
BLACK HILLS EXPLORATION & PROD-EBIZ

DHS 3C-19 D17

Mesa County , Colorado

Cement Multiple Stages

27-Jun-2013

Post Job Summary

The Road to Excellence Starts with Safety

Sold To #: 306454	Ship To #: 3005273	Quote #:	Sales Order #: 900543845
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ	Customer Rep: Nelson, Lance		
Well Name: DHS	Well #: 3C-19 D17	API/UWI #: 050771020000	
Field:	City (SAP): DE BEQUE	County/Parish: Mesa	State: Colorado
Legal Description: Section 17 Township 9S Range 98W			
Lat: N 39.278 deg. OR N 39 deg. 16 min. 39.036 secs.		Long: W 108.358 deg. OR W -109 deg. 38 min. 30.12 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	Srv Supervisor: PONDER, THOMAS	MBU ID Emp #:	427112

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
BRENNECKE, ANDREW Bailey	7	486345	BURKE, BRENDAN Patrick	13	487782	HAMMOND, DENNIS C	13	287025
LINN, PAUL Andrew	21	479143	MILLER II, MATTHEW Reginald	13	425164	NYE, KEVEN R	21	460558
PONDER, THOMAS Lynn	21	427112	SMITH, CHRISTOPHER Scott	7	452619			

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10001431	50 mile	10616651C	50 mile	10856450	50 mile	10969711	50 mile
11057893	50 mile	11583931	50 mile	11808827	50 mile		

Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
06/26/2013	2	0	06/27/2013	18	7			

TOTAL Total is the sum of each column separately

Job

Formation Name	Top	Bottom	Called Out	Date	Time	Time Zone
Formation Depth (MD)			On Location	26 - Jun - 2013	16:00	MST
Form Type		BHST	Job Started	26 - Jun - 2013	22:00	MST
Job depth MD	5764. ft	Job Depth TVD	Job Completed	27 - Jun - 2013	05:16	MST
Water Depth		Wk Ht Above Floor	Job Completed	27 - Jun - 2013	16:16	MST
Perforation Depth (MD)	From	To	Departed Loc	27 - Jun - 2013	18:00	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				1002.	4200.		
9 7/8" Open Hole				9.875				4200.	5830.		
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	.	5764.		

Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe	7 5/8	1		5764	Bridge Plug					Bottom Plug			
Float Collar	7 5/8	1		5727	Retainer					SSR plug set	7 5/8	1	
Insert Float										Plug Container	7 5/8	1	HES
Stage Tool										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 ³ /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk
1	Mud Flush		20.00	bbl	11.			2.0	
2	FRESH WATER SPACER		5.00	bbl	8.34	.0	.0	2.0	
3	1st Stage Lead	HALCEM (TM) SYSTEM (452986)	125.0	sacks	12.5	1.76	9.13	4.0	9.13
	9.13 Gal	FRESH WATER							
4	1st Stage Tail	HALCEM (TM) SYSTEM (452986)	180.0	sacks	13.5	1.51	7.17	4.0	7.17
	7.17 Gal	FRESH WATER							
5	MUD DISPLACEMENT		270.00	bbl	9.5	.0	.0	7.0	

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	WATER SPACER		5.00	bbl	8.34	.0	.0	4.0	
3	2nd Stage Tail	HALCEM (TM) SYSTEM (452986)	510.0	sacks	12.5	1.88	9.91	7.0	9.91
	9.91 Gal	FRESH WATER							
4	MUD DISPLACEMENT		171.00	bbl	9.5	.0	.0	7.0	

Calculated Values		Pressures		Volumes			
Displacement	269.7	Shut In: Instant		Lost Returns		Cement Slurry	258.4
Top Of Cement	SURFACE	5 Min		Cement Returns	15	Actual Displacement	269.7
Frac Gradient		15 Min		Spacers	50	Load and Breakdown	
						Total Job	749

Rates							
Circulating	RIG	Mixing	4/7	Displacement	7/6	Avg. Job	5/6
Cement Left In Pipe	Amount	37 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
--	-----------------------------------

The Road to Excellence Starts with Safety

Sold To #: 306454	Ship To #: 3005273	Quote #:	Sales Order #: 900543845
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Customer Rep: Nelson, Lance	
Well Name: DHS	Well #: 3C-19 D17	API/UWI #: 050771020000	
Field:	City (SAP): DE BEQUE	County/Parish: Mesa	State: Colorado
Legal Description: Section 17 Township 9S Range 98W			
Lat: N 39.278 deg. OR N 39 deg. 16 min. 39.036 secs.		Long: W 108.358 deg. OR W -109 deg. 38 min. 30.12 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: PONDER, THOMAS	MBU ID Emp #: 427112

