

**HALLIBURTON**

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**BLACK HILLS EXPLORATION & PROD-EBIZ**

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**DHS 3C-20-D17  
Bronco Flats  
Mesa County, Colorado**

**Intermediate Casing**  
08-May-2013

**Post Job Summary**

# HALLIBURTON

# Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 306454	Ship To #: 2995328	Quote #:	Sales Order #: 900416879
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Customer Rep: Nelson, Lance	
Well Name: DHS	Well #: 3C-20 D17	API/UWI #: 05077102040000	
Field: BRONCO FLATS	City (SAP): DE BEQUE	County/Parish: Mesa	State: Colorado
Legal Description: Section 17 Township 9S Range 98W			
Lat: N 39.277 deg. OR N 39 deg. 16 min. 38.978 secs.		Long: W 108.359 deg. OR W -109 deg. 38 min. 27.78 secs.	
Contractor: H&P	Rig/Platform Name/Num: 319		
Job Purpose: Cement Multiple Stages			
Well Type: Development Well		Job Type: Cement Multiple Stages	
Sales Person: HIMES, JEFFREY		Srvc Supervisor: SMITH, CHRISTOPHER	MBU ID Emp #: 452619

### Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
BRENNECKE, ANDREW Bailey	27.0	486345	SMITH, CHRISTOPHER Scott	27.0	452619	WOLFE, JON P	27.0	485217

### Equipment

HES Unit #	Distance-1 way						
	50 mile						

### Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
05.06.2013	1	0	05.07.2013	24	11	05.08.2013	2	1

TOTAL Total is the sum of each column separately

### Job

### Job Times

Formation Name	Formation Depth (MD) Top	Bottom	Called Out	Date	Time	Time Zone
Form Type	BHST		On Location	06 - May - 2013	17:00	MST
Job depth MD	5830. ft	Job Depth TVD	Job Started	06 - May - 2013	23:00	MST
Water Depth		Wk Ht Above Floor	Job Completed	07 - May - 2013	14:14	MST
Perforation Depth (MD) From		To	Job Completed	07 - May - 2013	23:44	MST
			Departed Loc	08 - May - 2013	02:00	MST

### Well Data

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
9 7/8" Open Hole				9.875				1000.	5500.		
Multiple Stage Cementer								3700.	3700.		
10 3/4" Surface Casing	Unknown		10.75	10.05	40.5		J-55		1000.		
7 5/8" Intermediate Casing	Unknown		7.625	6.969	26.4		N-80		5500.		

### Sales/Rental/3<sup>rd</sup> Party (HES)

Description	Qty	Qty uom	Depth	Supplier
CMT SURFACE CASING BOM	1	JOB		
SHOE,FLOAT,7-5/8 8RD,2-3/4 SSII V	1	EA		
CLR,FLT,7-5/8 8RD 24-33.7PPF,2-3/4SSII	1	EA		
CMTR,TY P EXT SLV,7 5/8 8RD,26.4 LB	1	EA		
PLUG SET-FREE FALL-2-STAGE	1	EA		
CTRZR ASSY,API,7 5/8 CSG X 9 7/8 H,HNGD	1	EA		
CLAMP-LIM-7-5/8-HNG-FRICT GRIP	1	EA		
KIT,HALL WELD-A	1	EA		
MILEAGE FOR CEMENTING CREW,ZI	100	MI		
ZI FUEL SURCHG-CARS/PICKUPS<1 1/2TON	100	MI		

