ISCO NEWSLETTER

The Newsletter of the International Spill Response Community

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International news

ITOPF JOINS THE WORLD OCEAN COUNCIL AND CO-CHAIRS A SESSION DEFINING AN "ARCTIC BUSINESS LEADERSHIP COUNCIL"

ITOPF has joined the World Ocean Council (WOC) an international, cross-sectoral alliance for private sector leadership and collaboration in "Corporate Ocean Responsibility". ITOPF is particularly interested to link with WOC's work to catalyse circumpolar, multi-industry collaboration on responsible Arctic activities.

Dr. Karen Purnell, ITOPF Managing Director said, "With our remit as a not-for-profit organisation established by the world's shipowners to promote an effective response to marine spills of oil, chemicals and other hazardous substances, this fits well with the WOC mission to create cross-sectoral industry leadership and collaboration on marine environmental challenges".

"While our remit is global, we are especially interested to engage with leadership companies through the WOC to further progrbb\ nNbn nn ess an 'Arctic Business Leadership Council' in order to help ensure the safe and responsible activities in the Arctic", she added.

Dr Tim Lunel, Support & Development Director at ITOPF will be co-chairing and presenting in a special Arctic session at the Sustainable Ocean Summit (SOS 2013), 22-24 April, 2013, Washington D.C. In this session WOC will continue to advance the effectiveness of the "Arctic Business Leadership Council".

International news (continued)

The SOS 2103 Arctic session will build on the WOC "Arctic Business Leadership Council" workshop (Reykjavik, 16 September, 2012) that brought together more than 30 representatives from shipping, oil and gas, fisheries, mining, marine science/technology and other industries. These companies also participated in the Arctic Council's first ever "Informal Business Dialogue" convened by its Sustainable Development Working Group (SDWG) (Reykjavik, 17 September 2013).

At the SOS 2013, companies will further explore how to mobilise multi-sectoral leadership and collaboration among responsible companies on the future of the Arctic. *ITOPF* *http://www.itopf.com/*

CHINA, INDIA, SINGAPORE COULD JOIN NEW ARCTIC CIRCLE FORUM

China, India, Singapore and other countries far from the Arctic Circle could be part of a new global forum to widen the discussion about the fate of the planet's Far North, Iceland President Olafur Grimsson said on Monday.

The non-profit forum, Arctic Circle, will hold its first meeting in Reykjavik, Iceland's capital, in October.

Such a gathering is needed, Grimsson said, because, while most countries have a stake in the melting of Arctic ice, only eight - Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States - are members of the Arctic Council, an intergovernmental group set up in 1996.

Some non-Arctic countries can observe the deliberations, but they have no formal voice on the Council about sustainable development and environmental protection in the region.

The Icelandic leader said he had discussions about the Arctic this year with officials from China, India and Singapore. The first agenda item of these discussions was when these countries would get a seat on the Arctic Council.

The Arctic Circle forum will be "an open, democratic tent where everybody who wants to participate will actually be welcome," Grimsson said at an event at the National Press Club. *Reuters* *Read more*

SPILLCON 2013 AND CLAIMS AND COMPENSATION WORKSHOP IN CAIRNS, AUSTRALIA

The Director and Head of Claims Department, Matthew Sommerville participated in Spillcon 2013 held in Cairns, Australia from 8-12 April 2013. Spillcon is one of the tri-annual series of conferences (the others being Interspill and IOSC) at which international experience and knowledge of oil spill prevention, planning, response and economic costs are discussed.

This year's event included discussion on recent incidents and developments such as those which have affected Australia and New Zealand. Presentations were given by representatives from a number of States and organisations, including the Director who spoke about the recent developments and issues associated with the IOPC Funds and related incidents. *IOPC Funds* Read more

Incident reports

USA: INVESTIGATORS SEARCH FOR CLUES TO CAUSE OF TEXAS EXPLOSION

This aerial photo shows the remains of a fertilizer plant destroyed by an explosion and an emergency responders vehicle, bottom left, in West, Texas, Thursday, April 18, 2013

April 19 - Investigators searched for clues on Friday to the cause of a Texas fertilizer plant explosion that obliterated sections of a small town and killed at least 12 people, including volunteer firefighters who raced to the scene to douse a blaze.

West Fertilizer Co is a retail facility that blends fertilizer and sells anhydrous ammonia and other chemical products to local farmers. It stored 270 tons of "extremely hazardous" ammonium nitrate, according to a report filed by the company with the state government. Farmers use anhydrous ammonia as fertilizer to boost soil nitrogen levels and improve crop production.

The West plant is one of thousands of sites across rural America that stores and sells hazardous materials such as chemicals and fertilizer for agricultural use. Many are near residences and schools.

While authorities stressed it was still too early to speculate on the precise cause of the blast, a forensic sciences expert said investigators probably would consider at least two scenarios.

John Goodpaster, assistant professor and director of forensic sciences at Indiana University-Purdue University Indianapolis, said anhydrous ammonia is stored in liquid form but forms a vapor when mixed with air that can be explosive.

If enough heat is applied to a container of anhydrous ammonia, he said, "that container could become a bomb."

A second possibility is that ammonium nitrate, which was stored at the facility, could have exploded, said Goodpaster. This was the cause of one of America's worst industrial accidents. In 1947 ammonium nitrate detonated aboard a ship in a Texas City port, killing nearly 600 people. *Yahoo News* Read more Watch video April 20 Update and more videos from CNN

CHINA: OIL SLICK FROM CNOOC VESSEL

April 19 - Chinese oceanic authorities confirmed that an oil slick spotted in the waters of Bohai Bay off Laoting county, Hebei Province, is crude oil from a vessel owned by State-owned China National Offshore Oil Corporation (CNOOC).

The North China Sea Branch of the State Oceanic Administration said in a statement posted on its website Monday that tests found the oil in the slick is basically identical to the crude oil transported by CNOOC's Floating Production Storage and Offloading (FPSO) vessel, Bohai Friendship. *Global Times* Read more [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group]

EGYPT: ISIS NILE CRUISE SHIP SPILLS DIESEL INTO EGYPT'S RIVER, CONTAMINATING LAKE

April 18 - Egypt is not a country that is fond of reporting oil spills – whether they occur on the Red Sea, in the Suez Canal or the Nile. But it has managed to start clean up a worrying diesel spill into the Nile River, a spill which has leaked onto the shores of Lake Nasser, China.org is reporting. The area is near the High Dam in Aswan region, and the Nile waters the breadbasket of Egypt.

