BLUE WATERS

Newsletter

On Marine Environment Security

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Is the Use of Oil Spill Absorbents the effective solution for environment friendly spill response ?





A Publication of the Indian Coast Guard

From the Director General's Desk

The past six months have witnessed two large fuel-laden ships sinking, and a mystery spill that affected large tracts of coastline near south Gujarat. The quick action initiated by the Paradip and New Mangalore Ports has resulted in timely removal of residual oil from the sunken ships. The prompt action initiated by the concerned state governments has ensured quick clean-up of the affected coastal areas. The above action reflects the objective of the NOSDCP to ensure quick mitigation of an oil pollution incident. However, there is an immediate necessity to address preventive measures so as to ensure, that the ships are operated with proper care, their cargo is loaded to prescribed standards, and they carry valid insurance and safety certificates. I request the maritime administration, port authorities, and all stakeholders to ensure, that the ships that arrive and depart Indian ports, confirm to the prescribed standards of operation.

This edition of Blue Waters, deals with issues related to oil spill cleanup through use of sorbent material, and is aimed at enhancing awareness amongst readers on the recent trends on environment friendly clean-up measures being instituted worldwide. The sorbent material will be an ideal clean-up gear, that can be provided to volunteers who are trained on oil spill cleanup.

A pollution response operation is a multi-agency task and require multi-faceted coordination to undertake large oil spill clean-up, right from the government level to an untrained volunteer worker trying to cleanup the beaches and affected areas. It requires clear directives, efficient operational coordination, smooth logistics management, effective manpower utilization, scientific and environment sensitivity input, all working in synergy. To put the above perspective in to practice, the Coast Guard conducted the second National Level Pollution Response Exercise off Mumbai on 09 Nov 09, during which valuable lessons have been learnt with regard to coordination of utilization of assets and disaster mitigation methods. However, the level and number of agencies/ assets participating in such exercises needs to be increased. The Coast Guard also undertook joint inspection of Tier-I facilities of all major ports so as to analyse the existing arrangement and preparedness level for oil spill cleanup. This is one area which requires more focus as the trend of the recent oil spill incidents indicate, that ports are very much vulnerable to oil spill incidents and 'preparedness' is the key.

Requirement exists to enhance our preparedness to realistically respond to major spill near port areas, as the existing pollution response capability needs to be augmented, and the essential Tier-I equipment be in place. The issues which require attention were discussed during the 14th NOS-DCP meeting and decisions arrived at, are to be progressed to achieve the desirable standards. Your proactive actions for oil spill preparedness are the 'need of the hour'. Our collective resolve will not only bring change to the current marine environment protection issues, but also enhance our country's image as a responsible environment friendly nation.

Jai Hind.

(Anil Chopra)
Vice Admiral
Director General
Indian Coast Guard

New Delhi
31 Jan 10

Editorial

In this issue of Blue Waters, the theme adopted is "Use of absorbent for oil spill cleanup". The key to effectively combating oil spills is the careful selection and proper use of Pollution Response equipment and materials best suited to the type of oil and the conditions that are prevalent at the spill site. The analysis of recent oil spill incidents and cleanup measures indicate that the oil spill absorbent materials in the form of booms, pillows, pads, rolls and sheets have been used very effectively. The use of absorbents for cleanup does not require any previous training or exercise and they are early disposable. It is no wonder that the authorities responding to MT Hebei Spirit oil spill that affected South Korea coastlines, were using about 35 tonnes of absorbent materials everyday during the shoreline clean-up phase.

Recently, a team from the India Institute of Technology, Delhi has taken a initiative to undertake R&D on preparing low cost oil spill absorbent material, which can be re-used many times. The research is still ongoing, and the availability such locally made absorbent materials will be of great advantage as it will be cheaper, the quality can be varied in accordance to the requirement. Every Port and Oil handling agencies should have some amount of absorbent material in their inventory for addressing any minor spills.

The past six months have seen a rise in adoption of resolutions by IMO, many of which are related to air pollution, ballast water management and ship recycling. However, information related to current issues such as mandatory audit scheme, ship to ship oil transfer Rules, oil residue MARPOL amendments are brought out in this edition for benefit of the readers.

The measures discussed during the 14th NOS-DCP meeting need to be addressed by all concerned for establishing necessary oil spill response capability in ports and oil handling facilities. The Coast Guard is likely to enter into MoU with AMET University for conduct of IMO Level – II PR course regularly at Chennai. The information brochure will be forwarded shortly to all resources agencies. The IMO Level – I oil spill response training progress for the year 2010 has been drawn up and hosted in ICG website. The resource agencies may benefit from the Coast Guard efforts by nominating their representative for the fresh or refresher training.

(Donny Michael)
Commandant
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CONTENTS

ARTICLES

USE OF ABSORBENTS FOR OIL SPILL CLEAN UP

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Introduction

A number of advanced response mechanisms are available for controlling oil spills and minimizing their impacts on human health and the environment. The key to effectively combating spills is careful selection and proper use of the equipment and materials best suited to the type of oil and the conditions at the spill site. Most spill response equipment and materials are greatly affected by such factors as conditions at sea, water currents, and wind. Damage to spill-contaminated shorelines and dangers to other threatened areas can be reduced by timely and proper use of containment and recovery equipment. One of the best suitable method of recovery of spilled oil in shoreline is usage of absorbents.

Absorbent Technologies.

Sorbents are insoluble materials or mixtures of materials used to recover liquids through the mechanism of absorption, or adsorption, or both. Absorbents are materials that pick up and retain liquid distributed throughout its molecular structure causing the solid to swell (50 percent or more). The absorbent must be at least 70 percent insoluble in excess fluid. Adsorbents are insoluble materials that are coated by a liquid on its surface, including pores and capillaries, without the solid swelling more than 50 percent in excess liquid. To be useful in combating oil spills, sorbents need to be both oleophilic (oil-attracting) and hydrophobic (water-repellent). Although they may be used as the sole cleanup method in small spills, sorbents are most often used to remove final traces of oil, or in areas that cannot be reached by skimmers. Sorbent materials used to recover oil must be disposed of in accordance with approved local, state and federal regulations. Any oil that is removed from sorbent materials must also be properly disposed off or recycled.

Categories of Sorbents.

Sorbents can be divided into three basic categories: natural organic, natural inorganic, and synthetic.

