	Section Suffix	Section Type	Township 10	Township N/S Dir N	Range 57	Range E/W Dir W	Meridian	

Lateral/Horizontal - Original Hole, 6/23/2015 1:51:37 PM						Perforations					
MD (ftKB)	D (ft K B)	n (K B)	c (K B)	l (K B)	Vertical schematic (actual)	Logs	Type of Hole	Date	Top (ftKB)	Btm (ftKB)	Zone
							Perforated Liner	1/21/2015	6,780.0	6,782.0	NIOBRARA, Original Hole
							Perforated Liner	1/21/2015	6,838.0	6,840.0	NIOBRARA, Original Hole
97.1							Perforated Liner	1/21/2015	6,899.0	6,901.0	NIOBRARA, Original Hole
1,609.9	1609.9						Perforated Liner	1/21/2015	6,952.0	6,954.0	NIOBRARA, Original Hole
2,690.3	2690.3						Perforated Liner	1/21/2015	7,010.0	7,012.0	NIOBRARA, Original Hole
3,752.0	3752.0						Perforated Liner	1/21/2015	7,065.0	7,067.0	NIOBRARA, Original Hole
4,904.9	4904.9						Perforated Liner	1/21/2015	7,124.0	7,126.0	NIOBRARA, Original Hole
4,940.3	4940.3						Perforated Liner	1/21/2015	7,182.0	7,184.0	NIOBRARA, Original Hole
5,531.5	5531.5						Perforated Liner	1/20/2015	7,239.0	7,241.0	NIOBRARA, Original Hole
5,727.4	5727.4						Perforated Liner	1/20/2015	7,301.0	7,303.0	NIOBRARA, Original Hole
6,069.2	6069.2						Perforated Liner	1/20/2015	7,354.0	7,356.0	NIOBRARA, Original Hole
6,150.9	6150.9						Perforated Liner	1/20/2015	7,354.0	7,356.0	NIOBRARA, Original Hole
6,320.9	6320.9						Perforated Liner	1/20/2015	7,411.0	7,413.0	NIOBRARA, Original Hole
6,438.0	6438.0						Perforated Liner	1/20/2015	7,411.0	7,413.0	NIOBRARA, Original Hole
6,607.9	6607.9						Perforated Liner	1/20/2015	7,464.0	7,466.0	NIOBRARA, Original Hole
6,725.1	6725.1						Perforated Liner	1/20/2015	7,526.0	7,528.0	NIOBRARA, Original Hole
6,899.0	6899.0						Perforated Liner	1/20/2015	7,583.0	7,585.0	NIOBRARA, Original Hole
7,012.1	7012.1						Perforated Liner	1/20/2015	7,641.0	7,643.0	NIOBRARA, Original Hole
7,182.1	7182.1						Perforated Liner	1/20/2015	7,698.0	7,700.0	NIOBRARA, Original Hole
7,303.1	7303.1						Perforated Liner	1/20/2015	7,755.0	7,757.0	NIOBRARA, Original Hole
7,463.9	7463.9						Perforated Liner	1/20/2015	7,813.0	7,815.0	NIOBRARA, Original Hole
7,585.0	7585.0						Perforated Liner	1/20/2015	7,875.0	7,877.0	NIOBRARA, Original Hole
7,754.9	7754.9						Perforated Liner	1/20/2015	7,927.0	7,929.0	NIOBRARA, Original Hole
7,877.0	7877.0						Perforated Liner	1/20/2015	7,985.0	7,987.0	NIOBRARA, Original Hole
8,042.0	8042.0						Perforated Liner	1/20/2015	8,042.0	8,044.0	NIOBRARA, Original Hole
8,159.1	8159.1						Perforated Liner	1/20/2015	8,099.0	8,101.0	NIOBRARA, Original Hole
8,329.1	8329.1						Perforated Liner	1/20/2015	8,157.0	8,159.0	NIOBRARA, Original Hole
8,443.9	8443.9						Perforated Liner	1/20/2015	8,214.0	8,216.0	NIOBRARA, Original Hole
8,616.1	8616.1						Perforated Liner	1/20/2015	8,276.0	8,278.0	NIOBRARA, Original Hole
8,732.0	8732.0						Perforated Liner	1/20/2015	8,329.0	8,331.0	NIOBRARA, Original Hole
8,901.9	8901.9						Perforated Liner	1/20/2015	8,386.0	8,388.0	NIOBRARA, Original Hole
9,019.0	9019.0						Perforated Liner	1/20/2015	8,442.0	8,444.0	NIOBRARA, Original Hole
9,189.0	9189.0						Perforated Liner	1/19/2015	8,501.0	8,503.0	NIOBRARA, Original Hole
9,346.1	9346.1						Perforated Liner	1/19/2015	8,558.0	8,560.0	NIOBRARA, Original Hole
