

---

# **ANTERO RESOURCES**

---

**Dixon Federal B13  
MAMMCREEK  
Garfield County , Colorado**

**Cement Surface Casing**  
**15-Jul-2011**

**Job Site Documents**

## Cementing Job Summary

## The Road to Excellence Starts with Safety

<b>Sold To #:</b> 337854	<b>Ship To #:</b> 2865145	<b>Quote #:</b>	<b>Sales Order #:</b> 8313840
<b>Customer:</b> ANTERO RESOURCES		<b>Customer Rep:</b> OAKS, BEAUDE	
<b>Well Name:</b> Dixon Federal	<b>Well #:</b> B13	<b>API/UWI #:</b> 05-045-20424	
<b>Field:</b> MAMMCREEK	<b>City (SAP):</b> UNKNOWN	<b>County/Parish:</b> Garfield	<b>State:</b> Colorado
<b>Lat:</b> N 39.524 deg. OR N 39 deg. 31 min. 26.796 secs.		<b>Long:</b> W 107.66 deg. OR W -108 deg. 20 min. 24.976 secs.	
<b>Contractor:</b> Craigs Roustabout Service, Inc.		<b>Rig/Platform Name/Num:</b> Craigs #2	

**Job Purpose:** Cement Surface Casing

Well Type: Development Well

**Job Type:** Cement Surface Casing

Sales Person: METLI, MARSHALL

Srvc Supervisor: DANIEL, EVERETT
----------------------------------

<b>MBU ID Emp #:</b> 337325
-----------------------------

## Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
BANKS, BRENT A	4.5	371353	DANIEL, EVERETT Dean	4.5	337325	SIMINEO, JEROD M	4.5	479954

Equipment	Quantity	Unit Price	Total Price
1. Excavator	1	10000	10000
2. Bulldozer	1	8000	8000
3. Grader	1	6000	6000
4. Dump Truck	2	4000	8000
5. Motor Grader	1	7000	7000
6. Pave	1	5000	5000
7. Roller	1	3000	3000
8. Water Truck	1	2000	2000
9. Compactor	1	1500	1500
10. Backhoe	1	9000	9000
11. Pave	1	4000	4000
12. Roller	1	2500	2500
13. Water Truck	1	1800	1800
14. Compactor	1	1200	1200
15. Backhoe	1	8500	8500
16. Pave	1	3500	3500
17. Roller	1	2200	2200
18. Water Truck	1	1600	1600
19. Compactor	1	1000	1000
20. Backhoe	1	7500	7500
21. Pave	1	3000	3000
22. Roller	1	1800	1800
23. Water Truck	1	1400	1400
24. Compactor	1	900	900
25. Backhoe	1	6500	6500
26. Pave	1	2500	2500
27. Roller	1	1500	1500
28. Water Truck	1	1200	1200
29. Compactor	1	800	800
30. Backhoe	1	6000	6000
31. Pave	1	2000	2000
32. Roller	1	1200	1200
33. Water Truck	1	1000	1000
34. Compactor	1	700	700
35. Backhoe	1	5500	5500
36. Pave	1	1500	1500
37. Roller	1	900	900
38. Water Truck	1	700	700
39. Compactor	1	500	500
40. Backhoe	1	4500	4500
41. Pave	1	1000	1000
42. Roller	1	600	600
43. Water Truck	1	400	400
44. Compactor	1	300	300
45. Backhoe	1	3500	3500
46. Pave	1	800	800
47. Roller	1	500	500
48. Water Truck	1	350	350
49. Compactor	1	250	250
50. Backhoe	1	3000	3000
51. Pave	1	600	600
52. Roller	1	400	400
53. Water Truck	1	300	300
54. Compactor	1	200	200
55. Backhoe	1	2500	2500
56. Pave	1	500	500
57. Roller	1	300	300
58. Water Truck	1	250	250
59. Compactor	1	150	150
60. Backhoe	1	2000	2000
61. Pave	1	400	400
62. Roller	1	250	250
63. Water Truck	1	200	200
64. Compactor	1	100	100
65. Backhoe	1	1500	1500
66. Pave	1	300	300
67. Roller	1	150	150
68. Water Truck	1	100	100
69. Compactor	1	50	50
70. Backhoe	1	1000	1000
71. Pave	1	200	200
72. Roller	1	100	100
73. Water Truck	1	50	50
74. Compactor	1	25	25
75. Backhoe	1	500	500
76. Pave	1	50	50
77. Roller	1	25	25
78. Water Truck	1	15	15
79. Compactor	1	10	10
80. Backhoe	1	250	250
81. Pave	1	10	10
82. Roller	1	5	5
83. Water Truck	1	5	5
84. Compactor	1	5	5
85. Backhoe	1	100	100
86. Pave	1	5	5
87. Roller	1	2	2
88. Water Truck	1	2	2
89. Compactor	1	1	1
90. Backhoe	1	50	50
91. Pave	1	2	2
92. Roller	1	1	1
93. Water Truck	1	1	1
94. Compactor	1	1	1

