



# ISCO NEWSLETTER

The Newsletter of the International Spill Response Community

Issue 384, 13 May 2013

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## International news

### INVENTORY OF EU MEMBER STATES POLICIES AND OPERATIONAL RESPONSE CAPACITIES FOR HNS MARINE POLLUTION 2013

#### Updated inventory issued on 7<sup>th</sup> May, 2013

In accordance with Regulation (EC) No 1891/2006 amending Regulation (EC) No 1406/2002, EMSA is given the task to "draw up on a regular basis a list of the private and state pollution response mechanisms and response capabilities in the various regions of the European Union".

In order to fulfil this task of providing accurate and up to date information on the pollution preparedness and response mechanisms and capabilities of the EU and EFTA/EEA coastal States, EMSA contacts the competent authorities in each State and prepares specific inventories such as this Inventory of EU Member States' Policies and Operational Response Capacities for HNS\* Marine Pollution (HNS Inventory).

This update is based on information provided and verified by the competent national authorities in each Member State, reflecting changes which may have occurred since 2010. It replaces the 2010 HNS inventory and is meant to provide a general description of the status of preparedness and response capabilities to marine incidents involving HNS in coastal EU and EFTA/EEA States. It includes a description of the competent authorities, the policies, and the preparatory arrangements of each State. EMSA  [2013 HNS Inventory](#)

### NEW LOOK FOR ISO14001

The worldwide environmental management standard ISO14001 is under review, with major changes likely to apply from as early as 2014. Greg Roberts, EE

## International news (continued)

Environmental Consultant shares some of the potential revisions and invites members input.

Nearly a quarter of a million organisations worldwide are certified to the ISO14001 standard, which is rapidly becoming a 'must have' certification for the manufacturing community, driven by the requirement for legal compliance, cost reduction and by increasing customer demand.

The multi-national ISO Technical Committee is considering the 24 recommendations suggested by an ISO working group. These include; sustainability and relevant sustainability standards; life cycle considerations; making ISO14001 part of the core organisational strategy; including specific performance indicators, and the use of maturity matrices to demonstrate incremental improvements to the EMS.

Perhaps the biggest change is that the process will be more outward looking, with a need to determine the requirements of 'interested parties' and the 'internal and external issues' facing the organisation. There will also be a much larger requirement for external communication. Top management will be required to show 'leadership' and that the EMS is 'compatible with the strategic direction of the organisation'. It is clear that the new look standard will require an active environmental management system that is fully integrated into business operations, strategy and the supply chain. *Insights Magazine* [Read more](#)

## Incident reports

### NORWAY: STATOIL: LEAK STOPPED AT MONGSTAD



May 7 - The leak which occurred at Mongstad has been stopped, and the situation is being normalised. No one was injured during the incident.

All 317 personnel who were not involved in the handling of the incident were evacuated when hydrocarbon vapours were detected escaping from a flange in the crude oil plant at Mongstad.

Statoil's emergency response organisation was established, the authorities were notified and the evacuation alarm was sounded at approximately 1245. The cause of the incident will be investigated thoroughly. *The Maritime Executive* [Read source article](#)

### BELGIUM: DERAILED TRAIN RELEASES TOXIC ACRYLONITRILE INTO THE AIR

Follow-up to report in last week's ISCO Newsletter.

May 5 - Three hundred residents within a perimeter of five hundred meters had to be evacuated on Saturday May 4th, because of a train accident near Ghent, Belgium. Six of the thirteen cars of the cargo train coming from Holland derailed and three caught fire releasing in the atmosphere fumes of the toxic substance Acrylonitrile. The chemical is used in the production of plastics.

One person died and seventeen were hospitalized. However, the actual number of casualties remains unconfirmed. Soon after the accident, Jan Briers, Governor of the Province of Flandres, reported two deaths. Official statements rectified the number to one deceased.

Belgian authorities immediately after the accident put into effect an emergency plan and secured the area asking all residents up to one thousand meters to remain in their houses with doors and windows firmly closed. As the liquid chemical escaped into the drainage system though, firefighters had to flush it with large quantities of water to dissolve it. [Imassera.com](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group and Kevin D, Westwood of JOIFF]



### RUSSIA: HUGE BLAZE AS RUSSIAN FUEL TANKS DERAIL, THOUSANDS FLEE

May 8 - At least 44 people have been injured after a cargo train derailed in Russia's south with over 50 fuel tanks running off the tracks. One person has been reported missing. Almost 3,000 were evacuated from the nearby area.

Over 50 rail cars of a 71-car-long cargo train derailed at the Belaya Kalitva station in Russia's Rostov region at around 2 am local time. Up to 10 cars have caught fire as a result of the accident, and heavy smoke is reported at the scene. The fire had been localized at around 6 am local time. *Rt.com* [Read more and view video](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group and Kevin D, Westwood of JOIFF]

## Incident reports (continued)

### UK: RIVER NENE CHEMICAL SPILL COMPANY FINED

May 10 - A firm has been fined £50,000 after pesticides leaked into a Cambridgeshire river, wiping out thousands of fish. Safapac, of Orton Southgate, had previously admitted responsibility for the pollution in the River Nene. *BBC News* [Read more](#)  
[Thanks to David at ADR Training UK]

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### UK: SEVEN SHIPS PROBED AFTER BRITAIN'S WORST SEABIRD POLLUTION DISASTER IN DECADES

May 8 - Investigators probing the seabird pollution disaster have identified a possible seven ships responsible for the deadly chemical leak, it has emerged.

