**Supplemental Table 1. Completed and On-Going AFFF-Derived PFAS Projects with SERDP&ESTCP through May 2020**

| Principal Investigator | Institution | Project Title |
|---|---|---|
| ***Analytical and Environmental Sampling Methods*** | | |
| Lee Slater | Rutgers Univ. | Bench-Scale Assessment of NMR and CRS Technologies for Rapid Assessment of PFAS in Soils and Sediments |
| Graham Peaslee | Univ. Notre Dame | Developing PIGE into a Rapid Field-Screening Test for PFAS |
| Jinxia Liu | McGill Univ. | Development and Validation of Analytical Methods for Comprehensive Profiling of PFAS in AFFF In Environmental Media |
| Jennifer Field | Oregon State Univ. | Assessing and Mitigating Bias in PFAS Levels during Ground and Surface Water Sampling |
| David Hanigan | Univ. Nevada, Reno | Rapid Site Profiling of Organofluorine: Quantification of PFAS by Combustion Gas Analysis |
| Joseph Quinnan | Arcadis-US Inc | Validation of Streamlined Mobile Lab-Based Real Time PFAS Analytical Methods |
| Lee Blaney | Univ. of Maryland Baltimore County | Ion exchange membranes and fibers as passive samplers for chemically-diverse PFAS |
| Yin Wang | Univ. of Wisconsin | Development of a Novel PFAS Passive Sampler with Efficient Sorbent Media and Robust Membrane Barrier |
| Craig Divine | Arcadis-US Inc | Osorb® Media Use in Per- and Polyfluoroalkyl Substances (PFAS) Passive Samplers |
| Sarit Kaserzon | Univ. of Queensland | Development of passive sampling methodologies for per- and polyfluoroalkyl substances |
| Mei Sun | Univ. of North Carolina at Charlotte | Passive samplers for per- and polyfluoroalkyl substances with innovative sorbents |
| Rainer Lohmann | Univ. of Rhode Island | Development and field-testing of advanced passive samplers for PFASs |
| Upal Ghosh | Univ. of Maryland Baltimore County | Development of novel functionalized polymeric thin films for equilibrium passive sampling of PFAS compounds in surface and groundwater |
| Julian Fairey | Univ. of Arkansas | Development of a Diffusive Gradients in Thin-Films Passive Sampling Methodology for Per- and Polyfluoroalkyl Substances in Water |
| Benjamin Place | NIST | Improving Access and Utility of Analytical Data for the Confident Discovery, Identification, and Source-Attribution of PFAS in Environmental Matrices |
| Mark Benotti | NewFields Government Services | Establishing an Approach to PFAS Forensics and a PFAS Source Materials Forensic Library |
| Tohren Kibbey | Univ. of Oklahoma | Machine Learning Pattern Recognition for Forensic Analysis of Detected Per- and Polyfluoroalkyl Substances in Environmental Samples |
| Jens Blotevogel | Colorado State Univ. | Ultrahigh-Resolution Fourier-Transform Ion Cyclotron Resonance Mass Spectrometry for Fingerprinting, Source Tracking, and Allocation of Per- and Polyfluoroalkyl Substances (PFASs) |
| David Sedlak | Univ. of California, Berkeley | A Simple and Robust Forensic Technique for Differentiating PFAS Associated with AFFF from other PFAS Sources |
| Chris Higgins | Colorado School of Mines | Comprehensive Forensic Approach for Source Allocation of Poly- and Perfluoroalkyl Substances |
| Craig Divine | Arcadis-US Inc | Vertebrae™ Segmented Horizontal Wells for Monitoring Contaminant Mass Discharge |
| ***Ecotoxicity and Ecological Risk Assessment*** | | |
| Matt Simcik | Univ. Minnesota | Development of TRVs for Birds Exposed to PFOS, PFOA and Associated Mixtures of Fluorinated Compounds |
| Marisol Sepulveda | Purdue Univ. | Development of Amphibian PFAS TRVs for use in Ecological Risk Assessment at AFFF Sites |
| Michael Quinn | U.S. Army Public Health | Development of Toxicity Data to Support Toxicity Reference Values for Perfluorinated Compounds |
| Chris Salice | Towson Univ. | Advancing the Understanding of the Ecological Risk of PFAS |
| Frank Gobas | Simon Fraser Univ. | A Framework for Assessing Bioaccumulation and Exposure Risks of PFAS in T&E Species on AFFF-Impacted Sites |
