

SERDP & ESTCP Announce 2014 Projects of the Year

Awards Showcase Program Successes

CONGRATULATIONS TO THE Strategic Environmental Research and Development Program (SERDP) and Environmental Security Technology Certification Program (ESTCP) Projects of the Year, recognized for research and technology developments with significant benefits to the Department of Defense (DoD). These outstanding efforts are helping DoD enhance its mission capabilities, improve its environmental and energy performance, and reduce costs. Details about their award-winning projects are available on the SERDP and ESTCP website at www.serdp-estcp.org/News-and-Events/News-Announcements/Program-News/SERDP-and-ESTCP-announce-2014-Projects-of-the-Year.

Recipients of this prestigious honor are as follows.

SERDP Projects of the Year

Environmental Restoration

Basic Research Addressing Contaminants in Low Permeability Zones (ER-1740)

Dr. Tom Sale, Colorado State University

Munitions Response

Decision Support Tools for Munitions Response Performance Prediction and Risk Assessment (MR-2226)

Dr. Laurens Beran, Black Tusk Geophysics

Resource Conservation & Climate Change

Shoreline Evolution and Coastal Resiliency at Two Military Installations: Investigating the Potential for and Impacts of Loss of Protecting Barriers (RC-1702)

Dr. Rob L. Evans, Woods Hole Oceanographic Institution

Weapons Systems & Platforms

Design-of-Experiment Approach to Hydrogen Re-Embrittlement Evaluation (WP-2152)

Mr. Scott M. Grendahl, U.S. Army Research Laboratory

ESTCP Projects of the Year

Energy and Water

Rapid Building Assessment (EW-201261)

Mr. Swapnil Shah, FirstFuel Software

Environmental Restoration

Use of On-Site Gas Chromatograph/Mass Spectrometer Analysis to Distinguish Between Vapor Intrusion and Indoor Sources of Volatile Organic Compounds (VOC) (ER-201119)

Use of Compound-Specific Stable Isotope Analysis to Distinguish Between Vapor Intrusion and Indoor Sources of VOCs (ER-201025)

Dr. Thomas McHugh, GSI Environmental Inc.

Munitions Response

Hand-Held Electromagnetic Induction Sensor for Cued Unexploded Ordnance (UXO) Discrimination (MR-200807)

Man-Portable Electromagnetic Induction Array for UXO Detection and Discrimination (MR-200909)

Dr. Dan Steinhurst, Nova Research, Inc.,

Dr. Tom Bell, Leidos

Mr. Glenn Harbaugh, Nova Research, Inc.

Weapons Systems & Platforms

Electrodeposition of Nanocrystalline Cobalt-Phosphorus Coatings as a Hard Chrome Alternative (WP-200936)

Mr. Ruben A. Prado and Mr. Jack Benfer, Fleet Readiness Center Southeast

Visit the SERDP and ESTCP blog at <https://serdp-estcp.org/News-and-Events/Blog> to read the blog entries about each of these award-winning projects.

SERDP is DoD's environmental science and technology program, planned and executed in partnership with the Department of Energy and the U.S. Environmental Protection Agency, with participation by numerous other Federal and non-Federal organizations. The Program focuses on cross-service requirements and pursues solutions to the Department's environmental challenges while enhancing and sustaining military readiness.

ESTCP is DoD's environmental technology demonstration and validation program. Projects conduct formal demonstrations at DoD facilities and sites in operational settings to document and validate improved performance and cost savings. Demonstration results are subject to rigorous technical reviews to ensure that the conclusions are accurate and well supported by data.

For more information, please visit www.serdp-estcp.org. 

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2014 Navy Community Service Environmental Stewardship Flagship Award Winners Announced

Navy Commands Engage in Exemplary Voluntary Community Service that Promotes Environmental Stewardship

THE NAVY ANNOUNCED the winners and honorable mentions in the 2014 Navy Community Service Environmental Stewardship Flagship Awards on November 18, 2014.

