



ISCO NEWSLETTER

The Newsletter of the International Spill Response Community
Issue 374, 4 March 2013

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International news

RELOCATION OF SINGAPORE TIER 3 RESPONSE BASE



OSRL is now gearing up for relocation to a new and larger integrated facility in Loyang Offshore Supply Base (LOS) on the east of Singapore. The Tier 3 base will be co-located with the SWIS (Subsea Well Intervention Services) base to enable seamless provision of a more robust and holistic response capability. Further information on SWIS capability and mobilisation will follow after the relocation.

The moving of people and equipment will commence on 4 March 2013. The new base will be operational by 2 April 2013. The new address will be as follows:

International news (continued)

Loyang Offshore Supply Base, Loyang Crescent, Mailbox No 5105, Blk 503 TOPS Avenue 3, Singapore 508988

The new facility provides over 9,500 m² of operational space, more than 2.4 times the size of our previous facility, offering space for storage and maintenance for all intervention and response equipment, dispersants for the [Global Dispersant Stockpile \(GDS\)](#) project, an emergency operations command centre, modern training facility and reception area for visitors as well as the ability to accommodate the SWIS subsea well capping device. Vessels that may be identified by the mobilising party to transport the capping device and ancillaries in the event of an emergency- callout can come into the LOSB deepwater berths. [OSRL](#)

Incident reports

USA: ALLISION RESULTS IN OIL SPILL SOUTHWEST OF PORT SULPHUR



February 27 - The U.S. Coast Guard is responding to a report of an allision between a vessel and an inactive wellhead about nine miles southwest of Port Sulphur, Wednesday.

Coast Guard Sector New Orleans watchstanders received a report that the 42-foot crewboat Sea Raider allided with a wellhead owned by Swift Energy at around 8 p.m., Tuesday.

The platform is discharging an oily-water mixture, but the amount is unknown at this time. *The Maritime Executive* [Read more](#)

Responders secure well, continue oil clean-up southwest of Port Sulphur

March 1 - Responders secured the CM-183 wellhead leak in Lake Grande Ecaille Bay nine miles southwest of Port Sulphur at 3:12 p.m., Thursday.

Responders with Wild Well Control were able to secure the well shortly after the arrival of a specialized equipment barge, while crews continue clean-up operations. Response crews have recovered more than 1,200 gallons of oily-water mixture and deployed 4,880 feet of boom around the wellhead and all sensitive areas. The estimated maximum potential discharge from the wellhead was fewer than 1,260 gallons of crude oil and 1,134 gallons of oily water per day. *US Coast Guard* [Read more](#)

PHILIPPINES: ILOCOS SUR DISASTER MANAGEMENT COUNCIL SETS OIL SPILL CLEANUP

March 1 - Provincial disaster management officials in Ilocos Sur are to lead on Friday a massive drive to clean up an oil spill that threatens the shorelines of several towns in the province. A report by state-run Philippines News Agency said the cleanup drive will start at the shorelines of Santiago town, one of the areas threatened by the spill.

“The Provincial Disaster Risk Reduction and Mangement Council members will help the local officials and residents in the removal of the oil debris along affected beachlines until it totally wiped out,” PNA quoted PDRMMC action officer Sigfred Duquing as saying. He added the oil spill affected the coastal areas in Tagudin, Santa Cruz, Santa Lucia, Santiago, San Esteban, Santa Maria, Narvacan and Santa towns, and Candon City. *GMA News* [Read more](#)

Burmese ship eyed in oil spill

March 2 - The Philippine Coast Guard on Friday said that the oil spill that reportedly contaminated the shorelines of 11 coastal barangays from La Union up to Ilocos Norte might have come from the sunken Burmese cargo ship MV Arita Bauxite. But PCG spokesperson Cmdr. Armand Balilo was quick to add that the result of their investigation is not yet conclusive.

Inquirer Global Nation [Read more](#)

Other news

USA: BP, HALLIBURTON, TRANSOCEAN, PLAINTIFFS’ LAWYERS ALL PREPARE TO FACE OFF IN GULF OIL SPILL TRIAL

February 23 - One of the biggest legal circuses on Earth — the trial of [BP](#) over the extent of its responsibility for [the 2010 Gulf of Mexico oil spill](#) — is scheduled to open in New Orleans on Monday, featuring 34 leading lawyers in the jam-packed federal court and hundreds of others listening to video feeds in rooms nearby.

Other news (continued)

There will be 400 minutes of opening arguments from 11 parties, including the Justice Department. The list of exhibits runs nearly a thousand pages, and lawyers have filed 126 depositions and the names of about 80 potential witnesses. The plaintiffs' team has essentially built an entire new firm, with 300 lawyers, paralegals and support staffers dedicated to the case. [BP](#) has a similar battery of attorneys from four of the nation's most prestigious firms. *The Washington Post* [Read more](#)

Start of Trial on Gulf Oil Spill Is Delayed Amid Talk of a Settlement

February 26 - Proceedings were scheduled to begin Monday, but on Sunday afternoon, Judge Carl J. Barbier of Federal District Court, who is overseeing the sprawling litigation, issued a brief order pushing the opening day back to March 5 "for reasons of judicial efficiency and to allow the parties to make further progress in their settlement discussions." *New York Times* [Read more](#)

USA: SHELL SAYS IT WILL NOT DRILL IN ALASKA ARCTIC IN 2013



Picture: The Noble Discoverer conducted preliminary drilling in the Chukchi Sea in 2012. (Royal Dutch Shell)

February 27 - Plagued with problems with both its drilling rigs and its oil spill containment vessel, Shell Alaska announced Wednesday that it will not conduct offshore drilling operations in the Alaska Arctic this year.

