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Your oil spill solution expert

Lamor (Larsen Marine Oil Recovery) Corporation offers solutions for optimal oil spill response and recovery. With offices, staff and equipment strategically located around the world, Lamor is able to deploy to the scene rapidly and effectively to best serve the environmental needs of corporations, the public and ecosystems.

The company develops, manufactures, and supplies best available technology (BAT) oil spill recovery equipment and services. Included in its portfolio of solutions, Lamor offers contingency planning, risk assessments, equipment maintenance and service coupled with training.
Brazil offshore - an emerging superpower in the oil industry cluster
Brazil’s oil and gas reserves in the deep and ultra-deep offshore waters of the Atlantic Ocean can be compared to the oil reserves of both Norway and the UK combined in the North Sea.

Wendy Schmidt Oil Cleanup X CHALLENGE
Phase two for the selected top ten finalists has begun at OHMSETT. Team Lamor will present a new high-capacity offshore OSR concept based on patented oliophilic brush technology.

MSRC Preparedness in U.S. Territorial Coastal Waters
Marine Spill Response Corporation is a not-for-profit company that provides oil spill response services to mitigate damage to the environment throughout the United States.
At Lamor we employ a universal approach to oil spill response and preparedness because every oil spill clean-up operation has its challenges to which we need to adapt and target with strategic precision. Legislation all around the world is getting stricter as oil exploration and transport increases. There are several NGO’s, governmental agencies and private companies who are engaged in dialog to heighten awareness and garner increased commitments in oil spill response equipment and solutions.

That said, we need to ensure that we continuously invest in training, contingency planning, equipment coupled with adhering to implemented laws in oil exploration, extrapolation and transport. Accidents happen, but we are responsible to minimize them by investing in preparedness and response. We are accountable to ensure the safety of our environment, eco-systems and future generations by reducing risks and investing appropriately for the continued safety of our planet and mankind. This is not a choice, but a socially responsible manner of conducting sustainable business operations.
targets and goals

We offer customers and governmental agencies that are responsible for oil spill response, monitoring and control a three-level fully accredited training program mandated by the UN’s International Maritime Organization (IMO). Based on our hands-on experience we have together with our partners at the IMO and the Nautical Institute in the UK, we have developed training programs that can be arranged in accordance with the local contingency plans at the customer’s site.

Moreover, our equipment is certified by Bureau Veritas and we continuously invest in new equipment and solutions. By working with our clients on-site we gain valuable information that goes straight back to our research and development team to provide even more efficient solutions for oil spill response.

This issue of NewsReel covers oil spill preparedness, offshore oil spill response equipment and training, and several other articles that we hope you will find interesting and informative.

Fred Larsen, CEO
Rio de Janeiro.
Platform 51 (P-51) en route to the ultra-deep offshore waters.
Brazil
– an emerging superpower in the oil industry cluster

Brazil has vast and huge oil and gas reserves in the deep and ultra-deep offshore waters of the Atlantic Ocean can be compared to the oil reserves of both Norway and the UK combined in the North Sea. According to a recent study, there is an estimated 123 billion barrels of oil located approx. 5,000-7,000 meters below the ocean floor under sand, rock, and salt layers.
The research study conducted by Rio de Janeiro State University initially wanted to investigate and prove that the National Agency of Petroleum, Natural Gas and Biofuels (ANP), estimates of approx. 50 billion barrels was overly optimistic. However, the study underestimated the potential which resulted in a 90% probability of finding more than 230 billion barrels of oil. ANP is the regulatory agency that oversees activities undertaken by the oil, natural gas and biofuel industries in Brazil. It announces call for tenders and closes deals on behalf of the State with crude oil and natural gas exploration, development and production dealers. In addition, it inspects and monitors the sector’s regulated industries.

State-controlled Petróleo Brasileiro SA, or Petrobras is the dominant player in Brazil’s oil sector which controls over 95% of the crude oil production in the country and holds important positions in up, mid, and downstream activities. Its oil field in the Campos Basin accounts for more than 80% of the Brazilian oil production. In Latin America, Petrobras is the largest company by market capitalization and revenues.

In August 2011, the energy giant approved a USD 224.7 billion investment plan for 2011-2015 of which USD 127.5 billion is earmarked for oil exploration and production. With the abundance of untapped oil in the deep and ultra-deep ocean, Petrobras has numerous challenges with its promising oil reserves along with ongoing operations whereby some of its rigs are located approx. 150 kms offshore. An area of approx. 160,000 km², the pre-salt oil fields could potentially increase Brazil’s oil output fivefold and transform the nation into a significant oil power. Beneath the sand and rock on the ocean floor is up to two kms of salt layers and bringing oil up through this, coupled with shifting temperatures, can pose additional challenges.

Petrobras operates the country’s oil transportation network through over 6,500 kms of oil pipelines. Its 100% owned subsidiary, Transpetro is responsible for the pipelines, import terminals and storage facilities.

Transpetro is responsible for the pipelines, import terminals and storage facilities.
Planning ahead with reforms
Operating in the oil cluster industry today in the aftermath of the Gulf of Mexico incident, governments and corporations are clearly acting more responsibly and taking multiple safeguards into consideration. “The US government undertook the most aggressive and comprehensive reform of offshore oil and gas regulation and oversight in US history,” says Michael Bromwich, Director of the Interior Department’s Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE).

Effective and efficient offshore OSR solutions
With the surge in global oil exploration, discovery and extrapolation, it is important to include the most efficient and effective offshore oil spill clean-up equipment available. Spurred by stricter legislation, companies are focused on ensuring that oil spill clean-up equipment is in place at all times.

Lamor Corporation has developed a unique seaborne solution to oil spill response, which significantly improves combating offshore oil spills and ensures environmental protection. The European Maritime Safety Agency (EMSA) has adopted and implemented two oil spill response contracts managed by Lamor Corporation.

“Our solution is effective and efficient in oil spill clean-up operations and moreover, is a financially beneficial option for clients. Selected tankers are pre-fitted so that in case of an accident, a side-sweeping oil collector, LSC Lamor Side Collector, is rapidly assembled to their sides, thus converting them into oil spill response vessels,” says Lamor’s CEO Fred Larsen.