Despite much of the government being crippled by ongoing conflicts and protests, the Minister of State for Environmental Affairs, Khaled Fahmy, reportedly ordered that the area be surveyed and the oil contained. Currently there are two marine vessels working to clean up the lake. That which didn't evaporate is being sponged up, the groups and marine units working on the spill reported to local media. *Green Prophet* Read more [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group]

UK: SEABIRDS AFFECTED BY SECOND WAVE OF STICKY POLLUTION 'COULD NUMBER THOUSANDS'

A dead guillemot on Wembury beach, Devon. Wildlife agencies in Devon and Cornwall said numbers of birds killed or rendered helpless could reach 'thousands'. Photograph: Teresa Naylor/PA

April 17 - The numbers of seabirds affected by a sticky substance in the sea off south-west England over the past week could be far greater than those harmed by a similar – or possibly the same – spill earlier this year.

Wildlife agencies in Devon and Cornwall said numbers of birds killed or rendered helpless could reach "thousands" and that "a whole generation of seabirds" may have been wiped out in a single pollution incident.

Dead and distressed birds have been washing up along beaches in

Incident reports (continued)

Devon and Cornwall since the middle of last week, covered in a sticky substance that has been confirmed as polyisobutylene, also known as PIB or polyisobutene, an oil additive often used to improve the performance of lubricating oil and in products ranging from adhesives to sealants and chewing gum. Affected species include razorbill, puffin and gannets, but predominantly guillemots. *The Guardian* Read more

Seabird oil deaths: Tanker probe taking place, UK government says

April 19 - Discharges by chemical tankers are being investigated after hundreds of dead birds washed up along the south coast, the transport minister has said.

The RSPB said more than 1,000 birds had been affected in Devon and Cornwall since 10 April, while hundreds were found covered in the substance, mainly in Dorset, in February.

The Maritime and Coastguard Agency said it was trying to determine the source of the latest incident but ended inquiries into the first discharge, admitting it was "highly unlikely" the ship could be found. *BBC News* Read more

Other news

USA: FROM LACED LETTERS TO TERROR ATTACKS, THIS FEELS A LOT LIKE 2001

Photo: Members of the U.S. Marine Corps' Chemical-Biological Incident Response Force demonstrate anthrax clean-up techniques during a news conference on Capitol Hill in Washington, Oct. 30, 2001. (AP Photo/Kenneth Lambert)

April 21 - With a whole floor of the Hart Senate Office Building evacuated, mail delivery suspended, and a White House press secretary cautiously sidestepping questions Wednesday, the echoes of 2001 were too loud to ignore. Then, as now, the nation was recovering from a traumatic case of terrorism. Then, as now, homeland security officials were braced for a second attack. And then, as now, officials didn't know what the tainted letters really mean.

One man who could not help but hear the echoes was Ari Fleischer, President George W. Bush's press secretary, who remembers when anthrax-laced letters killed two civilians, infected Senate staffers, and shut down two floors of Hart. A decade later, he understands what current press secretary Jay Carney was going through at Wednesday's press briefing. "It is just a weird feeling to see this going on," Fleischer told *National Journal*. "Of everything I went through — including the recount, Sept. 11, and two wars — no briefing was harder than the anthrax briefings."

He explained that "as terrible as those other events were, I always knew what I was going to say. I knew what the president was doing. I knew what was coming next. I could take the podium and speak confidently. But the anthrax attacks were bewildering. Nobody in the government knew any answers. People would open their mail and die. People were scared." *National Journal* Read more

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USA: GREAT LAKES OIL PROPOSALS THREATEN REPEAT OF KALAMAZOO SPILL, ENVIRONMENTALISTS SAY

April 14 - Two oil projects in the works could significantly increase the amount of heavy crude oil moving on -- and near -- the Great Lakes, causing alarm among environmentalists because they involve the same heavy oil that was behind a $1-billion oil spill on the Kalamazoo River in 2010 that remains an ecological disaster.

The company fined for that spill -- Canadian oil transport giant Enbridge -- is behind one of the new projects. Its new venture would nearly double the amount of crude oil shipped on a major pipeline from Canada to Lake Superior -- transporting more oil than the controversial Keystone XL pipeline that has caused an environmental outcry and fierce debate in Congress. The second project involves a refinery on Lake Superior's shore building a dock to load oil barges, allowing the shipment of up to 13 million barrels of crude oil per year throughout the Great Lakes to Midwest refineries and markets beyond. *Detroit Free Press* Read more
[Thanks to Marc K. Shaye Hon.FISCO, Member of ISCO Executive Committee]

USA: BIG SPILLS FROM AGING OIL PIPELINES

April 15 - Recent pipeline ruptures, including one at an Exxon Mobil Corp. pipeline that caused a major oil spill in Arkansas last month, are raising fresh questions about the safety of pipes made decades ago using obsolete welding techniques.

Though the industry stopped making what is known as low-frequency, electric-resistance welded pipe by about 1970, it still accounts for more than a quarter of the 182,500 miles of liquid fuel pipelines across the U.S., according to federal data for 2011, the latest available.

The accidents come as federal regulators are examining whether state-of-the-art inspection methods are capable of detecting flaws in these old pipe seams. A U.S. regulator has commissioned a study of old, substandard pipe that could help shape new rules.

In the Exxon rupture and another on a Chevron Corp. pipeline in Utah last month that spilled 600 barrels of diesel near the Great Salt Lake, segments of the pipes were made about 60 years ago by bending metal sheets to form a tube, then heating the edges with a low-frequency electric current to weld them lengthwise. Such welds can leave defects in seams that make them vulnerable to corrosion and cracks, risks that have been known for decades. *The Wall Street Journal* Read more

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CANADA: MORE TROUBLES ON ANOTHER ENBRIDGE PIPELINE

April 19 - Canada's federal pipeline regulator has ordered Enbridge to conduct a full engineering assessment of a troubled northern pipeline that has sprung several leaks in the last two months.

The National Energy Board issued the demand on March after Enbridge reported finding four oil leaks on its Norman Wells to Zama pipeline (Line 21) in a two month period this year. All occurred along the same segment of the line that experienced a major oil spill in 2011.

In response to the order, Herb Norwegian, Dehcho First Nations Grand Chief, called for the replacement of the entire 870-kilometre line before a catastrophic eruption occurs affecting a major waterway.

