SERDP Funding Opportunities

- You can listen to the presentation two different ways:
  1. Listen to the broadcast audio if your computer is equipped with speakers
  2. Call into the conference line at:
     - U.S.:
       - +1 929 205 6099
       - +1 301 715 8592
       - +1 312 626 6799
       - +1 669 900 6833
       - +1 253 215 8782
       - +1 346 248 7799
     - Conference ID: 991 6106 6140
- For questions or issues please contact the SERDP Office at 571-372-6565.

FY 2022 SERDP Funding Opportunities

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DoD’s Environmental Technology Programs

SERDP

Science and Technology

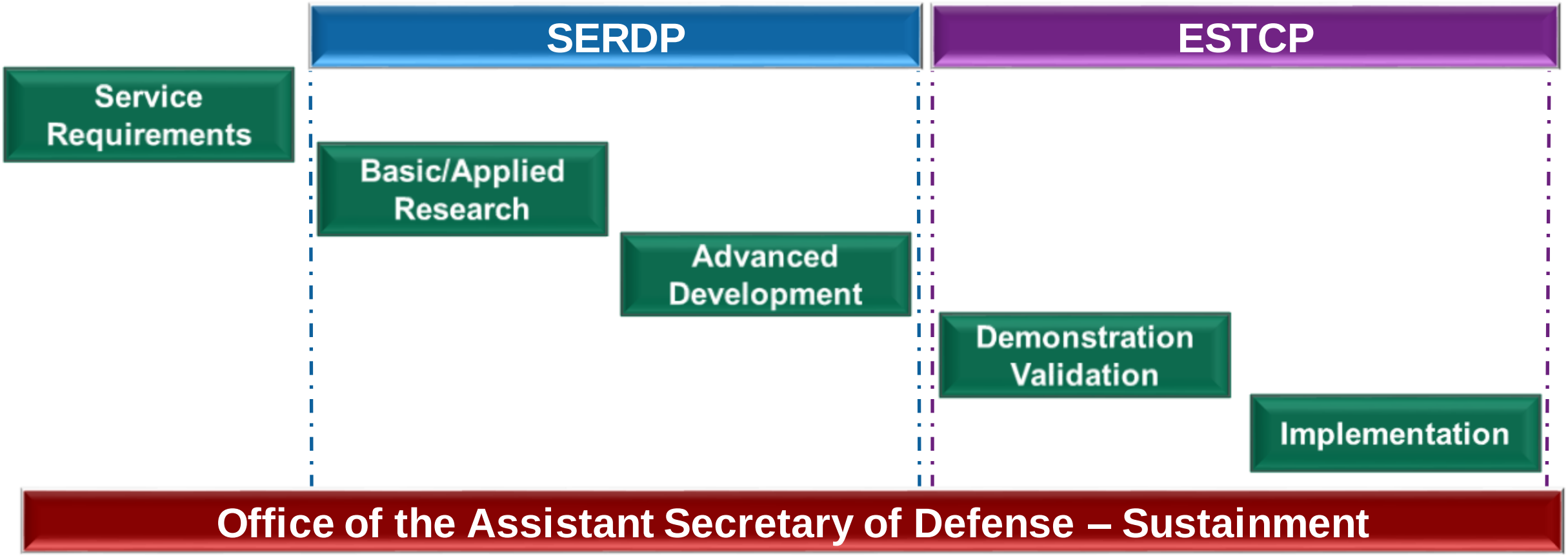
ESTCP

Demonstration and Validation

Strategic Environmental Research and Development Program (SERDP)

- Established by Congress in FY 1991
  - 10 U.S.C. Section 2901 - 2904
  - DoD, DOE and EPA partnership
  - 6.3 Program Element with statutory authority to support 6.1 through 6.3
- High-priority environmental science and technology areas that address
  - DoD unique issues
  - Environmental issues with large costs to DoD