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10025118	120 mile	10741259	120 mile	10872429	120 mile	10951247	120 mile
11360883	120 mile						

### Job Hours

Self-Hours								
Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
7/15/11	4.5	3						
<b>TOTAL</b>	<b>4.5</b>	<b>3</b>	Total is the sum of each column separately					

Total is the sum of each column separately

## Job

## Job Times

JOB NAME						JOB TIME			
Formation Name							Date	Time	Time Zone
Formation Depth (MD)	Top			Bottom		Called Out	15 - Jul - 2011	01:00	MST
Form Type			BHST			On Location	15 - Jul - 2011	04:30	MST
Job depth MD	1006. m		Job Depth TVD		1006. m	Job Started	15 - Jul - 2011	06:38	MST
Water Depth			Wk Ht Above Floor		3. m	Job Completed	15 - Jul - 2011	07:51	MST
Perforation Depth (MD)	From			To		Departed Loc	15 - Jul - 2011	09:00	MST

## Well Data

[illegible]Sales/Rental/3<sup>rd</sup> Party (HES)

Description	Qty	Qty uom	Depth	Supplier
ADC (AUTO DENSITY CTRL) SYS, /JOB,ZI	1	JOB		
PORT. DATA ACQUIS. W/OPTICEM RT W/HES	1	EA		
R/A DENSOMETER W/CHART RECORDER,/JOB,ZI	1	JOB		
PLUG,CMTG,TOP,8 5/8,HWE,7.20 MIN/8.09 MA	1	EA		

## Tools and Accessories

Tools and Accessories													
Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe					Bridge Plug					Bottom Plug			
Float Collar					Retainer					SSR plug set			
Insert Float										Plug Container			
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 kg/m3	Yield m3/sk	Mix Fluid m3/tonne	Rate m3/min	Total Mix Fluid m3/tonne	
1	Water Spacer		20	bbl	8.33	.0	.0	.0		
2	Lead Cement	VERSACEM (TM) SYSTEM (452010)	160	sacks	12.3	2.38	13.77		13.77	
		13.77 Gal	FRESH WATER							
3	Tail Cement	SWIFTCEM (TM) SYSTEM (452990)	205	sacks	14.2	1.43	6.85		6.85	
		6.85 Gal	FRESH WATER							
4	Displacement		58.6	bbl	8.33	.0	.0	.0		
Calculated Values		Pressures		Volumes						
Displacement	58.6	Shut In: Instant		Lost Returns		Cement Slurry	120	Pad		
Top Of Cement	SURFACE	5 Min		Cement Returns	28	Actual Displacement	58.6	Treatment		
Frac Gradient		15 Min		Spacers	20	Load and Breakdown		Total Job		
Rates										
Circulating	6	Mixing	6	Displacement	6	Avg. Job	6			
Cement Left In Pipe	Amount	41.9 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*

<b>Sold To #:</b> 337854	<b>Ship To #:</b> 2865145	<b>Quote #:</b>	<b>Sales Order #:</b> 8313840
<b>Customer:</b> ANTERO RESOURCES		<b>Customer Rep:</b> OAKS, BEAUDE	
<b>Well Name:</b> Dixon Federal		<b>Well #:</b> B13	<b>API/UWI #:</b> 05-045-20424
<b>Field:</b> MAMMCREEK	<b>City (SAP):</b> UNKNOWN	<b>County/Parish:</b> Garfield	<b>State:</b> Colorado
<b>Legal Description:</b>			
<b>Lat:</b> N 39.524 deg. OR N 39 deg. 31 min. 26.796 secs.		<b>Long:</b> W 107.66 deg. OR W -108 deg. 20 min. 24.976 secs.	
<b>Contractor:</b> Craigs Roustabout Service, Inc.		<b>Rig/Platform Name/Num:</b> Craigs #2	
<b>Job Purpose:</b> Cement Surface Casing			<b>Ticket Amount:</b>
<b>Well Type:</b> Development Well		<b>Job Type:</b> Cement Surface Casing	
<b>Sales Person:</b> METLI, MARSHALL		<b>Srv Supervisor:</b> DANIEL, EVERETT	<b>MBU ID Emp #:</b> 337325

