

## WORKSHOP REPORT

# WORKSHOP ADDRESSING KEY CHALLENGES OF CHEMICAL MARINE POLLUTION RESPONSE

**1-2 October 2014, EMSA, Lisbon**



Image: Group photo of the workshop participants

## I. Introduction

The preparedness for and response to maritime incidents involving cargoes of hazardous and noxious (HNS) substances is challenging due primarily to the complexity of the identification and assessment of the cargo associated risks and hazards. This is a topic identified as a priority within the Regional Agreements and by several Member States in Europe. In acknowledging this, EMSA organised a workshop addressing the key challenges of chemical marine pollution response on 1-2 October 2014 in Lisbon for experts from national administrations in charge of marine pollution response, including the attendance of relevant industry representatives.

The workshop was well attended by approximately 40 participants from 20 EU Member States, 4 Regional Agreement Secretariats and 8 industry representatives.

The workshop's main objectives were:

- ❖ To familiarise participants with the role and activation procedures of existing services at EU level in support of maritime chemical incident response; and
- ❖ To identify and discuss the key challenges associated with HNS maritime incident response, including future challenges.

## II. First session – Recent Developments

During the workshop's first session, representatives from national administrations, Regional Agreements, the chemical industry, the international salvage union and the ITOPF presented relevant developments in the field of HNS, including recent case studies and incidents.

**This session covered brief updates on recent relevant developments at national, regional and international levels, and included presentations on:**

- a. Relevant national developments in France and Portugal, highlighting the critical role of experts in interpreting HNS information, the importance and limitations of relevant R&D (such as ensuring funding and following-up the outcome of the research from a prototype into an operational product). The importance of specialised training for HNS responders and in the case of Portugal, the logistical needs for HNS response and the nonexistence of a 'safe platform' to position the responders into the incident area.
- b. The outcome of regionally undertaken projects on HNS, including the results of:
  - ❖ The Bonn Agreement's BE-AWARE qualitative risk assessment on HNS;
  - ❖ The environmental risk assessment of the most commonly transported chemicals in the Baltic Sea (ChemcBaltic);
  - ❖ The ARCOPOL and ARCOPOLplus project.These presentations highlighted respectively the difficulty of HNS transport data collection and analysis, the value of prepared scenarios when conducting risk assessments and the importance of support tools in raising awareness, such as the 'e-learning course on HNS incident management' and the 'Public Health Toolkit'.
- c. EMSA's HNS related work and services, including:
  - ❖ The relevant information that authorised users can obtain from the SafeSeaNet (SSN) system, such as HAZMAT cargo notifications, information on dangerous and polluting goods

on board a vessel and various types of incident reports. The current work of the SSN HAZMAT working group and its expected deliverables (Guidelines on reporting HAZMAT information in SSN and Requirements for the development and maintenance of a Common HAZMAT Reference Database) were also described.

- ❖ The 3-party MAR-ICE Network, providing to EU Member States administrations rapid access to expert information and advice for ship sourced chemical incidents (spills or threats thereof) and the MAR-CIS (Marine Chemical Information Sheets) project, currently providing specialised and concise information sheets for ~210 chemical substances.

d. Recent HNS incidents and case studies, as presented by:

- ❖ The International Tanker Owners Pollution Federation (ITOPF), focusing on the 2012 STOLT VALOR and BARELI incidents, highlighting some of the complexities of responding to bulk and containership HNS incidents and the importance of providing rapid access to a place of refuge.
- ❖ The chemical industry, represented by DOW Stade and BASF Germany, who also provided an overview of their marine emergency preparedness and response procedures, and the cooperation between these chemical companies and the local/national maritime emergency response authorities.
- ❖ The International Salvage Union (ISU), represented by SMIT Salvage and TITAN, who described how the salvage industry dealt with the complex response operations to the 2010 MSC CHITRA, 2013 MOL COMFORT and 2012 LPG OBERON incidents.

