

H2S GAS FROM SLOPTANK ON NORTHERN CHALLENGER

STATOILHYDRO OPERATIONS IN IRELAND

MAY / JULY 2008

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Northern Challenger



BACKGROUND

- StatoilHydro had a drilling operation on exploration well 19/8-1, Cashel in Ireland this year
- Drilling rig Ocean Vanguard was in operation.
- Killybegs was chosen as base in Ireland.
- As the operation was progressing, it appeared that the waste receiving company in Killybegs was able to treat only light slops and not heavy/contaminated mud from the rig.
- The heavy slop was planned to be transported to Aberdeen from Killybegs. Approval was not received and therefore the mud was stored in Killibegs.
- Due to unexpected geological formations, the drilling was suspended and well plugged 9. July, 2 months ahead of schedule.
- Prior to towing the rig, 248 m³ of slops was transferred from rig to 3 tanks on Northern Challenger for offloading on a later stage.

BACKGROUND

- The project tried to establish an approval for offloading the slop from Northern Challenger in Aberdeen or in Rotterdam. Due to lack of approval the slop had to remain onboard the vessel.
- The vessel was in a period from 17. July and 8. September used for various activities for StatoilHydro, Marine operations mainly in Norwegian sector.
- 8. September, the crew on the vessel reported bad smell on the deck at quayside in Stavanger.
- A company was asked to measure the gas, and the intensity of H₂S gas from the ventilation head was measured to 500 ppm.
- Action was taken with respect to personnel protection, and the manholes were opened to the tanks to remove the gas. Continuous samples were taken until the readings were zero.
- 9. September, new readings were indicating 100 ppm. The vessel was moved from Stavanger Port to anchor position in the fjord.
- 10. September the vessel was called to Dusavik Base for discharging the slop and cleaning the tanks. This was completed on 11. September.

INVESTIGATION

- Investigation group was established with representative also from Trico Supply.

Incident potential

With reference to WR0015 (internal StatoilHydro), the investigation group has been classifying this incident to have a high potential, red 2 or possible red 1 providing that the readings were in excess of 700-1000 ppm.