Activity Description	Date/Time	Cht #	Rate bbl/min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	
Call Out	06/26/2013 16:00							
Crew Leave Yard	06/26/2013 20:00							ALL HES PRESENT FOR PRE-CONVOY SAFETY HUDDLE
Arrive At Loc	06/26/2013 22:00							RIG WAS STILL RUNNING CASING WHEN CREW ARRIVED ON LOCATION
Assessment Of Location Safety Meeting	06/27/2013 03:30							TP- 5764', SJ- 37', MUD- 9.5 PPG, HOLE- 9 7/8", SURFACE CASING- 10 3/4" 40.5# J-55 SET @ 1002', INTERMEDIATE CASING- 7 5/8" 26.4# HCP-110, MSC SET @ 3629'
Rig-Up Equipment	06/27/2013 04:00							1-550 PICKUP, 1-ELITE PUMP, 1-660 CUFT BULK TRUCK, 1-1280 CUFT STORAGE BIN
Safety Meeting	06/27/2013 04:45							ALL HES PRESENT, RIG CREW PRESENT, RIG STARTED CIRCULATING ON BOTTOM @ 1450
Start Job	06/27/2013 05:16		2	2			175.0	FILL LINES
Test Lines	06/27/2013 05:19		0.1	0.1			4982.0	
Pump Spacer 1	06/27/2013 05:27		2	20			195.0	MUDFLUSH III
Pump Spacer 2	06/27/2013 05:38		4	5			202.0	FRESH WATER

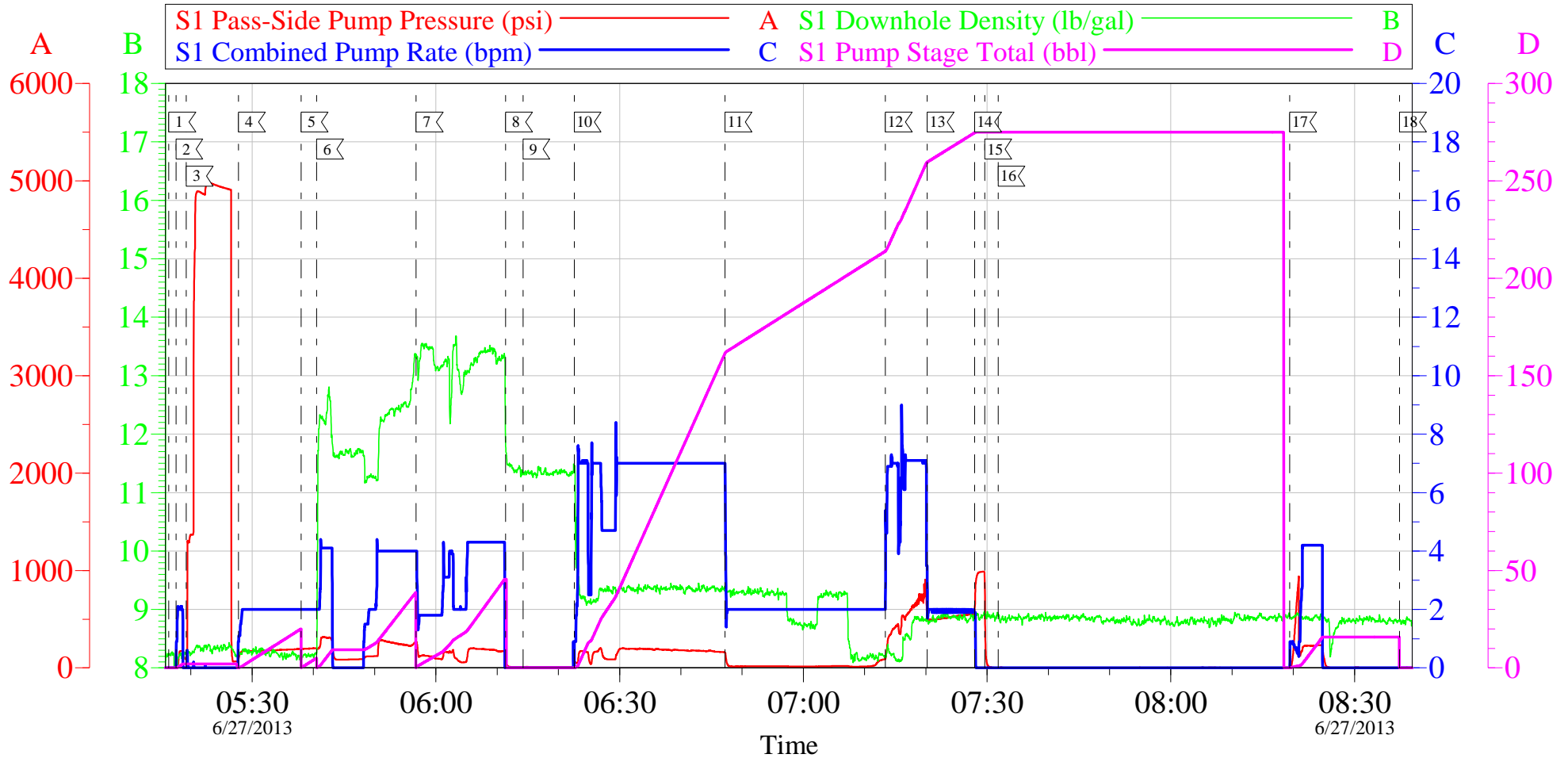
Activity Description	Date/Time	Cht #	Rate bbl/ min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	
Pump Lead Cement	06/27/2013 05:40		4	39.2			318.0	125 SKS 12.5 PPG 1.76 FT3/SK 9.13 GAL/SK, HAD TO SLOW DOWN AT THE BEGINNING OF LEAD CEMENT BECAUSE THE DENSOMETERS WERE NOT READING CORRECTLY TOOK A MUD SCALE BEFORE STARTING LEAD CEMENT BEFORE BRINGING RATE BACK UP THEY WERE AT DESIRED DESIRED DENSITY
Pump Tail Cement	06/27/2013 05:56		4	48.4			266.0	660 SKS 13.5 PPG 1.51 FT3/SK 7.17 GAL/SK, PONY MOTOR WAS NOT AT REQUIRED RPM'S CAUSING LOSS OF MIX ENERGY AND MADE FOR PROBLEMS MIXING CEMENT
Shutdown	06/27/2013 06:11							
Drop Plug	06/27/2013 06:14							HAD TO PULL OFF TOP CAP ON PLUG CONTAINER TO DROP 1ST STAGE PLUG, PLUG DROP VERIFIED BY CUSTOMER REP
Pump Displacement	06/27/2013 06:22		7	160.9			205.0	DRILLING MUD SUPPLIED BY RIG
Activity Description	Date/Time	Cht #	Rate bbl/ min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	

