

U.S. Minerals Management Service Engineering and Research Branch Oil Spill Response Research Project List

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Project Title	Project Description	Status
Remote Sensing		
New and Innovative Equipment and progress Technologies for the Remote Sensing of Oil in and Under Ice. Project (517)	Evaluate two types of sensors, ground penetrating radar and hydrocarbon gas detectors (sniffer technology) in a series of oil in ice meso-scale experiments at the US Army Cold Regions Research and Engineering Laboratory in Hanover, NH.	In
Using Satellite Radar Imagery to Detect Leaking Abandoned Oil Wells on the US Outer Continental Shelf. Project (355)	To examine the use of existing satellite imagery to Detect Leaking Abandoned Oil Wells on the US OCS.	Complete
Properties and Behavior of Oil		
Development of a Method to Produce Large Quantities of Realistic Water-in-Oil Emulsions for use in Evaluating Oil Spill Response Equipment and Methods. Project (516)	Develop a standard method to produce large quantities of realistic water-in-oil emulsions for use in testing, training, and research at Ohmsett	In progress
Mechanical Containment and Recovery		
Transfer of Decanting Technology Research to Oil Spill Response Organizations and Regulators. Project (512)	To distill research results collected during the past six years of decanting experiments (including the use of chemical demulsifiers to enhance water separation) into proposed guidelines for operational use and to transfer technology to responders and regulators. These proposed guidelines will include a review of regulatory issues and procedures for minimizing environmental impact.	In progress
Tailored Polymeric Materials for Oil Spill Recovery in Marine Environments. Project (511)	To increase the efficiency of mechanical oil spill recovery equipment by replacing traditional recovery unit materials with polymeric materials that have the highest affinity for oil and are specifically tailored to collect oil from water surfaces.	In progress

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Mechanical Containment and Recovery (cont.)		
Development of a Standard Method for Measuring the Buoyancy-to-Weight Ratio for Oil Spill Containment Boom Project (478)	Project will develop a standard method for measuring the buoyancy to weight-ratio of oil spill containment boom(s). Results may be used ASTM in developing revised standards for oil containment booms. The testing for this project was conducted at Ohmsett.	Complete
Effect of Oil Spill Containment Boom Characteristics on Boom Performance. Project (457)	Research investigated the effect of a previously identified key containment boom characteristic on boom performance. Ohmsett testing examined the relationship between boom performance and buoyancy to weight ratio, as measured by first loss and gross loss tow speeds. These carefully controlled tests were compared to previous data on boom performance collected both at Ohmsett and in controlled tank tests and during at-sea trials .	Complete
Use of Ice Booms for the Recovery Of Oil Spills from Ice Infested Waters. Project (353)	To evaluate the technology in the design and use of ice booms for recovering spilled oil in ice infested waters. The objective is to obtain the operating window in which an ice boom can be deployed when towing or pulling on a broken ice field. The work will also define the likely scenarios where an ice boom could be used effectively.	Complete
Testing and Evaluation of Sorbents Project (180)	Develop standardized procedures and test methods, to test sorbents and list results on Internet database.	In progress
In Situ Burning		
Mid-Scale Tests to Determine The Limits to In Situ Burning In Broken Ice. Project (432)	This purpose of this research project is to investigate the minimum ignitable thickness, combustion rate, effects of waves and residue amount for crude oils burned in situ in cold water and broken ice conditions.	Complete
Development of an ASTM Standard Complete On Characterizing Oils for In Situ	This project developed a draft ASTM guideline for in-situ burning from lab analysis of the oil to	

Burning. Project (373)

determine how easily it can be burned. The draft standard is available; however ASTM chose not to adopt the standard until more work is done on characterizing oils.

