BOEM
Bureau of Ocean Energy Management

OSC Scientific Committee Meeting
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Dr. Walter Johnson

Chief, Branch of Physical and Chemical Sciences

National

Walter.johnson@boem.gov (703) 787-1642

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Benign Oil Simulants

Page #	Break-out	Title	Rank
34		Environmentally Benign or Benignos Oil Simulants to Mimic the Behavior of Oil Droplets in the Ocean	

**PO = Physical Oceanography
PS = Protected Species
FE = Fate & Effect
SE = Social & Economic
BIO = Biology
OT = Other

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Benign Oil Simulants

BOEM Information Need:

The study will be used to improve the general knowledge of the behavior and fate of oil droplets in the water column and for improving particle transport models of spilled oil.

Date Information is Required:

No specific date

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Tentative Ranking: 5

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Background:

A) Relationship with Previous Work/Efforts

Previous studies have conducted oil releases in Norway and Canada, to ascertain the behavior of spilled oil at the ocean surface. Observations of rising oil and gas can be difficult to make during these experiments. The permit to conduct a similar experiment in U.S. waters has not been issued by EPA since the 1970's, when they issued a permit for EPA research.

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Background:

B) Relationship with Concurrent/Future Efforts

A proposal to develop this technology has also been submitted to the BSEE Oil Spill Response Research program. If the study is successful, future use of the particles that simulate oil droplets would be employed in tank-scale and field experiments.

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Study's Objectives:

The objectives of this project are to:
(1) fabricate environmentally benign, optically active particles that simulate oil droplets in the water column using synthesis techniques that are readily scalable from bench to industrial production, and
(2) verify how well the particles simulate oil droplets using existing response tools, such as fluorometers and particle size analyzers.

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Study's Methods:

The properties of oil droplets will be simulated by varying physical characteristics such as the particle size, density, and surface coating of biodegradable, engineered particles. Controlling the particle density and surface properties would enable investigators to monitor the behavior of non-petroleum droplets by mimicking actual oil droplets in the ocean environment. The new particles would also be optically active, allowing the use of commonly used instruments such as fluorometers to track them in the water column.

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Addition *Pertinent* Information

We expect to procure this via an Interagency Agreement with The U.S. Environmental Protection Agency, with the specific participating group being the National Risk Management Research Laboratory, Land Remediation and Pollution Control Division

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