



Request for Correction OCS Report BSEE Panel 2015-02

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BSEE Investigated a Well Control Incident that occurred on the outer continental shelf in South Timbalier Block 220 on July 23, 2013. OCS Report BSEE Panel 2015-02 resulted from that investigation and is available at <https://www.bsee.gov/sites/bsee.gov/files/panel-investigation/incident-and-investigations/st-220-panel-report9-8-2015.pdf>

While the report does correctly describes a method to estimate the effect of temperature on brine density, it incorrectly describes how to use this method to estimate the effect of temperature on equivalent downhole mud weight. As a result of this fundamentally flawed approach incorrect and inaccurate conclusions about thermal effects initiating the incident are drawn in the report.

Attached is a paper I wrote describing how to correctly estimate thermal effects on equivalent downhole mud weight for the specific case of the subject well control incident. It should prove useful in expediting a review of my request for correction.

The thermal correction error made is understandable and many physics and engineering students would likely make it also. The report needs to be corrected not only because some of its conclusions are wrong because of the error but also because it may perpetuate an inaccurate method for estimating downhole pressures.

It is my opinion that the report also miss applies examples of long term erosion in production equipment to the very short time scales that the bop was subjected to less severe erosion conditions in the specific case of the subject blowout. Unlike the thermal correction on effective density error which is clear and can be verified by applying well establish principles of physics, determining the significant of erosion is considerably more subjective.

To summarize-

The following conclusions are incorrect to a high degree of certainty because of errors made in the analysis described in the report:

Page 79 of the report in the conclusions section under the heading of "Cause of Initial Loss of Control Downhole"

"1. The loss of control downhole was caused by the failure to use a completion fluid density sufficient to over balance the reservoir pressure after it was subjected to down-hole heating."

"2. During operations, reduction in completion fluid density to limit losses was undertaken without a new fluid density calculation that considered the effect of temperature on clear brine density."

The conclusion on page 79 under the heading "Cause of Failure to Control the Well" that reads:

"5. The initiation of the emergency procedure sequence to activate BOP elements was delayed because of the Rig-floor Crew's failure to recognize the loss of well control in an early stage. Activation of the rams was delayed"

until flowing pressure was so high that cavitation, sand cutting, and damage to rams, BOP control lines, and hydraulic circuits was likely to occur while the rams closed. This probably would have prevented the BOPs from creating a permanent seal under the circumstances”

Is mostly correct and sound. The part of that conclusion that reads :

“Activation of the rams was delayed until flowing pressure was so high that cavitation, sand cutting, and damage to rams, BOP control lines, and hydraulic circuits was likely to occur while the rams closed. This probably would have prevented the BOPs from creating a permanent seal under the circumstances”

Is based a very subjective determination and is in my considered opinion unlikely. The evidence in the report shows that at least one set of pipe rams sealed, and the blind sear rams were likely activated close in time to the rams that did seal. The severe erosion damage described in the conclusion took hours perhaps even a day or two to develop.

Please let me know if I can be of assistance in this matter.

Darryl Bourgoyne



Thermal Effects July 2013 Blowout.pdf

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