

FALL 2016



NESDI NEWS

Highlights & Happenings

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Welcome!

This quarterly update provides you with the latest information about program operations, significant accomplishments, and future focus areas for the Navy Environmental Sustainability Development to Integration (NESDI) program. We hope you will find these insights useful and that they encourage you to participate (or increase your involvement) in the program over the coming months.

Who We Are

The NESDI program is the Navy’s environmental research and development demonstration and validation (6.4) program, sponsored by the Chief of Naval Operations Energy and Environmental Readiness Division (OPNAV N45) and managed by the Naval Facilities Engineering Command (NAVFAC) from the Engineering and Expeditionary Warfare Center (EXWC) in Port Hueneme, CA. The mission of the program is to provide solutions by demonstrating, validating, and integrating innovative technologies, processes, materials, and by filling knowledge gaps to minimize operational environmental risks, constraints, and costs while ensuring Fleet readiness.



The NESDI Program: Integrating Green Technologies Into the Fleet



From the Program Manager's Desk

Welcome to the fall 2016 issue of *NESDI News*:
Highlights & Happenings—part of our ongoing effort
to keep you informed about the NESDI program.



Ken Kaempffe
Program Manager

I am happy to announce that for both fiscal years (FY) 2015 and 2016, we met or exceeded all of our obligation and expenditure benchmarks.

For FY15 funds, the yearend expenditure

benchmark is 90 percent and we achieved 92 percent. For FY16 funds, the year end expenditure benchmark is 55 percent and we achieved 57 percent.

I want to thank our Principal Investigators and members of our Technology Development Working Group (TDWG) for doing their parts to help us meet program financial benchmarks. It is critical that the NESDI program obligate and expend funds as planned and that we meet or exceed Assistant Secretary of the Navy financial benchmarks. So keep up the great work in FY17 and beyond.

In this issue of our newsletter, we also announce our “new start” projects for FY17. These 15 projects range from better corrosion prevention coatings

for metal structures to determining our future year investment strategy to reduce the environmental impacts and costs of contaminated sediment cleanup. (For more information, see the “FY17 “New Start” Projects Are Ready to Launch” section of *NESDI News*.)

While we were finalizing the list of our “new start” projects to be initiated in FY17, we were also completing our work on our FY17 needs solicitation (for projects to be initiated in FY18 and beyond). Twenty-nine needs were ultimately selected by our TDWG members with help from various functional working groups then validated by the appropriate subject matter experts at our resource sponsor. It is these priority needs for which we are now soliciting pre-proposals. More information about these priority needs and how to submit a pre-proposal can be found in the “Results of FY17 Needs Solicitation, Screening & Ranking” and “How to Submit a Pre-proposal” sections in this issue of *NESDI News*.

Ken Kaempffe
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FY17 “New Start” Projects Are Ready to Launch

The results of our FY16 needs collection and proposal review processes are in and the program is preparing to invest in a number of new demonstration and validation projects. A complete list of the projects that the program will support in FY16 and beyond are as follows:

No.	Project	Title	Investigator	Command
1.	537	Stable Carbon Isotopes for Tracing In Situ RDX Remediation	Thomas Boyd	NRL
2.	538	Development of Advanced Primer and Superhydrophobic Topcoat for Corrosion Resistance and Leachate Impedance	Brandon Swope Alan Grieve	SPAWAR NAVAIR
3.	539	Forward Looking Infrared (FLIR) for Advanced Discharge Characterization	Brandon Swope	SPAWAR
4.	540	Smart Electronic Tools for Navy Environmental Compliance Monitoring and Reporting	Itzel Godinez	NAVFAC
5.	541	Utility Vault Water Treatment	Patrick Morrow	NAVSEA
6.	542	Naval Air Systems Command Solutions for Engine Washing	Keiko Sapp Kami Downey	NAVAIR
7.	543	Preventative Management of Contaminated Silt	Patrick Morrow	NAVSEA
8.	544	Using Stable-Isotope Labeled Tracers to Validate Natural Attenuation of RDX in Groundwater	Jennifer Segura	NAVFAC
9.	545	In Situ Treatment of 1,4-Dioxane Using Enhanced Biodegradation	Timothy Appleman	NAVFAC
10.	546	National Pollutant Discharge Elimination System Copper Effluent Control System	Iryna Dzieciuch	SPAWAR
11.	547	Demonstration of Improved Toxicity Methodology to Link Stormwater Discharges to Receiving Water Impacts	Marienne Colvin	SPAWAR
12.	548	Sewer Gas Elimination Technology	Steven Fann	NAVFAC
13.	549	Demonstration of Optimized non-NMP (n-Methyl-2-pyrrolidone) Solvents for Immersion Chemical Depainting	Joseph SantaMaria	NAVAIR
14.	550	A Comprehensive Analysis and Strategy for Contaminated Sediment Management	Joey Trotsky	NAVFAC
15.	551	Impact of Sediment Resuspension by Propeller Wash and Shore Sediment Dynamics on Remediation Options	Pei-fang Wang	SPAWAR



NESDI project no. 542 is demonstrating a new engine washing procedure for use across the Naval Air Systems Command. Shown here is an H-53 helicopter engine wash demonstration with the EcoPower small wash unit and effluent collecting kit in place. (Photo Credit: David Marriott)



NESDI project no. 547 will demonstrate and validate a more accurate exposure design for laboratory toxicity testing to support improved stormwater discharge monitoring at this and many other outfalls on Navy installations. (Photo Credit: Chris Stransky)



Results of FY17 Needs Solicitation Are In

The program collected a total of 62 needs via our FY17 solicitation. After a thorough review by program personnel including the TDWG and our resource sponsor, OPNAV N45, 29 needs were determined to be worthy of further attention by the program. As a result, we are soliciting pre-proposals to address the following priority needs.

No.	Need	Title
1.	N-1115-17	Alternatives to SF6 Switchgear
2.	N-1120-17	Addressing Temporal Variability in Industrial Buildings during Vapor Intrusion Assessments
3.	N-1123-17	Propane Burner Flashing for Certifying Safe Large Scale Materials Potentially Presenting an Explosive Hazard
4.	N-1124-17	Low-Volatile Organic Compound Ground Support Equipment Primer(s)
5.	N-1127-17	Need Alternative Process to Manage Downgraded Fuel from Aircraft Fuel Facility
6.	N-1131-17	Eliminating Barriers that Prevent Technology Integration
7.	N-1132-17	Heavy Metals Reduction in Surface Finishing Processes
8.	N-1134-17	Industrial Waste Management of Spent Aqueous Film-Forming Foams Solution
9.	N-1135-17	Caisson Ballast Water Treatment/ Containment System Study & Field Testing
10.	N-1138-17	Navy Enterprise-wide Hazardous Material Standardization, Minimization and Substitution of General Use Consumables
11.	N-1143-17	New Technologies to Treat Groundwater and Surface Waters Impacted by Polyfluoroalkyl and Perfluoroalkyl Substances
12.	N-1144-17	Climate Change Vulnerability Screening Tool for Environmental Restoration Sites
13.	N-1145-17	Navy Installation Solid Waste Diversion Technology, Process Knowledge and Capability
14.	N-1148-17	Automatic Stormwater Sampling in Locations with Tidal Influence
15.	N-1150-17	Source Metal Particle Removal for Stormwater Compliance
16.	N-1152-17	Automated Cleaning of Potable Water Tanks
17.	N-1153-17	New Technologies for Turbidity Removal of Surface Water Drinking Water Sources
18.	N-1154-17	Alternative Treatment Technology to Open Burning/ Open Detonation of Waste Military Munitions
19.	N-1155-17	Dissolved Sulfides Treatment Alternatives for Oil/Water Separator Discharges
20.	N-1156-17	Reduction of Clinical Laboratory Waste by Solvent Recovery
21.	N-1158-17	Flame Resistant Oil Spill Containment Boom
22.	N-1159-17	Coating Removal of Naval Aircraft Components: Alternative to Chemical/Mechanical Removal Technology Initiation Decision Report
23.	N-1160-17	Mitigation of Blast Effects from Underwater Blow-In-Place of Unexploded Ordnance
24.	N-1162-17	Clean Water Act Climate Change Vulnerability Assessment
25.	N-1164-17	Guidance on Implementing the Aquatic Life Ambient Estuarine/Marine Water Quality Criteria for Copper
26.	N-1165-17	Sustainable Mitigation of Metals and Nutrients from Dry Dock Discharges
27.	N-1172-17	Assessment of Uncontrolled Stormwater Pollutants
28.	N-1173-17	Development of a Portable Temporary Brown Treesnake Barrier to Facilitate Equipment and Cargo Inspections
29.	N-1174-17	Cold Spray as a Hard Chromium Electroplating Alternative

