

Boots & Coots Regains Control of Platform After Five-Well Blowout

TEAM MAINTAINS STABILITY OF 30-WELL PLATFORM, CONTAINS BLOWOUTS, AND SAFELY CAPS WELLS

CASPIAN SEA

CHALLENGES

- » Contain five-well blowout, along with several other leaking wells
- » Maintain stability of 30-well platform in difficult offshore environment

SOLUTIONS

- » Provide risk analysis and detailed source control response plan
- » Install continuous water deluge system to reduce heat damage
- » Remove debris and perform jet cutting operations
- » Complete well capping and kill operations

RESULTS

- » All the blowouts were contained and the platform was secured safely.
- » The operation was completed in a relatively short period of time without drilling any relief well.

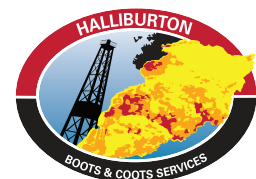


Fire erupts on an offshore production platform in the Caspian Sea, where an explosion in a gas pipeline caused a fire that triggered multiple wells to develop leaks and blowouts.

OVERVIEW

In the Caspian Sea, storm damage to a gas transmission pipeline on a 30-well production platform caused an explosion; the resulting fire damaged five wellheads (four producing gas and one producing oil), which triggered blowouts as escaping gases ignited. Consequently, the heat from the blowouts damaged several adjacent wells, causing additional leaks to develop. The operator contacted Boots & Coots, which responded immediately, mobilizing well control experts to lead the efforts to safely contain the situation.

The Boots & Coots well control team carefully inspected the platform. A comprehensive risk analysis was performed to evaluate the condition of the wells, identify existing hazards, and construct detailed procedures and protocols for the operation. Steel firewalls separated the well bays from the production facility and living quarters, and, although the integrity of the firewalls had been compromised by the explosion, they still provided sufficient heat protection. Due to heat damage, the top section of the well bay had collapsed, causing further damage to the wellheads and threatening the stability of the platform.



The source control operation was completed in 64 days, 25 of which were nonproductive due to poor weather conditions.

CHALLENGES

The main concern was to maintain the stability of the platform, which was rapidly deteriorating due to prolonged heat exposure. Fortunately, some of the wells were producing via a gas lift process and, after the initial explosion, the operation could be shut down, extinguishing the fires on these wells. Now the fires were confined to one section of the platform with wells that could not be shut in.

SOLUTIONS

With the protocols developed, the well control team could begin the source control operation consisting of the following steps: ensure a reliable and continuous deluge system, complete debris removal, commence jet cutting operations, and complete the well capping and kill operations. One of the primary concerns was the protection of the platform to prevent it from collapsing by containing the spread of fire to other wells.

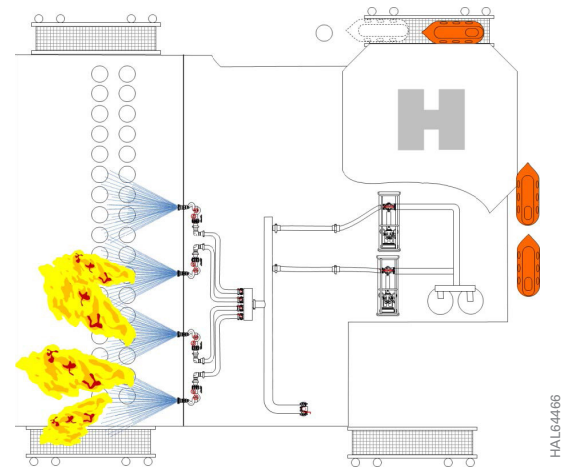
Firefighting boats were mobilized to spray water onto the platform to reduce heat damage to the platform and neighboring wellheads. In conjunction, a water deluge system was installed on the platform to provide a continuous water curtain. Two submersible pumps provided a reliable feed to the firefighting pumps that would not be affected by adverse weather conditions.

Debris removal provided safer access routes to the wellheads. The operation involved removing damaged parts and building temporary working platforms from which to reach more inaccessible areas. Once safe access had been established to the blowout wells, three wellheads were cut using an abrasive jet cutter that allowed the plumes to be directed vertically, thus eliminating crossfire from leak points on the wellheads, and significantly reducing the risk to the platform.

While debris removal was underway, the operator’s well control team assisted Boots & Coots by pumping kill fluid into wells in the unaffected area and, in so doing, secured these wells. Several adjacent wellheads showed various degrees of damage and, as soon as access to the wellheads was gained, they were replaced, eliminating the risk of unexpected flow or the risk of the well catching fire.

RESULTS

The deluge system proved to be a very effective and reliable method of significantly reducing heat damage. The source control operation was completed in 64 days, 25 of which were nonproductive due to poor weather conditions. The job was performed safely without any injuries.



A plan view of the platform illustrating the heat damage mitigation; a reliable deluge system provided an around-the-clock water curtain, regardless of weather conditions.



The Boots & Coots well control team poses in the damaged well bay after the wells had been safely capped and all leaks were stopped.

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