Deputy Chief of Naval Operations for Fleet Readiness and Logistics (N4) Vice Admiral Philip H. Cullom released a naval message listing the awardees. In the naval message, Cullom saluted the awardees.

“Your outstanding actions embody the Navy’s commitment to protecting the environment and enhancing our relations with our neighbors and local communities,” said Cullom. “Please accept my personal bravo zulu and thanks for your continued support of our Navy’s community service program.”

The 2014 winners by category are as follows:

Shore command category:

- Small (under 200 personnel): Navy Environmental and Preventative Medicine Unit 2, Norfolk, Virginia
- Large (500 or more personnel): Naval Base Coronado, California

Sea command category:

- Small: Fleet Ballistic Missile Operational Test Support Unit 2, Cape Canaveral, Florida
- Medium (200 to 499 personnel): Helicopter Sea Combat Squadron 23, San Diego, California
- Large: USS America (LHA 6)

Overseas command category:

- Large: Camp Lemonnier, Djibouti.

Commands receiving honorable mentions include:

- Small shore command: Naval Aviation Schools Command, Pensacola, Florida



USS America (LHA 6) won the 2014 Navy Community Service Environmental Stewardship Flagship Award in the sea command, large ship category.

- Large shore command: Naval Air Station Whidbey Island, Washington
- Small sea command: 21st Dental Company, Marine Corps Base Kaneohe Bay, Hawaii

Examples of winning initiatives include organizing educational community outreach events, recycling and participating in environmental conservation and enhancement projects, such as environmental clean-ups, shoreline restoration, tree and shrub plantings and invasive species removal.

Award winners will receive commemorative plaques, and honorable mentions will receive signed certificates from N4.

The Environmental Stewardship Flagship, which is sponsored by N4, is one of five flagships in the Navy Community Service program. The other four flagships are:

1. Personal Excellence Partnership
2. Project Good Neighbor
3. Campaign Drug Free
4. Health, Safety and Fitness

For additional information about the Navy’s energy, environment, and climate change initiatives, visit <http://greenfleet.dodlive.mil>.

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Nominations Sought for CNO Environmental Awards

Submissions Were Due January 9, 2015

REAR ADMIRAL KEVIN SLATES, director of Navy's Energy and Environmental Readiness Division (OPNAV N45), issued a formal call for nominations to Echelon II commands on September 10, 2014 to solicit nominations for the fiscal year (FY) 2014 Chief of Naval Operations (CNO) Environmental Awards competition.

Each year the CNO honors Navy ships, installations, teams, and individuals for outstanding work in Navy environmental programs. Awards categories alternate annually based on a two-year cycle (between odd and even fiscal years). The achievement period for the FY 2014 competition is October 1, 2012 through September 30, 2014.

Award nominations must be sent via command channels/ Echelon II commands to OPNAV N45. The deadline to submit nominations is 11:59 p.m. Eastern Standard Time January 9, 2015.

Echelon II commands may submit nominations for each of the following 11 award categories:

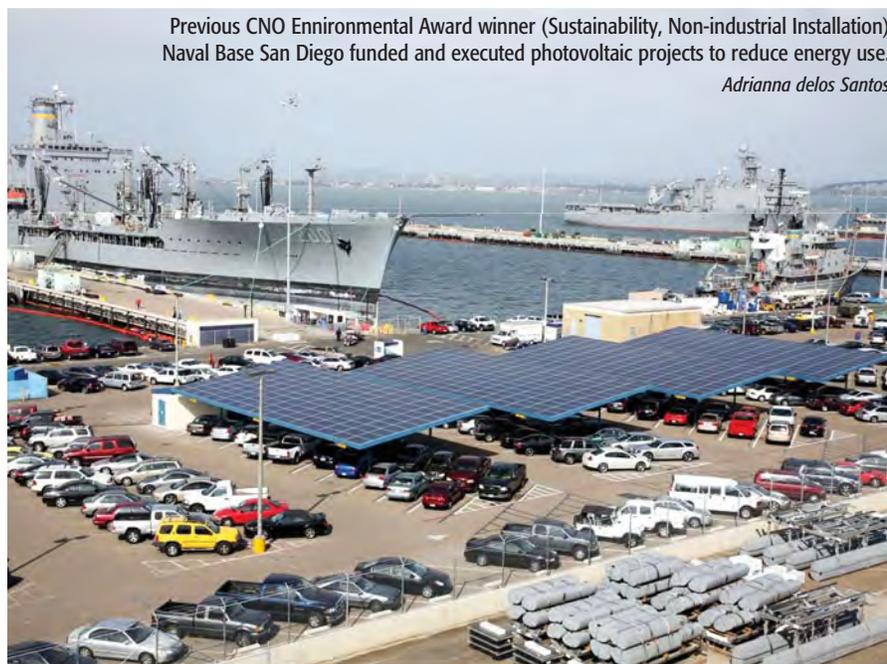
1. Natural Resources, Large Installation
2. Environmental Quality, Industrial Installation
3. Environmental Quality, Overseas Installation
4. Sustainability, Non-industrial Installation
5. Sustainability, Individual/Team
6. Environmental Restoration, Installation
7. Cultural Resources Management, Small Installation
8. Cultural Resources Management, Individual/Team

