Future Proofing of Marine Environment Protection in a Changing Landscape

ICOPCE Plenary 1

Why is this topic relevant?



FUTURE PROOFING OF MARINE ENVIRONMENT PROTECTION IN A CHANGING LANDSCAPE



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The evolving challenge to container vessel spill response

- Larger ships hold more bunkers increasing Worst Case Scenario oil spills
- larger capacity for containers increases potential for greater volume and range of dangerous goods
- Demand for plastics continues to rise, increasing shipment of feedstock (nurdles) and potential for marine pollution
- Increased frequency of extreme weather events
- Wider range of fuels, each requiring a different blend of spill response techniques
- Growing use of Northern Sea Route brings ships in closer proximity to highly sensitive environments
- Growing amounts of shoreline litter amplifies the challenges associated with oiled shoreline cleanup and problematic waste management



Nudles

- Nurdles are small plastic pellets, the raw material which nearly all plastic goods are made from
- They attract environmental pollutants
- They are consumed by marine animals and seabirds
- An effective response requires the application of proven techniques
- Time consuming and laborintensive shoreline response

- Prevention is better than the cure!
- Operation Clean Sweep Guidance on Plastic Pellet Loss Prevention



MSC CHITRA

- Over 400 tonnes bunker oil spilled
- 31 containers with declared dangerous goods, 18 had fallen into the sea
- 1 container was broken during salvage resulting in the loss of approximately 2000+ canisters of Aluminium Phosphide





APL Denver

- Approximate release of 300m³ Heavy Fuel Oil cSt 500
- Viscous fuel oil
- Aquaculture contamination







The MV Rena

- Estimate 100-350 tonnes of bunker oil spilled
- 1,368 containers, eight of which contained hazardous materials.
- Impact of culturally important indigenous shoreline sites
- Sizable wildlife impact
- Significant ad hoc volunteer instigated cleanup





SSL Kolkata

- Explosion in one container led to fire spreading and abandonment of the vessel
- The vessel eventually ran aground

- Proximity to sensitive enlisted UNESCO World Heritage Sites (Sundarbans)
- Rough seas and strong winds hampering response efforts
- Shallow water limiting response/ salvage vessel suitability
- Other health and safety concerns relating to available vessels

Dealing with oil / chemical spills can be far more complex



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International compensation regime



International compensation regime (cont'd)

STOPIA

• The minimum limit for vessels is increased to SDR 20 million

TOPIA

• Shipowners contribute 50% to claims on the Supplementary Fund

The Bunker convention

 Applies to bunker pollution from all vessels except those to which CLC applies

HNS Convention 1996

- Shipowner liable for first tier claims
- HNS Fund pays 2nd tier to maximum of 250 m SDR

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Admissible Claims



Future proofing: Oil/Chemical removal and Spill Response Contract

LOF 2020



LLOYD'S STANDARD FORM OF SALVAGE AGREEMENT (Approved and Published by the Council of Lloyd's)

NO CURE - NO PAY

1. Name of the salvage Contractors:	 Property to be salved: The vessel: her cargo freight burkers stores and any other property thereon but excluding the personal effects or baggage of passengers master or new
(referred to in this agreement as "the Contractors")	(referred to in this agreement as "the property")
3. Agreed place of safety:	4. Agreed currency of any arbitral award and security (if other than United States dollars)
5. Date of this agreement	6. Place of agreement
7. Is the Scopic Clause incorporated into this agreement	nt? State alternative: Yes/No
8. Person signing for and on behalf of the Contractors	9. Captain or other person signing for and on behalf of the property
	2

A Contractions' have obligation: The Contractors identified in Boot 1 hereby upgets to use their built endeswords to a safe the property to provide the Boot 2 and to take the property to be place dated to Boo 3 or to such the the places as my benefit the agreed. If no place is inserted in Boot 3 and in the absence of any subsequent agreements as to the place where the property to be baited the dates. Safe the absence of any subsequent agreements as the place where the property to be baited the dates.
B Environmental protection: While performing the subseque pervices the Contractors shall also be provery to a place of safety.

C Scopic Clause: Unless the word 'No' in Box 7 has been deleted this agreement shall be deemed to have been made on the basis that the Scopic Clause is not incorporated and forms no part of this agreement. If the word 'No' is deleted in Box 7, this shall not of itself be constructed as a notice involuting the Scopic Clause within the

Classification: Unclassified

SCOPIC CLAUSE

SCOPIC 2020

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Security for SCOPIC Remuneration
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 (iv) In the absence of agreement, any dispute concerning the proposed Guarantor, the reduction or increase in the security in place shall be reactived by the Arbitrater.
 Withdrawal and Termination by the Contractor (i) If the owners of the vessel do not provide the Initial Security within the said 2 worlds.