More than 3,000 guillemots, razorbills and other rare birds have washed up along Dorset, Devon and Cornwall coated in a glue-like lubricant, polyisobutylene (PIB). The substance, typically added to engine oils, first wiped out hundreds of birds in February but the source was never identified.

Officials at the Maritime and Coastguard Agency are hunting the boat responsible for leaking it into the sea - which prompted Britain's worst marine disaster for decades. *The Telegraph* [Read more](#)

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### USA: ARKANSAS RESIDENTS SICK FROM EXXON OIL SPILL ARE ON THEIR OWN

May 8 - The Arkansas Department of Health says people with dizziness, nausea and headaches have the option to leave, and it is their personal choice.

For more than a month, residents of Mayflower, Ark. have been told not to worry about lingering fumes from a March 29 oil spill that shut down a neighborhood and forced the evacuation of 22 homes.

"Overall, air emissions in the community continue to be below levels likely to cause health effects for the general population," Arkansas regulators wrote on a state-operated website that tracks Mayflower's air monitoring data. *Inside Climate News*  
[Read more](#)

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### UK: WASTE OIL DUMPED IN SAVICK BROOK, FULWOOD

May 5 - More than 15,000 litres of waste oil has been dumped in two waterways in Preston, the Environment Agency has said.

The oil was found in a tributary of Savick Brook in Mason's Wood Park and at a second location near Eastway in Fulwood. A spokesman said he believed the oil was dumped on either Thursday or Friday in "a deliberate criminal act". *BBC News*  
[Read more](#)

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### CANADA: NAVY FUEL SPILL IN HALIFAX HARBOUR TOPS 8,000 LITRES

May 9 - A spokesperson for the Royal Canadian Navy says a cleanup of thousands of litres of diesel spilled in Halifax harbour should be complete Friday afternoon.

The fuel leaked off of HMCS St. John's Wednesday morning while it was being transferred between two tanks, said Lt.-Cmdr. Bruno Tremblay. *CBC News* [Read more](#)

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### USA: INDIANAPOLIS - 9,000 GALLONS OF DIESEL FUEL LEAKED FROM MARATHON OIL PIPELINE NEAR 56TH STREET ON NORTHWEST SIDE

May 9 - Marion County Health Department officials were called the 5600 block of Guion Road late Wednesday on reports of a strong odor in the area. Just before 2 a.m. Thursday, health officials were called back to the area after receiving complaints about a smell. Pike Township Fire Department crews were called to the scene for assistance.

Citizens Energy Spokesman Dan Considine said the incident was initially reported as a gas spill, but it was later determined to be an oil pipeline leak. Crews determined the source of the leak coming from a Marathon pipeline. Cleanup is expected to take several weeks, officials said. *RTV6* [Read more](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group]

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## USA: OIL SPILL COMMISSION: IMPROVEMENTS MADE, BUT...

May 7 - Although the ability of the oil industry to respond effectively to a spill has substantially improved – largely due to lessons learned by the industry and tougher government regulations – the job of ensuring safety is far from finished.

That's the conclusion of the Oil Spill Commission Action (OSCA), an outgrowth of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, which President Obama established in response to the explosion of the Macondo well in the Gulf of Mexico on April 20, 2010.

From the report - "The Department of the Interior (DOI) agencies responsible for offshore drilling continues to implement many of the Commission's recommendations, albeit at a slower rate than the department demonstrated during the first year after the spill. The Bureau of Safety and Environmental Enforcement (BSEE) did finalize one of the interim rules issued during this first period of activity. Although BSEE had planned to issue three new proposed rules during 2012, only the revision to the safety and environmental management rule has been released.

"On the positive side, they are improving the quality of their offshore safety inspections and increased the number of inspections in the Gulf by about 15 percent. The Bureau also assigned a full-time inspector to monitor the Shell drilling rig in the Arctic.

"The Bureau of Ocean Energy Management, the other half of the DOI offshore management program, has improved the quality of the environmental impact statements it conducts before opening new areas to release, but has not formally incorporated these procedures into its National Environmental Policy Act procedures. *ISHN* [Read the complete text of this article](#) [Thanks to Marc K. Shaye, Hon.FISCO, Member of the ISCO Executive Committee]

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## USA: BLM RELEASES PLAN TO ADDRESS ABANDONED ARCTIC OIL WELLS

May 8 - The U.S. Bureau of Land Management released a plan Wednesday identifying 50 abandoned wells in the Alaska arctic that it believes require clean-up by the agency.

The draft plan prioritizes the remediation of the first 16 of those sites in the National Petroleum Reserve-Alaska, at least one of which is near a well-traveled winter road and has a gas leak that the agency says could pose a threat to public health and safety. The plan anticipates surface work to begin as early as this year, with clean-up of drums submerged in oil seeps and other debris around several sites.