9,476.0	9476.0						Perforated Liner	1/19/2015	8,616.0	8,618.0	NIOBRARA, Original Hole
9,592.8	9592.8						Perforated Liner	1/19/2015	8,677.0	8,679.0	NIOBRARA, Original Hole
9,763.1	9763.1						Perforated Liner	1/19/2015	8,730.0	8,732.0	NIOBRARA, Original Hole
9,878.9	9878.9						Perforated Liner	1/19/2015	8,788.0	8,790.0	NIOBRARA, Original Hole
10,045.9	10045.9						Perforated Liner	1/19/2015	8,843.0	8,845.0	NIOBRARA, Original Hole
10,166.0	10166.0						Perforated Liner	1/19/2015	8,902.0	8,904.0	NIOBRARA, Original Hole
10,336.0	10336.0						Perforated Liner	1/19/2015	8,960.0	8,962.0	NIOBRARA, Original Hole
10,453.1	10453.1						Perforated Liner	1/19/2015	9,017.0	9,019.0	NIOBRARA, Original Hole
10,623.0	10623.0						Perforated Liner	1/19/2015	9,077.0	9,079.0	NIOBRARA, Original Hole
10,740.2	10740.2						Perforated Liner	1/19/2015	9,132.0	9,134.0	NIOBRARA, Original Hole
10,910.1	10910.1						Perforated Liner	1/19/2015	9,189.0	9,191.0	NIOBRARA, Original Hole
11,025.9	11025.9						Perforated Liner	1/19/2015	9,244.0	9,346.0	NIOBRARA, Original Hole
11,195.9	11195.9						Perforated Liner	1/19/2015	9,304.0	9,306.0	NIOBRARA, Original Hole
11,313.0	11313.0						Perforated Liner	1/19/2015	9,361.0	9,363.0	NIOBRARA, Original Hole
11,482.9	11482.9						Perforated Liner	1/19/2015	9,418.0	9,420.0	NIOBRARA, Original Hole
11,600.1	11600.1						Perforated Liner	1/19/2015	9,476.0	9,478.0	NIOBRARA, Original Hole
11,770.0	11770.0						Perforated Liner	1/19/2015	9,533.0	9,535.0	NIOBRARA, Original Hole
11,887.1	11887.1						Perforated Liner	1/19/2015	9,591.0	9,593.0	NIOBRARA, Original Hole
12,059.1	12059.1						Perforated Liner	1/19/2015	9,645.0	9,647.0	NIOBRARA, Original Hole
12,172.9	12172.9						Perforated Liner	1/18/2015	9,705.0	9,707.0	NIOBRARA, Original Hole
12,342.8	12342.8						Perforated Liner	1/18/2015	9,763.0	9,765.0	NIOBRARA, Original Hole
12,461.9	12461.9						Perforated Liner	1/18/2015	9,820.0	9,822.0	NIOBRARA, Original Hole
12,628.0	12628.0						Perforated Liner	1/18/2015	9,877.0	9,879.0	NIOBRARA, Original Hole
12,747.0	12747.0						Perforated Liner	1/18/2015	9,935.0	9,937.0	NIOBRARA, Original Hole
12,917.0	12917.0						Perforated Liner	1/18/2015	9,992.0	9,994.0	NIOBRARA, Original Hole
13,002.0	13002.0						Perforated Liner	1/18/2015	10,046.0	10,048.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,107.0	10,109.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,164.0	10,166.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,221.0	10,223.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,283.0	10,285.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,336.0	10,338.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,393.0	10,395.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,451.0	10,453.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,508.0	10,510.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,566.0	10,568.0	NIOBRARA, Original Hole
							Perforated Liner	1/18/2015	10,623.0	10,625.0	NIOBRARA, Original Hole
						Perforated Liner	1/18/2015	10,676.0	10,678.0	NIOBRARA, Original Hole	
						Perforated Liner	1/18/2015	10,738.0	10,740.0	NIOBRARA, Original Hole	