The decision to "pause" Arctic drilling during the upcoming ice-free months of summer will allow the company to repair and retool its troubled rigs and prepare for future operations in a program that has already cost the company nearly \$5 billion.

The company will continue to do offshore scientific research and conduct meetings with villagers across the North Slope in an attempt to keep the program moving and ready for resumption "at a later stage," company spokesman Curtis Smith told the Los Angeles Times. *Los Angeles Times* [Read more](#)

USA: SINGAPORE-BASED SHIPPING COMPANY TO PAY \$2.2 MILLION FOR COVERING UP OIL POLLUTION

February 25 - Pacific International Lines, a Singapore-based container ship company, was sentenced today in D.C. federal court under the terms of a plea agreement that requires the company to pay \$2.2 million in criminal penalties, the [Department of Justice](#) announced.

Pacific International Lines previously pleaded guilty to three felony charges that it made false statements to the U.S. Coast Guard and violated the Act to Prevent Pollution from Ships by concealing illegal waste water operations and discharges in a falsified oil record book – a required log in which all overboard discharges must be recorded – and operating a vessel in waters of the United States without a functioning oil water separator (a required pollution control device). The charges are a result of Pacific International Lines illegal operation of the vessel M/V Southern Lily 2 in June 2012. *The Maritime Executive* [Read more](#)



CANADA: ALASKA FIRM HIRED TO DEVELOP B.C.'S 'WORLD LEADING' SPILL RESPONSE

February 28 - Alaska-based Nuka Research and Planning Group has been hired by the British Columbia government to assess the province's marine oil spill risk and develop a "world-leading" spill response plan.

The Ministry of Environment announced the agreement Thursday, following intense public scrutiny of the risks posed by Enbridge's proposed Northern Gateway pipeline project that is still under review by the National Energy Board's Joint Review Panel. Developing an internationally recognized response plan is the second of five minimum requirements the provincial government set last year for its support of Northern Gateway. *Metro News* [Read more](#)

STUDY: HIGHEST RISK FOR SEVERE OIL SPILLS FROM EXPLORATION AND PRODUCTION

February 15 - The risk of small or medium oil spills from ships, pipelines, storage facilities and refineries is higher than from oil exploration and production. However, the risk of severe oil spills is highest from exploration and production, according to a recent study. Furthermore, the study suggests that the Deepwater Horizon accident, the largest recorded oil spill, cannot be considered as a particularly rare event.

Using information contained in the global Energy Related Severe Accident Database (ENSAD), this study analysed over 1200 accidental oil spills that occurred between the years 1974 and 2010. Severe accidents include those where there are fatalities and where more than 10,000 tons of oil were spilled. This study included oil spills larger than 200 tons in order to make comparisons between incidents of varying scale.

Spill sources were divided into four categories: (i) spills occurring during exploration or production e.g. from oil wells, drilling and exploration platforms and rigs, (ii) spills from tankers transporting crude oil and refined products, (iii) spills from onshore and offshore pipelines carrying crude oil and refined products and (iv) spills from refineries and storage sites.

In this period, a total of 9.8 million tons of oil were spilled in 1213 incidents. While exploration and production was responsible for far fewer spills than ships, storage and refinery and pipelines, it caused far greater quantities of oil to be released. Six million tons of spilled oil came from 888 ship incidents; 870,000 tons from 113 spills at storage and refinery sites and 750,000 tons from 188 spills from pipelines. However, 2.2 million tons were spilled by just 24 incidents during exploration and production.

Corporate Risk Systems [Read more](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group]

USA: NUCLEAR-RELATED REPORTS

USA: Leaking tanks are Hanford nuke site's latest woe

February 23 - Federal and state officials say six underground tanks holding toxic and radioactive wastes are leaking at the country's most contaminated nuclear site in south-central Washington, raising concerns about delays for emptying the aging tanks.

The leaking materials at Hanford Nuclear Reservation pose no immediate risk to public safety or the environment because it would take perhaps years for the chemicals to reach groundwater, Washington Gov. Jay Inslee said Friday.

But the news has renewed discussion over delays for emptying the tanks, which were installed decades ago and are long past their intended 20-year life span. *USA Today* [Read more](#)

USA: A Strategy to Prevent the Next Fukushima



Picture: The Unit 3 reactor building at the Fukushima Daiichi nuclear plant in Japan after an explosion in March 2011

February 19 - Since that accident, whose second anniversary falls on March 11, researchers have been looking at a variety of ways to prevent a repetition. At the [Electric Power Research Institute](#), a nonprofit utility consortium, scientists think they have zeroed in on one strategy: replacing some of the zirconium with a ceramic.