| Jason Conder | Geosyntect Consultants | Guidance for Assessing the Ecological Risks of PFAS to T&E Species at AFFF-Impacted Sites |
| Jamie Suski | EA Engineering | Investigating Potential Risk to T&E Species from PFAS on DoD Sites |
| Craig Divine | Arcadis-US Inc | Approach for Assessing PFAS Risk to T&E Species |
| Marie Kurz | Drexel University | Uptake and Bioaccumulation/Biomagnification of Subsurface-Derived PFAS by Lotic, Warm Water Food Webs |
| Roman Kuperman | USACCDC - Chem Bio Cntr | Determination of Biomagnification Potentials forPFAS in Terrestrial Food-webs |
| Chris Salice | Towson Univ. | Physiological, Ecological and Environmental Determinants of PFAS Accumulation in Fish: Towards an Improved Bioaccumulation Model |
| Matt Simcik | Univ. Minnesota | Developing a Predictive Understanding of PFAS Bioaccumulation with Environmental Complexity |
| Xiaoqin Wu | Lawrence Berkeley National Lab | Comparative Assessment of Toxicity and Bioaccumulation of PFAS-Free Formulations in Terrestrial Plants and Model Soil Invertebrates |
| Roman Kuperman | USACCDC - Chem Bio Cntr | Soil Ecotoxicity of PFAS-Free Surfactant Formulations |
| Michael Quinn | U.S. Army Public Health | Assessing the Ecotoxicity of PFAS-Free Surfactant Formulations in Wild Mice and Japanese Quail |
| Ed Wirth | NOAA | Ecotoxicity of PFAS-Free Fire Fighting Foams |
| Jamie Suski | EA Engineering | Multi-taxa ecotoxicity of Novel PFAS Free Foam versus New Generation Short Chain PFAS Aqueous Film Forming Foam Products |
| Jason Hoverman | Purdue Univ. | The relative toxicities of current use aqueous film forming foams and next generation alternatives to aquatic species for informing risk assessment |
| ***Fate, Transport and Characterization*** | | |
| John Kornuc | US NAVFEC | Characterization of the Nature and Extent of PFAS in Environmental Media at DoD Sites for Informed Decision-Making |
| Linda Abriola | Tufts | Development and Laboratory Validation of Mathematical Modeling Tools to Predict PFAS Fate and Transport at AFFF Source Areas |
| Charles Schaefer | CDM Smith | Insights into the Long-Term Mass Discharge & Transformation of AFFF in the Unsaturated Zone |
| Jennifer Field | Oregon State Univ. | A Mechanistic Understanding of PFAS in Source Zones: Characterization and Control |
| Elsie Sunderland | Harvard Univ. | Evaluating the Importance of Precursor Transport and Transformation for Groundwater Contamination with PFAS |
| Jeff Silva | GSI North America Inc. | Baseline Data Acquisition and Numerical Modeling to Evaluate the Fate and Transport of PFAS within the Vadose Zone |
| Brian Shedd | USACE | Fate and Transport Mechanics for PFAS under Controlled Aquifer Conditions and Correlation to Existing Data |
| Jennifer Guelfo | Texas Tech Univ. | Development and Validation of Novel Techniques to Assess Leaching and Mobility of Per and Polyfluoroalkyl Substances (PFAS) in Impacted Media |
| Paul Tranyek | Oregon Health and Science Univ. | In Silico Prediction of Fate and Risk-Determining Properties of Per- and Polyfluoroalkyl Substances (PFAS) |
| Charles Schaefer | CDM Smith | PFAS Leaching at AFFF-Impacted Sites: Insight into Soil-to-Groundwater Ratios |

**Supplemental Table 1. Completed and On-Going AFFF-Derived PFAS Projects with SERDP&ESTCP through May 2020**

| Principal Investigator | Institution | Project Title |
|---|---|---|
| ***Groundwater Remediation Methods*** | | |
| Chris Higgins | Colorado School Mines | Behavior of Perfluoroalkyl Chemicals in Contaminated Groundwater |
| Qingguo Huang | Univ. Georgia | Remediation of Perfluoroalkyl Contaminated Aquifers using an In Situ Two-Layer Barrier |
| Jennifer Field | Oregon State Univ. | Characterization of the Fate and Biotransformation of Fluorochemicals in AFFF-Contaminated Groundwater at DOD Sites |
| Shaily Mahendra | UC Los Angeles | Bioaugmentation with Vaults: Novel In Situ Remediation Strategy for Transformation of Perfluoroalkyl Compounds |