Slow Rate	06/27/2013 06:47		2	20	190.9		160.0	ALLOWED RATE 10 BBL BEFORE PASSING THROUGH THE MSC, GUN LINE FOR MUD ON THE RIG WASHED OUT AND WE WERE UN ABLE TO GET MUD, CUSTOMER ASKED THAT WE STAY AT LOW RATE AND USE WATER TELL LINES WERE RUN TO ANOTHER CENTRIFUGAL PUMP
Pump Displacement	06/27/2013 07:13		7	68.8	259.7		905.0	DRILLING MUD SUPPLIED BY RIG
Slow Rate	06/27/2013 07:20		2	10	269.7		500.0	SLOWED RATE 10 BBL BEFORE BUMPING THE PLUG, GOOD RETURNS THROUGH OUT THE JOB
Bump Plug	06/27/2013 07:27				269.7		547.0	PLUG BUMPED
Check Floats	06/27/2013 07:29						989.0	FLOATS HELD, 1 BBL BACK TO THE DISPLACEMENT TANKS
Drop Opening Device For Multiple Stage Cementer	06/27/2013 07:31							DROPPED OPENING DEVICE
Open Multiple Stage Cementer	06/27/2013 08:19		1	15			939.0	PRESSURED UP TO 939 PSI TO OPEN MSC
Other	06/27/2013 08:37							HANDED CIRCULATION TO THE RIG, RIG CIRCULATED FOR 6 HOURS, RIG STARTED CIRCULATING @ 0837
Safety Meeting	06/27/2013 14:15							ALL HES PRESENT, RIG CREW PRESENT
Start Job	06/27/2013 14:47		2	2			65.0	FILL LINES
Test Lines	06/27/2013 14:51		0.1	0.1			4711.0	GOOD PRESSURE TEST
Pump Spacer 1	06/27/2013 14:57		4	20			134.0	MUDFLUSH III
Pump Spacer 2	06/27/2013 15:09		4	5			138.0	FRESH WATER
Pump Tail Cement	06/27/2013 15:11		7	170.8			343.0	510 SKS 12.5 PPG 1.88 FT3/SK 9.91 GAL/SK
Shutdown	06/27/2013 15:34							