Environmental Technology Development Process



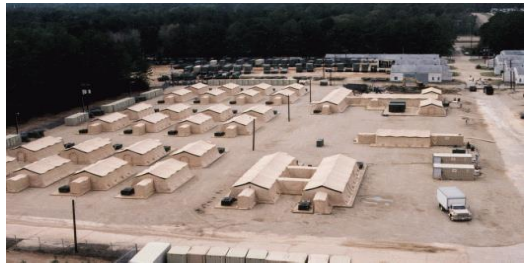
Environmental Drivers

Sustainability of Ranges, Facilities, and Operations

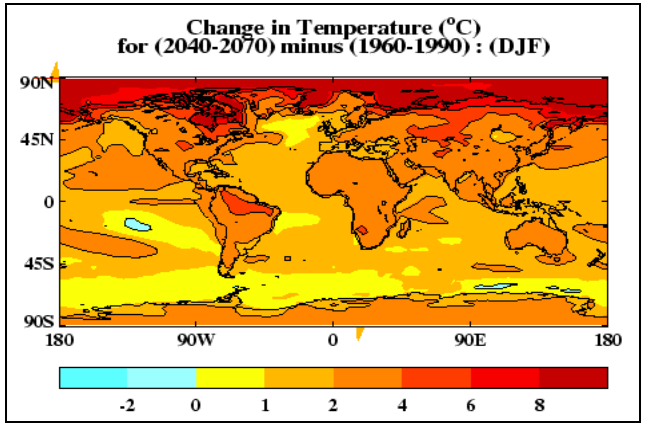
Threatened and Endangered Species
Maritime Sustainability

Toxic Air Emissions and Dust

UXO & Munitions Constituents



Sustainable FOB



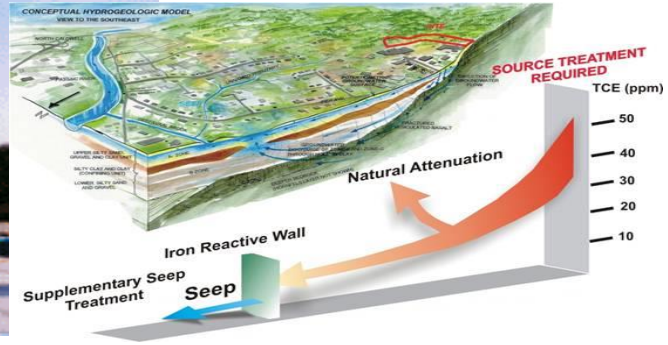
Changing Environment

Noise

Environmental Drivers

Reduction of Current and Future Liability

Contamination from Past Practices



- Groundwater, soils and sediments
- Large UXO liability
- Emerging contaminants

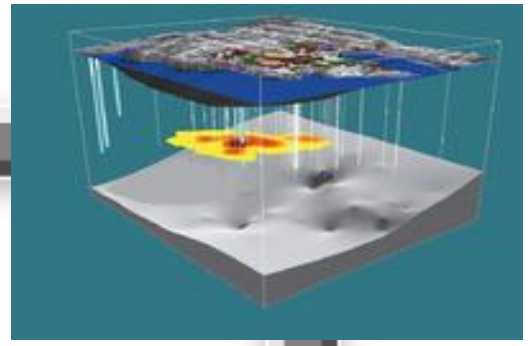
Pollution Prevention to Control Life Cycle Costs

- Elimination of pollutants and hazardous materials in manufacturing maintenance and operations
- Achieve compliance through pollution prevention