9. Environmental Excellence in Weapon System Acquisition, Small Program, Individual/Team

10. Environmental Planning, Team

11. Afloat (includes five competitive sub-categories)

Environmental experts from the government and private sector will evaluate nominations and determine winners at the CNO level of competition. CNO winners will advance to the Secretary of the Navy (SECNAV) Environmental Awards competition. Likewise, with the exception of winners in the Environmental Afloat and Environmental Planning categories-which are unique to the CNO and



Previous CNO Environmental Award winner (Sustainability, Non-industrial Installation) Naval Base San Diego funded and executed photovoltaic projects to reduce energy use.

Adrianna delos Santos

SECNAV levels of competition-eligible SECNAV winners will advance to the Secretary of Defense Environmental Awards competition.

For more information about the CNO Environmental Awards program and a list of past winners, visit <http://greenfleet.dodlive.mil/environment/awards>. 

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NAVSUP Launches Chemical Compatibility Program

New Program Ensures Compatibility of Hazardous Material Product Storage

PERSONNEL FROM THE Naval Supply Systems Command (NAVSUP) are launching the Chemical Compatibility Program (CCP) to help Sailors safely store hazardous materials. The ships use numerous chemicals that can react with each other and cause fires if they are stored improperly.

Hazardous Material Control and Management (HMC&M) is one of the most critical and diverse Product and Service (P&S) lines provided to the Fleet by Global Logistic Services (GLS) and all the Fleet Logistic Centers (FLC) worldwide. Products containing hazardous materials are used every day throughout the Navy during the maintenance, preservation, cleaning and upkeep of Navy assets. As a result, Sailors must determine how to safely store hazardous materials.

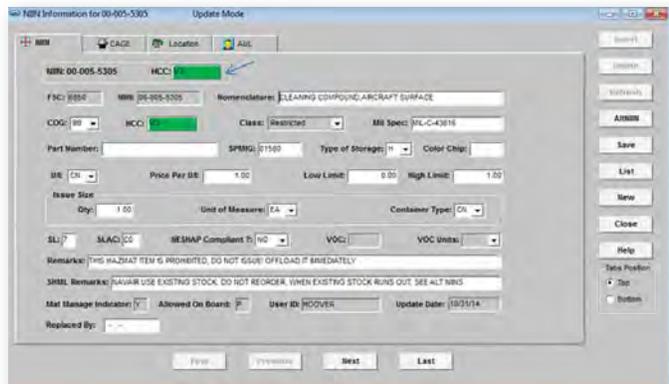
With help from the Naval Sea Systems Command, Board of Inspection and Survey (INSURV), the Navy Safety Center, NAVSUP Headquarters, NAVSUP Weapon Systems Support, and the Type Commanders, NAVSUP GLS personnel developed the CCP to help those Sailors make the proper storage determinations.

It is each Sailor's responsibility to determine which materials may be stored together and which materials should be segregated to minimize the risk of an unfavorable reaction.

