

OTC 22705

Lessons Learned From Statfjord A Oil Spill and Actions Taken to Reduce Spill Risk During Offloading Operations

Abstract

December 12, 2007, several incidents and miscommunication during an offloading operation from the GBS Statfjord A to a shuttle tanker led to a 4400 m³ large oil spill.

The paper will present what caused the oil spill and lessons learned. The main focus in the paper will be on actions taken to reduce the risk for future oil spills during offloading including hardware upgrade, monitoring, improved offloading procedures and inspection and maintenance programs.

A central element is the FMEA test program that was developed to ensure that the entire cargo line on the shuttle tankers was working as intended in the design philosophy. All shuttle tankers used by Statoil in the North Sea has now gone through the FMEA test program and an extensive upgrade program was required to meet the design requirements. Statoil believe the risk of oil spills during our offloading operations is significantly reduced after this work program was carried out.

The lessons learned from this incident is relevant for all offloading operations, and the actions taken to reduce spill risk can also be adopted by other operators in their offloading operations

Nomenclature

APL Advanced Production and Loading

BLS Bow loading System

FMEA Failure Mode and Effect Analysis

GBS Gravity Based Structure

OLS Offshore Loading System

PSA Petroleum Safety Authorities (in Norway)

Background

The Statfjord field is one of the oldest and largest oil fields in the North Sea. It is developed with 3 large Gravity Based Structures (GBS), see Figure 1, and production started from Statfjord A in 1979. The maximum daily production was 850 000 bbls in 1987, and the crude oil was originally exported through 3 articulated loading towers located 2-3 km from the platforms. The water depth at Statfjord is around 150 m.