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Well Configuration Type Lateral/Horizontal				Orig KB Elv (ft) 4,797.40		Ground Elevation (ft) 4,780.40		Casing Flange Elevation (ft)		Tubing Head Elevation (ft)		Total Depth (ftKB) 13,060.0			
Original Spud Date 7/23/2014		Completion Date 1/22/2015		Asset Group Redtail			Responsible Engineer Charles Ohlson			N/S Dist (ft) 2,373.0		N/S Ref FNL	E/W Dist (ft) 2,069.0		E/W Ref FWL
Lot	Quarter 1 SE	Quarter 2 NW	Quarter 3	Quarter 4	Section 30	Section Suffix	Section Type	Township 10	Township N/S Dir N	Range	Range E/W Dir 57	Range E/W Dir W	Meridian		

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Well Configuration Type Lateral/Horizontal				Orig KB Elv (ft) 4,797.40		Ground Elevation (ft) 4,780.40		Casing Flange Elevation (ft)		Tubing Head Elevation (ft)		Total Depth (ftKB) 13,060.0		
Original Spud Date 7/23/2014		Completion Date 1/22/2015		Asset Group Redtail			Responsible Engineer Charles Ohlson		N/S Dist (ft) 2,373.0		N/S Ref FNL	E/W Dist (ft) 2,069.0		E/W Ref FWL
Lot	Quarter 1 SE	Quarter 2 NW	Quarter 3	Quarter 4	Section 30	Section Suffix	Section Type	Township 10	Township N/S Dir N	Range 57	Range E/W Dir W	Meridian		