"We need to actually call for the replacement of the entire line and put something better in there because this is too dangerous," Norwegian told the Northern News Service last month. "We're going to be dealing with something serious later on if we don't deal with the problem." *The Tyee* Read more

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USA: OIL SPILL COMMISSION PRAISES INDUSTRY, OBAMA ADMINISTRATION, BUT FAULTS CONGRESS FOR INACTION

April 17 - More stringent regulations by the Obama administration and safety "lessons learned by industry" have contributed to make offshore drilling much safer than it was three years ago when the Deepwater Horizon oil rig exploded, according to the independent White House commission that examined the disaster. But the commission, in a report released Wednesday (April 17), faults Congress for failing to enact a single regulatory change or to raise the liability limits for major spills.

The report gives the Obama administration a grade of B, the oil and gas industry a B- and Congress a D+. Congress gets credit only for enacting legislation that will funnel 80 percent of any Clean Water Act fines from the disaster to the five Gulf states, money the commission hopes will be used for coastal restoration. *The Times Picayune* Read more

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USA: DEAD DOLPHINS AND SHRIMP WITH NO EYES FOUND AFTER BP CLEAN-UP

April 14 - Hundreds of beached dolphin carcasses, shrimp with no eyes, contaminated fish, ancient corals caked in oil and some seriously unwell people are among the legacies that scientists are still uncovering in the wake of BP's Deepwater Horizon spill.

This week it will be three years since the first of 4.9 million barrels of crude oil gushed into the Gulf of Mexico, in what is now considered the largest marine oil spill in the history of the petroleum industry. As the scale of the ecological disaster unfolds, BP is appearing daily in a New Orleans federal court to battle over the extent of compensation it owes to the region.

Infant dolphins were found dead at six times average rates in January and February of 2013. More than 650 dolphins have been found beached in the oil spill area since the disaster began, which is more than four times the historical average. Sea turtles were also affected, with more than 1,700 found stranded between May 2010 and November 2012 – the last date for which information is available. On average, the number stranded annually in the region is 240. *The Independent* Read more [Thanks to Gerald Graham, World Ocean Consulting]

USA: PROPOSED INFORMATION COLLECTION REQUEST; COMMENT REQUEST; THE NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN

April 15 - The Environmental Protection Agency is planning to submit an information collection request (ICR), The National Oil and Hazardous Substances Pollution Contingency Plan (EPA ICR No. 1664.09, OMB Control No. 2050-0141) to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*). Before doing so, EPA is soliciting public comments on specific aspects of the proposed information collection as described below. This is a proposed extension of the ICR, which is currently approved through October 31, 2013. An Agency may not conduct

or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. *Federal Register* Read more

NIGERIA: SHELL EMBARKS ON FINAL DISENGAGEMENT FROM OGONILAND

April 14 - Against every speculation that the oil giant, Shell Petroleum Development Company (SPDC), may rescind its decision to resume oil exploration in Ogoniland and other flashpoint areas in the Niger Delta, the Royal Dutch oil company is already planning to finally pull out of the region.

Spokesman of the company, Precious Okolubo, told newsmen that the presence of its technical team in Ogoniland which had fuelled speculations of its purported resumption of operations was essentially to take stock of its oil and gas assets which the company left behind when it pulled out of Ogoniland way back in1993.

Okolubo stressed that the decision of Shell to take inventory of its key assets in the area was occasioned by the report of the United Nations Environmental Programme, (UNEP) on oil pollution in Ogoniland to clean up the polluted Ogoni environment.

"The UNEP report had a lot of recommendations, and Shell was specifically required to go to Ogoniland to conduct an inventory of our oil and gas assets that have been dormant since 1993."

"I want to categorically deny that what we are doing is an attempt to resume production here. As you know, we left the area since 1993, and since then we have never gone back," Okolubo further explained. *Daily Independent* Read more

NIGERIA: NOSDRA, HYPREP AGREE TO PARTNER ON OGONILAND OIL SPILL REMEDIATION

April 19 - The National Oil Spill Detection and Response Agency, NOSDRA, said on Friday that it is determined to partner with the Hydro-carbon Pollution Restoration Project, HYPREP, towards the clean-up of the environment in Ogoniland as well as the pursuit of other hydro-carbon pollution remediation activities in the country.

The National Co-ordinator of HYPREP, Joy Okunnu, who was speaking during a visit to NOSDRA headquarters in Abuja, said that allegations of role conflict between the two agencies were untrue.

She said the significance of the visit was for HYPREP to interact with NOSDRA to smoothen the rough ages of their relations, adding that since the establishment of the agency in June 2012, following the release of the United Nations Environment Programme, UNEP, report, the body had gone beyond formulating the modalities for the Ogoni clean-up and restoration project. *Premium Times* Read more

UGANDA: NEMA DEVELOPING OIL SPILL CONTINGENCY PLAN

Photo: Nema boss Tom Okurut and publicist Naomi Karekaho in Kampala on Tuesday.

April 21 - As Uganda moves towards the production stages of her oil and gas, the National Environment Management Authority (Nema) is developing a disaster risk response strategy to mitigate any resultant risks of oil spill.

Nema Executive Director Tom Okurut told journalists yesterday that the 'Oil Spill Contingence Plan' was being revised by experts from various ministries. It would be finalized in the next one year.

"We have decided to be pro-active because we have seen cases of oil spills that led to disastrous events [such as those in] Nigeria and America," he said.

Okurut said the plan would entail avoidance, detection and mitigation measures of oil spill – and should clearly state the obligations of the community, the oil companies and the government. While the companies will be required to ensure safe transportation of the oil, the communities will be tasked to immediately report any case of spills in their localities.

The 2012, Oil waste management guidelines will cease to work when Uganda gets a law on oil waste management. *The Observer* Read more

ISCO news

ISCO AGM AT SPILLCON IN CAIRNS, QUEENSLAND, AUSTRALIA

The meeting was held on Wednesday 10th April 2013. Those present included John Wardrop (Member of ISCO Council for Australia), Dr Merv Fingas (Member of ISCO Council for Canada), Steve Reilly (representing Corporate Member, Lamor Corp.), Brian Johnston (representing Corporate Member, Rutter Inc.), John Brinkman (representing Corporate Member, Imbibitive Technologies America Inc.), Saskia Sessions and Paul Kelway (representing Corporate Member, Sea Alarm Foundation), Ben Cropley, Narelle Warde, Ray Lipscombe and Marie Tenneys (representing Corporate Member, Oil Response Company of Australia Pty. Ltd.), Dennis Brand and Eric Shelley (representing Titan Salvage and ISCO Corporate Member, Marine Response Alliance). Guests included Khalid Al Dossary and Saleh Zahrani (Saudi Aramco) and John Elliot. ISCO President, David Usher Hon.FISCO chaired the meeting and was assisted by ISCO Membership Director, Mary Ann Dalgleish.