Activity Description	Date/Time	Cht #	Rate bbl/ min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	
Drop Plug	06/27/2013 15:36							PLUG WAS NOT VERIFIED BY THE TATTLE TALE, TOOK OFF THE TOP OF PLUG CONTAINER TO ENSURE IT HAD DROPPED
Pump Displacement	06/27/2013 15:41		6	160.9			1028. 0	DRILLING MUD SUPPLIED BY RIG
Slow Rate	06/27/2013 16:07		2	10	170.9		700.0	GOOD CIRCULATION THROUGH OUT THE JOB, 15 BBL CEMENT CIRCULATED TO SURFACE
Bump Plug	06/27/2013 16:12				170.9		978.0	PLUG BUMPED
Close Multiple Stage Cementer	06/27/2013 16:15						2086. 0	MSC CLOSED, 1.5 BBL OF FLUID BACK TO THE DISPLACEMENT TANKS
End Job	06/27/2013 16:16							THANK YOU FOR CHOOSING HALLIBURTON, THOMAS PONDER AND CREW

BLACK HILLS DHS 3C-19 D17

7.625 IN INTERMEDIATE 1ST STAGE



Local Event Log			
Maximum	SPPP	Maximum	SPPP
1 START JOB	05:16:25 -1.000	2 FILL LINES	05:17:34 175.0
4 PUMP MUDLUSH III	05:27:47 195.0	5 PUMP H2O SPACER	05:38:02 202.0
7 PUMP TAIL CEMENT	05:56:48 266.0	8 SHUTDOWN	06:11:23 78.00
10 PUMP MUD DISPLACEMENT	06:22:36 205.0	11 SLOW RATE	06:47:13 160.0
13 SLOW RATE	07:20:14 581.1	14 BUMP PLUG	07:27:58 989.0
16 DROP TOOL OPENING DEVICE	07:31:49 5.000	17 OPEN MSC	08:19:25 939.0
		3 TEST LINES	05:19:16 4982
		6 PUMP LEAD CEMENT	05:40:33 318.0
		9 DROP 1ST STAGE PLUG	06:14:14 36.82
		12 INCREASE RATE	07:13:23 905.0
		15 CHECK FLOATS	07:29:38 878.0
		18 END JOB	08:37:20 5.000

