SERDP and ESTCP Overview

Herb Nelson
herbert.h.nelson10.civ@mail.mil
571-372-6400

SERDP
DOD • EPA • DOE
Strategic Environmental Research and Development Program

ESTCP
Environmental Security Technology Certification Program
DoD’s Environmental Technology Programs

Science and Technology

DoD, DOE, EPA Partnership
- Fundamental research to impact real world environmental management
- Advanced technology development to address near-term needs

Demonstration/Validation

- Demonstrate Innovative Cost-Effective Environmental and Energy Technologies
- Promote Implementation
  - Direct Technology Insertion
  - Partner with End User and Regulator
Environmental Drivers

Sustainability of Ranges, Facilities, and Operations

Threatened and Endangered Species
Maritime Sustainability

Toxic Air Emissions and Dust

UXO & Munitions Constituents

Noise

Sustainable FOB

Changing Conditions

NEMC August 2018
Environmental Drivers

Reduction of Current and Future Liability

Contamination from Past Practices

- Groundwater, Soils and Sediments
- Large UXO Liability
- Emerging Contaminants

Pollution Prevention to Control Life Cycle Costs

- Elimination of pollutants and hazardous materials in Manufacturing, Maintenance, and Operations
- Achieve compliance through pollution prevention
- Develop and assess alternative technologies

NEMC August 2018
DoD Drivers of SERDP’s Work

- Training land availability
- Corrosion control
- PFOS/PFOA contamination
- Underwater UXO remediation
- Reliable and accurate data for planners
- ....
Program Area Management Structure

- Weapons Systems & Platforms
- Environmental Restoration
- Energy & Water (ESTCP only)
- Resource Conservation & Resiliency
- Munitions Response

SERDP  |  ESTCP
NEMC August 2018
Mission:
Through investments in Research, Development, Testing, and Evaluation (RDT&E), develop and transition knowledge, tools, and technology to enhance DoD’s mission effectiveness though management of DoD’s built and natural infrastructure.

Priorities:
Meet DoD needs and consider potential RDT&E impacts.
Key DoD Policies

- Department of Defense Directive 3200.15: Sustaining Access to the Live Training and Test Domain
  - Preserve and sustain access and operational use of the live training and test domain needed to support current and future requirements through management that incorporates sound environmental principles and range sustainment considerations.
  - Sustain the resiliency and capacity of areas used for training and test through management that balances usage and level of maintenance to support realistic training and testing.

- Department of Defense Directive 4715.1E: Environment, Safety, and Occupational Health (ESOH)
  - Manage installation assets to sustain the DoD national defense mission.
  - Manage the ESOH risks that DoD activities generate.
  - Prevent pollution, illness and injury, ensure cost-effective compliance, and maximize the existing resource capability.
  - Protect the public from risk of death, injury, illness, or property damage because of DoD activities.
Resource Conservation & Resiliency Strategic Goals

Through RDT&E investments

- Maintain near and long term training and test capacity

  - Minimize and prevent restrictions to training and testing today and in the future that arise from environmental regulations

- Manage the natural assets and mitigate the natural conditions that can impact installation infrastructure

- Ensure safe and healthy conditions on the installation
Weapons Systems and Platforms Goals

- Reduce or eliminate the use of hazardous materials in its production and maintenance processes
- Reduce hazardous waste streams
  - Better understand and mitigate emissions and other environmental impacts that result from its operations
- Ensure that alternative technologies, materials, and processes are adequately vetted from an environmental perspective
Weapons Systems and Platforms Investment Areas

- Developing green alternative energetic compounds
- Understanding and mitigating military noise and emissions
- Removing hazardous materials such as hexavalent chromium and volatile organic compounds from manufacturing and repair processes
- Examining the use of alternative fuels and hybrid technology in vehicles
- Determining the impact of using lead-free solder in electronic components
- Examining accelerated aging protocols to yield tests that can accurately predict coating lifetimes
- Understanding and predicting life-cycle environmental costs
Weapons Systems and Platforms
FY-19 Statements of Need

- Aircraft Engine Noise Reduction Technology
- Predictive Corrosion Models to Mitigate Environmental Hazards
- Additive manufacturing of Gun Propellants with Reduced Environmental Impact
- Novel Pyrotechnics that Reduce Environmental Impact
- Multifunctional Fibers and textiles for Warfighter Integrated Protection
Environmental Restoration

● Mission
  ♦ To restore and manage contaminated lands on current and former military installations.
  ♦ To develop and demonstrate innovative technologies to characterize, remediate, and scientifically manage contaminants in soil, sediments, and ground, surface and waste water.

● Impacts
  ♦ Reduce the cost of remediation of DoD lands
  ♦ Sustain the DoD’s testing and training ranges
  ♦ Create sustainable and more self sufficient Forward Operating Bases
Environmental Restoration Drivers

- DoD Liability: Over 30,000 DoD sites: total cost >$50B
- Major cost driver is contaminated groundwater
- Most common groundwater contaminant is chlorinated solvents (i.e., TCE, PCE)
- Many emerging contaminants and unique DoD groundwater contaminants
  - PFOS & PFOA
  - 1,4-Dioxane
  - Energetics (i.e., TNT, RDX, etc.)
  - Propellants (i.e., perchlorate)
Environmental Restoration
Major Focus Areas

- Contaminated groundwater
  - Contaminants on ranges
  - Contaminated sediments
  - Wastewater treatment
  - Risk assessment
FY-20 Key Dates

SERDP Statements-of-Need and call for pre-proposals  late October 2018
SERDP pre-proposals due  early January 2019
SERDP full proposals due  March 2019

ESTCP Topics and call for pre-proposals  early January 2019
ESTCP pre-proposals due  March 2019
ESTCP full proposals due  early August 2019
FY-18 Projects By Organization

SERDP - 91 Total
- Education: 63%
- DoD: 14%
- Other Federal: 9%
- Business: 12%

ESTCP - 38 Total
- Education: 13%
- DoD: 37%
- Business: 50%
For More Information

serdp-estcp.org