Lateral/Horizontal - Original Hole, 6/23/2015 1:51:42 PM						Stim/Treat Additives							
MD (ftKB)	D (ft K B)	n (in)	c (in)	l (in)	Vertical schematic (actual)	Logs	Stg #	Add		Type	Amount	Units	Sand Size
							3	Proppant		Ottawa 20/40	105,641.0	lb	20/40
							3	Proppant		Ottawa 40/70	2,640.0	lb	40/70
97.1	017	124					Interval 4						
1,609.9	1084.4	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
2,690.3	1287.4	124					4	1/16/2015	12,286.0	12,403.0	3417.93		SlickWater:717 bbl; pHaserFrac 22 XL Gel:2130 bbl;22 Linear Gel:297 bbl;15% HCl:12bbl;Fresh Water:262bbl
3,752.0	1397.1	124					Stim/Treat Additives						
4,904.9	1486.5	124					Stg #	Add		Type	Amount	Units	Sand Size
4,940.3	1490.0	124					4	Proppant		Ottawa 20/40	177,077.0	lb	20/40
5,531.5	1542.8	124					4	Proppant		Ottawa 40/70	3,096.0	lb	40/70
5,727.4	1565.4	124					Interval 5						
6,069.2	1584.4	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
6,150.9	1585.0	124					5	1/16/2015	12,114.0	12,227.0	3382.19		SlickWater:685 bbl; pHaserFrac 22 XL Gel:2165 bbl;22 Linear Gel:298 bbl;Fresh Water:234bbl
6,320.9	1594.0	124					Stim/Treat Additives						
6,438.0	1595.4	124					Stg #	Add		Type	Amount	Units	Sand Size
6,607.9	1598.9	124					5	Proppant		Ottawa 20/40	183,584.0	lb	20/40
6,725.1	1599.3	124					5	Proppant		Ottawa 40/70	4,299.0	lb	40/70
6,899.0	1599.3	124					Interval 6						
7,012.1	1599.3	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
7,182.1	1599.3	124					6	1/16/2015	11,942.0	12,061.0	3390.07		SlickWater:678 bbl; pHaserFrac 22 XL Gel:2167 bbl;22 Linear Gel:298 bbl;Fresh Water:246bbl
7,303.1	1599.3	124					Stim/Treat Additives						
7,463.9	1599.3	124					Stg #	Add		Type	Amount	Units	Sand Size
7,585.0	1599.3	124					6	Proppant		Ottawa 20/40	177,306.0	lb	20/40
7,754.9	1599.3	124					6	Proppant		Ottawa 40/70	3,017.0	lb	40/70
7,877.0	1599.3	124					Interval 7						
8,042.0	1599.3	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
8,159.1	1599.3	124					7	1/16/2015	11,770.0	11,887.0	3359.81		SlickWater:654 bbl; pHaserFrac 22 XL Gel:2162 bbl;22 Linear Gel:297 bbl;Fresh Water:247bbl
8,329.1	1599.3	124					Stim/Treat Additives						
8,443.9	1599.3	124					Stg #	Add		Type	Amount	Units	Sand Size
8,616.1	1599.3	124					7	Proppant		Ottawa 20/40	173,423.0	lb	20/40
8,732.0	1599.3	124					7	Proppant		Ottawa 40/70	1,786.0	lb	40/70
8,901.9	1599.3	124					Interval 8						
9,019.0	1599.3	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
9,189.0	1599.3	124					8	1/17/2015	11,598.0	11,715.0	3395.43		SlickWater:646 bbl; pHaserFrac 22 XL Gel:2214 bbl;22 Linear Gel:299 bbl;Fresh Water:236bbl
9,346.1	1599.3	124					Stim/Treat Additives						
9,476.0	1599.3	124					Stg #	Add		Type	Amount	Units	Sand Size
9,592.8	1599.3	124					8	Proppant		Ottawa 20/40	178,277.0	lb	20/40
9,763.1	1599.3	124					8	Proppant		Ottawa 40/70	2,296.0	lb	40/70
9,878.9	1599.3	124					Interval 9						
10,045.9	1599.3	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
10,166.0	1599.3	124					9	1/17/2015	11,426.0	11,543.0	3438.62		SlickWater:700 bbl; pHaserFrac 22 XL Gel:2184 bbl;22 Linear Gel:298 bbl;15% HCl:24bbl;Fresh Water:233bbl
10,336.0	1599.3	124					Stim/Treat Additives						
10,453.1	1599.3	124					Stg #	Add		Type	Amount	Units	Sand Size
10,623.0	1599.3	124					9	Proppant		Ottawa 20/40	183,563.0	lb	20/40
10,740.2	1599.3	124					9	Proppant		Ottawa 40/70	2,648.0	lb	40/70
10,910.1	1599.3	124					Interval 10						
11,025.9	1599.3	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
11,195.9	1599.3	124					10	1/17/2015	11,260.0	11,370.0	3357.19		SlickWater:674 bbl; pHaserFrac 22 XL Gel:2152 bbl;22 Linear Gel:298 bbl;15% HCl:24bbl;Fresh Water:210bbl
11,313.0	1599.3	124					Stim/Treat Additives						
11,482.9	1599.3	124					Stg #	Add		Type	Amount	Units	Sand Size
11,600.1	1599.3	124					10	Proppant		Ottawa 20/40	187,375.0	lb	20/40
11,770.0	1599.3	124					10	Proppant		Ottawa 40/70	3,464.0	lb	40/70
11,887.1	1599.3	124					Interval 11						
12,059.1	1599.3	124					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
12,172.9	1599.3	124					11	1/17/2015	11,082.0	11,198.0	3351.62		SlickWater:680 bbl; pHaserFrac 22 XL Gel:2130 bbl;22 Linear Gel:296 bbl;Fresh Water:245bbl
12,342.8	1599.3	124					Stim/Treat Additives						
12,461.9	1599.3	124					Stg #	Add		Type	Amount	Units	Sand Size
12,628.0	1599.3	124					11	Proppant		Ottawa 20/40	169,950.0	lb	20/40
12,747.0	1599.3	124					11	Proppant		Ottawa 40/70	2,423.0	lb	40/70
12,917.0	1599.3	124					Interval 12						
13,002.0	1599.3	124				Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment	
							12	1/17/2015	10,910.0	11,026.0	3322.24		SlickWater:659 bbl; pHaserFrac 22 XL Gel:2151 bbl;22 Linear Gel:297 bbl;Fresh Water:215bbl
						Stim/Treat Additives							
						Stg #	Add		Type	Amount	Units	Sand Size	
						12	Proppant		Ottawa 20/40	175,050.0	lb	20/40	