“Moreover, preparedness and contingency planning for any type of offshore incident is an essential part of any oil exploration investment. Oil spills have no borders and affect the environment, ecosystems, as well as human health and wellbeing. It is no longer a question of if an oil spill related incident will occur, but when it will occur. A proactive approach is by ensuring that the necessary and reliable state-of-the-art equipment and trained personnel will enhance offshore clean-up and recovery operations, thus minimizing environmental footprints. That said, Petrobras is the 8th largest company in the world and Brazil’s largest sponsor of art, culture and environmental protection,” Larsen highlights.
Lamor Offshore Systems

Lamor leads the industry in the design and development of vessel mounted advancing systems. “We provide side collector cassette type systems for all sizes of oil spill response vessels as well as complete custom made built-in systems for a large range of workboats and vessels. Lamor vessel mounted advancing systems are ideal for offshore operations and demonstrate proven effectiveness over more traditional recovery systems,” says Rasmus Guldbrand, Lamor VP, Americas.

More than 500 vessels worldwide are equipped with Lamor advancing skimming systems. More than 200 of these are equipped with the Lamor Built-In Oil Recovery System (LORS).

The brush conveyor system is unaffected by the difficulties posed by the type of floating debris normally found in an oil slick. The LORS can also be equipped with automatic sweep systems for hands free deployment and retrieval.

Guldbrand continues: “Our flexible Lamor Offshore system gives the operator the possibility to choose the most suitable combination for different operating environments. Capacity test certified skimmers can be combined with an easily and safely operated umbilical hose reel and deployed either with a standard vessel crane or with a telescopic crane arm built on the umbilical hose reel. The whole reel system can be fitted on a turn table or fix mounted on a removable skid.”

The Lamor range of Heavy Duty Booms represents a tough and durable system for offshore applications, therefore ideal for permanent deployment and sweeping configurations. “We offer a range of single point inflation booms for offshore deployment from vessels or platforms. This boom is ideal in situations that require rapid deployment using the minimum of manpower,” concludes Guldbrand.
The Lamor Vessel Mounted Advancing Oil Recovery Systems are based on the proven chain brush conveyor technology that offers the highest possible performance and safety for offshore oil spill recovery operations. Deployment of the recovery system makes the entire vessel an “oil slick processing system”.

The heavy duty brush conveyor system will recover all types of oil, including extremely high viscosity crude oil emulsion, while recovering very little free water. Moreover, it is unaffected by the presence of small floating debris, slush and small ice pieces or sea weed, which can block other skimmer types.

Due to the capacity, safety, and user friendliness, the Lamor vessel mounted Oil Recovery Systems are approved by customers and have been used in multiple oil recovery operations worldwide.

Essential Benefits of the Lamor System:

- Safe to deploy, only one (max 3, depending on the installation) person required to control the deployment
- No - or minimum - manual work required; all controls from hydraulic control valve or remote control
- Ready to use rapid deployment, deployment time: ca. 10 minutes
- Minimal interruption of vessel’s other main operations
- Less than 5 % free water in recovered oil makes maximum use of valuable storage volume
- Mechanical parts Safe for EX zone 0, electric components Zone 1
- In use from tropical to arctic climate. Possible to arrange heating to all equipment of the system
- Easy to maneuver with the ship with minimal coordination required, reducing workload on the bridge, thus increasing safety
- Easy to maneuver in high currents and high waves, up to 2.5m significant, in swells even higher
- Brush belt recovery range: light to bitumen products
- Regularly drills can be held for the crew to maintain their skills; equipment is always ready to use and on place
- Minimal maintenance cost
- Proven technology. Installed on 496 vessels and work boats around the world
Side Collector (LSC)

The Lamor Side Collector LSC is a vessel side mounted advancing skimming system for tug and work boats as well as large vessels. In addition of the skimmer unit on one or two sides of the work boat, the total LSC system typically consists of an automatic or manual outrigger jib arms and sweeping booms.

The LSC System is based upon the proven stiff brush technology. It offers high performance and safety for near- and offshore oil spill recovery. The LSC operates effectively at vessel speeds of up to four knots, resulting in excellent vessel maneuverability and very high oil encounter rate.

Thanks to the high recovery speed, the system is able to recover the largest possible area of an expanding oil slick at sea. The deployment of the system is made as fast and safe as possible to be ready-to-go all the time. It can start skimming oil within minutes of arriving at the spill site and can be operated by a small crew requiring very little specialized training.

The unique LSC design processes the oil on surface water through the brush system for recovery. The encountered oil is directed to the skimmer and is scraped further to the incorporated oil transfer pump. The number of brush chains in the LSC unit is selected based on vessel size and required capacity.

The brush conveyor system recovers all kinds, even high viscosity oils, tar balls, etc. also when large amounts of floating debris are present. The LSC can operate in adverse weather and sea conditions without losing performance. Another major advantage is that the recovered oil contains less than 5% free water, hence making maximum use of valuable storage volume.

Detailed drawings and designs of the system are tailor-made for each individual vessel for optimized efficiency, operation and safety, taking into account vessel particulars, capacity requirements and other factors.

The Lamor LSC system can be fitted in various types and sizes of vessels allowing them to serve as oil recovery units. It can be installed in new-buildings as well as in existing vessels. The preferred package for the most efficient operation of a Lamor Side Collector LSC 3C/M (also known as an Over the Side application) comprises of a Lamor GTA 50 oil transfer pump and a Lamor Jib Manual/Lamor Jib Automatic A 10 + sweep boom; one collector and jib + sweep boom configuration for each side of the vessel. No additional power source is required, since power is supplied from the vessel.

The recommended oil transfer pump is the Lamor GTA 50, a multi-purpose submersible Archimedes screw pump with a pumping capacity of 50m³/h. This pump has been designed for use in skimmers and transfer or off-loading pump applications and is able to pump a wide range of liquids ranging from water to the heaviest debris-laden viscous oils.

The special internal geometry of the Lamor GTA design ensures a gentle pumping action that will not emulsify oily water, and ensures the efficient movement of material through the unit. The pump can also handle solids up to 30mm in diameter and should the pump become clogged, it can be reversed to expel the blockage. The GTA pump range has been extensively field-tested and has received accreditation from Bureau Veritas certifying their recovery capacities in oils of varying viscosities.

Technical Specifications

<table>
<thead>
<tr>
<th>LSC-4CM, # 01C02-P540</th>
<th>Metrics</th>
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<td>Power requirement 3 kW</td>
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<tr>
<td>Hydraulic pressure 100 - 200 bar</td>
</tr>
<tr>
<td>Power requirement 3 kW</td>
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Free Floating Skimmer (LFF 100)

The Lamor Free Floating Offshore (LFF 100) skimmer is a very high capacity free-floating skimmer designed for open ocean oil recovery operations. The LFF 100 is fitted with two V-chain pocket brush type conveyors for efficient collection of all types of floating oil from light to viscous oils and emulsions. Each brush chain conveyor consists of four brush chains.

