



ISCO NEWSLETTER

The Newsletter of the International Spill Response Community
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WOW II WRECKS OF THE WORLD II

*Evaluating & Addressing Potential Underwater Threats
Washington DC – June 6-7, 2011*

News

ARCTIC NATIONS STEP UP CO-OPERATION ON SAFETY, OIL SPILLS

May 13 - Arctic nations agreed on Thursday to improve cooperation including on preventing oil spills as a thaw of ice and snow opens access to the remote region's rich mineral and petroleum resources.

The Arctic Council, comprising eight countries that surround the Arctic and representatives of indigenous Arctic peoples, signed a deal to split up search-and-rescue responsibilities as far as the North Pole in case of shipwrecks or plane crashes.

Officials said the pact, the first binding accord since the council was set up in 1996, could be a model for future deals on more contentious issues, including energy exploration in a region estimated to hold as much as 25 percent of the world's undiscovered oil and gas reserves.

"Arctic countries need enhanced cooperation on many future challenges in the Arctic, not least prevention, preparedness and response to oil spills," Swedish Foreign Minister Carl Bildt said after the one-day meeting in Nuuk, Greenland.

Among oil majors eyeing the Arctic are Royal Dutch Shell Plc, ConocoPhillips, Exxon, Norway's Statoil and Russia's state-controlled oil group Rosneft.

Environmental groups say Arctic nations should act faster to set up vital safeguards, ranging from shipping to fish stocks, as global warming causes a thaw that is threatening indigenous peoples' livelihoods and creatures such as polar bears.

"The lack of forceful action on oil spill prevention and integrated conservation planning is disheartening," said Lisa Speer, of the National Resources Defense Council in New York. [Read more](#)

PREVENTING AND PREPARING TO RESPOND TO MARINE POLLUTION IN THE MEDITERRANEAN

The 10th Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) Focal Points meeting was held in Malta earlier this week. This meeting analysed the activities implemented by the since the previous meeting held last year.

REMPEC, which has been based in Malta since 1976, is a central component in the Mediterranean regional effort to counter marine pollution. Its roots lie in the establishment of the Mediterranean Action Plan (MAP) in 1975, following the creation of the United Nations Environment Programme (UNEP) Regional Seas Programme, and it is administered by the International Maritime Organisation (IMO).

Ahead of the meeting, as the Maltese government was preparing to start marketing new licences for oil exploration in Maltese waters, REMPEC's director Frédéric Hebert has warned that the Mediterranean region lacks a unified policy on dealing with a major deep-water oil spill.

The Malta Independent on Sunday spoke with the REMPEC's MAP coordinator Maria Luisa Silva Mejias who was in Malta for the event.

Spanish born, Ms Silva Mejias was appointed MAP Coordinator last February. She had joined the United Nations Environment Programme Mediterranean Action Plan (MAP) Coordinating Unit in 2009 as Officer in Charge and Deputy Coordinator. The MAP's main objective is to support the implementation of the Barcelona Convention and its seven Protocols adopted by the Mediterranean countries to protect the marine and coastal environment and to promote sustainable development in the Mediterranean region.

[Read more](#)

USA: GULF ECOSYSTEM RESTORATION TASK FORCE CREATES CITIZENS' ADVISORY COMMITTEE, RELEASES RESTORATION PRIORITIES

May 9 - U.S. Environmental Protection Agency Administrator Lisa P. Jackson convened an official meeting of the Gulf Coast Ecosystem Restoration Task Force today in Mobile, Alabama. During the meeting, the task force created a citizens' advisory committee to help guide the group's efforts and released a strategy background document outlining the priorities of the ongoing gulf restoration. The meeting in Alabama furthered the task force's ongoing commitment to supporting the conservation and restoration of resilient and healthy ecosystems in the Gulf of Mexico.

Jackson proposed to establish and support a 25-member Gulf of Mexico Citizen Advisory Committee during the meeting, acknowledging the need to ensure residents and local organizations have a formal process to offer input and guidance on the work of the task force and to voice environmental concerns. The newly formed committee will hold its first official meeting later this summer.