Zirconium is used not for its strength or for its resistance to heat or its price but because it is nearly transparent to neutrons, the subatomic particles that are released from the nucleus when an atom is split and go on to split other nuclei in a chain reaction.

Zirconium has always been known to release hydrogen when overheated, and that gas will burn or explode at a variety of concentrations, making it particularly troublesome. And under some circumstances, the fire cannot be extinguished with water. *The New York Times* [Read more](#)

USA: REPORT MAY EASE PATH FOR KEYSTONE XL PIPELINE

March 1 - The State Department issued a revised environmental impact statement for the 1,700-mile [Keystone XL](#) pipeline on Friday that makes no recommendation about whether the project should be built but presents no conclusive environmental reason it should not be.

The 2,000-page document also makes no statement on whether the pipeline is in the United States' economic and energy interests, a determination to be made later this year by President Obama.

Other news (continued)

But it will certainly add a new element to the already robust climate change and energy debate around the \$7 billion proposed project. The new report does not make any policy recommendations, but its conclusion that the environmental and climate change impacts are manageable could provide Mr. Obama political cover if he decides to approve the pipeline.

The New York Times [Read more](#) [Thanks to ISCO Executive Committee Member, Marc K. Shaye]

INDIA: BOOMING SCRAP BUSINESS: SHIP-BREAKING LESSONS FROM THE EXXON VALDEZ



February 14 - The infamous oil tanker *Exxon Valdez* is almost completely gone, most of it having already been recycled in India's voracious steel mills. But its dismantling on a beach in India has once again highlighted the dangers, both environmental and physical, associated with the booming ship-breaking industry.

The skeletal remains of the former *Exxon Valdez* lie on the beach of the Indian coastal city of Alang. Only a few meters of the black-and-red steel wall are left, and the bow is already gone. Like ants devouring a dead animal, shipyard workers use blowtorches to cut apart the 34,000-ton steel giant.

In about two more weeks, there will be nothing left of the former oil tanker, which in 1989 was responsible for the largest oil spill ever in the United States, leaking more than 41 million liters (10.8 million gallons) of crude oil into Alaska's Prince William Sound. *Spiegel* [Read more](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group]

UK: BMT PROVIDES ENVIRONMENTAL SUPPORT FOR LATEST UKCS LICENSING ROUND

February 19 - BMT Cordah (BMT), a subsidiary of BMT Group, the leading international maritime design, environmental and engineering consultancy, has recently supported several major companies including Endeavour Energy UK Ltd, in their applications for the latest UK Oil and Gas Licensing Round.

The 27th Offshore Oil and Gas Licensing Round saw a record number of applications being put forward indicating that UK oil and gas investment is set to flourish. BMT provided environmental support to UKCS operators in the preparation of the required screening assessments which clearly summarise the sensitivities and potential environmental impacts of seismic and exploration drilling activities, in the areas of interest. *The Maritime Executive* [Read more](#)

ISCO news

ISCO 2013 AGM TO BE HELD IN AUSTRALIA AT SPILLCON CONFERENCE

For the very first time, ISCO will hold its AGM in Australia, during the SpillCon 2013 Conference and Exhibition being held at Cairns, Queensland.

Since 1984, ISCO has held Annual General Meetings in UK (Aberdeen and several times in London), USA (San Antonio, Miami, Savannah, Portland), Malta (Valletta) and France (Marseille).

Detailed arrangements for the 2013 AGM will soon be announced, and the Agenda and other meeting papers will be circulated to Members as soon as possible.

LAUNCH OF NEW WEBSITE DELAYED

Unfortunately, Mike Watson (ISCO Website Developer) did not manage to complete before going on holiday. Work will resume on his return on 11th March.

In the meantime, the existing website continues to function normally but, to avoid problems in copying over data to the new site, no new postings are being made at the moment (except for updating of the Newsletter archive).

SHORELINE CLEAN-UP ASSESSMENT TECHNIQUE MANAGEMENT (SCATMAN)



SCAT team members who have struggled with pen and paper survey forms, often in adverse weather conditions, will welcome this paperless way to conduct shoreline clean-up assessment.

Kenneth Kumenius and Markku Ojala have worked for a long time on the development of an electronic system for recording all of the information required in completing a comprehensive shoreline clean-up assessment survey. Not only is it so much easier to record data on a hand-held device but the collected information can be directly transmitted back to an operations planning centre.

The system has been given the name “SCATMAN” – Shoreline Clean-up Assessment Technique Management and is intended for use by trained SCAT teams.

The in-field team is equipped with a harsh-environment ruggedized tablet or smartphone with integrated camera and optional GIS.

