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## International news

### NATIONS TO DESIGNATE ANTARCTIC MARINE PROTECTED AREAS?



*An emperor penguin is seen with a group of chicks in Antarctica. Photograph by Frans Lanting, National Geographic*

July 2 - A meeting of 24 nations and the European Union in mid-July will decide the fate of two proposed ocean reserves in Antarctica.

For over 50 years, [international treaties](#) have ensured that [Antarctica \(map\)](#) remained a place for peaceful activities and scientific study for all. That ethos of cooperation and conservation has largely carried over to today, with recent proposals for two [marine protected areas](#) (MPAs) in the ocean surrounding Antarctica.

If designated, the two sanctuaries would become the largest marine reserves on the planet. But the proposals must first be approved by a group of 24 nations and the European Union at a meeting this July 11 to 16 in [Bremerhaven, Germany \(map\)](#).

The [Commission for the Conservation of Antarctic Marine Living Resources](#) (CCAMLR)—established by international consensus in 1982 to safeguard Antarctic marine life—called the special July meeting to discuss the revised proposals. But there are concerns that the sanctuaries could be stripped of any meaning on the way to being approved.

If adopted, the MPAs would cover an area about the size of India. [One proposal](#), submitted by the United States and New Zealand, would cover a 600,000-square-mile (1.6 million-square-kilometer) patchwork of areas in and around the Ross Sea. (Related: ["John Kerry Urges Support for Ross Sea Antarctic Ocean Reserve."](#))

And the [East Antarctica proposal](#), submitted by Australia, France, and the European Union, would also cover about 600,000 square miles (1.6 million square kilometers) in East Antarctica. *National Geographic* [Read more](#)

## EUROPE: BREZZAMARE JOINS OIL SPILL RESPONSE NETWORK



Luca Stegagnini, Director of Ottavio Novella SpA and Markku Mylly, after signing the *Brezzamare* contract



EMSA has strengthened its [network of stand-by oil spill response vessels](#) in the Western Mediterranean Sea by signing a contract with the Italian consortia [Ciane/Novella](#). The contracted oil tanker *Brezzamare* was built in 2009 and has a storage capacity for recovered oil of 3 288m<sup>3</sup>

She is engaged mainly in bunkering operations in the port of Genoa and its vicinity. The vessel will be pre-fitted with pollution response equipment that is to be kept on board permanently. It is expected the vessel will enter into operation by the end of 2013. EMSA's Executive Director, Markku Mylly, expressed his

satisfaction that EMSA has reinforced its response capacity in this important geographical area. [EMSA Newsletter July 2013](#)

## Incident reports

### SINGAPORE: SHIP COLLISION OFF SINGAPORE RESULTS IN OIL SPILL

July 2 - Good progress has been made in containing and cleaning up the oil spill resulting from the collision between the South Korean-registered bulk carrier, *Oriental Pioneer*, and the Bahamas-registered bulk carrier, *Atlantic Hero*.

There has been no further spillage of fuel oil from *Oriental Pioneer*. As a precautionary measure, an oil boom and an oil spill response craft have been deployed around the vessel. Bio-degradable oil dispersants were used to break up the oil slick in the waters. As of 5 p.m. locally, no significant patches of oil were sighted in the waters.

In total, 11 craft and some 100 personnel from MPA and oil spill response companies have been deployed as part of the containment and clean up effort. *The Maritime Executive* [Read more](#) Other reports - [QZ.com](#) [Bloomberg](#) [UPI](#)

### SINGAPORE - [UPDATE] TOW LINE PULLING MOL COMFORT'S FORE PART SNAPS

July 2 - As of July 1, Mitsui O.S.K. Lines, Ltd. places the broken *MOL Comfort's* fore part near 17°02'N 67°57'E. The weather in the area is still adverse. The condition of the fore part is stable with majority of cargo aboard.

SMIT Singapore salvage company has been contracted to rescue the cargo and hulls. Recently, the tow wire was disconnected from the fore part which was being towed in a west-northwest direction. Three tugboats are in the process of being recovered and will resume the towing in a west-northwest direction once the work is completed. *The Maritime Executive* [Read more](#)

### CANADA: PENNWEST PIPELINE SPILL ESTIMATE GROWS WITH SALT WATER

June 24 - Estimates of the size of a pipeline spill in northern Alberta have grown dramatically, causing concern among area aboriginals. Pennwest Exploration says between 400,000 and 600,000 litres of salty waste water escaped from the pipeline in addition to 5,000 litres of oil initially reported. *Time Colonist* [Read more](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group]

### HONG KONG, CHINA: OIL SPILL INCIDENT AT TUNG O WAN

June 25 - A government spokesman said today (June 24) that the Marine Department received a report in the morning of June 21 and found an oil slick covering approximately 10 metres x 15m in waters off Tung O Wan, Lamma Island, and a 100m x 15m oil slick at the Tung O Wan beach area. The Marine Department immediately tasked its staff with cleaning up the oil slick at sea, and alerted relevant departments. *7<sup>th</sup> Space Interactive* [Read more](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group] Another report in [South China Morning Post](#)

### USA: MASSIVE 'TAR MAT' FOUND ON LOUISIANA BEACH 3 YEARS AFTER BP OIL SPILL

June 27 - Three years after BP's *Deepwater Horizon* oil spill killed 11 people and spilled an estimated 210 million gallons of oil into the Gulf of Mexico, workers have dug up a massive "tar mat" from a Louisiana beach. Measuring about 165 feet long by 65 feet wide, the tar mat is a thick slab of oil residue mixed with wet sand. It was found in shallow water off Isle Grand Terre, about 90 miles south of New Orleans *MSN.com* [Read more](#)

## Incident reports (continued)

### USA: GASOLINE LINE SPILLS 25K GALLONS ON MONTANA RESERVATION



Clean Harbors (A Corporate Member of ISCO) vehicles and trailers are parked at a staging area for a cleanup of a Phillips 66 gasoline pipeline break in the Soap Creek area of the Crow Reservation on Friday, July 5, 2013 in Billings, Mont. Photo: The Billings Gazette, Casey Page

July 5 - A Phillips 66 pipeline with a record of prior accidents spilled an estimated 25,000 gallons of gasoline in a remote area outside a small town on Montana's Crow Indian Reservation, but no public health problems were anticipated, federal officials said Friday.