Recovered oil is offloaded by an optional high volume Positive Displacement Archimedes Screw type pump with capacity of 115 or 140 m³/hr with more than 500,000 cSt oil. Tested and certified skimming capacity for 1 mill. cSt bitumen is 102.6 m³/h and for IFO 40 intermediate fuel oil 111 m³/h (BV HSK4070026).

The skimmer is hydraulically operated and fitted with two thrusters to allow the operator to maneuver the skimmer to where oil is most heavily concentrated.

Alternatively, the skimmer can be used with an umbilical hose that is mounted on a hydraulically driven deployment, retrieval, and storage reel with built-in, 360° rotation driven with hydraulic motor with integral brake. The oil transfer and hydraulic hoses are connected to the manifold at the hub of the reel with pump-through swivel joints to allow the hoses to be energized continuously and at any deployed length.

The Lamor GTA 115, a multi-purpose submersible Archimedes screw pump with a pumping capacity of 115 m³/h, is the recommended oil transfer pump. This pump has been designed for use in skimmers and transfer or off-loading pump applications and is able to pump a wide range of liquids ranging from water to the heaviest debris-laden viscous oils. The Lamor GTA 115 pump can deliver a maximum of 12 bar outlet pressure and benefits from water/steam annular injection on the inlet as standard and debris cutting knife to handle solids such as seaweed, plastics and ropes.

The Lamor Power Pack LPP 119 Cu is the preferred power generator. It is powered by a water cooled 119 kw Cummins 4.5 l turbo charged/intercooled diesel engine and serves as a multipurpose power pack designed for the flexible operation of many types of hydraulically operated oil spill clean-up equipment. The Lamor LPP 119 Cu is containerized within a steel frame designed to ensure a good circulation for the air cooled diesel engine. Equipped with 2-11 hydraulic circuits, the Lamor LPP 119 Cu can be used to power multiple equipment e.g. skimmer system and boom winder consecutively.

### Technical Specifications

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<tr>
<td>Free water collected</td>
<td>&lt; 2 %</td>
<td>&lt; 2 %</td>
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Skimmer Systems – Large

Lamor skimmer systems large are designed for multiple usages and scenarios that are vessel mounted or free floating that can be controlled via remote control and are low maintenance and easy to use.

All Lamor skimmers are capacity tested and certified by Bureau Veritas, which is a continuous process with new products and solutions being developed. Bureau Veritas (founded in 1828) is an international group specialized in the inspection, analysis, audit, and certification of products, infrastructure (buildings, industrial sites, equipment, ships, etc.) and management systems in relation to regulatory or voluntary standards.

Bureau Veritas ranks as the world’s second largest group in conformity assessment and certification services in the fields of quality, health and safety, environment, and social responsibility (“QHSE”) and the world leader in QHSE services not including raw materials inspection. Recognized and accredited by major national and international organizations, Bureau Veritas is present in 140 countries through a network of 900 offices and laboratories.

Heavy Duty Oil Booms (HDB 900 – 2000)

The Heavy Duty Oil Boom (HDB) covers the increasing demand for a boom which is specifically suited for use in open seas, harbors and permanent installations such as oil terminals and power plants. The HDB is available in sizes varying from 900 to 2000mm in height and 50 or 100m section lengths.

The HDB is manufactured using the highest quality components and is constructed so that two layers of synthetic fabric are vulcanized together with synthetic oil resistant rubber outer layers. The HDB is constructed using fully vulcanized and rubber welded parts without the use of any pop rivets. The synthetic coated outer layer gives the HDB excellent resistance to the affects of oil and UV degradation.

Inflation of the HDB is quick thanks to the patented Lamor F1 air valve and use of a Lamor air blower. The complete use of the air valve at inflation can be carried out by one person.

The HDB should be stored on a dedicated hydraulically powered reel, enabling deployment of up to 200 meters in approx. 15 minutes.
Instead of using a separate crane for skimmer deployment, the Umbilical Hose Reel (LUT) can be equipped with a telescopic crane arm that can be operated by one person. The telescopic crane arm built according to NOFO standards enables deployment even from below deck through the side hatch.

The oil transfer and hydraulic hoses are connected to a manifold at the hub of the reel with pump-through swivel joints to allow the hoses to be energized continuously and at any deployed length.

The LUT is powered by a hydraulic motor with hydraulically released brake. As an option, the reel can be furnished according to requirements of EX proof certificate for Zone 1. The swivel has gone through EX testing at VTT in Finland for 4 weeks in +90°C, humidity 90 % and another test in -40 °C for 2 days.

Oil transfer and hydraulic hoses can be supplied in various lengths. The Lamor Power Pack (LPP 77 D) is powered by a 6 cylinder air cooled Deutz 77 kW diesel engine and serves as a multipurpose power pack designed for the flexible operation of many types of hydraulically operated oil spill clean-up equipment. Equipped with 3 hydraulic circuits the LPP 77 D can be used to power multiple equipment e.g. skimmer system and boom winder consecutively.

### Technical Specifications

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<td>20 ft ISO container</td>
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First sea trials of Lamor X-Prize skimmer

WENDY SCHMIDT OIL Cleanup Challenge
– phase II for selected top ten finalists

Text: THOMAS BARBIERI Photos: LAMOR CORPORATION
The judging panel of The Wendy Schmidt Oil Cleanup X CHALLENGE selected Lamor Corporation to continue to the next phase as one of the top ten finalist teams. The competition is designed to inspire entrepreneurs, engineers, and scientists worldwide to develop innovative, rapidly deployable, and highly efficient methods for capturing crude oil from the ocean surface.
The Wendy Schmidt Oil Cleanup X CHALLENGE was launched in July 2010 in the wake of the Deepwater Horizon Oil Spill in the Gulf of Mexico. “To be selected as one of the top ten finalists is truly an honor for us. We continuously strive to find the most innovative and effective oil cleanup equipment and solutions that can operate in all climatic conditions. The Wendy Schmidt Oil Cleanup X CHALLENGE is an excellent platform and catalyst to spur innovations in research and development programs for oil spill recovery operations. No matter who ultimately wins this challenge, again I must say that I am honored on behalf of Lamor. That said, we are now committed in pursuing this challenge and winning too,” says Fred Larsen, CEO, Lamor Corporation.

The Wendy Schmidt Oil Cleanup X CHALLENGE was created by the X PRIZE Foundation. Founded in 1995, it is the leading non-profit organization solving the world’s greatest challenges through creating and managing large-scale, high-profile, incentivized prize competitions that stimulate investment in research and development worth far more than the prize itself. It motivates and inspires brilliant innovators from all disciplines to leverage their intellectual and financial capital.