"Since President Obama first formed this task force, our focus has been on collecting the ideas and input of gulf residents," EPA Administrator Lisa P. Jackson said. "We've made clear that restoration plans should come from the gulf to Washington, and we're counting on the people who know these areas best to shape our work through public meetings like this one, through the Citizens' Advisory Committee and other efforts." [Read more](#)

USA: SHRINKING OIL SUPPLIES PUT ALASKAN PIPELINE AT RISK

May 11 - When the famed Trans Alaska Pipeline carried two million barrels of oil a day, the naturally warm crude surged 800 miles to the Port of Valdez in three days and arrived at a temperature of about 100 degrees.

Now, dwindling oil production along Alaska's northern edge means the pipeline carries less than one-third the volume it once did—and the crude takes five times as long to get to its destination.

That leisurely flow means the oil is above ground longer and more exposed to Alaska's frigid weather; the crude sometimes arrives chilled to 40 degrees. [Read more](#) [Subscription required]

UK STAGES OIL SPILL RESPONSE TRIALS

May 11 - Britain's capabilities in responding to a deepwater oil spill will be tested next week by Exercise Sula, to be staged over two days in Aberdeen and in Shetland, northern Scotland.

Sula will simulate how various groups would react to a major offshore incident. The exercise is designed to test subsea well control response capability, command and control functions, and the counter-pollution response used to control an ongoing oil spill.

The Maritime and Coastguard Agency (MCA) and Department of Energy and Climate Change (DECC) are leading the trials.

Other participants are Chevron Upstream Europe, Oil Spill Response, Stena Offshore, Briggs Environmental, Braemar Howells, BP (Sullom Voe terminal), Shetland Islands Council, Marine Scotland, Hess, Joint Nature Conservation Committee, Northern Constabulary, Scottish Natural Heritage, Foods Standards Agency, Scottish Fisheries Association, Oil & Gas UK, and the Scottish Environment Protection Agency.

Murray Milligan, exercise director, said: "Exercise Sula will test the participants' response to an unfolding scenario involving the uncontrolled release of hydrocarbons into the sea from a deep water well operated by Chevron Upstream Europe at the Cambo well site, 86 mi west of Shetland.

"This exercise will give the UK an opportunity to assess its response capability to a release from a wellhead 1,000 m [3,281 ft] below the surface. Before the exercise scenario involves the weather and tides forcing the oil to land onshore, we'll also have the opportunity to test a shoreline response in Shetland." [Read more](#)

FRANCE: MPS VOTE FOR SHALE GAS FRACKING BAN

May 12 - MPs have voted to ban the shale gas mining process of hydraulic fracturing in France.

The proposition was passed by 287 votes to 186, with the Socialist Party and green MPs voting against it because it did not constitute an outright ban of shale gas mining in France.

The latest proposition bans the technique of hydraulic fracturing, also known as fracking, which uses a high-pressure blast of water, sand and chemicals to create a shockwave to break open cracks deep in the earth and shift the gas into collection areas.

Fracking, currently the only technique used to collect shale gas, has come into the spotlight for causing damage to drinking water supplies.

Thousands of protesters have marched against shale gas exploration, voicing fears of the damage that, beyond the danger to the water table, the transport of materials and drilling could cause to local communities.

All firms who currently hold shale gas exploration permits in France will need to produce a report ensuring that their mining technique is not fracking.

If hydraulic fracturing is used, or no report is produced, the drilling permits will be rescinded. The list of companies and their techniques will be made public. [Read more](#)

JAPAN: FUKUSHIMA NUCLEAR ACCIDENT UPDATE LOG

On Friday, 13 May 2011, the IAEA provided the following information on the status of nuclear safety in Japan:

Emergency at Fukushima Daiichi Nuclear Power Plant

Overall, the situation at the Fukushima Daiichi nuclear power plant remains very serious.

The IAEA receives information from various official sources in Japan through the Japanese national competent authority, the Nuclear and Industrial Safety Agency (NISA). This Update Brief is based on information issued by the IAEA Incident and Emergency Centre up to 17:00 UTC on 11 May 2011. [Read the complete update](#)

CANADA: OIL SPILL SHUTS TRANSCANADA'S KEYSTONE LINE

One of Canada's main oil export pipelines has been shut down after 500 barrels spilled from TransCanada Corp.'s Keystone line.

Crude flow has been stopped through the 591,000 barrel-a-day line after a leak was discovered at a North Dakota pump station at 5:30 Saturday morning. James Millar, a spokesman for the company, said it will be "a few days" before the pipe is running again.