Lease Review All - Frac Summary
Well Name: HORSETAIL 30F-3108

API Number 051233919900				WPC ID 1CO0761039				Well Permit Number				Field Name DJ Horizontal Niobrara				County Weld		State CO									
Well Configuration Type Lateral/Horizontal						Orig KB Elv (ft) 4,797.40				Ground Elevation (ft) 4,780.40				Casing Flange Elevation (ft)				Tubing Head Elevation (ft)				Total Depth (ftKB) 13,060.0					
Original Spud Date 7/23/2014				Completion Date 1/22/2015				Asset Group Redtail				Responsible Engineer Charles Ohlson				N/S Dist (ft) 2,373.0				N/S Ref FNL		E/W Dist (ft) 2,069.0				E/W Ref FWL	
Lot		Quarter 1 SE		Quarter 2 NW		Quarter 3		Quarter 4		Section 30		Section Suffix		Section Type		Township 10 N		Township N/S Dir		Range 57		Range E/W Dir W		Meridian			
Lateral/Horizontal - Original Hole, 6/23/2015 1:51:44 PM														Stim/Treat Additives													
MD (ftKB)	D (ft K B)	n (ft K B)	c (ft K B)	l (ft K B)	Vertical schematic (actual)	Logs	Stg #		Add		Type		Amount		Units		Sand Size										
							12	Proppant		Ottawa 40/70		2,955.0		lb		40/70											
Interval 13																											
	97.1	97.1	14				Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:657 bbl; pHaserFrac 22 XL Gel:2151 bbl;22 Linear Gel:327 bbl;Fresh Water:197bbl														
	1,609.9	1609.6	14				13	1/17/2015	10,738.0	10,854.0	3332.62																
Stim/Treat Additives																											
	2,690.3	2690.5	14				Stg #	Add		Type		Amount		Units		Sand Size											
	3,752.0	3191.7	14				13	Proppant		Ottawa 20/40		176,176.0		lb		20/40											
	4,904.9	4360.5	14				13	Proppant		Ottawa 40/70		2,911.0		lb		40/70											
Interval 14																											
	4,940.3	4400.9	14				Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:684 bbl; pHaserFrac 22 XL Gel:2151 bbl;22 Linear Gel:298 bbl;Fresh Water:185bbl														
	5,531.5	4403.9	14				14	1/18/2015	10,566.0	10,678.0	3318.00																
	5,727.4	5180.3	14				Stim/Treat Additives																				
	6,069.2	5048.9	14				Stg #	Add		Type		Amount		Units		Sand Size											
	6,150.9	5050.4	14				14	Proppant		Ottawa 20/40		183,380.0		lb		20/40											
	6,320.9	5050.9	14				14	Proppant		Ottawa 40/70		3,176.0		lb		40/70											
Interval 15																											
	6,438.0	5060.3	14				Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:652 bbl; pHaserFrac 22 XL Gel:2169 bbl;22 Linear Gel:297 bbl;Fresh Water:186bbl														
	6,607.9	5068.9	14				15	1/18/2015	10,393.0	10,510.0	3304.81																
Stim/Treat Additives																											
	6,725.1	5080.2	14				Stg #	Add		Type		Amount		Units		Sand Size											
	6,899.0	5082.9	14				15	Proppant		Ottawa 20/40		189,414.0		lb		20/40											
	7,012.1	5083.3	14				15	Proppant		Ottawa 40/70		2,977.0		lb		40/70											
Interval 16																											
	7,182.1	5084.4	14			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:611 bbl; pHaserFrac 22 XL Gel:2171 bbl;22 Linear Gel:297 bbl;Fresh Water:160bbl															
	7,303.1	5085.0	14			16	1/18/2015	10,221.0	10,338.0	3238.93																	
Stim/Treat Additives																											
	7,463.9	5087.7	14			Stg #	Add		Type		Amount		Units		Sand Size												
	7,585.0	5088.9	14			16	Proppant		Ottawa 20/40		177,596.0		lb		20/40												
	7,754.9	5090.5	14			16	Proppant		Ottawa 40/70		3,047.0		lb		40/70												
Interval 17																											
	7,877.0	5096.3	14			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:646 bbl; pHaserFrac 22 XL Gel:2211 bbl;22 Linear Gel:297 bbl;Fresh Water:167bbl															
	8,042.0	5097.8	14			17	1/18/2015	10,046.0	10,166.0	3320.69																	
Stim/Treat Additives																											
	8,159.1	5098.4	14			Stg #	Add		Type		Amount		Units		Sand Size												
	8,329.1	5097.9	14			17	Proppant		Ottawa 20/40		184,351.0		lb		20/40												
	8,443.9	5099.2	14			17	Proppant		Ottawa 40/70		2,584.0		lb		40/70												
Interval 18																											
	8,616.1	5097.9	14			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:643 bbl; pHaserFrac 22 XL Gel:2153 bbl;22 Linear Gel:297 bbl;Fresh Water:172bbl															
	8,732.0	5097.2	14			18	1/18/2015	9,877.0	9,994.0	3265.24																	
Stim/Treat Additives																											
	8,901.9	5098.5	14			Stg #	Add		Type		Amount		Units		Sand Size												
	9,019.0	5097.0	14			18	Proppant		Ottawa 20/40		177,624.0		lb		20/40												
	9,189.0	5098.9	14			18	Proppant		Ottawa 40/70		2,978.0		lb		40/70												
Interval 19																											
	9,346.1	5094.9	14			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:640 bbl; pHaserFrac 22 XL Gel:2188 bbl;22 Linear Gel:297 bbl;Fresh Water:164bbl															
	9,476.0	5098.0	14			19	1/18/2015	9,705.0	9,822.0	3289.86																	
Stim/Treat Additives																											
	9,592.8	5095.4	14			Stg #	Add		Type		Amount		Units		Sand Size												
	9,763.1	5092.0	14			19	Proppant		Ottawa 20/40		183,470.0		lb		20/40												
	9,878.9	5091.8	14			19	Proppant		Ottawa 40/70		2,367.0		lb		40/70												
Interval 20																											
	10,045.9	5091.0	14			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:640 bbl; pHaserFrac 22 XL Gel:2152 bbl;22 Linear Gel:298 bbl;Fresh Water:161bbl															
	10,166.0	5090.9	14			20	1/18/2015	9,533.0	9,647.0	3250.50																	
Stim/Treat Additives																											
	10,336.0	5088.4	14			Stg #	Add		Type		Amount		Units		Sand Size												
	10,453.1	5084.6	14			20	Proppant		Ottawa 20/40		178,242.0		lb		20/40												
	10,623.0	5081.9	14			20	Proppant		Ottawa 40/70		2,963.0		lb		40/70												
Interval 21																											
	10,740.2	5082.2	14			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment SlickWater:654 bbl; pHaserFrac 22 XL Gel:2194 bbl;22 Linear Gel:298 bbl;Fresh Water:149bbl															
	10,910.1	5082.9	14			21	1/19/2015	9,361.0	9,478.0	3295.17																	
Stim/Treat Additives																											
	11,025.9	5083.1	14			Stg #	Add		Type		Amount		Units		Sand Size												
	11,196.9	5081.7	14			21	Proppant		Ottawa 20/40		183,120.0		lb		20/40												
	11,313.0	5081.6	14			21	Proppant		Ottawa 40/70		3,061.0		lb		40/70												



