

Being prepared for mass, coastal and offshore oil spill recovery

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During a mayor offshore oil spill, response teams are facing difficult challenges. Going out to the casualty as quickly as possible is vital, however, collecting the oil in order to minimize the environmental impact of the oil coming ashore is not an easy task.

Boats normally carry oil containment booms and skimmers, mobilised from the various stock piles at response centers. When the spill is not too big, they might be able to get the oil booms around it to contain the oil. Response crews are often able to deploy the oil boom but face numerous difficulties maintaining the oil boom at sea in its required position due to currents, wind and wave action. Although it is already difficult to maintain an oil boom in rough sea conditions, it is even more difficult to get a large oil skimmer within the oil boom to collect the oil. Therefore, it is important to get to the scene with the right equipped offshore oil spill response vessels (OSR vessels) to avoid spreading of the oil spill.

The mere size of an oil spill marks the need for possessing large dedicated OSR vessels, equipped with high capacity remote operated vehicle (ROV) type skimmers and rigid sweeping arm systems, at stand-by at busy shipping lanes, touristic beach areas and offshore oil fields.

Previous oil spill recoveries

History has shown us that often after a mayor offshore oil spill disaster, national and local authorities commenced to build OSR vessels or contracted dedicated offshore OSR vessels, as their existing vessels and equipment meant for inland incidents were not adequate to collect large amounts of oil at sea.

After the oil spill incident in 1999 with the tanker Erika in France, the European Maritime Safety Agency (EMSA), provided funds to interested tanker and offshore vessel owners to equip their vessels with adequate offshore OSR equipment. Now EMSA has 19 vessels under contract and fitted out to their established standards. The contracted vessels continue their normal commercial business within a certain pre-fixed area and only once an oil spill occurs do they pick up their OSR equipment and proceed to the affected area to recover the spill.

The Spanish Government opted, after the incident with the Prestige tanker, in November 2002, to build four large offshore OSR and emergency towing vessels (ETV) and one OSR tanker. It was also demonstrated that Spain had not the right OSR vessels to combat such a mayor oil spill and had to get, amongst others, the assistance of the Dutch Coast Guard dedicated OSR vessel Arca, the Dutch suction trailing hopper dredger Rijndelta and the German coast guard vessel Neuwerk. These vessels showed their effectiveness to recover large quantities of oil from the ocean under severe weather conditions using the Koseq, rigid sweeping arm systems. Pumps mounted in the arms are of the hydraulically driven submersible Archimedes Screw type, having each rigid sweeping arm a pumping capacity of 350 cubic meters per hour.

The BP Montana oil field blow out, April 2010, in the Gulf of Mexico showed that a large number of dedicated vessels were required to cope with such a huge offshore oil spill. The light containment oil booms got washed ashore and the shrimp boats were not properly prepared to act as oil spill recovery vessels,



Koseq VOS during the Wendy Schmidt oil cleanup X-Challenge.

although, having done a very good job to fish large quantities of the floating oil.

However, based on the success of using large vessels equipped with rigid sweeping arms in Europe, the US Coast Guard and BP requested that rigid sweeping arms were flown in from Holland to Texas and Louisiana to help with the Montana oil spill. The main difference between an oil boom and the rigid sweeping arms is that an oil boom has to contain the oil first, whereas, the rigid sweeping arm chases the oil, enabling the vessel to move through the oil and manoeuvre in such a way that the best optimum angle is reached to collect large volumes of oil from the water surface.

Koseq BV was able to airlift 16 to 15 meter long dismountable rigid sweeping arms and their corresponding hydraulic power units and ancillary equipment to Houston and New Orleans. T&T Marine Salvage Inc. of Galveston, Texas, who had purchased the rigid sweeping arms from Koseq BV. However, the corresponding handling cranes were not shipped as they require ship based crane pedestals, which were not feasible to install in such a short timeframe. Instead, T&T installed a mobile crane on each of the vessels to deploy and retrieve the rigid sweeping arms. Operating the arms by only one crane on a rolling vessel is not very safe to crew and



Koseq compact 502 containerized self-deploying OSR system.

equipment, and is also difficult to handle. After the first 16 rigid sweeping arms, T&T ordered six more arms which were transported by sea. All 22 of the 15 meter rigid sweeping arms and corresponding equipment are now in store in the US, stationed along the coasts at response centers, in Texas, Louisiana and Mississippi, ready to be use at any moment.

