Acquisition Directorate

Research & Development Center

Oil Spill Prevention and Response Projects

February 25, 2015

Response to Oil In Ice

Mission Need: A group of methodologies to minimize the damage to the environment caused by spilled oil in extreme cold in the Arctic Region nor the Northern U.S.

Project Objectives:

- To develop equipment and techniques that can be used successfully to detect, track and recover oil in ice filled waters in all conditions.
- Conduct a series of demonstrations in the Great Lakes and the Arctic of increasing complexity to test operational deployments of equipment.
- Support National Academy of Science (NAS) Arctic Response Assessment.

Sponsor: CG-MER

Stakeholder(s): D9, D17, EPA, BSEE

Key Milestone / Deliverable Schedule:

Project Start……..	2 Nov 09✓
Great Lakes Demonstration 3…..……	22 Feb 13✓
Final Great Lakes Demonstration 3 Report…	**14 Jun 13✓**
Review Recommendations from NAS Report.25	**Jul 14 ✓**
Arctic Shield 2014 Demonstration Report…. ……	**Apr 15**
Decision Milestone: Follow-on work and Demo 4…….	Feb 15
Final Report and FOSC Guide…….....…… ……	**Dec 15**
Great Lakes Demonstration 4 ……..	Feb 16
Great Lakes Demonstration 4 Report …….	**May 16**
Project End……..……	Feb 17

Project #:	Tier:	RDC POC:	CG-926 Domain Lead:
4701	2	Mr. Kurt Hansen 860-271-2865	Mr. Shannon Jenkins 202-475-3490

Expected Benefit:

Improve operational performance/efficiency/mission execution/resiliency

Several Full Reports and Conference Papers (IOSC and AMOP) for Great Lakes and Arctic efforts.

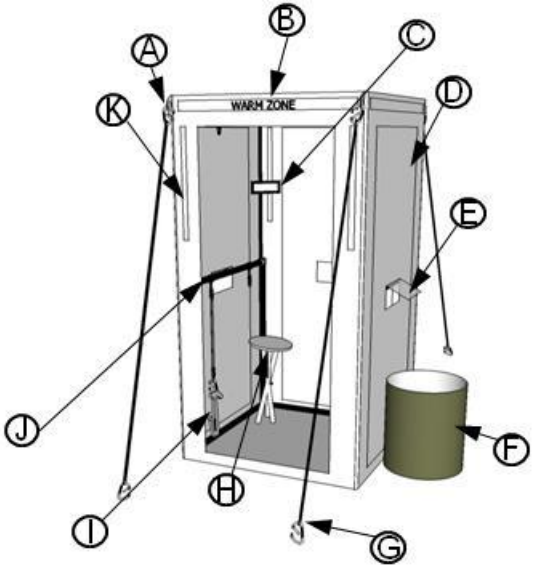
Notes:

Includes funding from FY11 Oil Spill Research Earmark and US EPA Great Lakes Restoration Initiative (GLRI)

★ Indicates RDC product.

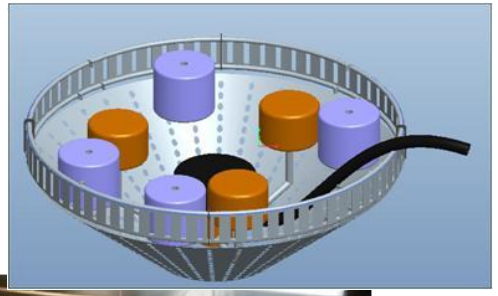
Developmental Tasks

Small Vessel DECON



Temporary Storage

Ice Management



Detection and Collection of Oil within the Water Column

Mission Need: Accurately detecting and mitigating subsurface oil within the water column

Project Objectives:

- To develop new spill response technologies that detect and mitigate oil within the water column down to 10,000 ft.
  - Operate in all environmental conditions.
  - Locate and mark subsurface oil for possible removal.
  - High resolution for detecting small droplets of oil.
- Technology to be capable of operating off vessels of opportunity.
- Addresses near shore and rivers.