A representative of the Houston-based oil refinery and chemical company said the amount of leaked gas likely was less than initially reported, although no alternate figure was offered. The initial estimate came from a report submitted by the company to the government's [National Response Center](#). *San Francisco Chronicle* [Read more](#)

### MALAYSIA: 'OIL SPILL WILL AFFECT RAW WATER INTAKE PLANTS'

June 29 - A recent crash and oil spill in Moyog River has shown-up the Sabah local authorities' lack of knowledge and their unpreparedness.

The lengthy delay in dealing with a oil tanker crash along the main road linking Tambunan district to the city has caught local authorities napping. Two days after the tanker carrying crude palm oil swerved and plunged down a steep embankment, allowing oil onboard to seep into a manmade pond and then into the Moyog River close by, no one has any answers why no action had been taken.

At the moment the bulk of oil is in the pond that formed after a landslip. However there are concerns that it could be breached anytime and further pollute the river. *FMT News* [Read more](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat News]



### CHINA: DANGEROUS CHEMICALS FOUND IN SOUTH CHINA RIVER

July 6 - Residents and water plants along a river in southern China that is used as a drinking source have been warned not to use the river's water after authorities detected excessive amounts of two dangerous chemicals.

Tests by authorities detected the chemicals thallium and cadmium in a section of the Hejiang River in Guangdong province after dead fish turned up in the water, the official Xinhua News Agency said Saturday. *KENS5.com* [Read more](#)

### KAZAKHSTAN: RUSSIAN ROCKET RELEASES TOXIC FUEL AFTER BLAST IN KAZAKHSTAN



July 2 - An unmanned Russian carrier rocket exploded Tuesday on takeoff at the Baikonur cosmodrome in Kazakhstan, releasing tonnes of highly toxic fuel into the air in the space programme's latest disaster caught on live television, AFP reports.

Spectacular footage showed the Proton-M rocket veering off its trajectory just seconds after its 6:38 am (0238 GMT) launch, before falling apart in mid-air, erupting into a ball of flames and unleashing clouds of noxious black smoke. The rocket carried 600 tonnes of kerosene, heptyl and amyl which are highly poisonous components of rocket fuel, said the head of the Kazakh space agency, Talgat Musabayev *Tengri News* [Read more](#)

### UK: TROUT UNDER THREAT AS DEADLY PESTICIDE DEVASTATES TOP FISHING RIVER

July 5 - One of Britain's top trout rivers has been devastated by a deadly pesticide.

The Environment Agency says the incident on the River Kennet - one of the country's top chalk trout streams and a site of special scientific interest - was caused by the insecticide chlorpyrifos. *Daily Express* [Read more](#)

## Incident reports (continued)

### USA: COAST GUARD RESPONDS TO SUNKEN TUG IN ST. MARY'S RIVER

July 1 - Coast Guard crews were continuing to respond Monday to a tug that sank in the upper St. Marys River and has been located near lighted buoy 35. At 3:30 a.m., a search-and-rescue controller at [Coast Guard Sector Sault Ste. Marie, Mich.](#), was contacted by the crew of the tug Bill Maier, which was towing three barges and the tug Hammond Bay when the crew lost sight of the Hammond Bay. After securing the barges, the Bill Maier's crew attempted to locate the lost tug. They reported finding an oil sheen and a life ring from the lost tug, which led them to believe that the tug had sunk. There was no one aboard the tug Hammond Bay at the time it became lost. The tugs Bill Maier and Hammond Bay are owned and operated by the U.S. Army Corps of Engineers.

The Coast Guard is working with the Army Corps and other partners to minimize any environmental damage and impact to waterways that the sunken tug may present. They are also working on a way to remove the tug *US Coast Guard* [Read more](#)

#### Update received from ISCO Corporate Member, Marine Pollution Control Corp.



*Pollution hazards were carefully managed, therefore mitigated on site by that careful planning.*

July 6 - Marine Pollution Control (MPC) was hired by the U.S. Army Corps of Engineers (USACE) to provide an environmental specialist to support the salvage effort, which was conducted by the Corps and was monitored by members of the U.S. Coast Guard's Sector Sault Sainte Marie Response Group and a representative from the Canadian Coast Guard.

A salvage plan was developed by the Corps and was performed by three of their crane barges, the Nicolet, the Swartz and the Harvey. Additional support vessels included a USACE survey boat and U.S. Coast Guard fast boat which maintained a safety zone around the operation. The tug Hammond Bay was refloated within approximately 4 hours once all assets were on site, with virtually no loss of oil or other pollutants. This rapid and efficient operation facilitated keeping the vital commercial shipping channel upbound of the Soo Locks open and free of hazards during the critical shipping season on the Great Lakes. [Thanks to Bill Hazel, MPC Inc.]

### CANADA: ONE DEAD, MANY MISSING AS TRAIN EXPLODES IN LAC-MÉGANTIC



July 6 - One person has been declared dead after a driverless freight train carrying tankers of crude oil derailed at high speed sparking multiple explosions in the centre of this Eastern Townships community early Saturday.

The resulting fireball and explosions destroyed as many as 30 buildings, gutted downtown businesses and left an unknown number of people feared missing. *The Star.com* [Read more and watch video](#)

Another report from *BBC News* –

July 6 - The centre of a small town in Quebec, Canada, has been destroyed, after a train carrying petroleum products exploded.

The train was in the town of Lac-Megantic, close to Quebec's border with Maine, in the early hours of Saturday morning when it came off the rails. Around 1,000 local people were evacuated from their homes. [Read more and watch video](#)

[Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group, for relaying the links for both of the above reports]

## Other news

### USA: TAYLOR ENERGY OIL PLATFORM, DESTROYED IN 2004 DURING HURRICANE IVAN, IS STILL LEAKING IN GULF

July 1 - Every day, an airplane with contractors working for Taylor Energy Ltd. flies over a spot 12 miles south of the mouth of the Mississippi River looking for an oil sheen.

That spot was the doomed location of Taylor Energy's Mississippi Canyon 20-A production platform, which towered 550 feet above 28 producing oil and gas wells drilled in water 479 feet deep.