### III. Second session – Table-top Exercise

**This session comprised a table-top exercise developed by EMSA with two scenarios which run in parallel by the workshop's participants, who were divided in three groups.**

One scenario addressed issues associated with the response to maritime incidents involving HNS transported in bulk, while the other scenario covered the complexities of response operations to maritime incidents involving HNS transported in packaged form / containers.

Both scenarios were presented as 'fictional' with no specific location defined (e.g. location A, near country B), but were drafted with realistic conditions in mind. Participants were informed of the response resources available to them as part of their National Contingency Plan. New (updated) information on the scenarios was revealed to the participants in phases during the exercise, by the exercise facilitators, adding increased complexity to the exercise and the group's discussions.

Experts from national administrations were divided into two groups, each dealing with one scenario in parallel. The industry representatives formed the third group of 'Industry Experts' acting as 'helpdesk' providing specialised information and advice to the two groups upon request.

The main objective of the exercise was to familiarise participating experts with existing information services and expertise at national, EU and international level available to support the response operations during HNS pollution incidents. The MAR-ICE Network was activated for both scenarios. At a first step, substance specific information was provided mainly through MAR-CIS datasheets and MSDSs for these chemical substances that had no MAR-CIS datasheet. At a later stage the MAR-ICE focal point sent simplified risk assessment tables for both scenarios identifying for each

substance the main hazards for human health and the environment and ranking the substances according to their risk. For both scenarios the SSN incident reporting system and typical examples of SSN HazMat information were displayed, explained and used during the exercise exemplifying the actual information existing in the SSN system.

Participants in each of the two scenarios were asked to draft a '*Plan of Actions*' for each scenario and to identify the '*Key challenges*' encountered. These were then presented and discussed in plenary after the exercise. Valuable feedback on the two scenarios was also received by the third group of industry experts.

The exercise confirmed that it is very important to rapidly identify the HazMat goods on board in order to evaluate the situation. The response operations to chemical incidents depend on the identification of dangerous goods for assessing the risks and hazards on board. The dangerous goods cargo manifest should be made available to the response authorities immediately. The cargo manifest should precisely describe the cargo content (e.g. quantity on board, position, full name).

For the containership scenario the analysis of the HazMat cargo on board was more difficult and time consuming as there were several different types of chemicals with different properties. The dangerous goods cargo manifest should be made available in an easy working format to facilitate the assessment. The position of the containers on board is very important for the response operations as it identifies the critical areas on board. Ship arrangements plans of the vessel(s) involved in the incident should be made available to the response authorities immediately, currently not available in the SSN system.

The exercise showed that the communication between the National Response Authorities, ship owner and salvage companies is very important. Even though each party has a different role in the HNS response operations, the communication should flow in order to make the best use of existing resources. This aspect should be considered in a next EMSA HNS exercise.

#### **IV. Third session – Key Challenges**

**This final session covered discussions on the key challenges of HNS maritime incident response, as presented by participating countries and industry representatives and as highlighted during the previous day's table-top exercise.**

- ❖ Representatives from Spain and France described the challenges they face when addressing HNS incidents, emphasising on the following issues:
  - The lack of EU-wide standards regarding requirements and certification of HNS responders, especially when considering the initial SAR operations;
  - The need for (chemical) expert support to the authorities at the site of a maritime incident;
  - The public pressure on experts in charge of 'interpreting' the chemical's risks and hazards
  - How to 'translate' the scientific information available into practical recommendations for action by the response authorities;
  - The lack of available funds to adequately maintain national response capability for HNS incidents (such as ready to go SAR-HNS intervention teams), considering such incidents are low probability events, but potentially with very complex and dangerous implications;
  - The lack of clear guidance regarding Port of Refuge or Safe Harbours for an incident involving chemicals.