(a) **Natural Organic Sorbents**. This includes peat moss, straw, hay, sawdust, ground corncobs, feathers, and other readily available carbon-based products. Organic sorbents can adsorb between 3 and 15 times their weight in oil, but there are disadvantages to their use. Some organic sorbents tend to adsorb water as well as oil, causing the sorbents to sink. Many organic sorbents are loose particles such as sawdust, and are difficult to collect after they are spread on the water. These problems can be counterbalanced by adding flotation devices, such as empty drums attached to sorbent bales of hay,to overcome the sinking issue, and wrapping loose particles in mesh to aid in collection.

(b) **Natural Inorganic Sorbents**. Consist of clay, perlite, vermiculite, glass wool, sand, or volcanic ash. They can adsorb from 4 to 20 times their weight in oil. Inorganic sorbents, like organic sorbents, are inexpensive and readily available in large quantities. These types of sorbents are not used on the water's surface.

(c) **Synthetic Sorbents.** This includes man-made materials that are similar to plastics, such as polyurethane, polyethylene, and polypropylene and are designed to adsorb liquids onto their surfaces. Other synthetic sorbents include cross-linked polymers and rubber materials, which absorb liquids into their solid structure, causing the sorbent material to swell. Most synthetic sorbents can absorb up 70 times their own weight in oil.

Sorbent Colour

(a) **White.** Oil only material that picks up oil (hydrocarbon based) liquids. Repels and floats on water (hydrophobic). Product is used in the spill response and MRO industries, to pick up oil off water and catch oil products around machinery and ways.

(b) **Blue**. Oil only material that picks up oil (hydrocarbon based) liquids. Repels and floats on water (hydrophobic). Product is used in the spill response and MRO industries, to pick up oil off water and catch oil products around machinery.

(c) **Grey.** Universal material that picks up all liquids (Hydrophilic). It does not float on water. Product is used in the spill response, HAZ-Mat and MRO industries. This product can handle aggressive liquids.

(d) **Yellow**. Universal material that picks up all liquids. The colour "Yellow" signifies the type of Haz-Mat liquid absorbed as per individual company guidelines, for proper disposal. It does not float on water. Product is used in the spill response, HAZ-Mat and MRO industries. This product can handle aggressive liquids.

(e) **Other colours.** Each colour has a specific industry meaning. **Green** is used to blend in with the natural surroundings, **Pink** is used for acids, **Red** is used for Bio hazard. And of course you have a few manufactures creating coloured pads for the sake of marketing. Colour has absolutely nothing to do with the performance and active properties of the pad. It is used primarily for a identifier for the spill responder and the person or company handling the spill.

Characteristics

The characteristics must be considered when choosing sorbents for cleaning up oil spills:

(a) **Rate of Absorption**. The absorption of oil is faster with lighter oil products. Once absorbed the oil cannot be re-released. Effective with light hydro-carbons (e.g., gasoline, diesel fuel, benzene).

(b) **Rate of Adsorption**. The thicker oils adhere to the surface of the adsorbent more effectively.

(c) **Oil Retention**. The weight of recovered oil can cause a sorbent structure to sag and deform, and when it is lifted out of the water, it can release oil that is trapped in its pores. Lighter, less viscous oil is lost through the pores more easily than are heavier, more viscous oils during recovery of adsorbent materials causing secondary contamination.

(d) **Ease of application**. Sorbents may be applied to spills manually or mechanically, using blowers or fans. Many natural organic sorbents that exist as loose materials, such as clay and vermiculite, are dusty, difficult to apply in windy conditions, and potentially hazardous if inhaled.

Sorbent Class

(a) **Universal.** This class of sorbents can pick up any oil or water base liquid including aggressive liquids such as acids or caustics. The term most commonly used to describe this type of sorbent is Hydrophilic. The color of the sorbent is used as an identifier and to tell the person handling the spill its purpose of the pad.

(b) **Oil Only.** This class of sorbents can pick only oil based liquids. The term most commonly used to describe this type of sorbent is Hydrophobic. The color of the sorbent is used as an identifier and to tell the person handling the spill its purpose of that pad. Generally theses sorbents are white. However blue is also an identifier of oil only.

Sorbent Type

Sorbents are materials used to recover liquids (leaks, drips, spills, etc.). Synthetic sorbents are made of polypropylene - a type of plastic - and are designed to adsorb liquids onto their surfaces, while more basic sorbents like rags, corn cobs, recycled cellulose, vermiculite or clay actually absorb the liquids into the material itself.

Polypropylene is a petroleum based product, and will naturally repel water while adsorbing any oil or oil-based liquids. Water-based spills can be absorbed by polypropylene products after they are treated with a surfactant. Often these products are colour coded to help the user select the correct one.

Consider how to dispose of the sorbents prior to purchasing them. If you plan to apply any spilled material that has been absorbed, it must be easily handled for dispersal at or below the labelled rate to a labelled site. If you select a material, like a pad, that cannot be applied, have a plan for how to dispose of the material (state sponsored clean-sweep hazardous waste collection, or private hazardous waste contractor). All materials for disposal require proper identification of the contents (product name, active ingredient, approximated amount).

There are three general types of sorbents, as mentioned below :

(a) Universal Sorbents. Will absorb any liquid including aggressive liquids, such as acids and bases and are flexible enough to soak up cleaners, water-based fluids, alcohol and gasoline. Universal sorbets may be made from polypropylene treated with a surfactant or expanded silicates.

(b) Petroleum Sorbents. These are designed to absorb oil or other petroleum-based liquids. They will not absorb any water-based liquids. These sorbents are made of polypropylene or treated cellulose.

(c) **Maintenance Sorbents**. These are designed to absorb non-aggressive liquids found in industrial and business operations. Some are made of recycled cotton, wool, paper or corn cobs. There are also some made of polypropylene.

Forms of Sorbents

(a) **Booms, Socks or Mini Booms.** These can be placed around a spill or machine to keep the liquid from moving.

(b) **Pillows.** Are good for absorbing large spills of liquids. They may also be used in maintenance mode for recurring leaks from valves or pipes.

(c) **Pads and Rolls.** Used to catch drips and leaks as they occur. These can be used in high-traffic aisles or next to machines. Pads can be laid under machines, or valves.

(d) **Loose Sorbents.** These are granules formulated to absorb liquids when poured on the spill. Loose sorbents are typically used on small liquid spills.