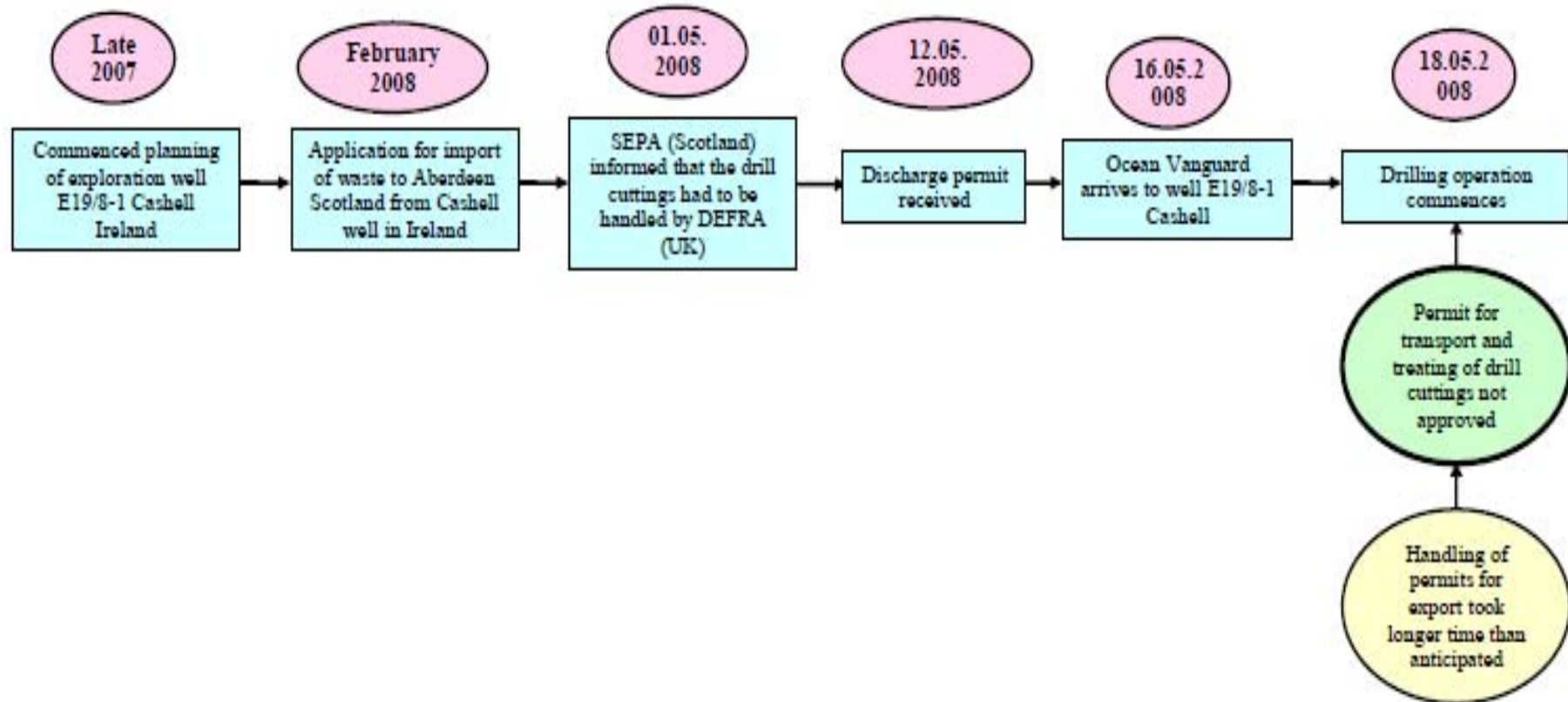
BARRIERS

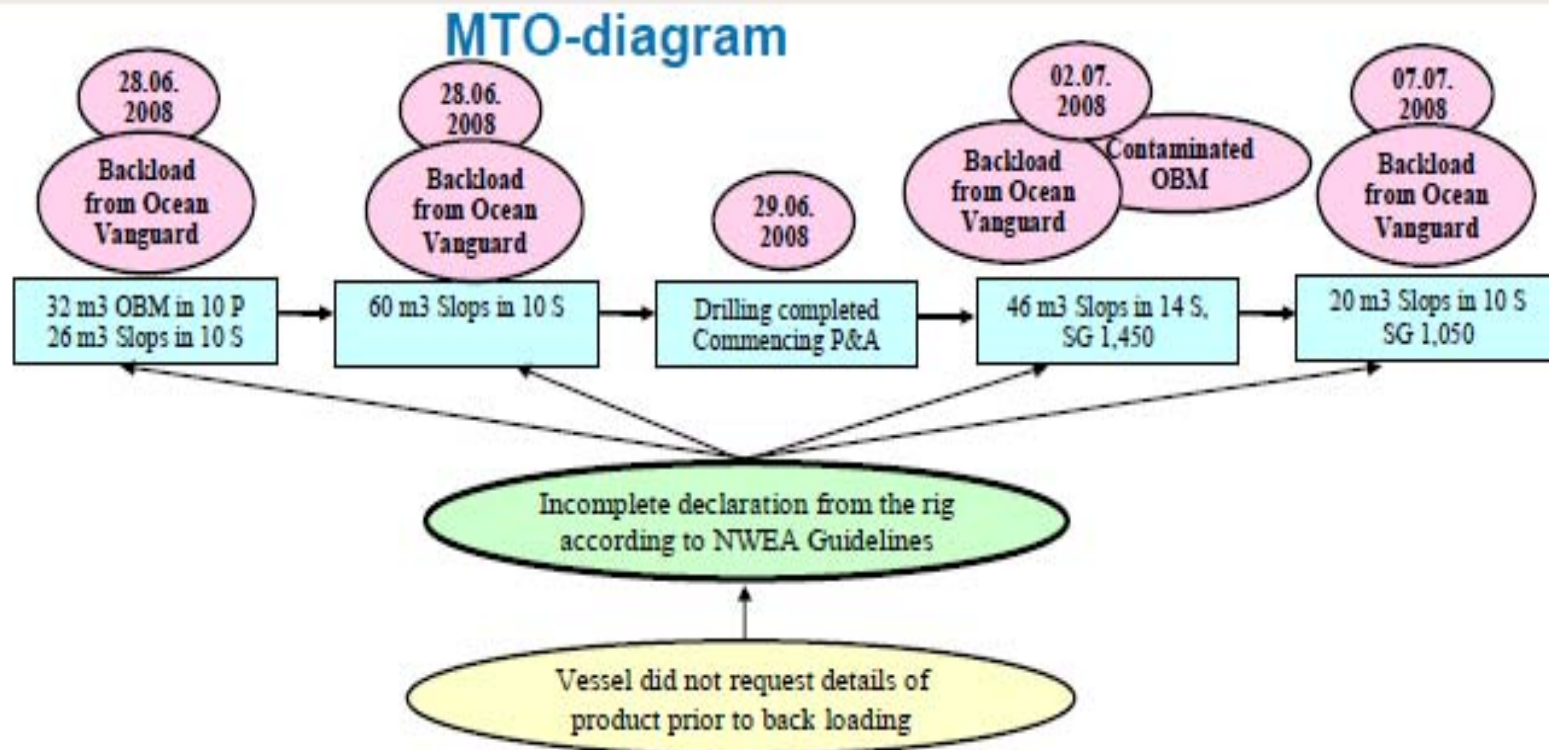
- ***Intact barriers***
- Crew on Northern Challenger noted smell of rotten eggs and raised the alarm. This was the only barrier that was working as the sequence of events was progressing.
- ***Broken barriers***
- The slops were not temporarily stored at Killybegs, Ireland during the vessels port call on July 9th 2008
- It was not considered by StatoilHydro or Trico Supply to add H₂S scavenger to the slops at the vessels port call at Killybegs, Ireland on July 9th 2008
- No risk assessment performed when the decision was taken to keep the slops onboard Northern Challenger