Sponsor: CG-5RI
Stakeholder(s): BSEE, ICCOPR

Key Milestone / Deliverable Schedule:

Project Start	4 Aug 11 ✓
Start Design Phase	2 Apr 12 ✓
Detection of Oil in Water Column: Sensor Design	**5 Mar 13 ✓**
Detection of Oil in Water Column, Final Report: Detection Prototype Tests	**29 Jul 14 ✓**
Detection of Oil in Water Column, Presentation: Mitigation Design	**Apr 16**
Detection of Oil in Water Column, Final Report: Prototype Mitigation Tests	**May 17**
Project End	Jul 17

Project #:	Tier:	RDC POC:	CG-926 Domain Lead:
4702	3	Mr. Alexander Balsley 860-271-2854	Mr. Shannon Jenkins 202-475-3490

Expected Benefit:

Improve operational performance/efficiency/mission execution/resiliency

Report on detection project 1021 available on BSEE Site.
Mitigation BAA proposals under review.

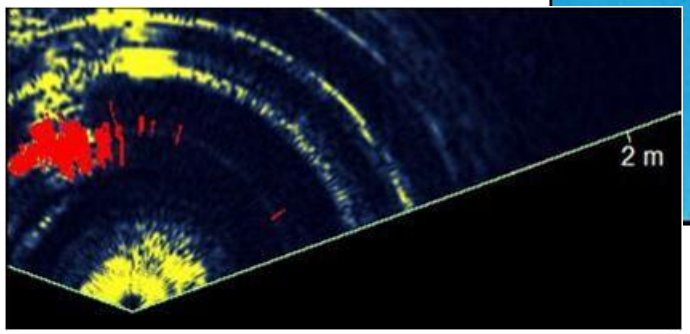
Notes:

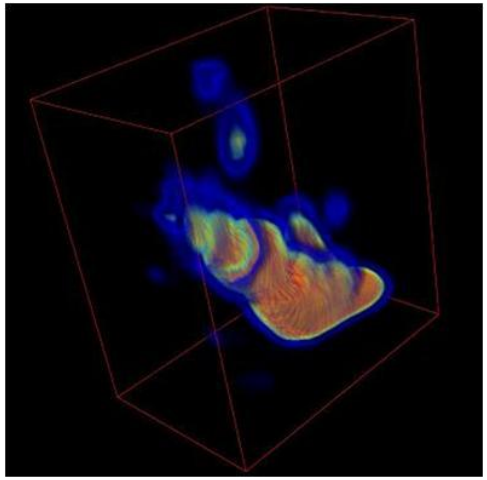
Includes funding from FY11 Oil Spill Research Earmark and BSEE Projects 1021 and 1033

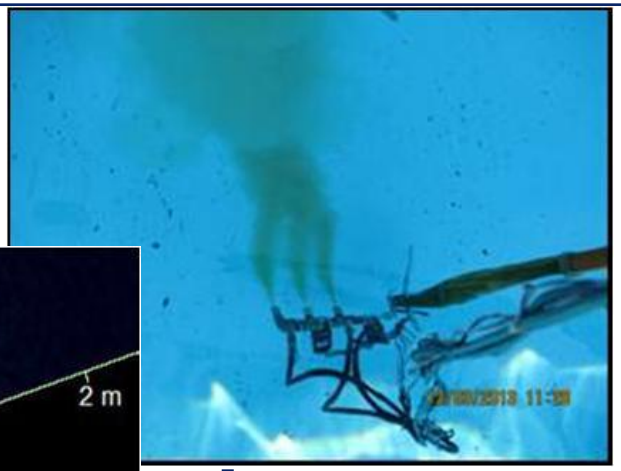
★ Indicates RDC product.