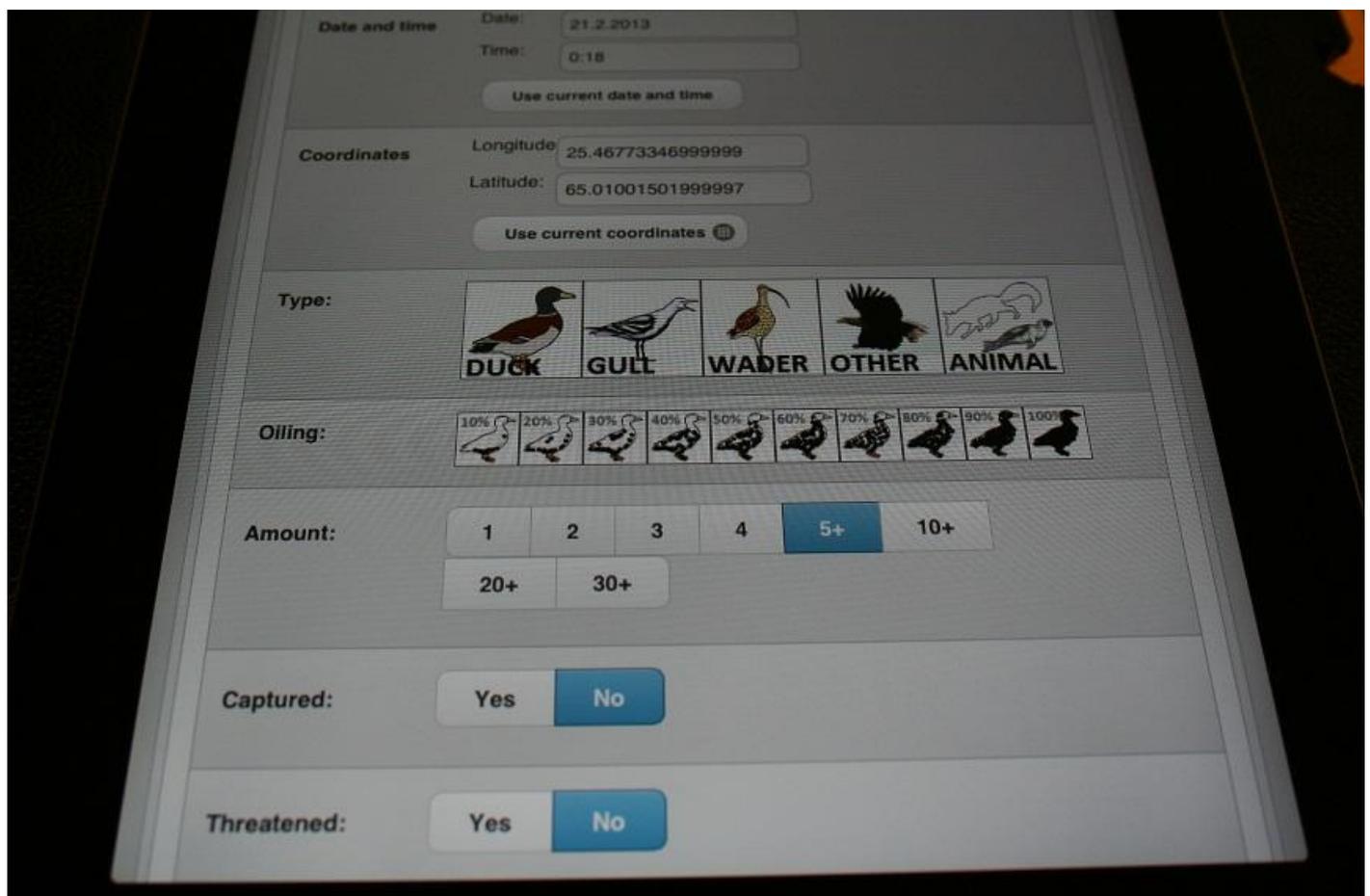
The use of the SCATMAN system can speed strategic decision-making on beach protection / clean-up priorities

transmission (cellular phone network or satellite) to a remote control room.

User-friendly programming facilitates touch-screen entering of data, which linked with pictures and co-ordinates, can be sent via wireless data

The system allows for easy entering of data – team members, date, time and location, survey waypoints, weather conditions, shore type and load-bearing characteristics, overall oiling, zone definition and surface oiling data, marine debris, collected samples ID, photos and videoclips ID, natural resources and values, access data, shoreline usage, etc. Users can also input additional observations and recommendations as they see fit.

