



June 13, 2010

Rear Admiral James A. Watson  
US Coast Guard  
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Robert, LA 70455

In response to your letter received on 11 June, as well as the updated flow rate estimates provided by the Flow Rate Technical Group, the following sets out the plans for building additional capacity and redundancy for the containment of oil from the Deepwater Horizon oil spill. The quoted numbers represent installed design capacities and any unplanned events will impact actual delivery.

As stated in our letter of 11 June, elements of this plan to build additional capacity and redundancy have been worked beginning 13 May. Secretary Salazar and Secretary Chu have been updated on these options with daily calls throughout this period.

Additionally, over the past 48 hours, options have been created and equipment mobilized which will both create additional capacity as well as increase redundancy. These are summarised as follows:

1. An **FPSO** will be mobilized from South America. The FPSO has a capacity of circa 25,000 barrels of oil per day with an option to expand further. It will provide redundancy in the event of failure of the Toisa Pisces or the Helix Producer. The vessel will take some 4 weeks to get to location;
2. **Two Lightering Tankers** have been mobilized from Europe on 11 June. This will give a total of three available Lightering Tankers;
3. **3,800ft of 6" coflexip** has been mobilized from Brazil on 11 June. This will provide redundancy in the event of a subsea hose failure or loss;
4. Work is ongoing to evaluate the potential to **retrieve and repair the blue pod** from the Horizon BOP and create additional redundancy in the event that the yellow pod were to fail;

5. Work has begun on ensuring that the **Enterprise** or the **Clear Leader** can connect to either of the **permanent riser systems** – creating additional redundancy;
6. Work has started on building **additional heat capacity** into the test equipment on the Clear Leader in an effort to expand its installed capacity.

The following describes the build out of capacity in time. Each phase is accompanied by a simple graphical illustration.

#### **Mid June**     **(Graph 1)**

**Installed Capacity**                      **20 – 28,000 barrels of oil per day**

By the middle of June, it is anticipated that the Enterprise / LMRP Cap and the Q4000 / Subsea Mud Manifold will be operational.

The Enterprise / LMRP Cap will continue to be optimised.

The Q4000 should be ramping up to full rate on Tuesday 15 June subject to successful pressure and function testing of the safety and production systems in the interim period.

The following are some of the key risks that exist with this option set:

- **Junk** from the Top Kill operation is introduced to the subsea system from the choke line and creates a flow restriction / blockage;
- **Erosion** of the choke lines (not designed for continuous flow);
- **Flow control** of both systems simultaneously;
- **Collapse** of the subsea coflexip jumpers.

The next step is to **build additional capacity** in the event that this current system is not adequate. This leads to the next phase.

#### **End June** **(Graph 2)**

**Installed Capacity**                      **40 – 53,000 barrels of oil per day**

The current schedule indicates that the Permanent Riser No.1 Production System will be in place at the end of June. The production vessel will either be the Helix Producer or the Toisa Pisces.





The control of the yellow pod will have been passed from the Q4000 to one of the main FPSOs. Work is underway to deliver this option.

Further options for **capacity** and, or **redundancy** is created by:

- connecting the Enterprise to the new cap using drill pipe and a suction pile (**10-15,000 barrels of oil per day**), and;
- connecting the Clear Leader to the new cap, also using drill pipe and a suction pile - at some distance from the Horizon BOP. (**10-15,000 barrels of oil per day**).

Connection via drill pipe is more hurricane efficient than using a riser system.

The Q4000 will not be operated concurrent with these 4 vessels for safety reasons. Work is ongoing to confirm that this combination of 4 production vessels is indeed possible within appropriate safety parameters.

The following are some of the key risks that exist with this option set:

- **Simultaneous operations (SIMOPs)** leads to major surface accident;
- **Junk** from the Top Kill operation is introduced to the subsea system from the choke or kill lines and creates a flow restriction / blockage;
- **Erosion** of the choke and kill lines (not designed for continuous flow);
- **Flow control** of all four systems simultaneously;
- **Collapse** of the subsea coflexip jumpers.

It is important to note that as we move into a multi-vessel containment operation the health and safety of our people remains our absolute number one priority. The risks of operating multiple facilities in close proximity must be carefully managed. Several hundred people are working in a confined space with live hydrocarbons on up to 4 vessels. This is significantly beyond both BP and industry practice. We will continue to aggressively drive schedule to minimize the pollution, but we must not allow this drive to compromise our number one priority, that being the health and safety of our people. The continued support and direction of the US Coast Guard and the MMS is essential to a successful and safe operation.

As ever, any action will be taken pursuant to procedures approved by the Unified Area Command.

In summary, we believe this plan is responsive to your order. However, a number of challenges are present, and we cannot assure compliance with your instruction that "complete collection rates" be achieved throughout. There are five points to be made.

