



API JITF Subsea Dispersant Injection Newsletter

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Welcome

As we complete the first full year of the API subsea dispersant project, a number of important accomplishments were made. First, the Effectiveness project team completed preliminary scaled testing of the subsea dispersant injection method using a test tank operated by [SINTEF](#) (a Norwegian research organization). Although we are still reviewing these results, the initial data shows that adding dispersants at very low dispersant-to-oil ratios resulted in a significant shift to smaller dispersed oil drops. Our intent is to publish these results in early 2013.

The Fate & Effects project team completed an important workshop where experts on deep sea toxicity, biodegradation, ecology, and chemistry met to develop a framework for developing dispersed oil biodegradation and toxicity testing protocols that are representative of the deep sea. The framework information will be used to develop requests for proposals to conduct testing that will begin in 2013.

The Modeling project team held a workshop of experts to initiate development of a numerical model to predict droplet-size distributions produced during a well-control event when dispersants are injected into the oil.

Finally, the Monitoring project team developed an interim draft industry recommended plan for monitoring deepwater dispersed oil plumes for use in contingency plans and a draft white paper reviewing potential monitoring technologies that may go into a final industry recommended monitoring plan. These documents should be finalized in early 2013.

This year will be another busy year as we have ambitious plans for additional scaled testing, development of dispersed oil biodegradation and toxicity testing protocols, evaluation of existing numerical droplet distribution models, and the study of various monitoring technologies.

This second newsletter continues our attempts to foster project transparency. The newsletter provides an update on the activities of the various projects under the API subsea dispersant research effort. Newsletters will be regularly produced to provide updates as the projects progress.

UPCOMING EVENTS OF INTEREST

Gulf of Mexico Oil Spill & Ecosystem Science Conference

New Orleans, LA
January 21-23, 2013

245th American Chemical Society (ACS) National Meeting & Exposition

New Orleans, LA
April 7-11, 2013

Asia-Pacific Oil Spill Prevention & Preparedness Conference (SPILLCON)

Cairns, Queensland, Australia
April 8-12, 2013

Adriatic Spill Conference

Opatija, Croatia
May 14-16, 2013

36th Arctic and Marine Oilspill Program (AMOP) Technical Seminar on Environmental Contamination and Response

Halifax, Nova Scotia, Canada
June 4-6, 2013

OSPR JITF Progress Report

As a follow-up to its November 2011 report, the API Joint Industry Oil Spill Preparedness and Response Task Force (OSPR JITF) recently released its annual update report. This report describes each project's activities since the initial report and provides their current status, including material development and engagement efforts. The report outlines industry's extensive coordination with regulatory agencies and international organizations and re-affirms industry's commitment to spearhead improvements for oil spill response capabilities. The full November 2012 progress report may be found at <http://www.api.org/~media/Files/Oil-and-Natural-Gas/Exploration/Offshore/OSPR-JITF-Project-Progress-Report.pdf>.



▶ Learn more at API.org

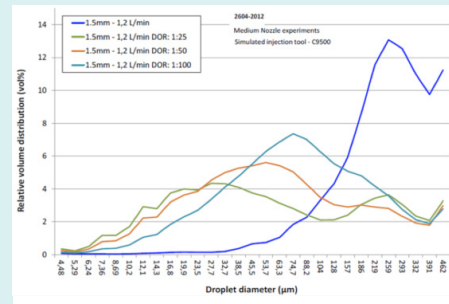


Effectiveness Team Project

The Effectiveness project team continues to work with SINTEF to develop and perform laboratory based dispersant efficacy testing. SINTEF's Phase I tests concentrated on characterizing droplet size distribution of oil and dispersed oil using a single oil and single dispersant. A variety of nozzle sizes, flow rates, and injection locations were evaluated. The goal of this Phase I work was to provide preliminary information on the minimum amount of dispersant needed to disperse a subsea jet of oil and the optimum dispersant injection location.

Although the results of the Phase I testing are still under review, preliminary analysis showed that adding dispersant in sufficient quantities results in a significant reduction in dispersed oil droplet sizes. Further, injection location had a limited influence on dispersed oil droplet distributions, i.e., injection of dispersant into the discharging plume caused a reduction in dispersed oil droplet sizes not significantly different than injecting dispersant further upstream.

