

PETROLEUM RESOURCE MANAGEMENT

Sheehan 2 4-2

Moffat County, Colorado

Cement Surface Casing
07-Nov-2012

Job Site Documents

BLM

The Road to Excellence Starts with Safety

SOLD TO #: 304546		SHIP TO #: 2961896		QUOTE #:		SALES ORDER #: 9943294	
CUSTOMER: PETROLEUM RESOURCE MANAGEMENT							
WELL NAME: Sheehan 2				WELL #: 4-2			
CITY (SAP): CRAIG				COUNTY/PARISH: Moffat			
STATE: Colorado							
LEGAL DESCRIPTION: Section 2 Township 10N Range 89W							
LAT: N 40.853 deg. OR N 40 deg. 51 min. 9.45 secs. LONG: W 107.337 deg. OR W -108 deg. 39 min. 48.395 secs.							
JOB PURPOSE: Cement Surface Casing							
WELL TYPE: Exploratory / Wildcat							
JOB TYPE: Cement Surface Casing							
SALES PERSON: FRANK, DAVID							
SRV SUPERVISOR: DELGUIDICE, NATHAN							
JOB PERSONNEL							
HES EMP NAME		EXP HRS		HES EMP NAME		EXP HRS	
DELGUIDICE, NATHAN Joshua		23.5		JOHNSON, KENNETH E		23.5	
OVITT, RUSSELL D		23.5					
472949		SPINDLER, DAVID		481522		JOSEPH	
EQUIPMENT							
HES UNIT #		DISTANCE-1 way		HES UNIT #		DISTANCE-1 way	
10025022C		165 mile		10804559		165 mile	
11139004		165 mile		11380723		165 mile	
3993				3993		165 mile	
JOB HOURS							
DATE		ON LOCATION		DATE		ON LOCATION	
11/4/2012		8.5		11/5/2012		16	
TOTAL		0		11/7/2012		7	
TOTAL		0		11/7/2012		3	
TOTAL is the sum of each column separately							
JOB							
FORMATION NAME		FORMATION DEPTH (MD)		DATE		TIME	
Top		Bottom		04 - Nov - 2012		08:30	
Called Out		On Location		04 - Nov - 2012		14:30	
BHST		Job Depth TVD		07 - Nov - 2012		01:07	
423. ft		8. ft		07 - Nov - 2012		03:57	
Job depth MD		Job depth TVD		07 - Nov - 2012		06:30	
Water Depth		WK Ht Above Floor		07 - Nov - 2012		06:30	
Perforation Depth (MD)		To		07 - Nov - 2012		06:30	
WELL DATA							
Description		New / Used		Max pressure		Size in	
17-1/2" Hole		Mixed		13.375		12.715	
13-3/8" Casing		Unknown		20.		19.	
20" Casing		Unknown		106.5		48.	
H-40		64.		450.		450.	
Grade		Top MD		Bottom MD		Top MD	
Thread		Weight lbm/ft		Size in		ID in	
Top MD		Bottom MD		Top MD		Bottom MD	
Top TVD		Bottom TVD		Top TVD		Bottom TVD	
SALES/RENTAL/3 rd PARTY (HES)							
Description		QTY		QTY uom		Depth	
PLUG, CMTG, TOP, 13 3/8, HW, 11.79 MIN/12.72		1		EA		Depth	
TOOLS AND ACCESSORIES							
Type		Size		QTY		Make	
Guide Shoe		Packer		Top Plug		13.375	
Float Shoe		Bridge Plug		SSR plug set		13.375	
Float Collar		Retainer		Plug Container		13.375	
Insert Float				Centralizers		13.375	
Stage Tool						4	
MISCELLANEOUS MATERIALS							
Gelling Agt		50 LBS		Conc		Conc	
Surfactant		Conc		Conc		Conc	
Inhibitor		Conc		Conc		Conc	
Acid Type		QTY		Size		QTY	
Conc %		QTY		Size		QTY	
FLUID DATA							

Cementing Job Summary

HALLIBURTON

Stage/Plug #: 1																		
#	Fluid	Stage Type	Fluid Name	Qty	Qty	nom	Mixing Density lbm/gal	Yield ft/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk	1						
VARICEM (TM) CEMENT (452009)												315.0	sacks	15.5	1.33	5.70	5	5.70
PHENO SEAL MEDIUM, 40 LB BAG (101307743)																		
FRESH WATER																		
10.681 Gal																		
2																		
Displacement																		
Calculated Values																		
Shut In: Instant																		
Lost Returns																		
Cement Slurry																		
75																		
Pad																		
Displacement																		
SURF																		
5 Min																		
Cement Returns																		
0																		
Actual Displacement																		
Load and Breakdown																		
Total Job																		
155																		
Rates																		
Circulating																		
5																		
Mixing																		
5																		
Displacement																		
5																		
Avg. Job																		
5																		
Shoe Joint																		
Amount																		
42.75 ft																		
Reason																		
Frac ring # 2 @																		
ID																		
Frac ring # 3 @																		
ID																		
Frac Ring # 4 @																		
ID																		
The Information Stated Herein Is Correct																		
Customer Representative Signature																		