"We had an issue with a three-quarter inch fitting the size of a garden hose at one of our pump stations," he said. "When we detected the drop in pressure, we shut the system down."

The Keystone problem is just the latest in a series of pipeline leaks and spills that have come at a delicate time for an industry struggling to gain public and government approval for a series of ambitious new projects. One is the TransCanada Keystone XL pipeline, an expansion of the Keystone system that would deliver oil sands barrels to the Gulf Coast.

Another is the Enbridge Inc. Northern Gateway pipeline, a proposal to bring Canadian crude to Kitimat, on the British Columbia coast. From there, it could be exported to refineries in Asia.

Both projects have stirred controversy among groups who are skeptical of industry claims that it can safely transport large volumes of crude across sensitive watersheds and ecosystems. But a number of high-profile accidents – including a major Enbridge leak into a Michigan river last fall, and a 28,000-barrel spill in northern Alberta 10 days ago – have brought those claims into question.

[Read more](#) [Thanks to Don Johnston of ISCO Associate Member, DG & Hazmat Group, for providing the link to this story]

MALTA CLOSE TO ADOPTING MARINE POLLUTION CONTINGENCY PLAN

Enhancing the prevention and response to marine pollution in the Mediterranean was the running theme at the 10th focal points meeting of the Valletta-based Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea just held in Malta.

Malta is close to adopting a national marine pollution contingency plan as the Valletta-based Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea continues to lay stress on member states to strengthen their capacities to prevent, prepare for and respond to marine pollution.

The centre has just held its 10th focal points meeting in Malta, which, among other things, discussed and endorsed the organisation's work programme for 2012-2013.



Representatives of Mediterranean coastal states, United Nations organisations, NGOs and international professional bodies also analysed developments of offshore exploration and production. This was done in view of the entry into force of the Offshore Protocol to the Barcelona Convention and, according to the meeting organisers, "to avoid the possibility of an incident similar to the Deepwater Horizon spill, which occurred in the Gulf of Mexico in April 2010, from happening in the Mediterranean Sea". [Read more](#)

USA: WASHINGTON STATE REVISES OIL SPILL LAWS ON ONE YEAR ANNIVERSARY OF DEEPWATER HORIZON DISASTER

May 4 - Marking the one year anniversary of the Deepwater Horizon disaster, Washington Governor Christine Gregoire signed a bill on April 20, 2011, significantly increasing penalties for oil spilled within Washington's waters. The legislation, House Bill ("H.B.") 1186,^[1] amends the State's vessel oil spill prevention and response act, which was passed by the Legislature in 1992 following the Exxon Valdez oil spill.^[2] A copy of the bill is available [here](#). Among other changes, H.B. 1186 modifies spill response planning, requires the use of newer response technologies, authorizes training for spill response volunteers, increases spill reporting requirements, and modifies the penalties and damages assessed for Washington oil spills. The legislation builds on the recommendations provided in a recent report jointly issued by the Department of Ecology ("Ecology") and the Puget Sound Partnership's Oil Spill Work Group.^[3] [Read more](#) [Thanks to ISCC Committee Member, Marc Shaye, for forwarding this report]

UK: TORREY CANYON SEABED RETURNS TO NORMAL AFTER OIL SPILL



Paul Rose finds the Torrey Canyon wreck completely overgrown with seaweed

The seabed off the Cornish coast seems to have almost recovered after an oil tanker spill in 1967, writes Paul Rose, expert diver and presenter on BBC programme Britain's Secret Seas.

The Torrey Canyon is the largest shipwreck in British waters, and as she sits a long way from shore amongst the same hazardous rocks that she ran on to, its not the easiest wreck to get to.

On Saturday, 18 March 1967, she ran aground carrying over 119,000 tonnes of crude oil, which gushed out into the pristine Atlantic waters.

She had run into one of the infamous Seven Stones rock pinnacles, which lay 15 nautical miles west from Lands End and seven nautical miles from the Scilly Isles, which make it a hard wreck to reach. [Read more and watch the video](#)

News (continued)

UK: OIL MUNCHING BUGS CLEAN UP QUARRY

A novel project in Guernsey to clean up oil left over from the Torrey Canyon spill disaster in the 1960s is proving successful.