BLM-Alaska spokeswoman Erin Curtis said the well work could begin next year and span three years, assuming the necessary funding is secured and everything else goes according to plan. The near-term focus will be on the Barrow area. *Anchorage Daily News* [Read more](#)

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## USA: BSEE, NOBLE ENERGY AND HELIX WELL CONTAINMENT GROUP SUCCESSFULLY COMPLETE DEEPWATER WELL CONTAINMENT EXERCISE



May 8 - The Department of the Interior's Bureau of Safety and Environmental Enforcement (BSEE), Noble Energy, Inc. and the Helix Well Containment Group (HWCG) announced the successful completion of a full-scale deployment of critical well control equipment to assess Noble Energy's ability to respond to a potential subsea blowout in the deepwater Gulf of Mexico. BSEE Director James Watson confirmed that the HWCG capping stack deployed for the exercise met the pressurization requirements of the drill scenario, marking successful completion of the exercise.

The unannounced deployment drill, undertaken at the direction of BSEE, began April 30 to test the HWCG capping stack system – a 20-foot tall, 146,000-pound piece of equipment similar to the one that stopped the flow of oil from the Macondo well following the Deepwater Horizon explosion and oil spill in 2010.

During this exercise, the capping stack was deployed in more than 5,000 feet of water in the Gulf of Mexico. Once on site, the system was lowered to a simulated well head (a pre-set parking pile) on the ocean floor, connected to the well head, and pressurized to 8,400 pounds per square inch. *The Maritime Executive* [Read more](#)

## USA: OIL SPILL RESPONSE PLAN COVERING 1,600 VESSELS APPROVED FOR PUGET SOUND AND GRAYS HARBOR

May 8 - The Washington Department of Ecology (Ecology) has given its final approval of the Washington State Maritime Cooperative's (WSMC) umbrella oil spill readiness plan that covers more than 1,600 commercial vessels that transit Puget Sound and Grays Harbor.

WSMC's oil spill readiness – or contingency – plan helps ensure that large commercial vessels can mount a rapid, aggressive and well coordinated response if they spill oil in state waters.

The plan identifies the location of different response equipment such as oil containment boom, skimming and towing vessels and vacuum trucks in Puget Sound and Grays Harbor. It also identifies how the equipment will be mobilized by private response entities during a spill to minimize harm to important environmental, cultural and economic resources.

WSMC's plan enrolls nearly all large cargo and passenger ships, commercial fish-processing vessels as well as some oil tankers and fuel barges that make transits in the shared waters of Puget Sound – including the Strait of Juan de Fuca and Haro and Rosario Straits – and Grays Harbor. KBKW [Read more](#)

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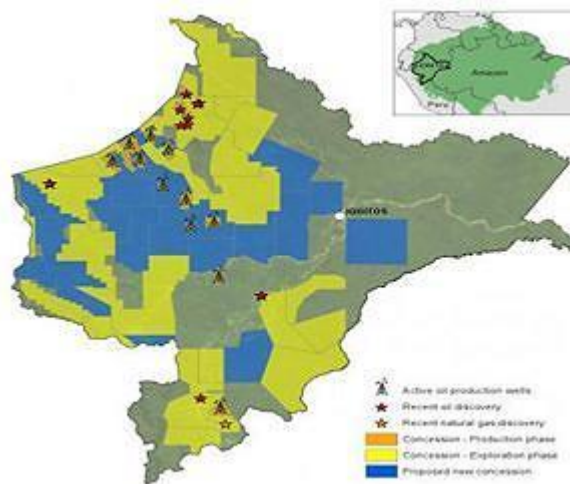
## PERU: POTENTIAL OF BEST PRACTICE TO REDUCE IMPACTS FROM OIL AND GAS PROJECTS IN THE AMAZON

Map on right: This is a simplified map created from the data in the paper that is appropriate for wide audience. Credit: Matt Finer, Clinton Jenkins, and Bill Powers. For a larger version of this image please go [here](#).

May 3 - Hydrocarbon exploration and production continues to press into the most remote corners of the western Amazon, one of the most biologically and culturally diverse zones on Earth.

A new best practice framework that combines technical engineering criteria with ecological and social concerns could reduce the negative environmental impacts of such development, according to research published May 1 in the open access journal PLOS ONE by Matt Finer from the Center for International Environmental Law and colleagues from other institutions.

The study focused on Loreto, a region in northern Peru that recently made headlines when the Peruvian government declared an environmental state of emergency following years of extensive oil contamination in parts of the area. *Oil Gas Daily* [Read more](#)



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## USA: HEALTH DEFECTS FOUND IN FISH EXPOSED TO DEEPWATER HORIZON OIL SPILL



Picture on left: Gulf killifish embryos exposed to sediments from oiled locations show developmental abnormalities, including heart defects, delayed hatching and reduced hatching success. Image courtesy Benjamin Dubansk

Crude oil toxicity continued to sicken a sentinel Gulf Coast fish species for at least more than a year after the Deepwater Horizon oil spill in the Gulf of Mexico, according to new findings from a research team that includes a University of California, Davis, scientist.

With researchers from Louisiana and South Carolina, the scientists found that Gulf killifish embryos exposed to sediments from oiled locations in 2010 and 2011 show developmental abnormalities, including heart defects, delayed hatching and reduced hatching success.