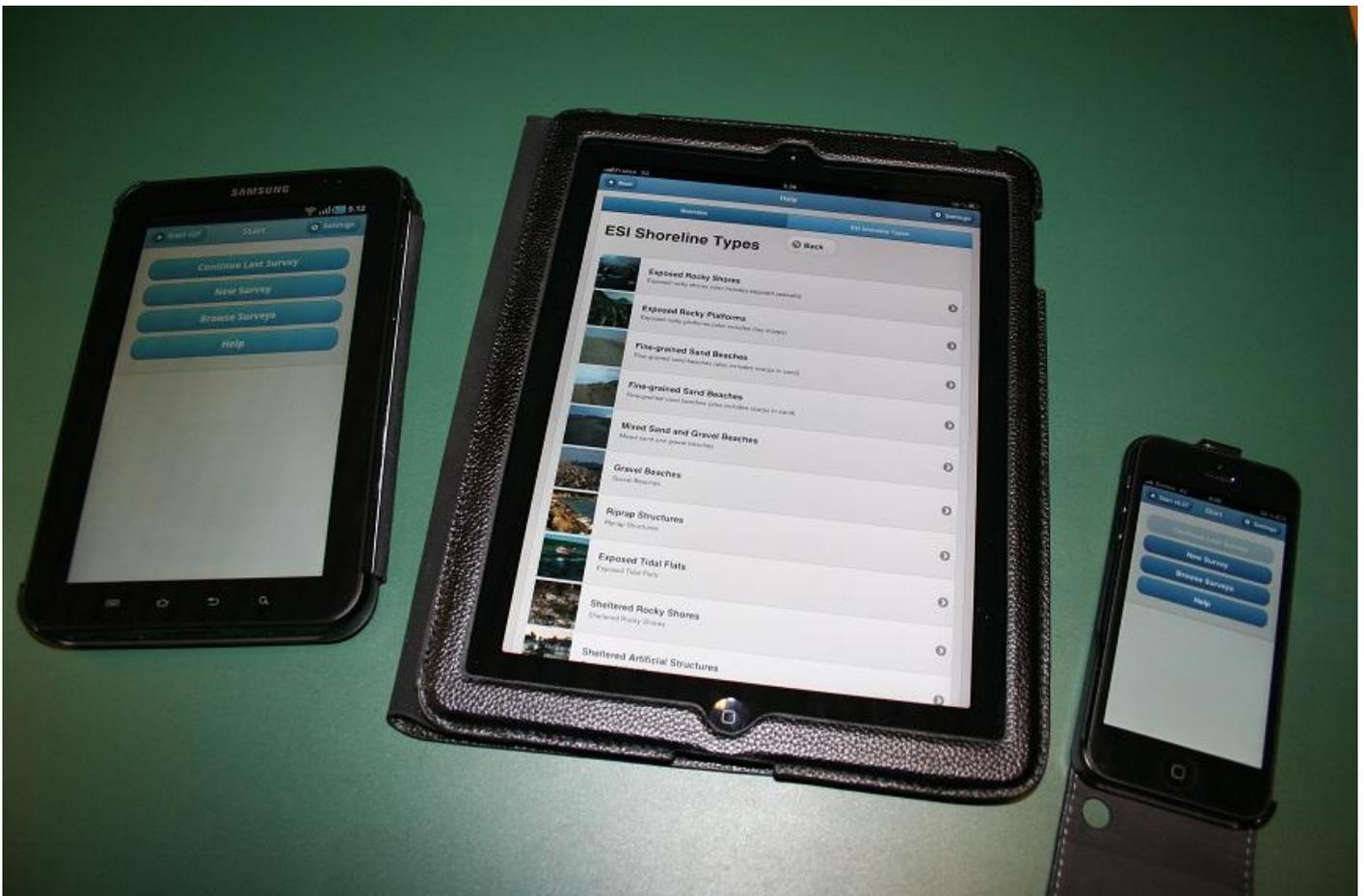
Another useful feature is the wildlife page. This is designed so that by touching the screen you can choose which kind of bird/animal has been oiled - seagull, duck, wader or something else and, if there are animals, like fox, seal or turtle.



Science and Technology (continued)

All pictures on the touch screen are drawings and, for example, if you have chosen a bird, you will see drawings of oiled birds, and a % oiling estimation can be selected. You can then make a decision on whether the bird or animal should be captured or not and enter an estimation of the number of affected individuals.

A photo mode is included as well, directly linked with the location co-ordinates. A photo alerting symbol will automatically appear on the screen at the command centre or you can set the mode to allow the picture to be viewed by observers at command centre.



Technical features include built-in terminal device features like GPS and camera, ability to use off-line when no data connection is available, multi-language user options, HTML5 & JavaScript implementation enables use on most tablet and smartphone platforms (Android, iPad, iPhone, Symbian, Windows Phone, etc.). Samsung Galaxy Xcover is one example of a useful terminal device. SCATMAN also works also on PC computers using web browsers.

The survey data is collected using standardized international classifications and units. Data can be visualized on the terminal software by showing it on geographical maps using different colors and symbols. The gathered information can also be visualized chronologically, so that it is easy to follow up the long-term progress in the surveyed areas.

The speed with which the survey data can be received by response planners saves valuable time. Data processing and analysis can be progressed without waiting on the return to base of the survey team. This means that work on development of response strategies can be progressed without delay.

Other versions of SCATMAN are under development for a variety of applications including environmental mapping and survey, underwater mapping and survey, biotope mapping, algal bloom mapping and follow-up, mapping snow and ice conditions, use as a mapping and planning aid in crisis areas (for example, Haiti earthquake, Japanese tsunami)

SCATMAN for Shoreline Survey is now commercially available from Siperia Systems in Finland as a standard system or in modified / tailor-made formats supplied to meet clients' requirements.