Vast amounts of oil from the tanker which ran into rocks off Cornwall in 1967 was washed up in Guernsey. It was collected and stored in a quarry where it remained untouched until last year - still claiming the lives of seabirds which inadvertently landed in the quarry.

But in May last year a process using micro-organisms to eat the oil was started. So far around two-thirds of the oil floating on the quarry water has gone. Public Services hope it will all be removed later this year. The project is being highlighted in a BBC Two documentary. [View original article](#) [Thanks to Don Johnston of ISCO Associate Member, DG & Hazmat Group for forwarding this item]



People in the news

NEW STAFF MEMBER AT IOPC FUNDS

Ms Katrin Park joined the IOPC Funds Secretariat as External Relations Officer on 8 April 2011.

Before joining the Funds, Ms Park worked for the United Nations Development Programme in New York where she was responsible for corporate communications and information campaigns for the Millennium Development Goals. She began her career in crisis countries, including in Afghanistan and Macedonia, where she worked on transition initiatives for different intergovernmental organisations. She has a Masters degree in International Affairs and Psychology.

<http://www.iopcfund.org/headlines.htm>

Technology

DESERT BEETLE SHOWS RESEARCHERS HOW TO CAPTURE SPILLED OIL UNDERWATER

(*Nanowerk Spotlight*) In the wake of the BP oil spill in the Gulf of Mexico we published a *Nanowerk Spotlight* on [Nanotechnology-based solutions for oil spills](#) that provided a general overview of the wide variety of nanomaterials and nanotechnologies that offer significant promise for oil spill cleanup and recovery. One problem with many existing solutions though is that they are one-offs, i.e. one they absorb oil they can't be re-used and need to be disposed of (which could in turn create secondary pollution effects).

Ideally, any oil absorbent material used during ocean oil spills should be reusable and with special wettability that could controllably capture and release oil pollution repeatedly. Addressing this issue, researchers have now created an underwater water/solid interface inspired by fish scales. The surface of this new material shows superamphiphobicity in air and superoleophilicity under water, allowing it to be repeatedly used to capture and collect oil droplets in water.

Reporting their findings in the May 2, 2011 online edition of *Advanced Materials* ("[Underwater Oil Capture by a Three-Dimensional Network Architected Organosilane Surface](#)"), a research team from Dalian Maritime University and the Beijing National Laboratory for Molecular Sciences, have developed a novel organosilane surface which mimics the 'desert beetle effect' (this beetle relies on its bumpy back, consisting of alternating wax-coated hydrophobic regions and non-waxy hydrophilic regions, to capture drinking water from fog-laden wind) underwater and could repeatedly capture and collect oil droplets in water.

"We synthesized the organosilane surfaces by a simple phase separation reaction and grafted to glass substrates," Meihua Jin, a researcher at the Department of Materials Science and Engineering at Dalian Maritime University, and first author of the paper, explains to Nanowerk. "Hydrolysis of the Si-Cl organosilane monomer yielded Si-OH and polycondensation formed highly cross-linked 3D networks." [Read more](#)

AGENCIES HOPE ROBOT CAN SPEED TOXICS EVALUATIONS, END ANIMAL TESTING

For besieged U.S. regulators who have struggled in vain to keep pace with the chemical industry over decades, there's hope at last of turning the tables.

Technology (continued)

Meet "Tox21," a robot capable of assessing the toxicity of a chemical at mind-blowing speed.

Maybe, regulators say, Tox21 can help close the chasm between government and industry.

How wide is the gap? There are now 80,000 or so chemicals in U.S. food and consumer products, but the government knows little about their human and environmental health risks.

"The testing of environmental chemical for toxicology was expensive, inefficient, not terribly predictive of toxicity and slow," said Christopher Austin, director of the National Institutes of Health Chemical Genomics Center. "Because of those things, the vast majority of chemicals in the environment have no data."

While U.S. EPA must test one chemical at a time and can complete only a couple dozen assessments a year, Tox21 is capable of screening thousands of chemicals multiple times in a week, its creators say. "It is going to completely revolutionize the way chemical testing is done," Austin said. [Read more](#)

Events

Events are listed here as soon as possible after they are notified to ISCO and will usually only be featured once in this column. To find a more comprehensive listing of upcoming events, including ones previously announced in this column, [click HERE](#)

ISCO ANNUAL GENERAL MEETING

The ISCO AGM will take place during the IOSC Conference and Exhibition at the Doubletree Hotel, Mount Hood & Mount St. Helens Room, at 3.30 p.m. on Wednesday, 25 May, 2011. Members are invited to bring along friends. Light refreshments will be available.

