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Documents Show Early Worries About Safety of Rig

By IAN URBINA

WASHINGTON — Internal documents from BP show that there were serious problems and safety concerns with the Deepwater Horizon rig far earlier than those the company described to Congress last week.

The problems involved the well casing and the blowout preventer, which are considered critical pieces in the chain of events that led to the disaster on the rig.

The documents show that in March, after several weeks of problems on the rig, BP was struggling with a loss of “well control.” And as far back as 11 months ago, it was concerned about the well casing and the blowout preventer.

On June 22, for example, BP engineers expressed concerns that the metal casing the company wanted to use might collapse under high pressure.

“This would certainly be a worst-case scenario,” Mark E. Hafle, a senior drilling engineer at BP, warned in an internal report. “However, I have seen it happen so know it can occur.”

The company went ahead with the casing, but only after getting special permission from BP colleagues because it violated the company’s safety policies and design standards. The internal reports do not explain why the company allowed for an exception. BP [documents released](#) last week to The Times revealed that company officials knew the casing was the riskier of two options.

Though his report indicates that the company was aware of certain risks and that it made the exception, Mr. Hafle, testifying before a panel on Friday in Louisiana about the cause of the rig disaster, rejected the notion that the company had taken risks.

“Nobody believed there was going to be a safety issue,” Mr. Hafle told a six-member panel of

Coast Guard and [Minerals Management Service](#) officials.

“All the risks had been addressed, all the concerns had been addressed, and we had a model that suggested if executed properly we would have a successful job,” he said.

Mr. Hafle, asked for comment by a reporter after his testimony Friday about the internal report, declined to answer questions.

BP’s concerns about the casing did not go away after Mr. Hafle’s 2009 report.

In April of this year, BP engineers concluded that the casing was “unlikely to be a successful cement job,” according to a document, referring to how the casing would be sealed to prevent gases from escaping up the well.

The document also says that the plan for casing the well is “unable to fulfill M.M.S. regulations,” referring to the Minerals Management Service.

A second version of the same document says “It is possible to obtain a successful cement job” and “It is possible to fulfill M.M.S. regulations.”

Andrew Gowers, a BP spokesman, said the second document was produced after further testing had been done.

On Tuesday Congress released a [memorandum](#) with preliminary findings from BP’s internal investigation, which indicated that there were warning signs immediately before the explosion on April 20, including equipment readings suggesting that gas was bubbling into the well, a potential sign of an impending blowout.

A parade of witnesses at hearings last week told about bad decisions and cut corners in the days and hours before the explosion of the rig, but BP’s internal documents provide a clearer picture of when company and federal officials saw problems emerging.

In addition to focusing on the casing, investigators are also focusing on the blowout preventer, a fail-safe device that was supposed to slice through a drill pipe in a last-ditch effort to close off the well when the disaster struck. The blowout preventer did not work, which is one of the reasons [oil](#) has continued to spill into the gulf, though the reason it failed remains unclear.

Federal drilling records and well reports obtained through the Freedom of Information Act and BP’s internal documents, including more than 50,000 pages of company e-mail messages, inspection reports, engineering studies and other company records obtained by The Times from Congressional investigators, shed new light on the extent and timing of problems with the

blowout preventer and the casing long before the explosion.

Kendra Barkoff, a spokeswoman for the [Interior Department](#), declined to answer questions about the casings, the blowout preventer and regulators' oversight of the rig because those matters are part of a continuing investigation.

The documents show that in March, after problems on the rig that included drilling mud falling into the formation, sudden gas releases known as "kicks" and a pipe falling into the well, BP officials informed federal regulators that they were struggling with a loss of "well control."

On at least three occasions, BP records indicate, the blowout preventer was leaking fluid, which the manufacturer of the device has said limits its ability to operate properly.

"The most important thing at a time like this is to stop everything and get the operation under control," said Greg McCormack, director of the Petroleum Extension Service at the [University of Texas](#), Austin, offering his assessment about the documents.

He added that he was surprised that regulators and company officials did not commence a review of whether drilling should continue after the well was brought under control.

After informing regulators of their struggles, company officials asked for permission to delay their federally mandated test of the blowout preventer, which is supposed to occur every two weeks, until the problems were resolved, BP documents say.

At first, the minerals agency declined.

"Sorry, we cannot grant a departure on the B.O.P. test further than when you get the well under control," wrote Frank Patton, a minerals agency official. But BP officials pressed harder, citing "major concerns" about doing the test the next day. And by 10:58 p.m., David Trocquet, another M.M.S. official, acquiesced.

"After further consideration," Mr. Trocquet wrote, "an extension is approved to delay the B.O.P. test until the lower cement plug is set."

When the blowout preventer was eventually tested again, it was tested at a lower pressure — 6,500 pounds per square inch — than the 10,000-pounds-per-square-inch tests used on the device before the delay. It tested at this lower pressure until the explosion.

A review of Minerals Management Service's data of all B.O.P. tests done in deep water in the Gulf of Mexico for five years shows B.O.P. tests rarely dropped so sharply, and, in general, either continued at the same threshold or were done at increasing levels.

The manufacturer of the blowout preventer, **Cameron**, declined to say what the appropriate testing pressure was for the device.

In an e-mail message, Mr. Gowers of BP wrote that until their investigation was complete, it was premature to answer questions about the casings or the blowout preventer.

Even though the documents asking regulators about testing the blowout preventer are from BP, Mr. Gowers said that any questions regarding the device should be directed to **Transocean**, which owns the rig and, he said, was responsible for maintenance and testing of the device. Transocean officials declined to comment.

Bob Sherrill, an expert on blowout preventers and the owner of Blackwater Subsea, an engineering consulting firm, said the conditions on the rig in February and March and the language used by the operator referring to a loss of well control “sounds like they were facing a blowout scenario.”

Mr. Sherrill said federal regulators made the right call in delaying the blowout test, because doing a test before the well is stable risks gas kicks. But once the well was stable, he added, it would have made sense for regulators to investigate the problems further.

In April, the month the rig exploded, workers encountered obstructions in the well. Most of the problems were conveyed to federal regulators, according to federal records. Many of the incidents required that BP get a permit for a new tactic for dealing with the problem.

One of the final indications of such problems was an April 15 request for a permit to revise its plan to deal with a blockage, according to federal documents obtained from Congress by the Center for Biological Diversity, an environmental advocacy group.

In the documents, company officials apologized to federal regulators for not having mentioned the type of casing they were using earlier, adding that they had “inadvertently” failed to include it. In the permit request, they did not disclose BP’s own internal concerns about the design of the casing.

Less than 10 minutes after the request was submitted, federal regulators approved the permit.

Robbie Brown contributed reporting from Kenner, La., and Andy Lehren from New York.