Program Area Management Structure

Weapons Systems & Platforms

Environmental Restoration



Resource Conservation & Resiliency

Munitions Response

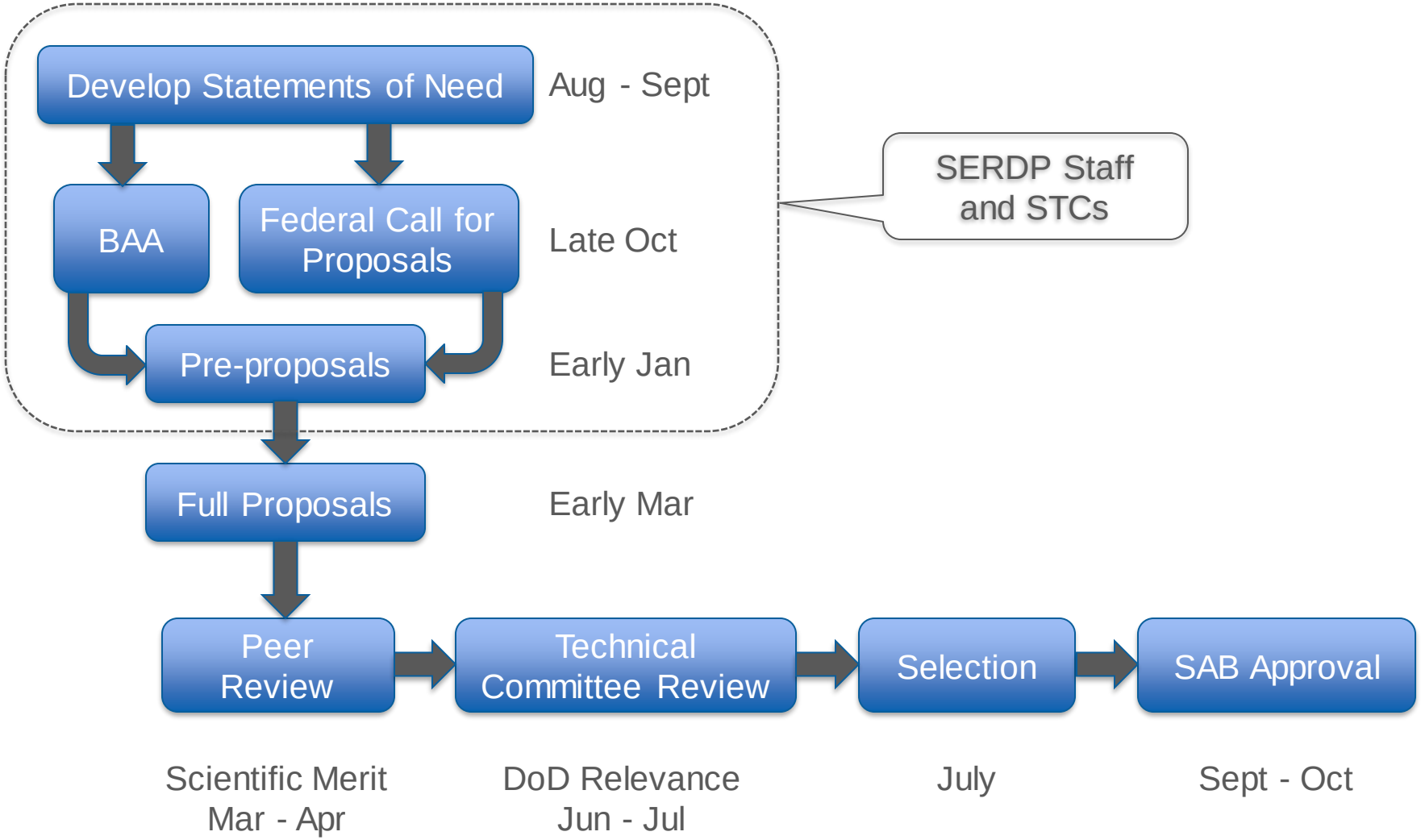
SERDP Technical Committees

SERDP Solicitations

- Core Statements of Need (SON)
  - Multiple awards per SON
  - Multi-year proposals & limited scope proposals
  - Broad Agency Announcement (BAA)
    - Universities, industry, and non-governmental organizations
  - Federal Call
    - DoD and other Federal agencies

- SERDP Exploratory Development (SEED) SON
  - $250K or less and approximately 1 year
  - Seeks innovative high-risk and high-payoff work
  - BAA and Federal Call

SERDP Funding Process



Core Solicitation Dates

January 7, 2021, 2:00 ET	**Pre-proposals Due**
Early February 2021	Full Proposals Requested
March 4, 2021, 2:00 ET	Full Proposals Due
July - August 2021	Selection Notifications Sent
September - October 2021	Present to Scientific Advisory Board
Spring 2022	Project Initiation

Visit the SERDP website for details
https://www.serdp-estcp.org/Funding-Opportunities

SEED Solicitation Dates

March 4, 2021, 2:00 ET	**Full Proposals Due**
July - August 2021	Selection Notifications Sent
Spring 2022	Project Initiation

Visit the SERDP website for details
https://www.serdp-estcp.org/Funding-Opportunities

FY21 Solicitation Success Statistics

Core	Pre-proposals to Selection	Full Proposal to Selection
FY21 SERDP BAA	15%	36%
FY21 SERDP Federal	10%	38%
FY21 SERDP All	14%	37%

SEED	Pre-proposals to Selection	Full Proposal to Selection
FY21 SERDP BAA	-	21%
FY21 SERDP Federal	-	0%
FY21 SERDP All	-	20%

Proposal Selection Criteria - Core

- Relevance (Pass/Fail)
  - Does it address the SON Objective?
  - Is it basic research, applied research, or advanced technology development?
- Technical Merit
  - Overall scientific and technical merit of the submission
- Personnel
  - Qualifications, capabilities, and achievements
- Cost
  - Reasonable for the technical complexity
- Additional Criteria for Full Proposal Evaluation
  - Transition Plan