The platform and its pipelines disappeared on Sept. 15, 2004, when Hurricane Ivan crossed the area, accompanied by winds of 145 mph and waves estimated to be 71 feet high. The heavy pressure transferred to the ocean floor by those huge waves, which crossed the area once every 16.1 seconds at the height of the storm, caused a landslide that obliterated the platform. *The Times Picayune* [Read more](#)

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### UK: ON THE TRAIL OF BRITAIN'S WWII 'EXPLOSIVE' BEAUTY SPOTS

July 1 - Every year, unsuspecting members of the public stumble upon dozens of undetonated shells and bombs, most dating back to World War II. So what happened in these remote places during the war? And how much do we know about the people who lived and worked there? *BBC News* [Read more](#) [Thanks to ADR Training UK]

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### MEXICO: DEAD FISH FILL MEXICO RESERVOIR

July 2 - Tens of thousands of dead fish have washed up on the banks of a Mexican reservoir, amid allegations that a local firm contaminated the water. *BBC News* [Read more](#) [Thanks to ADR Training UK]

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### USA: BP COMPENSATION FUND FOR GULF OIL SPILL VICTIMS AT RISK OF RUNNING OUT

July 2 - [BP](#) could soon run out of cash in the compensation fund set up for victims of the Deepwater Horizon disaster, unless it is successful in a legal challenge that will be heard in court next week.

The company has been fighting the compensation formula drawn up to pay businesses and individuals harmed by the 2010 spill, ahead of a court hearing in [New Orleans](#) on July 8.

Court-appointed claims administrator Patrick Juneau has processed about a quarter of the 194,800 claims received, and made compensation offers worth about \$3.86bn, almost half the \$8.2bn that BP had expected for the total cost of the settlement with the plaintiffs' steering committee (PSC). *The Guardian* [Read more](#)

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### USA: THE PROBE INTO BP OIL-SPILL PAYOUTS COULD BE BIGGER THAN YOU THINK

July 3 - Louis Freeh's investigation of the BP-claims mess could reveal major legal funny business in the Big Easy.

In a recent *Bloomberg Businessweek* [cover story](#), I explained how the private-claims process following BP's ([BP](#)) 2010 Gulf of Mexico oil spill devolved into a plaintiffs'-lawyer feeding frenzy. On July 2, I [reported](#) that the New Orleans federal judge in the case had called in Freeh, a former FBI director, to probe kickback allegations. Here's why this matters not just to the multibillion-dollar BP litigation, but to the broader world of corporate liability and the American justice system. *Bloomberg Business* [Read more](#)

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### NIGERIA: SHELL DECRIES RISING OIL SPILLS IN RIVERS

July 3 - Barely one week after Shell Petroleum Development Company of Nigeria Limited (SPDC) joint venture shut the Trans Niger Pipeline (TNP), one of the two major pipelines in the Eastern Niger Delta, following an explosion, the company Tuesday said it recorded eight crude oil theft and sabotage related spill incidents at the Adibawa field also in Eastern Niger Delta between January and June this year. The Adibawa oilfield straddles Biseni, Edagberi and Ikarama communities in Rivers State. *This Day* [Read more](#)

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## People in the news

### US COAST GUARD: SPARKS RELIEVES WALKER AS FEDERAL ON-SCENE COORDINATOR

July 2 - Capt. Thomas Sparks has assumed duties as the Federal On-scene Coordinator for the Gulf Coast Incident Management Team from Capt. Duke Walker. As the FOOSC, Sparks is the federal government representative in charge of overseeing the clean-up of recoverable oil from the BP Deepwater Horizon oil spill *Restore the Gulf* [Read more](#)

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## People in the news (continued)

### RICHARD HILL APPOINTED AS MANAGING DIRECTOR OF MARKLEEN LTD.



Richard Hill has joined the Markleen group and will be heading up their UK & Europe operations. Richard has been in the Oil Spill industry for over 15 years and has extensive knowledge of the Oil Spill Response field, starting as an IMO trainer back in the late 90's where his passion for the environment began.

Richard Hill, Managing Director of Markleen Limited, said: "At Markleen, we see the UK, and Europe as a long-term strategic market and it is our priority to continue to invest in this part of the world where the oil spill response market is booming. It is our belief that our commitment to our customers will be validated and strengthened by a more personal approach from our new office here in the UK" [www.markleen.com](http://www.markleen.com) [Markleen is a Corporate Member of ISCO]

### UK: NEIL FOSTER IS NOW CONSULTANT - CLEANTECH AT NRF CONSULTING

Neil Foster has been appointed as Consultant with Cleantech at NRF Consulting.

With more than 20 years of experience in the environmental field he will be responsible for work in the areas of AOP photocatalysis; reactor design; nano-technology, IP asset management strategies, grant scoping & application writing, water treatment, water re-use and recycling, environmental auditing (risk assessments) and environmental monitoring - water quality & environmental legislation.

Neil has a good knowledge of spill response technology, theory and practice. His previous achievements included the development of a novel database for oil and chemical site risk assessment.



### UK: ROBIN LAW APPOINTED TO CHAIR PREMIAM MONITORING CO-ORDINATION CELL



Robin Law (Cefas) has been appointed as the PMCC chair for England and brings over 35 years experience in the conduct of comprehensive marine environmental monitoring programmes including following such incidents as the Amoco Cadiz (1978), Eleni V (1978), Perintis (1989), Sea Empress (1996) and MSC Napoli (2007).

See also the announcement (below) made by Premiam (Pollution Response in Emergencies: Marine Impact Assessment and Monitoring) in this issue of the ISCO Newsletter. The PREMIAM programme has brought together 22 government departments and agencies from across the UK with an interest in marine spill response and the protection of the marine environment.

## Contributed article (1)

### UK: MARINE SPILLS – ENVIRONMENTAL MONITORING ARRANGEMENTS AGREED FOR ENGLAND

July 7 - The Premiam partners are pleased to announce that decision making, co-ordination and funding arrangements for post-spill monitoring and impact assessments in English waters have now been agreed and endorsed by the key government departments and agencies.

The agreed arrangements are set out in a short [guidance document \(PDF, 417 KB\)](#) and put in place clarity over important aspects such as the decision process to initiate environmental monitoring, agreed funding for the initial monitoring phase and introduces the concept of the Premiam Monitoring Coordination Cell (PMCC).

The PMCC is tasked with ensuring any monitoring programme is initiated promptly and in line with best practice scientific principles as laid out in the [Premiam: Post-spill Monitoring Guidelines \(PDF, 6 MB\)](#) which were published in 2011. The PMCC in England has a pre-identified Chair and Deputy chair from the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and the Environment Agency respectively. Robin Law (Cefas) has been appointed as the PMCC chair for England and brings over 35 years experience in the conduct of comprehensive marine environmental monitoring programmes including following such incidents as the Amoco Cadiz (1978), Eleni V (1978), Perintis (1989), Sea Empress (1996) and MSC Napoli (2007).