Customer: BLACK HILLS
Well Description: DHS 3C-19 D17
Company Rep: KIT H

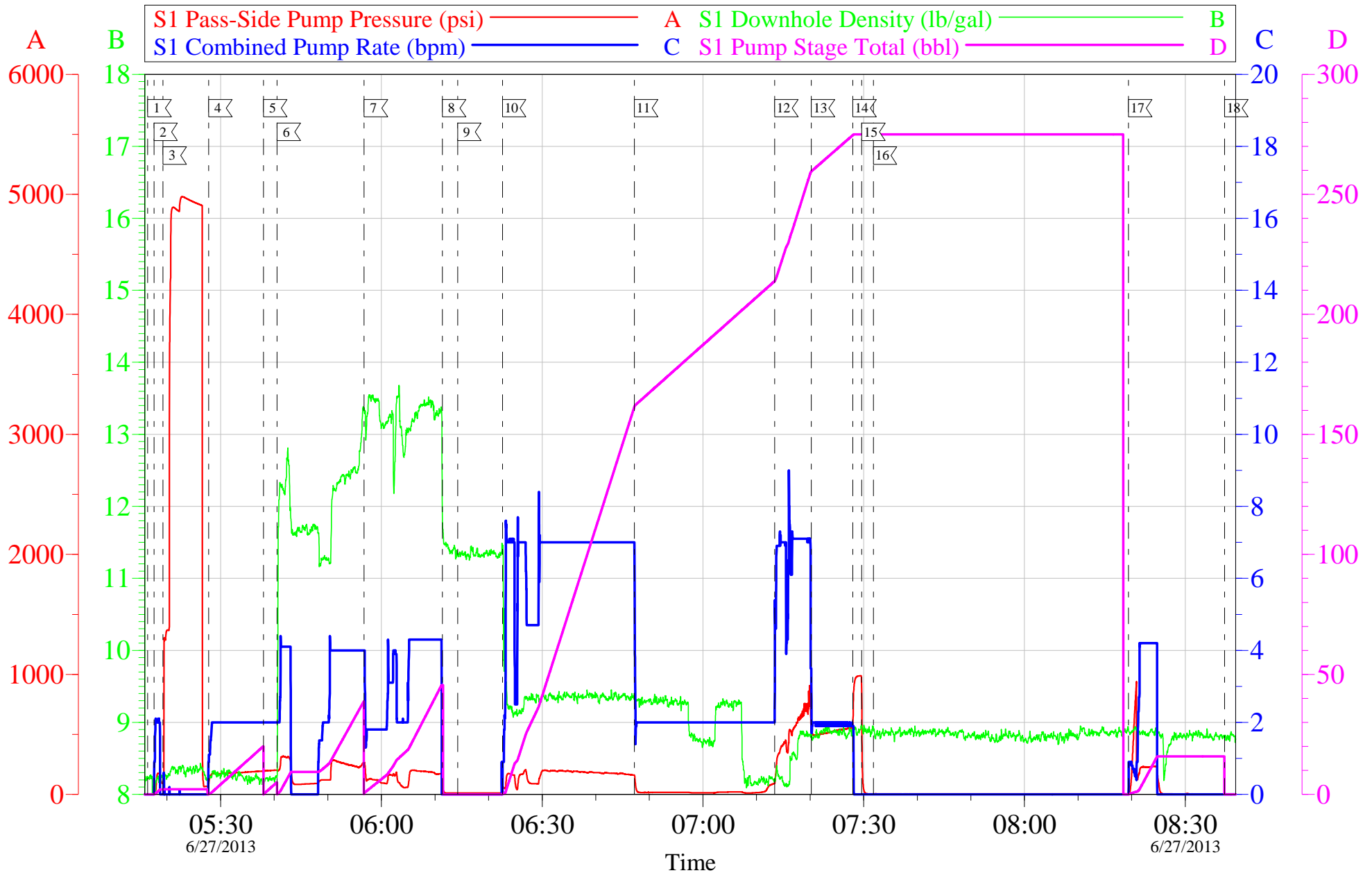
Job Date: 27-Jun-2013
Job Type: MULTI STAGE INTER
Cement Supervisor: THOMAS PONDER