Cementing Job Log

The Road to Excellence Starts with Safety

Sold To #: 304546	Ship To #: 2961896	Quote #:	Sales Order #: 9943294
Customer: PETROLEUM RESOURCE MANAGEMENT		Customer Rep:	
Well Name: Sheehan 2		Well #: 4-2	API/UWI #: 05-081-07750
Field:	City (SAP): CRAIG	County/Parish: Moffat	State: Colorado
Legal Description: Section 2 Township 10N Range 89W			
Lat: N 40.853 deg. OR N 40 deg. 51 min. 9.45 secs. Long: W 107.337 deg. OR W -108 deg. 39 min. 48.395 secs.			
Contractor:			
Rig/Platform Name/Num:			
Job Purpose: Cement Surface Casing			
Well Type: Exploratory / Wildcat			
Job Type: Cement Surface Casing			
Sales Person: FRANK, DAVID		Svc Supervisor: DELGUIDICE,	MBU ID Emp #: 398458
NATHAN			

Activity Description	Date/Time	# Cht	Rate bbl/min	Volume bbl	Stage	Total	Pressure psig	Tubing	Casing	Comments
Call Out	11/04/2012 08:30									HES CREW CALLED OUT ON PETROLEUM RESOURCE MANAGEMENT SHEEHAN 2 4-2 SURFACE
Pre-Convoy Safety Meeting	11/04/2012 10:00									SAFETY MEETING WITH HES CREW TO DISCUSS HAZARDS ASSOCIATED WITH DRIVING
Crew Leave Yard	11/04/2012 10:15									HES CREW DEPARTS YARD
Arrive At Loc	11/04/2012 14:30									HES CREW ARRIVES AT PETROLEUM RESOURCE MANAGEMENT SHEEHAN 2 4-2 SURFACE @ 1430 HOURS
Assessment Of Location	11/04/2012 14:35									SAFETY MEETING WITH HES CREW TO DISCUSS SPOTTING OF HES EQUIPMENT
Wait on Customer or Customer Sub-Contractor Equip	11/04/2012 15:30									WAIT ON CUSTOMER TO DRILL AND TO RUN CASING
Wait on Customer or Customer Sub-Contractor Equip	11/05/2012 16:00									CUSTOMER RELEASED HES CREW DUE TO PROBLEMS RUNNING CASING

Cementing Job Log

Pre-Convoy Safety Meeting	11/05/2012	16:05								SAFETY MEETING WITH HES CREW TO DISCUSS HAZARDS ASSOCIATED WITH DRIVING
Crew Leave Location	11/05/2012	16:20								HES CREW DEPARTS LOCATION @ 1600 HRS ON 11-6-12
Call Out	11/06/2012	15:30								HES CREW CALLED OUT ON PETROLEUM RESOURCE MANAGEMENT SHEEHAN 2 4-2 SURFACE
Pre-Convoy Safety Meeting	11/06/2012	17:45								SAFETY MEETING WITH HES CREW TO DISCUSS HAZARDS ASSOCIATED WITH DRIVING
Crew Leave Yard	11/06/2012	18:00								HES CREW DEPARTS YARD
Arrive At Loc	11/06/2012	23:00								HES CREW ARRIVES AT LOCATION AT 2300 HOURS. HES CREW LATE TO LOCATION AFTER TELLING COMPANY MAN, AND COORDINATOR ON 11- 5-12 THAT WE WOULD NEED AN 8 HOUR CALL OUT TO MAKE LOCATION ON TIME.
Assessment Of Location Safety Meeting	11/06/2012	23:05								SAFETY MEETING WITH HES CREW TO DISCUSS SPOTTING OF EQUIPMENT
Pre-Rig Up Safety Meeting	11/06/2012	23:10								SAFETY MEETING WITH HES CREW TO DISCUSS HAZARDS ASSOCIATED WITH RIGGING UP IRON BULK AND WATER
Rig-Up Equipment	11/06/2012	23:20								HES CREW RIGS UP EQUIPMENT
Pre-Job Safety Meeting	11/07/2012	00:45								SAFETY MEETING WITH HES CREW, RIG PERSONNEL, AND COMPANY REP TO DISCUSS JOB PROCEDURES AND HAZARDS FOR PUMPING SURFACE JOB