# HALLIBURTON

# Cementing Job Summary

Tools and Accessories															
Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make		
Guide Shoe	7.625	1	WTF	5818	Packer					Top Plug	7.625	3	WTF		
Float Shoe					Bridge Plug					Bottom Plug					
Float Collar	7.625	1	WTF	5768	Retainer					SSR plug set					
Insert Float										Plug Container	7.625	1	HES		
Stage Tool	7.825	1	WTF	3700						Centralizers					
Miscellaneous Materials															
Gelling Agt			Conc		Surfactant		Conc			Acid Type		Qty	Conc %		
Treatment Fld			Conc		Inhibitor		Conc			Sand Type		Size	Qty		
Fluid Data															
Stage/Plug #: 1															
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk				
1	Mud Flush				20.00	bbl	11.			4.0					
2	12.5 HALCEM	HALCEM (TM) SYSTEM (452986)			125.0	sacks	12.5	1.76	9.13	6.0	9.13				
		9.13 Gal FRESH WATER													
3	13.5 HalCem	HALCEM (TM) SYSTEM (452986)			230.0	sacks	13.5	1.51	7.17	6.0	7.17				
		7.17 Gal FRESH WATER													
Stage/Plug #: 2															
Fluid #	Stage Type	Fluid Name			Qty	Qty uom	Mixing Density uom	Yield uom	Mix Fluid uom	Rate uom	Total Mix Fluid uom				
1	Mud Flush				20.00	bbl	11.			4.0					
2	12.5 HALCEM	HALCEM (TM) SYSTEM (452986)			510.0	sacks	12.5	1.88	9.91	6.0	9.91				
		9.91 Gal FRESH WATER													
Calculated Values				Pressures				Volumes							
Displacement				Shut in: Instant				Lost Returns		0		Cement Slurry		Pad	
Top Of Cement				5 Min				Cement Returns		20		Actual Displacement		271	
Frac Gradient				15 Min				Spacers		40		Load and Breakdown		Total Job	
Rates															
Circulating		RIG		Mixing		6		Displacement		7		Avg. Job		7	
Cement Left In Pipe		Amount		50 ft		Reason		Shoe Joint							
Frac Ring # 1 @		ID		Frac ring # 2 @		ID		Frac Ring # 3 @		ID		Frac Ring # 4 @		ID	
The Information Stated Herein Is Correct								Customer Representative Signature							

# HALLIBURTON

## Cementing Job Log

The Road to Excellence Starts with Safety

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Lat: N 39.277 deg. OR N 39 deg. 16 min. 38.978 secs.		Long: W 108.359 deg. OR W -109 deg. 38 min. 27.78 secs.	
Contractor: H&P	Rig/Platform Name/Num: 319		
Job Purpose: Cement Multiple Stages			Ticket Amount:
Well Type: Development Well	Job Type: Cement Multiple Stages		
Sales Person: HIMES, JEFFREY	Srv Supervisor: SMITH, CHRISTOPHER	MBU ID Emp #: 452619	

Activity Description	Date/Time	Cht #	Rate bbl/min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	
Call Out	05/06/2013 17:00							REQUEST ON LOCATION @ 00:00
Pre-Convoy Safety Meeting	05/06/2013 20:00							ALL HES EE PRESENT
Crew Leave Yard	05/06/2013 20:05							
Arrive At Loc	05/06/2013 23:00							RIG RUNNING CASING.
Assessment Of Location Safety Meeting	05/06/2013 23:07							ALL HES EE PRESENT.
Safety Meeting - Pre Rig-Up	05/06/2013 23:20							ALL HES EE PRESENT.
Rig-Up Equipment	05/06/2013 23:40							1- F550, 1- ELITE PUMP TRUCK, 1- 1700 FT3 SILO, 1- 660 FT3 BULK TRUCK.
Pre-Job Safety Meeting	05/07/2013 14:00							ALL HES EE PRESENT.
Start Job	05/07/2013 14:14							TD-5830 , TP-5818, SJ-50 , OH-9.875 , CSG-7.625 , MUD-9.2 , SURFACE CSG SET @ 1006.
Other	05/07/2013 14:15		2	2		145.0		FILL LINES, FRESH H2O.
Test Lines	05/07/2013 14:17		0.5	0.5				ALL LINES HELD PRESSURE @ 3968 PSI
Pump Spacer 1	05/07/2013 14:21		4	20		222.0		MUD FLUSH
Pump Spacer 2	05/07/2013 14:26		4	5		215.0		FRESH H2O.
Activity Description	Date/Time	Cht #	Rate bbl/min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	

Sold To #: 306454

Ship To #: 2995328

Quote #:

Sales Order #: 900416879

SUMMIT Version: 7.3.0079

Wednesday, May 08, 2013 01:57:00

# HALLIBURTON

## Cementing Job Log

Pump Lead Cement	05/07/2013 14:28		6	39.2		408.0		125SKS, 12.5 PPG, 1.76 FT3/SK, 9.13 GAL/SK, THICKENING TIME OF @ 70 BC.
Pump Tail Cement	05/07/2013 14:36		6	61.9		398.0		230SKS, 13.5 PPG, 1.51 FT3/SK, 7.17 GAL/SK, THICKENING TIME OF @ 70 BC.
Shutdown	05/07/2013 14:46							DROP FIRST STAGE PLUG
Pump Displacement	05/07/2013 14:52		6	271.7		650.0		MUD DISPLACEMENT
Slow Rate	05/07/2013 15:30		3.5	261.7		564.0		
Bump Plug	05/07/2013 15:43							PLUG BUMPED
Check Floats	05/07/2013 15:45							FLOATS HELD
Drop Plug	05/07/2013 15:46							DROP OPENING TOOL
Circulate Well	05/07/2013 16:26							RIG CIRCULATED WELL @ 5 BPM.
Start Job	05/07/2013 22:10							SECOND STAGE, DV TOOL @ 3700, CSG- 7.625, MUD- 9.2, SURFACE CSG SET @ 1006
Other	05/07/2013 22:11		2	2		42.0		FILL LINES
Test Lines	05/07/2013 22:15		0.5	0.5				ALL LINES HELD PRESSURE @ 3682 PSI
Pump Spacer 1	05/07/2013 22:19		4	20		157.0		MUD FLUSH III
Pump Spacer 2	05/07/2013 22:24		4	5		177.0		H2O SPACER
Pump Tail Cement	05/07/2013 22:27		6	170		331.0		510SKS, 12.5 PPG, 1.81 FT3/SK, 9.91 GAL/SK
Shutdown	05/07/2013 22:57							
Pump Displacement	05/07/2013 23:05		7	174.3		560.0		MUD DISPLACEMENT
Slow Rate	05/07/2013 23:30		4	164.3		534.0		
Bump Plug	05/07/2013 23:41			174.3		2257.0		SECOND STAGE CLOSING TOOL BUMPED, BUMPED PLUG TWICE TO VERIFY TOOL WAS CLOSED
<b>Activity Description</b>	<b>Date/Time</b>	<b>Cht</b>	<b>Rate bbl/ min</b>	<b>Volume bbl</b>		<b>Pressure psig</b>		<b>Comments</b>

Sold To # : 306454

Ship To # : 2995328

Quote # :

Sales Order # : 900416879

SUMMIT Version: 7.3.0079

Wednesday, May 08, 2013 01:57:00

# HALLIBURTON

## *Cementing Job Log*

		#		Stage	Total	Tubing	Casing	
End Job	05/07/2013 23:44							GOOD CIRCULATION THROUGHOUT JOB, 20 BBL OF CEMENT TO SURFACE ON FIRST STAGE, CASING WAS NOT RECIPROCATED WHILE CONDITIONING THE HOLE OR DURING THE JOB.
Post-Job Safety Meeting (Pre Rig-Down)	05/08/2013 00:10							ALL HES EE PRESENT.
Pre-Convoy Safety Meeting	05/08/2013 01:59							ALL HES EE PRESENT.
Crew Leave Location	05/08/2013 02:15							
Other	05/08/2013 23:45							THANK YOU FOR CHOOSING HALLIBURTON CEMENT, CHRIS SMITH AND CREW.

Sold To # : 306454

Ship To # :2995328

Quote # :