Activity Description	Date/Time	Cht #	Rate m3/min	Volume m3		Pressure MPa		Comments
				Stage	Total	Tubing	Casing	
Call Out	07/15/2011 01:00							
Depart Yard Safety Meeting	07/15/2011 03:00							
Depart from Service Center or Other Site	07/15/2011 03:30							Checked out HES pump (Elite 7), 660
Arrive at Location from Service Center	07/15/2011 04:30							Arrived 1.5 hr. early. Did not start charging time until 0600
Assessment Of Location Safety Meeting	07/15/2011 04:31							
Consult with Co. Rep.	07/15/2011 04:35							Verified calculations and materials on location including H2O and Cement totals
Safety Meeting - Pre Rig-Up	07/15/2011 05:45							Discussed job procedures and safety issues
Rig-Up Equipment	07/15/2011 06:00							
Rig-Up Completed	07/15/2011 06:30							
Safety Meeting - Pre Job	07/15/2011 06:35							Discussed job procedures and safety issues
Start Job	07/15/2011 06:38							
Prime Pumps	07/15/2011 06:40		2	2			38.0	Fresh Water
Test Lines	07/15/2011 06:51		0.5	0.1			3000.0	Fresh Water
Pump Spacer 1	07/15/2011 06:56		6	20			84.0	Fresh Water