How to Submit a Pre-proposal

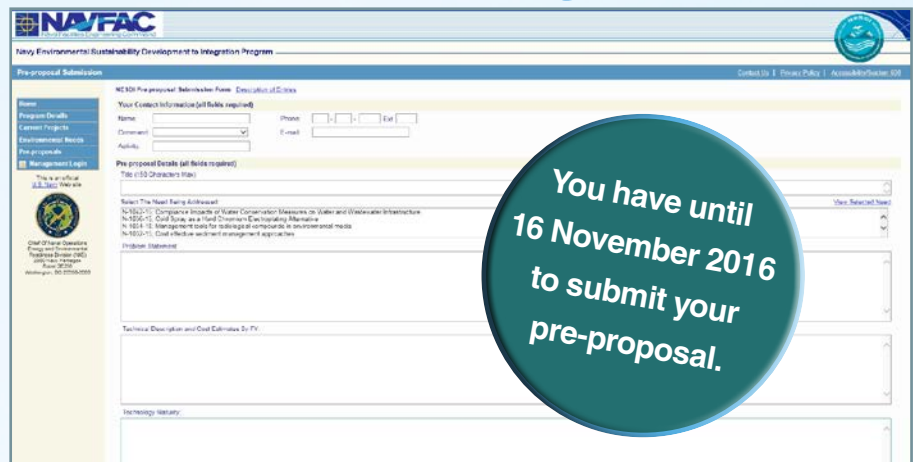
Now that the priority needs for FY17 have been established, the NESDI program will turn its attention to the collection of pre-proposals to address those needs. The purpose of the pre-proposal is to ensure that the proposed project adequately addresses the requirements outlined in the need. The NESDI program concentrates on technologies that are sufficiently mature for demonstration and validation and supports the overall environmental readiness of the Fleet and Navy acquisition communities.

Pre-proposals should address the following requirements:

- Be approximately two pages in length.
- Focus on the problem to be addressed.
- Clearly explain the project objectives.
- Quantify and qualify the technical criteria for a successful project.
- Identify the environmental constraint(s) to be resolved.
- Include the basic strategy for successfully integrating the solution into the Fleet.
- Identify the authorization stakeholders related to the proposed effort.

A solicitation for pre-proposals is executed via the program's website (www.nesdi.navy.mil) using a pre-proposal template. To submit a pre-proposal, click the "here" link in the "We are currently accepting pre-proposals for valid needs through 16 November 2016, click here for details" banner at the top of the NESDI website home page. You will be directed to a page that provides you more

www.nesdi.navy.mil



details about the pre-proposal collection process. Once you're ready to submit your pre-proposal, click the "Submit Your Pre-proposal Now" button. You will be asked to fill-in the information on the screen above.

Once you have completed all of the fields on this form, hit "Submit" at the bottom of the form. Your pre-proposal will then be sent to the program's management team (the TDWG) for further consideration.

You have until 16 November 2016 to submit your pre-proposal.