Ventilation heads from tanks

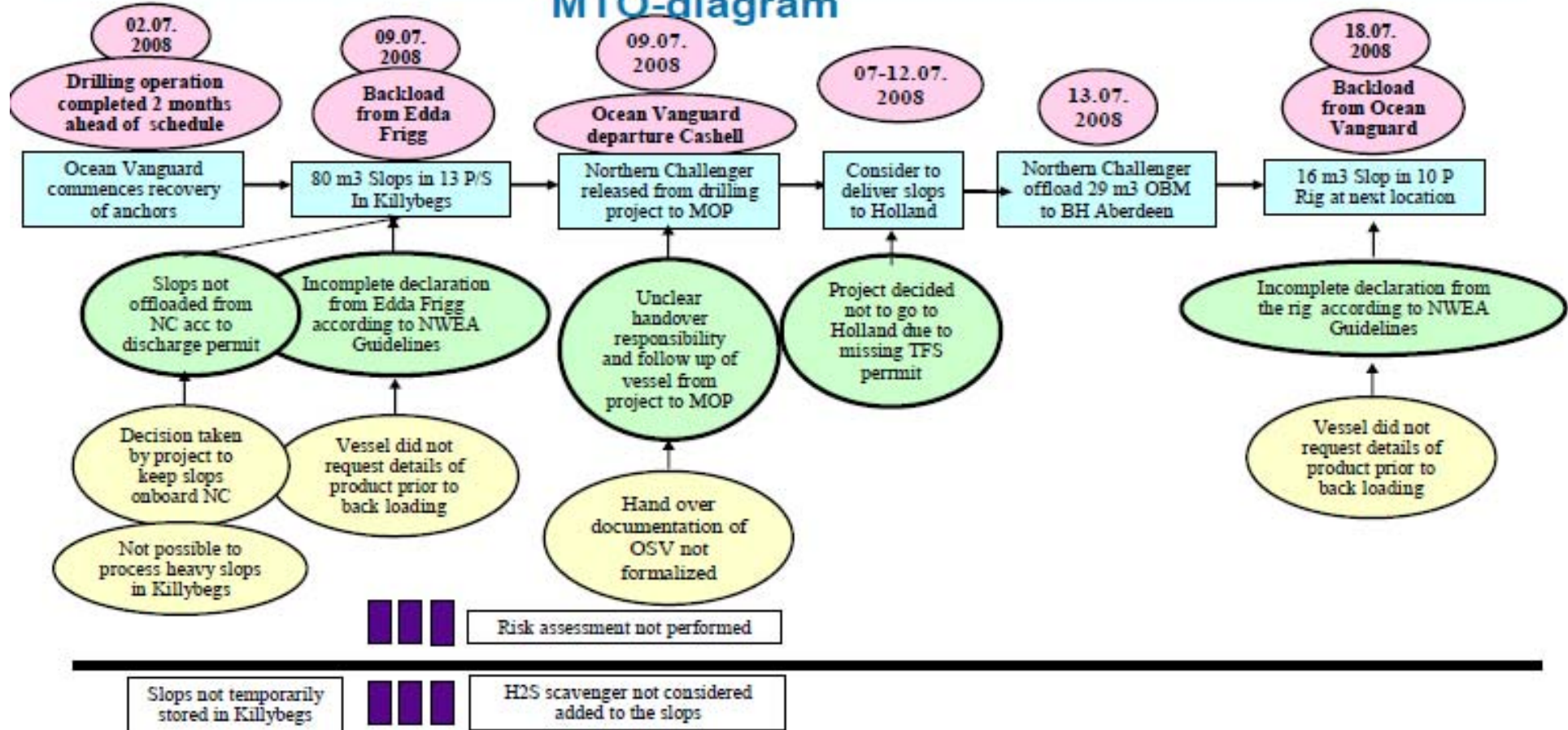


MTO-diagram

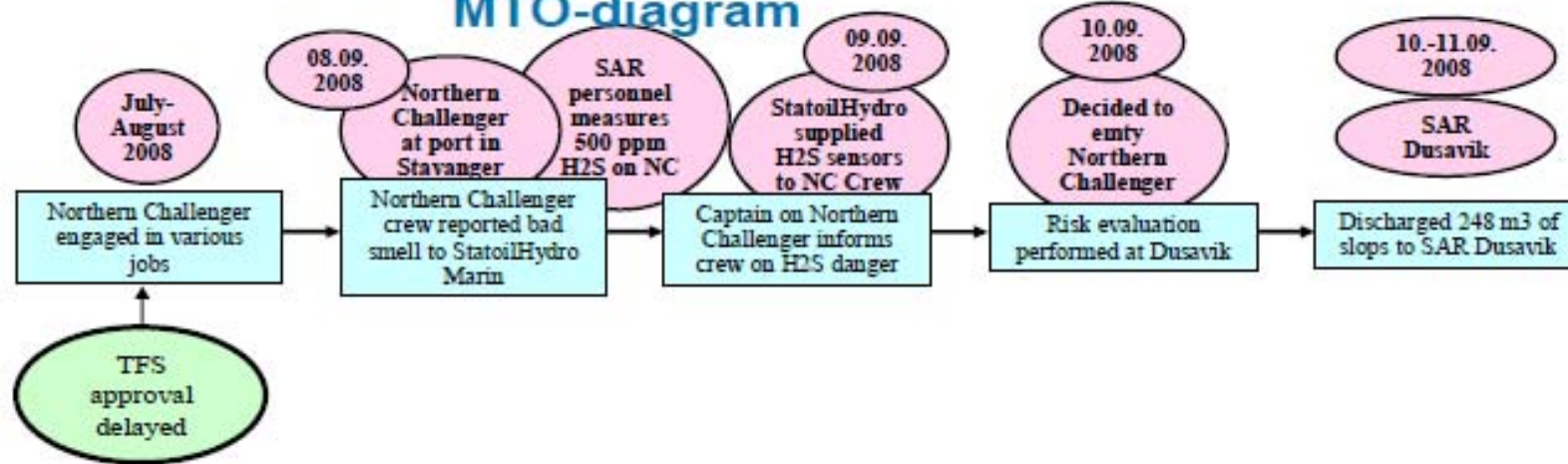




MTO-diagram



MTO-diagram



SHORT TERM ACTIONS

- Issue a safety alert for distribution to the offshore market via The Marine Safety Forum:
 - Waste should be discharged as soon as possible, if waste is being stored onboard for an extended period (couple of weeks) then complete a non-conformity and inform the Company
 - Ensure that all crew are aware of the hazards presented by H₂S through discussions in safety meetings onboard the vessels
- Instruct drilling operations to deliver sufficient and complete documentation of slops to the vessels prior to offloading from the rig
- Instruct vessels to separate slops with different oil or water content

LONG TERM ACTIONS

- Implement *Guidelines for the safe management of offshore supply and anchor handling operations (NW European Area)*
- Distribute copies of *Guidelines for the safe management of offshore supply and anchorhandling operations (NW European Area)* to third party companies involved in drilling, logistics and offshore operations
- Definition of slops to be emphasized and distributed to rigs and vessels
- Medical screening the health condition of the crewmembers exposed to H₂S gas on Northern Challenger in the period from July to September 2008 as advised by the medical practitioner

NWEA ch 4.1 (No changes from version 1)

- **General Requirements**
- Bulk cargo transfer is potentially hazardous and must be done in a controlled manner.
- Hoses should be of sufficient length and slung in such a way to enable the hose to be landed onto the deck and crane pennant wire slackened before the deck crew secure the hose and disconnect crane pennant. Deck crews should not stand under the suspended hose/crane wire.
- **During bulk cargo operations observe the following:**
- communication between vessel, base, installation or roadside tanker of pressure rating to avoid overpressure.
- if at any point **vessel Master, shipper or OIM** have any **doubt** about the operation it must be terminated
- **INLS Regulation / IBC code requirements shall be followed as applicable. Masters must be given** a completed Dangerous Goods Declaration and MSDS prior to loading or backloading of dangerous goods.
- If backloading contaminated bulks an analysis sheet is mandatory prior to approval of backload.