Detection Results from Ohmsett

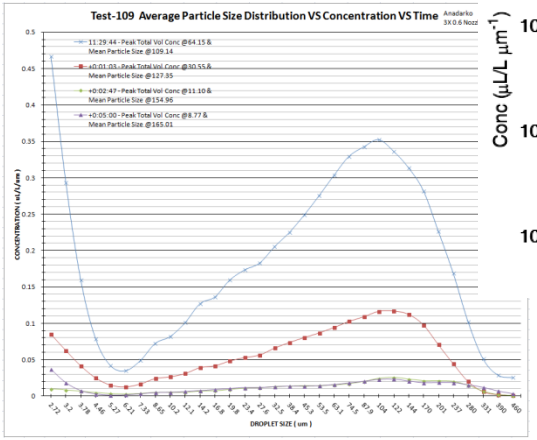
Sonar



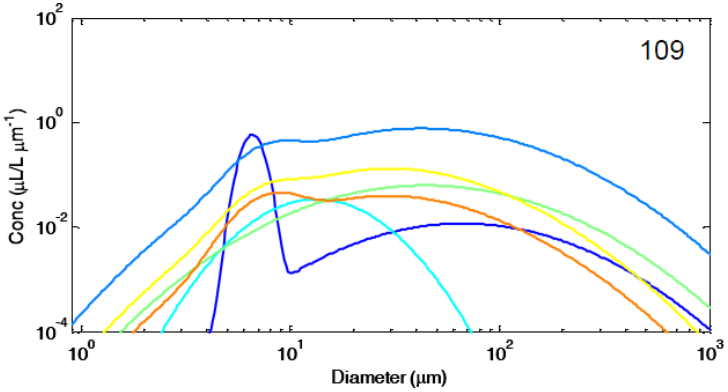




Plume



WINDOWS



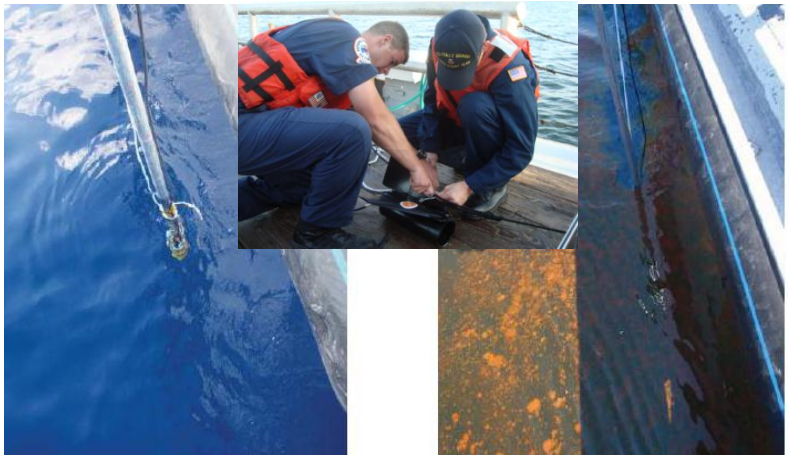
Not Able to Correlate with Actual Concentrations

Improve SMART Protocol Effectiveness

Mission Need: Enhance Special Monitoring of Applied Response Technologies (SMART) Program policies and tools that support evolving Coast Guard spill response needs.

Project Objectives:

- Identify gaps needed to fulfill the program's current mission.
- Identify short and long term technology improvements needed to meet the Program's mission requirements.



Key Milestone / Deliverable Schedule:

Project Start……..……...…25 Nov 13✓

Review SMART Program Goals and Recent Performance History……4 Apr 14 ✓

Identify New Technology and Training Capabilities……..……22 Aug 14✓

Modernization of Special Monitoring of Applied Response Technologies (SMART) Technology and Methods – 2014..…Oct 14 ✓

Develop Proposal for Next Phase to Develop Standard Operating Procedures

Project End…….. TBD

Sponsor: CG-MER, BSEE

Stakeholder(s): NSFCC

Project #:	Tier:	RDC POC:	CG-926 Domain Lead:
4703	3	Mr. Chris Turner (860) 271-2623	Mr. Shannon Jenkins (202) 475-3490

Expected Benefit:

Improved Doctrine/CONOPs/TTPs

Notes:

Partnering with Bureau of Safety and Environmental Enforcement (BSEE). Project 1020 and TBD.

