Gas Release During Removal of Gas Metering Probe

SAFETY ALERT

Description of incident:

During a fault-finding inspection, 3 Pressure Safety Valves (PSVs) in Gas Analyser Cabinets were identified without ID Tags. Due to the absence of ID tags and lack of traceable historical information, it was suspected that they had likely never been subject to the required maintenance.

A plan was put in place to apply a mechanical isolation to remove the PSV from the CO2 analyser cabinet, as it had failed and required recertification.

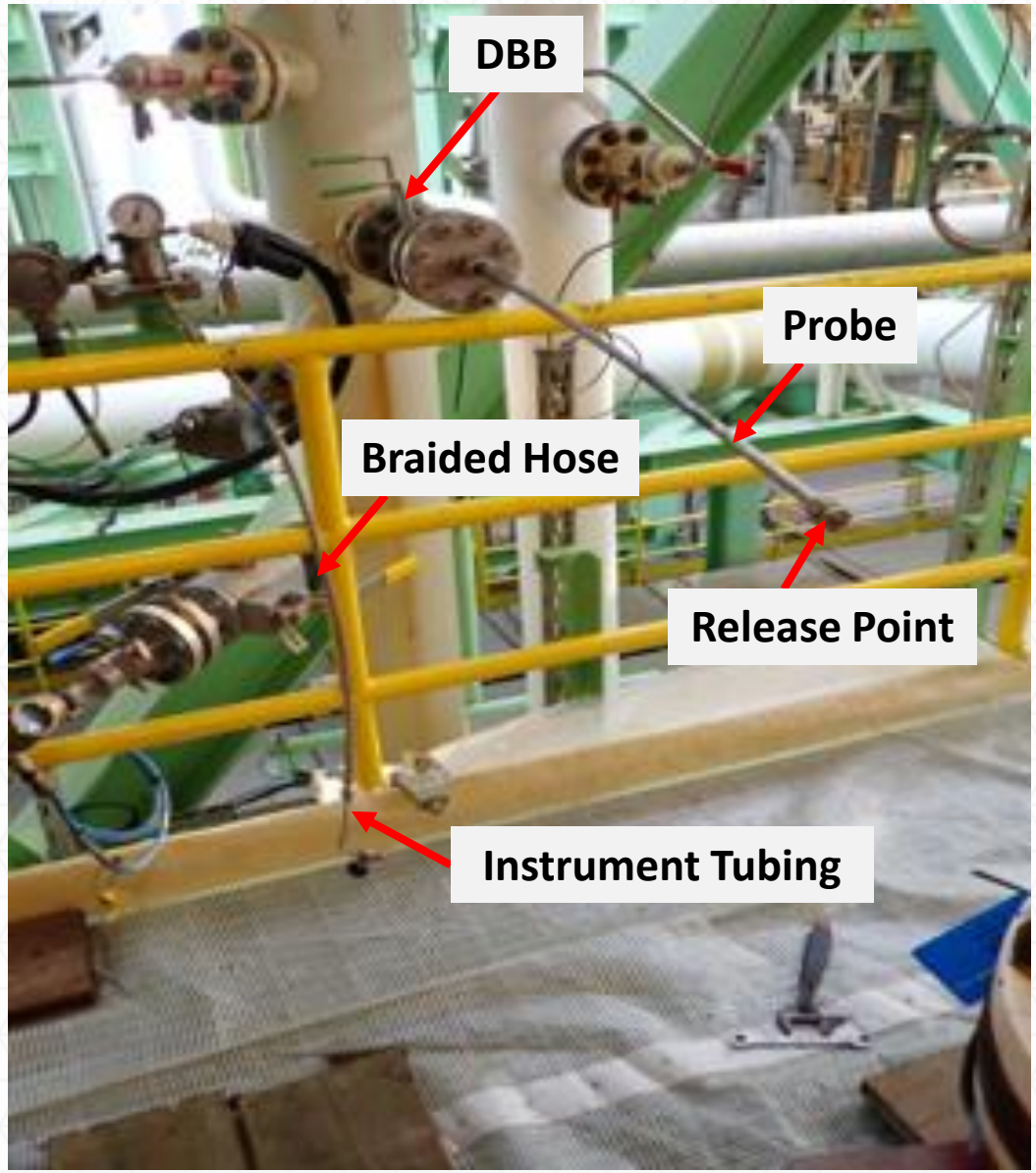
The isolation standard required a Double Block and Bleed (DBB) isolation to be applied. To achieve this, a retractable type sample probe was required to be retracted from the gas line to its stop point to allow closure of the sample probe DBB valve.

Prior to retraction, the needle valve between the sample probe and the braided hose was shut. The locking ring nut on the DBB outlet was then slightly slackened to allow retraction of the probe.

At this point, the probe was ejected at high velocity from the DBB valve body only stopping as it reached its internal stopping point. As it ejected, the probe instrument tubing connection sheared, resulting in a gas release at high pressure, approx. 66 barg.

The DBB valve could not be closed to stop the gas release. The work party informed the CCR, and an ESD 1.1 was manually activated. No fixed gas detection was activated due to high crosswind conditions (31 knots) and the open module design facilitating rapid gas dispersion. The calculated release quantity was 31.4 kg.

Upon review, the maximum insertion/retraction pressure of this probe design was found to be 17 barg.



Good practice

- Risk assess the hazards prior to retracting probes.
- Review documentation and equipment to confirm operating limits prior to retracting probes.
- Create a work method statement highlighting controls and the sequence of steps required for the safe retraction of probes.