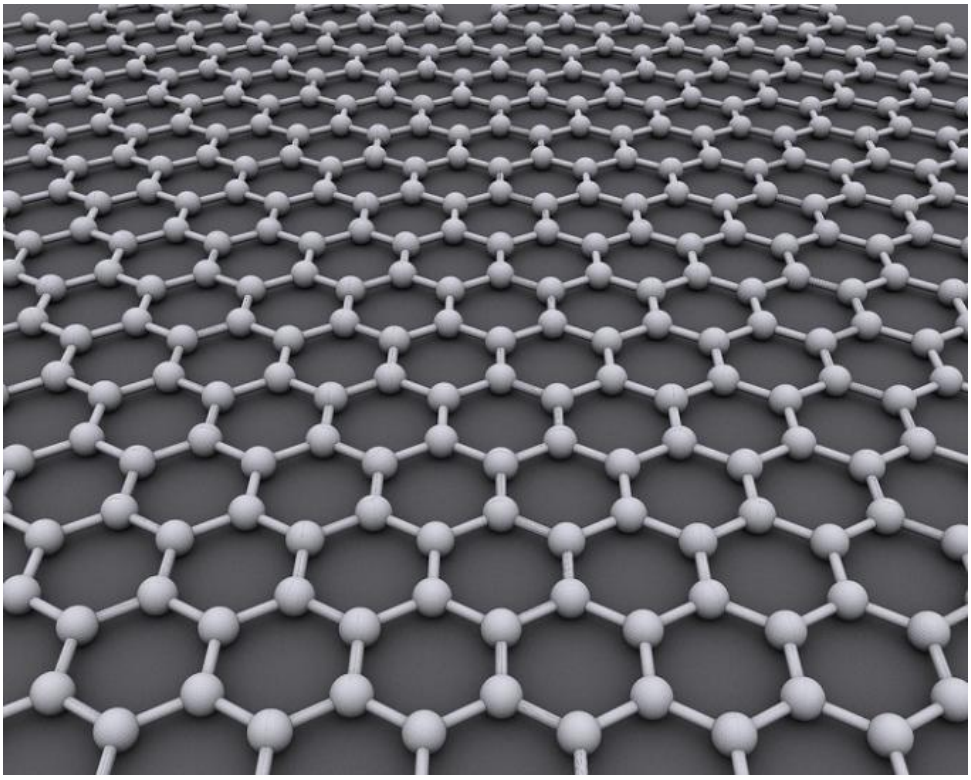
Our guest speaker. John Wardrop (Member of ISCO Council for Australia) gave an excellent speech introducing the recently formed Australian Spill Control Association (ASCA). This is a professional association for Australia-based practitioners involved in all aspects of oil and HNS spill response.

Following the business part of the meeting members and guests relaxed over drinks and participated in informal discussions covering a wide range of topics including aspects of the DWH spill in the Gulf of Mexico and ISCO's contributions to the OPRC-HNS Technical Group meetings at IMO in London. [Thanks to Mary Ann Dalgleish for providing this summary report]

The minutes of the business meeting will be circulated to all members in the near future.

Science and technology

LIGHTEST MATERIAL ON EARTH COULD MOP UP OIL SPILLS: USES FOR THE GRAPHENE SPONGE



The newly-created lightest material on earth, known as a graphene sponge, could help mop up oil spills. The ideal crystalline structure of graphene is a hexagonal grid. (Photo : Flickr/AlexanderAlUS)

Researchers have created a new substance that is now the lightest material on Earth. Known as graphene aerogel, the substance is less dense than helium and could potentially be used to clean up oil spills.

Aerogel itself, though, is nothing new. It was first created in 1931 by an American scientist who used silicon dioxide. It was consequently named "frozen smoke." Then, in 2011, nickel aerogel was created with a density of a mere .9 mg/cubic centimeter--the lightest material at that time. Scientists continued to work away until they eventually created a material, named aerographite, which had a density of a mere .18 mg/cubic centimeter.

Dotted with pores and containing pockets of air, the newest substance is even more impressive. It has a density of a mere .16 mg/cubic centimeter, officially making it the lightest material.

In order to actually make this substance, researchers had to utilize some high-tech freeze drying that could yield graphene sponges of arbitrary size--some were as big as tennis balls while others were as small as a bottle stopper.

"It's somewhat like large space structures such as big stadiums, with steel bars as supports and high strength film as walls to achieve both lightness and strength," said Sun Haiyan, one of the researchers who helped create the new material, in an interview with Phys.org. "Here, carbon nanotubes are supports and graphene is the wall."

The process itself could potentially be scaled up to an order of feet--convenient considering what the material could potentially be used for. The aerogel is extremely resilient, and can potentially mop up 900 times its weight in oil. It could be indispensible as a clean-up sponge when major oil spill disasters occur, such as the one in the Gulf of Mexico. *Science World* Read more

Cormack's Column

In this issue of the ISCO Newsletter we are printing No. 123 in a series of articles contributed by Dr Douglas Cormack.

Dr Douglas Cormack is an Honorary Fellow of ISCO. As the former Chief Scientist at the British Government's Marine Pollution Control Unit and head of the UK's first government agency, the Warren Spring Laboratory, Douglas is a well known and highly respected figure in the spill response community. He is the Chairman and a founder member of the International Spill Accreditation Association

CHAPTER 123: KNOWLEDGE AND COUNTER-BELIEF

As to prediction of the general fate of released oils/HNS, their effects, and the selection of response techniques and equipment, we know that buoyancy, sinking and solidification depend on the physicochemical properties manifested as density, pour point and melting point; that the extents of evaporation for oils depend on those properties manifested as distillation-temperature profiles; that the extents of water-in-oil emulsifications and resulting viscosities depend on initial viscosities and on water-content and on whether the oil is crude, distillate or residual-fuel; that individual HNS are not emulsion forming, retain their initial viscosities and evaporate at rates dependent on their boiling points; that insoluble/non-volatile slicks of oils/HNS disperse at rates dependent on their viscosity-dependent half-lives whether emulsified or not; that these half-lives determine the fractions likely to strand on known wind/tide vectors; that soluble HNS dissolve at rates dependent on their known solubility; and that consequently there is no cause for surprise whichever oil/HNS is known to have been released.