Report under BSEE project 1020 identified issues with protocol, communications, roles and responsibilities, policies, training and technology.

★ Indicates RDC product.

Improve SMART Protocol Operational Procedures and Capabilities *(in preparation)*

Mission Need: Enhanced SMART Program tools to better support the Coast Guard's evolving spill response needs.

Project Objectives:

- Develop TTPs for Special Monitoring of Applied Response Technologies (SMART) team coordination, field activities, data processing, and data evaluation.
- Create standardized manuals to ensure consistency of data acquisition and transition among all teams during SMART operations.
- Establish Tactics, Technology and Procedures (TTPs) as a source of maintenance and training procedures for SMART teams.

Key Milestone / Deliverable Schedule:

Project Start……..	Apr 15
RDC develops draft SMART procedural TTPs……	Sep 15
RDC develops draft SMART equipment operating TTPs……..	Sep 15
IPT Review of Draft TTPs ……	Dec 15
Deliver "Draft SMART Protocol TTPs"……	**Apr 16**
Project End…….....May 16	

Sponsor: BSEE

Stakeholder(s): NSFCC, CG-721, FC-P

Project #:	RDC POC:	CG-926 Domain Lead:
2015-38	Mr. Alex Balsley (860) 865-0474	Mr. Shannon Jenkins (202) 475-3490

Expected Benefit:

Improved Doctrine/CONOPs/TTPs

Notes:

Partnering with Bureau of Safety and Environmental Enforcement (BSEE).

★ Indicates RDC product.

Improved In-Situ Burning (ISB) for Offshore Use

Mission Need: Better decision and operational tools for using ISB as a response option.

Project Objectives:

- Identify capability gaps that industry is not addressing.
- Determine best practices for operational use of ISB.
- Develop new equipment, such as igniters or fire boom, and procedures to support ISB.

Key Milestone / Deliverable Schedule:

Project Start	10 Feb 14 ✓
ISB Gaps Analysis	**Jan 15 ✓**
KDP on Project Path Forward	Jun 15
Initial Burn Pan Testing Results	**Nov 15**
Results of Technology Enhancements	**Dec 16**
Project End	Mar 17

Sponsor: BSEE, CG-MER

Stakeholder(s): NOAA, OHMSETT

Project #:	Tier:	RDC POC:	CG-926 Domain Lead:
4704	3	Mr. Kurt Hansen (860) 271-2865	Mr. Shannon Jenkins (202) 475-3490

Expected Benefit:

Improve operational performance/efficiency/mission execution/resiliency

Notes:

Joint funding with the Bureau of Safety and Environmental Enforcement (BSEE) project 1035.

Initial Assessment completed and published on BSEE Site. Report lists recommendations for operations, safety, research and policy (including expectations/perceptions).

★ Indicates RDC product.

Oil Sands Products Response

Mission Need: Develop enhanced decision tools and recovery/mitigation tools for responding to spilled oil sands products.

Project Objectives:

- Develop decision making tools for Federal On-scene Commander (FOSC) to aid in response planning for spills of oil sand products in fresh and salt water.
- Analyze and assess behavior, response issues and strategies in fresh and salt waters.
- Build on G-MER Report "Risk Assessment of Transporting Canadian Oil Sands" available in Summer 2014.

Key Milestone / Deliverable Schedule:

Project Start	31 Aug 14 ✓
Oil Sands Products Response Analysis	**May 15**
Initiate BAA	Aug 15
Test Response Equipment	Aug 16
Oil Sands Products Response Strategies Evaluation	**Feb 17**
FOSC Job Aid	**Sep 17**
Project End	Nov 17

Sponsor: CG-MER

Stakeholder(s): USEPA, D9, D13, NOAA

Project #:	Tier:	RDC POC:	CG-926 Domain Lead:
4705	3	Mr. Kurt Hansen (860) 271-2865	Mr. Shannon Jenkins (202) 475-3490

Expected Benefit:

Improve operational performance/efficiency/mission execution/resiliency

Notes:

Partnering with Great Lakes Restoration Initiative (GLRI).