First, there will be some interruption to current containment as we implement these new options – e.g. replacement of containment cap on the LMRP. We will, of course, do everything possible to minimize such interruptions.

Second, achieving complete collection will depend on the effectiveness of the sealing mechanism in future cap designs.

Third, whether the system has appropriate redundancies to maintain complete collection will also depend on the actual flow rate. The systems outlined here are designed based on the current best independent assessment of flow from the FRTG. We will continue to adapt our plans as more is learned about the flow-rate from the well.

Fourth, in the event that it is necessary to switch between primary and backup systems, there will inevitably be periods of less than complete collection.

Fifth, in the event of a hurricane, it will be necessary for the containment operation to be suspended. Collection will not be possible during those periods though options are being designed to deploy some subsea dispersant during any such interruptions.

If there are any areas where you believe further action is required to fulfil your instruction, please let us know and we can set up a session to discuss.

Sincerely,

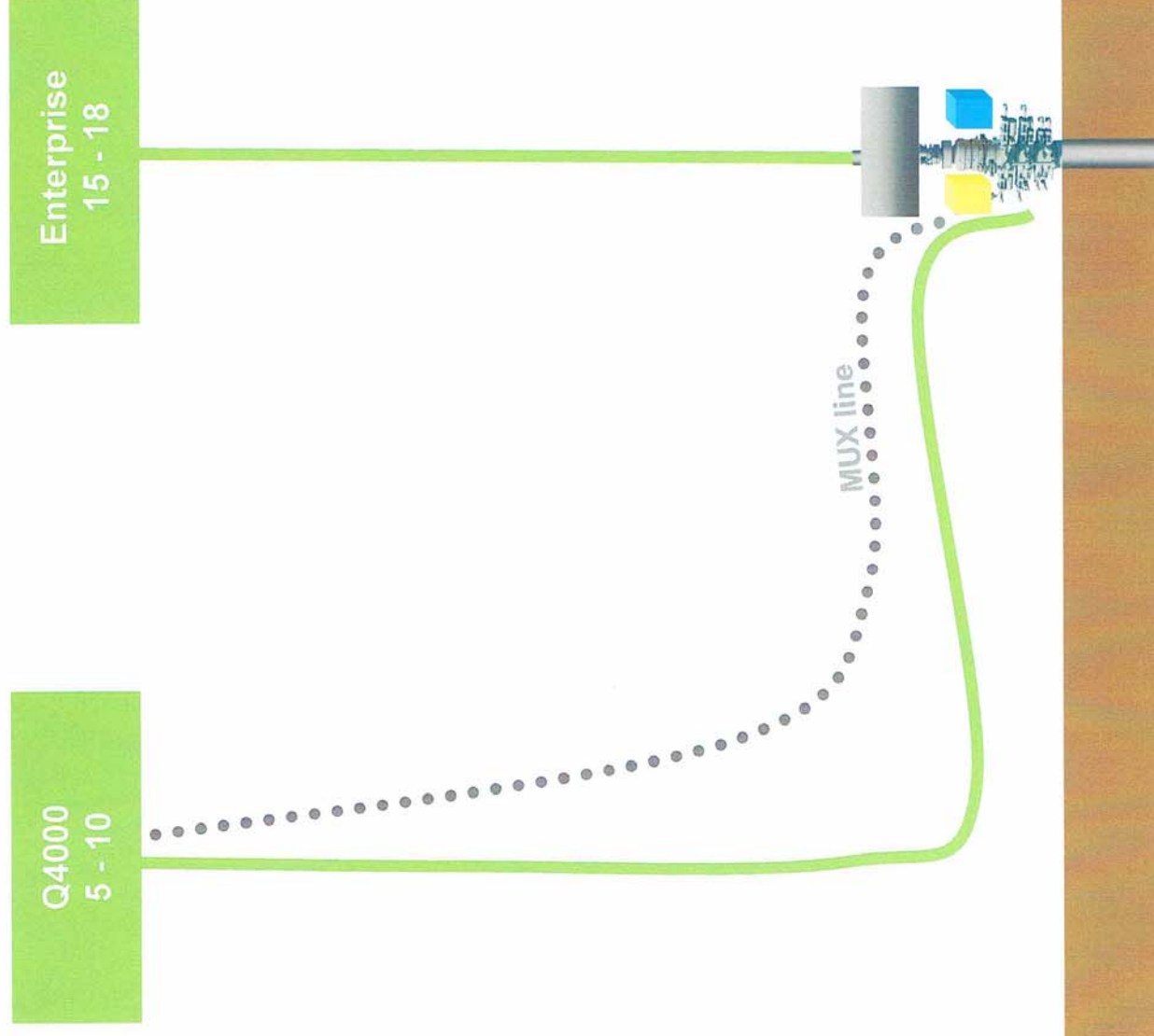
A handwritten signature in black ink, appearing to read 'Douglas J. Suttles', with a stylized, sweeping flourish at the end.