The [guidance](#) forms part of an ongoing programme of activity and deliverables from the Premiam initiative ([www.cefas.defra.gov.uk/premiam](http://www.cefas.defra.gov.uk/premiam)) aimed at applying scientific best practice to environmental monitoring following chemical and oil spills into the marine environment. The Premiam programme is also focussed on improving the management and coordination of post-spill monitoring activity and this agreement is seen as a significant step forward for incidents in English waters.

The guidance has been developed in consultation with the wider Premiam [partners](#) group but has been specifically agreed and endorsed by those departments and agencies with policy and funding responsibilities for post-spill monitoring in English waters,

## Contributed article (1) (continued)

namely; the Department for Environment, Food and Rural Affairs (Defra), the Environment Agency, the Maritime and Coastguard Agency (MCA) and the Food Standards Agency (FSA). Complementary documents are currently being developed for [Scotland \(PDF, 498 KB\)](#), Wales and [Northern Ireland \(PDF, 537 KB\)](#) and the Premium partners are working together to have these in place in due course.

Any questions about this guidance or the wider Premium programme can be directed to the Premium group coordinator Mark Kirby at [mark.kirby@cefas.co.uk](mailto:mark.kirby@cefas.co.uk)

## Contributed article (2)

### ENVIRONMENTAL EQUIPMENT FIRMS IN U.S. AND CANADA CAN GET RESEARCH AND DEVELOPMENT TAX CREDITS. CAN THIS BE TRUE? HOW DO YOU QUALIFY FOR A TAX CREDIT?

**Summary:** When environmental equipment manufacturers hear that their design activities may qualify for federal and/or state research and development tax credits, their first reaction is often to presume that it sounds too good to be true. They have trouble believing it because they simply consider much of their design and development activities to be "routine", far from rising to the level of anything that would revolutionize the industry. This is a costly misconception.

What R&D Qualifies Today? Applicable tax laws and regulations, in fact, do not require a business to discover something so innovative that it advances the field as a whole. They simply require that a product or process be new or an improvement for the individual taxpayer. Because many environmental equipment design project requirements are unique, design activities often qualify for generous federal and state research and development tax credits.

As defined in the tax code, research and development activities must meet certain requirements to be eligible for tax credits:

- Use technology to create new or improved products or services
- Achieve this improvement by experimenting with alternative technical solutions
- Use the technical information obtained from the experiments to reduce the technical uncertainties involved in your product and process development

Because research and development tax credits were intended to promote domestic innovation, they are not specific to any one industry and are indeed applicable to the field of environmental equipment manufacturing. These credits are activities-based. Thus, an environmental equipment design project qualifies if it meets the above requirements. Let's take a quick look at this in more detail.

**Product and process improvements.** Applied to an environmental equipment manufacturer, this includes technical designs that a firm develops for its clients. Because many design projects are unique with respect to specific client requirements, regulatory performance standards, site conditions for geotechnical and climatic characteristics, and a seemingly infinite number of other factors, a firm's improved equipment designs for each project may qualify as R&D. Additionally, although the product development cannot relate to purely aesthetic features, activities related to the development of the functional, performance, reliability, or quality features of environmental equipment might qualify. For example, activities related to the design of environmental equipment to achieve standards of pollution control mandated by government imposed regulations—can be eligible for these credits. Many environmental equipment design projects therefore are qualifying R&D to the extent of their functional design development.

**Eliminating uncertainty.** Environmental equipment engineers/designers are frequently confronted by uncertainties pertaining to environments, field conditions, optimal materials, and detailed component, mechanical, and electrical systems. However, even if an engineer or a designer is certain as to the capability or method of developing the final design of environmental equipment, the project will meet the uncertainty requirement if the engineer/designer is uncertain as to how to proceed without the data generated through experimentation undertaken to find interim alternative technical solutions.

The key is experimentation. During the course of an environmental equipment design project, the engineers' collaboration in developing and assessing a design through modeling or computational analysis can satisfy the experimentation requirement of qualified research. So long as the design evaluations occur before the new or improved product or process is deemed to meet the functional and economic requirements of the project, the activity will be considered to be undertaken pursuant to a qualifying process of experimentation.

**Technological In nature.** An environmental equipment design process will satisfy this requirement to the extent that it relies on engineering, including reliance on mechanical, electrical, industrial, and software engineering in the design of a structure's features to meet functional or performance requirements. Even if an environmental equipment firm's activities incorporate existing and known technologies, it will not necessarily preclude them from considering these activities for tax credits, because applicable rules permit a taxpayer to employ existing technologies and known principles if the firm is still facing technical uncertainties that have to be addressed through experimentation.

**About your contracts.** Although environmental equipment manufacturers may conduct qualifying research activities under contract with their clients, the contract or payment for these services will not necessarily exclude the activity as qualifying research. For work under contract, payment is not the determining factor. If the firm bears the economic risk and retains rights to the research, the services will not be excluded as qualified research. As an example, activities performed under lump-sum projects with no restriction as to how the environmental equipment manufacturer can use knowledge gained during the project may still qualify for tax credits.

**An example of the opportunity.** Company A has \$20 million in annual gross receipts, uses technology in its operations and could qualify \$1 million, 5 percent, of its expenditures as R&D (this percentage varies by industry and company). Assuming a few other variables are addressed favorably, the annual credit could total \$65,000. Many companies can also claim R&D tax credits in three previous tax years and amend their returns to get refunds. In this example, Company A could receive a total of \$260,000 in credits for the current and three past tax years. This example reflects a U.S. taxpayer. Other countries, Canada, for example, have more attractive tax credits. Also, some states in the United States will supplement the federal tax credit with their own incentives.

For information to take the next step in realizing these benefits or to learn if your jurisdiction has a program for you, contact: Marc K. Shaye at [shayemk@aol.com](mailto:shayemk@aol.com).

## Science and technology

### REMOTE NON-CONTACT OIL SPILL DETECTION

ROW is an autonomous remote non-contact sensor that detects oil on water in real time. It uses oil's natural fluorescence to detect any hydrocarbon from crude oil to jet fuel, and alerts you immediately.



It is an early warning system that alerts you of oil leaks and spills, ensuring that small spills do not get out of hand. Industry leading sensitivity allows ROW to reliably detect surface slicks down to 1 micron. Using ROW's configuration software, alarm levels can be set to suit the client's needs and local environmental standards, minimising false alarms. Hermetically sealed and IP68 certified, ROW is designed to run autonomously in the toughest of environments.