Motivating and inspiring socio-economic sectors

The X PRIZE Foundation motivates and inspires brilliant innovators from all disciplines and socio-economic sectors to endow their intellectual and financial capital for the benefit of humanity. It conducts competitions in four Prize Groups: Education & Global Development; Energy & Environment; Life Sciences; and Exploration. Past prizes include the US$10 million Ansari X PRIZE for sending the world’s first private vehicle into space and back; and the US$10 million Progressive Insurance Automotive X PRIZE for creating safe, affordable, production-capable vehicles that exceed 100 MPG or energy equivalent (MPGe). Active prizes include the US$30 million Google Lunar X PRIZE, the US$10 million Archon Genomics X PRIZE, and the US$1.4 million Wendy Schmidt Oil Cleanup X CHALLENGE.

“I am sponsoring the Wendy Schmidt Oil Cleanup X CHALLENGE to provide a public incentive for research and development into breakthrough technologies that can significantly improve our response to future oil spills in our precious ocean water resources. The X PRIZE Foundation exists to spur innovation in a unique way, bringing together scientists, technologists and inventors with leaders in industry and government to help introduce problem solving technologies to the marketplace with mechanisms for rapid deployment. Anyone who wants to change the world by solving a problem should get to know the X PRIZE Foundation,” says Wendy Schmidt.

“With more than ten thousands of ocean
Schmidt is President of The Schmidt Family Foundation which strives to advance the development of clean energy and support the wiser use of natural resources. She is founder of the foundation’s 11th Hour Project and of Climate Central. Her other work, at ReMain Nantucket, focuses on generating a model for smart community downtown development on the island. With her husband, Eric Schmidt, Wendy created the Schmidt Marine Science Research Institute in 2009 to provide future opportunities aboard research vessels for urgent ocean studies. She serves on the boards of The Natural Resources Defense Council, The California Academy of Sciences, GRIST, and The Nantucket Dreamland Foundation.

**Challenge venue and winnings**

The X PRIZE Foundation began the field testing phase of the Wendy Schmidt Oil Cleanup X CHALLENGE on July 22. The winning team will be announced in October 2011. These proofs of capability, which will determine the winner, will take place at OHMSETT – The National Oil Spill Response & Renewable Energy Test Facility in Leonardo, NJ. OHMSETT is a Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) facility and has the largest outdoor saltwater wave/tow facility in North America. The team that demonstrates the ability to recover oil on the seawater surface at the highest oil recovery rate (ORR) above 2,500 gallons per minute with oil recovery efficiency (ORE) of greater than 70...
The hybrid technology in the Lamor Squalus includes a brush wheel, brush belt and DIP system features with totally new scarper design.
The members of the judging panel are experts in fields such as oceanography and the oil industry:

- **John J. Dec**
  United States Coast Guard Hazardous Substance Spill Response Professional (ret.)

- **Eugene Johnson**
  United States Coast Guard Captain (ret.) and former Chief of Marine Safety for the Fifth U.S. Coast Guard District

- **Hung Nguyen**

- **Skip Przelomski**
  Vice President and Senior Technical Advisor of the Clean Caribbean & Americas (CCA)

- **Dennis Takahashi-Kelso**
  Executive Vice President of Ocean Conservancy

- **Donald A. Toenshoff, Jr.**
  Executive Vice President of the Marine Spill Response Corporation

- **Peter K. Velez**
  Global Emergency Response Manager for Shell International Exploration and Production

- **Dave Westerholm**
  Director of the National Oceanic and Atmospheric Administration’s Office of Response and Restoration

Lamor Squalus sea trails and packed for transportation to the US.
Virginia based Marine Spill Response Corporation (MSRC), founded in 1990, is the largest, most comprehensive, dedicated emergency and oil spill response organization in the US. It is a national not-for-profit response company which owns and operates a fleet of dedicated oil spill response vessels (OSRVs), ocean going barges, offshore and shallow-water skimming systems, and enhanced emergency communications capabilities.

MSRC operates throughout the US i.e. the East, West and Gulf coasts, the US Caribbean, the Hawaiian Islands and the Mid-continent region. It is funded by the Marine Preservation Association (MPA), a member supported, non-profit organization created to assist the petroleum and energy related industries by addressing problems caused by oil spills on water.

MSRC’s Executive Vice President Don Toenshoff Jr. explains: “We offer a range of mechanical oil spill response services that include response to all size spills from the regulatory required “worst case discharge” to minor spills; from the deep water offshore into the shallow waters and onto the shoreline.” The company’s response equipment also includes non-mechanical capabilities such as controlled burn kits and aerial dispersants.

MSRC was formed to offer oil spill response services to mitigate damage to the environment. These services are available to organizations, including those involved in the handling and transport of oil and other substances. “Our capabilities are referenced by facility, exploration and production operations and vessel owners in their response plans by members of the Marine Preservation Association (MPA) as mandated by the Oil Pollution Act of 1990 (OPA-90),” says Toenshoff. OPA-90 requires that those who store, handle, produce or transport petroleum and petroleum related products in US coastal waters ensure by contract the private resources necessary to respond to a worst case discharge to the maximum extent practicable.

Dedicated to spill response
MSRC relies on its extensive inventory of owned response equipment to offer these services. This equipment is dedicated to spill and emergency response, and is stored and maintained at numerous pre-positioned MSRC sites across the US.

“MSRC’s capabilities are augmented by a network of over 100 participants in the Spill Team Area Responders (STARs) program, an affiliation of environmental response contrac-
Coastal Waters

Toenshoff explains: “In addition to the need for “hard” response equipment, an effective spill response effort is successful only when proper attention is directed to the human element of spill response. This “softer” side of response capability that is at the forefront of operations involves a robust and active health & safety mindset, personnel training, subcontractor training, communications, and formal equipment maintenance and repair programs. It is MSRC’s commitment to this “software” that provides a high degree of confidence that the system will work when called upon. Given the relative infrequency of actual spills of significance, MSRC tests all aspects of response through an internal Quality Assurance program which incorporates MSRC funded drills and inspections.”

In his role as MSRC’s EVP, Toenshoff is responsible for identifying, vetting and recommending response equipment for the MSRC “Deep Blue” expansion. “The “Deep Blue” is an expansion of the U.S. Gulf of Mexico (GoM) oil spill response capability post Deepwater Horizon incident in 2010. “Our program includes outfitting five dual service platform support vessels, PSVs similar to the EMSA or NOFO model, procurement of ocean and fire burn booms, skimmers and procurement of technologies for low visibility and night-time response. Moreover, the program includes outfitting our dedicated GoM Responder Class OSRVs with large boom caches and retrofitting of our GoM spill response barges into dedicated skimming barges,” he explains.