Sales Order #: 900543845
ADC Used: YES
Elite #/Operator: ELITE #4 / ANDREW LINN

OptiCem v6.4.10
27-Jun-13 10:34

BLACK HILLS DHS 3C-19 D17

7.625 IN INTERMEDIATE 1ST STAGE

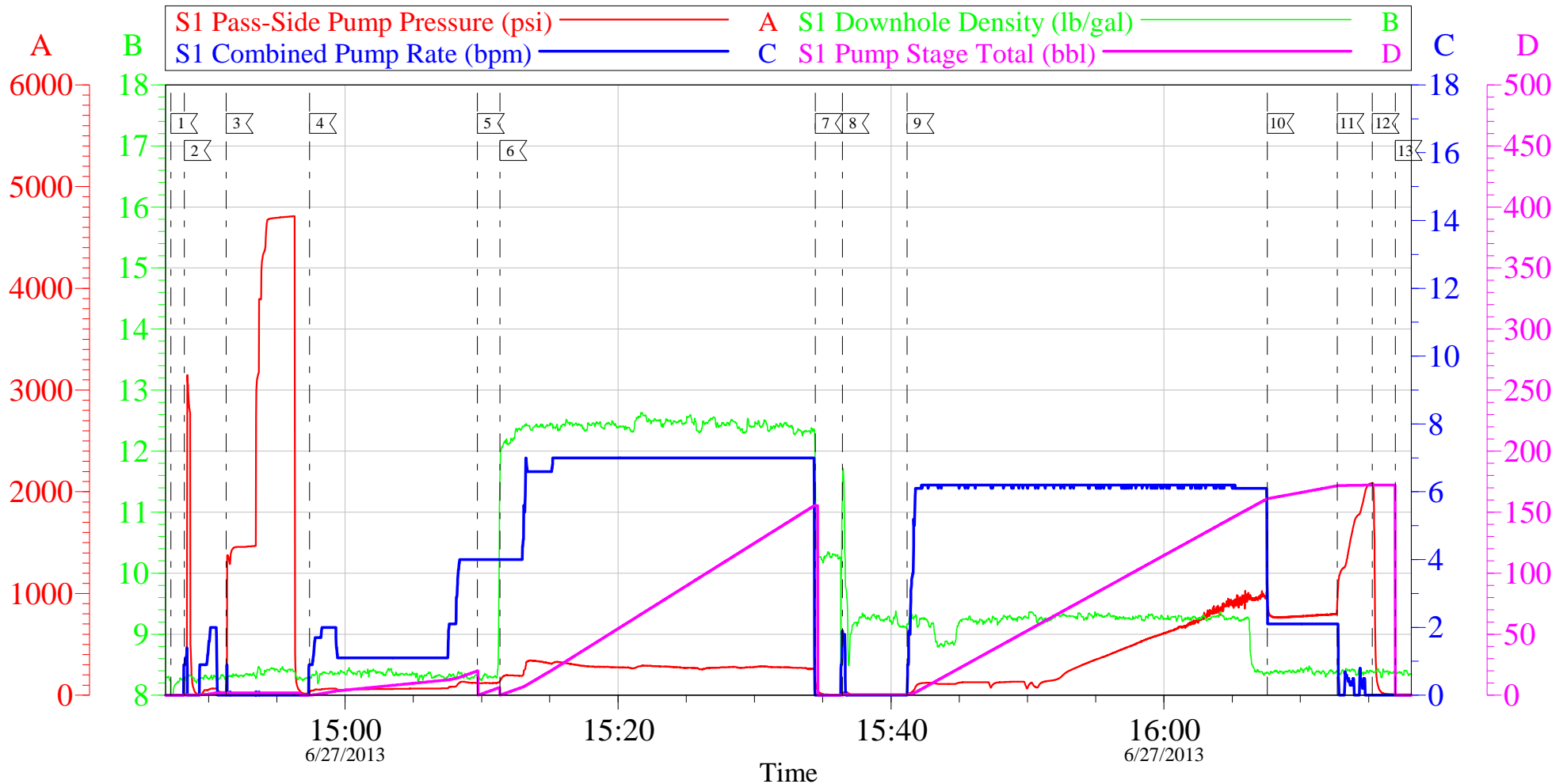


Customer: BLACK HILLS	Job Date: 27-Jun-2013	Sales Order #: 900543845
Well Description: DHS 3C-19 D17	Job Type: MULTI STAGE INTER	ADC Used: YES
Company Rep: KIT H	Cement Supervisor: THOMAS PONDER	Elite #/Operator: ELITE #4 / ANDREW LINN

OptiCem v6.4.10
27-Jun-13 10:35

BLACK HILLS DHS 3C-19 D17

7.625 IN INTERMEDIATE 2ND STAGE



Local Event Log											
Maximum			SPPP	Maximum			SPPP	Maximum			SPPP
1	START JOB	14:47:14	2.000	2	FILL LINES	14:48:13	3147	3	TEST LINES	14:51:17	4711
4	PUMP MUDFLUSH III SPACER	14:57:24	134.0	5	PUMP H2O SPACER	15:09:42	138.1	6	PUMP TAIL CEMENT	15:11:21	343.0
7	SHUTDOWN	15:34:27	131.0	8	DROP CLOSING PLUG	15:36:26	30.00	9	PUMP MUD DISPLACEMENT	15:41:11	1028
10	SLOW RATE	16:07:34	978.0	11	CLOSE MSC	16:12:42	2086	12	CHECK MSC	16:15:16	2087
13	END JOB	16:16:57	10.000								