Any members who have not received the Agenda and other meeting papers should contact the Secretary immediately.

ISAA ALL-IRELAND ACCREDITATION SCHEME STEERING GROUP MEETING IN DUBLIN

This meeting will take place at 10.30 a.m. on Tuesday 21 June at the Coast Guard HQ in Leeson Lane, Dublin. The Notice of Meeting and Agenda will be sent to all stakeholders on the mailing list later this week.

WRECKS OF THE WORLD II: EVALUATING AND ADDRESSING POTENTIAL UNDERWATER THREATS

Washington, DC Area (Linthicum Heights, Maryland), USA – June 6-7, 2011

An international survey (Michel et al., 2005) has identified over 8,500 sunken shipwrecks in marine waters around the world, including more than 1,500 sunken tank vessels (≥ 150 gross tons) and nearly 7,000 sunken non-tank vessels (≥ 400 gross tons).

These wrecks may contain as much as 20 million tons (140 million barrels) of oil and other hazardous materials. Sporadic or continuous leakages or potential sudden massive spillages from these wrecks, 75 percent of which stem from World War II, pose a con/nual risk across the globe.

The problem of potentially-polluting wrecks has long been discussed and recent incidents around the world have caused government agencies and responsible parties to look proac/vely at preventing catastrophic oil and other chemical releases from long submerged shipwrecks.

The risk of oil and other hazardous materials seeping out of sunken shipwrecks is growing yearly, and the likelihood of leakage or even a massive spill occurring increases, as do the potential costs. Taking a proactive rather than a reac/ve approach to mitigating this risk will save not only dollars in response costs, but also reduce the threat of environmental and socioeconomic damages.

From the viewpoint of environmental and economic impacts, there is little difference between oil spilling from a sunken vessel and oil spilling from a modern day vessel casualty, with the exception that, while there is no way to predict the location or timing of the next major oil spill, potentially-polluting wreck sites are known and the probability of an spill event is quantifiable or even inevitable. There is ample evidence that there are a large number of wrecks in coastal waters that are spills waiting to happen.

Sponsored by the American Salvage Association (ASA) and the North American Marine Environmental Protection Association (NAMEPA), this conference, "Wrecks of the World II: Evaluating and Addressing Potential Underwater Threats," will aim to provide an opportunity for an objective review and discussion of the current state of potentially polluting wrecks and to offer considerations to address the problem. [Download the programme and booking form](#)

Events (continued)

UK SPILL 11 – MARINE OIL SPILL SEMINAR

Southampton, UK. 5 July, 2011. Draft Programme –

0900 - Delegates board mv Ashleigh R at Ocean Village, Southampton Waterfront, and at 0930, depart for Shamrock Quay to visit the global base for OSR. Coffee on board en route to Shamrock Quay.

Arrive OSR base at 1000 - The highlight will be a briefing on the Tophat containment system, which OSR holds in readiness following the DWH spill. Followed by a tour of the base, UK equipment manufacturers will make short presentations, and be on hand to discuss latest developments

1130 depart OSR for Cowes, Isle of Wight to visit the new Vikoma factory

1130 A short presentation on board by OSPRAG about the offshore spill risk for the UK west of the Shetlands .

1200 A buffet lunch will be served en route down the Solent to Cowes

1300 Arrive at West Cowes, crossing the chain ferry, to be taken by bus to the Vikoma factory

1330 Tour of Vikoma factory

1430 return to mv Ashleigh R, depart West Cowes for Southampton

1530 ON WATER DEMONSTRATION - The afternoon will feature OSR and other marine vessels for a demonstration of counter pollution measures and activities in the Solent off Fawley Refinery.

The event will end at 1630hrs when the vessel returns to Ocean Village. [More info](#)

Publications

NEW VERSION OF EUROPEAN ATLAS OF THE SEAS

In April, the European Commission's DG-MARE released a new version of The European Atlas of the Seas. The new version includes some EMSA-related maps: major oil spill incidents, accident density, and EMSA-contracted oil spill response vessels.