Due to the corrosive, reactive, and flammable "hazardous" nature of many products, special care is required by all hands. It is each Sailor's responsibility to determine which materials may be stored together and which materials should be segregated

to minimize the risk of an unfavorable reaction. This is a manual and time consuming process that, by its very nature, is subject to human error.

To reduce the potential for that error and minimize the risks associated with other storage issues, the CCP was developed and has been incorporated into the Hazardous Inventory Control System (HICSWIN) software (version 3.0). When a National Item Identification Number (NIIN) is entered into HICSWIN, it assigns a Hazardous Characteristic Code (HCC) to that item. The HCC is the key element to determine where an item should be stored so that it will be stored in a location that is compatible with other items stored in the same area. Using the assigned HCC, the HICSWIN software assigns a color to that NIIN. It is this color code that the user will use to ensure that the item is stored with compatible items.



Chemical Compatibility Matrix

Color	Material Class	HCC	Yellow (B1.B3)	Light Blue (C1.E3)	Blue (G2)	Pink (F5.F6)	Orange (F7)	Light Green (N1)	Black (T1.F1.F7)	Green (S5.A7)
Yellow	Corrosive Alkali	B1.B3	0	0	0	0	0	0	0	0
Light Blue	Corrosive Acid, Inorganic	C1.E3	0	0	0	0	0	0	0	0
Blue	Corrosive Acid, Organic	G2	0	0	0	0	0	0	0	0
Pink	AAH, Unstabilized Oxidizer, Inorganic	F5	0	0	0	0	0	0	0	0
Light Gray	Oxidizer/Oxidizer and Poison	H1.H2	0	0	0	0	0	0	0	0
Orange	Oxidizer and Corrosive, Inorganic	I1	0	0	0	0	0	0	0	0
Yellow	Diluter and Corrosive, Alkali	D4	0	0	0	0	0	0	0	0
Pink	Flammable Liquid, Poison and Alkali	F5.F6	0	0	0	0	0	0	0	0
Orange	Flammable Liquid and Corrosive, Alkali	F7	0	0	0	0	0	0	0	0
Light Green	Not Regulated as Hazardous	N1	0	0	0	0	0	0	0	0
Black	Toxic/Poison	T1.F1.F7	0	0	0	0	0	0	0	0
Green	Acetone/Alcohol/Flammable Hydrocarbon	S5.A7	0	0	0	0	0	0	0	0

Key

- X Prohibited - Cannot be stored in the same compartment unless segregated by a NAVSEA approved cabinet
- 0 Restricted - Segregated in a manner that, in the event of leakage, mixing of hazardous materials would not occur
- + Allowed - Storage together is authorized

Notes:
 (1) Solids shall be stored above liquids
 (2) Follow the HCC process for obtaining missing or incorrect HCCs (CHIRMP Technician Deskguide)
 (3) For items not covered by the above matrix, consult HM coordinator, CHIRMP Technician, or NSTM 670 Appendix E
HCC-Specific Guidance:
 (1) C1-C4: Store concentrated nitric acid in acid locker, and keep distance from other acids. Store Bromine Cartridges in dedicated cabinets.
 (2) D4: Store Calcium Hypochlorite in designated NAVSEA approved locker. Do not store oxidizers in same compartment with flammables or combustibles.
 (3) G1-G9: Mount all stored gas cylinders to prevent them from falling or rolling (Grade B shock). Keep maximum distance possible between flammable (G2, G8) and oxidizer (G4, G7, G9) gases when not in use (e.g., oxygen/acetylene in welding)
 (4) VZ-VZ: All aerosols will be stored together within the same location within a storeroom. Further segregate aerosols from flammable liquids and gases in the same space using wire mesh or other barrier (e.g., locker) to prevent projectiles in case of fire

Products containing hazardous materials are used throughout the Navy during the maintenance, preservation, cleaning and upkeep of Navy assets. As a result, Sailors must determine how to safely store hazardous materials.