The findings, posted online in advance of publication in the journal *Environmental Science and Technology*, are part of an ongoing collaborative effort to track the impacts of the Deepwater Horizon oil spill on Gulf killifish populations in areas of Louisiana that received heavy amounts of oil. *TerraDaily* [Read more](#)

## CANADA: CHEMICAL SOUP USED IN FRACKING INCLUDES HYDROCHLORIC ACID, ANTIFREEZE



Photo: A worker checks water and temperature levels in a series of tanks at an Encana hydraulic fracturing operation at a gas drilling site in Colorado on March 29, 2013. Photograph by: Brennan Linsley, AP

May 3 - Toxic chemicals such as hydrochloric acid and ethylene glycol (antifreeze) are among those pumped underground to help release natural gas through hydraulic fracturing, according to a database operated by the B.C. Oil and Gas Commission.

Environment Canada wants gas companies to fully disclose what fluids they inject deep underground during fracking, a process that fractures shale rock with tonnes of sand, water and chemicals injected at high pressure to get the gas out.

Disclosure is voluntary and the database

FracFocus.ca reveals some of the fluids used. However, it doesn't list quantities, and types of chemicals vary from site to site.

In correspondence obtained by the Vancouver Sun, Environment Canada's top official told the Canadian Association of Petroleum Producers -- the main Canadian oil and gas lobby group -- that the government needs more information about the fracking process. *The Vancouver Sun* [Read more](#) [Thanks to Don Johnston of ISCO Industry Partner, DG & Hazmat Group]

## USA: RADIOACTIVE FRACKING DEBRIS TRIGGERS WORRIES AT DUMP SITES

May 11 - When a garbage truck from a shale gas well set off radiation detectors at a South Huntingdon landfill on April 19, it drew attention from township officials.

But they aren't the only ones watching what's become a growing issue all over Pennsylvania. The number of garbage trucks setting off radiation monitors had a fivefold increase between 2009 and 2012, drawing renewed attention from state officials who hadn't believed radiation would be a big problem from the state's drilling industry. *TribLive Business* [Read more](#)

## People in the news

### NEW PRESIDENT BEING APPOINTED AT THE ENERGY INSTITUTE



The tenth Annual General Meeting (AGM) of the EI will be held on Monday 10 June 2013 at 16.30 in London. At this meeting, Joan MacNaughton CB HonFEI will be stepping down as EI President, whereupon Ian Marchant FEI, Chief Executive, Scottish and Southern Energy, will take up the role for the period 2013-15.

*Energy Institute News* [Read more](#)

### BJORN ROSS JOINS OSRL TO LEAD ICS TRAINING



Bjorn Ross has joined Oil Spill Response Ltd. to lead ICS training for the company. He holds a Master's degree with Distinction in Disaster Mitigation & Reconstruction from the University of Salford; holds the On-scene Commander's Diploma from US Air University; is certified to NFPA standards as Fire Officer, Fire Instructor, Fire Inspector and to Hazardous Materials Operations by US Department of Defence (DoD) and the International Fire Service Accreditation Congress (IFSAC), and is a full member (MIFireE) of the Institution of Fire Engineers (IFE). Bjorn started his professional emergency response career back in 1985 as a full time fire fighter/EMT and has seven years of senior management experience applying ICS during responses as Assistant Chief Fire Officer working for US Air Force Space Command where he responded to

domestic and airfield fire incidents, hazardous materials incidents, search & rescue operations and was responsible for all training related matters within the fire services including the emergency operations centre (EOC). <http://www.oilspillresponse.com/>

## **IMO OPRC-HNS TECHNICAL GROUP MEETING HELD LAST WEEK**

The ISCO Delegation to the TG15 meeting consisted in David Usher Hon.FISCO, President of ISCO, John McMurtrie MA FEI Hon.FISCO, ISCO Secretary and Dr Douglas Cormack Hon.FISCO.

The meeting was opened by Mr Dandu Pughiuc, Senior Deputy Director, Marine Environment Division and chaired by Mr Alexander von Buxhoeveden of Sweden. Delegations from 22 nations and representatives from EC, IOPC Funds, IMarEST, Intertanko, OGP, IPIECA, ISCO, ITOPF, OCIMF, WNTI and RAC/REMPEITC-CARIB attended the meeting.

Matters worked upon by the group included the IMO Dispersant Guidelines, Oil Spill Response in ice and snow conditions, Guidelines on international offers of assistance, Guidance on safe operation of oil spill combatting equipment, Review and updating of the OPRC Model training courses, Collation of data on incidents involving HNS, including lessons learnt, and a review of web content and inventory of information on oil and HNS preparedness and response. The Group also worked on the assessment of High Priority Items for future work relating to Contingency Planning for HNS incidents and for offshore units, sea ports and oil handling facilities.

Delegations gave short presentations / information on a number of matters of interest - Chemical Response Guides developed by CEDRE (France); "Understanding Chemical Pollution at Sea" – A new website (Canada and France); Report of the Industry Technical Advisory Committee (IPIECA); Knowledge-based response planning for marine incidents (ISCO); The POSOW Project, including the 4 recently published manuals (REMPEC); The Oil Spill Response Planning and Readiness Assessment Manual and Tool, currently under revision (ARPEL); Information on the M/T Stolt Valor incident and its implications in regard to places of refuge for ships in need of assistance (ROPME/MEMAC); Report on the activities of the International Technical Co-operation Programme (IMO Secretariat).

An election took place to appoint the new TG Chairman and Vice-Chairman. Vice-Chairman, Mr Woo-Rack Suh (Republic of Korea) was elected as the new Chairman and Mr Christophe Rousseau (France) as Vice-Chairman.