Effectiveness

Sorbents work on two principles: **absorption** and **adsorption**. In most cases sorbent materials are broadcast upon an oil slick and float along its surface until they become saturated with oil. Then the oil-soaked sorbents

must be recovered and disposed off or squeezed free of oil and re-used.

Sorbents are not recognized as a primary means of recovering most oil spills for several reasons :-

(a) The application and recovery of sorbent products is labour intensive activities.

(b) The problems associated with disposal of oily sorbents are considerable.

(c) The costs of using sorbents as a primary recovery tool are prohibitive.

Even if sorbents are re-used time and again, the labour necessary to support such recovery efforts makes it uneconomical to use sorbents. Consequently, sorbents are not recommended as a primary recovery tool. Rather, they should be used in mopping up operations, removing sheens, and in areas where conventional skimming devices are ineffective.

In simple terms **absorbents** serve to soak up spilled products by capillary action. These types of sorbents resemble sponges in both form and function, and are ideal for low viscosity oil and fuel spills on land or water.

"Oil Only" and "Universal" Sorbents are used to efficiently adsorb leaks, drips, and spills. The "Oil Only" type adsorbs hydrocarbon based fluids while repelling water (oleophillic and hydrophobic). "Universal" sorbents are designed to absorb most any fluid except "Hydroflouric Acid". These sorbents are made from 100% MeltBlown Polypropylene and are non-toxic, non-hazardous, and non-biodegradable. Polypropylene sorbents are easily deployed and retrieved without special equipment or specially trained personnel.

Metal clips link Sorbent booms together for adding extra lengths.

Oil sorbent booms are ideal for rivers, ponds, oceans or where fuel spills occur.

Adsorbents rely on the forces of molecular adhesion that cause heavy oil products to cling to the surface of the sorbent, the oil simply sticks to the sorbent material. Snare, also called pom-poms, nets, and multi-strand sorbents are most effective on viscous oils.

Re-Use

The best option for sorbents with uncontaminated used oil (petroleum-based or synthetic) is to recycle them by following the used oil regulations. Some oil sorbent recyclers compress or wring out sorbents to recover liquid oil and produce bunker fuel. Sorbents also provide fuel for municipal power plants and for industrial furnaces. Be sure your oil sorbent recycler actually recycles your non-hazardous sorbents as used oil. (Some companies accept non-hazardous sorbents, but manage them as if they were hazardous waste.)

Most sorbents containing uncontaminated motor oil can be put in the dumpster as long as there are no free liquids.

Sorbents may be re-used numerous times before the sorbent begins to deteriorate. The re-use potential of a sorbent may appear to be an advantage to other methods but the process of applying the sorbent, recovering it, wringing it free of oil, and reapplying it is labour intensive, time consuming and expensive, in addition to creating the problem of disposal in conventional landfills.

Sorbents are used to absorb drips or spilled liquids, especially used oil. Sorbents are made from a variety of materials, ranging from plastic resin pads to sawdust. Used sorbents have commonly been disposed of as solid waste; however, they can contain a variety of liquids, including hazardous materials.

Sorbents used to absorb hazardous materials, such as solvents, paint, ink or oil, may need special handling and disposal. Testing and special handling is required for sorbent used to clean up used oil before it is disposed of. Used oil sorbent disposed of as industrial solid waste must contain no free liquids, and must be evaluated and shown to be nonhazardous. No quantity of used oil sorbents can be disposed of as solid waste without documentation that the sorbents are not hazardous. Other options for used oil sorbents are to: launder or wring out and reuse when possible, burn for energy recovery or dispose of as hazardous waste.

All of the options for recycling or disposing of sorbent waste cost money. The easiest cost savings result from careful work practices that reduce the amount of sorbent waste produced.

Suggestions for Reducing Sorbent Waste and Cost

(a) Encourage operators to practice good housekeeping:

(i) Use drip pans to catch liquids directly, rather than soaking up with sorbents.

(ii) Avoid spills by increasing awareness of the cost of spill cleanup and waste management.

(iii) Minimize the number of trips and the distance during materials transfers to reduce the chance of accidental spills.

(iv) Always recover liquids as liquids, before using sorbents.

(v) Use a squeegee and dustpan to clean up non-flammable liquids. This can recover up to 95 percent of the spilled liquid, at a cost of about $10 for tools. This technique also greatly reduces the amount ofsorbent needed to clean up any remaining liquid residue, and it only takes one quick, extra step.

(b) Keep sorbents that contain hazardous materials separate from nonhazardous sorbent waste. This helps reduce the volume of sorbent that needs to be managed as hazardous waste. Be sure to label storage containers accurately.

(c) Collect and store partially used sorbent in specially labeled containers located in high-use areas. Partially used sorbent can be reused until it is saturated.

Disposal Issues

Sorbents used to treat free liquids to be disposed of in landfills must be nonbiodegradable. such as Inorganic

minerals, other inorganic materials, and elemental carbon (e.g.) aluminosilicates, clays, smectites, Fuller's earth, bentonite, calcium bentonite, montmorillonite, calcined montmorillonite, kaolinite, micas (illite), vermiculites, zeolites; calcium carbonate (organic free limestone); oxides/hydroxides, alumina, lime, silica (sand), diatomaceous earth; perlite (volcanic glass); expanded volcanic rock; volcanic ash; cement kiln dust; fly ash; rice hull ash; activated charcoal/activated carbon); or

High molecular weight synthetic polymers (e.g.) polyethylene, high density polyethylene (HDPE), polypropylene, polystyrene, polyurethane, polyacrylate, polynorborene, polyisobutylene, ground synthetic rubber, cross-linked allylstyrene and tertiary butyl copolymers). This does not include polymers derived from biological material or polymers specifically designed to be degradable; or Mixtures of these non biodegradable materials.

Handling, storage, and disposal of products must be carried out in compliance with all local, state, and federal regulations. Various liquids absorbed may be toxic or hazardous in nature and should be disposed of in the approved manner. The manufacturer does not recommend any specific disposal procedures.