Other new maps include Natura 2000 protected maritime sites and the EU's coastal GDP

A DG-MARE initiative, the Atlas of the Seas offers huge amounts of information on marine activities in Europe.

[More EMSA news and option to download the atlas in the May edition of the EMSA Newsletter](#)

NEW FROM THE EMERGENCY FILM GROUP: HOW THE EMERGENCY OPERATIONS CENTER (EOC) WORKS WITH AND SUPPORTS INCIDENT COMMAND SYSTEM (ICS) DURING A RESPONSE

Describes the function of the Emergency Operations Center and how it is staffed, organized and activated. Designed for federal, state, tribal and local emergency management personnel as well as private industry and disaster response organization personnel. Portrays how the EOC supports Incident Command during a response. Topics covered:

- How the EOC is staffed, organized & activated
- Key roles in ICS and corresponding roles for the EOC
- Elements of NIMS
- The five types of incidents
- Readiness levels
- Planning meetings
- Much more! Also includes an Instructor's CD-Rom with customizable Powerpoint presentation, post-seminar quiz, references, and other documents to help present a training seminar. [More info](#)



In this issue of the ISCO Newsletter we are printing No. 26 in a series of articles contributed by Dr Douglas Cormack.

Dr Douglas Cormack is an Honorary Member 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](#)

KNOWLEDGE OF WATER-IMMISCIBLE SYSTEMS (CHAPTER 26)

Having reviewed knowledge of the formation and stability of water-in-oil emulsions as influenced by the presence or absence of the natural emulsifiers of crude and product oils, I now review knowledge of the emulsifiers additionally produced by oxidation of oils post-release.

Thus, while stable emulsions could not be produced with fresh Brega and Nigerian light crude oils (c.f. article 25) weathering resulted in stable emulsions with water-contents ranging from 67-74%. In addition, it was separately shown that Arabian light crude oil produced oxygenated products to the extent of 0.08% after 132 hours exposure to ultra/visible radiation in the 300-450 μ m waveband with a peak at 365 μ m. Again, Arabian and Zorzatine crude oils formed unstable emulsions unless previously photo-oxidised; that Statfjord crude oil did not form emulsion in the dark but did so on being illuminated with a dysprosium lamp; that emulsion formation is generally inhibited by addition of carotene, a known inhibitor of the photo-oxidation of petroleum; and that addition of tetra-decanal, selected as typical of an oxidised petroleum compound, enabled emulsions to be formed in the dark. In addition to photo-oxidation, it has been shown that auto-oxidation occurs through free-radical chain processes; that both are catalysed by high-valence metal ions such as vanadium; that free-radical chains can be terminated by sulphur compounds; and that polymerisation of petroleum components can produce macromolecules known to be emulsion stabilisers.

Again, bacteria oxidise petroleum components just as they oxidise all components of the post-mortal degradation of higher organisms to carbon dioxide and water. Indeed, this is the mechanism of oil-spill bioremediation. Thus, bio-oxidation produces the same or similar emulsion stabilisers as do photochemical and auto-oxidation processes. In all cases, single end-group oxidation of long-chain oil components produces the combination of hydrophilic and hydrophobic pairings which characterise emulsifiers. In contrast, however, hydrocarbon polymerisation produces tar balls which are slow to oxidise internally for lack of oxygen penetration, though their oxidative surface degradation continues even as it does for road-tar surfaces. Again, similar oxidation of short-chain components produces derivative alcohols, aldehydes ketones, carboxylic acids and amino acids. Yet again, oxidation of individual carbon atoms of the longer chain hydrocarbons produces polysaccharides while amino acid polymerisation produces polypeptides, both of which, as ecosystem food sources, will themselves undergo oxidative degradation to carbon dioxide and water through the above short-chain non-toxic intermediaries.

Thus, having previously seen that the volatile components of oils which disperse into the atmosphere as molecules and the non-volatile components which disperse as droplets into the sea, are both oxidised to carbon dioxide and water; we now see that while dispersion of water-in-oil emulsions as droplets into the sea may be slower than that of the non-emulsified oil, the oxidation which stabilises these emulsions goes on to increase the solubility of oil components in water and ultimately to degrade all of them to carbon dioxide and water without increasing their toxicity in the meantime. Indeed, we know that this oxidation is that which degrades all marine organic debris unless interrupted by the oxygen depletion which causes petroleum to form from this debris in the first place. Thus, we see that there is little in the above knowledge to support the environmentalist belief in species-extinction/ecological-disaster being synonymous with marine oil release, and that coating of individuals within identifiable species falls far short of soecies-extinction.