MC2 James R. Evans



The CCP assigns color codes to National Stock Numbers (NSN) by Hazardous Characteristic Code (HCC) groupings that have been determined compatible for storage. The program is user friendly even taking into account color blind personnel. (To accommodate color blind personnel, a description of the color (e.g., red, light blue) also appears along with the color assigned to a NIIN.) Storage locations are color coded during the implementation process and NSNs with the same color codes are placed within the corresponding locations.

HICSWIN 3.0 takes the CCP one step further by generating a chemical compatibility report to be run at the durations defined by the Hazardous Material Officer or supervisor. A warning is generated at the receipt or transfer of material if locations and materials are incompatible.

Every ship has a Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) technician who will be spearheading this initiative and implementing these two critical systems

(HICSWIN 3.0 and the actual process to implement CCP) across all Navy ship classes in all homeports. The CCP was incorporated into the hazardous materials management procedures aboard all ships and upgraded to HICSWIN 3.0 from a previous version of HICSWIN.

Questions about the CCP or HICSWIN upgrades should be directed to the appropriate ship CHRIMP technician, the NAVSUP GLS hazardous materials lead or Jehdia Bottinelli at the information provided. [📍](#)

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Ground Source Heat Pumps Improve Energy Efficiency in the Northwest

Naval Base Kitsap Finds Success with Renewable Energy System

A **NEW GROUND** source heat pump system came on-line in the fall of 2014 at Naval Base Kitsap Bremerton, Bachelor Enlisted Quarters (Building 1001) using the Navy's Energy Conservation Investment Program funding to cover the costs of installation.

Ground source heat pump technology uses the relatively constant temperature of the Earth to provide building heating and cooling via a heat exchange system. The efficiency of ground source systems is considerably higher than that of traditional air source systems, and ground source heat pump systems are considered a renewable energy technology.

The first system installed under the same project came on-line in the fall of 2013 at Building 1044, and is operating effectively and efficiently through its first heating and cooling seasons. Ground source heat pumps provided approximately 80 percent of the building's heat requirement and base steam provided the remaining 20 percent when outside temperatures were the coldest. Such hybrid systems are often the best option for the Northwest's climate. The hybrid configuration allows the heat exchange piping to be sized to cover the load most of the time, rather than all of the time. It significantly reduces the installation cost while still providing most of the efficiency benefit. Building 1044's ground source heat pump system provides both heating and cooling for the facility.



Naval Base Kitsap Installation Energy Manager Paul Songe-Moller and Resource Efficiency Manager Brian Dimak check readings at the source, in the Building 1044 mechanical room, in preparation for the measurement and verification phase of the ground source heat pump system project.

Ground source heat pump systems require drilling wells or excavating the grounds surrounding the building to install heat exchange piping, which makes the first cost considerably higher than for other heating and cooling options. Buildings without sufficient land adjacent for the heat exchange piping are not candidates for the technology.

According to the Department of Energy, ground source heat pump systems use 25 to 50 percent less electricity than conventional heating or cooling systems, and compared to air source heat pumps, they are quieter,

Ground Source Heat Pump Cost & Savings

Initiative/Project	Cost	Annual Cost Savings	Annual Energy MBTU Savings	Annual Water KGAL Savings	Simple Payback (Years)
Install Ground Source Heat Pumps at Bachelor Quarters (Buildings 1001 and 1044)	\$3,577,015	\$301,345	22,853	1,635	11.9

MBTU = million British thermal units, KGAL = thousand gallons

last longer, need little maintenance, and do not depend on the temperature of the outside air.

Naval Base Kitsap has had previous success with this basic technology. Systems installed under the Fiscal Year 2010 Energy Savings Performance contract for six buildings at Naval Base Kitsap's Keyport site have shown reduced maintenance and improved comfort over the previous systems.