- ❖ Challenges linked to HNS cargo and response operations were further presented by industry representatives such as:
  - The Braemer Howells expert, who with the examples of the NAPOLI and RENA incidents, provided an overview of the main issues to be aware of when dealing with a dangerous cargo, including cargo mis-declarations or non-declared cargo, the waste transfer and disposal complexity;
  - The chemical industry who presented DOW's High Consequence Drills and the key learnings from the 2013 joint exercise held with the German Central Command for Maritime Emergencies on the river Elbe. The BASF expert presented the key elements of how to complete a safe maritime transport chain, based on the response to recent incidents BASF supported in the port of Antwerp;
  - The salvage industry demonstrated the main challenges of salvage operations of HNS incidents, which are usually quite complicated, as each incident is unique and the response must be tailor made. The response to the MARTIME MAISIE incident in 2013 was presented. The big problem of finding a place of refuge (which in this particular case took almost 4 months) and the long and challenging firefighting operations (19 days) caused by the particular cargo on board, were highlighted. New types of vessels e.g. LNG fuelled, new trade routes, increasing size and complexity of new vessels and fragmented R&D were identified as some of the salvage industry's future challenges.
- ❖ ITOPF concluded this session with a comprehensive overview of the current and future challenges in regard to HNS maritime transport and incident response, covering points also mentioned in previous contributions, including:
  - World-wide growth in container shipping;
  - The increasing size and complexity of new vessel builds (Mega-Ships);
  - The importance and challenge of accurately and rapidly identifying HNS and their location on board (including the problems of cargo mis-declaration and mis-representation);
  - The increase in volume of cargo holds and the potential impact to the environment caused by releases from such large bulk carriers;
  - Increase in Arctic shipping, with traffic in the Northern sea route developing rapidly, and rapid growth of shipping traffic to and from China and India;
  - Place of Refuge issue;

## V. Workshop Conclusions

This workshop included active discussions among the participants, interesting contributions from and interaction between industry and EU Member States' authorities and a dedicated table-top exercise which was much appreciated by national administrations and industry alike.

**From the above, the following can be concluded:**

- ❖ **The key challenges for HNS incident response are known and remain present.**  
Although they vary from country to country, with big differences among EU Member States administrations in their preparedness level, response capabilities and post-incident role and responsibilities, these include:

- a) On-site support to authorities in dealing with HNS maritime emergency situations is vital; while there are a lot of information sources available, the interpretation of this information and its 'translation' into concrete response actions for the authorities is not always at-hand or easy. The specialised knowledge of the chemical industry can be extremely valuable when dealing with complex cargoes and can assist in minimising the '*what if...*' element.
  - b) There is a lack of and a need for more dedicated training and exercises focusing on HNS maritime incident response.
  - c) Logistics when handling HNS maritime incidents can be very complex (e.g. contaminated waste transfer and disposal; container storage and processing).
  - d) Even relatively small incidents can have potentially large effects and lengthy and complicated response and salvage operations; this element of the 'unknown' during the initial phase of response operations poses an additional challenge.
  - e) Information on the identity of dangerous goods and their position on board of vessels is fundamental for identifying all hazards and risks, contributing to rapid and more effective response operations. Dangerous goods cargo manifests and ship arrangements plans should be readily available to the response authorities for planning the response operations.
  - f) R&D on HNS exists, but is fragmented, with knowledge gaps and lack of dedicated funding options. The challenge of turning the outcome or result of an R&D project from a prototype into an operational product is very important, as is interpreting the knowledge gained by R&D projects into the response operations.
- ❖ There is value in **maintaining a forum where Member States national administrations and relevant industry representatives (from the chemical industry, salvage industry, expert response teams, ship-owners, other) regularly meet** and exchange views and experiences on maritime HNS incident response operations. This enables a better understanding of each other's role, capabilities and limitations, considering that the complexity of such incidents usually requires the participation of all the above mentioned organisations in the response operations. A dedicated joint exercise on HNS maritime incident response involving both national administrations and relevant industry, organised at European level, could be very useful in this regard.
- ❖ In an effort to address the identified gaps and challenges, it is important to **further build on existing resources, services and information platforms**, such as the SafeSeaNet system and its ongoing HAZMAT work, the ARCOPOL platform, the work of the Regional Agreements and IMO, the MAR-ICE Network and the cooperation with the chemical industry. In this regard, actions undertaken at regional and/or EU level could be more cost-efficient compared to similar developments at national level.