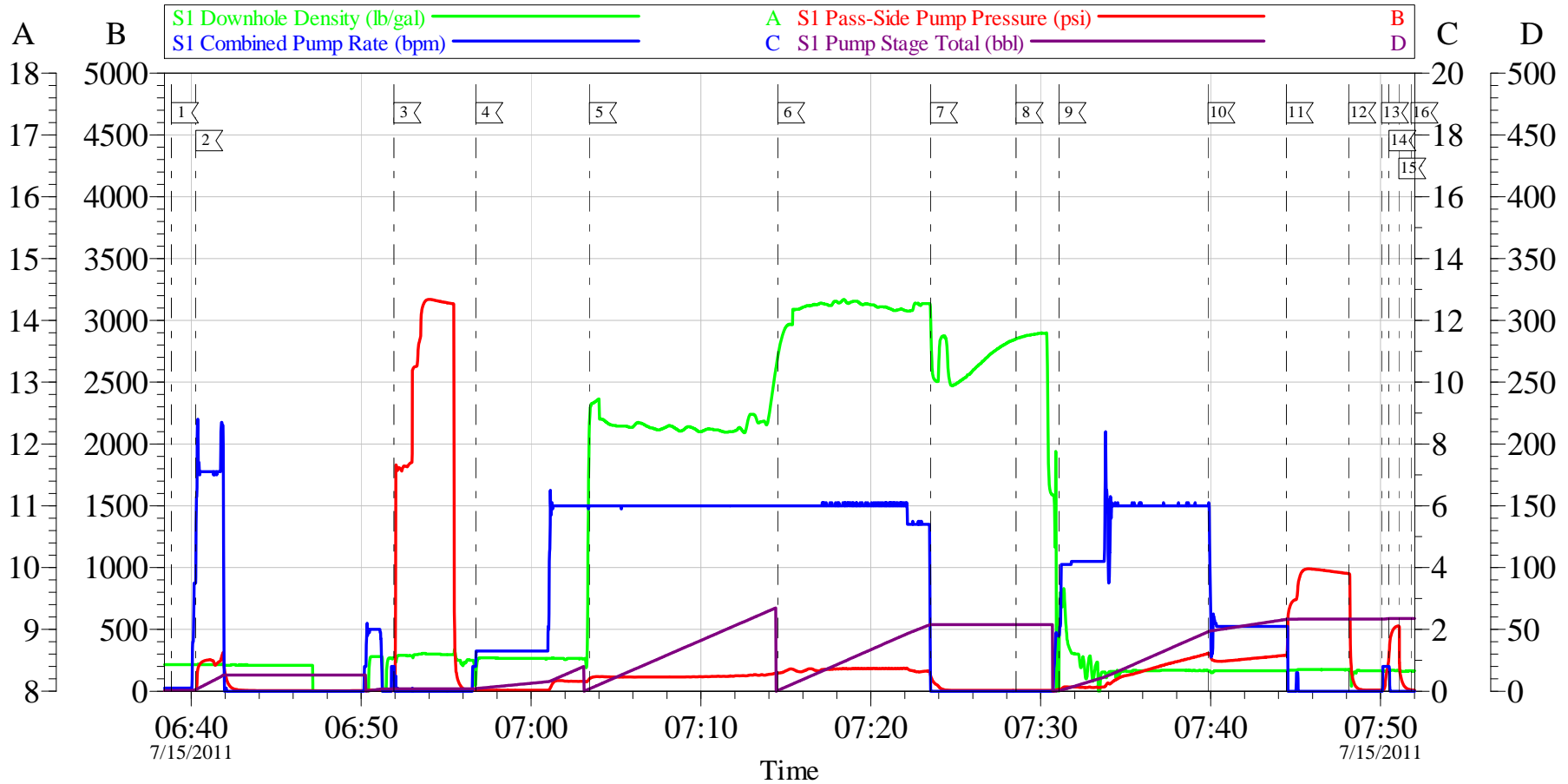
Activity Description	Date/Time	Cht #	Rate m3/min	Volume m3		Pressure MPa		Comments
				Stage	Total	Tubing	Casing	
Pump Lead Cement	07/15/2011 07:03		6	67.8			164.0	160 sks of VersaCem @ 12.3# - 2.38 yield - 13.77 H2O requirement
Pump Tail Cement	07/15/2011 07:14		6	52.2			190.0	205 sks of SwiftCem @ 14.2#-1.43 Yield-6.85 H2O requirement
Shutdown	07/15/2011 07:23							
Drop Top Plug	07/15/2011 07:28							
Pump Displacement	07/15/2011 07:31		6	58.6			313.0	Fresh Water Displacement
Slow Rate	07/15/2011 07:39		2	48			313.0	Slowed to 2 bpm
Bump Plug	07/15/2011 07:44		2	58.6			526.0	Bumped Plug @ calculated displacement and 500 psi over
Check Floats	07/15/2011 07:48							Floats not holding
Pressure Up Casing	07/15/2011 07:50						500.0	Pressure up casing to 500 psi
Shut In Well	07/15/2011 07:50						500.0	
Release Casing Pressure	07/15/2011 07:51							Release Pressure to Pump
End Job	07/15/2011 07:51							
Safety Meeting - Pre Rig-Down	07/15/2011 07:55							Discussed job procedures and safety issues
Rig-Down Equipment	07/15/2011 08:00							
Rig-Down Completed	07/15/2011 08:30							
Pre-Convoy Safety Meeting	07/15/2011 08:45							
Depart Location for Service Center or Other Site	07/15/2011 09:00							

Total Depth = 1006, Total Casing = 1003.84, Shoe Joint =41.90, Job was pumped off line. Casing remained stationary throughout job and was chained down. 28 bbls of cement returned to surface. 165 bbls of H2O were used for the job and 10 bbls were used for clean up (after the job) The plug landed at calculated displacement and the floats did not hold. 500 psi left on casing and shut in.

Thank you for using Grand Junction Halliburton Dean Daniel & Crew

# ANTERO

## Surface



Local Event Log			
1 Start Job	06:38:50	2 Prime Lines	06:40:16
3 Test Lines	06:51:56	4 Pump H2O Spacer	06:56:45
5 Pump Lead Cement	07:03:27	6 Pump Tail Cement	07:14:31
7 Shut Down	07:23:31	8 Drop Top Plug	07:28:33
9 Pump H2O Displacement	07:31:04	10 Slow Rate	07:39:51
11 Bump Plug	07:44:27	12 Check Floats	07:48:08
13 Pressure Up Casing	07:50:04	14 Shut In	07:50:30
15 Release Pressure To Truck	07:51:05	16 End Job	07:51:48

