

**UNITED STATES OF AMERICA  
DEPARTMENT OF HOMELAND SECURITY  
DEPARTMENT OF THE INTERIOR  
JOINT INVESTIGATION CONDUCTED BY  
UNITED STATES COAST GUARD  
BUREAU OF OCEAN ENERGY MANAGEMENT, REGULATION, AND  
ENFORCEMENT**

**In the Matter of the Fire & Explosion on  
the Deepwater Horizon**

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**HALLIBURTON ENERGY SERVICES, INC.'S RESPONSES TO SUBPOENA TO  
PRODUCE DOCUMENTS, INFORMATION, OR OBJECTS**

Halliburton Energy Services, Inc. ("HESI") provides the following responses to the subpoena dated August 5, 2010, and authorized by Captain Hung Nguyen, Co-Chairman, Joint Board of Investigation:

**REQUEST 1:** The number of cement jobs conducted by Halliburton between January 1, 2005 and April 20, 2010, broken down by operator, where the gas flow potential was calculated to be severe.

**RESPONSE:** HESI's electronic modeling software, OptiCem™, utilizes certain well conditions in order to calculate whether a well's gas flow potential is minor, moderate, or severe. HESI cannot accurately list each and every cement job it conducted between January 1, 2005 and April 20, 2010, where the gas flow potential was severe because not all HESI engineers save electronic or hard copies of their OptiCem™ reports. In the normal course of business, upon job completion, HESI engineers have the discretion to save, electronically overwrite, or discard OptiCem™ reports. Thus, it is unfeasible, if not impossible, to determine the exact number of jobs responsive to this request. In order to respond to this subpoena, however, HESI engineers searched their personal OptiCem™ records related to prior cement jobs for the following locations: the Gulf of Mexico, Brazil, Norway, and the United Kingdom. The limited data available revealed 53 jobs conducted between January 1, 2005 and April 20, 2010, where the gas flow potential was calculated to be severe. The below chart breaks down the foregoing jobs by customer.



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<u>Region</u>	<u>Customer</u>	<u>Jobs Cemented Where Calculated GFP was Severe 8 or more</u>
GOM (Land)	BEPCO	1
GOM (Land)	BP	2
GOM (Land)	Erskine Energy	1
GOM (Land)	Hunt Oil	1
GOM (Land)	Pel-Tex Oil Co Inc	1
GOM (Land)	Royal Production	1
GOM (Land)	Samson Resources Corp	2
GOM (Land)	Swift	2
GOM (Land)	Zenergy	1
GOM (Shelf)	ADTI	2
GOM (Shelf)	Arena	1
GOM (Shelf)	BHP	1
GOM (Shelf)	El Paso	2
GOM (Shelf)	EPL	1
GOM (Shelf)	Newfield	2
GOM (Shelf)	Probe Resources	1
Brasil	Petrobras	12
GOM (Inland)	ADTI	2
GOM (Inland)	Chevron	1
GOM (Inland)	Energy XXI	1
GOM (Inland)	Erskine Energy LLC	1
GOM (Inland)	Nexen Petroleum	1
GOM (Inland)	PetroQuest Energy	2
GOM (offshore) DW	BP	2
GOM (offshore) DW	Chevron	1
GOM (offshore) DW	LLOG	1
GOM (offshore) DW	Nexen	1
GOM (offshore) DW	Shell	5
GOM (offshore) DW	Woodside	1
<b>Total</b>		<b>53</b>

**REQUEST 2:** The number of cementing jobs conducted by Halliburton between January 1, 2005 and April 20, 2010, broken down by operator, where the calculated gas flow potential value was 7.0 or greater. [On August 16, 2010, Commander Bray clarified that the proper number is "8.0" or greater].

**RESPONSE:** HESI's electronic modeling software, OptiCem™, utilizes certain well conditions in order to calculate the severity of a well's gas flow potential. Each calculation for gas flow potential results in a number, from zero to infinity, 1.0 being low gas flow potential, and 8.0 or greater being severe gas flow potential. HESI cannot accurately list each and every cement job it conducted between January 1, 2005 and April 20, 2010, where the gas flow potential was 8.0 or

greater because not all HESI engineers save electronic or hard copies of their OptiCem™ reports. In the normal course of business, upon job completion, HESI engineers have the discretion to save, electronically overwrite, or discard OptiCem™ reports. Thus, it is unfeasible, if not impossible, to determine the exact number of jobs responsive to this request. In order to respond to this subpoena, however, HESI engineers searched their personal OptiCem™ records related to prior cement jobs for the following locations: the Gulf of Mexico, Brazil, Norway, and the United Kingdom. The limited data available in OptiCem™ revealed 53 jobs conducted between January 1, 2005 and April 20, 2010, where the gas flow potential was calculated to be 8.0 or higher. The above chart breaks down the foregoing jobs by customer.

**REQUEST 3:** A list of additives available to OCS operators that can address gas migration, and indicate which if any on the list were available and/or used on the DEEPWATER HORIZON.

**RESPONSE:**

<b>Additive/Process</b>	<b>Available to OCS Operators</b>	<b>Available to DW Horizon</b>	<b>Used on DW Horizon</b>
Nitrogen	Yes	Yes	Yes
Zonscal Isolation Process	Yes	Yes	Yes
Super CBL	Yes	Yes	No
GasStop, GasStop EXP, GasStop HT	Yes	Yes	No
Thixotropic Cements	Yes	Yes	No
Latex 2000	Yes	Yes	No
Fluid Loss Additives - Halad 322, Halad 344, and Halad 413.	Yes	Yes	Yes

**REQUEST 4:** All attachments from the April 18, 2010 email from Mr. Gagliano to BP and others regarding the progress of the Macondo 252 well job.

**RESPONSE:** See Exhibits A-C, attached hereto.



**Respectfully Submitted,**

**GODWIN RONQUILLO PC**

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