FEDERAL INSTITUTE FOR RISK ASSESSMENT

BfR
Bundesinstitut für Risikobewertung

Science Workshop: HNS Pollution
Setting the Scene

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Objectives of this workshop

This workshop should be a continuation of

- MARICHEM 1993: Sessions 1, 3, and 6
- INTERSPILL 2009 (IMO R&D Forum): Are HNS spills more dangerous than oil spills?

This workshop is to discuss the scientific challenges in HNS preparedness and response

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- Challenges from personal experience
- Challenges in HNS product knowledge
- Challenges in risk assessment and spill sensing

The Challenges *from my personal experience*

Three phases in spill response

- Emergency response preparedness
- Initial response
- Final response

Four main types of HNS cargoes

- Solid cargoes carried in bulk
- Liquified gas carried in bulk
- Noxious liquid substances carried in bulk
- Packaged & general cargo: container ships

3rd Phase: Final response

Lots of special equipment on scene
Highly training personell involved (under risk)
Priority setting according to preparedness / risk assessment
Most photogenic in media – media coverage
Salvage operations, enclose and collect spillage
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Appropriate material availability

Have plans prepared

2nd Phase: Initial response

Assessing the situation (including risks)
Approaching the accidental area
Defining the scope of operations
Strategy for spill monitoring
…

Have risk evaluation strategy prepared

1st Phase: Emergency Response Preparedness

Work for scientific experts, who may not be directly involved in later spill management

Tracking / observing HNS transportation (likelihood and potential impact of spill)

Time for basic scientific work / research (e.g. behaviour classification)

Assess spill-related risks to focus preparedness

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Main focus for this workshop !

Solid Bulk Cargo Carrier - Bulker

Total loss of ships incl. crew and cargo

Many cargoes without acute spill hazards

Understanding the risks of cargoes for the marine environment ← Cargo assessments

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Liquefied Gas in Bulk
Gas Tanker

Loss of cargo into air

Rapid phase transitions (physical explosion)

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Noxious Liquid Substances carried in Bulk
NLS Tanker , Chemical Tanker

Detailed good quality hazard data for cargoes

Behaviour of cargo in the marine environment (air / surface / water)

Different cargoes in neighbouring tanks (danger of reactivity)

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Main focus for this workshop !

Packaged / General Cargo
Container Ship

Variety of cargo hazards in mixed loading and stowage

Current trend to mega ships

Fire fighting water

Mixed spillage in holds

…

Workshop discussion with exchange of experiences ?

Five important scientific challenges *from a personal point of view*

(1) **Containerized HNS cargoes**: High number of cargoes (new mega carriers) with different hazards:
- data management and mixture assessment under accidental situations;
- assessment of fire fighting water and mixed spills

(2) **Liquid and solid bulk HNS cargoes**: Data on hazardous properties for risk assessment and response in particular information on behaviour in the marine environment

(3) **Liquid bulk HNS Cargoes**: The detection of vapours and HNS in solution during a spill for exposure assessment, in particular through remote techniques

(4) **All HNS bulk cargoes**: Making the basic information on the hazards and the behaviour of HNS available within the first 1-2 hours

(5) **All HNS cargoes**: Joint risk assessment for getting a mutual understanding of risk (policy of actors during salvage actions, public relations, cross-border authorities involved), for e.g. port of refuge

Two Speakers: Specific aspects of challenges

Stephane le Floch (CEDRE):

Very focussed talk on research needs:

- Estimating / assessing the behaviour of chemicals including classification challenges
- Research to confirm theoretical approaches through scientific experiments

André Laflamme (Transport Canada):

More general talk on the strategic approach and concept:

- HNS incident preparedness based on relative risk of spills and next steps for HNS incident preparedness
- Spill monitoring – remote sensing / detection of chemicals

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Thank you

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