Please direct questions you may have about submitting a pre-proposal to your TDWG representative or the NESDI program manager, Ken Kaempffe, at 805-982-4893 or ken.kaempffe@navy.mil. If your question pertains to the function of our website (www.nesdi.navy.mil) please contact our webmaster

Eric Rasmussen at 732-323-7481 or eric.rasmussen@navy.mil.

Once all pre-proposals have been collected, NESDI program management will review and rank them using established criteria including how the proposed effort addresses the need, how executable the project is, if the proposed effort is ready for demonstration and validation, and how feasible it will be to integrate the solution into ongoing Fleet operations. This is followed by a final evaluation that determines which pre-proposals will proceed to full proposal development.

Full proposals are requested for those pre-proposals that do the best job of meeting the evaluation criteria and addressing the explicit requirements as stated in the targeted need.

The call for full proposals will run from 19 January 2017 until 15 March 2017. (Full proposals are solicited by invitation only.) Successful proposals will result in new projects beginning in FY18 and beyond.



Introducing New Project Initiatives

In this issue of *NESDI News*, we introduce you to another one of our FY16 “new start” projects — *Structure-Function Relationship and Environmental Behavior of Perfluorochemicals from Aqueous Film-Forming Foams for Conceptual Site Model Development* (no. 527) — being led by John Kornuc from EXWC.

Structure-Function Relationship and Environmental Behavior of Perfluorochemicals from Aqueous Film-Forming Foams for Conceptual Site Model Development (no. 527)

Perfluorochemicals and polyfluorinated alkyl substances (PFAS) are chemicals that have been widely used for decades, both in consumer products and industrial processes. PFASs are unique in that they possess both hydrophobic (water-repelling) and oleophobic (oil-repelling) properties, making them especially useful in fighting fuel fires. The Navy and the other Department of Defense (DoD) services have used significant quantities of PFASs in the form of aqueous film-forming foams (AFFF) for fighting petroleum fires since the 1960s. In 1979, AFFF was in use at more than 90 airports in the U.S. alone as well as in many civilian fire departments.

Despite their effectiveness, PFASs are identified as an emerging contaminant by the U.S. Environmental Protection Agency. They are environmentally persistent due to their strong fluorine-carbon bond, are bioaccumulative, and have been detected in environmental samples long after a release was reported.

AFFFs and their PFAS components represent one of the greatest emerging contaminant challenges facing the Navy’s environmental restoration program, partly because the current understanding of their fate and transport in soil and groundwater is limited.

AFFFs and their PFAS components represent one of the greatest emerging contaminant challenges facing the Navy’s environmental restoration program.

This project was formed to develop a robust and accurate conceptual site model for Navy sites impacted by PFASs from various sources, especially AFFF.

PFASs are based on hydrocarbon chemicals where the hydrogen atoms in the carbon-hydrogen bond have been completely (perfluorinated) or partly (polyfluorinated) replaced by fluorine atoms. There are hundreds of PFASs, and analytical methods have only recently become available to accurately measure the major PFAS compounds

of AFFF formulations used by the DoD. As a result, it has only recently become possible to conduct a full characterization of PFASs associated with AFFF use, and identify the various compounds and their behaviors/presence across a site.

It has only recently become possible to conduct a full characterization of PFASs associated with AFFF use.

This project will begin by reviewing available data from 15 Navy and Base Realignment and Closure (BRAC) sites impacted by PFASs. The PFAS data will be closely inspected to identify preliminary trends and behavioral indicators.

Factors such as nature of sources, distance of plume migration

from its source, hydrogeology, and potential receptors will be compiled. This information will be combined with a literature review to develop preliminary indicators of fate and transport of the chemicals.

In the second phase of the project, three sites will be selected that have likely source zone areas and/or a plume that has migrated to potential surface water receptors. The authors will perform multi-level sampling at these sites, including sampling of surface sediment and benthic invertebrates. Utilizing this information, the project team will develop a decision tool with the ability to inform site managers and Remedial Project Managers (RPM) and to enable them to make effective site management decisions when PFASs are present at their sites.