The selection process
MSRC has years of experience with suppliers of equipment. “MSRC’s success can be attributed to our Operating Principles that are categorically focused on: People, Performance and Process. Each of these three operating principles is comprised of numerous building blocks that we embrace as cornerstones and cores to success and moreover,
expect our suppliers to operate similarly," Toenshoff notes emphatically.

MSRC and Toenshoff have substantial experience with Lamor Corporation and its equipment. “When purchasing equipment we are very selective. Lamor is a reliable company that exercises accountability coupled with continued product development, accessibility and global presence,” Toenshoff highlights. “Lamor is focused, professional and flexible. For example after the recent GoM incident, Lamor incorporated a number of MSRC suggested enhancements into their design for the Lamor Free Floating Offshore (LFF-100) skimmer head such as the hydraulically operated debris screens and vacuum breakers,” he notes.

“It is important to have different and a variety of tools for oil spill response operations. Recognizing this, one benefit of the recently purchased LUT-90 system is the flexibility to mix and match capabilities dependent upon the situation and needs. For example, we purchased the Lamor LFF-100 skimmer plus an alternative weir head for the LUT-90 in case the recovered oil oleophilic characteristics are altered and the oil does not stick to the bristles. Moreover, we purchased Lamor high viscosity pumps that can be interchanged on either of the above skimmer heads in case of a viscous oil response. This ability to mix and match to the needs provides increased flexibility. These are just some examples we look for in suppliers. I have also found that Lamor continually invests in oil spill response R&D, utilizing one of its on-going oil recovery projects to field test enhancements i.e. the high viscosity pump. These were all key points to meet our program expansion objectives,” he says.

MSRC is converting its GoM Responders to enhanced floating boom inventory platforms with the introduction of Lamor inflatable-ocean booms built to MSRC’s specifications. “The project is moving forward ahead of schedule. Product quality and communications have been excellent,” Toenshoff says.

Quality and commitment is key

“At MSRC we focus on the expectations of our customers and as seen in the GoM incident, that our response equipment e.g. mechanical, controlled burning and dispersants, will work efficiently when called upon. While it is not feasible to have one piece of equipment capable of responding to full capacity in all situations, it is good to have a variety of response equipment pending the need and situation,” explains Toenshoff.

“Quality is always key factor and the equipment must work in real world applications across a broad array of oil types and characteristics. In the Deep Blue expansion program we are providing our customers with the opportunity to satisfy US Federal oil spill response plan requirements in a timely fashion. While time is of the essence, given the expectations of our customers, I personally vetted Lamor’s production facilities and operations in the US, Finland and in China prior to making this procurement. Lamor has been able to supply these procured assets in a timely fashion to meet our expectations. To summarize, I feel that Lamor is 100% totally committed to oil spill response equipment, service and total customer satisfaction, which aligns with our goals and obviously has synergy.” Toenshoff concludes.

Lamor Free Floating Skimmer (LFF 100).
Preparedness by Norwegian Coast Guard with Lamor OSR equipment

The Norwegian Coast Guard (Kystverket) awarded a tender to Lamor for a built-in oil recovery system for their new-build multi-purpose oil recovery vessel (FMV33). The OSR equipment, LORS-D 4C/M, has an oil recovery capacity of 240 m/hr and comprises telescopic jibs, sweep booms, remote control as well as Lamor GT A 50 oil transfer pumps.

"The Norwegian Coast Guard is taking proactive steps to enhance their preparedness for possible oil spill incidents. The installation of our oil recovery system on their new-build FMV33 multi-purpose oil recovery vessel is a most welcome milestone for Lamor in a series of oil spill response equipment deliveries to Norway," says Christoffer Wallgren, Lamor’s Regional Manager Europe.

Moreover, in mid-June, 2011 Lamor signed an agreement with the Norwegian Coast Guard for additional OSR equipment. The scope of supply consists of 15 sets of Lamor Weir Skimmers (LWS 500), coupled with brush and disc adaptors as well as Lamor GT A 30 oil transfer pumps. The Lamor brush adaptor enhances the weir skimmers capabilities to recover heavy viscous oils and the disc adaptor increases the recovery capacities of light oils resulting in recovery of all oil consistencies and characteristics. Additionally, 16pcs LIP 400 pump systems including the Peristaltic Hose pump LIP 400 pump and power-pack LPP 7HA/B8 as well as 19pcs custom-made LPP 35 diesel driven hydraulic power-packs were supplied.
Shallow Water Oil Recovery Catamaran (SWORC) is under construction by Danish based Tuco ApS, and designed by the innovative Knud E. Hansen A/S naval architects, designers and marine engineering group. Onboard is the Lamor Bow Collector for oil spill clean-up operations close to shore where regular spill clean-up vessels cannot reach.

SWORC – Innovative Danish Design for Shallow Water Oil Recovery
The innovative and unique six meter long catamaran can operate effectively in 35 cm water depth and employs carefully selected and proven oil recovery equipment. Moreover, SWORC can be operated by a two-man team for undertaking oil recovery operations. New unique Catamaran makes it possible to reduce oil pollution along the coasts.

“This SWORC excels in difficult working environments with limited access, extensive shallow waterways or remote areas where a self-contained solution is the only option. It is ideally suited to these environments and is highly maneuverable, versatile and operator friendly,” says Christian Damsgaard, Managing Director SWORC A/S.

The extreme shallow water capability gives the potential to avoid highly expensive and environmentally disastrous contamination of coastal lowlands and other sensitive ecosystems. Damsgaard continues: “The impact of contamination on these shallow water areas is huge and without protection by vessels such as SWORC the only option is to wait for the oil to wash up and then all the contaminated soil, beach sand and vegetation must be removed and disposed of. The removal and disposal of shore material is both highly destructive to the coastal environment and very expensive to safely handle.”

**Lamor Bow Collector (LBC)**

The Bow Collector (LBC) is a stiff brush conveyor belt unit which effectively recovers oil and debris. It operates most effectively at vessel speeds of 1 to 4 knots. Forward motion of the vessel concentrates surface oil and oily debris into the brush conveyor for separation and recovery.

“The LBC collects oils of all types and viscosities and can operate in choppy sea conditions without disrupted performance. Moreover, the LBC brush conveyor automatically separates and recovers oils, emulsions and oily debris from the water and delivers it to deck level. Recovered oil contains less than 5% free water,” says Lamor’s Christoffer Wallgren, Regional Manager Europe.