Additionally, a system that exchanges heat directly with the Hood Canal, a large and deep body of salt water adjacent to Naval Base Kitsap's Bangor site, has been in operation for ten years. Other attempts to install systems that exchange heat directly in salt water have not proven viable in the Northwest. The main reasons have been the greater expense of heat exchangers that can withstand the corrosive nature of salt water, and environmental concerns over potentially changing the temperature of specific areas in the waters of Puget Sound where systems were considered. Bremerton and Keyport sites are located on the Puget Sound rather than the Hood Canal. One unusual factor that made the Bangor salt water system economi-

cally viable was that it was not practical to extend natural gas to the location, and the facility was previously heated with expensive electric resistance heat.

Ground source heat pumps are classified as a renewable energy technology, which could help the Navy meet Executive Ordered renewable energy goals. Since most renewable energy technologies have relatively long paybacks, ground source heat pump systems may compete well if funding becomes available specifically for renewable energy projects.

When the facility is a good candidate for the technology, ground source heat pumps are one of the most economically viable renewable energy options for the Northwest. 

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Tell Your Story in *Currents* • Due Date for Summer 2015 Issue Submissions is April 17, 2015

Do you have a good story to tell about your energy or environmental accomplishments and want to share it with others? *Currents*, the Navy's official energy and environmental magazine, has won first place in the Navy's Chief of Information Merit awards competition three times. So it's a great place to tell your story.

Your experiences take on new meaning when you share them with *Currents* readers and on Facebook.

If you have a story that you'd like us to consider for our summer 2015 issue, you need to submit your article and images by Friday, April 17, 2015. Any submissions received after this date will be considered for our fall 2015 issue.

You can get a copy of the *Currents* article template by sending an email to Bruce McCaffrey, our Managing Editor, at brucemccaffrey@sbcglobal.net. And if writing isn't one of your strengths, don't worry about it. Bruce and his team will handle all of the editing necessary to get your story into publishable form.

Bruce is also available at 773-376-6200 if you have any questions or would like to discuss your story ideas.

As a reminder, your Public Affairs Officer must approve your article before *Currents* can consider it for inclusion in the magazine.

Don't forget to "like" *Currents* on Facebook at www.facebook.com/navycurrents. *Currents'* Facebook page helps expand the reach of the magazine and spread the news about all the great work you're doing as the Navy's energy and environmental guardians.

Currents Deadlines

Summer 2015 Issue: Friday, April 17, 2015
Fall 2015 Issue: Friday, July 17, 2015
Winter 2016 Issue: Friday, October 16, 2015
Spring 2016 Issue: Friday, January 15, 2016

You can also refer to your *Currents* calendar for reminders about these deadlines.

Join SERDP and ESTCP for an Upcoming Webinar

Promoting the Transfer of Innovative, Cost Effective & Sustainable Solutions

THE STRATEGIC ENVIRONMENTAL Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP) have launched a webinar series to promote the transfer of innovative, cost effective and sustainable solutions developed by SERDP and ESTCP. The series targets the end users, including practitioners, the regulatory community and researchers. The primary objective of the series is to provide the end users with cutting-edge and practical information from sponsored research and technology demonstrations in an easily accessible format at no cost to the participant.

The webinars are held approximately every two weeks on Thursdays from 12:00 to 1:30 PM Eastern time. Each webinar features distinguished speakers from one of SERDP and ESTCP's five program areas:

1. Energy and Water
2. Environmental Restoration
3. Munitions Response
4. Resource Conservation and Climate Change
5. Weapons Systems and Platforms

The series is currently scheduled through May 2015. Initial webinar topics have included vapor intrusion assessments at contaminated sites, new tools for advancing the understanding of marine mammal behavioral ecology, waste to energy technologies, energy audits and the management of contaminated sediment sites. Following the completion of each live webinar, archives of the presentation and audio will be available online. Future planned webinar topics include dense non-aqueous phase liquid (DNAPL) source zone management, acoustic methods for underwater munitions, solar technologies, lead free electronics and many others.



Future planned webinar topics include acoustic methods for underwater munitions, solar technologies, lead free electronics and many others.

To view the complete schedule of upcoming webinars and access archived files of past webinars, visit www.serdp-estcp.org/Tools-and-Training/Webinar-Series.