For more information visit <http://www.scatman.fi> or send an email to scatman@siperiasystems.com



In this issue of the ISCO Newsletter we are printing No. 116 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 116: KNOWLEDGE THWARTED BY BELIEF-ONLY REGULATION

In the forgoing articles on the *Sea Empress Incident* we saw that dispersants dealt with about three times the amount of oil recovered from water surfaces while being comparable with that recovered from shorelines; that together these amounts were dwarfed by that which evaporated and dispersed naturally. Accordingly, we might conclude that if governments really intend to respond sensibly to oil and HNS releases, it is surely time for them to recognise the benefits of natural evaporation and dispersion. To this end, this series of articles will conclude with my knowledge-only contingency and incident-specific response plans. In the meantime, my more immediate articles will show the *Sea Empress Incident* to have been but a typical example of how knowledge has been thwarted by belief-only regulation since the *Torrey Canyon Incident* of 1967. Thus, I now show the extent to which specific belief-only regulations thwart/prevent dispersant-induced dispersion, pollutant-processing for recycling/disposal, and safe-haven cargo/bunker transfer, despite knowledge of how the first two can restore the environment to its pre-incident condition quickly and cost-effectively, and of how the third can minimise incident-impact to the maximum extent by preventing release in the first place.

As to dispersants, the aerial spraying capacity available to the MPCU had risen by 1996 from 6 Islanders and 2 DC3s *i.e.* from 14 to 28 tonnes per sortie (articles 47-61) while two of these aircraft and another on call from the Environment Agency were equipped for the control and evaluation of response operations by remote-sensing (articles 62-69), all of which were deployed to the *Sea Empress Incident* together with a C130 of 12 tonnes capacity per sortie for part-time deployment. However, belief-only regulation in respect of water-depth, limited the dispersant treatment rate to an average of only 660 tonnes or under 2 sorties per day, to 4 sorties on the most active day, though had the C130 made one sortie that day, the DC3s would have made only 3.5. However, six sorties by the DC3s on each of 7 spraying days would have delivered 1,276 tonnes of dispersant instead of the actual delivery of 446 tonnes which with *pro rata* application of the 1:20, 1:10 and 1:5 efficiencies of my earlier tabulation, would have dispersed 15,771 tonnes of oil instead of the 5,515 tonnes actually achieved. Thus, belief-only regulations prohibiting dispersant-use within arbitrary distances from shore, or other belief-only inhibitions limited dispersant use to 35% of what it might have been, there certainly having been enough pollutant to justify more. Nonetheless, only 143 tonnes of dispersant were applied to the 20,000 tonnes of oil released by 19 February inclusive.

As to mechanical recovery from water surfaces, even allowing for its wave and encounter-rate limitations (articles 70-91), the recovery of only 2,000 tonnes of oil at the emulsion viscosity of this incident was disappointing, given the number of systems available and the quantity of oil released. No doubt, late arrival of the seagoing recovery vessels, prevalence of onshore winds and shore-proximity put them at a disadvantage with respect to the inshore units, but to have had six on-scene under these conditions seems inexplicable, given the obvious opportunity for cargo/bunker transfer to the adjacent refinery. Nonetheless, with respect to comparative pollutant encounter rates, we know that the sweeping speed of recovery units is only 0.5-1% that of aerial dispersant-spraying units; that even a sweeping boom-mouth of 100m travelling at 1knot encounters only 20 tonnes of oil or 60-80 tonnes of emulsion per hour; that copious quantities of free water are co-recovered; that the emulsion itself has to be broken to oil and yet more free water; that the combined water has to be decanted; and that the overall oil recovery efficiency is low enough without being lowered further by belief-only bans on decanting which in this case necessitated all such processing/decanting being conducted at the Texaco refinery in Milford Haven irrespective of where it had been recovered (c.f. below).

As to shoreline mechanical recovery (articles 92-102), we know that the stranding of only 3,000-5,000 tonnes caused 900 men to be employed at the height of the shore-clearance operation; and that despite the intention of having the beaches ready for the Easter holidays of 5-8 April 1996, smaller scale activities continued with the MPCU report of December 1996 speaking of completion by Easter 1997.

No doubt these operations were prolonged by the belief-only ban on dispersant-use on shorelines and in shallow coastal water and on the decanting of free and demulsified water thereto. Thus, 20,000 tonnes of emulsion and associated free water recovered at sea and from trenches and pits on the beaches had to be taken by sea or road to the Texaco Refinery at Milford Haven to process 13,000 tonnes of water to an oil-content < 15ppm before it could be decanted from the 2,000 tonnes of oil collected from seawater surfaces and from the 3000-5,000 tonnes collected from shorelines. In addition, it was reported that of the 10,800 tonnes of polluted beach material collected in total, 7,300 tonnes went to the Texaco refinery for land-farming, 3,500 tonnes went some distance to landfill, and some 120 tonnes of oiled-sand was cold-mixed at the refinery to produce a 5/20 HRA road surfacing material. The proximity of the Texaco refinery was fortunate even if its storage, processing and land-farming capacities were limited to the low through-put which could have been rate-determining for material-removal from shore, refineries only having capacity for their own onsite wastes and not for those arising elsewhere.

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 11



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>

Physical treatment technologies

Pump and treat

Pump and treat is one of the most widely used ground water remediation technologies. In this process ground water is pumped to the surface and is treated with either biological or chemical agents to remove the impurities.

Air sparging

Air sparging is the process of blowing air directly into the ground water. As the bubbles rise, the contaminants are removed from the groundwater by physical contact with the air (i.e., stripping) and are carried up into the unsaturated zone (i.e., soil).

As the contaminants move into the soil, a soil vapour extraction system is usually used to remove vapours.