The number of brush belts varies from four to six depending on the desired capacity and the size of the vessel. “The skimmer module is hydraulically powered and off-loaded by a suction pump, Archimedes screw pump, or a centrifugal pump. That said, the system can be supplied with portable power packs and can also be operated using vessel hydraulics. The technical specifications vary on the size of the LBC and vessel. It is an ideal solution for the new SWORC,” says Wallgren.
In the Clean and Safe Maritime Activities program, the Baltic Sea Action Group (BSAG) has analyzed the different threats and risks of maritime activities to the Baltic Sea, listed by the Helsinki Commission (HELCOM) in its Baltic Sea Action Plan. The aim is to tackle issues not dealt with efficiently yet, issues that are not taken care of by any identified party, and to promote solutions with long range effects.
Icebreaker on Baltic Sea.
combines resources and opportunities provided by the public, private and civil sectors. “In the Clean and Safe Maritime Activities program we have extensive collaboration with maritime and oil combat and rescue authorities, NGOs, educational institutes and private companies, of which one valuable partner is Lamor,” says Mathias Bergman, Secretary General of BSAG.

Based on research by and consultation with leading authorities in the respective fields, BSAG has launched activities in the fields of navigation safety, oil combat and response capacity and waste discharges.

Safety of navigation
An estimated 2000 vessels traffic the Baltic Sea at any given moment today. The traffic is expected to increase to around 3500 vessels by 2015 (see The Baltic Sea – Clear and Present Danger article on page 33). At the same time as the overall risks of sea transportation grow, manning onboard has been minimized and fatigue is common among mariners. Notably, fatigue is one of the most common causes of accidents. Against this background it is of utmost importance to improve both the technical and the human aspects of ship operation.

BSAG has started a project that aims at the development of a novel and highly advanced vessel traffic management system, including the new AIS+ software, ultimately covering the entire Baltic Sea. This process is taken forward together with the Finnish maritime authorities, other Baltic Sea region maritime authorities, Technology Research Centre of Finland and a global provider of advanced IT solutions.

To address the educational aspects of sea transport safety, BSAG is involved in two projects aiming at improving advanced navigation and ships’ operation training tools, and basic training of seafarers. In this project BSAG assists the Finnish ships’ owners and leading technology providers of simulation and arctic ship operation to make ends meet.

Oil spill response
BSAG and Shell organized a seminar in Helsinki on the 7-8 June 2011 to review preparations for a major oil spill in the Baltic Sea region. The event was Shell’s Baltic Sea Commitment to BSAG, presented at the Baltic Sea Action Summit in February 2010. The participants including Government, academia, NGO’s, and representatives from the oil and gas industry concluded that if an oil spill in ice should take place, we must do everything to ensure everyone is prepared.

The increase in marine traffic in the Baltic Sea has raised the potential of an oil spill in the region. Oil recovery in cold or even icy, shallow waters with thousands of islands presents its own unique challenges for which industry, the Government and agencies must be well prepared.

The international seminar organized by
With the increase of marine traffic on the Baltic sea, concern of OSR equipment is high on the agenda.
BSAG and Shell reviewed current and future oil spill risks and scenarios in the ice-prone part of the Baltic Sea. State of the art oil spill in ice response (OSR) capabilities and country examples were presented.

"Identifying and sharing best practices among the OSR organizations and enhancing their capabilities in the Northern Baltic Sea is vital. The cleanup response could be better and it is all the Baltic Sea States’ interest to take it seriously. Man is the biggest cause to accidents," says Bergman.

BSAG with support from Shell have involved key stakeholders from the oil industry, Government, agencies, NGO’s and academia, to ensure good oil spill response plans for the region. The seminar and workshops were designed to share research conclusions and develop and establish a regulatory and organizational framework to ensure the region is prepared for a worst case scenario.

“We are extremely pleased and proud to be able to support BSAG with this seminar. We see this as an important step in the process of assessing the oil spill response capability in the ice-prone Baltic Sea and helping with the review of actions towards addressing possible gaps. Oil spill prevention and response remain a top priority for us at Shell and we will continue to support work like this that can improve the ability to respond to oil spills and improve the safety of operating in ice,” says Robert Blaauw, Shell Arctic Theme Lead.

The source of knowledge is experience

For over two decades, Lamor has delivered OSR equipment and training to the Finnish oil spill response vessels, the Swedish Coast Guard and most recently to the Norwegian Coast Guard. The European Maritime Safety Agency (EMSA) has engaged Lamor in a service contract since 2005 for the Baltic Sea.

Lamor’s EMSA service contract is a substantial addition to the Baltic response readiness, which secures a rapid and efficient response to oil spills. Selected oil tankers are pre-fitted so that in case of an incident they can rapidly be converted to oil recovery vessels by deployment of Lamor Side Collectors and heavy duty oil booms. This ensures that the OSR tanker is operational at the scene of the incident within 15 hours.

In addition to the service contract for the Baltic Sea, Lamor also has a second contract covering the southern Atlantic coast region. Lamor has also delivered OSR equipment to an icebreaker operating in the northern Baltic Sea and other EMSA contractors on the Mediterranean and Black Sea.

It is fundamental that collectively investments in safeguards are implemented in e.g. training, preparedness and best available technology (BAT) and solutions to reduce oil transportation accidents which can for decades harm the environment and eco-systems. This is where the expertise of Lamor steps into the scene.

Lamor’s knowledge and commitment in providing the most advanced oil spill clean-up solutions with equipment, training, and preparedness is unparalleled with a global reach in any climatic conditions and regions.

“Our business is to tackle some of the most environmentally destructive and hazardous elements such as oil spills and we are committed in providing the right solutions for all aspects of oil clean-up operations and preparedness. Moreover, I am pleased that so many nations, NGO’s and companies realize the need for oil spill response training and equipment. I fully support BSAG, Shell and HELCOM for their focus on this heavily trafficked sea. It is not ‘if’ there will be an oil spill in the Baltic Sea, but ‘when,’” says Fred Larsen, CEO of Lamor Corporation.