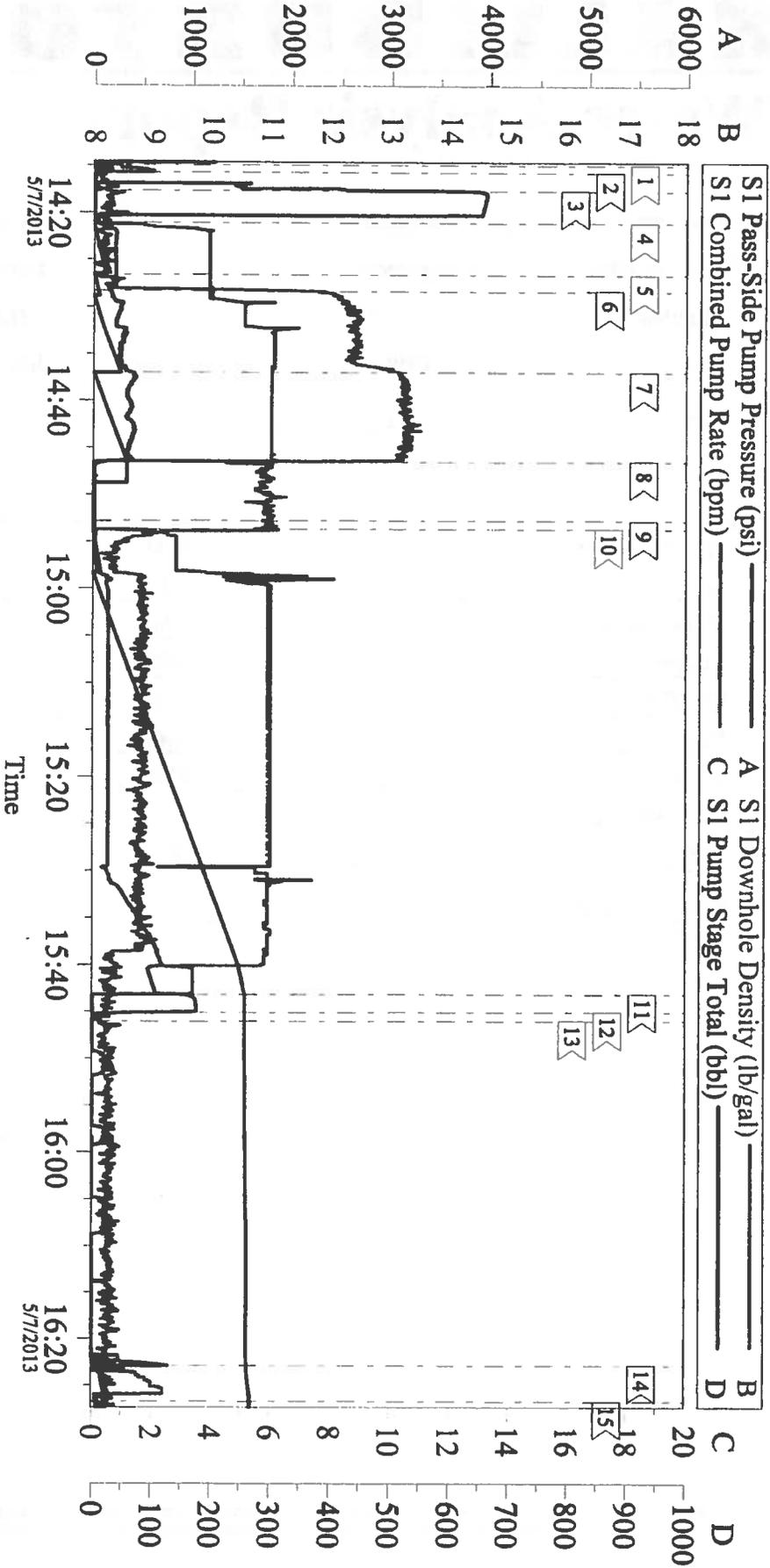
Sales Order # : 900416879

SUMMIT Version: 7.3.0079

Wednesday, May 08, 2013 01:57:00

# BLACK HILLS - DHS 3C-20-D17

## 7.625" INTERMEDIATE-1ST STAGE



Local Event Log								
1	START JOB	14:14:54	2	FILL LINES	14:15:40	3	TEST LINES	14:17:37
4	MUD FLUSH	14:21:02	5	WATER SPACER	14:26:33	6	LEAD CEMENT	14:28:20
7	TAIL CEMENT	14:36:58	8	SHUT DOWN	14:46:27	9	PUMP MUD DISPLACEMENT	14:52:49
10	DROP FIRST STAGE PLUG	14:53:42	11	BUMP BLUG	15:43:10	12	RELEASE PRESSURE	15:45:03
13	DROP OPENING TOOL	15:46:01	14	OPEN TOOL	16:22:52	15	RIG CIRCULATE WELL	16:26:46