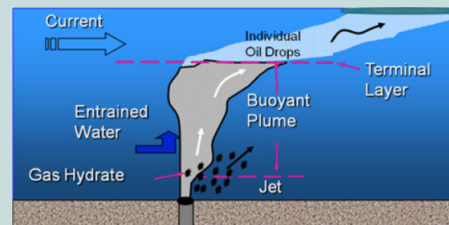
Based on these preliminary results, the project team, in conjunction with SINTEF, has developed a test matrix to look into dispersant effectiveness over a wider range of oils and dispersants. Phase II testing with SINTEF has been initiated, and will include a) temperature influence; b) gas effects; c) other oil types; and d) other dispersant types. Notably, the test matrix also includes testing under high pressures to determine if pressure has an effect on dispersed oil droplet size formation and distribution, which will be included in a Phase III testing. The Government Accountability Office (GAO) noted in their 2012 report titled *Oil Dispersants: Additional Research Needed, Particularly on Subsurface and Arctic Applications*, that "specific environmental conditions, such as higher pressures, may influence dispersants' effectiveness" (p. 2). The Program is funding a joint effort between SINTEF and [Southwest Research Institute](#) (SwRI), an applied research and technology organization with pressurized tanks optimal for testing, as part of the Effectiveness Team's Phase III research on pressure effects. Once research commences, Phase III will run concurrently with Phase II.



Droplet size distribution (volume %) formed for different Dispersant-to-Oil Ratios (1:100, 1:50, 1:25, and oil only). Release conditions 1.5 mm and 1.2 L/min. Graph from SINTEF Phase I Report

Modeling Team Project

As part of the Modeling project team's existing oil plume modeling evaluation, members of the Modeling and Effectiveness teams – including external advisors – held a modeling workshop in October 2012. The team of researchers included national and international representatives from industry, academia (Massachusetts Institute of Technology, New Jersey Institute of Technology, Texas A&M, University of Hawaii, and the University of Oregon), and the Bureau of Ocean Energy and Management. This exchange of information was the first step in the effort to upgrade existing droplet distribution prediction algorithms that will be key to accurately predicting the fate of dispersant-treated oil that might result from a well-control event. The project team's goal is to upgrade the algorithms to predict droplet distributions that would result when a jet of oil is treated with dispersant subsea. Once the algorithms are upgraded, the project team will validate them with droplet size data collected during testing performed in other parts of the study. Once the models have been validated, the findings will be published with the goal of encouraging use of the validated algorithms in integrated plume fate models.



Conceptual model of a subsea oil / gas plume



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Monitoring Team Project

The Monitoring project team has been actively engaged with the National Response Team (NRT) as it revises its draft dispersant monitoring plan. A final draft of the dispersant monitoring plan is expected to be available for public comment early this year. Meanwhile, a working draft of the the industry subsea monitoring plan is currently available to assist with contingency planning and drills where subsea dispersant use is a part of the spill scenario. The industry proposed plan takes into consideration the constraints of operating research vessels in the near-field source control zone, where simultaneous operations prove challenging due to logistical and traffic density issues. The plan also focuses on collecting data that provides near real-time results on the efficacy of the subsea dispersant operation to provide information necessary for operational decision making. The plan has been positively tested during two company drills demonstrating the coordination for plan approval, subsea injection operations and monitoring activities between the Environmental Unit and Subsea Dispersants Group.



Sampling assemblies being retrieved, post-deployment; photo, courtesy of NOAA

The Monitoring project team is also in its final review and revision of the white paper, titled *Monitoring Hydrocarbon Releases In Deep Water Environments: A Review of New and Emerging Technologies*. The draft version of this paper was presented during Clean Gulf 2012 in November, and will be available to the public in the coming months.

Fate and Effects Team Project

During the first week of October, the Fate & Effects project team hosted a three-day workshop in Houston, TX. Experts from around the world – including members from the Federal and state governments, academia, research organizations, non-governmental organizations, and private industry – were brought together to examine research requirements related to 1) biodegradation of oil and dispersed oil in the deep sea environment, and 2) toxicity effects of oil and dispersed oil on deep water communities. Breakout sessions included informative discussions on ecology and deep water communities, toxicology, chemistry, and biodegradation. Several testing recommendations were made, and the Fate & Effects project team members are currently prioritizing those recommendations to create research Requests for Proposals (RFPs). Once finalized, the RFPs will be distributed; proposals collected and reviewed; and research funded with the goal of selecting contractors to begin testing.