★ Indicates RDC product.

Airborne Oil Spill Remote Sensing and Reporting

Mission Need: Tactics, Techniques, and Procedures (TTP) for optimizing the use of existing CG airborne Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems to support oil spill response operations.

Project Objectives:

- Baseline current CG airborne capabilities for Detecting, Mapping and Reporting (DMR) oil spills.
- Join with Bureau of Safety and Environmental Enforcement (BSEE) to explore oil thickness remote detection capability.
- Conduct airborne oil spill DMR testing.
- Document issues in CG oil spill DMR within context of hardware, operator training and environmental conditions; then work with Aviation Training Center (ATC) Mobile to develop TTPs.

Key Milestone / Deliverable Schedule:

Project Start……..……..……20 Nov 13 ✓

Key Decision Point to Develop Joint Project w/BSEE……... 29 Jul 14 ✓

Task 1, 2 & 3 White Paper……..8 Oct 14✓

CG Sensor Field Evaluation A…….May 15

CG Sensor Field Evaluation B…… Jun 15

USCG Airborne Spill Remote Sensing and Reporting……Dec 15

Project End……..…..Jan 16

Sponsor: CG-711

Stakeholder(s): BSEE, CG-MER, ATC Mobile, FORCECOM

Project #:		RDC POC:	CG-926 Domain Lead:
7609		LCDR Dave Gudbrandsen (860) 271-2893	CDR Jay Armstrong (202) 475-3049

Expected Benefit:

Improved Doctrine/CONOPs/TTPs

Notes:

CG Sensor Field Evaluation A & B will be joint testing with the MINOTAUR Mission System program to leverage the upgraded capability of the next fixed-wing mission system.

BSEE is co-funding this as project 1060.

★ Indicates RDC product.

Mobile Asset Tracking and Reporting During an IONS

Mission Need: A flexible ad hoc interoperable communication/information system to enhance the Coast Guard's ability to respond to Incidents of National Significance (IONS).

Project Objectives:

- Prototype a flexible interoperable communication/information system, processes, and procedures to enhance the CG's ability to transfer information that will assist personnel responding to an IONS (e.g., oil spill).
- The system, processes, and procedures should make use of the equipment the responders are expected to bring to the incident such as smart phones, tablet computers, and laptops.

Key Milestone / Deliverable Schedule:

Project Start…….……..…… 9 Aug 11 ✓

Technical Assessment Brief for Mobile Asset Tracking and Reporting Device……..…..……..…....9 May 13 ✓

Technical Assessment Brief: System Integration with Commercial Off The Shelf (COTS) Incident Action Plan (IAP) Software ……27 Oct 14✓

Mobile Asset Tracking and Reporting Device: IONS System Test Results and Recommendations (Report)….....10 Dec 14✓

Technology Demonstrations…….....Nov 15

System Integration with COTS IAP Software Test Results and Recommendations (Report).....Nov 15

Use of NICS/PHINICS IONS during USCG Disaster Response Operations (Brief) .....Feb 16

Project End…….....Apr 16

Sponsor: CG-761

Stakeholder(s): CG-CPE, DHS S&T, Sector Detroit, Sector New Orleans

Project #:		**RDC POC:**	**CG-926 Domain Lead:**
8105		Mr. Jon Turban, P.E. (860) 271-2834	CDR Tung Ly (202) 475-3011

Expected Benefit:

Improve operational performance/efficiency/mission execution/resiliency

Notes:

Includes funding from FY11 Oil Spill Research Earmark.

Project includes use of a Cooperative Research and Development Agreement (CRADA).

Project includes Interagency Agreement (IAA) with DHS S&T/MIT Lincoln Labs.

★ Indicates RDC product.