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.

Company news

CLEAN STREAMS OFFERS COST-EFFECTIVE SOLUTION TO MEET MARCELLUS WASTEWATER REGULATIONS

In what is regarded as significant breakthrough for energy companies working in Pennsylvania's Marcellus Shale Play, Clean Streams LLC offers a time and money saving solution to simplify wastewater treatment and recycling.

Clean Streams proprietary water recycling process takes Frac, Flowback and Produced Water and recycles it, returning it to the drill site for repeated use. Companies searching for a compliant, safe, ZERO DISCHARGE and cost-effective way to meet stringent wastewater regulations find this innovative process the perfect solution.

Company news (continued)

"Our treatment capabilities are in full compliance with all applicable PA DEP and EPA regulations," said Richard Weaver, President of Clean Streams. "That includes the amendments to 25 PA Code Chapter 95, requiring a lower TDS threshold be applied specifically to the natural gas sector and TDS concentrations be treated below 500 milligrams per liter."

This focus on compliance and safety extends beyond the treatment process to include every aspect of wastewater transportation and recycling. "All Clean Streams operators and technicians are in compliance with PA DEP, EPA and OSHA regulations," Weaver says. "They are up to date with all training requirements and adhere to our most stringent regulatory guidelines." [More info](#)

NUCLEAR FUSION IN FOUR YEARS? AMAZON'S JEFF BEZOS IS BETTING ON IT

Nuclear power is having a bit of a low moment these days. But that's just because we don't know how to do it right, the way the sun does. General Fusion--a startup that just announced that Amazon.com billionaire Jeff Bezos is providing financial backing as part of a \$19.5 million funding round--claims it's going to solve the nuclear problem by creating clean, harmless nuclear power from water.

You read that correctly--Bezos is betting on nuclear fusion, the holy grail of nuclear nerds everywhere. Today's nuclear plants generate power from fission, a process that splits atoms to release energy as heat. The simple version of the nuclear fusion process--which is what happens on the sun--goes something like this: isotopes of hydrogen atoms fuse together to make helium. The reaction releases incredibly large amounts of heat, which is used to power steam turbines.

The amount of hydrogen isotopes found in one liter of water could generate the power of 1,000 liters of gasoline. Some of the hydrogen isotopes for the process can be found in seawater, and others can be found in lithium. This means that nuclear fusion should be able to provide virtually unlimited amounts of clean energy (according to General Fusion, we have enough lithium for 23,000 years of fusion energy). There is also no risk of meltdown or production of long-lived nuclear waste. In other words, there will never be a nuclear fusion Fukushima disaster.

In the past, no one has been able to create a controlled fusion reaction that creates more energy than was used to start it. So General Fusion certainly sounds a little crazy in saying that it can. But the company is confident, claiming that it will have a full-scale proof-of-concept fusion generator within four years. The key, according to General Fusion, is its Magnetized Target Fusion technology, which traps plasma in a magnetic field and then compresses it to high temperatures and density. [Read more](#)

ISCO Notices

ARE YOU LAUNCHING A NEW PRODUCT OR SERVICE AT IOSC ?

The next issue of the ISCO Newsletter comes out on Monday 23 May, the first day of the IOSC Conference and Exhibition.

It is part of ISCO's mission to disseminate information on new technology for spill response. You are invited to send in news that can be published in the next Newsletter.

If you are exhibiting, be sure to include your booth number.

You should also include your website where readers can access more information.

DON'T FORGET TO VISIT THE ISCO BOOTH (NO. 242)

You are invited to come by to visit us and learn about an exciting new ISCO initiative being launched at IOSC 2011.

Drop off your business card and get a chance to win a large bottle of fine malt whisky !

If you're not already a regular reader of the ISCO Newsletter, we will add your name to the "free" list for receiving the Newsletter.

Members of ISCO are reminded that the ISCO AGM will take place during the IOSC Conference and Exhibition at the Doubletree Hotel, Mount Hood & Mount St. Helens Room, at 3.30 p.m. on Wednesday, 25 May, 2011. Members are invited to bring along friends. Light refreshments will be available.

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