## VI. Annexes

1. Workshop Agenda
2. Participants List
3. Table-top Exercise Scenarios
4. Presentations - the workshop's presentations are published on EMSA's website:  
<http://www.emsa.europa.eu/workshops-a-events.html>

## Workshop addressing key challenges of chemical marine pollution response

EMSA, Lisbon, 1-2 October 2014

### Agenda

Wednesday, 1 October 2014

Time	Agenda Item	Presenter
<b>08:30 – 09:00</b>	<b>Registration and coffee</b>	
09:00 – 09:15	Welcome and opening of the workshop	Bernd Bluhm, EMSA
<b>Session 1: Recent developments in the field of HNS (national, regional, EU &amp; industry input)</b>		
09:15 – 09:30	Relevant developments in the field of HNS in Portugal	Joao Ferreira de Carvalho, Maritime Authority DG
09:30 – 09:45	Relevant developments in the field of HNS in France	Fanch Cabioch, Cedre
09:45 – 10:00	BE- AWARE Qualitative risk assessment on HNS	John Mouat, Bonn Agreement Secretariat
10:00 – 10:15	ChemBaltic - Environmental risk assessment of the most commonly transported chemicals in the Baltic Sea	Jani Häkkinen, Finnish Environment Institute
10:15– 10:30	Main results regarding HNS from ARCOPOL & ARCOPOLplus	Patricia Pérez, CETMAR
10:30 – 11:10	Update on EMSA HNS related work: SafeSeaNet MAR-ICE Network & MAR-CIS project	EMSA
<b>11:10 – 11:30</b>	<b>Coffee break</b>	
11:30 – 11:50	Recent HNS case studies	Annabelle Nicolas-Kopec, ITOPF
11:50 – 12:20	Relevant developments from the Chemical Industry: Establishing emergency preparedness between chemical companies and regional emergency response authorities BASF involvement in recent HNS case studies	Hans Joachim Dunemann, DOW Stade, Germany  Gert van Bortel, BASF
12:20 – 12:50	Relevant developments from the Salvage Industry: Recent HNS case studies (SMIT & TITAN)	Kees van Essen, SMIT Salvage & Ajay Prasad, TITAN Salvage
12:50 – 13:00	Discussion	
<b>13:00 – 14:00</b>	<b>Lunch break</b> [Group Picture (at 14.00)]	

<b>Session 2: HNS Table-top Exercise</b>		
14:00 – 14:15	Introduction to the HNS table-top exercise & split groups	EMSA
14:15 – 16:45	Exercise runs, as per the instructions and scenarios provided in Annex 1	All
16:45 – 17:00	Exercise wrap-up (Groups to compile 'Plan of Action' and list the 'Key Challenges' encountered in each scenario)	All
<b>17:00 – 17:20</b>	<b>Coffee break</b>	
17:20 – 18:00	Presentation of exercise outcome, back in plenary: Each group will make a brief presentation (15-20 minutes each) of each scenario's outcome, followed by discussion	All
<b>18:00</b>	<b>End of day one</b>	

## Thursday, 2 October 2014

Time	Agenda Item	Presenter
<b>08:30 – 09:00</b>	<b>Registration and coffee</b>	
09:00 – 09:15	Re-cap from previous day	EMSA
<b>Session 3: Key challenges of HNS maritime incident response (as presented by participating countries and industry representatives)</b>		
09:15 – 09:45	Key challenges from the point of view of national organisations: SASEMAR, Spain Cedre, France	Gracia Alburquerque, SASEMAR Fanch Cabioch, Cedre
09:45 – 10:15	Cargo related challenges ( <i>Napoli</i> and <i>Rena</i> incidents)	Nick Bailey, Braemar Howells
10:15 – 10:45	Key challenges from the point of view of the chemical industry	Hans Joachim Dunemann, DOW Stade & Gert van Bortel, BASF
10:45 – 11:15	Key challenges from the point of view of the salvage industry	Kees van Essen, SMIT Salvage & Ajay Prasad, TITAN Salvage
<b>11:15 – 11:35</b>	<b>Coffee break</b>	
11:35 – 12:00	Future challenges of HNS maritime incident response	Annabelle Nicolas-Kopec, ITOPF
12:00 – 12:45	Discussion: How to improve the support to national administrations during HNS response operations?	All
12:45 – 13:00	Workshop Conclusions	EMSA
<b>13:00</b>	<b>End of Workshop</b>	