Case Study

(a) **Coastal Oil Spills benefit from the use of absorbents**: On 20 June 1994, the Apollo Sea sank between Dassen and Robben islands. Oil came ashore on Dassen Island at West Bay and House Bay, and later also on Robben Island. This resulted in about 10000 penguins being oiled, of which 4718 were successfully cleaned by Southern African National Foundation for the Conservation of Coastal Birds (SANCCOB) and later returned to the wild. The other 5000 birds died, many during transportation from the islands to SANCCOB's rescue stations or in the first few days after arriving at the stations. Before the sinking of Treasure, the Apollo Sea incident was the largest oiling event for seabirds in southern Africa. Soon after Treasure sank, it became apparent that a much larger number of birds was at risk of becoming oiled, and that unless steps were taken to minimize this number, it may prove beyond the capacity of SANCCOB to care for. This case study highlights steps that were taken to minimize the numbers of birds that became oiled and remedial measures that were implemented for those that were oiled.

(b) Firstly, attempts were made to catch all penguins; congregating rocks contaminated with oil were initially piled together and dusted with an absorbent peat-based dust that rendered them dry. They were later returned to the beach area. The rocky coastline and intertidal region were cleaned by rubbing fine absorbent material into the oil on the rocks and brushing it off with hard bristle brushes. Kelp contaminated with oil was removed and buried on the island. A survey showed the Robben Island coastline to be mostly clean of oil on 5 July.

(c) This experience demonstrates the amazing speed and ecological benefits of using absorbents for oil spill cleanup. This product offers a fast and environmentally friendly method for protecting the eco-system, including plant and wildlife during oil spill disasters.

With this product, the project was cleaned up in record time, not YEARS! In the case of this project, within one month the beaches were clean and absorbents made the difference in the death toll of the local wildlife.

EXPERIMENT TO CLEAN UP AN OIL SPILL

An environment friendly oil spill experiment (Courtesy AMSA, Australia)

Do you want to try cleaning up an oil spill yourself? This experiment will help you understand why it is such a difficult task. All of the tools you will need are environmentally friendly and easy to find.

You need to have the following for the experiment:

- one 28 cm x 19 cm x 4 cm clear glass baking dish (or equivalent)
- water
- blue food colouring
- 12 tbsp. vegetable oil
- 8 tbsp. pure cocoa powder
- 1 tsp. table salt
- a tablespoon
- a teaspoon
- 5 paddle-pop sticks
- a coffee mug
- sorbents (paper towel, cotton balls, rag, string, nylon pot scrubber, sponge, styrofoam cup, garden peat moss)
- 1 squirt of liquid dishwashing detergent
- tweezers or tongs
- bird feathers

To prepare the fresh water

- Fill baking dish with cold tap water within 1 cm of rim.
- Add 5-6 drops of food dye.
- Mix dye and water with a stirring stick. Let solution settle.

Answer question 1 in Observations.

To simulate crude oil

- Place 3 tbsp. of vegetable oil in mug.
- Add 2 tbsp. of cocoa powder.
- Mix cocoa powder and oil thoroughly with a paddle pop stick.

To contaminate fresh water

- Very slowly pour simulated crude oil from a height of 1 cm onto the top of the fresh water dish. If you

pour the oil too quickly, the experiment won't work.

Answer question 2 in Observations.

Wait 3 minutes.

Do you want to change your answer to question 2 in Observations?

To test the sorbents

- Place a small sorbent sample into the centre top of the contaminated fresh water.

Answer questions 3, 4, 5 and 6 in Observations.

Remove sorbent with tweezers or tongs.

Repeat step 1 with other sorbent samples.

Answer questions 7, 8, 9 and 10 in Observations.

Clean out contaminated fresh water.

Prepare new simulated fresh water following instructions above.

Add detergent to the oil-contaminated fresh water.

Answer questions 11, 12 and 13 in Observations.

To determine how oil affects feathers

Dip feather into oil-contaminated fresh water.

Answer questions 14 and 15 in Observations.

Repeat all of the above procedures substituting an ocean for the fresh water. To prepare the ocean, follow the fresh water procedures except add 1 tsp. of salt and mix it with the water before step 2.

At the end of the ocean experiments, answer question 16 in Observations.

Questions on Observations

- How is the fresh water/ocean different from tap water?
- What happened to the oil when you dropped it on the fresh water/ocean? Did it sink? Float? Mix in?
- How much oil did the sorbent clean up? How quickly?
- Does the sorbent pick up water too? If so, how can you tell?
- Does the sorbent sink or float?
- What is the condition of the contaminated sorbent?
- How would you pick up the oil-contaminated material in a "real" oil spill in fresh water/the ocean?
- How would you dispose of the oil-contaminated material in a real oil spill?
- Of the sorbents you tested, which one worked the fastest? The best?
- What other materials could you use as sorbents?
- What happened when the detergent was added to the contaminated fresh water/ocean?
- Where would the oil go in "real" fresh water/ocean after a dispersant (like the dishwashing detergent is used?
- How clean is the fresh water/ocean now that it has dishwashing liquid in it?
- What happens when a feather gets oil on it?
- How might an oiled feather affect a bird?
- Are the results of the experiment different when you use fresh water instead of an ocean?

IMO NEWS

MANDATORY AUDIT SCHEME

The IMO Council has approved, in principle, a five-year plan that would see the Voluntary IMO Member State Audit Scheme phased in as an institutionalized, mandatory scheme. The Council requested the Secretariat to prepare a resolution delineating the way forward, together with a proposed timeframe and schedule for the further development of the Audit Scheme, for consideration and approval by the next session of the Council, for submission to the IMO Assembly for adoption, both scheduled to be held in November 2009. Such a timeframe would entail, in principle, the introduction of appropriate requirements in the relevant mandatory IMO instruments, with consequential amendments to these being adopted possibly in 2013, for subsequent entry into force in January 2015. A resolution on the framework and procedures for the new phase of the scheme would also need to be adopted by the IMO Assembly, with preparatory work for commencement of an institutionalized scheme following thereafter. Under the current scheme, the first audits were carried out in 2006 and, to date, 53 IMO Member States and one Associate Member have volunteered for audit and 38 audits have been completed.

Meanwhile, the Council encouraged Member States that have not yet volunteered for audits to do so as and when they are ready, and as early as possible, and invited Member States to nominate qualified auditors who can be selected for audit teams and who can participate in the related training courses convened by the Organization.

IMO LEGAL COMMITTEE CLARIFIES BUNKERS CONVENTION CERTIFICATES

IMO's Legal Committee moved to resolve possible confusion over some aspects of the implementation of the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (Bunkers Convention), when it met for its 96th session, with the approval of a draft Assembly resolution on the issuing of bunker certificates of insurance to bareboat-registered vessels.