Fate & Effects Workshop attendees, Houston, TX
Front row (left to right): Philippe Lemaire, Jack Word, Benny Gallaway, Jim Payne, Al Venosa, Roger Prince, John Pardue, Terry Wade, Anne Basseres, Adriana Bejarano, Victoria Broje, Alan Mearns; **Middle row (left to right):** Terry Hazen, Steve Lehmann, Tim Nedwed, Ed Overton, Mark Carls, Francois Merlin, Alf Melbye, Mimmi Throne-Holst, Elisabeth Bonneville, Will Gala, Gina Coelho; **Back row (left to right):** Greg Wilson, Lionel Camus, Todd Sformo, Bill Gardiner, Piero Gardinali, John French, Rene Bernier, Mathijs Smit, Emily Kennedy, Jim Clark, Tom Parkerton, Jim Staves, Don Stoeckel

As many different entities have similar goals as the API subsea dispersant project team, the Fate & Effects workshop was successful in opening or broadening lines of communication between these various groups.



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Spotlight on Other OSPR JITF Activities:

Coordination with ICCOPR

The Subsea Dispersant Injection Program regularly engages with and seeks input from the regulatory agencies and the [Interagency Coordinating Committee on Oil Pollution Research](#) (ICCOPR), which provides an ideal conduit to collectively dialogue with the Federal response organizations. The ICCOPR was established under the Oil Pollution Act of 1990 and includes members from 14 Federal agencies.

The purpose of the committee is to “(1) prepare a comprehensive, coordinated Federal oil pollution research and development plan; and (2) promote cooperation with industry, universities, research institutions, State governments, and other nations through information sharing, coordinated planning, and joint funding of projects.” When forming the project teams’ Technical Advisory Committees, the Subsea Dispersant Injection Program coordinated closely with ICCOPR to develop a list of potential Federal TAC participants from BOEM, BSEE, EPA, NOAA, and the USCG. In September 2012, the Program’s Steering Committee Lead briefed the ICCOPR on the latest research progress being made by the Program and discussed the possibility of conducting a controlled oil and dispersed oil field trial in U.S. waters. The Program values ICCOPR’s input and oversight, and looks forward to continued engagement with the Committee.



Presenting at Clean Gulf

In November, team members from the Subsea Dispersant Injection Program traveled to New Orleans, LA to present two discussions at this year’s [Clean Gulf](#) conference:

1. “Ongoing Research Activities within the American Petroleum Institute (API) Joint Industry Task Force for Subsea Dispersant Injection” (Dr. Tim Nedwed, Dr. Jim Clark, Dr. Gina Coelho, and Mr. Joe Twomey) – Provided an overall review of the Program and updated oil spill response stakeholders on the Program’s current status.
2. “Monitoring Hydrocarbon Releases In Deep Water Environments: A Review Of New And Emerging Technologies” (Dr. Gina Coelho, Mr. Mike Arthur, and Ms. Laura Essex) – Summarized the monitoring technology white paper the team has developed, assessed current and emerging technologies, and made recommendations on how these should be incorporated into future subsea monitoring strategies for dispersant operations.

Participating in oil spill preparedness and response related conferences such as Clean Gulf is important as it familiarizes other organizations with the Program’s objectives and activities, and provides insight to similar initiatives of other organizations. The Program is committed to working cooperatively with other entities whenever possible in an effort to promote comprehensive oil spill response research and standards.

API’s New Oil Spill Response Website

In an effort to ensure that thoughtful and accurate oil spill response information generated by these and other projects is available to the public, API has launched a new Oil Spill Response Website to replace its current version (www.oilspillinfo.org). In addition to providing basic information on oil spill prevention, preparedness, and response, the site will also house much of the materials developed throughout the API Oil Spill Program, including the Subsea Dispersant Injection Program. The intent of the site will be to provide information in varying degrees of technicality so it can be received by the broadest possible audience. An area specific to research and development, including the work underway through the Subsea Dispersant Injection Program, is available to allow direct access to more in-depth information if the reader chooses.

