PREPAREDNESS FOR HNS INCIDENTS

Alex Hunt, Technical Team Manager, ITOPF

A Successful Response: Effective Implementation of the NOSDCP - Mumbai, 29 January 2015

INTRODUCTION TO ITOPF

- Not-for-profit organisation established in 1968
- Primarily funded by shipping (via P&I Clubs)
- Main role: advice on marine spills from ships
- Based in London but provides a global service
ITOPF MEMBERSHIP

- **ITOPF MEMBERS**: 6,350 tanker owners and bareboat charterers
- 10,950 tankers, barges & OBOs - 340 million GT (>97% world fleet)
- **ITOPF ASSOCIATES**: Owners of other types of ship (since 1999)
  - 721 million GT of non-tanker shipping (>90% world fleet)

ITOPF RESOURCES

- Single office in London with 32 staff
- Technical team with 16 responders:
  - Scientific background & spill experience
  - On site at >700 spills in 99 countries
- In-house databases and technical library
SPILL RESPONSE

- Role varies depending on the requirements and preparedness
- Provide technical advice to government, responders & victims
- Promote effective response, joint assessments & cooperation
- Monitor spill response & investigate damage to sensitive resources
- Arrange for additional expertise & equipment to be brought on site

RECENT INCIDENTS ATTENDED

- 28 cases in 12 months (usual range: 15-30 per annum)
- 11 tanker incidents & 17 involving other vessel types
- Mainly small-scale bunker spills – often complex issues
• 26 HNS incidents attended in 30 years (1984 – 2014)
• 16 tankers & 10 non-tank vessels (bulk & container)
• Often coincided with an oil spill → ITOPF mobilisation
• ITOPF role: advice on response, hazards & impacts

- Often requested to advise on contingency plans for government & industry
- ITOPF also helps to test existing plans during oil spill exercises & response drills
- Important lesson: exercises must be realistic & involve actual roles/responsibilities
- Main aim of ITOPF: to promote effective response to marine oil & HNS spills
- Organise & participate in training courses, seminars, workshops & conferences
- Key partners include the IMO, the IMO-UNEP Regional Seas Centres & IOPC Funds
BUSY SHIPPING LANES + FREQUENT STORMS = HIGH RISK FACTORS FOR SHIPPING INCIDENTS

Data sources: Lloyd's Intelligence, Journal of Commerce, Allianz Safety & Shipping Review 2014

HNS CARRIAGE BY SEA: GLOBAL TRENDS

Data sources: Lloyd's Intelligence, Journal of Commerce, Allianz Safety & Shipping Review 2014
HNS INCIDENTS: ‘HOT SPOTS’

HNS INCIDENTS: CAUSES

Data Source: MEPC/OPBC-HNS/TG 12/5/6 reviewing 291 HNS incidents worldwide
HNS INCIDENTS: VESSEL TYPE

Data Source: MEPC/OPRC-HNS/TG 12/5/6 reviewing 291 HNS incidents worldwide

CHEMICAL TANKER INCIDENTS

Data Source: MEPC/OPRC-HNS/TG 12/5/6 reviewing 291 HNS incidents worldwide
STOLT VALOR – off Saudi Arabia (15th March 2012)

- Chemical tanker (15,732 GT; Built 2004; Stolt Tankers)
- 13,000 MT MTBE + 1,300 MT IBAL + 430 MT HFO
- Fire eventually controlled by salvors after 5 days
- Delay in providing port of refuge for three months
CONTAINERSHIP INCIDENTS

KEY CONSIDERATION: MEGA CONTAINERSHIPS

CONTAINERSHIP CAPACITY

Maersk
**HIGH RISK SUBSTANCES**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Chemical</th>
<th>Rank</th>
<th>Chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sulphuric acid</td>
<td>11</td>
<td>Styrene</td>
</tr>
<tr>
<td>2</td>
<td>Hydrochloric acid</td>
<td>12</td>
<td>Methanol</td>
</tr>
<tr>
<td>3</td>
<td>Sodium hydroxide</td>
<td>13</td>
<td>Ethylene glycol</td>
</tr>
<tr>
<td>4</td>
<td>Phosphoric acid</td>
<td>14</td>
<td>Chlorine</td>
</tr>
<tr>
<td>5</td>
<td>Nitric acid</td>
<td>15</td>
<td>Acetone</td>
</tr>
<tr>
<td>6</td>
<td>LPG/LNG</td>
<td>16</td>
<td>Ammonium nitrate</td>
</tr>
<tr>
<td>7</td>
<td>Ammonia</td>
<td>17</td>
<td>Urea</td>
</tr>
<tr>
<td>8</td>
<td>Benzene</td>
<td>18</td>
<td>Toluene</td>
</tr>
<tr>
<td>9</td>
<td>Xylene</td>
<td>19</td>
<td>Acrylonitrile</td>
</tr>
<tr>
<td>10</td>
<td>Phenol</td>
<td>20</td>
<td>Vinyl acetate</td>
</tr>
</tbody>
</table>

Source: MEPC/OPRC-HNS/TG 10/5/4

- IMO risk assessment of top 20 chemicals (excl. oils & products)
- Takes account of volumes produced, transported and spilled
- Majority of incidents involved Dissolvers or Evaporators

**OPRC-HNS PROTOCOL**

**PROTOCOL ON PREPAREDNESS, RESPONSE & COOPERATION TO POLLUTION INCIDENTS BY HNS 2000**

- Modelled on OPRC 90: aims to facilitate preparedness for HNS incidents
  - NATIONAL PLANS – REGIONAL AGREEMENTS – TRAINING/DRILLS
- Provides framework for international co-operation and support via IMO
- Entered into force 2007 and ratified by 33 states (OPRC 90 - 107 States)
CONTINGENCY PLANNING FOR HNS

- Many features of Oil Spill Contingency Plan are transferable to HNS incidents
- Accurate contact details and clear notification protocols are even more essential
- May be less time available for establishing roles, responsibilities and strategy
- Specialised training of responders and equipment stockpiles (PPE) are a necessity

INDUSTRY RESPONSIBILITIES

- Shipboard Marine Pollution Emergency Plan (SMPEP) onboard chemical tankers
- Advance provision of MSDS information to authorities – ideally, a 24hr centre
  CHEMTREC (USA) – CANUTEC (Canada) – MAR-ICE Network (European Union)
- Rapid assistance in the event of an incident: e.g. cargo manifests, expertise
**HNS INCIDENTS vs OIL SPILLS**

**OIL**
- Preparedness and response requirements relatively well understood
- Different oil types, but some uniformity in properties & behaviour
- Established techniques for response at sea and on the shoreline
- Typical effects on marine environment and livelihoods well known

**HNS**
- Response likely to be difficult or limited and potentially very dangerous
- Variety of substances with range of properties, behaviours & hazards
- Need to consider reactions with air, water and other chemicals
- Potential public health effects and loss of life – may be ‘invisible’

**USEFUL EXPERTISE & TOOLS**

- IMO, ITOPF, CEDRE and pro-active government agencies (Transport Canada, NOAA)
- Emergency centres (NCEC, CHEMTREC) and government/industry networks (MAR-ICE)
- Front line responders: salvage industry, chemical industry and private contractors
- Guidebooks, databases and computer models: ALOHA, CAMEO and CHEMSIS
HNS RESPONSE PLAN IMPLEMENTATION

- Less opportunities to learn lessons from incidents than oil spills
- Plan needs regular testing with exercises on different scales
- All parties must be aware of their roles and responsibilities
- Training is essential for front line responders and decision-makers