

# SAFETY ALERT



**Safety Alert No.323**  
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## Subsea Flowline Failure Causes Pollution Incident and Delayed Detection Leads to Larger Spill Volume



On May 12, 2016, a subsea system experienced a significant release of production fluids into the environment. The subject well and subsea equipment were located in approximately 3,500 feet of water, and the production was tied back through a manifold to a host facility 6.8 miles away via a 6-inch flow line.

The subsea monitoring system displayed many alarms at the onset of this pollution event, including subsea tree acoustic sand detector high alarms, subsea tree pressure transmitter low alarms, and well drawdown high alarms. However, the Pressure Safety Low sensor located on the host facility upstream of the boarding shutdown valve remained within its operating limits.

At the time of the incident, control room personnel attributed the alarms to a slugging or plugging event, which had previously triggered alarms. This assumption allowed the leak to persist for several hours. The well was subsequently shut-in, but not before a subsea leak from a segment of the flow line occurred, releasing production fluids. Other affiliated subsea tie-backs to the facility were shut-in as a cautionary measure.

The exact causes of the failure of the flow line are now under investigation. Because the factors involved in this failure are common to many subsea systems in the U.S. Gulf of Mexico, the BSEE recommends all operators review their emergency shut-in procedures and requirements.

### **Therefore, BSEE recommends that operators:**

- Ensure that all alarms are investigated thoroughly and assume that they are indicating an issue requiring a response until proven otherwise and documented by the appropriate responsible party;
- Review the protocol and escalation triggers for leak detection in subsea fields, including less-than-catastrophic incidents;

- Ensure operating personnel properly monitor all data, including pressure, temperature, rate of change, sand probe, etc., that could be an indicator of a leak or loss of control;
- Ensure operating personnel are aware of the possible failure modes in subsea systems and that they investigate potential leak scenarios earlier in the troubleshooting of anomalies;
- Ensure that the chain-of-command for facility management is clearly delineated and that communication can be established immediately in the event of a subsea issue;
- When necessary use a Remotely Operated Vehicle (ROV) to check the integrity of a subsea system when operating anomalies are observed;
- Ensure operating personnel take special precautions to monitor activities during higher-risk events, such as startups and well interventions;
- Conduct a transient analysis for a small volume leak on subsea infrastructure.

A BSEE investigation into this incident is ongoing. When findings and conclusions about the causes are more fully delineated, an update to this Safety Alert will be released with additional details. The update will include additional recommendations to the operators to prevent reoccurrence.

A **Safety Alert** is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding an accident or a near miss. It also contains recommendations that should help prevent the recurrence of such an incident on the Outer Continental Shelf.