Lateral/Horizontal - Original Hole, 6/23/2015 1:51:47 PM					Stim/Treat Stages						
MD (ftKB)	D (ft K B)	n c l (Vertical schematic (actual)	Logs	Interval 22						
					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
97.1	97.1	12		Logs	22	1/19/2015	9,189.0	9,306.0	3259.69		SlickWater:672 bbl; pHaserFrac 22 XL Gel:2156 bbl;22 Linear Gel:299 bbl;Fresh Water:133bbl
Stim/Treat Additives											
1,609.9	1,609.9	12			Stg #	Add	Type	Amount	Units	Sand Size	
2,690.3	2,690.3	12			22	Proppant	Ottawa 20/40	180,716.0	lb	20/40	
3,752.0	3,752.0	12			22	Proppant	Ottawa 40/70	3,354.0	lb	40/70	
4,904.9	4,904.9	12			Interval 23						
4,940.3	4,940.3	12			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
5,531.5	5,531.5	12			23	1/19/2015	9,017.0	9,134.0	3232.38		SlickWater:637 bbl; pHaserFrac 22 XL Gel:2161 bbl;22 Linear Gel:298 bbl;Fresh Water:137bbl
5,727.4	5,727.4	12			Stim/Treat Additives						
6,069.2	6,069.2	12			Stg #	Add	Type	Amount	Units	Sand Size	
6,150.9	6,150.9	12			23	Proppant	Ottawa 20/40	182,567.0	lb	20/40	
6,320.9	6,320.9	12			23	Proppant	Ottawa 40/70	2,933.0	lb	40/70	
6,438.0	6,438.0	12			Interval 24						
6,607.9	6,607.9	12			Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment
6,725.1	6,725.1	12			24	1/19/2015	8,843.0	8,962.0	3218.93		SlickWater:645 bbl; pHaserFrac 22 XL Gel:2151 bbl;22 Linear Gel:297 bbl;Fresh Water:125bbl
6,899.0	6,899.0	12			Stim/Treat Additives						
7,012.1	7,012.1	12			Stg #	Add	Type	Amount	Units	Sand Size	
7,182.1	7,182.1	12			24	Proppant	Ottawa 20/40	176,055.0	lb	20/40	
7,303.1	7,303.1	12			24	Proppant	Ottawa 40/70	3,175.0	lb	40/70	
7,463.9	7,463.9	12			Interval 25						
7,585.0	7,585.0	12	Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment		
7,754.9	7,754.9	12	25	1/19/2015	8,677.0	8,790.0	3181.00		SlickWater:626 bbl; pHaserFrac 22 XL Gel:2139 bbl;22 Linear Gel:299 bbl;Fresh Water:117bbl		
7,877.0	7,877.0	12	Stim/Treat Additives								
8,042.0	8,042.0	12	Stg #	Add	Type	Amount	Units	Sand Size			
8,159.1	8,159.1	12	25	Proppant	Ottawa 20/40	168,907.0	lb	20/40			
8,329.1	8,329.1	12	25	Proppant	Ottawa 40/70	2,183.0	lb	40/70			
8,443.9	8,443.9	12	Interval 26								
8,616.1	8,616.1	12	Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment		
8,732.0	8,732.0	12	26	1/19/2015	8,501.0	8,618.0	3167.71		SlickWater:625 bbl; pHaserFrac 22 XL Gel:2132 bbl;22 Linear Gel:298 bbl;Fresh Water:113bbl		
8,901.9	8,901.9	12	Stim/Treat Additives								
9,019.0	9,019.0	12	Stg #	Add	Type	Amount	Units	Sand Size			
9,189.0	9,189.0	12	26	Proppant	Ottawa 20/40	170,085.0	lb	20/40			
9,346.1	9,346.1	12	26	Proppant	Ottawa 40/70	2,567.0	lb	40/70			
9,476.0	9,476.0	12	Interval 27								
9,592.8	9,592.8	12	Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment		
9,763.1	9,763.1	12	27	1/19/2015	8,329.0	8,444.0	3228.74		SlickWater:669 bbl; pHaserFrac 22 XL Gel:2160 bbl;22 Linear Gel:297 bbl;Fresh Water:103bbl		
9,878.9	9,878.9	12	Stim/Treat Additives								
10,045.9	10,045.9	12	Stg #	Add	Type	Amount	Units	Sand Size			
10,166.0	10,166.0	12	27	Proppant	Ottawa 20/40	176,637.0	lb	20/40			
10,336.0	10,336.0	12	27	Proppant	Ottawa 40/70	2,695.0	lb	40/70			
10,453.1	10,453.1	12	Interval 28								
10,623.0	10,623.0	12	Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment		
10,740.2	10,740.2	12	28	1/20/2015	8,157.0	8,278.0	3150.07		SlickWater:624 bbl; pHaserFrac 22 XL Gel:2130 bbl;22 Linear Gel:298 bbl;Fresh Water:99bbl		
10,910.1	10,910.1	12	Stim/Treat Additives								
11,025.9	11,025.9	12	Stg #	Add	Type	Amount	Units	Sand Size			
11,195.9	11,195.9	12	28	Proppant	Ottawa 20/40	170,548.0	lb	20/40			
11,313.0	11,313.0	12	28	Proppant	Ottawa 40/70	2,950.0	lb	40/70			
11,482.9	11,482.9	12	Interval 29								
11,600.1	11,600.1	12	Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment		
11,770.0	11,770.0	12	29	1/20/2015	7,985.0	8,101.0	3139.29		SlickWater:616 bbl; pHaserFrac 22 XL Gel:2146 bbl;22 Linear Gel:298 bbl;Fresh Water:80bbl		
11,887.1	11,887.1	12	Stim/Treat Additives								
12,059.1	12,059.1	12	Stg #	Add	Type	Amount	Units	Sand Size			
12,172.9	12,172.9	12	29	Proppant	Ottawa 20/40	172,488.0	lb	20/40			
12,342.8	12,342.8	12	29	Proppant	Ottawa 40/70	2,837.0	lb	40/70			
12,461.9	12,461.9	12	Interval 30								
12,628.0	12,628.0	12	Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment		
12,747.0	12,747.0	12	30	1/20/2015	7,813.0	7,929.0	3137.98		SlickWater:614 bbl; pHaserFrac 22 XL Gel:2146 bbl;22 Linear Gel:297 bbl;Fresh Water:81bbl		
12,917.0	12,917.0	12	Stim/Treat Additives								
13,002.0	13,002.0	12	Stg #	Add	Type	Amount	Units	Sand Size			
			30	Proppant	Ottawa 20/40	171,884.0	lb	20/40			
			30	Proppant	Ottawa 40/70	2,753.0	lb	40/70			