Operating day or night, networked ROW sensors help pinpoint the pollution source, and prompts action to avoid lasting damage. In most cases, ROW will operate on wired power and data lines. However, for full autonomy in hard-to-reach locations, optional solar panels and wireless setups are available.

When oil is detected, ROW can alert site personnel in a variety of ways: e-mail, SMS message and visual/audible alarms can be installed locally and/or alarms can be raised in central control rooms.



The sensors are pressurized with nitrogen, to prevent condensation and water penetrating the aluminium enclosure. Robust IP68 certified hermetic design allows ROW to keep operating even in extreme weather conditions. This makes ROW completely water resistant and lowers the need for maintenance.

Low power consumption of <2W allows remote operation off the grid (with optional solar panels and battery).

The sensors are fitted with a self-check mechanism, and will let you know if there is a problem.



To detect oil slicks as thin as a single micron from up to 10m above the water, ROW pulses a UV beam at the surface and excites any oil molecules in the target area. Using oil's native fluorescence, ROW picks up the signal from tell-tale substances and alerts the site operator.

The sensor system and advanced software algorithms are carefully calibrated to detect oil and minimize false alarms. In fact, its level of accuracy is stunning: The average thickness of an oil slick is 0.1mm, but ROW can detect some oil down to only 0.001mm\*.

The manufacturer: Based in Estonia, Laser Diagnostic Instruments develops and makes sensing systems that analyse substances in real time. Demand for simpler, more flexible devices that would catch early surface spills in real-time led u to the development of ROW. More information on ROW, is available on the website at [www.ldirow.com](http://www.ldirow.com)



In this issue of the ISCO Newsletter we are printing No. 134 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 134: KNOWLEDGE-BASED CONTINGENCY PLANNING

As to actual release-response, the plan notes that this is needed only for pollutants persistent enough to require the environment to be restored to its pre-release state as quickly and as cost-effectively as possible; and that after the fraction of oil components boiling below 250°C is lost by natural evaporation in about 5 hours, persistence becomes solely a matter of the viscosity-dependent natural dispersion half-life of the non-volatile fraction. Accordingly, the plan notes that the oils have been tabulated in Groups I-IV for specific gravity bands 0.8, 0.8-0.85, 0.80-0.95 and 0.95 together with their viscosities or their solidity at ambient temperatures and their weight percentages of components boiling below 200°C and above 375°C; that half-life values and ranges of 4, 12, 24-48 and 48 hours have been allocated to these Groups; that half-lives of 2-4, 4-6 and 6-8 days have been allocated to heavy fuel oils for corresponding viscosity bands (articles 31-46); and that while such allocations are as yet imprecise, they provide pre-response guidance the precision of which will be improved by further incident- observations.

As to the predictive assessment of response needs, the plan notes that the first step is to ascertain the values for the incident-specific physicochemical parameters listed in article 133 in order to determine whether the release floats, evaporates, disperses, dissolves or sinks; the second is to compute the release percentage which having evaporated, dispersed or dissolved is already beyond treatment by any conceivable means; that the third is to compute the release, adjusted for emulsified water-content, which remains for potential treatment by dispersant-use and/or mechanical-recovery as a function of viscosity-dependent half-life and time-dependent stranding on known wind/tide vectors, such movement being at the vector sum of 3% of the former and 100% of the latter; that the fourth is to compute the viscosity and sea-state dependent efficiency of dispersants and/or recovery; that the fifth is to compute the most effective dispersant/recovery means by which stranding may be prevented; that the sixth is to compute the physicochemical advantages/disadvantages of returning stranded pollutants to inshore waters for resumption of dispersant/recovery treatment, given the computed release percentage which dispersed naturally at sea prior to stranding while at-sea dispersant/recovery operations were continuing; and that the seventh is to record all results of the above computations for comparison with the record of their outcomes in reality, in order to refine any parameter values used, and thus to secure and accumulate experiential knowledge for existing and replacement staff (articles 47-61 and 70-91).

As to dispersant- and recovery-efficiency, the plan notes that apart from viscosity and wave limitations the main difficulty is the thinness of the pollutant layer which limits encounter-rate to 0.18 m<sup>3</sup>h<sup>-1</sup> per knot, per metre swath width, per 0.1mm of slick thickness (Fay's Phase II spreading); that while layer thickness increases by up to a factor of four with emulsion water-contents of 80%, the oil-content remains that of the un-emulsified layer; and that while windrow thickness can increase by a further factor of three, it does so only at the expense of the pollutant-free ribbons between the rows (articles 31-46) .

Thus, the plan notes that after the Torrey Canyon Incident of 1967, WSL designed a tug-mountable dispersant-spraying system consisting two rigid tubes each with equally spaced fan-jet nozzles; that these could be swung outboard on a bulwark-pivot to give continuous dispersant coverage beneath the tubes as the tug moved forward; that the dispersant discharge rate was fixed at 20gallons per minute over a swath width of 20metres (two tube spans and the tug's beam) which at 10knots applied an oil: dispersant ratio of 2:1 for the then hydrocarbon-based dispersants; that WSL subsequently converted this system to dilute concentrate dispersants with seawater in the ratio of 1:10 thus extending endurance between replenishments; that later still, WSL demonstrated the feasibility of applying undiluted concentrates from aircraft, its trials over airfields having confirmed the nozzle-modification needed for the droplet size-range required for uniform slick coverage; that the UK initially retained six Islander and two DC3 aircraft with a capacity to deliver 14 tonnes per sortie to treat 5,000 tonnes of oil per day close to and onshore from replenishment bases at coastal intervals of 200miles.

Nonetheless, the plan notes that while treatment rate had been raised to 10,000 tonnes of oil per day by replacing the six Islanders with five DC3s prior to the Sea Empress Incident, and while a C130 with a capacity to deliver 12 tonnes per sortie was available for part of this incident, belief in species-extinction/ecological-disaster prevented spraying within arbitrary depth-related distances from shore, despite everything in this incident being close to shore (articles 107-110). However, the plan also notes that WSL had related the images provided by side-looking airborne radar (SLAR) and infrared and ultraviolet line scanners to independently measured slick thicknesses at sea; and that two of the UK spraying aircraft were thus equipped to direct recovery units to the areas of optimal thickness for dispersant spraying and for mechanical recovery (articles 62-69).

1 The *Rational Trinity: Imagination, Belief and Knowledge*, D.Cormack, Bright Pen 2010 available at [www.authorsonline.co.uk](http://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.

## IN SITU BURNING: CHAPTER 26



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](mailto: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 26th 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.

