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## Schlumberger Cementing

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Company	CRESTONE PEAK RESOURCES
Prepared For	Jerry Thorstad
Well Name	Cosslett 1A-22H-B16
Surface Location	Ensign 140

UWI Number	05123476790000
Well Master Number	0631786074
Service from District	Cheyenne
District Phone	720-255-1637
Proposal Number	v1
Date	2/4/2019
Primary Contact	Matthew Cleveland

Objective	Set 17.0 ppg Neat G Balance Plug from 2,475 ft to 2,100 ft   10% OH excess Surface Casing Shoe: 2,459 ft 5 1/2" Drill Pipe
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## Executive Summary

This proposal is in response to your inquiry to secure cementing services for Plug.

The estimated total cost of our services is **\$17,775.81**. This proposal/agreement is only a summary of Schlumberger's offerings and any prices provided are for illustrative purposes only. Actual cost will be dependent on time, material and equipment used during the project and any costs associated with unanticipated circumstances. Taxes are not included and all dates and services are dependent on the availability of cementing services and credit approval from Schlumberger's credit department. Attached for your convenience is Schlumberger's Commercial and General Terms and Conditions for your consideration, the final version of which is subject to mutual agreement and management approval before execution.

This proposal shall remain valid for sixty (60) days from the submission date provided above and a minimum notice of twenty four (24) hours prior to a job is required to deliver quoted price(s).

Thank you for considering Schlumberger. Please do not hesitate to contact me with any questions or concerns.

Sincerely,

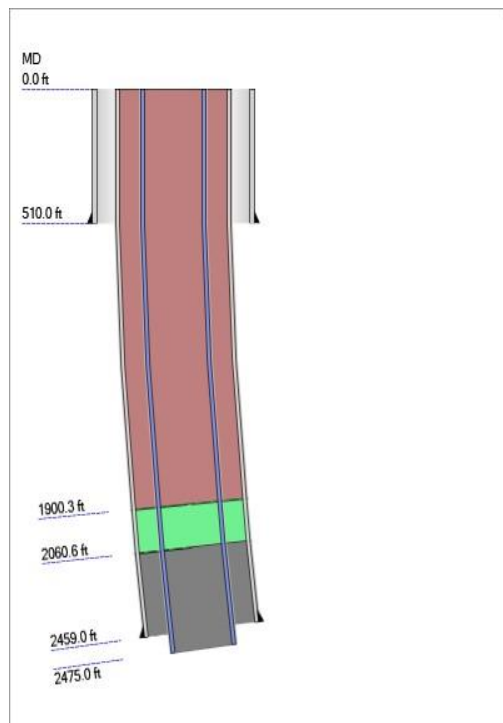
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# Well Data

## IMPORTANT

The well data shown on this page is based on information available when this treatment program was prepared. This data must be confirmed on location with the customer representative prior to the treatment. Any changes in the well design need to be reviewed for their impact on the treatment design.



## Well Data

Job Type:	Plug
Total Depth (Measured):	2,475.0 ft
TVD:	2,470.1 ft
BHST (Tubular Bottom Static Temperature):	110.0 degF
BHCT (Tubular Bottom Circulating Temperature):	85.0 degF
Drilling Fluid:	9.50 lb/gal

## Open Hole

Excess Type	OH Diameter	MD	Annular Excess	Equiv. OH Diameter	Annular Capacity
Open Hole	13.500 in	2,475.0 ft	10.0 %	14.159 in	0.195 bbl/ft

## Previous Casing

OD, in	Weight, lbm/ft	Grade	Inner Capacity, bbl/ft	Bottom Depth, ft	Casing Capacity, bbl/ft
13 3/8	54.5	J-55	0.155	510.0	0.15459
9 5/8	40.0	C-90	0.076	2,459.0	0.07583

## Drill Pipe

OD, in	Weight, lbm/ft	Grade	Inner Capacity, bbl/ft	Bottom Depth, ft	Casing Capacity, bbl/ft
5 1/2	21.9	E75	0.022	2,475.0	0.02218

## Fluid Placement

Fluid Name	Volume, bbl	Top of Fluid, ft	Annular Length, ft	Length, ft	Density, lb/gal
MUDPUSH Express w/ CemPRIME	7.4	1,900.3	160.3	160.3	11.00
17.0 ppg Class G	30.3	2,060.6	414.4	828.8	17.00
MUDPUSH Express w/ CemPRIME	3.6	1,900.3	0.0	160.3	11.00
Drilling Fluid	42.1	0.0	0.0	1,900.3	9.50

Total Liquid Volume: 83.4 bbl



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## Fluid Systems

MUDPUSH Express w/ CemPRIME			
<b>System</b>		Conventional	
<b>Density</b>		11.00 lb/gal	
<b>Total Volume</b>		11.0 bbl	
<b>Additives</b>	<b>Code</b>	<b>Description</b>	<b>Concentration</b>
	B389	Viscosifier	0.60 lb/bbl of Spacer
	D232	Surfactant	1.00 gal/bbl of Spacer
	D235	Solvent	1.00 gal/bbl of Spacer
	D066	Weighting Agent	179.125 lb/bbl of Spacer