Cementing Job Log

Activity Description	Date/Time	Cht	Rate bbl/ min	Volume bbl	Pressure psig	Comments
Rig-Up Completed	11/07/2012 01:00					HES CREW FINISHES RIGGING UP
Start Job	11/07/2012 01:07		1	3	4.0	FILL PUMPS AND LINES WITH 3 BBLs H2O
Pressure Test	11/07/2012 01:11				1183.0	PSI TEST HES IRON TO 1000 PSI
Pump Spacer	11/07/2012 01:13		2	17	20	PUMP 17 BBLs H2O WATER SPACER
Pump Cement	11/07/2012 01:22		5	74	117.0	PUMP 74 BBLs VARICEM RS1 PRIMARY CMT @ 15.50 PPG, 1.33 YLD, 5.70 GAL/SK, 315 SACKS
Shutdown	11/07/2012 01:36					
Drop Top Plug	11/07/2012 01:37					COMPANY REP WITNESSED HES DROP COMPETITOR TOP PLUG
Pump Displacement	11/07/2012 01:39		5	40	134	PUMP 40 BBLs H2O @ 5 BPM
Slow Rate	11/07/2012 01:47		2	20	154	PUMP 20 BBLs @ 2 BPM
Bump Plug	11/07/2012 01:57					TOOK TO 1000 PSI AND SHUT IN HEAD ON CASING. RESULTING FORCE WAS CALCULATED AT 2900 PSI UPWARDS. LEAVE HEAD SHUT IN AND CHAINED DOWN FOR 4 HOURS
Pump Cement	11/07/2012 03:24		1	6	160	PUMPED 6 BBLs MOUNTAIN G TOP OUT WITH 2% CaCl
Shutdown	11/07/2012 03:29					WAITED 15 MIN TO SEE IF CEMENT DROPPED
Pump Cement	11/07/2012 03:51		1	6	166	PUMPED 6 BBLs MOUNTAIN G TOP OUT WITH 2% CaCl
End Job	11/07/2012 03:57					
Check Floats	11/07/2012 04:41					FLOATS HELD .25 BBL BACK
Activity Description	Date/Time	Cht	Rate bbl/ min	Volume bbl	Pressure psig	Comments

Cementing Job Log

		#	Stage	Total	Tubing	Casing	
Pre-Rig Down Safety Meeting	11/07/2012 04:41						SAFETY MEETING WITH HES CREW TO DISCUSS HAZARDS ASSOCIATED WITH RIGGING DOWN IRON, BULK, AND WATER
Rig-Down Equipment	11/07/2012 04:41						HES CREW RIGS DOWN EQUIPMENT
Rig-Down Completed	11/07/2012 04:41						HES CREW FINISHES RIGGING DOWN
Pre-Convoy Safety Meeting	11/07/2012 04:41						SAFETY MEETING WITH HES CREW TO DISCUSS HAZARDS ASSOCIATED WITH DRIVING
Crew Leave Location	11/07/2012 04:41						HES CREW DEPARTS LOCATION. THANK YOU FROM HES CREW. NO ACCIDENTS, INJURIES, OR INCIDENTS

Water Analysis Report

COMPANY:	PETROLEUM RESOURCE MANAGEMENT	Date Recorded	11/5/2012
SUBMITTED BY:	NATHAN DELGUIDICE	SC#	9943294
LEASE:	SHEEHAN 2	Job Type	SURFACE
WELL #:	2-Apr	Camp Location	ROCK SPRINGS, WYOMING