The Meeting expressed its appreciation to the outgoing Chairman, Mr Alexander von Buxhoeveden for his leadership of the Technical Group throughout his tenure.

Other matters of note – The meeting learned that Ms Patricia Charlebois of the IMO Secretariat, who has worked so hard for many years in organising the work of the TG will be moving on to another position within the organisation. However, her successor will be in need of her help for some time and it is hoped that we will see her again at TG16. The meeting expressed its appreciation for her very substantial contribution to the success of the group. We also learned that Mr Robert Pond, Senior Member of the US Delegation will be retiring. Bob Pond has been a very significant contributor to the work of the TG and will be very much missed. Everyone wished him well in the future.

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## **ISCO AT ADRIASPILLCON 2013 IN CROATIA (14-16 MAY, AT OPATIJA)**

We very much regret that it was not possible for the ISCO Secretariat to have a presence at this event but ISCO's Member of Council for Croatia, Mr Darko Domovic MSc will be present and attendees who are interested in finding out more about ISCO or applying for membership should make a point of making contact with him.

Darko is Technical Advisor to the Oil Spill Education Centre in Croatia and has been very much involved in the organisation of Adriaspillcon. ISCO sends its best wishes for the success of the event and very much hopes to have a presence next time.

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## **CONTRIBUTIONS TO THE ISCO NEWSLETTER**

It's your Newsletter and we very much appreciate receiving your contributions. When scanning the internet for news and articles that will be of interest to our members it is particularly difficult to find English language items for publication from non-English-speaking countries and this creates a geographical imbalance in the content of the Newsletter. You can help correct this by sending in news from your part of the world.

We also very much appreciate receiving feedback on the quality and content of the Newsletter. Your suggestions on ways that the Newsletter might be improved are always welcomed.

You can contact the Editor by sending an email to [john.mcmurtrie@spillcontrol.org](mailto:john.mcmurtrie@spillcontrol.org)

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## **CHINESE LANGUAGE ISCO NEWSLETTER**

Thanks to much hard work by the team of Mr Li Guobin, Member of the ISCO Executive Committee, issues of the ISCO Newsletter and sections of the ISCO website are available in Chinese language. You can access this by visiting <http://www.spillcontrol.org.cn>



In this issue of the ISCO Newsletter we are printing No. 126 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 126: KNOWLEDGE AND COUNTER-BELIEF

Articles 121-125 showed why all beliefs counter to knowledge should be ignored unless reality-validated as hypotheses by their believers. However, before presenting my knowledge-based response plans, I now recall the *Sea Empress Incident* of 1996 (articles 103-106) to show how beliefs counter to knowledge not only prevent quick and cost-effective restoration of environments to their pre-incident states, but also make post-incident states very much worse than they need be, though still well short of species-extinction/ecological-disaster, seaborne cargoes being incapable of these extremes regardless of the response inefficiencies imposed by belief. However, in selecting this incident to illustrate these inefficiencies, I do not exaggerate to make my point. The officially reported response differs in no significant way from any other, all having been based largely on beliefs counter to knowledge.

As to damaged tanks, we know that some cargo can be released on grounding until the denser seawater enters to create a water-bottom on which the remaining tank contents float and are thus retained by pressure equilibrium; that IMO tank-construction rules are designed to ensure such releases are  $\leq 5000$  tonnes; that initial release estimates for the *Sea Empress* grounding in the mouth of Milford Haven were 2000-3000 tonnes, later raised to 5000 tonnes; that the ship re-floated on the incoming tide and was then anchored; that such a floating ship could have proceeded or been towed to its intended discharge berth within the Haven without any further significant release; but that this was not permitted. Instead, we know that she repeatedly grounded and re-floated in successive tides until a further 68,000 tonnes were released before she was berthed for discharge of the then remaining 58,000 tonnes; and that she was then towed to Belfast for dry-docking and repair. Thus, we can only conclude that a knowledge-based response plan would have berthed the ship and fully discharged it but for the initial damage-related release of 2000-5000 tonnes; and that the only barrier to this option was the species-extinction/ ecological-disaster which belief expects and reality fails to deliver regardless of the quantity released.

However, the task of restoring the environment to its pre-incident state does depend on the quantity released, though it may be reduced by evaporation, dispersion or solution of the released substance. Thus, for each released oil we know that we can estimate the rate and the extent of its evaporative component loss from its known distillation profile; that we can estimate the rate of natural dispersion of collective non-volatile components from the viscosity related half-life of its emulsion; and that we can estimate the water-content of its emulsion from whether it is a crude or product oil. Thus, we know that we can thus estimate the slick quantity likely to reach shore on wind and tide from any release position (articles 31-46); that neither concentrations nor bio-/oxidative-degradations of these evaporative and dispersive losses cause species-extinction/ecological-disaster; but that believers in such extinction/ disaster, choose to ignore all such mass balancing and the biological carbon cycle itself, these being unsupportive of their bans/limitations on safe haven use, dispersant use, and water-decanting.