The draft resolution aims to clarify differing interpretations on the issuance of Bunker Certificates by States to ships registered in a bareboat registry (in other words, when a vessel is temporarily permitted to fly the flag of another country, while ownership continues to be registered in the underlying registry), by stating that, while all States Parties recognize that Bunker Certificates should be issued by the flag State if it is a Party to the Convention, "all State Parties should request only one Bunker Certificate from any ship, including ships bareboat-registered in a State Party, and should accept Bunker Certificates issued by such a State Party". This is intended to assist shipowners, managers and operators in avoiding unnecessary delays, detentions of ships, and administrative burdens.

Further recommendations state that: "State Parties should avoid burdening shipowners with unnecessary bureaucracy; and State Parties which allow ships to be registered as bareboat chartered should co operate to find viable solutions in a spirit of understanding and cooperation." The draft resolution will be submitted to the 26th session of the IMO Assembly for adoption.

Mandatory financial security for abandonment

The Committee reviewed the report of the ninth session of the joint IMO/International Labour Organization (ILO) *Ad Hoc* Expert Working Group, and agreed with the Group's recommendations to make mandatory, by means of proposed amendments to the ILO's Maritime Labour Convention (MLC), 2006, financial security in case of abandonment of seafarers and in respect of contractual claims for personal injury to or death of seafarers.

The joint group's report will also be submitted to the 306th Session of the Governing Body of ILO. The Legal Committee agreed that an amendment to the MLC 2006 represented the best way forward to create such a mandatory instrument or instruments, but noted that this convention was not yet in force, and further work on the draft amendments might be needed after its entry into force. It was also noted that the financial security envisaged in the draft text was restricted to contractual compensation as provided for under the employment contract, collective bargaining agreement or other employment agreement.

MEPC ADOPTS SHIP TO SHIP OIL TRANSFER RULES

The MEPC adopted amendments to MARPOL Annex I for the prevention of marine pollution during some ship-to-ship (STS) oil transfer operations. The amendments are expected to enter into force on 1 January 2011.

The new chapter 8 on *Prevention of pollution during transfer of oil cargo between oil tankers at sea* will apply to oil tankers of 150 gross tonnage and above and will require any oil tanker involved in oil cargo STS operations to carry a plan prescribing how to conduct STS operations (the STS Plan), which would be approved by its Administration.

Notification to the relevant coastal State will be required not less than 48 hours in advance of the scheduled STS operations, although some relaxation to this rule is allowed in certain, very specific, cases. The regulations are not intended to apply to bunkering operations. Consequential amendments to the International Oil Pollution Prevention (IOPP) Certificate, the Supplement to the IOPP Certificate and the Oil Record Book were also adopted.

OIL RESIDUE - MARPOL AMENDMENTS

Amendments to MARPOL Annex I regulations relating to the on-board management of oil residue (sludge), were adopted. They clarify long-standing requirements and remove existing ambiguities in order to facilitate compliance. Definitions for oil residue (sludge), oil

residue (sludge) tanks, oily bilge water and oily bilge water holding tanks are introduced for the first time. Related amendments to the Supplement to the IOPP Certificate, Form A and Form B, and to the Oil Record

Book were also adopted. The amendments are expected to enter into force on 1 January 2011.

SHIP-RECYCLING IMPLEMENTATION GUIDELINES

Following the adoption of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships in May 2009, the Committee adopted *Guidelines for the development of the inventory of hazardous materials.* Progress was also made in developing draft *Guidelines for safe and environmentally sound shiprecycling.* These are the first two guidelines intended to assist with the implementation of the Convention and are crucial for the voluntary implementation of the Convention prior to its entry into force.

BALLAST WATER NEW GUIDANCE

The MEPC approved *Guidance to ensure safe handling and storage of chemicals used to treat ballast water and the development of safety procedures for risks to the ship and crew resulting from the treatment process.* This Guidance is intended to assist with the implementation of the 2004 Ballast Water Management Convention. The MEPC also agreed to give Final Approval

to four ballast water management systems that make use of active substances and Basic Approval to three such systems.

The Ballast Water Review Group met during MEPC 59 to consider the status of ballast water technologies. It noted there were currently six Type Approved systems with four additional systems being granted Final Approval at this session. The Committee noted further that the installation of ballast water management systems may require extensive design consideration, such as physical and technical feasibility studies, modification of ships' designs and provision of sufficient lead time for such modifications.

While acknowledging the difficulties, the Committee agreed that ballast water treatment technologies were available and were currently being fitted on board ships and confirmed that sufficient ballast water management systems would be available for ships constructed in 2010.

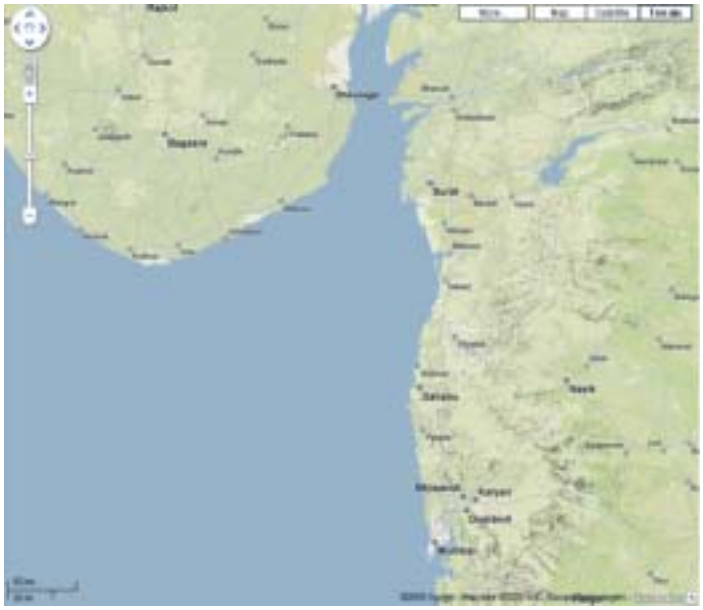
REPORTS

INDIA WATCH

OIL SPILL IN SOUTH GUJARAT

On 06 Aug 09, Coast Guard Dornier on routine EEZ surveillance sortie notice that 100 kilometer of coastline of South Gujarat and North Maharashtra have been affected by a large amount of tar ball deposits due to mysterious spillage or crude oil in the Western ODA. The oil sample analysis of the tar ball has conclusively established that the tar balls are due to crude oil spills. Tar balls/Oily spreading over 70 KM long beach in Navasari and Valsad districts and about 30 KM in Uttan, Bhayendar and Bordi beaches in Maharashtra.

