

A large white cylindrical tank with a yellow metal railing spiraling around it. The Suncor logo is painted on the tank in large blue letters, with a yellow and red arc above the 'O'. The background is a clear blue sky with some light clouds.

SUNCOR

C-NLOPB Spill Response and Lessons Learned Forum

Karen Kelly, General Manager - East Coast Assets
December 3, 2019

Agenda

Provide an overview of the November 2004 oily water discharge from the Terra Nova FPSO and the April 2018 unauthorized discharge of synthetic-based mud (SBM) from the Transocean Barents MODU

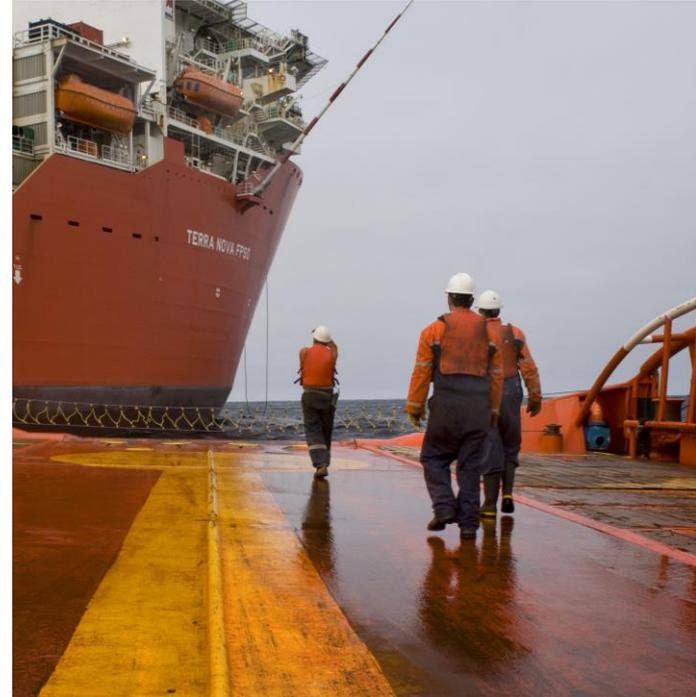
- What happened
- What and how much was released
- Response activities undertaken
- Corrective actions



2004 Oily Water Discharge from the Terra Nova FPSO

Incident Overview

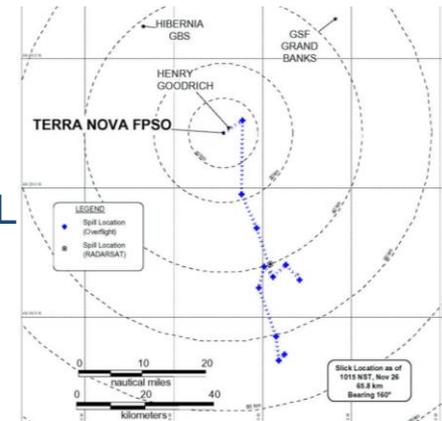
- On November 21, 2004, an oil sheen was observed near the Terra Nova FPSO
- Investigation revealed that water mixed with oil had been discharged through the produced water caisson
- Approximately 165 m³ of oil was released



2004 Oily Water Discharge from the Terra Nova FPSO

Response

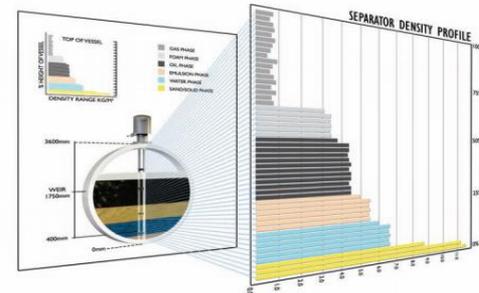
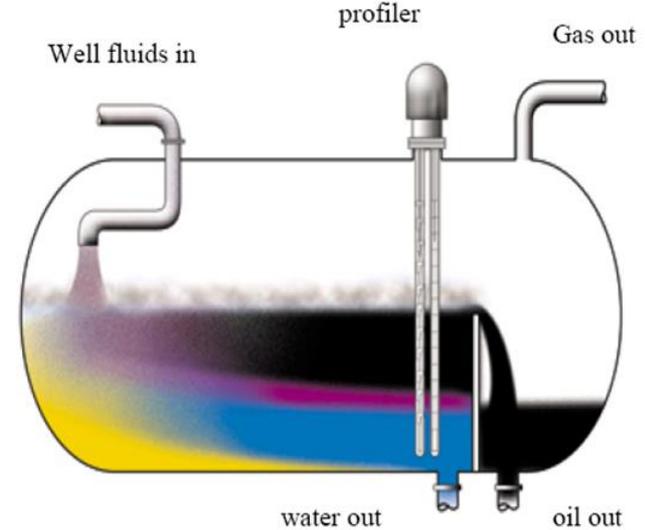
- Immediate shut in of all production
- Activation of Petro-Canada's **Emergency Response Plan**
- Multiple vessels engaged in **recovery** by conducting booming and skimming
- **Monitoring** through water sampling
- **Wildlife monitoring** through on-vessel observers and seabird centres
- **Sheen tracking** through tracker buoys, trajectory modelling and aerial surveillance
- Subject matter expertise **support** provided through ECRC and OSRL
- Status updates through regular communication with external parties
 - Regulator and government agencies
 - One Ocean
 - Media