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In Situ Burning (Cont.)		
Fireboom Testing at Ohmsett. Project (391)	An enhanced propane underwater bubbler system designed to allow the testing of fire resistant booms in flames was installed at Ohmsett. Eleven fire resistant boom systems were tested. These include: three refractory fabric booms, one stainless steel boom, three water-cooled blanket prototypes, three reflective/insulating blanket prototypes and one water-cooled boom.	Complete
Deepwater		
Project "Deep Spill". Project (377)	This experimental release of oil and gas was Conducted June 26, 2000 off the coast of Norway. Mixtures of crude oil and natural gas, diesel oil and natural gas, as well as only natural gas were released at 803 meters water depth. The goal was to simulate a blowout or pipeline rupture in deep water and obtain data to verify the predictions of a deep water blowout model being developed under a separate contract.	Complete
A Method to Determine Worst Case Complete Discharges from OCS Facilities that Produce or Transport Oil. Project (390)	Develop computer based methodology to determine worst case discharges from OCS Facilities that produce or transport oil.	
Oil Spill Chemical Treating Agents		
Dispersant Effectiveness Testing on progress Heavy Outer Continental Shelf crude Oils at Ohmsett. Project (514)	To determine the limiting viscosity for the effective use of chemical dispersants applied to heavy, viscous Outer Continental Shelf crude oils.	In
Laboratory Testing to Determine progress Dispersion Predictability of the Baffled Flask Test and the Swirling Flask Test. Project (513)	To conduct standardized laboratory dispersant effectiveness testing to determine if either the Baffled Flask Test or the Swirling Flask Test is able to predict chemical dispersion effectiveness	In

of oil spills similar to what was experienced in the field during the UK at-sea trials and at Ohmsett.

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Oil Spill Chemical Treating Agents (cont.)		
Correlating Results of Ohmsett Dispersant Test with At-Sea Trials: Workshop to Coordinate Publications and Prioritize Follow-up Research Project (507)	To conduct a workshop at Ohmsett to correlate results from dispersant effectiveness testing conducted at-sea, at Ohmsett, at small scale and in the laboratory for incorporating into a scientific paper for presentation at the 2005 International Oil Spill Conference.	In progress
Analysis of IFO-180 and IFO-380 Oil Properties for Dispersant Window of Opportunity. Project (506)	This project will extend the work to complete property analyses on IFO-180 and IFO-380 fuel oils used in the June 2003 UK field trials and in the Ohmsett dispersant effectiveness experiments completed in the fall of 2003.	In progress
Understanding Oil Spill Dispersants: Efficacy and Effects. (Project 493)	The project is a JIP with MMS, NOAA, API, and US Coast Guard involved in updating the 1989 National Research Council's "Using Oil Spill Dispersants on the Sea". The charge is to review and evaluate existing information regarding the efficacy and effects of dispersants as an oil spill response technique. Focus will be on understanding the limitations imposed by the various methods and to recommend steps that should be taken on effects of dispersed oil on the marine environment.	In progress
Fate of Emulsion Breakers Used for Decanting. Project (486)	The purpose of the study is to determine the partitioning of different chemical emulsions breakers between oil and water phases when they are used to enhance decanting of recovered water from offshore skimming operations. This effort builds upon a previous projects entitled "Testing at Ohmsett to Determine Optimum Times to Decant to Temporary Storage Devices (Project 298)" and "Extending Temporary Storage Capacity Offshore with Emulsion Breakers (Project 395)" where tests were conducted at Ohmsett to decant at several different periods to determine the optimum time to separate excess water collected during oil spill clean-up operations.	Complete

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Oil Spill Chemical Treating Agents (cont.)		
Correlating Results of Dispersants Effectiveness at Ohmsett with Identical At-Sea trial: Effects of Oil Viscosity and Dispersant to Oil Ratios. Project (477)	The objectives of this research project are twofold. The first is to determine if the results of dispersant effectiveness tests conducted at Ohmsett are consistent with those gathered in the laboratory and under actual at-sea conditions. The project conducted a series of dispersant effectiveness tests at Ohmsett under identical conditions to those conducted in the at-sea trials done in the UK in June 2003. The research will compare the threshold limiting conditions for dispersibility as measured at Ohmsett with those measured in the laboratory and at-sea, under identical conditions.	Complete
Ohmsett 2003 Cold Water Dispersant Complete Effectiveness Experiments. Project (476)	MMS sponsored two series of dispersant effectiveness experiments at Ohmsett to evaluate the effectiveness of Corexit 9500 and Corexit 9527 dispersants on Alaskan and Canadian crude oils in cold water. These crude oils have a wide range of physical and chemical properties and were tested in fresh and in weathered conditions. This project was conducted in two separate testing phases. Phase 1 was conducted February 25 and March 14, 2002 at Ohmsett (Project 450). Phase 2 was conducted in February 2003 at Ohmsett.	
Effects of Chemically Dispersed and Biodegraded Oils. Project (449)	To determine the effects of chemically dispersed and biodegraded oils. Research will provide a quantitative assessment of the rate of biodegradation of the components under a range of conditions found in the UK and cold US waters. Decision makers will use this information when choosing appropriate response options. The UK partners are the Maritime and Coast Guard Agency, the Department of the Environment for Rural Areas, and the Department of Trade and Industries.	
Chemical Characterization of an Oil and the Relationship to Dispersant Effectiveness. Project (436)	To determine if there is a correlation between crude composition and dispersant effectiveness.	Complete
Assessment on the Use of Dispersants Complete On Marine Oil Spills in California. Project (413)	To conduct an assessment of the operational and environmental factors associated with the use of chemical dispersants to treat oil spills in	

California marine waters, with a view toward expediting dispersant use decision-making and planning for such spills.