The Arabian sea adjoining the western Maharashtra and South Gujarat coast has been exploited for crude and natural gas by various oil companies. The crude oil is produced from Bombay High, Mukta Panna and Tapti fields. The Gujarat Pollution Control Board roughly assessed the quantity of tar balls removed so far amounted to around 100 tonnes and have estimated that around 200 MT of oil leak could have contributed for the damage to coastline. It has been found that the beaches in South Gujarat and



North Maharashtra experience tar ball wash during the monsoon but however, this year the extent of damage due to tar ball wash is multifold. The Coast Guard is coordinating with Ministry of Environment and Forest to establish a advanced environment analysis lab for oil finger printing.

SINKING OF MV ASIAN FOREST OFF MANGALORE ON 18 JUL 2009

Merchant Vessel MV Asian Forest, a 122 metre long, 13600 GRT Bulk Carrier of Hong Kong flag developed stability related problems after she left the New

Mangalore Port on 16 Jul 09. She embarked about 13000 tonnes of Iron Ore from New Manglore Port

prior leaving and due to the shifting of the iron ore, the ship developed list on her port side. ICGS Sankalp which was operating nearby reached for rescue assistance as the vessel had listed to more than 40 degrees and the master has advised the crew to abandon the ship. All 23 crew members were rescued. The abandoned vessel capsized by 1300 hrs on 18 Jul and sank in position 208 Mangalore Light 11.5 miles with 13600 tonnes of Iron ore cargo, 366 tons of Furnace Fuel Oil and 45 tonnes of Diesel oil.. The fuel oil which is kept as reserve and are in the pipelines leaked out periodically causing minor spills which were responded immediately.and any oil present in the bilges are likely to come out of the ship. However breach of integrity of fuel oil tanks due to any other extraneous factor cannot be ruled out and hence the Coast Guard advised the port and the shipowner to remove the oil from the ship. The ship owner arranged Ms Smit Salvors for salvaging the trapped oil in Dec 09 and the major portion of the oil removal has been completed and the total oil removal will be completed by Jan 10 as per information received from the shipowners.

REMOVAL OF OIL

Merchant Vessel MV Black Rose, a 187metre long, 32 year old, 13600 GRT Bulk Carrier of Mongolia flag, developed stability related problems after she left the Paradip Port on 09 Sep 09. She had embarked about 24000 tons of iron ore from Paradip prior departure and due to the shifting of this cargo, the ship developed a list on her starboard side. However within thirty minutes of leaving harbor, the master called for rescue assistance as the vessel had listed to more than 50 degrees. The master thereafter advised the crew to abandon ship. 26 crew members who abandoned the ship including the Captain, were rescued by the Coast Guard and Paradip Pilot launch. The abandoned vessel capsized at about 2000 hrs on 09 Sep and sank in position 3.5 nautical miles southeast of Paradip with 24000 tons of iron ore cargo, 928 tons of Furnace fuel oil and 48 tons of Diesel oil. It was ascertained that the vessel was found operating with a **fraudulent insurance certificate.** The Paradip Port Trust issued a Global tender for removing the trapped oil inside the ship in view of the sensitive marine environment surrounding the port and the presence of world famous Olive Ridley turtle rookeries. The oil removal action commenced in mid Oct 09 and all the oil was removed by the salvars by mid Nov 09, thereby removing the threat of oil spill from the sunken ship.

EVENTS

14TH NATIONAL OIL SPILL DISATER CONTINGENCY PLAN (NOSDCP) AND PREPAREDNESS MEETING, NEW DELHI

The fourteenth National Oil Spill Disaster Contingency Plan (NOS-DCP) and Preparedness Meeting was held at Vigyan Bhavan, New Delhi on 17th Nov 09. Vice Admiral Anil Chopra, AVSM, Director General Indian Coast Guard, the Chairman NOSDCP steered the meeting. A total of 62 delegates from various Govt. Departments, Ports and Oil Companies attended the meeting.

The Chairman in his inaugural address welcomed all the delegates to the 14th NOSDCP meeting and reiterated that the purpose and objective of the meeting is to review preparedness and response capabilities, with a view to prepare all agencies to respond to any contingency which may arise out at sea. He stated that the meeting also provided all agencies, an opportunity to monitor their progress made, whilst shouldering their responsibilities as per the provisions of NOSDCP and the functional roles provided in the Allocation of Business Rules 1961 related to oil pollution mitigation .

The Chairman informed that the sinking of MV Asian Forest off Mangalore on 19 Jul 2009, and the oil spill threat on account of sinking of MV Black Rose off Paradip on 09 Sep 2009 are cause for concern as those incidents were not accidents due to weather conditions but of want of proper checks and verification. The Chairman appreciated the efforts taken by the concerned agencies in mitigating the oil pollution threats and for the quick clean-up action undertaken. The chairman also intimated that there is a urgent requirement of setting up a modern laboratory for undertaking oil finger printing so that any oil spill for which the source is not known can be identified as large number if offshore installations are present in the maritime areas. He mentioned the above requirement in the wake of the mystery oil spill that affected large tracts of south Gujarat coast and north Maharashtra coast in August this year.

The Chairman appreciated the efforts made by the major ports in preparing the contingency plan and establishing the tier-I response facilities. He thanked the resource agencies which participated in the second National Pollution Response Exercise (NATPOLREX-II) conducted off Mumbai on 04 and 05 Nov 09. The Chairman intimated that the Government of India is likely to sign the MoU for the South Asia Cooperative for Environment Protection (SACEP) and several other IMO conventions relating to

marine environment protection and reiterated that all agencies to gear up to meet all the emergent requirements of MoU and other IMO conventions.

Finally, the Chairman called upon all ports and oil handling agencies to take all the necessary measures and keep the action plan for oil spill prevention and mitigation as dynamic by constant reviewing of the preparedness levels and taking necessary corrective action to meet all the emergent situation of oil pollution.

