United States Senate
COMMITTEE ON FINANCE
WASHINGTON, DC 20510–6200

June 16, 2010

Via Electronic Transmission

Lamar McKay
Chairman and President
BP America, Inc
501 Westlake Park Boulevard
Houston, TX 77079

Dear Mr. McKay:

As the ranking member of the Committee on Finance, I have a constitutional duty to conduct oversight into U.S. government regulated programs that directly impact the safety, security, and economic livelihood of American citizens. Additionally, the oil spill liability trust fund and related taxes are included in the Internal Revenue Code, as are tax incentives directed at deep water drilling. I am writing about the concerns I have regarding the recent explosion and subsequent oil spill at the Deepwater Horizon oil rig in the Gulf of Mexico.

Thank you for your recent response on June 9, to my letter of May 17, 2010. In that letter, I asked BP America (BP) a number of questions about operations in the Gulf of Mexico and the recent oil spill at the Deepwater Horizon oil rig. I remain concerned that BP has not provided a complete response to my letter and may have withheld pertinent documents.

In Question 10, I asked, "Please explain, in detail, who made the decision to replace the mud in the drill hole with seawater. Provide any pertinent documents and/or communications." BP responded:

> Because investigations into the Deepwater Horizon incident are ongoing, it would be premature to speculate regarding specific decisions. In addition, certain third parties may have in their possession certain information that is relevant to this request but to which BP does not have access.

Every American knows that the investigation of the Deepwater Horizon spill is ongoing; however, there is nothing "premature" about my request, and I am not asking BP to "speculate." Further, any information allegedly possessed by unnamed third parties is irrelevant. I asked your company these questions and I request that you produce all documents immediately.

In a separate question, I asked BP about the blowout preventers on the other rigs that it operates in the Gulf. I became concerned because *The Times-Picayune* reported that the Minerals Management Service (MMS) regulation 250.416(e)[1] requires drillers to submit proof that the blowout preventer they are using to shut off a well will have enough power to shear a drill pipe in case of an emergency. However, the MMS drilling inspector, who examined the BP Deepwater Horizon rig application, stated that he was not aware of any such requirement. He added that he has never demanded such proof from any of the more than 100 applications his office reviews each year.

Specifically, I requested that BP "provide documentation that BP is in compliance with MMS regulation 250.416 (e) for all oil rigs owned/leased/operated by BP in the Gulf of Mexico." I received the following response:

> BP has submitted applications for permits to drill in accordance with the process prescribed by MMS officials, including submission of all applications, forms, and pertinent documentation required and/or requested by such officials. All applications submitted by BP in accordance with MMS regulations contained at 30 C.F.R. § 250 are reviewed and approved by MMS officials prior to the operation of all rigs leased and/or operated by BP in the Gulf of Mexico. Indeed, as required by MMS regulations (21 C.F.R. § 250.410), BP obtains written approval from the MMS District Manager before it begins drilling any well or performing similar operations as provided for in the regulations. BP is not aware of any MMS practice requiring an applicant to attach to its initial application proof of the strength of the blind shear rams on the blowout preventer (which is the subject of 30 C.F.R. § 250.416 (e)). In past cases when MMS officials have

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[1] TITLE 30 - MINERAL RESOURCES

CHAPTER II - MINERALS MANAGEMENT SERVICE, DEPARTMENT OF THE INTERIOR

SUBCHAPTER B - OFFSHORE

PART 250 - OIL AND GAS AND SULPHUR OPERATIONS IN THE OUTER CONTINENTAL SHELF

subpart d - OIL AND GAS DRILLING OPERATIONS

250.416 - What must I include in the diverter and BOP descriptions?

You must include in the diverter and BOP descriptions: (a) A description of the diverter system and its operating procedures; (b) A schematic drawing of the diverter system (plan and elevation views) that shows: (1) The size of the annular BOP installed in the diverter housing; (2) Spool outlet internal diameter(s); (3) Diverter-line lengths and diameters; burst strengths and radius of curvature at each turn; and (4) Valve type, size, working pressure rating, and location; (c) A description of the BOP system and system components, including pressure ratings of BOP equipment and proposed BOP test pressures; (d) A schematic drawing of the BOP system that shows the inside diameter of the BOP stack, number and type of preventers, location of choke and kill lines, and associated valves; and (e) Information that shows the blind-shear rams installed in the BOP stack (both surface and subsea stacks) are capable of shearing the drill pipe in the hole under maximum anticipated surface pressures.

[68 FR 8423, Feb. 20, 2003]

Read more: http://cfr.vlex.com/vid/250-416-include-diverter-bop-descriptions-19694826#ixzz0r1z3gzw3

raised any questions or additional requests relating to shear ram strength during the application review and approval process, BP has provided the additional information.