Customer: Antero  
Well Description: DixonFedB7  
Company Rep: Beaude Oaks

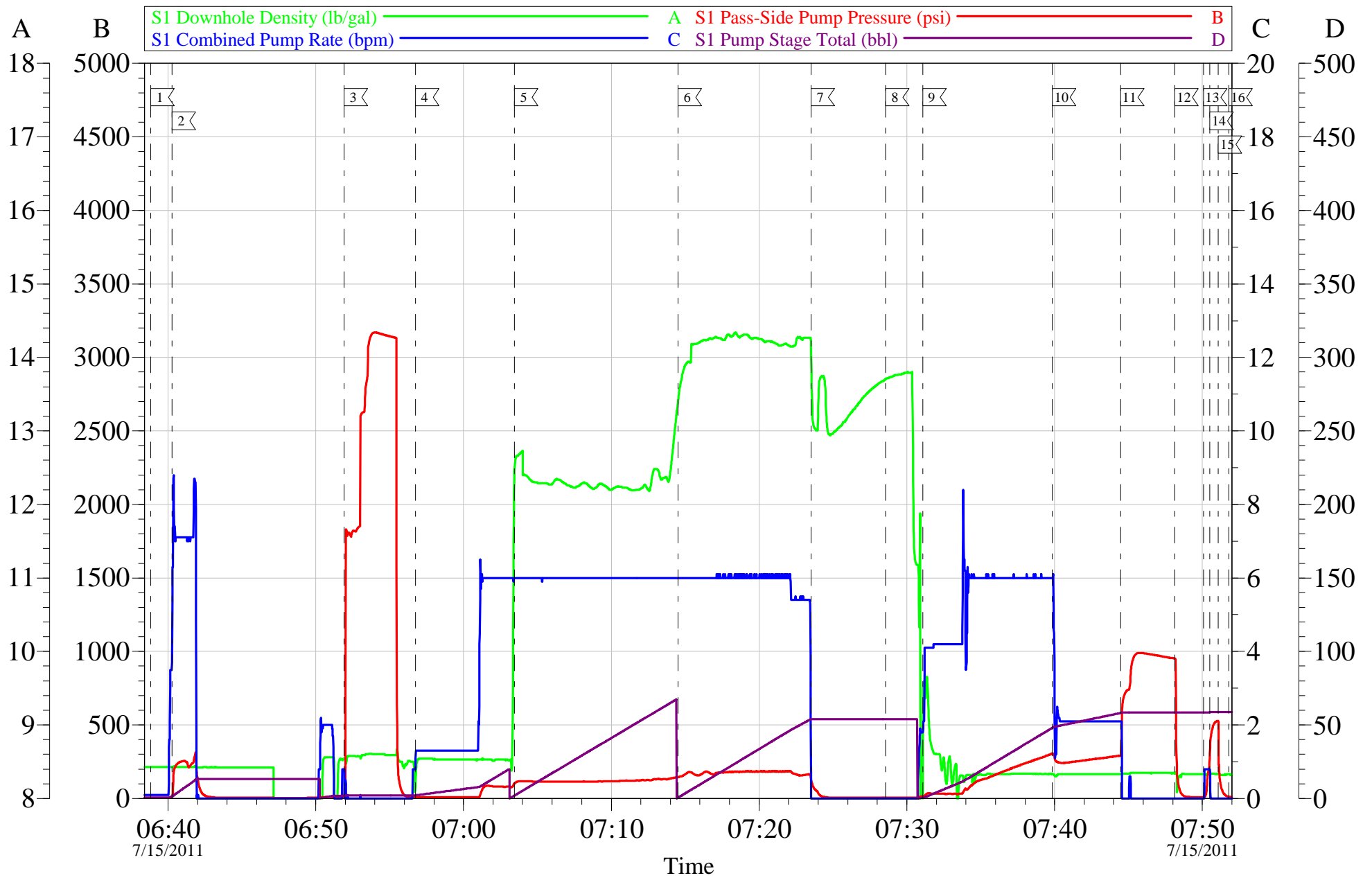
Job Date: 15-Jul-2011  
Job Type: Surface  
Cement Supervisor: Dean Daniel

Sales Order #: 8313840  
ADC Used: Yes  
Elite #/Operator: 7/Brent Banks

OptiCem v6.4.10  
15-Jul-11 08:01

# ANTERO

## Surface



Customer: Antero	Job Date: 15-Jul-2011	Sales Order #: 8313840
Well Description: DixonFedB7	Job Type: Surface	ADC Used: Yes
Company Rep: Beaude Oaks	Cement Supervisor: Dean Daniel	Elite #/Operator: 7/Brent Banks