17.0 ppg Class G (171 sacks, 94.0 lbm per sack of Blend)			
<b>System</b>		Conventional	
<b>Density</b>		17.00 lb/gal	
<b>Yield</b>		1.00 ft <sup>3</sup> /sk	
<b>Mix Water</b>		3.93 gal/sk	
<b>Mix Fluid</b>		3.93 gal/sk	
<b>Total Volume</b>		30.3 bbl	
<b>Additives</b>	<b>Code</b>	<b>Description</b>	<b>Concentration</b>
	D907	Cement	94.00 lb/sk BWOB
	D065	Dispersant	0.10 % BWOB

Some of the chemicals specified in this program may have toxic properties. All personnel should be familiar with the inherent dangers and appropriate safeguards to prevent accidental injury. Use of these chemicals may be governed by certain laws and regulations and should only be used in accordance with such. Please refer to the MSDS for the recommended safety precautions and required minimum personal protective equipment.

## Pumping Schedule – 5 1/2 in Plug

Fluid Placement						
Fluid	Flow Rate, bbl/min	Volume, bbl	Stage Time, min	Cumul Volume, bbl	Cumul Time, min	Comments
MUDPUSH Express w/ CemPRIME	5.0	7.4	1.5	7.4	1.5	
Pause	0.0	0.0	10.0	7.4	11.5	
17.0 ppg Class G	5.0	30.3	6.1	37.8	17.6	
Pause	0.0	0.0	10.0	37.8	27.6	
MUDPUSH Express w/ CemPRIME	5.0	3.6	0.7	41.3	28.3	
Drilling Fluid	5.0	22.1	4.4	63.4	32.7	
	2.0	20.0	10.0	83.5	42.7	
Total Fluid Volume:				83.5		
Total Pump Time:					42.7	

## Procedures

- Rig up Schlumberger following WS Standard 5
  - Confirm well data and calculations with company representative on location (slurry and mix water volumes, tonnage, displacement volume and what fluid). Re-calculate underdisplacement using CEMENTICS if mud properties, depth, or tubing configuration is changed.
  - Confirm mud properties with company representative or mud company representative.
  - Conduct a safety and procedure meeting with all personnel present before treatment begins. Go over contingency and recommendations plans.
1. Pressure test treating lines to 1000 psi above the final job pressure as a minimum.
  2. Pump the required volume of MUDPUSH Express with CemPRIME at 5.0 bpm.
  3. Mix and pump required volume of Slurry at 17.0 ppg density ( $\pm 0.2$  ppg) and 5.0 bpm rate. If slurry density varies more than 0.2 ppg from the design density, then stop pumping downhole and recirculate slurry in mix tub until density is within range.
  4. Pump the required volume of MUDPUSH Express with CemPRIME at 5.0 bpm to balance the plug per CEMENTICS recommended under-displacement. Continue displacing with OBM.
  5. Pull up the drill pipe at least 2 stands above theoretical top of cement, SLB recommends 4 min/stand, and circulate out any excess cement.
  6. Rig to POOH with tubing.
  7. Rid down and move out SLB equipment.

# Price Estimate

Primary Pricebook Code: BBVI

Equipment and Services						
Code	Standard Description	Quantity	Unit List Price	Total List Price	Discount Rate	Discounted Price
				\$	%	\$
102872025	Pump, Liner/Sqz/Plug 2001-2500 ft	1 EA	3,569.00	3,569.00	20.00	2,855.20
48019100	Cement Bulk Unit	1 EA	1,380.00	1,380.00	20.00	1,104.00
49100000	Cement Service Charge	200 CF	2.80	560.00	20.00	448.00
49102000	Cement Transport	722 MI	2.50	1,805.00	20.00	1,444.00
59200002	Equipment Mileage	160 MI	5.91	945.60	20.00	756.48
59200005	Car/PU Mileage	160 MI	3.47	555.20	20.00	444.16
59697004	Job Monitoring	1 JOB	880.00	880.00	20.00	704.00
<b>Subtotals:</b>			<b>USD</b>	<b>9,694.80</b>	<b>USD</b>	<b>7,755.84</b>

Materials						
Code	Standard Description	Quantity	Unit List Price	Total List Price	Discount Rate	Discounted Price
				\$	%	\$
B389	MUDPUSH Express B389	0 LB	0.00	0.00	15.00	0.00
B908	MUDPUSH* Express Water Based Spacer B908	11 BBL	203.60	2,239.60	15.00	1,903.66
D065	TIC Dispersant	17 LB	9.10	154.70	15.00	131.50
D066	Silica Flour	1,971 LB	0.70	1,379.70	15.00	1,172.75
D907	Cement, Class G	171 CF	27.80	4,753.80	15.00	4,040.73
D990	CemPRIME D3000	11 BBL	296.40	3,260.40	15.00	2,771.34
<b>Subtotals:</b>			<b>USD</b>	<b>11,788.20</b>	<b>USD</b>	<b>10,019.97</b>

Total List Price: USD 21,483.00  
Applied Discount: USD 3,707.19  
**Job Price Estimate: USD 17,775.81**

\*This proposal includes 8 hrs of crew and equipment time on location.