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# BP Used Riskier Method to Seal Oil Well Before Blast

By **IAN URBINA**

WASHINGTON — Several days before the explosion on the Deepwater Horizon oil rig, BP officials chose, partly for financial reasons, to use a type of casing for the well that the company knew was the riskier of two options, according to a BP document.

The concern with the method BP chose, the document said, was that if the cement around the casing pipe did not seal properly, gases could leak all the way to the wellhead, where only a single seal would serve as a barrier.

Using a different type of casing would have provided two barriers, according to the document, which was provided to The New York Times by a Congressional investigator.

Workers from the rig and company officials have said that hours before the explosion, gases were leaking through the cement, which had been set in place by the oil services contractor, [Halliburton](#). Investigators have said these leaks were the likely cause of the explosion.

The approach taken by the company was described as the “best economic case” in the BP document. However, it also carried risks beyond the potential gas leaks, including the possibility that more work would be needed or that there would be delays, the document said.

BP’s decision was “without a doubt a riskier way to go,” said Greg McCormack, director of the [Petroleum Extension Service](#) at the University of Texas at Austin. Several other engineers agreed with Mr. McCormack’s assessment of the BP document.

Andrew Gowers, a spokesman for BP, said that there was no industry standard for the casing to be used in deepwater wells and that the approach by the Deepwater Horizon had not been unusual. “BP engineers evaluate various factors for each well to determine the most appropriate casing strategy,” he said.

The role of financial and time pressures in the rig blast is one focus of a series of hearings by the Coast Guard and the [Minerals Management Service](#) that began Wednesday in Kenner, just outside New Orleans.

Douglas H. Brown, the chief mechanic for the Deepwater Horizon, testified Wednesday that he witnessed a “skirmish” on the rig between a BP well site leader and crew members employed by [Transocean](#), the rig’s owner, the morning of the blast.

Mr. Brown said the disagreement followed BP’s decision to replace heavy drilling fluid with lighter saltwater before the well was sealed with a final cement plug.

“Well, this is how it’s going to be,” the BP official said, according to Mr. Brown.

Mr. Gowers declined to answer questions about workers’ accusations or about whether cost may have factored into the company’s decision to use the casing system it chose for the Deepwater Horizon.

BP executives will probably face tough questioning about cost-cutting measures on Thursday when they testify before the House Committee on Natural Resources. As more details come to light about the events that led to the explosion, investigators are trying to determine which decisions and incidents — or combination of them — may have led to the accident, which killed 11 workers.

For example, Representative Nick J. Rahall II, Democrat of West Virginia and the chairman of the committee, said BP executives would face questions about why they let workers from [Schlumberger](#), a drilling-services contractor, leave the morning of the accident without conducting a special test on the quality of the cement work.

Engineers have described these tests, called cement bond logs, as an important tool for ensuring cement integrity.

The decision about the casings will also come up during the hearings.

Professor McCormack said that while the type of casing that BP chose to use was more expensive in the short term, it was ultimately the more cost-effective and versatile alternative because it would have allowed the company to more easily drill deeper in the same hole if they decide to do so later.

But, the BP records explain, the casing chosen by the company may also cause problems if drilling mud or cement is lost or pushed away from the well into porous rocks as it is pumped.

Federal and company records indicate that that is just what happened, on more than one occasion. The rig lost all of its drilling mud in an incident in March, and in the days immediately before the explosion, records show. The well experienced several other instances of minor losses of drilling fluid and gas kicks, according to interviews with workers from the rig.

The April 20 disagreement between the BP well site leader and Transocean officials is also a growing focus of the investigation.

At a briefing in Washington on Wednesday, investigators laid out a chain of events, beginning with an operational error, that appear to have led to the accident.

The findings are preliminary, and come from BP, which owns the lease on the well and has pointed fingers at other companies for the problems on the rig, including Transocean.

The BP officials said that rig workers apparently had not pumped in enough water to fully replace the buffer liquid between the water and the mud, which stayed in the blowout preventer, the stack of safety valves at the wellhead.

This thick liquid, which is about one-third solid material, may have clogged the pipe that was used for crucial “negative pressure” tests to determine whether the well was properly sealed. The result was a pressure reading of zero (because the pipe was plugged, not because there was no pressure in the well) and the workers apparently misinterpreted that result as indicating a successful test.

Rig workers declared they were “satisfied” with the tests and started to replace drilling mud in the pipe to the seabed with water. About two hours later, the blowout and explosion occurred.

Evidence began emerging Wednesday that BP officials may have had an incentive to proceed quickly.

A member of the federal panel investigating the cause of the blast said that before the explosion, the company had hoped to use the Deepwater Horizon to drill another well by early March, but was behind schedule.

BP applied to use the Deepwater rig to drill in another oil field by March 8, said Jason Mathews, a petroleum engineer for the Minerals Management Service.

Based on an estimate of \$500,000 per day to drill on the site, the delay of 43 days had cost BP more than \$21 million by the day of the explosion on April 20, Mr. Mathews estimated.

A Transocean official — Adrian Rose, the company’s health, safety and environmental manager

— confirmed that BP leased the rig for \$533,000 per day. He could not confirm where the Deepwater Horizon was planning to go next, but he said it was going to undertake another drill, probably for BP.

*Reporting was contributed by Henry Fountain and Tom Zeller Jr. from New York, Robbie Brown from Kenner, La., and Matthew L. Wald from Washington.*