As to the *Sea Empress Incident*, we know that the prohibition of dispersant-use within one mile of the shore was seriously restrictive within the Haven and along the coasts external to it under onshore winds; and that consequently very little dispersant was actually used despite oil coming ashore almost immediately after the 15<sup>th</sup> February grounding and despite the total release being 72,000 tonnes. Indeed, we know from the official report that only trial applications of 2 tonnes of dispersant were permitted on the 16<sup>th</sup> and 17<sup>th</sup> February, despite the Forties oil viscosity of 9.6 cSt at 10C<sup>o</sup> making trials unnecessary; that subsequently only 29 tonnes were applied on the 18<sup>th</sup>, 110 tonnes on the 19<sup>th</sup>, 57 tonnes on the 20<sup>th</sup>, 179 tonnes on the 21<sup>st</sup>, 66 tonnes on the 22<sup>nd</sup> and none thereafter, despite the presence of seven DC aircraft capable of delivering 28 tonnes of dispersant per sortie for a designed oil-treatment rate of 10,000 tonnes of oil per day, and despite the part-time presence of a C-130 capable of delivering an additional 12 tonnes per sortie.

However, we also know that the spraying capacity of the seven DC3 aircraft at this incident matched its average daily release of ~10,000 tonnes and could thus have been expected to prevent the reported stranding of 3000-5000 tonnes, had dispersant-use been permitted into the surf-line, though by far the greater part evaporated/dispersed naturally. Thus, with evaporative loss accounting for 24,000 tonnes, dispersant spraying for about 5000-6,000 tonnes and waterborne mechanical recovery for about 2,000 tonnes, it follows from the mass balance that natural dispersion accounted for some 37,000 -39,000 tonnes consistent with its estimated half-life and separate time lapses to stranding of differing amounts under differing prevalence of onshore/offshore winds (articles 31-46 and 103-106); and that the biological carbon cycle thus dealt with these releases, except for the sea and shore recoveries, though as we shall see, even these were mostly dealt with by bioremediation.

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.



## RESPONSE TO INLAND OIL SPILLS – PART 20



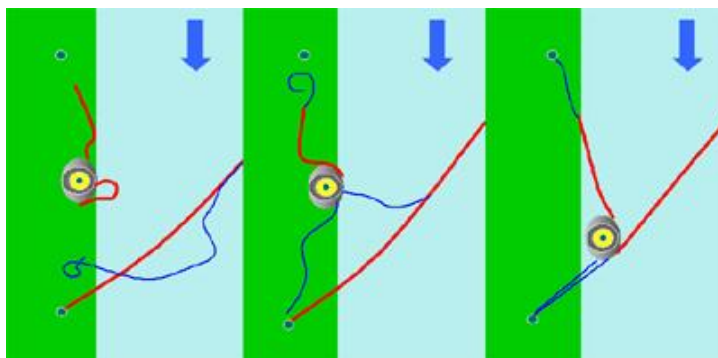
A short series of articles contributed by Mark Francis of Oil Spill Solutions.

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>

### Rivers (continued) Recovery of oil in faster currents



This device, known as Capt Blombergs Hydrodynamic Circus<sup>®</sup> is now a River Circus<sup>®</sup>.



It uses a small opening which then opens into a wide collection area with a skimmer is fitted in the middle.

The oil flows through the gap at speed when it gets into the wide area it slows down giving the skimmer time to work.



A simple system to deploy but requires a depth of approx. 0.5m next to the bank. This is the Mini Fastflo<sup>®</sup> which works on the same principle as the Circus oil enters through a restriction which then widens allowing the flow to reduce in speed and enter the skimmer section at the back.



As can be seen it will work in very shallow rivers or streams and is simple to deploy.



The Boom Vane is a device for boom deployment in rivers and other waterways. This powerful yet light response tool allows for rapid deployment of small boom in fast waters, without the use of boats, anchors or fixed installations.

#### In-situ burning

Burning is being considered with growing interest as a response tool for wetlands as a viable strategy in various countries.

*Photo left is the result of a burst pipeline in a peat bog in Minnesota, USA.*

Burning of wetland grasses has been conducting prescribed burns of wetlands to rejuvenate wetlands that have accumulated high litter loads, to generate green vegetation or open spaces to attract wildlife for many years, to restore habitats in areas that are historically dependent on frequent wildfires to sustain these ecosystems.

## Special feature - Inland spills (continued)

Burning of oiled wetlands is relatively new and will not be allowed in many countries.

The presence of oil in a wetland may have two important effects: the high BTU of the oil may increase the temperature and heat penetration of the burn, and oil residue may remain after the burn.

Deciding how to respond to an oiled wetland is a complex issue for which there can be no single answer.

It must be determined if any clean-up is necessary or desirable a consultation with a biologist, botanist, or ecologist would be extremely helpful in accessing options.

Clean-up in a wetland appears to be justified when oil can be removed with minimum impact, when other natural resources (such as migrating birds) are at high risk of being oiled, or when unassisted recovery is likely to be very slow.

*Photo right was taken during the Komi, FSU spill in 1996. This was done to minimise spreading of the oil into the Kolda River which flows into the Arctic Ocean. There were also no waste disposal routes in this remote location.*



Natural recovery may be the best option to follow when:

- Oiling is light and natural recovery is likely to occur in an acceptably short time frame
- Clean-up activities would be detrimental to the wetland
- Wildlife is at low risk of being oiled.

In-situ burning as a spill response method may provide a means to remove the oil from the impacted area without resorting to mechanical clean-up methods, which may be destructive or impossible to carry out.