The Chairman gave away the first Coast Guard Environment Award for the Ports Category to the Paradip Port Trust in accordance to the recommendations of the Awards Committee who selected Paradip Port Trust for meeting all the criteria of establishing the updated contingency plan, undertaking regular drills, training and exercises, maintenance of adequate PR equipment and also in taking proactive measures to remove large quantities of trapped oil from the sunken ship MV Black Rose. The Deputy Conservator of Paradip Port Trust received the award.

The Secretary, NOS-DCP & Director (Fisheries and Environment), CGHQ briefed the participants about the developments at the National level since last NOS-DCP meeting and also about the efforts undertaken by Coast Guard and various other agencies. The Director (F&E) gave a presentation on overview of NOSDCP.

There were two presentations arranged for the benefit of the members during the meeting. The first presentation was on "**International conventions on Oil Pollution**" by Capt Deepak Kapoor, Nautical Surveyor, DG Shipping, Mumbai. The second presentation was on "**Case Study on MT Hebei Spirit**" by Commandant Donny Michael, Joint Director (Environment), CGHQ. A presentation covering debrief on second National Level Pollution Response Exercise (NATPOLREX-II) by Commandant SD Sonak, PRT (West).

NATIONAL LEVEL POLLUTION RESPONSE EXERCISE (NATPOLREX)

The Indian Coast Guard is the Central Coordinating Agency (CCA) for responding to all oil spills that occur in

the Maritime Zones of India. To respond to any spills effectively the ICG has developed the National Oil Spill disaster Contingency Plan(NOS-DCP), which delineates the responsibilities of different national orgainsation and departments and other resource agencies. In accordance to the previous decision taken during the of NOS-DCP meeting to undertake a national level exercise to validate the NOSDCP provisions, a National Level Pollution Response exercise named "**Clean Sea – II**" was conducted by the Indian Coast Guard from 04 Nov to 05 Nov 09 off Mumbai. The aim of the exercise to test the level of preparedness of the Coast Guard and other resource agencies in

responding to a major oil spill by invoking the provisions of the NOS-DCP established and implemented by the Coast Guard.

In this exercise, an oil pollution incident off Mumbai ODA area was simulated wherein, the resources from Indian Coast Guard and other agencies were mobilized and the readiness of the participants as resources agencies members were assessed through a tabletop exercise at ICG Regional Headquarters (West), Mumbai on 04 Nov 09. The phase II & III of the exercise was conducted on 05 Nov 09 with Chairman, NOSDCP witnessing the exercise at sea.

The resource agencies such as the Indian Navy, Maharashtra State Disaster Management Authority, Oil and Natural Gas Corporation Ltd, National Institute of Oceanography, Oil Industry Safety Directorate, Shipping Corporation of India, Jawaharlal Nehru Port Trust, Mumbai Port Trust, State Pollution Control Board, Directorate General of Shipping and various other private oil companies are participating in the exercise. A similar exercise was conducted by Coast Guard from 07 to 09 Apr 09.

INTERNATIONAL COASTAL CLEANUP DAY

The Indian Coast Guard is lead agency in coordinating International Coastal Cleanup Day conducted every year under the auspices of the UNEP clean seas programmed administered by the South Asian Cooperative for Environment Protection (SACEP) as a part of regional environmental programmed on marine litter activity. ICG coordinated the event in India in more than 70 locations spread all over the coastal States and Union Territories, that includes the Andaman and Nicobar islands. Personnel

from Coast Guard and their families, Military, Para Military services, Police, Schools, Colleges, Educational Institutions,

State/Central NGO's took part in the event which covered large beach tracts which were found heavily polluted with litter and garbage. It was estimated that over 700 tons of litter material and garbage was collected with the assistance from the district administration, municiplities and local authorities and other NGOs.

GROUNDING & SINKING INCIDENTS OF MERCHANT VESSELS IN INDIAN WATERS FROM JUN-DEC 2009

S. No.	Date of Incident	Name of Vessel	Area of Incident	Nature of Incident
01	26 Jun 09	Harsa Barge	164 Nanwell Pt. 17 NM	Grounding
02	08 Jul 09	MV Kin Ship Bangar	284 Panji Lt 10 NM	Grounding
03	17 Jul 09	MV Shaheen	North off Karwar	Grounding
04	18 Jul 09	MV Asian Forest	Off New Mangalore Harbour	Sinking
05	21 Jul 09	MV Paranik Pravesh (Ex Name) MV Nafisa – I	132 VRL Lt 50 NM	Grounding
06	09 Sep 09	MV Black Rose	Paradip Port Anchorage	Sinking

INDIAN COAST GUARD ANNUAL POLLUTION RESPONSE TRAINING PROGRAMME - 2010

DATE	VENUE	TYPE OF TRAINING	COORDINATOR	REMARKS
Western Region				
15 - 19 Mar 10	Mumbai	IMO Level—I	PRT (West)	-
22 - 26 Mar 10	Mumbai	IMO Level—I	PRT (West)	First Batch 25 Trainees
19 - 23 Jul 10	Mumbai	IMO Level—I	PRT (West)	Second Batch 25 Trainees
18 - 22 Oct 10	Mumbai	IMO Level—I	PRT (West)	Third Batch 25 Trainees
06 - 10 Dec 10	Mumbai	IMO Level—I	PRT (West)	Fourth Batch 25 Trainees
Eastern Region				
08 - 12 Mar 10	Chennai	IMO Level—I	PRT (East)	Regional Level 25 Trainees
06 - 10 Sep 10	Chennai	IMO Level—I	PRT (East)	Regional Level 25 Trainees
North West Region				
15 - 18 Mar 10	Vadinar	Theory & Practical Class	CGS Vadinar	25 Trainees
15 - 18 Nov 10	Vadinar	Theory & Practical Class	CGS Vadinar	25 Trainees
Andaman & Nicobar Region				
22 - 26 Feb 10	Andaman & Nicobar	Local resources agencies and Coast Guard personnel	PRT(A&N)	25 Trainees
22 - 24 Sep 10	Andaman & Nicobar	Local resources agencies and Coast Guard personnel	PRT(A&N)	

MINOR & MAJOR OIL SPILLS IN INDIAN WATERS (SINCE 1982)