SEED Selection Criteria

- Relevance (Pass/Fail)
  - Does it address the SON Objective?
  - Is it basic research, applied research, or advanced technology development?
- Technical Merit
  - Overall scientific and technical merit of the submission
  - Strong consideration will be given to innovation
- Transition Potential
  - Clear identification of the critical proof of concept
  - Identification of the future development path

Hallmarks of a Competitive Proposal

- Clearly addresses the Statement of Need
- Demonstrates an understanding of the state of the science
- Hypothesis driven work
- Focused on the technical approach
  - Detailed approach
  - Clear experimental design

FY 2022 Statements of Need

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Environmental Restoration

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Improved Understanding of the Ecotoxicity of Mixtures of Per- and Polyfluoroalkyl Substances (PFAS)

- Develop an improved understanding of the ecotoxicity of chemical mixtures associated with the release of Aqueous Film-Forming Foam (AFFF), specifically mixtures of PFAS found in environmental media.
  - Produce data to determine the toxicity of PFAS mixtures.
  - Develop or apply a mixtures methodology for predicting potential toxicity.
  - Identify PFAS mixtures of most concern in order to enhance risk management decisions and address risk communication concerns.
- Ecotoxicity of PFAS mixtures at environmentally relevant concentrations is of particular concern and proposed efforts should include such an assessment.

https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs

Improved Understanding of the Ecotoxicity of PFAS in the Marine Environment

- Develop an improved understanding of the ecotoxicity of PFAS associated with the release of AFFF in the marine environment.
  - Produce data to support development of toxicity reference values for marine species in water and sediments for perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and other relevant PFAS using controlled data from laboratory investigations.
  - Provide data on PFAS bioaccumulation and biomagnification from marine pelagic and/or benthic organisms into shellfish or fish that may be used to support food web modeling.
  - Determine the relative toxicity of other PFAS or classes of PFAS as compared to PFOA and PFOS in order to enhance risk management decisions and address risk communication concerns.
- Ecotoxicity of PFAS at environmentally relevant concentrations is of particular concern and proposed efforts should include such an assessment.

https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs

Improved Understanding of Ecological Toxicity and Risk of PFAS in Avian Species

- Develop an improved understanding of the ecological toxicity and risk associated with PFAS in avian species.
  - Develop an improved understanding of the uptake and excretion rates of PFAS by avian species.
  - Develop and/or validate modeling tools that can define exposures in comparison to established avian toxicity reference values.
  - Assess PFAS bioaccumulation and biomagnification throughout a food web with avian species as the receptor.
  - Determine whether observed PFAS mixtures in avian tissue, serum or eggs are correlated with any adverse population level effects.
- Preference to a holistic food web approach with emphasis on biomagnification through various prey/food items.

https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs

Treatment of PFAS-impacted Matrices

- Develop cost effective remedial technologies for matrices impacted by PFAS resulting from the use AFFF formulations.
  - Develop treatment approaches for PFAS-impacted matrices, including but not limited to groundwater, soils, aquatic sediments, spent media, and AFFF concentrate.
  - Develop approaches for complete destruction of PFAS bound onto spent media, regeneration of spent media, and treatment of associated ancillary waste streams.
  - Evaluate treatment technologies using field-impacted media containing PFAS mixtures and common environmental treatment complications.
  - Develop treatment train approaches that cost-effectively treat PFAS and facilitate treatment of co-contaminants.
  - Conduct field monitoring events to document thermal destruction of PFAS.
- Preference is for small-scale, proof-of-concept efforts, but larger research efforts will be considered with supporting rationale.

https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs

Munitions Response

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Detection, Localization, Classification, and Remediation of Military Munitions Underwater

- Develop technologies to detect, classify, and remediate military munitions found at underwater sites.
- Proposals addressing any aspect of munitions response for underwater sites will be considered, with particular interest in the following topics:
  - Wide area and detailed surveys
  - Machine language
  - Munition burial and mobility
  - Biofouling and corrosion of munitions
  - LIDAR
  - Harbor dynamics and activity impact on munitions
  - Cost-effective recovery and disposal
- FY 2022 SEED SON with the same technical requirements.

Resource Conservation and Resiliency

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Threatened, Endangered, and At Risk (TES) Terrestrial Species' Response to Multiple Stressors

- Advance scientific understanding of DoD relevant TES and their population response to exposure from multiple stressors.
- Interdisciplinary research to explore solutions to the problem of predicting the effects of multiple stressor interactions with population, including the relevant theory, data, and measurement systems required for understanding the cumulative effects of exposure to multiple stressors.
- Terrestrial species of relevance to DoD include, but are not limited to:
  - Golden-cheeked warbler (*Setophaga chrysoparia*)
  - Streaked Horned lark (*Eremophila alpestris strigata*)
  - Least Bell's vireo (*Vireo bellii pusillus*).