I find it very disturbing that BP asserts that the "practice" in oil drilling is to avoid current laws designed to keep our beaches safe. And I am outraged that MMS is looking the other way. At this time, I ask again that you provide documentation that BP is in compliance with MMS regulation 250.416 (e) for all oil rigs owned/leased/operated by BP in the Gulf of Mexico. Furthermore, I demand any communications between BP and any employees at MMS that may confirm that MMS allowed BP to violate the law, receive a waiver from applicable law and/or not comply with MMS regulation 250.416 (e).

Additionally, I previously requested all documents and communications regarding the amount and/or rate of the oil leaking from the Deepwater Horizon rig. When the spill first occurred, BP told the press on numerous occasions that the size of the spill was approximately 1,000 barrels per day. For several weeks after, BP then told the press that the spill was around 5,000 barrels per day. For instance, on May 22, *Bloomberg* reported that Doug Suttles, BP's chief operating officer for exploration and production, said "5,000 barrel-a-day rate is still the 'best estimate' of the amount coming from the well."[2]

However in an undated document provided to me by BP, BP wrote that after the sinking of the Deepwater Horizon, an estimate was made, in the light of the actual situation, as it was understood by BP at that time. "An absolute worst case flow rate of 60,000 barrels per day was calculated." BP also states in its memo that a more reasonable scenario is 40,000 barrels a day. [ATTACHMENT A] It is not clear to me when exactly BP calculated a worst case scenario of 60,000 barrels per day, but certainly Americans have a right to know that BP made these estimates, the date these estimates were determined and why they were not disclosed at that time.

Certainly I have not yet seen reports that BP calculated a worst case scenario of 60,000 barrels per day. In fact I have not seen any reports of 60,000 barrels a day until the U.S. Government released an estimate just a few short days ago.

Accordingly, I request the following.

1) Please explain when BP calculated a worst case scenario of 60,000 barrels. Please provide pertinent documents.

2) Confirm, in writing, that BP is to the best of its knowledge in compliance with current law, MMS regulation 250.416 (e), for all oil rigs owned/leased/operated by BP in the Gulf of Mexico.

[2] Jim Polson and Mark Chediak, "BP May Attempt to Plug Oil Leak With Mud Next Week (Update2)" Bloomberg, May 22, 2010.

3) Provide any correspondence between BP and any employees at MMS that may confirm that MMS allowed BP to receive a waiver from applicable law (MMS regulation 21 C.F.R. § 250.410(e)), need not comply with applicable law, remain in violation of applicable law or need not comply with all or part of any applicable law.

In cooperating with the Committee's review, no documents, records, data or information related to these matters shall be destroyed, modified, removed or otherwise made inaccessible to the Committee.

Please provide these documents to me no later than June 18, 2010. All documents responsive to this request should be sent electronically in PDF format to Brian_Downey@finance-rep.senate.gov. If you have any questions, please do not hesitate to contact Janet Drew or Paul Thacker of my staff at (202) 224-4515.

Sincerely,

Charles E. Grassley
Ranking Member

Attachment

ATTACHMENT A

Mississippi Canyon 252 #1
Flow Rate Calculations

Context
A 30 second video clip of hydrocarbons leaking from the broken end of the Deepwater Horizon drilling riser has been released to the public. Various "experts" are challenging Unified Command's best guess estimate of flow rate at the seabed based on this video clip. This note summarizes the various estimates that have been made within Unified Command.

Mass Balance
The mass balance calculation involves estimating, through visual inspection, the volume of oil on the surface of the water. Allowances are then made for natural dispersion and evaporation. Estimates of volumes skimmed, burned, and chemically dispersed then allow an estimate of the oil released at the seabed over the duration of the spill. The calculation is repeated each day weather permitting.

In the early days of the spill, the surface expression of the spill was relatively small. Overflights were able to provide fidelity with respect to the character of the oil on the surface. Three descriptors were used

- Sheen
- Dull
- Dark oil

There are two Standards for estimating the thickness of oil on water using visual descriptors.

- US-based ASTM Standard
- European-based Bonn Agreement

The visual descriptors are different in the two standards and the relationships to thickness are also different.

From April 27 through April 30 daily estimates of flow rate were made on the basis of visual description of the oil on the surface. Three estimates were made each day – low, best guess, and high – to allow for differences between the two standards, and uncertainties around the input parameters.

- Low end was always around 1,000 barrels per day
- Best guess was between 5,000 and 6,000 barrels per day
- High end varied from 12,000 to 14,000 barrels per day

The tables associated with these estimates are attached (Attachments 1-4). These estimates played an important part in Unified Command's decision to raise the estimate of flow rate from 1,000 to 5,000 barrels per day.