country	firstname	lastname	organization
Belgium	Ronny	Schallier	MUMM
Bulgaria	Neli	Kenarova	Bulgarian Maritime Administration
Croatia	Djani	Vukušić	MRCC Rijeka
Estonia	Triin	Vokk	Ministry of the Environment
Estonia	Sulev	Lõhmus	Estonian Maritime Administration
Finland	Heli	Haapasaari	Finnish Environment Institute (SYKE)
Finland	Magnus	Nyström	Ministry of the Environment
Finland	Jani	Häkkinen	Finnish Environment Institute (SYKE)
France	Fanch	Cabioc'h	Cedre
Greece	Konstantinos	Mangidas	Hellenic Coast Guard
Ireland	David	McMyler	Irish Coast Guard
Italy	Gabriele	Peschiulli	Ministry of Environment
Latvia	Ojars	Gerke	Latvian Coast Guard Service
Lithuania	Igor	Kuzmenko	Lithuanian NAVY
Malta	Richard	Gabriele	Transport Malta
Montenegro	Aleksandar	Božović	Environmental Protection Agency
Poland	Marek	Reszko	Maritime Search and Rescue Service
Portugal	José	Costa Campos	Portuguese Maritime Authority DG
Portugal	João	Ferreira de Carvalho	Portuguese Maritime Authority DG
Portugal	Joana	Jerónimo	Portuguese Maritime Authority DG
Romania	Irina	Casiade	Romanian Naval Authority
Spain	Pablo	Pedrosa Rey	DG de la Marina Mercante
Spain	Gracia	Albuquerque	SASEMAR
Sweden	Alexander	von Buxhoeveden	Swedish Coast Guard
United Kingdom	Neil	Chapman	Maritime & Coastguard Agency (MCA)
Bonn Agreement	John	Mouat	Bonn Agreement Secretariat
REMPEC	Clément	Chazot	REMPEC
Lisbon Agreement	Gonçalo	Viegas	CILPAN
HELCOM	Hermanni	Backer	HELCOM Secretariat
*CEFIC	Victor	Trapani	Cefic
* DOW	Hans-Joachim	Dunemann	The Dow Chemical Company
* BASF (via phone)	Gert	van Bortel	BASF
* ITOPF	Tim	Lunel	ITOPF
* ITOPF	Annabelle	Nicolas	ITOPF
*SMIT Salvage	Kees	van Essen	SMIT Salvage B.V.
* TITAN Salvage	Ajay	Prasad	Titan Salvage
* ARCOPOL	Patricia	Pérez Pérez	CETMAR
* Braemar Howells	Nick	Bailey	Braemar Howells
EMSA	Bernd	Bluhm	Pollution Response Services
EMSA	Walter	Nordhausen	Pollution Response Services
EMSA	Lito	Xirotyri	Pollution Response Services
EMSA	Ana Sofia	Catarino	Pollution Response Services

# WORKSHOP ADDRESSING KEY CHALLENGES OF CHEMICAL MARINE POLLUTION RESPONSE

1 – 2 October 2014, EMSA

## Annex 1 - HNS table-top Exercise

### Introduction

The EMSA workshop addressing key challenges of chemical marine pollution response scheduled for 1 - 2 October 2014 will include a table-top exercise with two scenarios that will run in parallel. One scenario will address issues associated with the response to maritime incidents involving HNS transported in bulk; the other scenario will cover the complexities of response operations to maritime incidents involving HNS transported in packaged form. The workshop participants will be divided in two groups on the first day of the workshop, each group dealing with one scenario in parallel.