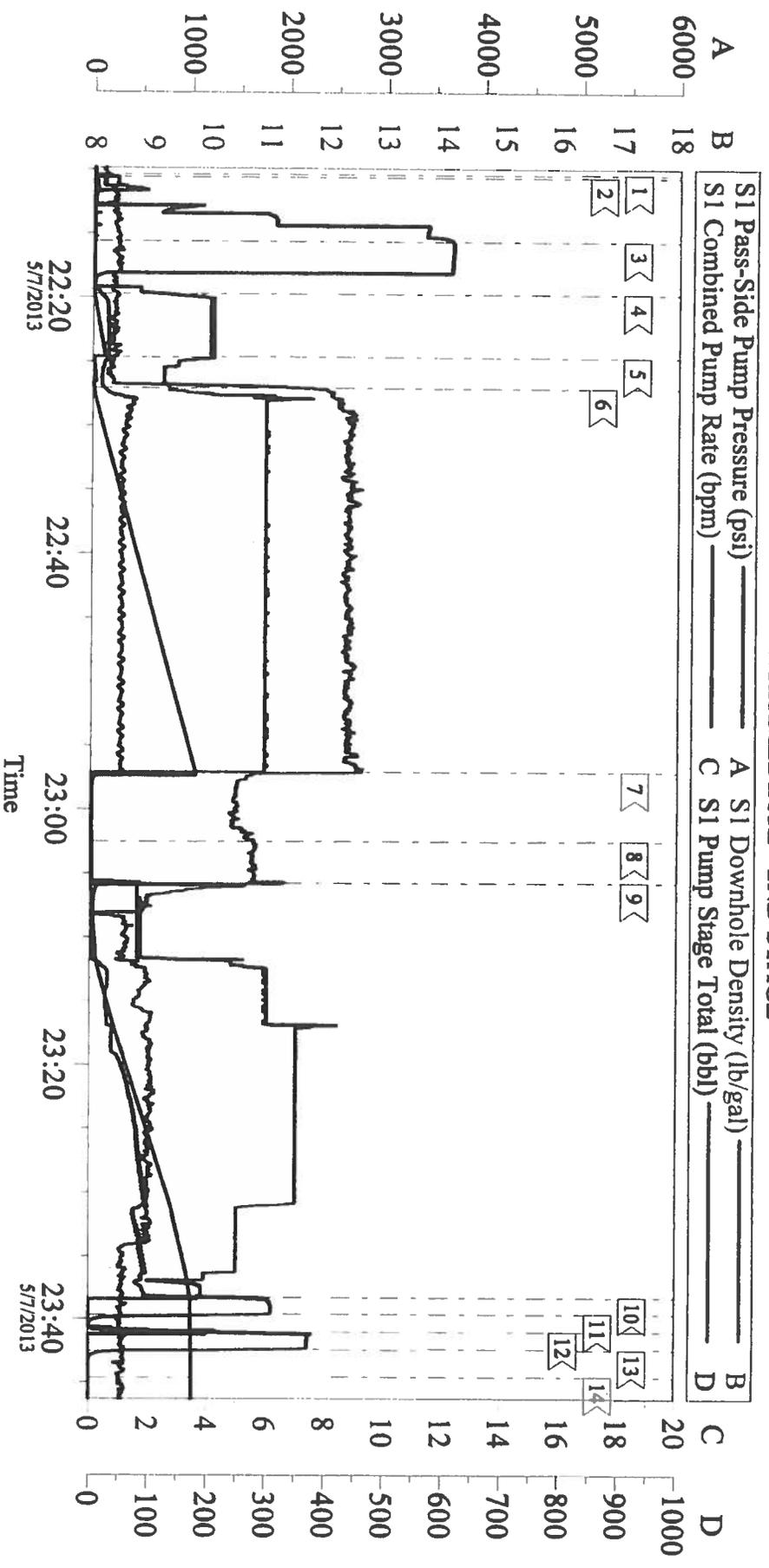
Customer: BLACK HILLS  
 Well Description: DHS 3C-20- D17  
 Company Rep:

