



Safety Alert

From the International Association of Drilling Contractors

ALERT 12 – 23

EXPLODING BALL VALVE RESULTS IN NEAR MISS

WHAT HAPPENED:

The rig welder was instructed to cut a mild steel hose fitting from a 4 inch (10cm) brass ball valve. Working at his bench with a hot work permit, the welder used an oxy-acetylene torch to cut the mild steel fitting close to the threaded end of the valve. Having finished the job the welder turned to put his torch away. At this time an extremely loud explosion took place and a short threaded section of the valve closest to the cut fitting blew across the lease, hit the ground, making a small crater approximately 26 feet (8m) away from the bench. The threaded section bounced and flew another 39 feet (12m), hitting and denting a steel cargo container.



WHAT CAUSED IT:

- The valve had not been taken apart before the steel fitting was cut from the valve. As the valve was in the completely open position, the valve seal ensured that the void space between the ball and the housing was completely enclosed.
- This valve had been in service in a water line; therefore, it is presumed that fluid inside the sealed void space between the housing and the ball was turned into steam by the heat of the cutting torch.
- The applied heat also allowed the valve body to expand. The built up pressure of the steam, coupled with the expansion of the valve body, resulted in the explosion that sent the smaller part of the valve across the lease.

CORRECTIVE ACTIONS: To address this incident, this company did the following:

- Instructed rig welders that all valves must be disassembled prior to hot work.

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.

This material is presented for information purposes only. Managers & Supervisors should evaluate this information to determine if it can be applied to their own situations and practices

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