Dual phase vacuum extraction

Dual-phase vacuum extraction (DPVE), also known as multi-phase extraction, is a technology that uses a high-vacuum system to remove both contaminated groundwater and soil vapour.

In DPVE systems a high-vacuum extraction well is installed with its screened section in the zone of contaminated soils and groundwater. Fluid/vapour extraction systems depress the water table and water flows faster to the extraction well. DPVE removes contaminants from above and below the water table.

As the water table around the well is lowered from pumping, unsaturated soil is exposed. This area, called the capillary fringe, is often highly contaminated, as it holds undissolved chemicals, chemicals that are lighter than water, and vapours that have escaped from the dissolved groundwater below. Contaminants in the newly exposed zone can be removed by vapour extraction.

Once above ground, the extracted vapours and liquid-phase organics and groundwater are separated and treated. Use of dual-phase vacuum extraction with these technologies can shorten the clean-up time at a site, because the capillary fringe is often the most contaminated area.

Monitoring-Well oil skimming

Monitoring-wells are often drilled for the purpose of collecting ground water samples for analysis. These wells, which are usually six inches or less in diameter, can also be used to remove hydrocarbons from the contaminant plume within a groundwater aquifer by using a belt style oil skimmer.

Belt oil skimmers, which are simple in design, are commonly used to remove oil and other floating hydrocarbon contaminants from industrial water systems.

A monitoring-well oil skimmer recovers various oils, ranging from light fuel oils such as petrol, light diesel or kerosene to heavy products such as No. 6 oil, creosote and coal tar.

It consists of a continuously moving belt that runs on a pulley system driven by an electric motor. The belt material has a strong affinity for hydrocarbon liquids and for shedding water. The belt, which can have a vertical drop of 100+ feet, is lowered into the monitoring well past the LNAPL/water interface. As the belt moves through this interface it picks up liquid hydrocarbon contaminant, which is removed and collected at ground level as the belt passes through a wiper mechanism.

To the extent that DNAPL hydrocarbons settle at the bottom of a monitoring well, and the lower pulley of the belt skimmer reaches them, these contaminants can also be removed by a monitoring-well oil skimmer.

To be continued

IN SITU BURNING: CHAPTER 8



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 eighth 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.

8. The History of Burning – the Deepwater Horizon

The burning that took place at the Deepwater Horizon certainly changed the history of in-situ burning. For 35 years the history of in-situ burning had largely been that of small tests, some small burns, lots of land burns, and a few larger tests. What was needed, was a few large actual and successful burns at sea - to prove that the technique was viable. Indeed there were about 400 successful burns carried out during the Deepwater Horizon spill and this removed a large part of the oil on the water.^{21, 32} Table 3 summarizes some aspects of these burns.

Table 3 Summary of the Deepwater Horizon Burns

Amount burned	35,000 to 50,000 m ³ (220,000 to 310,000 barrels)
Number of fires	411 (396 effective ones)
Time of fires (range)	10 minutes to 12 hours
Dates	April 28 to August 19, 2010 (83 days)
Location	~5-25 km (3-15 miles) from source - about ~60 km (40 miles) from shore
Average burned/fire	110 m ³ (700 barrels)
Average burn time	~ 2 hours
Most oil burned in one day	~9600 m ³ (~60,000 barrels) (June 18)
Burn teams	8 to 12
People per burn team	7 or 8
Total people involved	less than 100
Spotting aircraft	2 King Airs
Spotters	10
Fire boom used	7000 m (23,000 feet)
Types used	4 types, mostly Elastec/American Marine then Applied Fabric Technologies
Boom used per burn	~150 m (~500 feet)
Fire boom lifetimes	ranging from one to typically 12 to 14 burns
Large vessels	~ 10 supply boats and large shrimp boats
Small vessels	~ 20 rigid hull inflatable or aluminum skiffs
Igniters	1,700 handheld with gelled diesel and marine flare

Special feature – In situ burning (continued)



Photo 7 The homemade igniter frequently used during the Deepwater Horizon spill, is lit and prepared to be put into the oil (Photo courtesy of Elastec / American Marine Inc.).

The basic technique was to collect oil in a fire-resistant boom (hereinafter called fire boom) and then ignite the oil and slowly pull the fire boom forward to push the oil to the rear or wait if the winds and currents were doing this.^{21, 32}

The oil was spotted using a fixed-wing aircraft. Two shrimp boats (about 100 foot long) towed about 150 m (500 ft) of fire boom at about ½ to ¾ knot to avoid loss of the oil through entrainment under the boom. The tow lines were about 100 m (about 300 ft) for the safety of the tow crews. Once sufficient oil had been collected for a burn and marine and air monitoring approved, ignition was requested. A small boat carrying two persons would approach from upwind and an igniter dropped over the edge of the boom. The igniters were made from a plastic jar (about 1 Litre) of gelled diesel fuel, a marine flare and a primer to ignite the oil. Figures 7 and 8 show some aspects of the burn.

some Styrofoam floats. The flare, once activated burned down to the bottle of gelled diesel fuel, which started burning and acted as a primer to ignite the oil. Figures 7 and 8 show some aspects of the burn.

Photo 8 An operations crew monitors a small burn during the Deepwater Horizon incident (Photo courtesy of Applied Fabric Technology Inc.).