### 26. Calculating the Efficiency and the Amount of Oil Burned in a Boom Burn Efficiency

Burn efficiency is measured as the percentage of oil removed compared to the amount of residue left after the burn. The burn efficiency,  $E$ , can be calculated by the following equation, where  $v_{oi}$  is the initial volume of oil to be burned and  $v_{of}$  is the volume of residual oil remaining after burning:

$$E = \frac{V_{oi} - V_{of}}{V_{oi}}$$

In this equation, the initial volume of oil,  $v_{oi}$ , can be estimated in a number of ways. If the spill source is known, as in the case of a vessel or coastal storage depot, the volume spilled can be estimated from the tank size and the amount of oil remaining in the tank. In the case of an off-shore rig, the pumping rate can be used to estimate the initial volume. If the source is unknown or the volume of oil released from the source cannot be estimated, the volume of the slick can be estimated either visually using objects of known dimensions, e.g., response vessel or containment boom, or using timed overflights, aerial photographs, or remote sensing devices. This area together with an estimate of the average thickness of the oil, performed either visually or by taking samples, can then be used to estimate the volume of the slick.

It should be noted that this equation does not take into account the volume of oil lost through soot produced from the burn, which is a small amount and difficult to measure, or any residue that has sunk or cannot be collected.

If the residue remains afloat, it can be recovered either by skimmers or sorbents. The volume of residual oil remaining after burning,  $v_{of}$ , can be estimated by measuring the volume or weight recovered. If the residue cannot be recovered, the volume of the residue slick can be measured by estimating its area and thickness, in the same way described for estimating the initial volume of oil.

If some of the residue sinks, which is infrequent, the amount of oil that burned ( $v_{oi} - v_{of}$ ) can be estimated using the fact that, for most oils and conditions, an oil slick burns at a rate of 1 to 4 mm/min. The amount burned can be estimated using this range, the area of the slick on fire, and the total time of the burn.

Research has shown that burn efficiency is not affected by the oil properties, but depends primarily on the thickness of the slick and oil type. Regardless of the initial thickness of the oil, the final thickness will be in the order of 1 to 2 mm. As such, a much greater burn efficiency is achieved when burning a 20-mm thick slick than a 2-mm thick slick. The burn efficiency also depends on the flame-contact probability. This is a random parameter that can be controlled by proper containment, but is also affected by wind speed and direction. The burn efficiency can be reduced if the thickness of the slick is inconsistent, i.e., the flame reaches patches that are too thin to sustain burning or if the slick is not continuous.

### Calculating Amount of Oil Burned

You need the burn area and time of burn (or time for each area, if the burn area varies), given the rate of burning, you can simply calculate the amount burned. The amount of oil burned:

$$\text{Oil Burned} = \text{Area of burn} \times \text{time} \times \text{burn rate}$$

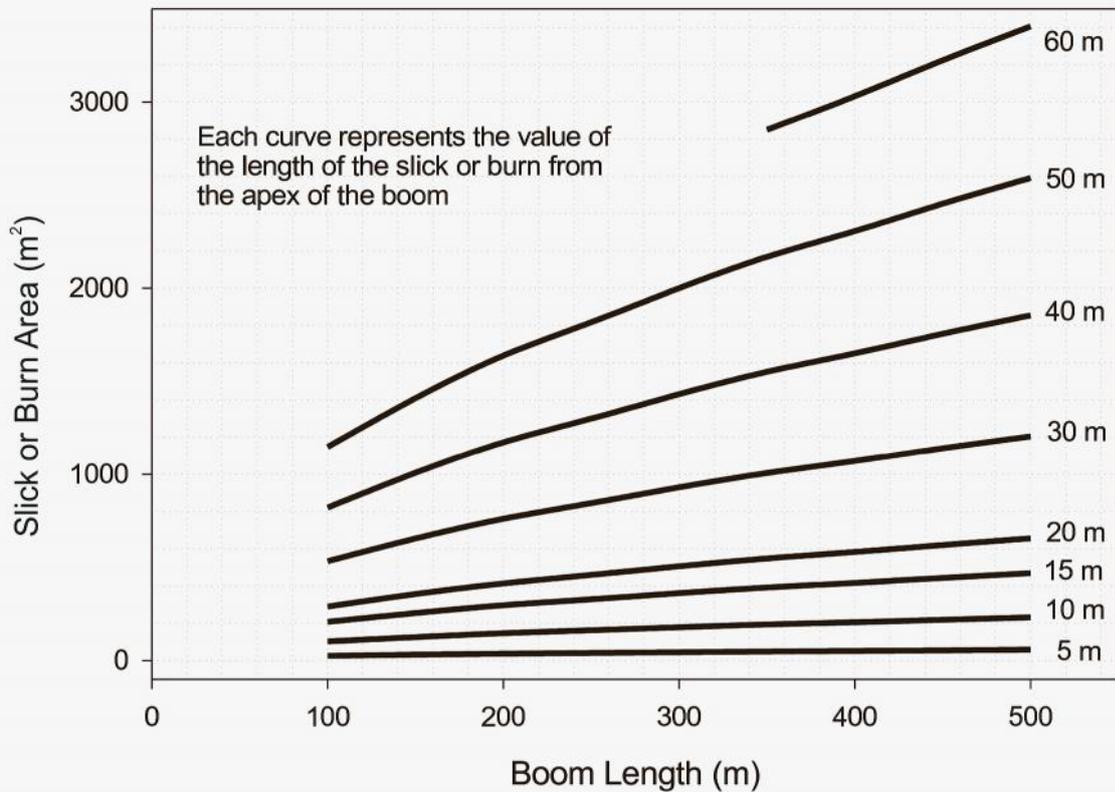
To practically measure the burn amount at sea follow the following process:

1. Record the times and the distances from the back of the boom during the burn, these will be used to calculate burn areas (may have to do at convenient time intervals if the burn area varies, which is usual),
2. Calculate the burn areas from the nomogram below (Figure 29)
3. Multiply the burn areas times the burn rates (Table 7)
4. Convert the burn rates if necessary (Figure 30)
5. Sum the amounts burned
6. Subtract the residue amount (may need to estimate).