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Oil Spill Chemical Treating Agents (cont.)		
Extending Temporary Storage Capacity Offshore with Emulsion Breakers. Project (395)	To assess the effectiveness of chemical emulsion breakers combined with rapid decanting and treatment of recovered oil when responding to an offshore oil spill. This effort builds upon previous project entitled "Testing at Ohmsett to Determine Optimum Times to Decant to Temporary Storage Devices" Project 298, where S. L. Ross tested at Ohmsett, decanting at several different periods to determine the best time to separate excess water collected during oil spill clean-up operations.	Complete
Technology Assessment on the Use of Dispersants on Oil Spills from MMS Regulated OCS Platforms. Project (349)	Conduct a comprehensive assessment of the operational and environmental factors associated with the use of chemical dispersants on oil spill from MMS regulated OCS platforms.	Complete
Laboratory Study to Compare the Effectiveness of Chemical Dispersants When Applied Dilute vs. Full Strength. Project (350)	Research study to determine if the application of dispersants in dilute form reduces their effectiveness.	Complete
Ohmsett – The National Oil Spill Response Test Facility		
Summary of Activities Conducted At Ohmsett 1992-2004. Project (520)	Develop complete summaries on all testing, training, and research conducted at Ohmsett 1992-2004. Information will be available free off charge at Ohmsett website at www.ohmsett.com	In progress
Wave Field Characterization at the Ohmsett Test Basin. Project (515)	Conduct a complete and comprehensive evaluation of the waves and wave energy produced in the Ohmsett test basin.	In progress
Process for the Removal of Dissolved Dispersant from Ohmsett Basin Water. Project (458)	The project identified potential methods for the removal of dissolved dispersants from Ohmsett tank water using membrane filtration technology. The goal was to lower the dispersant concentration in the tank water to undetectable levels after dispersant effectiveness testing at Ohmsett.	Complete

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Ohmsett – The National Oil Spill Response Test Facility (Cont.)		
Technique to Remove Dissolved Dispersant from Ohmsett Basin Water. Project (456)	To develop a simple, inexpensive method to quickly remove dissolved dispersant from the Ohmsett tank water. Powdered, activated carbon will be added to the tank water, agitated with the Ohmsett wave maker and an air bubble “curtain” and then filtered out. The results will be used to design and construct a system to remove dissolved dispersant from Ohmsett tank water.	Complete
Procedures for Reporting Tests on Oil Spill Containment Booms and Skimmers. Project (428)	Review and analyze all available performance test data of oil spill containment booms and skimmers. The results will be published in widely available report and may become the standard for conducting independent testing of these key pieces of mechanical oil spill clean up equipment.	Complete
Dispersant Effectiveness Test Protocol Development for Ohmsett. Project (427)	The project examined various ways that dispersant testing at Ohmsett might be accomplished and to evaluate the feasibility and costs.	Complete
Development of a Dispersant Test Protocol at Ohmsett. Project (375)	This project developed a standard test protocol for a wide range of dispersant related variables at the Ohmsett facility under simulated open ocean conditions in a reproducible manner. This will be a new testing capability at Ohmsett that will have a proven and accepted standard test procedure.	Complete
International		
Workshop on the Issue of Prevention: progress What are the Next Challenges for 2005 International Oil Spill Conference. Project (518)	To provide support to conduct the workshop. The workshop was conducted September 21-23 At IMO headquarters, London, UK. Results will be presented at the 2005 IOSC, Miami, FL, May 15-19, 2005.	In
Production of a White Paper and Workshop Regarding a Full Scale Experimental Oil Release in the Barents Sea Marginal Ice Zone. Project (453)	To conduct a workshop to assemble potentially interested organizations capable of funding such an experiment and establish an information base upon which to make decisions regarding a full-scale experimental oil release in the Arctic MIZ. The meeting was conducted October 15-16, 2001 at	Complete

the Minerals Management Service, Alaska
Regional Office in Anchorage, AK.