### Advantages

- Minimises physical damage: Where access is limited or mechanical/manual removal has the potential to cause unacceptable levels of impact by equipment mobilisation and trampling, burning can rapidly remove oil from sensitive areas.
- Provides an option when other options fail or where oil residues will be unacceptably high with other options, including natural recovery.
- Removes oil quickly from the habitat when there is a time-critical element, such as a short-term change in the physical conditions which will likely cause loss of containment and further spreading (e.g., rain or flooding), or a seasonal increase in wildlife use, such as arrival of large numbers of migratory waterfowl.

### Disadvantages

- Burning can cause substantial initial plant damage because the above ground/water vegetation is removed.
- Burning can cause long-term impacts to vegetation, when the fire is so hot or the water is too low, that the below-ground plant parts are killed.
- There is a potential for burning to increase oil penetration into the substrate when there is no standing water.
- Any animals present and unable to escape will be killed.
- Heavy fuel oils, when burned, may produce residues that are difficult to remove.

[Text taken from [RRT6 ISB Guidelines 1996](#)]

## IN SITU BURNING: CHAPTER 18



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 18th 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.

### 18. Tests on Burning Heavy Oils

**Figure 19** (below) Orimulsion burning. The streaks of light are exploding water droplets. The Orimulsion was 'weathered' for 16 hours and the water largely settled out except for some water droplets. Orimulsion in this state burns very noisily as the water droplets explode.



The burning of heavy oils was studied by Environment Canada over a period of 5 years from 2000 to 2005.<sup>1,41</sup> Tests began with laboratory burns using a Cleveland fire point apparatus. Dozens of tests were carried out. These tests were confirmed by using small burn pans (order of tens of cm.) in a fire-resistant fume hood. These tests established the parameters for burning a variety of heavy oils and emulsified fuels such as Orimulsion. Orimulsion is a surfactant-stabilized oil-in-water emulsion of 70% bitumen in 30% water.

Questions have long arisen over countermeasures to Orimulsion spills. In-situ burning had not been considered in the past largely because of the nature of Orimulsion and because the perception that the product could not be ignited. Even if it could be ignited, it was felt that combustion may not be sustained. The laboratory tests showed that a wide variety of heavy oils and Orimulsion would be quantitatively burned.

The laboratory tests were followed up by outdoor tests using a variety of burn pans. Four types of heavy oils, two types of Bunker C, Orimulsion, waste oil and weathered Bitumen were burned in-situ. Burning tests were conducted on two scales of approximately 1 m and 1.5 m square. Earlier tests using a 0.5 m pan, showed that this small scale was not useful. Burning was conducted outdoors in winter weather conditions. All tests were conducted on salt water which result in the separation of the bitumen from the water in the Orimulsion.

The heavy oils were ignited using a small amount of diesel fuel and a small piece of paper as wick. In all cases except for the waste oil, quantitative removal of the fuels was achieved, however in the case of Orimulsion, re-ignition may be required.

## Special feature – In situ burning (continued)

It was found that the maximum efficiency was about 70%, however the residue was largely asphaltenes and resins. Once cooled this residue could be shattered like glass and readily removed as a solid. It is believed that these tests show that many heavy oils could be burned in similar manner. The behavior of the burns depended very much on the type of oil burned. Bunker C burns quantitatively and with only one ignition. Orimulsion may require re-ignitions to ensure a good removal. Sometimes excessive water vapour can extinguish an Orimulsion fire prematurely. Examples of test burn data are shown in Table 6.

**Table 6 Example data on heavy oil burns**

Burn Number	Oil Type	Starting Oil Viscosity* mPa.s	Outside Temp. °C	Initial Oil Thickness mm	Final Oil Thickness mm	Efficiency %	Burn Time minutes	Burn Rate mm/min	Flame Height m	Peak Height m	Igniter Ratio g/g oil
1	Bunker	15,330	-6	36.7	12.9	64.8	20.19	1.2	1.5	2	0.001
2	Bunker	15,330	-6	36.6	13.3	63.8	22.28	1	1	1.5	0.003
3	waste oil	16,273	-8	20.2	0	2	did not burn quantitatively				0.025
4	waste oil	16,273	-8	74	0	2	did not burn quantitatively				0.01
5	Orimulsion	255	-1	26.6	9.1	65.6	10.11	1.7	3	8	0.012
6	Orimulsion	255	-1	32.2	12.5	61.3	8.66	2.3	1.5	4	0.019
7	Bunker	15,330	1	34.2	11.7	65.9	20.9	1.1	3	4	0.002
8	Bunker	15,330	1	51.3	15.4	70	36.13	1	1.5	3	0.002
9	Bitumen	4,038,333	-6	37.8	33.2	12.3	4.82	1	1.5	2	0.057
10	Bitumen	4,038,333	-6	31.2	27.2	12.9	4.22	0.9	1	1.5	0.075
						<b>Overall</b>	<b>55</b>	<b>average</b>	<b>1.5</b>		

\* all oil was weathered outside for 16 hours

Several findings resulted from these tests:

1. Ignition is best accomplished by adding a few mL (20 to 100) diesel fuel to the oil a few seconds before applying an ignition flame. This is required to start a small portion of the heavy oil. Once started, the flame will spread to adjacent areas.
2. The residue of heavy oil burns is largely resins and asphaltenes. Burning proceeds only to the point that the burn layer can produce sufficient vapors at about a temperature of 500 °C, the remainders are high-boiling-temperature residuals such as resins and asphaltenes. The residue ranged in test burns from a tarry mat to a glass-like layer.
3. Orimulsion with its water content showed a different burn behaviour. The water content caused small mini-explosions and flashing. This could sometimes prematurely extinguish the flame.
4. The burn rate of heavy oils and emulsified fuels is lower than that of crudes, and ranges from 1 to 2 mm/min.
5. Other burn parameters such as flame height and flame spreading rate were similar to that of crude.

