



PDC ENERGY

Prepared for
Evan Stewart / Chris McMullen

05-123-49451

Red Cloud - 10N

*Located in
Weld County, CO*

Prepared by
Cody Michel
on
Thursday, August 15, 2019

Serviced from the Brighton Facility
For Customer Service Call: 303-857-7948

Rig Name: Ensign 152

Proposal Version: 0

15-Aug-19

8:45 AM

Entered By: Cody Michel

43676:3.11a DISCLAIMER

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Production Casing

Job Data							
MD / TVD	16,806 ft / 6,700 ft	Casing	5.5 in. 20#, (0 to 16,806 ft)				
Est. BHST/BHCT	200°F / 180°F (0) (2.99°F/100ft)	Open Hole	8.5 in. O.H. (1,672 to 16,806 ft)				
Mud Weight & Type	10#, Water Based	Previous Casing	9.625 in. 36# (0 to 1,672 ft)				
		Round Trip Miles	80				
Comment	Spacer Recipe: Y = 3.43 cf/sk, WR = 21.3 gal/sk, SKWT = 135 lb/sk - Total Mix fluid for Latex lead is 6.0 gal/sk						
Calculations							
Stage	Length	OH ID / Tail ID	Pipe OD	Excess	CF/FT	Volume(cf)	Volume bbl
C&J Latex Lead	1,172	8.921	5.500	0%	0.269	315.4	56.2
C&J Latex Lead	5,328	8.500	5.500	0%	0.229	1,220.5	217.4
C&J Tail	9,836	8.500	5.500	0%	0.229	2,253.2	401.3
Shoe Track	42	4.778			0.125	5.23	0.9
80 bbl Water+1600 lbs SAPP							
	Concentration	Item Code	Description				
	20 PPB	CJ890	Dust Flush				
Volume (bbl)						80.00	
100 bbl 12.5ppg Weighted Spacer							
100 bbls of 12.5 ppg Weighted Spacer: 85.3 bbl Fresh Water + 21321 lbs Barite + 100 lbs Citric Acid + 1246 lbs MS Spacer + 50 lbs X-Air							
	Concentration	Item Code	Description				
	213.21 PPB	CJ300	Barite				
	1 PPB	CJ209	CHEM AGENT IRON SEQ ICA-5 CJ209				
	0.5 PPB	CJX157011	Solid Antifoam				
	12.46 PPB	CJ801	PureBond MS Spacer				
Spacer Volume (bbl)						100.00	
C&J Non-Latex Lead							
	Concentration	Item Code	Description				
	50 %	CJ914	Class G Cement				
	50 %	CJ010-74	Pozzolan Extender (74 LB/cuft) Class F				
	2.0 %	CJ020	Bentonite (cementing grade)				
	0.4 %	CJ548	MT Fluid Loss/Gas Migration				
	0.3 %	CJ240	Synthetic Retarder				
	10.0 %	CJ041	Undensified Silica Fume				
	0.3 %	CJX157011	Solid Antifoam				
Top Depth (ft)	Surface		Slurry Density (ppg)			14.00	
Volume (sx)	25		Yield (cf/sx)			1.37	
Excess (%)	0		Water (gps)			5.98	

Production Casing

C&J Latex Lead			
	Concentration	Item Code	Description
	50 %	CJ914	Class G Cement
	50 %	CJ010-74	Pozzolan Extender (74 LB/cuft) Class F
	2.0 %	CJ020	Bentonite (cementing grade)
	0.4 %	CJ548	MT Fluid Loss/Gas Migration
	0.3 %	CJ240	Synthetic Retarder
	10.0 %	CJ041	Undensified Silica Fume
	0.3 %	CJX157011	Solid Antifoam
	0.2 GPS	CJ891	Latex Stabilizer-RS
Top Depth (ft)	500	Slurry Density (ppg)	14.00
Volume (sx)	1,125	Yield (cf/sx)	1.37
Excess (%)	0	Water (gps)	4.71
C&J Tail			
	Concentration	Item Code	Description
	65 %	CJ914	Class G Cement
	35 %	CJ010-74	Pozzolan Extender (74 LB/cuft) Class F
	0.3 %	CJ704	Anti Settling Control
	0.15 %	CJ210K	LT Retarder
	0.5 %	CJ511	HT Fluid Loss (Salt Tolerant)
Top Depth (ft)	7,000	Slurry Density (ppg)	14.50
Volume (sx)	1,860	Yield (cf/sx)	1.22
Excess (%)	0	Water (gps)	5.41
Displacement			
Volume (bbl)			372.44