SERDP is the Department of Defense's (DoD) environmental science and technology program, planned and executed in partnership with the Department of Energy and the U.S. Environmental Protection Agency, with participation by

WEBINAR SERIES SCHEDULE FEBRUARY–MAY 2015

Date	Webinars	Presenters
February 5, 2015	Acoustic Methods for Underwater Munitions	Dr. Joseph Bucaro (Naval Research Laboratory) Dr. Kevin Williams (APL University of Washington)
February 19, 2015	Solar Technologies	
March 5, 2015	Lead Free Electronics	Dr. Peter Borgesen (Binghamton University, The State University of New York) Dr. Stephan Meschter (BAE Systems)
March 19, 2015	Bioremediation Approaches at Chlorinated Solvent Sites	Ms. Carmen Lebrón (Private Consultant) Dr. John Wilson (Scissortail Environmental Solutions, LLC) Dr. Robert Hinchee (Integrated Science and Technology, Inc.)
March 26, 2015	Resource Conservation and Climate Change	
April 16, 2015	Blast Noise Measurements and Community Response	Mr. Jeffrey Allanach (Applied Physical Sciences Corp.) Dr. Edward Nykaza (U.S. Army Engineer Research and Development Center)
May 7, 2015	Munitions Mobility	
May 28, 2015	Managing Munition Constituents on Training Ranges	Dr. Paul Hatzinger (CB&I Federal Services) Dr. Thomas Jenkins (Thomas Jenkins Environmental Consulting)

numerous other Federal and non-Federal organizations. The program focuses on cross-service requirements and pursues solutions to the Department's environmental challenges while enhancing and sustaining military readiness.

ESTCP is DoD's environmental technology demonstration and validation program. Projects conduct formal demonstrations at DoD facilities and sites in operational settings to document and validate improved performance and cost savings. Demonstration results are subject to rigorous tech-

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For more information, visit www.serdp-estcp.org. 

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Navy Launches "Energy Warrior" Campaign

New App Showcases Sailors, Projects That Can Disrupt the Future of Energy

IN SEPTEMBER 2014, the Navy released a new digital publication (app) called "Energy Warrior" that highlights the efforts of Sailors and other naval personnel who are taking innovative steps to conserve energy, lead behavioral change, and get the maximum warfighting punch out of every gallon. The current app can be downloaded and installed for free for use on Mac and Android tablets.

Related videos are posted on an Energy Warrior playlist on the U.S. Navy YouTube channel. Short summary videos are being provided to Armed Forces Radio and Television Service (AFRTS) channels and can be viewed aboard ships via Direct-to-Sailor (DTS) beginning this month.

Videos in this version of the app include profiles of Fire Controlman Chief Petty Officer Christopher Roberts, who started a competition aboard USS Benfold (DDG 65) that is optimizing shipboard energy use; retired Marine Corps infantry officer Eric McElvenny, who helps retired military personnel transition to energy-related careers through the Troops to Engineers/Energy Systems Technology Evaluation (ESTEP) Program; and Matt Schreck, energy program manager for Fleet Readiness Center Southwest, who is seeking ways to reduce energy waste to better support the warfighter on the front lines.

The app also provides facts about worldwide energy use, U.S. oil production, and Navy's ongoing energy projects that are supportive of the Secretary of the Navy and Chief of Naval Operations energy goals.

"Energy isn't something most of us walk around thinking about every day—we just power up our equipment and get to work," said Rear Admiral Kevin Slates, director of the Chief of Naval Operations Energy and Environmental Readiness Division. "This app and related videos can help our Sailors and civilians understand how truly critical energy is, both to our daily jobs and to enable combat capability through greater distance, increased time on station, and the ability to carry more and new payloads."



This app and related videos can help our Sailors and civilians understand how truly critical energy is.

—Rear Admiral Kevin Slates

Plans are underway for additional video profile interviews for a future version of the app. Commands with innovative energy projects, people, and ideas are encouraged to contact the Navy's energy team at energywarrior@navy.mil.

For additional information, visit the Energy Warrior page at <http://greenfleet.dodlive.mil/energy/energywarrior>. 

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