### 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
- 41 Fingas, M.F., Z. Wang, B. Fieldhouse, C.E. Brown, C. Yang, M. Landriault and D. Cooper, *In-situ Burning of Heavy Oils and Orimulsion: Analysis of Soot and Residue*, AMOP,333, 2005

**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	March 2013 issue
<a href="#">The Essential Hazmat News</a>	Alliance of Hazardous Materials Professionals	March 4 issue
<a href="#">USA EPA Tech Direct</a>	Remediation of contaminated soil and groundwater	May 1 issue
<a href="#">Intertanko Weekly News</a>	International news for the oil tanker community	No 19, 2013
<a href="#">CROIERG Enews</a>	Canberra & Regions Oil Industry Emergency Response Group	May 2013 issue
<a href="#">Soil &amp; Groundwater Product Alert</a>	From Environmental Expert	May 6 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	May 9 issue
<a href="#">Soil &amp; Groundwater Events</a>	Upcoming events compiled by Environmental Expert	April 2013 issue
<a href="#">Technology Innovation News Survey</a>	From US EPA - Contaminated site decontamination	March 1-31 issue
<a href="#">IMO Publishing News</a>	New and forthcoming IMO publications	April 2013 issue
<a href="#">Pollution Online Newsletter</a>	News for prevention & control professionals	May 8 issue
<a href="#">EMSA Newsletter</a>	News from the European Maritime Safety Agency	May 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

### CROATIA: 2<sup>ND</sup> ADRIATIC SPILL CONFERENCE - FINAL ANNOUNCEMENT



We would like to remind you that only two weeks separate us from the opening of the 2<sup>nd</sup> Adriatic Spill Conference, which is taking place in Opatija, Croatia between 14 and 16 May 2013. The Conference is being organized under the auspices of the Ministry of Maritime Affairs, Transport and Infrastructure, Republic of Croatia, by Oil Spill Education Centre (OSEC).

The programme, the list of exhibitors and other relevant information, including the registration form, are available on the Conference website <http://www.adriaspillcon.com/2013/>.

### UK: 7<sup>TH</sup> ANNUAL ENVIRONMENTAL & CLEAN TECHNOLOGY CONFERENCE

Thursday 6<sup>th</sup> June 2013 at Radisson BLU, Edinburgh

Whether you are a SME in the environmental sector or a business in need of environmental solutions, the 7th Annual ECT Conference brings together the cream of Scottish innovators and facilitators, creating market and collaborative opportunities.

[More info](#)

### UK: HUMAN FACTORS APPLICATION IN MAJOR HAZARD INDUSTRIES CONFERENCE

Tuesday 26 and Wednesday 27 November 2013, Leeds, UK

This biennial 2-day conference explores the practical application of human factors in the management of major accident hazards (MAH) in the energy and allied process industries. The event will include special sessions on learning from incidents, supported by the Stichting Tripod Foundation, providing delegates with the opportunity to explore the use and development of Tripod and related methods for understanding and learning from incidents.

This conference is organised by the Energy Institute Human and Organisational Factors Committee and the Stichting Tripod Foundation. DEADLINE FOR ABSTRACT SUBMISSION: Monday 3 June 2013 [More info](#)

## Training

### AUSTRALIA: NATIONAL PROGRAM OF TRAINING IN CLASSIFICATION AND LABELLING OF WORKPLACE CHEMICALS TO THE GHS

SAFE WORK AUSTRALIA is hosting a series of training and information sessions to raise awareness and understanding of the hazard classification, safety data sheet and labelling requirements for workplace chemicals in the model Work Health and Safety regulations, which incorporates the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The aim of these sessions is to enable you to:

- understand the GHS and what it aims to do
- to learn the relationship with the GHS and hazard systems that have been used in Australia for nearly 20 years, and
- learn how to translate current chemical hazard classifications to the GHS.

Training sessions are free of charge for participants and are being held in most capital cities and in some regional centres as follows:

Darwin 15 May 2013 + Canberra 28 May 2013 + Melbourne 18 June 2013 + Geelong 19 June 2013 + Adelaide 2 July 2013

Perth 4 July 2013 + Brisbane 10 July 2013 + Townsville 11 July 2013 + Newcastle 16 July 2013 + Sydney 17 July 2013

[Contacts for more information](#) or call Caroline Reid (02) 6240 6960 | Mobile 0419586624

## Company news

### INDIA: ISCO CORPORATE MEMBER, VIRAJ CLEAN SEA ENTERPRISES GAINS ISO 9001

Viraj Clean Sea enterprises Pvt Ltd has been awarded ISO 9001: 2008 for oil and chemical spill response activities. [More info](#)

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