Lease Review All - Frac Summary

Well Name: HORSETAIL 30F-3108

API Number 051233919900			WPC ID 1CO0761039			Well Permit Number			Field Name DJ Horizontal Niobrara			County Weld			State CO
Well Configuration Type Lateral/Horizontal					Orig KB Elv (ft) 4,797.40		Ground Elevation (ft) 4,780.40		Casing Flange Elevation (ft)		Tubing Head Elevation (ft)		Total Depth (ft)KB 13,060.0		
Original Spud Date 7/23/2014		Completion Date 1/22/2015		Asset Group Redtail			Responsible Engineer Charles Ohlson			N/S Dist (ft) 2,373.0		N/S Ref FNL	E/W Dist (ft) 2,069.0		E/W Ref FWL
Lot	Quarter 1 SE	Quarter 2 NW	Quarter 3	Quarter 4	Section 30	Section Suffix	Section Type	Township 10	Township N/S Dir N	Range 57	Range E/W Dir W	Meridian			

Lateral/Horizontal - Original Hole, 6/23/2015 1:51:49 PM										Stim/Treat Stages									
MD (ftKB)	D (ft K B)	n (K B)	c (K B)	l (K B)	Vertical schematic (actual)	Logs	Interval 31												
							Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment						
97.1	97.1	12	12	12		31	1/20/2015	7,641.0	7,757.0	3134.19		SlickWater:611 bbl; pHaserFrac 22 XL Gel:2147 bbl;22 Linear Gel:298 bbl;Fresh Water:79bbl							
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
31	Proppant			Ottawa 20/40		173,126.0	lb	20/40											
31	Proppant			Ottawa 40/70		2,546.0	lb	40/70											
Interval 32																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...		Vol Slurry...	Comment												
32	1/20/2015	7,464.0	7,585.0	3134.19			SlickWater:607 bbl; pHaserFrac 22 XL Gel:2145 bbl;22 Linear Gel:298 bbl;Fresh Water:84bbl												
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
32	Proppant			Ottawa 20/40		172,525.0	lb	20/40											
32	Proppant			Ottawa 40/70		2,522.0	lb	40/70											
Interval 33																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...		Vol Slurry...	Comment												
33	1/20/2015	7,301.0	7,413.0	3139.33			SlickWater:604 bbl; pHaserFrac 22 XL Gel:2165 bbl;22 Linear Gel:298 bbl;Fresh Water:72bbl												
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
33	Proppant			Ottawa 20/40		171,052.0	lb	20/40											
33	Proppant			Ottawa 40/70		2,688.0	lb	40/70											
Interval 34																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment													
34	1/21/2015	7,124.0	7,241.0	3107.10		SlickWater:601 bbl; pHaserFrac 22 XL Gel:2141 bbl;22 Linear Gel:298 bbl;Fresh Water:68bbl													
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
34	Proppant			Ottawa 20/40		169,424.0	lb	20/40											
34	Proppant			Ottawa 40/70		2,603.0	lb	40/70											
Interval 35																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment													
35	1/21/2015	6,952.0	7,067.0	3141.71		SlickWater:638 bbl; pHaserFrac 22 XL Gel:2132 bbl;22 Linear Gel:298 bbl;Fresh Water:73bbl													
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
35	Proppant			Ottawa 20/40		174,211.0	lb	20/40											
35	Proppant			Ottawa 40/70		3,181.0	lb	40/70											
Interval 36																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment													
36	1/21/2015	6,780.0	6,901.0	3097.33		SlickWater:598 bbl; pHaserFrac 22 XL Gel:2144 bbl;22 Linear Gel:298 bbl;Fresh Water:58bbl													
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
36	Proppant			Ottawa 20/40		175,324.0	lb	20/40											
36	Proppant			Ottawa 40/70		2,863.0	lb	40/70											
Interval 37																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment													
37	1/21/2015	6,608.0	6,725.0	3096.71		SlickWater:607 bbl; pHaserFrac 22 XL Gel:2152 bbl;22 Linear Gel:298 bbl;Fresh Water:40bbl													
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
37	Proppant			Ottawa 20/40		174,118.0	lb	20/40											
37	Proppant			Ottawa 40/70		2,299.0	lb	40/70											
Interval 38																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment													
38	1/21/2015	6,436.0	6,553.0	3074.43		SlickWater:597 bbl; pHaserFrac 22 XL Gel:2146 bbl;22 Linear Gel:297 bbl;Fresh Water:34bbl													
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
38	Proppant			Ottawa 20/40		175,924.0	lb	20/40											
38	Proppant			Ottawa 40/70		2,554.0	lb	40/70											
Interval 39																			
Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...	Comment													
39	1/21/2015	6,264.0	6,381.0	3048.38		SlickWater:589 bbl; pHaserFrac 22 XL Gel:2132 bbl;22 Linear Gel:297 bbl;Fresh Water:30bbl													
Stim/Treat Additives																			
Stg #	Add			Type		Amount	Units	Sand Size											
39	Proppant			Ottawa 20/40		175,256.0	lb	20/40											
39	Proppant			Ottawa 40/70		2,902.0	lb	40/70											
13,002.0	13,002.0	12	12	12															