Once the decision tool is ready, the authors will first transition it to the Risk Assessment Workgroup within the Naval Facilities Engineering Command (NAVFAC). The workgroup will, in turn, channel the report to the environmental restoration managers at the NAVFAC Field Engineering Commands and to the NAVFAC and BRAC program RPMs.

Principal Investigator:

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Latest Project Fact Sheets On-line

Want insights into our new start projects? Fact sheets for all of our new projects are now available on our web site and no username or password is required. Visit www.nesdi.navy.mil then select "Current Projects." You'll see a list of projects with our most recent efforts at the top of the list. Click on the "Fact Sheet" link in the "More Information" column for more insights.



Project Title	Status	Objectives	More Information
520 Impacts of Water Conservation Measures on Potential Safe Drinking Water Act Violations in Navy Water Supply Systems	Active Project	This project will study the potential impact of water conservation efforts on Navy drinking water supply systems including how these systems may be impacted by dramatic reductions in water consumption. In certain instances, these reductions can cause major issues in distribution and storage systems for extensive periods of time that may lead to violation of the Safe Drinking Water Act (SDWA).	Fact Sheet
521 Structure-Function Relationship and Environmental Behavior of Bar-and-antifoulingcoatings from Advanced Resin-based Coatings	Active Project	This project will provide environmental evaluation (EE) managers and Remedial Project Managers (RPM) with better tools for building accurate conceptual site models to further manage sites impacted by petroleum and petroleum-derived substances.	Fact Sheet
522 Navy Dispersion System to Denitrification Targets	Active Project	This project will demonstrate and validate a portable Navy machine to find projectiles lodged in Navy fleet targets.	Fact Sheet
523 Non-Occupational Interference-Free Remediation Challenge for Aircraft and Support Equipment	Active Project	The goal of this project is the quantification, approval and traction of performance targets as a replacement for incomplete confining remediations. The remediation will also be compatible tested with aircraft-free primer systems.	Fact Sheet
524 Innovative In-situ Flushing	Active Project	This project will demonstrate and validate the effectiveness of using a project truck-mounted portable water distribution system to prevent volatilization and maximize adequate free chlorine residual in Navy drinking water systems.	Fact Sheet
525 Integrated Chlorinated Hydrocarbon Monitoring with Passive Sampling	Active Project	This project will evaluate the effectiveness of using passive sampling devices (PSDs) to assess the impacts of atmospheric rainfall and improve environmental management of Navy facilities.	Fact Sheet
526 Demonstration of New Strategies for Enhanced Remedial Action: Recovery of Navy Submarine Sites	Active Project	This project will demonstrate and validate the viability of using unconventional remedial strategies for the enhanced monitoring, natural recovery of contaminated sediments at Department of Defense and Department of Navy sites.	Fact Sheet
527 Autonomous Benthic Ecology System	Active Project	This project will develop and test an Automated Benthic Ecology System (ABES) for the purpose of monitoring, site and habitat communities on vertical structures residing at Navy's at sea ranges, vessel berths and mooring lines and associated cables.	Fact Sheet
528 Quantification of Perchlorate Contamination	Active Project	This project will investigate the volatilization rate of perchlorate compounds and develop a responsible work process for the removal of perchlorate from compounds.	Fact Sheet
529 Analysis of the Long-Term Fate of Chemical Constituents on Terrestrial Sites	Active Project	The objective of the proposed effort is to identify, research, and estimate the current knowledge about the fate, transport, and toxicity characteristics of chemical constituents (CHCs) and associated degradation products found at Navy terrestrial mission response sites.	Fact Sheet

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Dates Set for 2017 Program IPRs

The schedule for the program's 2017 In-Progress Reviews (IPR) is set. So mark your calendars accordingly.