Job Date: 07-May-2013  
 Job Type: INTERMEDIATE  
 Cement Supervisor: C.SMITH

Sales Order #: 900416879  
 ADC Used: YES  
 Elite #: L.WOLFE

# BLACK HILLS - DHS 3C-20-D17

## 7.625" INTERMEDIATE - 2ND STAGE



Local Event Log								
1	START JOB	22:10:20	2	FILL LINES	22:10:33	3	TEST LINES	22:15:35
4	PUMP MUD FLUSH	22:19:43	5	WATER SPACER	22:24:40	6	LEAD CEMENT	22:27:03
7	SHUT DOWN	22:57:07	8	DROP PLUG	23:02:26	9	PUMP MUD DISPLACEMENT	23:05:44
10	BUMP PLUG	23:38:17	11	RELEASE PRESSURE	23:39:37	12	BUMP PLUG	23:41:02
13	RELEASE PRESSURE	23:42:28	14	END JOB	23:44:36			

Customer: BLACK HILLS	Job Date: 07-May-2013	Sales Order #: 900416879
Well Description: DHS 3C - 20 - D17	Job Type: INTERMEDIATE	ADC Used: YES
Company Rep:	Cement Supervisor: C. SMITH	Elite #: J. WOLFE

# HALLIBURTON

## Water Analysis Report

Company: Black Hills  
Submitted by: CHRIS SMITH  
Attention: J.Trout  
Lease DHS  
Well # 3C-20 D17

Date: 05.07.2013  
Date Rec.: 05.07.2013  
S.O.# 900416879  
Job Type: MULTI STAGE

Specific Gravity	MAX	1
pH	8	6.9
Potassium (K)	5000	575 Mg/L
Calcium (Ca)	500	0 Mg/L
Iron (FE2)	300	0 Mg/L
Chlorides (Cl)	3000	0 Mg/L
Sulfates (SO <sub>4</sub> )	1500	200 Mg/L
Chlorine (Cl <sub>2</sub> )		0 Mg/L
Temp	40-80	46 Deg
Total Dissolved Solids		1000 Mg/L

Respectfully: CHRIS SMITH

Title: CEMENTING SUPERVISOR

Location: Grand Junction, CO

**NOTICE:**

This report is limited to the described sample tested. Any person using or relying on this report agrees that Halliburton shall not be liable for any loss or damage whether due to act or omission resulting from such report or its

# HALLIBURTON

## CUSTOMER SURVEY

<b>Sales Order #:</b> 900416879	<b>Line Item:</b> 10	<b>Survey Conducted Date:</b> 5/8/2013
<b>Customer:</b> BLACK HILLS EXPLORATION & PROD-EBIZ		<b>Job Type (BOM):</b> CMT MULTIPLE STAGES BOM
<b>Customer Representative:</b>		<b>API / UWI: (leave blank if unknown)</b> 05077102040000
<b>Well Name:</b> DHS		<b>Well Number:</b> 3C-20 D17
<b>Well Type:</b> Development Well	<b>Well Country:</b> United States of America	
<b>H2S Present:</b>	<b>Well State:</b> Colorado	<b>Well County:</b> Mesa