Customer: BLACK HILLS
Well Description: DHS 3C-19 D17
Company Rep: KIT H

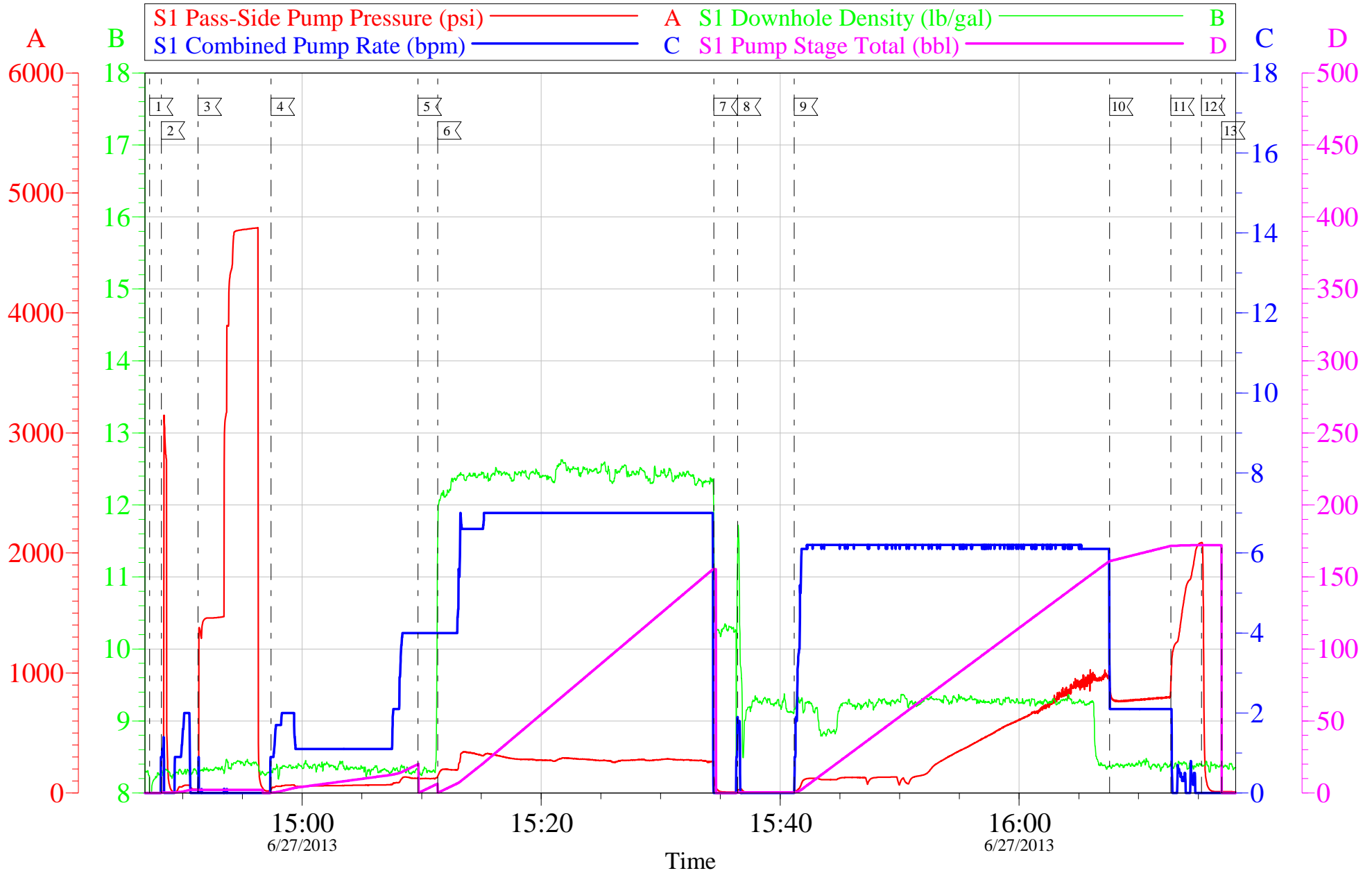
Job Date: 27-Jun-2013
Job Type: MULTI STAGE
Cement Supervisor: THOMAS PONDER

Sales Order #: 900543845
ADC Used: YES
Elite #/Operator: ELITE #4 / ANDREW LINN

OptiCem v6.4.10
27-Jun-13 16:43

BLACK HILLS DHS 3C-19 D17

7.625 IN INTERMEDIATE 2ND STAGE



Customer: BLACK HILLS	Job Date: 27-Jun-2013	Sales Order #: 900543845
Well Description: DHS 3C-19 D17	Job Type: MULTI STAGE	ADC Used: YES
Company Rep: KIT H	Cement Supervisor: THOMAS PONDER	Elite #/Operator: ELITE #4 / ANDREW LINN

OptiCem v6.4.10
27-Jun-13 16:43

HALLIBURTON

Company:	<u>BLACK HILLS</u>	Date:	<u>6/27/2013</u>
Submitted by:	<u>THOMAS PONDER</u>	Date Rec.:	<u>6/27/2013</u>
Attention:	<u>LARRY COOKSEY</u>	S.O.#	<u>900543842</u>
Lease	<u>DHS</u>	Job Type:	<u></u>
Well #	<u>3C-19 D17</u>		

Specific Gravity	<i>MAX</i>	<i>1</i>
pH	<i>8</i>	<i>8</i>
Potassium (K)	<i>5000</i>	<i>0</i> Mg / L
Calcium (Ca)	<i>500</i>	<i>350</i> Mg / L
Iron (FE2)	<i>300</i>	<i>0</i> Mg / L
Chlorides (Cl)	<i>3000</i>	<i>500</i> Mg / L
Sulfates (SO ₄)	<i>1500</i>	<i>>1600</i> Mg / L
Carbonates hardness		
Temp	<i>40-80</i>	<i>73</i> Deg
Total Dissolved Solids		<i>355790</i> Mg / L