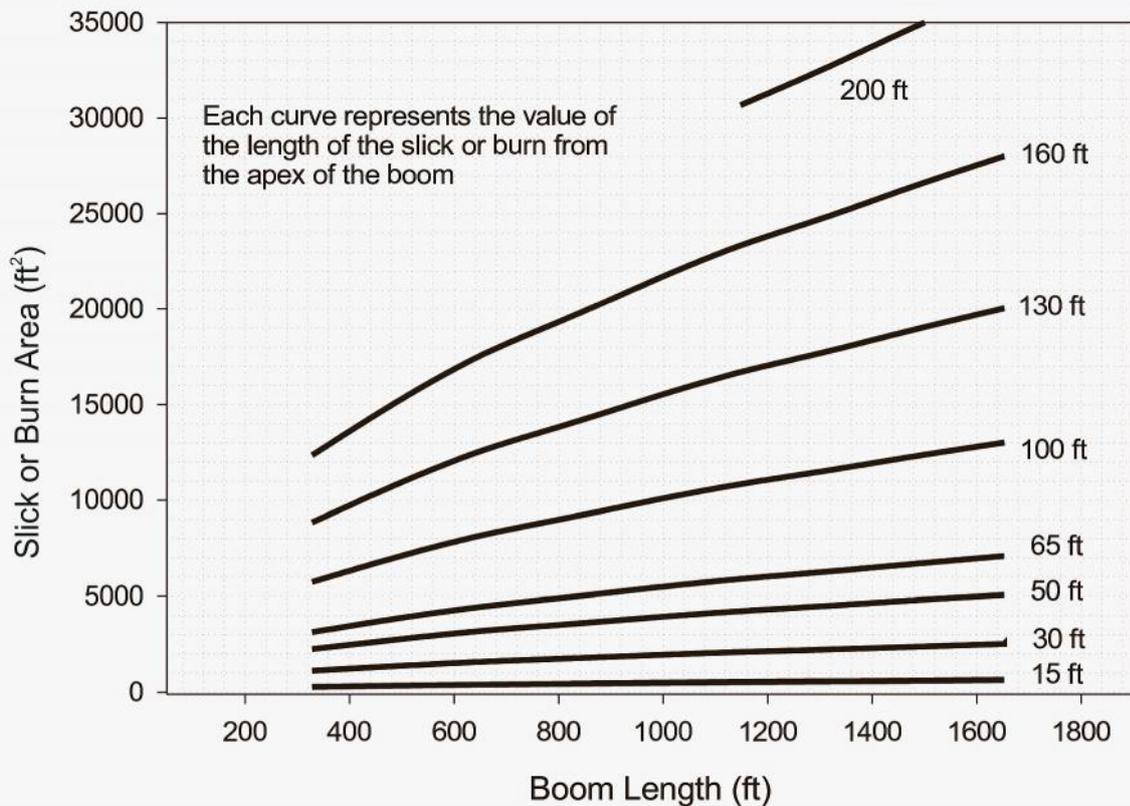
**Special feature – In situ burning (continued)**

To calculate the amount burned on land or other places where the oil is not contained, measure or estimate the area of burning as best as can be done and then use the same procedures as above.

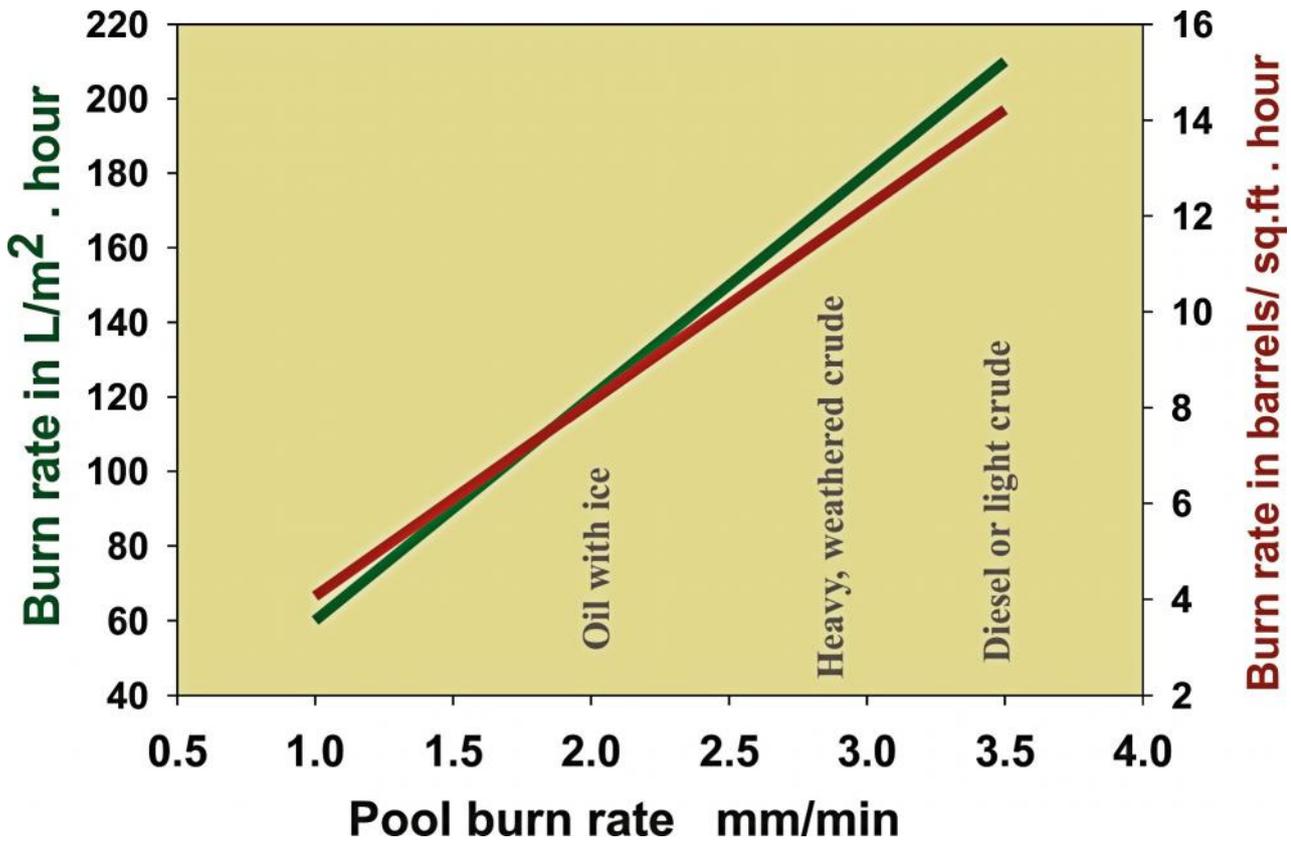
**Metres**



**Feet**



Above - Figure 29 Nomogram used to calculate burn area.