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a time and makenala basis in accordance with the "ratif of coli in Appendix "Y. This stiff will apply unit revised and supercised by the SCOPE Committee in accordance with type-that BP(1)b) that will make shich with based to calculate and apply and in particular basis and these motives reasonably paid by of the and on brand of the Contactus to any time apply and in particular includes the time of mark tog, offer and and expenses from each off the Contactus to any time necessary for the operation. They will be agreed at cost, PROVDED THAT: (a) If the operation. They will be agreed at cost, PROVDED THAT:

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20% of these rates except that the out of pocket expenses described in sub-paragraph 5(s)(s) exceed the applications in Appendix A* the Contractor shall be earlied to a borns such that he shall necker in total (a). The actual cost of such men, tage, other cost or call and expenses plant 20% of the cost, or (b) the shall rate for such men, tage, other cost and and expenses plant 20% of the cost, or (b) the shall rate for such men, tage, other cost of and expenses plant 20% of the cost, or (b) the shall rate for such men, tage, other cost of and expenses plant 20% of the cost, or (b) the shall rate for such men, tage, other cost of and expenses plant 20% of the cost, or (b) the shall rate for such men, tage, other cost of and expenses plant 20% of the cost, or (b) the cost of the shall rate for such men, tage, other cost of and expenses plant 20% of the cost, or (b) the cost of the c

Classification: Confidentia



(v) Length/Beam/Depth / / (vii) GT/NT/DWT / /	(vi) Maximum Draft (viii) Details and Nature of Cargo
(ix) P&I Club/insurer(Cl. 23 (b))	(x) Any other Vessel details relevant to this Agreement
Condition of Vessel (Cl. 2, 4)	 Position of Vessel and Condition of Worksite (Cl. 1, 2, 4)
Nature of Services (Cl. 1, 2, 4, 10(c)) (i) Nature of services: (ii) Compliance with orders of competent authorities (state party to obtain confirmation):	 Place of Delivery and/or Disposal of Vessel (Cl. 9(a), 9(c), 12)

Extra costs of disposal of Vessel (Cl. 14) 10. Bonus payment/Reduced hire (Cl. 11, 12)

WRECKFIXED 2010

PART I

INTERNATIONAL WRECK REMOVAL SERVICES AGREEMENT (FIXED PRICE – "NO CURE, NO PAY")

100

Place and Date of Agreement

Contractor/Place of Business (Cl. 1) 3. Company/Place of Business (Cl. 1) Vessel Specifications (Cl. 1, 2, 4) (i) Name (ii) Flag (iii) IMO Numbe (iv) Place of Registry (v) Length/Beam/Dept (vi) Maximum Draf (vii) GT/NT/DWT (viii) Details and Nature of Cargo (ix) P&I Club/insurer (Cl. 19(b)) (x) Any other Vessel details relevant to this Agreemen Condition of Vessel (Cl. 2, 4) Position of Vessel and Condition of Worksite (Cl. 1, 2, 4 Nature of Services (Cl. 1, 2, 4, 9(a)) Place of Delivery and/or Disposal of Vessel (Cl. 8(a), 8(b) (i) Nature of services: 8(e)) (ii) Compliance with orders of competent as (state party to obtain confirmation): Payments (Cl. 4, 9(a)) 10. Payment Details (Cl. 9(c)) Fixed Price (in figures and words) (i) Currency (ii) Bank (iiii) Address (iv) Account Number (In the second s



It is mutually agreed that this Contract shall be parformed subject to the conditions contained herein consisting of Part I. (Jaditica) clauses stated in Box 15, 1 any, and, when they have been agreed, Annexes A, B and C. In the event of a conflict of conditions, the provisions of Part I and any additional clauses shall prevail over those of Part II and Annexes A. B and C. In the advect of C and C. In the data of C and C a

Signature and company stamp (Requesting Party)	Signature and company stamp (Contractor)

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Pandemic induced ramifications on contractual performance

Any other reason outside party's reasonable control

What reasonable steps the parties could have taken

Break for panel discussion



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History of Container Vessels



Allianz Global, Safety and Shipping Review 2020



Infamous Container Vessel Fires





Containership Fires

Gard, 3 Nov 2020, Allianz Global, Safety and Shipping Review 2020



There has been no shortage of smaller fires, near misses on-board and fires occurring in containers within terminal areas. Swift action from the crew, but also some good fortune can be the difference between a small fire and a large-scale casualty. Statistics suggest that the frequency of fires emerging from containerized cargo is not going down. <u>On average there has been roughly one fire every two weeks in 2020, with a major container fire occurring on average every</u> 60 days.