### KEY PERFORMANCE INDICATORS

General	
<b>Survey Conducted Date</b>	5/8/2013
The date the survey was conducted	

Cementing KPI Survey	
<b>Type of Job</b>	0
Select the type of job. (Cementing or Non-Cementing)	
<b>Select the Maximum Deviation range for this Job</b>	Vertical
What is the highest deviation for the job you just completed? This may not be the maximum well deviation.	
<b>Total Operating Time (hours)</b>	6
Total Operating Hours including Rig-up, Pumping, Rig-down. Enter in decimal format.	
<b>HSE Incident, Accident, Injury</b>	No
HSE Incident, Accident, Injury. This should be recordable incidents only.	
<b>Was the job purpose achieved?</b>	Yes
Was the job delivered correctly as per customer agreed design?	
<b>Operating Hours (Pumping Hours)</b>	4
Total number of hours pumping fluid on this job. Enter in decimal format.	
<b>Customer Non-Productive Rig Time (hrs)</b>	0
Lost time due to Halliburton in the start, execution, or completion of an ordered service or product, or delays in a follow-on service. Enter in decimal format. 0 if none.	
<b>Type of Rig Classification Job Was Performed</b>	Drilling Rig (Portable)
Type Of Rig (classification) Job Was Performed On	
<b>Number Of JSAs Performed</b>	9
Number Of Jsas Performed	
<b>Number of Unplanned Shutdowns</b>	0
Unplanned shutdown is when injection stops for any period of time.	
<b>Was this a Primary Cement Job (Yes / No)</b>	Yes

KPI Number: HX2320920130504205344K301  
 EJCS Number: HX2320920130504205344E301

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## CUSTOMER SURVEY

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<b>Customer Representative:</b>		<b>API / UWI: (leave blank if unknown)</b> 05077102040000
<b>Well Name:</b> DHS		<b>Well Number:</b> 3C-20 D17
<b>Well Type:</b> Development Well	<b>Well Country:</b> United States of America	
<b>H2S Present:</b>	<b>Well State:</b> Colorado	<b>Well County:</b> Mesa

Dear Customer,

We hope that you were satisfied with the service quality of this job performed by Halliburton. It is the aim of our management and service personnel to deliver equipment and service of a standard unmatched in the service sector of the energy industry.

Please take the time to let us know if our performance met with your satisfaction. Please be as critical as possible to ensure we constantly improve our service. Your comments are of great value to us and are intended for the exclusive use of Halliburton.

### CUSTOMER SATISFACTION SURVEY

CATEGORY	CUSTOMER SATISFACTION RESPONSE	
Survey Conducted Date	The date the survey was conducted	5/8/2013
Survey Interviewer	The survey interviewer is the person who initiated the survey.	CHRISTOPHER SMITH (HB20137)
Customer Participation	Did the customer participate in this survey? (Y/N)	No
Customer Representative	Enter the Customer representative name	
HSE	Was our HSE performance satisfactory? Circle Y or N	
Equipment	Were you satisfied with our Equipment? Circle Y or N	
Personnel	Were you satisfied with our people? Circle Y or N	
Customer Comment	Customer's Comment	

CUSTOMER SIGNATURE
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# HALLIBURTON

## CUSTOMER SURVEY

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<b>Customer Representative:</b>		<b>API / UWI: (leave blank if unknown)</b> 05077102040000
<b>Well Name:</b> DHS		<b>Well Number:</b> 3C-20 D17
<b>Well Type:</b> Development Well	<b>Well Country:</b> United States of America	
<b>H2S Present:</b>	<b>Well State:</b> Colorado	<b>Well County:</b> Mesa

Primary Cement Job= Casing job, Liner job, or Tie-back job.	
<b>Did We Run Wiper Plugs?</b>	Top
Did We Run Top And Bottom Casing Wiper Plugs?	
<b>Mixing Density of Job Stayed in Designed Density Range (0-100%)</b>	97
Density Range defined as +/- .20 ppg. Calculation: Total BBLs cement mixed at designed density divided by total BBLs of cement multiplied by 100	
<b>Was Automated Density Control Used?</b>	Yes
Was Automated Density Control (ADC) Used ?	
<b>Pump Rate (percent) of Job Stayed At Designed Pump Rate</b>	95
Pump Rate range defined as +/- 1bbl/min. Calculation: Total BBLs of fluid pumped at the designed rate divided by Total BBLs of fluid pumped, multiplied by 100	
<b>Nbr of Remedial Sqz Jobs Rqd - Competition</b>	0
Number Of Remedial Squeeze Jobs Required After Primary Job Performed By Competition	
<b>Nbr of Remedial Plug Jobs Rqd - HES</b>	0
Number Of Remedial Plug Jobs Needed After Primary Plug Pumped By HES	
<b>Nbr of Remedial Sqz Jobs Rqd - HES</b>	0
Number Of Remedial Squeeze Jobs Required After Primary Job Performed By HES	