During the storm which began on May 1, and for several days after, no visual description of the spill was obtained. From May 8, daily outlines of the spill have been available based on a combination of satellite and aerial overflights. However, because of the size of the spill area, overflights have been unable to provide fidelity on the visual appearance of the oil within the spill area. During the five days in April for which fidelity was available, the ratios of dark oil to dull oil to sheen remained relatively constant at 2/10/88. These ratios have been applied to the total area of spill on May 17. Current estimates of volumes of oil skimmed, burned, and chemically dispersed were then applied to provide an updated range of possible flow rates as follows: 2,000 – 6,000 – 13,000 barrels per day (Attachment 5).

Note that all serious scientists recognize that there are huge uncertainties in estimating oil volumes from visual inspection. Oil thickness is by far the greatest uncertainty, with both sheen and darker oil thicknesses varying by orders of magnitude.

Maximum Discharge Calculation

Prior to drilling the MC 252 exploration well a maximum discharge estimate was provided as part of the permitting process. Predictions of reservoir thickness, quality, and pressure were convolved with the well design to develop a worse case scenario as follows.

- Optimistic assumptions for reservoir thickness, quality, pressure, and fluid properties.
- Total loss of control of well after drilling through reservoir in largest hole size allowed by the well design – 12 ¼".
- Totally uncontrolled flow from drilling riser at surface.

Using these assumptions, a maximum case discharge of 162,000 barrels per day was estimated.

After the sinking of the Deepwater Horizon, this estimate was reviewed in the light of the actual situation as it was understood at that time.

- Formation evaluation of the reservoir interval.
- 9 7/8" hole size in the reservoir
- 7" production tubing across the reservoir
- Flow to seabed through casing annulus
- Split 5 ½" drill pipe at BOP and flow out 6 5/8" drill pipe
- No restrictions in BOP, riser, or drill pipe (ie well head open to seabed – requires BOP to fall off well head)

An absolute worst case flow rate of 60,000 barrels per day was calculated. A more reasonable worst case scenario of 40,000 barrels per day recognizes the following.

- BOP is in place and may be partially activated.
- The riser and drill pipe is crushed and kinked.

- Restrictions provided by cement in the casing annulus, formation collapse, casing hangers, etc., are likely.

This analysis is summarized on Attachment 6.

A more sophisticated version of this calculation has been carried out as more has been learned about pressures at the top and bottom of the well head. This review calculates unconstrained flow rate through the casing as well as up the annulus. Absolute worst cases with wellhead and BOP removed, and no downhole restrictions, are as follows (Attachment 7).

- Annular flow – 55,000 barrels per day
- Casing flow – 100, 000 barrels per day

Fluid Velocity At Seabed

On April 26, NOAA scientists made an estimate of volume release rate at the seabed as follows.

- Oil leaking from a hole approximately 40 cm in diameter (Deepwater Horizon riser is 19.5"/49.5 cm ID, and is somewhat crimped at release point).
- By visual inspection the velocity of the material in the plume is between 7 and 30 cm per second.
- The plume contains roughly 50% oil droplets (together with gas bubbles and entrained seawater).

The NOAA estimate using these assumptions was roughly 5,000 barrels per day (Attachment 8).

Evidence Against Extreme Flow Rates At Seabed

A Professor from Purdue University has calculated a current flow rate at the seabed of 70,000 +/- 14,000 barrels per day. He bases his estimate on the velocity of fluid exiting the drilling riser on the seabed. His estimate is unlikely to allow for the following additional factors required to estimate the flow of oil.

- Drill pipe in riser reducing flow area
- Partial crimping of riser end reducing flow area
- Proportion of gas and entrained water exiting riser with the oil
- Volume reduction of oil as gas escapes en route from seabed to surface
- Flow rate not constant

Finally, there is absolutely no evidence of any floating material being entrained in the plume exiting the broken riser. In a report to the MMS on Oil Spill Containment, Remote Sensing and Tracking For Deepwater Blowouts, PCCI Marine and Environmental Engineering made the following statement.

> *"The blowout plume will make it difficult to approach the well with anything but very massive equipment pieces or ROVs. The operation of ROVs will be difficult around the blowout point. The jet zone will cause vast amounts*

of water to flow towards the well. The danger of having lighter equipment sucked into the flow is large. Many ROVs have been rendered useless by relatively minor blowout plumes"

ROV video shows neutrally buoyant material passing within inches of the plume without being sucked in. From this observation alone, the flow must be relatively minor.