Lamor’s COO, Rune Högström explains: “We have developed our equipment for 30 years and acquired expertise in oil spill clean-up operations and learned along the way. For example we tested how ice and sludge react in recovery situations in Arctic conditions in a 1,000 m² size area and noted that there will be approx. 20 – 40 m³ sludge in all broken ice conditions, no matter what the temperature is. This causes a big problem for conventional skimmers, whereas Lamor skimmers do not collect any ice sludge at all. Conventional skimmers get clogged and ices up within minutes of operation in sludge.”
The Baltic Sea – Clear and Present Danger

unless prepared, trained and actively engaged

The hunt for ‘black gold’ continues relentlessly and demand for this energy source continues to surge worldwide. Large corporations are exploring and finding vast new untapped oil fields offshore in the Arctic Ocean. The massive offshore rigs endure very harsh sea and climatic impacts coupled with the need and rise of shipping transports along the coast of Norway into the Baltic Sea and beyond. Thus, correspondingly the risks of oil related accidents to occur will be doubled within the next four years compared to 2011.
Early training, preparedness and well-organized response operations coupled with effective equipment are the essential tools needed to be in place for proactively reducing the environmental impacts and effects from oil and other hazardous materials pollution accidents. By 2015, estimates are that 25% of the 3,500 ships sailing the Baltic Sea will be oil and other chemical transporters. The forecasts also predict that over 130 million tons of oil will travel on the Baltic Sea by this time.

Counteractive measures should be in place and governments, NGO’s and corporations are actively seeking solutions to ensure that they collectively have the necessary resources, personnel and equipment to counter this clear and present danger. Moreover, new and stricter legislation pursuant to responsibility, accountability and operational methods have been introduced and implemented.

European Maritime Day and BRISK-RU project

In May 2011 the Helsinki Commission (HELCOM) released an analysis of the Baltic Sea situation at the European Maritime Day Conference in Sopot, Poland. The main topic of the seminar was to discuss the environmental risks of maritime transportation and the need for sufficient resources to combat accidental oil spills at sea. The event provided the first opportunity to reveal the results of the BRISK Project’s comprehensive and unique risk analysis of shipping accidents and pollution in the Baltic Sea, based on a single methodology and covering the whole sea area.

The BRISK-RU project (2010-2012) is developed as a Russian component for the recent HELCOM BRISK meeting in Sopot May 18 – 20 were well supported by all of the anti-pollution players in the Baltic region and will surely act as a valuable information source for the oil spill response in the future. “I am honored that HELCOM invited Lamor to this interesting and important gathering and we will support the values and the goals of the group in the future,” says Christoffer Wallgren, Regional Manager Europe.

EU-financed project “Sub-regional risk of spill of oil and hazardous substances in the Baltic Sea” (BRISK) and is financed by the Nordic Council of Ministers. The overall objective of BRISK is to substantially contribute to the development of an appropriate level of preparedness in the whole Baltic Sea area to tackle major accidental spills.

Budget of the project is approx. €3.3 million with approx. €2.5 million to be allocated from the European Regional Development Fund. Both projects are developed as a response to the increased risk of accidents and environmental damage in the Baltic Sea due to significant increase in ship traffic in the Baltic Sea with a common objective of reaching the goals of the HELCOM Baltic Sea Action Plan and the EU Baltic Sea Strategy.

HELCOM’s analyses reported that catastrophic oil spills of 5,000-150,000 tons in the Baltic Sea could occur once every 26 years, and large spills of 300-5,000 tons are expected to occur as frequently as once every four years, while the major risk area is the south-western Baltic and the Kattegat (Norway/Sweden/Denmark).

“The risks of the largest spills of 5,000 – 150,000 tons of oil in the Baltic Sea are limited to certain hot spot areas along the main oil shipping route, including route junctions in the Baltic Proper and Kattegat as well as
Finnish oil spill response vessel Seili, equipped with Lamor’s oil spill recovery technology, participating in oil spill response exercises off the Estonian coast.
narrow straits that lead to the Baltic Sea through the Great Belt,” says Peter S. Poulsen, the BRISK Project Manager. “On contrary, the risk of spills of 300 – 5000 tons of oil is more evenly distributed throughout the Baltic Sea and as likely on the main oil route as on some other routes, particularly in the waters of Gotland, the Åland archipelago and along the Polish coast.”

There are also substantial differences in the intervals between possible spills in these two size ranges in different sub-regions of the Baltic Sea area. These intervals are the shortest in the Sound and the Kattegat, closely followed by the south-western Baltic Sea, and the longest in south-eastern Baltic Proper. Spills are expected to be also less frequent, than in the Sound and Kattegat, in the Gulf of Finland and Gulf of Bothnia (more than four times) and northern part of the Baltic Proper (almost three times).

Mapping the environment
The risk assessment is accompanied with mapping of environmental sensitivity to oil in the entire Baltic Sea. Seventeen key environmental parameters have been selected and mapped including several habitats, species of marine flora and fauna, and protected areas, as well as human activities. This work reveals that particularly coastal waters, archipelagos and shallow waters are highly sensitive area to oil spills. The sensitivity maps will be further used by the coastal states to assess the impact of oil.

Based on the risk analysis, the nine HELCOM countries will identify the missing emergency and response resources needed to effectively tackle major spills of oil and hazardous substances with the aim to improve and optimize response capabilities in their areas of responsibility.

HELCOM’s BRISK and BRISK-RU projects aim to increase the preparedness of the Baltic Sea countries to combat major pollution caused by shipping activities. The Admiral Danish Fleet leads the project, and ten partners from eight countries are involved in it. The BRISK-RU project, financed by the Nordic Council of Ministers, carries out activities in the Russian Federation complementary to the BRISK activities. The Lead Partner of the BRISK-RU project is the Central Marine Research & Design Institute Ltd. in St. Petersburg, and the coordinator is the Information Office of the Nordic Council of Ministers in Kaliningrad.

The Baltic Sea today is one of the busiest seas in the world, accounting for more than 15% of the world’s cargo transportation. Both the numbers and the sizes of ships have grown in recent years, especially oil tankers, and this trend is expected to continue.

The Baltic’s narrow straits and shallow waters, many of which are covered by ice for prolonged periods in winter, make navigation very challenging, and increase the risk of shipping accidents.

The Baltic Sea coastal countries already have substantial resources to effectively respond to pollution at sea in the region, and operational procedures for joint, international response operations have been put in place within the framework of HELCOM. Yet, the need for further, deepened cooperation has been recognized by all Baltic Sea countries.
Three tier approach

HELCOM applies a three tier approach to response to pollution at sea, where minor spills are addressed by one country, medium-size spills require assistance from several neighboring countries, and the largest spills are addressed by all coastal states and if necessary with use of external assistance. BRISK will focus on tier II accidents corresponding to sub-regional level of co-operation.

First of all, based on a common methodology a comprehensive Baltic-wide analysis will be done within BRISK to check whether the existing emergency and response capacities in each sub-region of the Baltic are sufficient to tackle medium-size and large spills. No such overall risk assessment for the Baltic has been done so far.