S. No.	Date	Qty and Type of Spill (Tonnes)	Location	Spilled by
01	1982	Not Assessed	West Coast	Sagar Vikas
02	24/10/88	1000	Bombay Harbour	Lajpat Rai
03	1989	Not Assessed	West Coast	SEDCO 252
04	1989	5500/Diesel Oil	795 nm SW of Bombay	MT Puppy
05	04/8/1989	Not Assessed	Bombay Harbour	ONGC Tanker
06	29/8/1989	Not Assessed	Saurashtra coast	Merchant ship
07	29/8/1989	Not Assessed	Bombay Harbour	Unknown
08	22/3/1990	Not Assessed	NW of Cochin	Merchant Ship
09	07/9/1991	692/FO	Gulf of Mannar	MT Jayabola
10	14/11/1991	40000/Crude	Bombay High	MT Zakir Hussain
11	22/2/1992	Tanker wash	40 NM S of New Moore Is	Unknown
12	2/4/1992	1000/Crude	54 NM west of Kochi	MT Homi Bhabha
13	16/8/1992	1060/SKO	Madras Harbour	MT Albert Ekka
14	17/11/1992	300/FO	Bombay Harbour	MV Moon River
15	21/1/1993	40000	Off Nicobar Islands	Maersk Navigator
16	28/3/1993	NK/Crude	Off Narsapur	ONGC shore rig at Kumarada
17	29/4/1993	110/Crude	Bombay Harbour	MT Nand Shivchand
18	10/5/1993	90/FO	Bhavnagar	MV Celelia
19	17/5/1993	6000/Crude	Bombay High	BHN Riser pipe rupture
20	02/8/1993	260/FO	Off New Mangalore	MV Challenge
21	01/10/1993	90/Crude	Cochin Harbour	MT Nand Shiv Chand
22	12/5/1994	1600/Crude	Off Sacromento Pt.	Innovative-1
23	12/5/1994	Not Assessed/FO	360 NM SW of Porbandar	MV Stolidi
24	05/6/1994	1025/Crude	Off Aguada Lt	MV Sea Transporter
25	20/7/1994	100/FO	Bombay Harbour	MV Maharshi Dayanand
26	27/11/1994	288/HO	Off Madras	MV Sagar
27	26/3/1995	200/Diesel	Off Vizag	Dredger Mandovi-2
28	24/9/1995	Not Assessed/FO	Off Dwaka	MC Pearl
29	13/11/1995	Tanker wash	Eliot beach,Madras	Unknown
30	21/5/1996	370 FO	Hooghly River	MV Prem Tista
31	16/6/1996	120 /FO	Off Prongs, Mumbai	MV Tupi Buzios
32	18/6/1996	132 /FO	Off Bandra, Mumbai	MV Zhen Don
33	18/6/1996	128 /FO	Off Karanja, Mumbai	MV Indian Prosperity
34	23/6/1996	110/FO	Off Worli, Mumbai	MV Romanska
35	16/8/1996	124/FO	Malabar Coast	MV Al-Hadi
36	25/1/1997	Tank wash	Kakinada Coast	Unknown
37	19/6/1997	210/FO	Off Prongs Lt, Mumbai	MV Arcadia Pride
38	19/6/1997	Not Assessed	Hooghly river	MV Green Opal

S. No.	Date	Qty and Type of Spill (Tonnes)	Location	Spilled by
39	14/9/1997	Naptha, DieselPetrol	Vizag	HPC refinery
40	02/8/1997	70/FO	Off Mumbai	MV Sea Empress
41	10/3/1998	Gas leak	Bombay High	Drill Rig Noble
42	12/5/1998	Gas Leak	Bombay High	Bombay High platform
43	01/6/1998	20/Crude	Off Vadinar	Vadinar,SBM
44	09/6/1998	Not Assessed	Off Porbandar	Ocean Barge
45	09/6/1998	Not Assessed	Off Veraval	Ocean Pacific
46	08/7/1999	500/FO	Mul Dwarka	MV Pacific Acadian
47	19/7/2000	Not Assessed	Off Sagar Island	MV Prime Value
48	8/9/2000	Not Assessed	Off Fort Aguada	MV River Princess
49	17/12/2000	1/FO	Bombay Harbour	MV STonnesewall Jackson
50	08/6/2001	Not Assessed	Vadinar Gulf of kutch	Not known
51	10/7/2001	1305/Diesel Oil	Hooghly river	MV Lucnam
52	23/09/2002	Not Assessed	Off Pt Calimare 220 NM	MV HIDERBAHY
53	29/04/2003	2000 Ltrs of Arab light crude oil	O5 miles off Kochi	MT BR AMBEDKAR
54	09/05/2003	2000/Naphtha	Mumbai harbour (sw of west Colaba Pt.)	MT UPCO_III
55	18/05/2003	145/FFO	Off Haldia	MV SEGITEGA BIRU
56	10/08/2003	300/Crude Oil	ONGC Rig (BHN)	URAN Pipe Line
57	28/02/2004	01/Crude Oil	36 inches ONGC pipe line at MPT Oil Jetty (Tata Jetty -OPL PIRPAU)	During Cruide oil trasfer from Jawahar Dweep to ONGC -Trombay through 36 ' pipe
58	01/10/2004	500 to 600 Ltrs	Berth – MPT – 8 Goa	During oil transfer
59	23/03/2005	110	Off Goa (Aguada Lt)	MV Maritime Wisdom off Aguada Lt.
60	27/07/2005	80	Fire taken place on oil platform off Bombay high	BHN Platform Bombay High
61	30/08/2005	08	Sunken Ship off Tuticorin	MV IIDA
62	21/04/2006	90	Sunken Ship off Goa	INS Prahar
63	06/05/2006	Minor spill (less than 100 ltrs)	Sunken Tug off Pt. Calimer Tamilnadu	DCI Tug-IV
64	30/05/2006	70 tons of Furnace Fuel Oil	Grounded off Karawar Port	MV Ocean Seraya
65	14/08/2006	4500	Outside Indian EEZ near A&N Islands	MV Bright Artemis & MV Amar
66	15/10/2007	13.9/FO	Off Jakhau	MV Star Leikanger & barge Dhan Lakshmi due to collision
67	17/10/2007	Not assessed	S Yanam Beach, Kakinada	Oil drifted to shore from oil rigs
68	19/07/2009	50 litres	Off Mangalore	MV Asian Forest
69	06/08/1997 to13/08/2009	Approx 200 tons (oil debris wash-off on the shorelines)	South Gujarat and Maharashtra Coast (Western India)	Not established
70	09/09/2009	200-500 litres	Paradip Port Anchorage	MV Black Rose

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