Shell Exploration & Production Company

December 13, 2010

Department of the Interior
Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE)
381 Elden Street, MS–4024
Herndon, Virginia 20170–4817

Delivered to e-docket: BOEM-2010-0034

Attn: Regulations and Standards Branch (RSB)
Re: Increased Safety Measures for Energy Development on the Outer Continental Shelf, 1010–AD68

Dear Sir or Madam:

Shell Upstream Americas appreciates the opportunity to provide written comments on BOEMRE's already-implemented interim final rule, Oil and Gas and Sulfur Operations in the Outer Continental Shelf—Increased Safety Measures for Energy Development on the Outer Continental Shelf, 75 Fed. Reg. 63346 (Oct. 14, 2010) (hereinafter, the "IFR").

Shell recognizes that offshore oil and natural gas development must be conducted safely and in a manner that protects the environment. Our efforts in this area are widely recognized as being among the best in the industry. We are committed to working with the BOEMRE and our industry partners to develop an industry safety program that raises the bar on performance, and provides assurance to the public at large. Improving the safety of offshore oil and gas development requires that there are minimal barriers to applying advances in technology, and modifying well design and practices based on site specific data.

For these, and other reasons described in detail below, we recommend that BOEMRE revise 30 CFR §250.198(a)(3) in the IFR to remove new language which effectively changes more than 14,000 discretionary provisions in 80 API standards to be read as mandatory requirements. By converting "should" do to "must" do, BOEMRE has created a rule that renders the industry less safe, not more. We also strongly support the comments submitted by the American Petroleum Institute urging BOEMRE to review the questions and technical issues provided by industry and publish a response to these comments in the form of a final rule, and complete notice and comment rulemaking as required by Federal law for this and other future BOEMRE actions.

Mandatory compliance with API Recommend Practices creates safety concerns

The API recommended practices (RPs) include thousands of statements using the verb "should." The provision of 30 CFR §250.198(a)(3) converts all the "shoulds" to "musts", creating unintended constraining consequences on design and operations of exploration and production wells. Some of these unintended consequences create serious safety concerns; while others set up scenarios in which compliance is not possible.

We provide the following examples taken from API RP 65, Part 2, except where noted.

Example 1:

API RP 65, Part 2 recognizes that the properties of drilling muds must be thick and viscous enough to carry cuttings out of the hole so that the well bore is clean for running casing and cementing the casing; and that the mud should not be so thick that the cement cannot push the mud out of the way to create a good cement seal.

As written, the RP state that operators "should" have a low non-progressive gel strength mud, allowing for operator flexibility to use what is appropriate in a specific circumstance. With the IFR change from "should" have to "must" have, the risk of a well control event while running casing increases. Why? Because mandatory use of a low non-progressive gel strength mud increases the risk that the barite will drop out of the drilling mud. Barite sag can lead to poor hydrostatic control of the well. This is what happened at the Shell Ram Powell Tension Leg Platform in a high-angle well. The mud had a low non-progressive gel strength; the barite dropped out of the mud; and a well control event occurred.

Example 2:

API RP 65 Part 2, 4.8 pertains to wellbore preparation and conditioning and states that, "Every effort should be made to minimize the time between completion of the hole interval and cementing when a flow hazards exist." There are many circumstances in which it is safer to take a slower approach, rather than the fastest, on this activity. If the IFR converts the "should" to "must", there is a potential safety concern.

Example 3:

API RP 65, Part 2 includes a provision relating to lost circulation control. With the IFR changes from "should" to "must", then the standard becomes ambiguous and also limits the ability to use good judgment and best practices where warranted. The ambiguity is based on the conflict between the first and third sentences; the first sentence states it "must be eliminated" vs. the third says it is optional where "if this is not possible."

4.8.2.3 Lost Circulation Control: Before cementing casing or liner, lost-circulation should (must) be eliminated or significantly reduced. This is best done prior to cementing. If this is not possible, or if losses are anticipated during the primary cementing job, there are several options. The first is to maintain the downhole circulating pressures below the pressure at which losses occur by reducing the density of the cement slurry, minimizing the height of the cement column and limiting friction pressure during the cementing operation. Other options are to pump a plugging material as a spacer in front of the cement slurry and add lost circulation materials to the cement slurry itself. These techniques are usually used in combination.

