



# Safety Alert

From the International Association of Drilling Contractors

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ALERT 99-38

## PRESSURE TRAPPED IN SUB SEA BOP STACK

### DDV SOLENOID HOUSING

#### WHAT HAPPENED:

While testing the subsea BOP stack, the shear accumulator did not charge on the blue pod. A faulty DDV was suspected. The top of the DDV, which houses the solenoid, was cocked. Four of the six bolts were sheared. When the last two bolts were removed to investigate, the top of the DDV blew off into the bulkhead.

#### WHAT CAUSED IT:

Hydrostatic pressure forced sea water past a failed seal and this built up pressure inside the DDV valve solenoid assembly.

#### CORRECTIVE ACTIONS:

The following items should be brought to the attention of all personnel who may work on these systems.

1. When inspecting or repairing DDV valve solenoids, all subsea personnel must be aware that pressure may be trapped under the solenoid cap even if the unit has not failed.
2. The cap on the solenoid is held by 6 small cap screws. The internals of the solenoid are sealed off from the outside by two O-rings fitted on the cap.
3. Hydrostatic pressure will force the cap down on the housing and the 6 screws have no function in ensuring the integrity of the solenoid. The solenoids are pressure tested before use.
4. The solenoid has successfully been tested by the manufacturer with the internals exposed to water, therefore the fact that the solenoid is working is no guarantee that there is no water ingress (and possible pressure build up inside).
5. Any dismantling of the cap on top of the solenoid housing can be potentially dangerous.
6. The manufacturer is working on a modification to the bolting arrangement, and/or a design for a safety clamp that will allow safe dismantling of the solenoid.
7. Personnel must also be aware and take care as there are other areas of the sub sea BOP assemblies that may trap hydrostatic pressure.

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**The Corrective Actions stated in this alert are one company's attempts to address the incident, and do not necessarily reflect the position of IADC or the IADC HSE Committee.**

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