| Michelle Crimi | Clarkson Univ. | In Situ Chemical Oxidation of Sorbed Contaminantsfor Remediation of PFAS-Contaminated Groundwater: |
| Charles Schaefer | CDM Smith | Investigating Electrocatalytic and Catalytic Approaches for in situ Treatment of PFAS Contaminants in Groundwater |
| Matt Simcik | Univ. Minnesota | Coagulant-enhanced Sorption for In Situ Remediation of PFAS Contaminated Groundwater Systems |
| Linda Lee | Purdue Univ. | Quantification of In Situ Chemical Reductive Defluorination of Perfluoroalkyl Acids in Ground Water Impacted by AFFFs |
| John Kornuc | US NAVFEC | Field Demonstration to Enhance PFAS Degradation and Mass Removal Using Thermally-Enhanced Persulfate Oxidation |
| Nathan Hagelin | Amec Foster Wheeler | Removal and Destruction of PFAS and Co-contaminants from Groundwater |
| Kenan Ozekin | WERF | Evaluation and Life Cycle Comparison of Ex-Situ Treatment Technologies for PFAS in Groundwater |
| David Reynolds | Geosyntect | In-Situ Treatment of PFAS Using D-FAS Technology |
| Joseph Quinnan | Arcadis-US Inc | PFAS Groundwater Treatment using Sub-Micron Powdered Activated Carbon and Ceramic Membrane Filter System |
| Kurt Pennell | Brown Univ. | Coupled Physicochemical and Biological Systems for In Situ Remediation of PFAS and Chlorinated Solvent Groundwater Plumes |
| Lisa Alvarez-Cohen | UC Berkeley | In situ Remediation of AFFF and Common Co-Contaminants withChemical Oxidation and Bioremediation |
| Qingguo Huang | Univ. Georgia | A Novel Reactive Electrochemical Membrane System for Treatment of Mixed Contaminants |
| Jens Blotevogel | Colorado State Univ. | Synergistic Treatment of Mixed 1,4-Dioxane andPFAS Contaminations by Combining Electrolytic Degradation with Electrobiostimulation |
| Chris Higgins | Colorado School Mines | Fate and Transport Processes Impacting the Mass Discharge, Attenuation, and Treatment of PFAS and Comingled Chlorinated Solvents or Aromatic Hydrocarbons |
| Damian Helbling | Cornell Univ. | Rational Design and Implementation of Novel Polymer Adsorbents for Selective Uptake of PFAS from Groundwater |
| Mark Fuller | Aptim | Ex Situ Treatment of PFAS Contaminated Groundwater Using Ion Exchange with Regeneration |
| Reyes Sierra-Alvarez | Univ. Arizona | Remediation of PFAS Contaminated Groundwater Using Cationic Hydrophobic Polymers as Ultra-High Affinity Sorbents |
| Timothy Strathmann | Colorado School Mines | Regenerable Resin Sorbent Technologies with Regenerant Solution Recycling for Sustainable Treatment of PFAS |
| Jing Zhou/Dora Chiang | CDM Smith | An Electrocoagulation and Electrooxidation Treatment Train to Degrade PFAS and Other Persistent Organic Contaminants in Groundwater |
| Jinyong Liu | UC Riverside | Treatment of Legacy and Emerging Fluoroalkyl Contaminants in Groundwater: Rapid and Regenerable Adsorption and UV-Induced Defluorination |
| Paul Edmiston | College of Wooster | Removal of Complex Mixtures of Perfluoroalkyl Acids from Water Using Molecularly Engineered Coatings on Sand and Silica |
| Michelle Crimi | Clarkson Univ. | Combined In Situ/Ex Situ Treatment Train for Remediation of PFAS Contaminated Groundwater |
| Qingguo Huang | Univ. Georgia | Electrochemical Oxidation of Perfluoroalkyl Acids in Still Bottoms from Regeneration of Ion Exchange Resins |
| Douglas Call | Research Triangle | Electrically Assisted Sorption and Desorption of PFAS |
| Mandy Michalsen | USACE | Molecular Design of Effective and Versatile Adsorbents for Ex Situ Treatment of AFFF-Impacted Groundwater |
| Rula Deeb | Geosyntec | Lines of Evidence to Assess the Effectiveness of PFAS Remedial Technologies |
| Dick Luthy | Stanford Univ. | Prevention of Sediment Recontamination by Improved BMPs to Remove Organic and Metal Contaminants from Stormwater Runoff |
| Staci Simonich | Oregon State Univ. | Development, Evaluation, and Technology Transfer of BMPs for Optimizing Removal of PAHs, PCBs, PFAS, and Metals from Stormwater at DoD Sites |