OptiCem v6.4.10  
15-Jul-11 08:02

<b>Sales Order #:</b> 8313840	<b>Line Item:</b> 10	<b>Survey Conducted Date:</b> 7/15/2011
<b>Customer:</b> ANTERO RESOURCES		<b>Job Type (BOM):</b> CMT SURFACE CASING BOM
<b>Customer Representative:</b> BEAUDE OAKS		<b>API / UWI: (leave blank if unknown)</b> 05-045-20424
<b>Well Name:</b> Dixon Federal		<b>Well Number:</b> B13
<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> Garfield

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	7/15/2011
Survey Interviewer	The survey interviewer is the person who initiated the survey.	EVERETT DANIEL (HX13055)
Customer Participation	Did the customer participate in this survey? (Y/N)	Yes
Customer Representative	Enter the Customer representative name	BEAUDE OAKS
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	
Job DVA	Did we provide job DVA above our normal service today? Circle Y or N	No
Time	Please enter hours in decimal format to nearest quarter hour.	
Other	Enter short text for other efficiencies gained.	
Customer Initials	Customer's Initials	
Please provide details	Please describe how the job efficiencies were gained.	

CUSTOMER SIGNATURE



<b>Sales Order #:</b> 8313840	<b>Line Item:</b> 10	<b>Survey Conducted Date:</b> 7/15/2011
<b>Customer:</b> ANTERO RESOURCES		<b>Job Type (BOM):</b> CMT SURFACE CASING BOM
<b>Customer Representative:</b> BEAUDE OAKS		<b>API / UWI: (leave blank if unknown)</b> 05-045-20424
<b>Well Name:</b> Dixon Federal		<b>Well Number:</b> B13
<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> Garfield

*KEY PERFORMANCE INDICATORS*

General	
<b>Survey Conducted Date</b> The date the survey was conducted	7/15/2011

Cementing KPI Survey	
<b>Type of Job</b> Select the type of job. (Cementing or Non-Cementing)	0
<b>Select the Maximum Deviation range for this Job</b> What is the highest deviation for the job you just completed? This may not be the maximum well deviation.	Vertical
<b>Total Operating Time (hours)</b> Total Operating Hours Including Rig-up, Pumping, Rig-down. Enter in decimal format.	3
<b>HSE Incident, Accident, Injury</b> HSE Incident, Accident, Injury. This should be recordable incidents only.	No
<b>Was the job purpose achieved?</b> Was the job delivered correctly as per customer agreed design?	Yes
<b>Operating Hours (Pumping Hours)</b> Total number of hours pumping fluid on this job. Enter in decimal format.	1.5
<b>Customer Non-Productive Rig Time (hrs)</b> 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
<b>Type of Rig Classification Job Was Performed</b> Type Of Rig (classification) Job Was Performed On	Drilling Rig (Portable)
<b>Number Of JSAs Performed</b> Number Of Jsas Performed	7
<b>Number of Unplanned Shutdowns</b> Unplanned shutdown is when injection stops for any period of time.	0
<b>Was this a Primary Cement Job (Yes / No)</b>	Yes

<b>Sales Order #:</b> 8313840	<b>Line Item:</b> 10	<b>Survey Conducted Date:</b> 7/15/2011
<b>Customer:</b> ANTERO RESOURCES		<b>Job Type (BOM):</b> CMT SURFACE CASING BOM
<b>Customer Representative:</b> BEAUDE OAKS		<b>API / UWI: (leave blank if unknown)</b> 05-045-20424
<b>Well Name:</b> Dixon Federal		<b>Well Number:</b> B13
<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> Garfield

Primary Cement Job= Casing job, Liner job, or Tie-back job.	
<b>Did We Run Wiper Plugs?</b> Did We Run Top And Bottom Casing Wiper Plugs?	Top
<b>Mixing Density of Job Stayed in Designed Density Range (0-100%)</b> Density Range defined as +/- .20 ppg. Calculation: Total BBLs cement mixed at designed density divided by total BBLs of cement multiplied by 100	95
<b>Was Automated Density Control Used?</b> Was Automated Density Control (ADC) Used ?	Yes
<b>Pump Rate (percent) of Job Stayed At Designed Pump Rate</b> 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	98
<b>Nbr of Remedial Sqz Jobs Rqd - Competition</b> Number Of Remedial Squeeze Jobs Required After Primary Job Performed By Competition	0
<b>Nbr of Remedial Plug Jobs Rqd - HES</b> Number Of Remedial Plug Jobs Needed After Primary Plug Pumped By HES	0
<b>Nbr of Remedial Sqz Jobs Rqd - HES</b> Number Of Remedial Squeeze Jobs Required After Primary Job Performed By HES	0