Saltwater Intrusion Impacts on DoD Installation Infrastructure

- Objectives are to improve the understanding of how:
  - Future sea-level change interacts with other factors that govern the level of the subsurface water table spatially and temporally.
  - Future sea-level change interactions impact saltwater intrusion spatially and temporally.
  - Scenarios can be developed that describe the combined interactions in a non-stationary climate and their impacts on DoD subsurface infrastructure and assets.
- Specific research needs include the following:
  - Reduced-order subsurface water level models that incorporate sea-level change scenarios, total water levels, local groundwater associated with the unconfined aquifers, precipitation and runoff, and, where applicable, river discharge.
  - Reduced-order saltwater intrusion models that incorporate the information in Research Need 1 and salinity data to determine current conditions and future changes in local salinity profiles.
  - Development and application of broadly applicable and transferable subsurface exposure scenarios based on the modeling results from Research Needs 1 and 2 that correspond with sea-level change scenarios.
- Proposals should seek to address all objectives and research needs.

Weapons Systems and Platforms

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Advanced Computational Methodologies for Rapid Assessment of Energetic Materials

- Develop computational methods and validated models capable of predicting toxicological and physical properties related to novel energetic materials.
- Systems approaches to investigate compounds and synergistic effects of their formulations are preferred.
- Models should be capable of predicting one or more of the following toxicology parameters on energetic material datasets:
  - Mutagenicity
  - Acute and chronic toxicity using representative exposure routes
  - Irritation/sensitization
  - Developmental/reproductive toxicity
  - Carcinogenicity
- Models are needed for prediction of physical properties relevant for assessing environmental fate and transport.

Functional Additives and Foam Formation To Enhance PFAS-free Fire Suppressants for Military Use

- Develop functional additives and/or modifications of existing fire-fighting equipment to enhance the fire-suppression performance of mature and emerging PFAS-free fire suppressants for military use.
  - Functional additives should provide increased performance for currently available firefighting foams through foam enhancement or alternative suppression mechanisms.
  - Alternative foam production methodologies that are compatible with current fire trucks and infrastructure are also needed.
- Proposals should address one or more of the following objectives:
  - **Performance**: Provide data on the firefighting performance of the proposed solution.
  - **Storability**: Evaluate factors affecting the long-term safe storage of the proposed functional additives.
  - **Compatibility**: Determine the compatibility of the proposed functional additives with the foam, foam delivery equipment, and infrastructure.
- Proposals focused on compressed air foams or ultra-high-pressure nozzles will not be considered.

Development of Chromium-free Treatments and Processes

- Identify alternative formulations for surface preparation and protection that do not contain chromium.
  - Passivates for aluminum, magnesium and widely-used corrosion control coatings
  - Corrosion inhibitors in paint primers
  - Sealers for anodize coatings
  - Adhesives, sealants, and gap fillers
  - Corrosion inhibitors in paint strippers
- Solutions that are broadly applicable to a number of materials and applications are of particular interest.

Characterizing Products from Thermal Degradation of Polymeric PFAS in Munitions

- Characterize and quantify products from thermal degradation of polymeric PFAS in munitions and develop a mechanistic understanding of such processes.
- Of particular interest is understanding the impact of energetic materials on the thermal degradation of polymeric PFAS as well as how varying temperatures and thermal residence times impact such degradation.
- Work will primarily be conducted at the laboratory scale so as to provide a basis for future validation at the field scale.
- Must provide rationale for any deviations from standard sampling and analytical methodologies for measuring thermal degradation products of PFAS.

Critical Mineral And Rare Earth Element (REE) Recovery, Recycling And Reuse (SEED)

- Develop a framework and provide initial laboratory scale tools for securing critical minerals and REE by recovery, recycling, and reuse in DoD weapons systems and platforms.
- Ultimate goals are as follows:
  - Minimize waste during recycling.
  - Increase use of post-production waste.
  - Enhance product recycling and reuse at end-of-life disposition.
  - Reduce the hazardous waste streams while improving environmental safety and occupational health.
  - Provide a new source of material to DoD's supply chain.

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SYMPOSIUM

2020 ◆ Enhancing DoD's Mission Effectiveness

November 30 – December 4, 2020 (Virtual)

www.symposium.serdp-estcp.org

Questions?

SERDP Website

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