Thus, whatever may be counter-believed, we know that oils/HNS are either liquids or solids at ambient temperatures; that they either float while evaporating, dispersing, dissolving. or sink while doing so; that evaporation is followed by atmospheric dilution and photolytic degradation; that while the non-volatile components of floating oils or individual HNS may coat shorelines and organisms of particular species, their subsequent dispersion and/or solution from shorelines to seawater simply resumes their earlier dispersion, solution, dilution and degradation within the seawater ecosystem in which organisms utilise preformed organic molecules as food before themselves dying, degrading or being eaten by others which themselves will later die, degrade or be eaten; and that consequently there is no cause to believe in species-extinction/ecological-disaster arising from any oil or organic HNS release or from any inorganic HNS release, the latter also being subject to dilution and to neutralisation by the buffered ph mineralisation of seawater while any exceptions can be readily identified by their known properties.

Again, while the coating of shorelines and individual organisms cause commercial loss by interrupting amenity enjoyment and fishing activities for which compensation is available, we know, whatever may be counter-believed, that the above fate, effects and non-effects can be reliably used to predict the commercial impact which claimants could cite had no response been mounted; that such prediction can be compared with the known reduction in impact achieved by the knowledge-based/cost-effective response actually mounted before and after stranding; that response costs would be proportionate to the reduction in claims thus achieved; that such reductions are best achieved by enhancing natural dispersion, dilution and degradation within the water column by application of viscosity-amenable dispersants to the extent possible/necessary before and after stranding; that higher pollutant viscosities may necessitate mechanical recovery at sea and onshore; but that all such recovery involves processing, recycling and ultimate disposal costs, avoidable only by successful dispersant use.

Thus, environmental response planning must reject belief in species-extinction/ecological-disaster in the knowledge that seawater and atmospheric concentrations of released oils/HNS are too low or too localised to have such species-wide or ecological effects; that the number of individual organisms physically coated by released oils/HNS are too few to have any such effects; that dispersant-use prevents or reduces localised physical coating of shorelines and organisms without significantly increasing their seawater concentrations beyond those of the natural dispersion which otherwise prevents or reduces such physical coating; and that such natural dispersion occurs under the entire slick area while dispersant-use is physically limited to a fraction, often a very small fraction of the total slick area, as is seaborne mechanical recovery. Again, the total quantity of oils or organic HNS dispersed or dissolved into the sea in any one incident is a miniscule fraction of the total marine food source which recycles the total marine biomass through the atmosphere as carbon dioxide while inorganic HNS are diluted/neutralised by overwhelming quantities of seawater, any exceptions being readily identified.

Thus, whatever may be believed to the contrary, we know that oils/HNS evaporate, disperse and/or dissolve to concentrations of which only an identifiable few HNS could be considered toxic locally and transiently at most; that no oil component or individual HNS which has evaporated, dispersed and/or dissolved can be recovered; that nonetheless no species-extinction/ecological-disaster has yet been observed from the *Torrey Canyon Incident* of 1967 to the present; that only the oil components and individual HNS which have not already evaporated, dispersed or dissolved come ashore in amounts dependent on the proximity of shore to release-point and on their viscosity-dependent persistence as floating slicks; and that consequently dispersant-use to return stranded pollutants to the sea would simply resume the natural and induced dispersion which would have occurred with no ill effects had the source-shore distance permitted its completion.

1 The *Rational Trinity: Imagination, Belief and Knowledge*, D.Cormack, Bright Pen 2010 available at www.authorsonline.co.uk
2 *Response to Oil and Chemical Marine Pollution*, D. Cormack, Applied Science Publishers, 1983.
3 *Response to Marine Oil Pollution - Review and Assessment*, Douglas Cormack, Kluwer Academic Publishers, 1999.

RESPONSE TO INLAND OIL SPILLS – PART 17

A short series of articles contributed by Mark Francis of Oil Spill Solutions.

Mark Francis has been involved with the oil industry since 1975. He attended his first oil spill in 1976, the Tanker Elaine V incident. He became head of response for inland spills within the UK for British Petroleum E & P in 1980 for 10 years responding to well, storage tank and pipeline spills throughout the UK. Over the next 20 years he continued to build his international operations experience and has also specialised in spill response training, delivering IMO and other courses in more than 20 countries. Mark's website is at http://www.oilspillsolutions.org

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Rivers (continued)

Some operations start in quiet rivers only to be interrupted later by flood waters.

There is always a need to know what the weather is doing as well as the topography of the region.

It may be sunny where you are, but miles away in the hills where your river comes from, it may be raining.

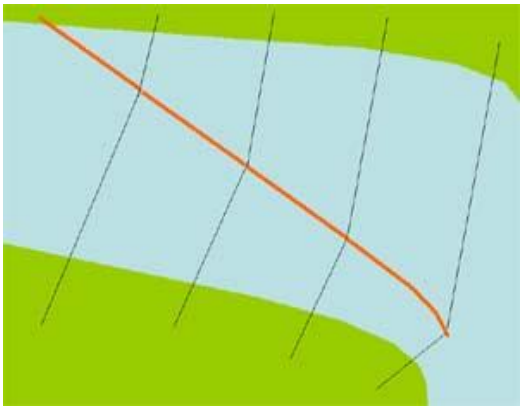
Sometimes it may take hours or days for the flood water to reach your site and you need to be prepared.

This is a real problem in tropical regions where hours of rain produces many tons of water and the level may rise a couple of meters in a short time.

Booms should always be secured with ropes with less breaking strain than the boom.

As in the case *above*, the rope breaks but the boom remains with you.

In this case when the river calmed down the oil was over 30 km from this point.



Booms should be anchored either in the river or on the banks to maintain the angle as good as possible. In currents of more than 1mps, shorter lengths of boom should be used to provide more anchor points at the connections.

The fewer anchor point the greater the likelihood of sections of the boom bellying and oil getting away.

Stakes of either wood or steel are usually used in these cases and many long lengths of rope. Make sure you have enough of both.

The *photo right* is a recent spill in the Rio Guarapiche, Venezuela. The mind boggles as to why you have boom but have to use half naked men instead of anchors.

Special feature - Inland spills (continued)

In order to reduce the stress and strain on boom anchor points a series of booms are positioned one behind the other to work like a cascade allowing the oil to be directed into calm water recovery points *photo left.*

This reduces the strain dramatically as the booms are seperate and not on continous length.

Each boom is angled across the river to allow the oil to flow off the end onto the next and so on until it arrives in the collection boom at the bank.