There is an additional safety concern associated with this requirement when the circumstances require another approach. For example, by design, in a depleted deepwater well, we often cannot eliminate or significantly reduce lost circulation. We manage this risk by running a liner top packer or series of packers and swellables. A "swellable" is a packer whose sealing elements expand after some period of exposure to either oil or water, providing some improved sealing capability for safe isolation of pressures. This is then followed up with remedial squeeze operations. If the IFR requires that we must eliminate or significantly reduce lost circulation, this will significantly reduce the options for drilling deepwater wells in the Gulf of Mexico.

Example 4:

Mandatory compliance with API RP 53, 13.3.7 conflicts with recommendations from original equipment manufacturer (OEM) regarding the type of gas used for precharge of subsea accumulator bottles: This RP specifies what "should" be the type of gas used for accumulator bottles mounted to blow out preventers. This RP is based on the use of nitrogen. However, technology has advanced and some manufacturers are recommending helium for use in subsea BOP mounted accumulator bottles at certain water depths. If the IFR requires compliance with this RP, then the use of the advanced technology BOPs would not be possible.

Example 5:

Mandatory compliance with some API RPs is not possible. API RP 65, Part 2 includes several provisions where the original equipment manufacturer (OEM) "should" be consulted. The IFR makes this consultation mandatory.

7.11.6 and 18.11.6, Maintenance, Lubricants and Hydraulic Fluids: The original equipment manufacturer should be consulted for the proper lubricants and control fluids to be used on surface applications, a light mineral-based hydraulic fluid can be used.
17.11.7, Maintenance, Weld Repairs: The original equipment manufacturer should be consulted to verify proposed weld procedures.

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These standards are impossible to comply with when OEM is no longer in business.

Example 6:

Mandatory compliance with all API RPs is difficult because RPs are not written in clear unambiguous regulatory language. API RP 65, Part 2 has a provision that specifies what the minimum hole size "should" be. Changing this to mandate what the minimum hole size "must be", sets up an internal conflict within the provision. Why? Because the provision also allows for some flexibility in hole size.

4.2 Hole Geometry: Past studies have indicated that 0.5 in. to 0.75 in. are generally recommended minimum annular clearances in a uniformly concentric annulus (i.e. minimum hole size should be 1.0 in. to 1.5 in. greater than pipe OD). However, modern fluid systems and fluid mechanics modeling allow more precise matching between hole geometry and fluid properties.

The first sentence now requires the spread of 1.0 to 1.5 inches between hole size and casing, however the second sentence indicates that modern fluids and modeling allows for other geometries. Mandating minimum hole size will eliminate the use of expandable casing, technology where the casing is expanded after the cement job. Mandating hole sizes could eliminate the use of appropriate technologies in some situations, for example in expandable clad or a swellables application, small clearance is desirable to enable clad to get to the open hole wall and the swellable to swell to the open hole properly. Clearly in these cases converting a consideration to a universal mandatory requirement has an unintended consequence.

Example 7:

4.8.4 Conditioning after casing is landed: The drilling fluid should be conditioned until equilibrium is achieved.

This requirement is not always possible to meet in a situation where circulation is not achieved once the casing is landed. This is not uncommon in Gulf of Mexico wells. Extended circulation to try to achieve equilibrium and/or remedy lost circulation can result in worsening the lost circulation (due to injection or cooling of the rock) causing a very low mud reserve situation. Exposure to well control risk is now

increased. The well can also experienced ballooning in which the large volume of injected mud can flow back into the wellbore, and this may contaminate the cement job or flush lighter fluids into the wellbore. Every situation is unique and should be appraised accordingly as to the safest path forward.

Again, we appreciate the opportunity to provide comments on the interim final rule, we urge BOEMRE to revise the regulatory provisions that we have addressed above in a final rule.

Sincerely,

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