2004 Oily Water Discharge from the Terra Nova FPSO

Corrective Actions

- Installation of nucleonic profilers to allow visibility of the fluids within the separators
- Replacement of chemical injection system to prevent formation of emulsion within the separators
- Upgrade of interface level instruments to distinguish between fluids within the separators
- Improvements to the alarm management process
- Upgrades to oil-in-water analyzer system to allow continuous monitoring and trending



2018 Unauthorized Discharge of SBM from the Transocean Barents

Incident Overview

On April 27, 2018, approximately 28 m³ of SBM was discharged from the Transocean Barents MODU

- Synthetic-based mud (SBM) used in our drilling operations is non-toxic to humans/wildlife and is more biodegradable than other drilling fluids
- The rig commenced displacement of cement with SBM when a loss of SBM was identified based on an observed drop in active volume
- Measures were immediately taken to stop the discharge and rig operations were stopped until CNLOPB approval to resume operations was received on May 3, 2018



2018 Unauthorized Discharge of SBM from the Transocean Barents

Response

Activation of Suncor's **Emergency Response Plan**

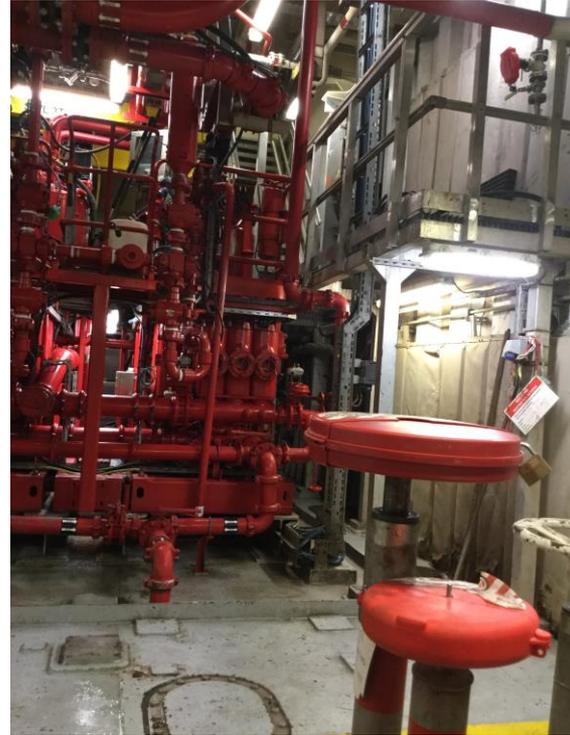
- **Inspections** conducted by offshore supply vessel, *Maersk Nexus*, and did not identify a visible sheen in the water
- **Wildlife monitoring** by supply vessels
- Oil spill booms were not deployed as SBM is heavier than water and rapidly sinks in water
- **Subsea survey** was conducted by a remotely operated vehicle (ROV) to assess potential subsea effects



2018 Unauthorized Discharge of SBM from the Transocean Barents

Corrective Actions

- Suncor completed an investigation into the incident and applicable corrective actions have been implemented
- An investigation by the C-NLOPB is ongoing



Suncor Safety Culture

- Safety above all else
- Continue on our journey to zero
- Continue to improve our performance in the region
- Look forward to ongoing collaboration in the basin



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