Above - Figure 30 Nomogram used to convert burn rates.

**Table 7 Burn rates for various oils**

Oil type	Burning Rate, (mm/min)
Gasoline	4
Diesel Fuel	3.5
Light Crude	3.5
Medium Crude	3.5
Heavy Crude	3
Weathered Crude	2.8
Crude oil with ice	2
Light Fuel Oil	2.5
Heavy Fuel Oil	2.2
Lube Oil	2
Waste Oil	1 to 2
Emulsified Oil	1 to 2

To be continued

## Publications

### FOR YOUR INTEREST – LINKS FOR RECENT ISSUES OF PERIODICALS

<a href="#">ASME EED EHS Newsletter</a>	News and commentary on HSE issues from George Holliday	Most recent issue
<a href="#">Bow Wave</a>	Sam Ignarski's Ezine on Marine & Transport Matters	Current issue
<a href="#">Cedre Newsletter</a>	News from Cedre in Brittany, France	May 2013 issue
<a href="#">The Essential Hazmat News</a>	Alliance of Hazardous Materials Professionals	June 10 issue
<a href="#">USA EPA Tech Direct</a>	Remediation of contaminated soil and groundwater	July 1 issue
<a href="#">USA EPA Tech News &amp; Trends</a>	Contaminated site clean-up information	May 2013 issue
<a href="#">Technology Innovation News Survey</a>	From US EPA - Contaminated site decontamination	May 16 -31 issue
<a href="#">Intertanko Weekly News</a>	International news for the oil tanker community	No. 27 2013
<a href="#">CROIERG Enews</a>	Canberra & Regions Oil Industry Emergency Response Group	July 2013 issue
<a href="#">Soil &amp; Groundwater Product Alert</a>	From Environmental Expert	July 1 issue
<a href="#">Soil &amp; Groundwater Ezine</a>	Articles, papers and reports	May 2013 issue
<a href="#">Soil &amp; Groundwater Newsletter</a>	From Environmental Expert	Jun 27 issue
<a href="#">Soil &amp; Groundwater Events</a>	Upcoming events compiled by Environmental Expert	June 2013 issue
<a href="#">IMO Publishing News</a>	New and forthcoming IMO publications	May-Jun 2013
<a href="#">IMO News Magazine</a>	News from the International Maritime Organization	No 1, 2013
<a href="#">Pollution Online Newsletter</a>	News for prevention & control professionals	July 3 issue
<a href="#">EMSA Newsletter</a>	News from the European Maritime Safety Agency	July 2013 issue
<a href="#">JOIFF "The Catalyst"</a>	Int'l Organisation for Industrial Hazard Management	April 2013 issue
<a href="#">Int'l Environmental Technology</a>	Environmental Monitoring, Testing and Analysis	April 2013 issue
<a href="#">HELCOM Newsletter</a>	Baltic Marine Environment Protection Commission	May 2013 issue

## Events

### ISAA: 2013 TRAINING DAYS AT CASTLE ARCHDALE, ENNISKILLEN, NORTHERN IRELAND

For your diary – The days are 3 – 4 September, 2013. The detailed programme will be published in next week's Newsletter.

### CANADA: DEMONSTRATION OF LARGE OFFSHORE OIL SKIMMER

ISCO Corporate Member, Aqua-Guard Spill Response is holding a demonstration week.

Aqua-Guard Spill Response invites you to attend an on-water demonstration of our 375 m<sup>3</sup>/h state of the art offshore oil skimming system (URO 600). These skimming systems are specifically designed for use onboard Offshore Support Vessels and are equipped with Aqua-Guard's patented RBS TRITON™ oil skimming technology.

The demonstrations will be held at the Vancouver Drydock facility in North Vancouver, B.C, Canada, during the week of July 29th to August 2nd 2013. Please RSVP to [demos@aquaguard.com](mailto:demos@aquaguard.com) or call Steven Mo at our office +1-604-980-4899 (ext. 2006).

## Training

### USA--EMERGENCY RESPONSE GUIDEBOOK (ERG) TRAINING PRESENTATIONS

PHMSA's Hazardous Materials Safety Assistance Team (HMSAT) will be conducting training presentations across the country to assist those million-plus firefighters who may be missing opportunities to receive training on the Emergency Response Guidebook.

[More information, locations and dates](#)

The ISCO Newsletter is published weekly by the International Spill Control Organisation, a not-for-profit organisation supported by members in 45 countries. ISCO is dedicated to raising worldwide preparedness and co-operation in response to oil and chemical spills, promoting technical development and professional competency, and to providing a focus for making the knowledge and experience of spill control professionals available to IMO, UNEP, EC and other organisations. ISCO is managed by an elected executive committee members of which are **Mr David Usher** (President, USA), **Mr John McMurtrie** (Secretary, UK), **Mr Marc Shaye** (USA), **Mr Dan Sheehan** (USA), **Rear Admiral M. L. Stacey**, CB (UK), **M. Jean Claude Sainlos** (France), **Mr Kerem Kemerli** (Turkey), **Mr Paul Pisani** (Malta), **Mr Simon Rickaby** (UK), **Mr Li Guobin** (China), and **Captain Bill Boyle** (UK). The Executive Committee is assisted by the non-executive ISCO Council composed of the following national representatives – **Mr John Wardrop** (Australia), **Mr Namig Gandilov** (Azerbaijan), **Mr John Cantlie** (Brazil), **Dr Merv Fingas** (Canada), **Captain Davy T. S. Lau** (China, Hong Kong), **Mr Li Guobin** (China, Mainland), **Mr Darko Domovic** (Croatia), **Eng. Ashraf Sabet** (Egypt), **Mr Torbjorn Hedrenius** (Estonia), **Mr Pauli Einarsson** (Faroe Islands), **Prof. Harilaous Psarافتis** (Greece), **Captain D. C. Sekhar** (India), **Mr Dan Arbel** (Israel), **Mr Sanjay Gandhi** (Kenya), **Mr Joe Braun** (Luxembourg), **Chief Kola Agboke** (Nigeria), **Mr Jan Allers** (Norway), **Capt. Chris Richards** (Singapore), **Mr Anton Moldan** (South Africa), **Dr Ali Saeed Al Ameri** (UAE), **Mr Kevin Miller** (UK), and **Dr Manik Sardesai** (USA). More info on Executive Committee and Council Members can be found on the ISCO website at [www.spillcontrol.org](http://www.spillcontrol.org)

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