There needs to be a good seal against the bank to allow the oil to become thick enough for recovery to take place. This can be difficult in many places as environmental agencies may not allow the bank to be dug away to allow a smooth seal with the boom.

If the boom is not sealing properly there will be a vortex form on the point of the boom which will entrain the oil under the boom. This problem is lessened when heavy fuel oil or cold conditions increase the viscosity of the oil.

The photo *right* shows how with no seal any oil that is directed to the shore will just escape through the gap.

To be continued

Special feature – In situ burning

IN SITU BURNING: CHAPTER 15

A short series of articles on In Situ Burning contributed by Dr Merv Fingas of Spill Science, Edmonton, Alberta, Canada T6W 1J6 fingasmerv@shaw.ca

Merv Fingas MSc PhD worked for more than 35 years in the field of oil spill technology at Environment Canada's Environmental Technology Center in Ottawa, Ontario. As head of the Emergencies Science Division at the Centre, he conducted and managed research and development projects. He is currently working independently in Alberta. Dr Fingas is the Member of ISCO Council for Canada.

Summary of the Serial

This is the 15th of a series of articles on in-situ burning of oil spills. This series will cover in-situ burning step-by-step and will present the latest in knowledge on the topic.

15. Emissions – III

In the last episodes, we reviewed the basics of oil burn emissions. It was noted that emissions include the smoke plume, particulate matter precipitating from the smoke plume, combustion gases, unburned hydrocarbons, organic compounds produced during the burning process and the residue left at the burning pool site.[1] In this episode, we shall look at how one can use the emission data to correlate and predict.

Sufficient data are now available to assemble emission data and correlate the results with spatial and burn parameters. The correlations are summarized in a reference.[34] Although many correlations were tried, it was found that atmospheric emissions correlated relatively well with distance from the fire and the area covered by the fire. This information was used to develop prediction equations for each pollutant, using the data gathered from the first 30 test burns conducted. Sufficient data were available to calculate equations for over 150 individual compounds and for all the major groups.

These correlations will significantly increase understanding of in-situ burning in the areas of assessing the importance of specific emissions and classes, predicting a 'safe' distance for burning, and predicting concentrations at a given point from the fire. These predictions are based solely on actual data and therefore may be more accurate than theoretical-based predictions. This increased accuracy applies to situations where the conditions are the same as those under which the emissions data were collected. The data were collected with winds between 2 to 5 m/s (4 to 10 knots) and with only a few cases where inversions were present.

These data were then used to calculate the difference between the regulated level (typically the time-weighted average recommended exposure to a substance) and the calculated amount of the substance for several burns. The findings show that emissions, especially of particulate matter, are significantly higher from a diesel fire than from a crude oil fire, as had been noted in several studies of particulate emissions.[1] Other emissions of concern are similar for diesel and crude oil, although the PAHs are somewhat higher when diesel burns. This calculation confirms that particulate matter is the greatest concern, followed by the PAHs on the particulate matter, and the total VOCs.

Analysis of the VOC data shows these to be close to being a matter of concern, however, it should be noted that the level of VOCs is much higher (as much as three times higher as measured in some tests) when oil is evaporating in the absence of burning than when burning. Carbonyls are another emission of concern, although they are significantly below health concern levels. There is no health concern for fixed gases such as carbon dioxide or carbon monoxide at levels measured at burns to date.

Safe Distances

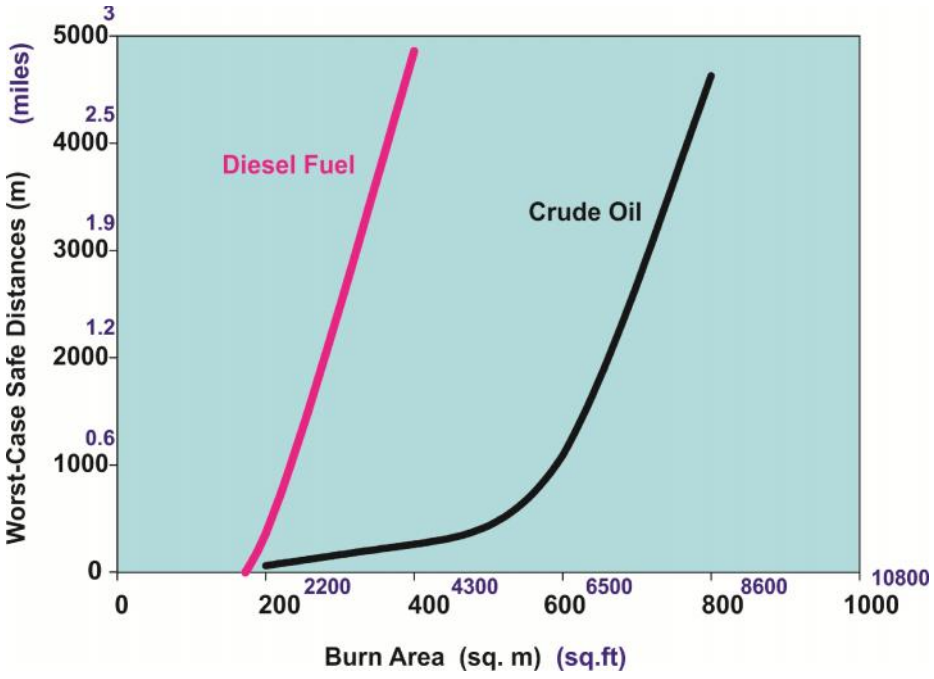
Safe distances can be calculated for worst case conditions where the smoke plume does not lift or where it impacts the ground at a distance close to the fire. Such circumstances are rare however, but do occur. Figure 14 shows such a case for a test burn of diesel fuel.

Figure 14 *(left) A photograph of a mid-size diesel fuel fire in which the plume does not rise due to a inversion. Such cases are rare but result in worst-case situations for emissions.*

Safe distances for typical conditions where the smoke plume does not impact the ground are well within 1 km (0.6 miles). Distances greater than about 200 m (650 feet) are the closest one could safely approach most fires.

Figure 15 shows the calculated worst-case safe distances for fires. It should be noted that diesel fires produce large amounts of soot and thus worst-case safe distances are very much further than for crude oil fires.

Figure 15 *(right) A nomogram to predict* ***worst-case safe distances****. This is for cases where the smoke plume is close to or on the ground near to the fire as shown in Figure 14. If the smoke plume rises normally, safe distance is typically a minimum of about 200 m (650 feet).*



Worst-case safe distances downwind from a crude oil burn (based on PM-2.5 concentrations) can be calculated as:
Crude worst-case safe distance = Exponential (2.64 + 0.00725*(area))
where distance is in metres and area is in square metres

Safe distances downwind from a diesel fire can be calculated as:

Diesel worst-case safe distance = Exponential (3.41 + 0.0127*(area))
where distance is in metres and area is in square metres

Note: To convert feet to metres, multiply by 0.305.
To convert metres to feet, multiply by 3.28.