Respectfully: THOMAS PONDER

Title: CEMENTING SUPERVISOR

Location: GRAND JCT, CO

Sales Order #: 900543845	Line Item: 10	Survey Conducted Date: 6/28/2013
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Job Type (BOM): CMT MULTIPLE STAGES BOM
Customer Representative: KIT HATFIELD		API / UWI: (leave blank if unknown) 050771020000
Well Name: DHS		Well Number: 3C-19 D17
Well Type: Development Well	Well Country: United States of America	
H2S Present:	Well State: Colorado	Well County: 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	6/28/2013
Survey Interviewer	The survey interviewer is the person who initiated the survey.	THOMAS PONDER (HX41187)
Customer Participation	Did the customer participate in this survey? (Y/N)	Yes
Customer Representative	Enter the Customer representative name	KIT HATFIELD
HSE	Was our HSE performance satisfactory? Circle Y or N	Yes
Equipment	Were you satisfied with our Equipment? Circle Y or N	Yes
Personnel	Were you satisfied with our people? Circle Y or N	Yes
Customer Comment	Customer's Comment	

CUSTOMER SIGNATURE

Sales Order #: 900543845	Line Item: 10	Survey Conducted Date: 6/28/2013
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Job Type (BOM): CMT MULTIPLE STAGES BOM
Customer Representative: KIT HATFIELD		API / UWI: (leave blank if unknown) 050771020000
Well Name: DHS		Well Number: 3C-19 D17
Well Type: Development Well	Well Country: United States of America	
H2S Present:	Well State: Colorado	Well County: Mesa

KEY PERFORMANCE INDICATORS

General	
Survey Conducted Date The date the survey was conducted	6/28/2013

Cementing KPI Survey	
Type of Job Select the type of job. (Cementing or Non-Cementing)	0
Select the Maximum Deviation range for this Job What is the highest deviation for the job you just completed? This may not be the maximum well deviation.	Deviated
Total Operating Time (hours) Total Operating Hours Including Rig-up, Pumping, Rig-down. Enter in decimal format.	9
HSE Incident, Accident, Injury HSE Incident, Accident, Injury. This should be recordable incidents only.	No
Was the job purpose achieved? Was the job delivered correctly as per customer agreed design?	Yes
Operating Hours (Pumping Hours) Total number of hours pumping fluid on this job. Enter in decimal format.	7
Customer Non-Productive Rig Time (hrs) 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.	0
Type of Rig Classification Job Was Performed Type Of Rig (classification) Job Was Performed On	Drilling Rig (Portable)
Number Of JSAs Performed Number Of Jsas Performed	6
Number of Unplanned Shutdowns Unplanned shutdown is when injection stops for any period of time.	0
Was this a Primary Cement Job (Yes / No)	Yes

Sales Order #: 900543845	Line Item: 10	Survey Conducted Date: 6/28/2013
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Job Type (BOM): CMT MULTIPLE STAGES BOM
Customer Representative: KIT HATFIELD		API / UWI: (leave blank if unknown) 050771020000
Well Name: DHS		Well Number: 3C-19 D17
Well Type: Development Well	Well Country: United States of America	
H2S Present:	Well State: Colorado	Well County: Mesa

Primary Cement Job= Casing job, Liner job, or Tie-back job.	
Did We Run Wiper Plugs? Did We Run Top And Bottom Casing Wiper Plugs?	Top
Mixing Density of Job Stayed in Designed Density Range (0-100%) Density Range defined as +/- .20 ppg. Calculation: Total BBLs cement mixed at designed density divided by total BBLs of cement multiplied by 100	95
Was Automated Density Control Used? Was Automated Density Control (ADC) Used ?	Yes
Pump Rate (percent) of Job Stayed At Designed Pump Rate 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	90
Nbr of Remedial Sqz Jobs Rqd - Competition Number Of Remedial Squeeze Jobs Required After Primary Job Performed By Competition	0
Nbr of Remedial Plug Jobs Rqd - HES Number Of Remedial Plug Jobs Needed After Primary Plug Pumped By HES	0
Nbr of Remedial Sqz Jobs Rqd - HES Number Of Remedial Squeeze Jobs Required After Primary Job Performed By HES	0