Based on the risk assessment, the Project will identify missing resources and will help prepare pre-investment plans on how the Baltic Sea countries should jointly fill in the identified gaps.

The sub-regional approach when building the response capacities applied in BRISK is the most cost-efficient as countries can “share” their resources to build a common pool of response vessels and equipment sufficient for a given sub-region.

Moreover, the Project will facilitate and speed up the process of developing and concluding sub-regional agreements between neighboring countries for joint response operations. Through these activities the Project will substantially and in a concrete way contribute to the development of an appropriate level of preparedness in the whole Baltic Sea area.

BRISK project partners

- Admiral Danish Fleet HQ – lead partner
- Swedish Coast Guard HQ
- Finnish Environment Institute
- Estonian Board of Border Guard
- Marine and Inland Waters Administration of the Ministry of the Environment, Latvia
- Central Command for Maritime Emergencies in Germany
- Coastal Research and Planning Institute, Klaipeda University, Lithuania
- Maritime Institute in Gdansk, Poland
- Maritime Office in Gdynia, Poland
- HELCOM
- Russian partners from St. Petersburg and Kaliningrad

HELCOM response at work

- to ensure swift national and international response to maritime pollution incidents
- to ensure that in case of an accident the right equipment is available and routines are in place to respond immediately in cooperation with neighboring countries
- to analyze developments in maritime transportation around the Baltic and investigate possible impacts on international cooperation with regard to pollution response
- to coordinate the aerial surveillance of maritime shipping routes to provide a complete picture of sea-based pollution around the Baltic, and to help identify suspected polluters
The Baltic Sea - PSSA

The International Maritime Organization (IMO) has identified and declared the Baltic Sea as one of ten, Particularly Sensitive Sea Areas (PSSA). Other sea areas to be given PSSA status were e.g. around the Canary Islands Atlantic and the Galapagos Island.
The Great Barrier Reef, Australia.
PSSA status is given to sea areas that are especially vulnerable to risks caused by transport and other harm. Jorma Kämäräinen of the Finnish Maritime Administration sees the significance of the new status as mainly psychological. “The special status is a reminder of the vulnerability of the Baltic Sea. In two years IMO should bring forward new regulations for approval concerning security in areas such as sea lanes, traffic control systems, and restrictions on transport,” he says.

Russia’s increased oil transport through the Gulf of Finland, as well as the increasing transport of other hazardous substances in the Baltic, remains one of the biggest risks facing the sea. The new PSSA status applies to all parts of the Baltic Sea, with the exception of Russian waters at the far eastern end of the Gulf of Finland, and off the enclave of Kaliningrad. Russian ships will have to abide by international rules when they are outside Russia’s own territorial waters.

PSSA is an area that needs special protection through action by IMO because of its significance for recognized ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities. The criteria for the identification of particularly sensitive sea areas and the criteria for the designation of special areas are not mutually exclusive. In many cases a PSSA may be identified within a Special Area and vice versa.

The following PSSA’s have been designated:

- the Great Barrier Reef, Australia (1990)
- the Sabana-Camagüey Archipelago in Cuba (1997)
- Malpelo Island, Colombia (2002)
- the sea around the Florida Keys, US (2002)
- the Wadden Sea, Denmark, Germany, Netherlands (2002)
- Paracas National Reserve, Peru (2003)
- Western European Waters (2004)
- Extension of the existing Great Barrier Reef - to include the Torres Strait -proposed by Australia and Papua New Guinea (2005)
- Canary Islands, Spain (2005)
- the Galapagos Archipelago, Ecuador (2005)
- the Baltic Sea area, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden (2005)
In June, the Indonesian Executive Agency for Upstream Oil and Gas body (BP Migas) hosted in conjunction with its principal sponsor TOTAL, an Oil Spill Response & Preparedness for Upstream Oil and Gas Activities conference in Denpasar, Bali. In Indonesia BP Migas overseas and controls the business activities in the upstream oil and gas industry coupled with the efficient response to oil spills. Mitigating oil spills and ensuring proper preparedness is a high priority for the Agency due to both domestic and foreign oil drilling activities in the region amounting to approx. 1,000 new wells annually.

The conference included all actively engaged oil and gas companies in the region coupled with response and equipment suppliers. Lamor’s Vice President for Global Business Development, Andy Crawford was invited to give a presentation about oil spill clean-up solutions, training and equipment. Other panel members included Archie Smith from Oil Spill Response, Toby Stone from AMSA in Australia, Captain Amir Muraid from PIMMAG in Malaysia, Bayu Satya from Slickbar Indonesia and Yodi Satya from Oil Spill Combat Team in Indonesia.

“The seminar and presentations were well supported by all of the oil and gas companies present and will form the basis of Indonesia’s cooperative style oil spill response program in the future. I am very pleased that BP Migas invited Lamor to give a presentation at this prestigious gathering and we will do all we can to support the industry in this initiative with equipment, training and service support in the future,” says Crawford.
Join us and others in Rio de Janeiro at the Offshore Technology Conference (OTC Brasil) to be hosted at the Riocentro. The OTC conference has traditionally been held in Houston, TX, however, this year it will be for the first time ever in South America, expanding its reach to Brazil to create the OTC Brasil 2011 Conference and Exhibition, and of course Lamor will be there! Latest innovations in offshore OSR technology and equipment will be on display at our stand no. 224 in Pavilion 3.

OTC was founded in 1969 and is the world’s foremost event for the development of offshore resources in the fields of drilling, exploration, production, and environmental protection. The conference ranks among the largest 200 trade shows held annually in the US and is among the 10 largest meetings in terms of attendance. Attendance consistently exceeds 50,000, and more than 2,000 companies participate in the exhibition. OTC includes attendees from around the globe, with more than 110 countries represented at recent conferences.

See you in Rio!

Lamor is proud to introduce a Chinese language version of its site.

We have added a newsfeed on our website.
Meet us at

**Maritime Salvage & Casualty Response**
London, UK, September 7-8, 2011

**Oil Spill India 2011**
Goa, India, September 29 – October 1, 2011

**Middle East Workboats**
Abu Dhabi, United Arab Emirates, October 3-5, 2011

**OTC Brasil 2011**
Rio de Janeiro, Brazil, October 4-6, 2011

**Arctic Oil Spill Conference**
London, UK, October 4-5, 2011

**Basra International Oil & Gas Conference and Exhibition**
Basra, Iraq, November 25-28, 2011

**Clean Gulf**
San Antonio, TX, USA, November 30 – December 1, 2011

**Interspill 2012**

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