Lease Review All - Frac Summary
Well Name: HORSETAIL 30F-3108

API Number 051233919900		WPC ID 1CO0761039			Well Permit Number			Field Name DJ Horizontal Niobrara			County Weld			State CO			
Well Configuration Type Lateral/Horizontal				Orig KB Elv (ft) 4,797.40		Ground Elevation (ft) 4,780.40		Casing Flange Elevation (ft)		Tubing Head Elevation (ft)		Total Depth (ftKB) 13,060.0					
Original Spud Date 7/23/2014		Completion Date 1/22/2015		Asset Group Redtail			Responsible Engineer Charles Ohlson			N/S Dist (ft) 2,373.0		N/S Ref FNL		E/W Dist (ft) 2,069.0		E/W Ref FWL	
Lot		Quarter 1 SE	Quarter 2 NW	Quarter 3	Quarter 4	Section 30	Section Suffix	Section Type	Township 10	Township N/S Dir N	Range 57	Range E/W Dir W	Meridian				

Lateral/Horizontal - Original Hole, 6/23/2015 1:51:52 PM				Stim/Treat Stages						
MD (ftKB)	D (ft K B)	n (C B)	Vertical schematic (actual)	Logs	Interval 40					
					Stg #	Start Date	Top (ftKB)	Btm (ftKB)	Vol Clean...	Vol Slurry...
97.1	87.1	18								



Lease Review All - Frac Summary

Well Name: HORSETAIL 30F-3108

API Number	WPC ID	Well Permit Number	Field Name	County	State
051233919900	1CO0761039		DJ Horizontal Niobrara	Weld	CO
Well Configuration Type	Orig KB Elv (ft)	Ground Elevation (ft)	Casing Flange Elevation (ft)	Tubing Head Elevation (ft)	Total Depth (ftKB)
Lateral/Horizontal	4,797.40	4,780.40			13,060.0
Original Spud Date	Completion Date	Asset Group	Responsible Engineer	N/S Dist (ft)	N/S Ref
7/23/2014	1/22/2015	Redtail	Charles Ohlson	2,373.0	FNL
				E/W Dist (ft)	E/W Ref
				2,069.0	FWL
Lot	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Section
	SE	NW			30
					Section Suffix
					Section Type
					Township
					10 N
					Range
					57 W
					Meridian

Lateral/Horizontal - Original Hole, 6/23/2015 1:51:54 PM					Other In Hole					
MD (ftKB)	D (ft K B)	n c l (Vertical schematic (actual)	Logs	Des	OD (in)	Run Date	Pull Date	Top (ftKB)	Btm (ftKB)
					CFP	4	1/18/2015	3/22/2015	10,881.0	10,883.0
					CFP	4	1/17/2015	3/22/2015	11,053.0	11,055.0
97.1	97.1				CFP	4	1/17/2015	3/22/2015	11,225.0	11,227.0
1,609.9	1,609.9				CFP	4	1/17/2015	3/22/2015	11,400.0	11,402.0
2,690.3	2,690.3				CFP	4	1/17/2015	3/22/2015	11,573.0	11,575.0
3,752.0	3,752.0				CFP	4	1/16/2015	3/22/2015	11,733.0	11,735.0
4,904.9	4,904.9				CFP	4	1/16/2015	3/22/2015	11,913.0	11,915.0
4,940.3	4,940.3				CFP	4	1/16/2015	3/22/2015	12,085.0	12,087.0
5,531.5	5,531.5				CFP	4	1/16/2015	3/23/2015	12,257.0	12,259.0
5,727.4	5,727.4				CFP	4	1/16/2015	3/23/2015	12,430.0	12,432.0
6,069.2	6,069.2				CFP	4	1/16/2015	3/23/2015	12,602.0	12,604.0
6,150.9	6,150.9				CFP	4	1/16/2015	3/23/2015	12,774.0	12,776.0
6,320.9	6,320.9				Bottom Hole Cores					
6,438.0	6,438.0				Date	Core #	Top (ftKB)	Btm (ftKB)	Recov (ft)	
6,607.9	6,607.9									
6,725.1	6,725.1									
6,899.0	6,899.0									
7,012.1	7,012.1									
7,182.1	7,182.1									
7,303.1	7,303.1									
7,463.9	7,463.9									
7,585.0	7,585.0									
7,754.9	7,754.9									
7,877.0	7,877.0									
8,042.0	8,042.0									
8,159.1	8,159.1									
8,329.1	8,329.1									
8,443.9	8,443.9									
8,616.1	8,616.1									
8,732.0	8,732.0									
8,901.9	8,901.9									
9,019.0	9,019.0									
9,189.0	9,189.0									
9,346.1	9,346.1									
9,476.0	9,476.0									
9,592.8	9,592.8									
9,763.1	9,763.1									
9,878.9	9,878.9									
10,045.9	10,045.9									
10,166.0	10,166.0									
10,336.0	10,336.0									
10,453.1	10,453.1									
10,623.0	10,623.0									
10,740.2	10,740.2									
10,910.1	10,910.1									
11,025.9	11,025.9									
11,195.9	11,195.9									
11,313.0	11,313.0									
11,482.9	11,482.9									
11,600.1	11,600.1									
11,770.0	11,770.0									
11,887.1	11,887.1									
12,059.1	12,059.1									
12,172.9	12,172.9									
12,342.8	12,342.8									
12,461.9	12,461.9									
12,628.0	12,628.0									
12,747.0	12,747.0									
12,917.0	12,917.0									
13,002.0	13,002.0									