

CASE STUDY

PRODUCTION SHUTDOWN AVOIDED DURING OFFSHORE FIRE SAFETY SYSTEM MAINTENANCE //



A MAJOR OIL AND GAS PLATFORM, PRODUCING CLOSE TO 100,000 BOE DAILY, REPORTED LEAKS IN THE COOLING SYSTEMS OF ALL FOUR DIESEL-POWERED FIREWATER PUMPS.

WITHOUT ISOLATION VALVES IN PLACE, THE ISOLATION OF EACH PUMP FOR THIS CRITICAL MAINTENANCE WAS DUE TO RESULT IN PRODUCTION SHUTDOWN. THROUGH DEPLOYMENT OF IK-GROUP'S AOGV, SHUTDOWN WAS AVOIDED, RESULTING IN AN OPERATOR SAVING OF \$80M USD.

THE SITUATION

The platform was equipped with a total of four firewater pumps, constantly on standby in case of fire, and ready to be deployed within seconds. As all were reported to be leaking, a 100% fire system redundancy created significant safety issues upon the platform.

Each pump's cooling system consisted of a heat exchanger between its internal cooling liquid and sea water. The outlet of the sea water system that cools the heat exchanger required back pressure to mitigate damage to the pumps during start-up, achieved by connecting each pump to a common manifold and a 6 meter, 16" vertical upward pipe before the outlet.

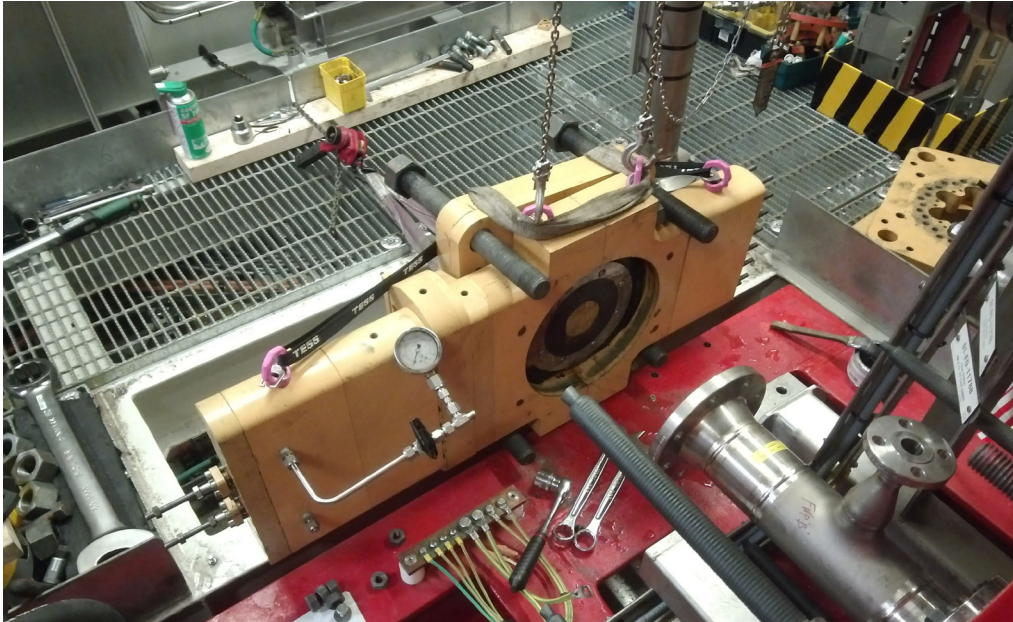
As valves has not been mounted on each pump outlet spool, the leakages could not be addressed without a full production shutdown.

CHALLENGES

- No valves present between the common pressurised manifold and the leaking equipment.
- Unable to use other types of isolations such as plugging or freezing methods.
- Avoid shutting down production.
- Perform a safe operation on the essential firewater system.

RESULTS

- Zero non-production time.
- Full scope completed ahead of schedule.
- \$46M USD worth of saved production.
- No LTIs.



WHAT WE DID - THE AOGV

The IK Group's patented AOGV is a mechanical isolation tool which can set and retract a blind spade in a pair of flanges on a pressurised process system. The blind spade or a combination of several spades in different locations can facilitate the replacement of valves and pumps, isolating a vessel temporarily for safe entry and bringing it back on-line whilst the main process is kept in continuous operation.

The AOGV had been previously deployed on this platform. Aware of its capabilities and benefits, the platform crew planned the operation with a specific AOGV in mind.

TESTING, PLANNING & PREPARING

IK-Group conducted an on-site survey, providing our specialist engineers with the data to ensure a perfect fit between the AOGV and flanges, with option for adjustment if required. Flange obstacles also required us to design and manufacture a bespoke gasket receiver housing.

On each pump a 2" class 150 inlet and 4" class 150 outlet required isolation. To facilitate future maintenance, new spools with valves were mounted between the motor and the common manifold. All required equipment was prefabricated - ready to be mounted as soon as the AOGV isolations were set.

SITE OPERATION

Following a Safe Job Analysis and work permit issue, the AOGV blind spades were set on the downstream side on both the 2" inlet and 4" outlets, between the common manifold and the heat exchanger. The threaded blind spades were bolted to the flanges towards the manifold. After setting the spades, the AOGVs were removed, the cooling water inlet line on the motor was closed and the system drained. As soon as the system was drained, new spools with valves were inserted, the AOGV re-assembled and the blind spades removed.

This process was repeated for all four pumps, resulting in a total of eight AOGV isolations.

RESULTS

-  • **Flexible: Successfully addressed significant change of scope.**
-  • **Productive: Zero non-production time.**
-  • **Safe: No LTIs.**
-  • **Efficient: Estimated 46million USD saved.**