References

1 Fingas, M., "In-situ Burning", Chapter 23, in Oil Spill Science and Technology, M. Fingas, Editor, Gulf Publishing Company, NY, NY, pp. 737-903, 2011

34 Fingas, M.F. and M. Punt, In-Situ Burning: A Cleanup Technique for Oil Spills on Water, Environment Canada Special Publication, 2000

To be continued

Contributed article

FIRST NETMAR TRAINING EXERCISE AND DEMONSTRATION IN THE SHANNON ESTUARY ON THE WEST COAST OF IRELAND: 16 TO 18 APRIL 2013

An article contributed by Jack O'Sullivan, Environmental Management Services. jackosullivan@gmail.com

From 16 to 18 April 2013, the Shannon Estuary was the location of the first of three demonstration and training exercises to be held as part of the European **NETMAR** project, funded by the **EU Atlantic Area** transnational programme.

The exercise, code-named "Cathach", was based on a scenario in which a 43,000 tonne container ship, "Marée Noire", reported that she has suffered hull damage during a strong southwesterly storm and heavy seas, some 40 nm west of Kerry Head. The hull damage aroused immediate concern about the stability and integrity of the vessel, and the ship's master requested permission to enter the Shannon Estuary, a recognized harbour of refuge. The Irish Coast Guard, Shannon Foynes Port Company, and Clare and Kerry County Councils were notified. The ship was directed to an anchoring position; and, while proceeding to the anchorage, the ship's steering failed, and she struck Five Fathom Rock, south-west of Corlis Point and Querrin Creek, and due west of Scattery Island.

The impact caused a spillage of heavy fuel oil and loss of a container (wjich contained hazardous chemicals) from the ship's deck. The Shannon Estuary Oil Pollution Response Plan and the HNS Response Plan were activated; while the Shannon Estuary Anti-Pollution Team (SEA-PT) oil spill tracking model and the associated sensitivity and vulnerability atlas were used to predict where oil would be most likely to come ashore.

UAVs (unmanned robotic aircraft) developed by the Engineering Faculty of the University of Porto (FEUP) and other NETMAR partners were launched to assess the situation and to provide live high-definition video feed back to an operational command centre at Moneypoint Electricity Generating Station. At the same time, a remotely operated submarine vehicle (ROV "Latis"), with precision navigation and positioning capabilities, developed by the Mobile and Marine Robotics Research Centre (MMRRC) at the University of Limerick, was deployed to search for containers lost overboard from the ship.

The incident scenario involved the stranding of large patches of fuel oil on the northern shore of the Shannon Estuary, protection of very vulnerable wildlife and shellfish farming areas, and removal of shoreline contamination. Large numbers of local authority and local industrial personnel participated in this part of the exercise; traffic diversions were put in place; health and safety training was provided; booms and skimmers were deployed; and the on-shore activities were planned and co-ordinated by Clare County Council.

In the estuary, a short distance off-shore, the Irish Naval Service Vessel L.É. *Orla* and the Commissioners of Irish Lights vessel ILV *Granuaile* provided logistical support to the UAVs and ROVs; while the *Granuaile* and the tug *Celtic Rebel* deployed a boom to contain and recover the 'oil' before it would reach the shore. The Irish Coast Guard, in accordance with their statutory role of co-ordinating the response to oil spillages at sea, worked closely with the Naval Service and Shannon Foynes Port Authority.

The success of the entire exercise was based on fusing together two activities:

i) the oil and HNS response training exercise planned and conducted by SEA-PT every year; and,

ii) the estuarine component of the NETMAR project, based on the demonstration, evaluation and dissemination of knowledge and experience in the use of newly developed remotely controlled intelligent robotic devices which can operate in dirty, low-visibility and dangerous aquatic and aerial environments.

In addition to the use of individual vehicles and sensors, the NETMAR project is intended show how newly developed robotic systems and networking technologies can enable multiple devices to work together in an orchestrated way, thereby improving our data collection, awareness of an on-going maritime incident, and the necessary response and intervention. The project also aims to show how new command, control and visualization tools can provide better coordination of all types of devices and their human operators over complex networks.

A third aim of the project is to demonstrate how better and more rapid data collection and integration, using high-resolution sensors and a diversity of measurements, will allow real-time environmental assessments to be made and updated with improved frequency and accuracy. Fourthly, by making this information publicly available through social networks, it will provide a reality check against which stories circulating in the public domain or in the media about an incident may be tested, and it will lead to a more motivated and constructive form of public participation. The NETMAR project is therefore not only a technological exercise, but encompasses awareness raising, public communication and public participation through the use of social networks as well as the more traditional forms of information dissemination.

In order to achieve these aims, exercise "Cathach" included the temporary setting up of data (UAV and ROV control systems, visual feed and voice communication) networks between the vessels at sea, the aerial and underwater devices being deployed, the clean-up teams on shore at Querrin and the command centre at Moneypoint Electricity Generating Station. This challenging task was accomplished by multi-agency planning and co-operation, in which the Mobile and Marine Robotics Research Centre (MMRRC) at the University of Limerick, Shannon Foynes Port Company, SEA-PT, Clare County Council, the Naval Service and the Coast Guard played vital roles.

Over 200 personnel were involved in the exercise, representing agencies involved in both technical and logistical roles. In addition to those already mentioned, participants included the National Parks and Wildlife Service, the Irish Whale and Dolphin Group, Sea Alarm, the Shannon Estuary Wildlife Response Team, Inland Fisheries Ireland, the Irish Aviation Authority, the Naval Service

Contributed article (continued)

Reserve, Limerick City and County Councils, Kerry County Council, Galway County Council, Rusal Aughinish, Portos de Galicia, FEUP, Tecnalia, NUI Maynooth, and Applied Science Associates.

The exercise demonstrated the most up-to-date technology capabilities in marine emergency response scenarios in Ireland and across Europe; and the Shannon Estuary was the first European test site for such advanced technology.