Both scenarios are presented as 'fictional' with no specific location defined (e.g. location A, near country B), but have been drafted with realistic conditions in mind. New (updated) information of the scenarios will be revealed to the participants in phases during the exercise adding increased complexity to the exercise. Each group will deal with one scenario only. The exercise will take around 3 ½ hours on the first day of the workshop (see workshop agenda). There will be at least one facilitator per group that will know in advance how the exercise progresses and will encourage discussion among the participants.

This exercise has dual purpose:

- a) To familiarise participating experts with utilising and activating existing information services at national and EU level (e.g. MAR-ICE Network, MAR-CIS datasheets, SSN reporting system) available to support the response operations to HNS pollution incidents; the type of HNS-specific information provided will also be tested and evaluated, so as for all participants to better understand the added value and limitations of the existing services; and
- b) To highlight the complexities and key challenges of maritime response operations involving HNS, through the discussions and cooperation among each groups' participants. Participants in each group (representing 'fictional' country A or B affected by the incident) will be asked to draft a '**Plan of Actions**' for each scenario and to identify the '**Key challenges**' encountered. These two documents will be presented and discussed at plenary after the exercise.

### Participants' role and expected actions

Participants will take the role of National Response Authorities of 'fictional' country A or B affected by the incident. They will be informed on the response resources available as part of their National Contingency Plan. They are expected to identify the hazards and risks and to prioritise them. In addition they are expected to propose response actions based on the available resources identified in the contingency plan. The outcome will be a 'Plan of Actions' to be presented and discussed at the end of the exercise together with the difficulties and challenges identified in each scenario of the exercise.

## Scenario A (liquid bulk)

### Initial information:

On 1 Oct 2014 (01:30 UTC) the ship Z (chemical carrier) had an explosion at the engine room. A distress signal was sent to country A's national authorities just after the explosion. The ship lost its propulsion system and is drifting 20 nautical miles from City Hope, a small fisherman's municipality whose main source of income is a fish farm located nearby. There is also a National Nature Reserve that includes a salt marsh area on the west side of City Hope where some rare and endangered bird species nest.

As a result from the explosion a fire broke out. The weather conditions are expected to be maintained for the next 5 hours, wind 20 kt (SE), current 1.6 kt towards the coastline. The cause of the explosion has not been identified. The ship has a transport capacity of 14,200 m<sup>3</sup> (aprox.) and a crew of 11 members. SAR operations have rescued 6 members. According to the rescued crew, the ship is fully loaded. They have not brought the cargo manifest with them when abandoning the ship, however at least xylenes, toluene, acrylonitrile, decyl acrylate, dimethyl adipate and triethyl phosphate are on board. The ship has 14 cargo tanks. Just before abandoning the ship, the crew activated the fire extinguishing system. The 5 other crew members are unaccounted for.

The SITREP incident report submitted in the SafeSeaNet System will be displayed and explained to participants at the beginning of the incident.

## Scenario B (containers)

### Initial information:

On 30 Sept 2014 (01:30 UTC), the ship Y (container ship) carrying 4,255 containers, 14 crew members, experienced very bad weather conditions. As a result, the crew detected that some aft container stacks had collapsed and some containers were missing. The ship master informed country B's national authorities on the situation. Four hours after the container's collapse, the crew detected some white smoke coming out the damaged area. A group of 4 crew members was sent to check the damaged area. There was an explosion just before the crew reached the fire area. There were no casualties but one crew member is injured and needs medical attention. The weather conditions have improved, the wind speed is currently at 25 kt (SE), current 1 kt towards the coastline (NE). The ship is located 50 nautical miles from country's B coastline and in a busy traffic route. Additionally, there is a recreational zone on the west side of the traffic route and a National Nature Reserve on the east side which includes a saltmarsh habitat.

The SITREP and the Lost/Found objects incident report submitted in the SafeSeaNet System will be displayed and explained to participant at the beginning of the incident.

**Further information about the exercise will be provided at the workshop.**