History shows over and over again that being prepared is not easy to accomplish when having to respond successfully to mayor offshore oil spills, however, the general public expect their communities and officials to be as prepared as fire brigades. Operating rigid sweeping arms, weighing 5000 kilograms from a supply boat, without the use of purpose built arm handling cranes, is not an easy task and minimizes the workability of the vessel.

Modular crane pedestal system

We at Koseq BV understand that it is not feasible to have dedicated OSR vessels in every main port or at busy shipping lanes around the globe. However, having access to vessels of opportunity (VOO) for small and major coastal and or offshore oil spills would dramatically enhance efficiency of the responder. Turning a VOO within hours into a proper OSR vessel with rigid sweeping arm systems is now possible due to the newly Koseq developed, innovative modular crane pedestal system. Together with the cranes, modular crane pedestal systems work with rigid sweeping arms and hydraulic power units can be lifted on board any VOO, and be operational within 12 hours. This saves the responder, oil companies and others high sums of money not having to possess specialized OSR vessels and therefore avoid associated costs. Furthermore, Koseq redesigned the Compact 5 meter long rigid sweeping arm system enabling the oil spill responder to transport the unit quickly on a small truck and/or aircraft.

For quick response, Koseq designed a containerized self-deploying system, making use of the Compact 5 rigid sweeping arm. The Compact 5 arm is placed in a 20 foot container frame and deployed by a built-in hydraulically operated marine knuckle boom crane. The container possesses also the diesel driven hydraulic power unit and two counter weight water tanks for stability. The pump mounted in the Compact 5 is of the hydraulically driven submersible Archimedes Screw type having a capacity of 150 cubic meters per hour.

The container frame is covered with a tarpaulin and has ISO corners for handling. This way the 20 foot container can be on stand-by at any harbor side or jetty, ready to be used on any vessel or barge. These two new developments give the responder the opportunity to be immediately ready for small and major offshore oil spills, without the need to have the necessary vessels on their books or permanently under contract.

After the Montana oil spill, Koseq BV was among the ten selected finalists of oil spill equipment manufacturing companies who were invited by the Wendy Schmidt Oil Cleanup X-Challenge to participate in an oil spill recovery competition at the Ohmsett facility in New Jersey, USA.

Koseq BV participated with its X18 Victory Oil Sweeper model, its proven V sweep design and reached third place,



Koseq compact 502 – containerized self-deploying OSR system as stored on the deck.



Koseq modular crane pedestal system – configuration.



Koseq modular crane pedestal system – configuration 2.

collecting with the full 18 meters sweeping width 3472 gallons per minute (789 cubic meters per hour) with a maximum oil content of 95.3 percent. However, due to mechanical problems of the Ohmsett towing train device we had to reduce on speed and close our system to a sweeping width of only 9 meters! Even with our system downgraded, we reached a high oil content of 99.4 percent and a volume of 2390 gallon per minute (543 cubic meters per hour) and still got third place.

ABOUT THE AUTHOR AND COMPANY

Ary van den Adel commenced his professional career in 1967 with Wijsmuller Salvage B.V. as Salvage Diver. He co-founded the Spanish Diving and Salvage company Tecnosub, S.L. in 1975 and worked in Tecnosub as Technical Director and Salvage Master on many salvage and oil spill recovery projects in Spain, Portugal, Abu Dhabi, Libya and Mauritania. Since 2002 he has been the

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Koseq B.V. is the inventor and manufacturer of the rigid sweeping arm, which has proven itself as being the best tool for the recovery of spilled oil offshore. The recently developed victory oil sweeper and compact sweeping arm are very well suited for oil recovery in harbors and rivers.

ENQUIRIES

During Interspill 2012 in London you may find Koseq at their booth W 600.

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