Once lit the heavy, weathered oil would burn until most oil was removed. The burn was monitored from the air by trained observers and from larger vessels in the area. The amount burned was gauged by measuring the burning area in the boom and multiply by the areal burning rate.^{21, 32}

Many precautions were taken during the burn. Extensive training was given to the crews and several practice sessions were undertaken. Particulate emissions from the burns were monitored.^{21, 32}



References

21 Mabile, N., *Controlled In-situ Burning: Transition from Alternative Technology to Conventional Spill Response Option*, AMOP, 584, 2012

32 Allen, A.A., N.J. Mabile, D. Jaeger, and D. Costanzo, *The Use of Controlled Burning during the Gulf of Mexico Deepwater Horizon MC-252 Oil Spill Response*, IOSC, 2011

To be continued

Publications

FOR YOUR INTEREST – LINKS FOR RECENT ISSUES OF PERIODICALS

ASME EED EHS Newsletter	News and commentary on HSE issues from George Holliday	March 4 issue
Intertanko Weekly News	International news for the oil tanker community	No 7, 2013
Intertanko Weekly News	International news for the oil tanker community	No 8, 2013
Tech. Innovation News Survey	US EPA: Entries for January 1-15, 2013	Issued Feb. 25, 2013
Soil & Groundwater Newsletter	From Environmental Expert	February 28 issue
Soil & Groundwater Events	Upcoming events, compiled by Environmental Expert	February 2013 issue
Soil & Groundwater Ezine	Articles, papers and reports	March 2013 issue
Environmental Expert	Soil and Groundwater Product Alert	February 25 issue
IMO Publishing Newsletter	New and upcoming IMO publications January 2013	Received 26 February
Technology News & Trends	US EPA Soil, sediments and groundwater remediation	February 28 issue

Events

CANADA: CORRECTION - AMOP TECHNICAL SEMINAR

Apologies - Please note the error in the workshop information from the previous announcement.

AMOP Technical Seminar on Environmental Contamination and Response, Lord Nelson Hotel, Halifax, Nova Scotia, June 4-6, 2013

The room block at the Lord Nelson Hotel is available until **Wednesday May 15, 2013** - the special rate of **\$169** per room per night (single/double occupancy), plus applicable taxes may not be available after that date. You can book by phone Telephone:(902) 423-5130 Toll Free: 1 (800) 565-20206 (Canada and United States) or by email ask@lordnelsonhotel.com To ensure to receive the conference rate, ensure to mention participation in the seminar or quote the **group ID 27994**

Workshop on the Physical and Chemical Principles of Accurate Deepwater Sampling, Lord Nelson Hotel Halifax, Nova Scotia, Monday, June 3, 2013.

On Monday June 3, there will also be a free, **one-day introductory workshop on the Physical and Chemical Principles of Accurate Deepwater Sampling**. This workshop will be available to the first 25 people who register for the course

USA: IOSC 2014 CALL FOR PAPERS

The "Call for Papers and Posters" for the 2014 International Oil Spill Conference (IOSC) has now been launched. IOSC 2014 will take place in Savannah, Georgia, United States from 5-8 May 2014.

The Call for Papers and Posters works through an abstract submission process that will close on July 15, 2013.

Download the [Call for papers brochure](#)

Additional information can be found at the IOSC web site at <http://www.iosc.org>. [Thanks to Patricia Charlebois of IMO for this reminder]

SINGAPORE: INTERNATIONAL CHEMICAL & OIL POLLUTION CONFERENCE & EXHIBITION

ICOPCE 2013 : 9-12 April, 2013

Organised by the Maritime and Port Authority of Singapore, the International Chemical and Oil Pollution Conference and Exhibition (ICOPCE) is Asia's ONLY international event focusing on risk mitigation for oil and chemical logistics. Part of Singapore Maritime Week 2013, ICOPCE will showcase collaboration for prevention, preparedness and response as its central theme. [More info](#)

UKSPILL'S ANNUAL INLAND SPILL13 SEMINAR ON 16 APRIL 2013

Hosted by Fire Service College, Moreton in Marsh, Gloucestershire GL56 0RH

The seminar brings Insurers, Agencies, and Contractors together to discuss Real spill costs, Sustainability and Future spills, and also includes a mini exhibition, and a tour of the Fire Site.

Cost per person is £60, book now - info@ukspill.org

Company news

AQUA-GUARD HAS MADE IT TO THE FINAL FOUR FOR INNOVATION AWARD

Corporate Member of ISCO, Aqua-Guard of Vancouver, Canada, has made it to the final four at this year's Offshore Support Journal Awards in London, February 19 & 20th. [Read more](#)

The company has also launched a new web site at <http://www.aquaguard.com>

Legal disclaimer: Whilst ISCO takes every care to ensure that information published in this Newsletter is accurate unintentional mistakes can occur. If an error is brought to our attention, a correction will be printed in the next issue of this Newsletter. Products and services featured in the ISCO Newsletter and/or the ISCO website, including the International Directory of Spill Response Supplies and Services, have not been tested, approved or endorsed by ISCO. Any claims made by suppliers of products or services are solely those of the suppliers and ISCO does not accept any liability for their accuracy.