What	When	Where
East Coast IPR	28-30 March 2017	Fleet Readiness Center Southeast Jacksonville, FL
West Coast IPR	9-11 May 2017	Naval Postgraduate School Monterey, CA

MARCH 2017

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
27	28	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28 East Coast IPR	29	30	31	1	2
3	4	5				

MAY 2017

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7
8	9 West Coast IPR	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

An entire program schedule for the next year is provided in the "Program Schedule" section in this issue of *NESDI News*.

As always, space for our IPRs is limited. To request a seat or for more information including a draft agenda and dial-in information, contact Cindy Webber at cynthia.webber@navy.mil or 760-939-2060.



Program Schedule

From now through the end of the spring, the program will concentrate its efforts on screening the pre- and full proposals we receive to address the needs collected via our FY17 solicitation. A complete FY17 program schedule is provided below.

No.	What	When
1.	Request Pre-proposals	14 October 2016
2.	Conduct OPNAV N45 Programmatic Review	26 October 2016
3.	Pre-proposals DUE	16 November 2016
4.	Make Pre-proposals Assignments to FWGs	2 December 2016
5.	TDWG & FWG Comments on Pre-proposals DUE	21 December 2016
6.	Evaluate Pre-proposals	9-13 January 2017
7.	Request Full Proposals	19 January 2017
8.	Full Proposals DUE	15 March 2017
9.	Conduct East Coast In-Progress Review	28-30 March 2017 (Fleet Readiness Center Southeast, Jacksonville, FL)
10.	TDWG & FWG Comments on Full Proposals DUE	31 March 2017
11.	Screen Full Proposals	3-7 April 2017
12.	Principal Investigator Answers to Full Proposal Screening Questions DUE	5 May 2017
13.	Conduct West Coast In-Progress Review	9-11 May 2017 (Naval Postgraduate School, Monterey, CA)
14.	Announce FY18 Needs Solicitation	1 June 2017
15.	Evaluate Full Proposals	by 8 June 2017
16.	Obtain Sponsor Review & Approval of Full Proposals DUE	29 June 2017
17.	Announce FY18 New Starts	31 July 2017
18.	Close FY18 Needs Solicitation	2 August 2017
19.	Screen Needs	7-11 August 2017
20.	Evaluate & Rank Needs	11-15 September 2017
21.	Obtain Sponsor Review & Approval of Needs	18 September - 6 October 2017
22.	Quarterly Status Reports Due	2 January 2017 3 April 2017 3 July 2017 2 October 2017

Check out our web site (www.nesdi.navy.mil) for the latest version of our program schedule.



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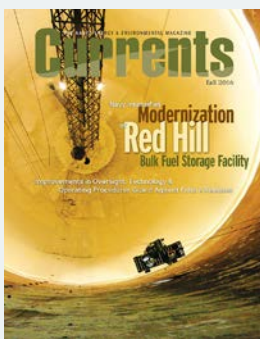
Getting on Our Mailing List

If you're not already on our mailing list and want to subscribe to *NESDI News*, please send your email address to Lorraine Wass at ljwass@outlook.com.

Contact Your TDWG Member

For more information about the operation of the NESDI program, contact Ken Kaempffe, the NESDI program manager, or members of the TDWG.

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In the Next Issue of *NESDI News*

There is a lot more information coming your way in the next issue of *NESDI News: Highlights & Happenings*. Each year, the NESDI program manager delivers a brief to the program's resource sponsor (OPNAV N45) that summarizes the program's efforts for the preceding fiscal year and lays out a plan for the next fiscal year.

In the next issue of *NESDI News*, we will give you some insights into the conversations we had at N45 about the current and future states of the NESDI program. We'll also bring you up-to-speed on our collection of pre-proposals to address our priority FY17 needs.

Until then, read our article "New Methodology Identifies, Quantifies Non-Point Sources of Metal Pollutants in Stormwater" about a NESDI program-sponsored methodology to identify and quantify non-point sources of metal pollutants in stormwater runoff. This article will appear in the fall 2016 issue of *Currents* magazine. You can read this article on-line and subscribe to *Currents* at <http://greenfleet.dodlive.mil/currents-magazine>.