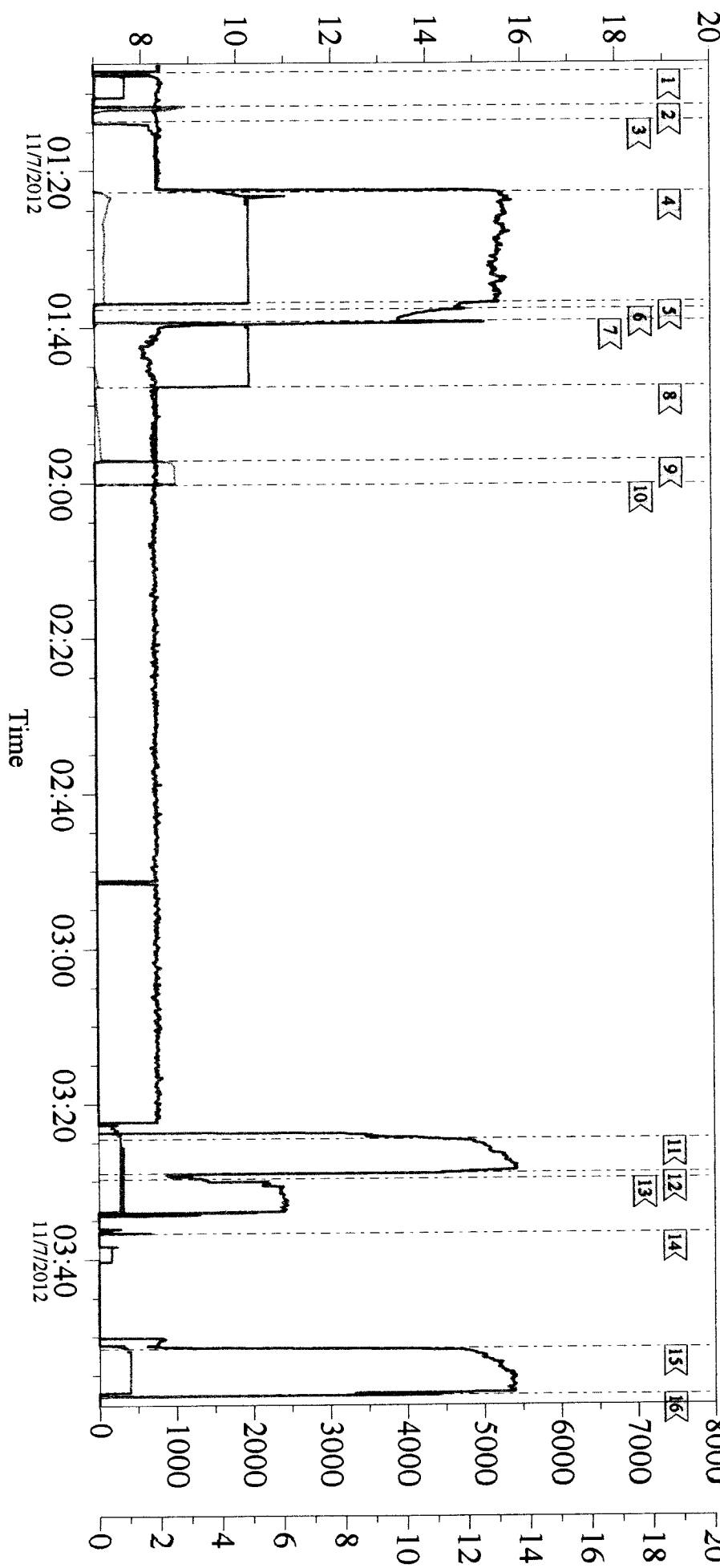
CEMENT MIX WATER REQUIREMENTS

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	—	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	<200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness	0	ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium	10	ppm	500 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH ≥ 8.3)
Total Alkalinity	40	ppm	1000 ppm	High concentrations will shorten the pump time of cement (indicates the presence of chlorides, therefore if
Potassium	0	ppm	5000 ppm	Potassium levels are measured as high, so should the chlorides)
Iron	0	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	40	°F	50-60 °F	High temps will accelerate. Low temps may risk freezing in cold weather
Item	Approximate Calculated Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit - (See Remarks Below)
Magnesium	0	ppm	300 ppm	High concentrations will accelerate the set of the cement Subtract tested "Calcium" value from "Total Hardness" value.

Submitted Respectfully by:

PETROLEUM RESOURCE MANAGEMENT SHEEHAN 2 4-2 SURFACE

S1 Downhole Density (lb/gal) _____ A S1 Drive-Side Pump Pressure (PSI) _____ B
 S1 Combined Pump Rate (bpm) _____ C



Intersection			Local Event Log			Intersection		
SD1	SD2	SG PR	SD1	SD2	SG PR	SD1	SD2	SG PR
1< START JOB/ FILL LINES	01:07:19	8.052	2< PSI TEST	01:11:44	8.352	3< PUMP SPACER	01:13:37	8.300
4< PUMP CMT	01:22:45	15.57	5< SHUTDOWN	01:36:48	15.55	6< DROP TOP PLUG	01:37:39	14.75
7< START DISPLACEMENT	01:39:19	13.40	8< SLOW RATE	01:47:43	8.200	9< BUMP PLUG	01:57:10	8.250
0< SHUT IN PLUG CONTAINER	02:00:18	8.270	11< PUMP TOP OUT	03:24:34	14.21	12< SHUT DOWN	03:29:05	14.27
3< WASH LINES	03:29:48	9.200	14< WAIT FOR CMT TO SETTLE	03:36:45	0.811	15< PUMP TOP OUT	03:51:33	12.70
6< END JOB	03:57:36	13.81						

Customer: PETROLEUM RESOURCE MANAGEMENT
 Well Description: SHEEHAN 2 4-2
 Comp Leader: KEN JOHNSON
 Job Date: 07-Nov-2012
 Job Type: SURFACE
 Operator: DAVID SPINDLER
 Sales Order #: 9943294
 Supervisor: NATHAN DELGUIDICE