Publications

FOR YOUR INTEREST – LINKS FOR RECENT ISSUES OF PERIODICALS

ASME EED EHS Newsletter	News and commentary on HSE issues from George Holliday	Most recent issue
Bow Wave	Sam Ignarski's Ezine on Marine & Transport Matters	April 3 issue
Cedre Newsletter	News from Cedre in Brittany, France	March 2013 issue
The Essential Hazmat News	Alliance of Hazardous Materials Professionals	March 4 issue
USA EPA Tech Direct	Remediation of contaminated soil and groundwater	April 1 issue
Intertanko Weekly News	International news for the oil tanker community	No 16, 2013
CROIERG Enews	Canberra & Regions Oil Industry Emergency Response Group	April 2013 issue
Soil & Groundwater Product Alert	From Environmental Expert	April 1 issue
Soil & Groundwater Ezine	Articles, papers and reports	April 2013 issue
Soil & Groundwater Newsletter	From Environmental Expert	April 18 issue
Soil & Groundwater Events	Upcoming events compiled by Environmental Expert	April 2013 issue
Technology Innovation News Survey	From US EPA - Contaminated site decontamination	Feb16-28 issue
IMO Publshing News	New and forthcoming IMO publications	March 2013 issue
Pollution Online Newsletter	News for prevention & control professionals	April 17 issue
EMSA Newsletter	News from the European Maritime Safety Agency	April 2013 issue
JOIFF "The Catalyst"	Int'l Organisation for Industrial Hazard Management	April 2013 issue

INTERNATIONAL SALVAGE UNION: PRESENTATIONS FROM ASSOCIATE MEMBERS' DAY CONFERENCE 2013

Presentations from ISU's recent Associate Members' Day Conference are now available, click here to view

Events

NORWAY NOSCA SEMINAR 2013 ON OIL SPILL TECHNOLOGY IN LOFOTEN, NORWAY

We take great pleasure in announcing the 20th International NOSCA Oil Spill Technology Seminar. We would like to invite you to join this special jubilee-event which will take place in spectacular Lofoten in Northern Norway from 9th to13th September 2013.

This year's seminar will have focus on *Oil Spill in Remote Areas and Vulnerable areas.* With continues oil exploration in new and remote areas, new challenges has been surfacing with higher traffic in these regions. How do we handle the higher drilling/ship activities related to conflict of interest, legislations, vulnerable environment and what tools should we use to clean up spill.

We look forward to your participation and will soon publish a detailed program. More info and registration

GHANA: OIL SPILL CONFERENCE NIGERIA 2013

The theme of the conference is **Oil Spill Prevention, Clean up and Compensation in the Niger Delta.**

The conference is organized by Kaku Professional Engineers Limited (Nigeria), with the collaboration of and assistance from the National Spill Control School of the Texas A & M University(USA) to promote the United Nation's Millennium Development Goal (MDG) for environmental sustainability in Nigeria. It is to provide valuable overview of the problems created by incessant oil spills, effects of such spills/ compensation and develop clean up strategies, aimed at restoration of the Nigerian environment.

The Oil Spill Conference Nigeria takes place on June 12-14, 2013 at the Labadi Beach Hotel in Accra, Ghana.

Contact Person's name: Sylvester Egwu segwu2002@yahoo.com Contact No: +2347030176698 For Visa information and hotel reservations,please contact Eric Addai@eoahotelreservations@gmail.com More info about this conference

Events (continued)

CANADA: OIL SPILL RESPONSE TECHNOLOGY SEMINAR

The *Oil Spill Response Technology Seminar* brings together industry experts to address how the oil industry can best react to an oil spill event in our oceans. This event takes place in St John's, Newfoundland on 27-28 May 2013. More info

Training

OHMSETT ADVANCED OIL SPILL RESPONSE STRATEGIES AND TACTICS TRAINING

When an oil spill occurs, your team needs to know how to set up an incident command system, what strategies to use, and what equipment should be deployed for successful response operations.

Learn this and more at OHMSETT's Advanced Oil Spill Response Strategies and Tactics Training, June 11-14, 2013. This 3 1/2-day training session will take place at OHMSETT in Leonardo, NJ. It will emphasize practical experience in full-scale oil recovery operations in the OHMSETT outdoor wave tank. You will increase your proficiency using boom and skimmers while practicing removing spilled oil. The course is presented in partnership with Texas A&M National Spill Control School. At the completion of the course, you will receive a NSCS Certificate of Completion.

The cost is $1,270 per person. For course information and registration visit www.ohmsett.com/registration.html, or call 732-866-7286.

Company news

THE ELPP - LAMOR'S NEW NEXT GENERATION ECO-FRIENDLY AND EFFECTIVE POWER-PACK

ISCO Corporate Member, Lamor Corporation launched its next generation smart eco Lamor Power Pack (eLPP 55-80) at Spillcon in Cairns, Australia in early April. The eLPP is one unit with multiple functions to operate several oil spill response units i.e. skimmers, pumps and boom reels simultaneously, as well as other hydraulically driven equipment with green technology.

In staying ahead of new and stricter legislation, Lamor eLPP series has direct intelligent communications between the diesel engine and hydraulic system synchronizing all functions and reducing emissions utilizing the highly advanced Lamor Monitoring Control System (LMC).

The remote monitoring function provides instant feedback, alerts, service updates and diagnostics. The global positioning system (GPS) coupled with the animated display has automatic reporting features such as location, data log and service intervals to a remote command center.

The eLPP has a 55-80 kW capacity and is a robust and user-friendly unit with fewer emissions and reduced noise levels. The new technology features pre-adjusted hydraulic flow and pressure for Lamor pumps and skimmers and customized adjustable hydraulic flow and pressure for other equipment. The eLPP has automatic sleep and idle modes.

For additional information, please contact:
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DASIC SLICKGONE EW OIL SPILL DISPERSANT WINS AUSTRALIAN APPROVED STATUS

Dasic International Ltd of the UK has announced that their Slickgone EW oil dispersant has successfully passed the rigorous testing required to meet the Australian Maritime Safety Authority guidelines and is now listed as an approved control agent.

Slickgone EW combines high efficiency and low toxicity with an exceptional ability to break down heavy oils and chocolate mousses (water in oil emulsions). Slickgone EW will continue to disperse efficiently those oils which have become too weathered to be amenable to conventional dispersants, therefore extending the window of opportunity for dispersant use. Unlike most dispersants, Slickgone EW is also outstanding on refined oils and bunker fuels, making it truly versatile.

The testing was sponsored by Dasic's Australasian and South West Pacific representative, ISCO Corporate Member, Spill Tech Pty Ltd of Noosaville. AMSA List of Approved Dispersants Spill Tech Pty. Ltd. Website