Douglas J. Suttles

cc     Admiral Allen  
         Secretary Chu  
         Secretary Salazar

June 13<sup>th</sup>, 2010

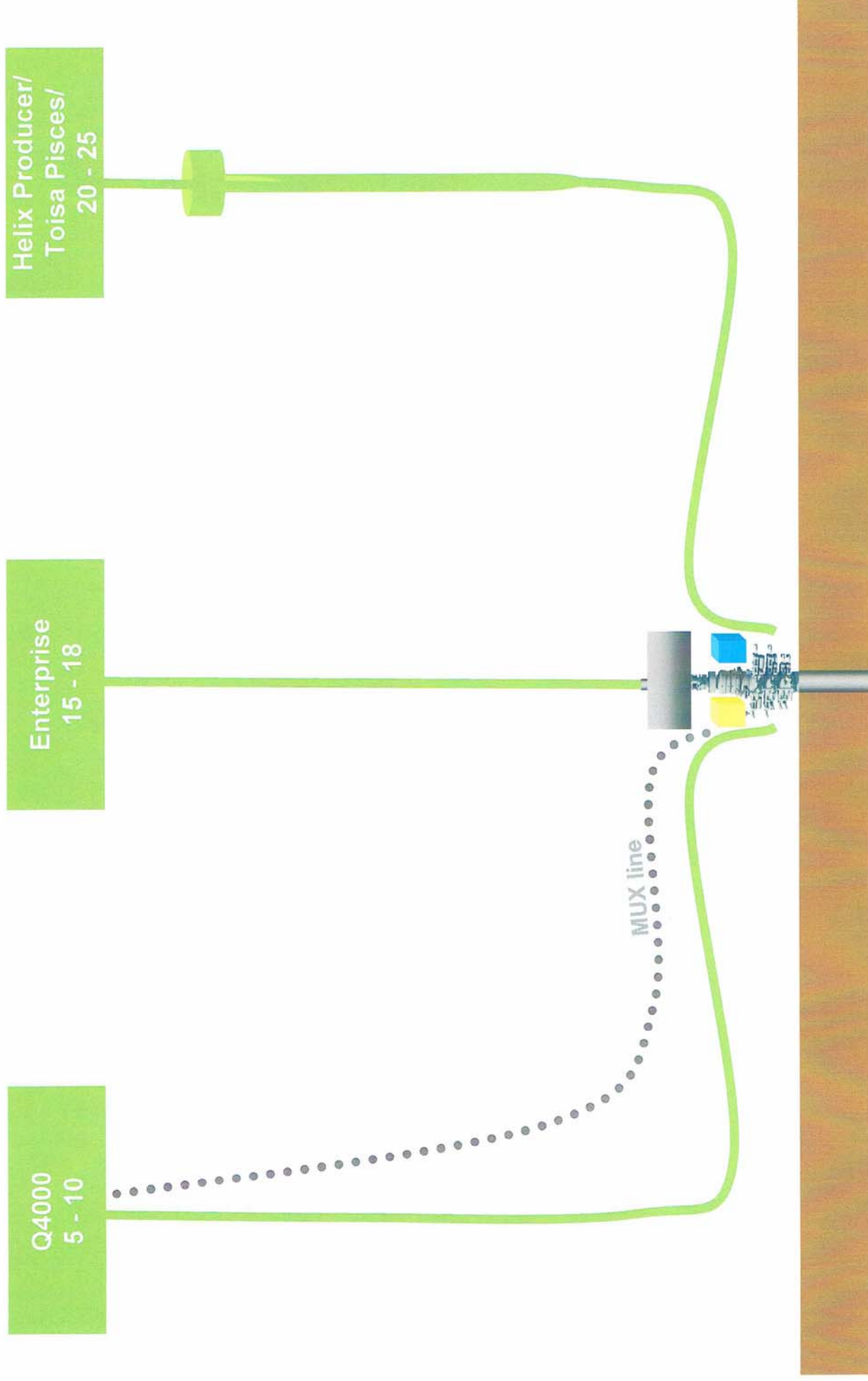
**Graph 1**  
**Capacity 20 - 28 mbd**  
**Mid June**





June 13<sup>th</sup>, 2010

Graph 2  
Capacity 40 - 53 mbd  
End June



June 13<sup>th</sup>, 2010

**Graph 3**  
**Total Possible Capacity 60 - 80 mbd**  
**Mid July onwards**

Base plan  
Option