Nine major container ship fires were reported in 2019. By comparison, despite an overall fall in casualties in the first half of 2020, 10 such incidents were reported

The most frequent source of cargo-related fires is still self-heating in charcoal.

In second place are various kinds of dangerous chemicals which remain problematic due to inadequate or incorrect packing and incorrect cargo information being declared in the booking process. Third are batteries.

About 10% of laden containers or 5.4 million containers being shipped annually are estimated to contain declared dangerous goods

Major incidents like the fires on the Maersk Honam and Yantian Express have shown crew are often not able to respond quickly and safely enough to a fire.

Fire and smoke detectors are typically too slow to react, meaning fires are often too advanced to send people to the scene.

Containership Fires



The flag state incident report into the 2019 fire on the Yantian Express found the fire was only detected after two containers were already fully ablaze.

Present rules and regulations, which are setting the standard for fire safety on board container ships have not developed at the same speed as vessel size.

Mis-declaration of such dangerous goods make it impossible for shipping lines and vessel planners to control where the containers are stowed on-board. This may expose dangerous goods to heat sources and make fire detection and firefighting difficult. Shippers and manufacturers are in theory liable for damages caused by such errors but enforcing recourse claims against them often proves to be difficult in practice.

"A study by the National Cargo Bureau (NCB) found most containers it inspected had issues with mis-declared or improperly stowed cargo. Of the 500 containers inspected, 55% failed with one or more deficiencies (69% of import containers containing dangerous goods failed and 38% of export containers with dangerous goods failed), including the way cargo was secured, labelled or declared. The sample illustrates the extent and magnitude of the problem of mis-declared cargo, according to Andrew Kinsey, Senior Marine Risk Consultant at AGCS.

"The NCB analysis of cargo inspections makes for somber reading to say the least. In fact, the findings are frankly shocking. We know cargo mis-declaration is a problem, now we have empirical data that shows the true extent of the situation," says Kinsey.

Limitations in onboard Fire Fighting Capabilities B M

MSC. 365(93), Regulation II-2/10.7.3 -

Amendment of fire fighting for new ships(built after 1 Jan 2016) designed to carry containers on or above the weather deck requires:

- At least one water mist lance
- Ships able to carry five or more tiers of containers above the weather deck must have mobile water monitors, min 2 or 4 dependent on ship's breadth under or over 30 m

These requirements though enforced for the New Ships are still lacking as far as the practicality of usage onboard Container Vessels where the size and height of tiers has increased exponentially.



Recommendations to improve Fire Detection and Fire Fighting Capabilities onboard



8 practical measures prioritised:

- Water screens between container bays
- Water screens between the Cargo Bays and Accommodation Areas both Forward and Aft.
- Water monitors between container bays (with height accessibility)
- Water film for hatch cover under the container stacks
- Mobile water monitors
- Water mist lance
- Under Deck Detection including temperature monitoring plus water connection at each container containing dangerous goods
- Fire insulation for deck house

The best practical solution Fighting a fire on container ships is to avoid the spread to the adjacent areas, thereby depriving it of combustible material. This can best be achieved using water curtains and boundary cooling.

Limited Shore Capabilities on Fire Fighting



As noted on various occasions over the years, shore teams/ports are not yet well equipped or sufficiently trained to fight fires onboard container vessels.

Below pics from an Actual Incident where a Undeclared cargo of Lithium Ion Battery Packs caught fire in the Cargo Hold





Limited Shore Capabilities on Fire Fighting



- The vessel was allowed to enter port and the Shore Fire Fighting Cutter was alongside within a Short Span of time.
- Ironically, the shore team refused to enter the cargo holds in Full Gear as CO2 had been Released, even after hatch covers were opened but as you may note from the initial photographs the stevedores from the Shore Barge entered the Hold once the covers were opened and the atmosphere tested to sling on the containers which needed to be moved out to access the container on fire.
- The Shore team were not equipped to douse a fire from within the Container.
- The Container was finally opened and accessed only after on of the Owners representatives physically opened the same in Full Gear to allow access to the contents. The Ships fire fighting team, then commenced fire fighting which was later taken over by the shore team



Limited Shore Capabilities on Fire Fighting

- Knowledge of the Fire Fighting Procedures for the high number of Dangerous goods carried onboard further aggravates the situation at hand.
- E.g. Sea Water is used in almost all cases causes further reactions with certain chemicals and further enhances the fire, corrosion etc. as compared to smothering it.

As the Fire Spreads on a Container vessels the mix of goods onboard makes it harder to control, this has been seen Historically and we still need to Learn and implement the Preventive Actions from the past incidents.