| Danny Reible | Texas Tech Univ. | Development of Tools to Inform the Selection of Stormwater Controls at DoD Bases to Limit Potential Sediment Recontamination |
| Jinxia Liu | McGill Univ. | Microbially-mediated defluorination of high-priority per- and polyfluoroalkyl substances: Microorganisms, genetics, and biochemistry |
| Peter Jaffe | Princeton Univ. | Biotransformation and Potential Mineralization of PFOS, PFHxS, and PFOA by Acidimicrobiaceae sp. A6 under Iron Reducing Conditions |
| Yujie Men | Univ. of California, Riverside | Identification, Characterization, and Application of Reductive Defluorinating Microorganisms |
| Bruce Rittmann | Arizona State Univ. | A Synergistic Platform for Defluorination of Perfluoroalkyl Acids (PFAAs) through Catalytic Reduction Followed by Microbial Oxidation |
| Pedro Alvarez | Rice Univ. | Biodegradation of Per- and Polyfluoroalkyl Substances (PFASs) via Superoxide-Hyper-Producing Bacteria |
| Matt Simcik | University of Minnesota | In Situ PFAS Sequestration in AFFF Contaminated Groundwater |
| Paul Hatzinger | Aptim Federal Services, LLC | Validation of colloidal activated carbon for preventing the migration of PFAS in groundwater |
| Dave Lippincott | Aptim Federal Services, LLC | Anion Exchange Permeable Adsorptive Barriers (PABs) for In Situ PFAS Immobilization and Removal |
| Joseph Quinnan | Arcadis-US Inc | Ex situ Soil Washing to Remove PFAS Adsorbed to Soils from Source Zones |

**Supplemental Table 1. Completed and On-Going AFFF-Derived PFAS Projects with SERDP&ESTCP through May 2020**

| Principal Investigator | Institution | Project Title |
|---|---|---|
| ***Treatment of PFAS Residuals*** | | |
| Hyeok Choi | Univ. Texas Arlington | Chemical Decomposition Combined with Physical Adsorption for the Treatment of Investigation-Derived Waste Containing PFAS |
| Brian Chaplin | Univ. Illinois Chicago | Reactive Electrochemical Membrane Reactors for the Oxidation of Perfluoroalkyl Compound Contaminated Water |
| Jinyong Liu | UC Riverside | High-Performance Treatment of PFAS from Investigation-derived Waste: Integrating Advanced Oxidation-Reduction and Membrane Concentration |
| Timothy Strathmann | Colorado School Mines | Hydrothermal Technologies for On-Site Destruction of Site Investigation Wastes Contaminated with PFAS |
| Zach Hendren | Research Triangle | Effective Destruction of PFAS in Water by Modified SiiC-Based Photocatalysts |
| Don Zhao | Auburn Univ. | A Cost-Effective Technology for Destruction of PFAS from DoD Subsurface Investigation-Derived Wastes |
| Hailiang Dong | Miami Univ. | Complete Reductive Defluorination of PFAS by Hydrated Electrons Generated from 3-Indole-acetic-acid in Chitosan-Modified Montmorillonite |
| Thomas Boving | Univ. Rhode Island | Innovative Treatment of Investigation-Derived Waste Polluted with PFAS and Other Co-Contaminants |
| Paul Koster van Groos | Aptim | Small-Scale Thermal Treatment of Investigation-Derived Wastes Containing PFAS |
| Christopher Sales | Drexel Univ. | Application of Non-Thermal Plasma Technology for the Removal of PFAS from Investigation-Derived Wastes |
| Frank Barranco | EA Engineering | Evaluation of Indirect Thermal Desorption Coupled with Thermal Oxidation Technology to Treat Solid PFAS-impacted Investigation-Derived Waste |
| Dave Major | Geosyntec | Demonstration of Smoldering Combustion Treatment of PFAS-impacted Investigation-Derived Waste |
| David Jassby | UC Los Angeles | A Combined Photo/Electrochemical Reductive Pathway Towards Enhanced PFAS Degradation |
| Ezra Cates | Clemson Univ. | Pilot Scale Assessment of a Deployable Photocatalytic Treatment System Modified with BiPO4 Catalyst Particles for PFAS Destruction in Investigation-Derived Waste |
| James Hatton | Jacobs Engineering | Field Demonstration of Infrared Thermal Treatment of PFAS-contaminated Soils from Subsurface Investigations |
| Suresh Pillai | Texas A&M Univ. | Ex Situ Remediation of Investigation-Derived Wastes containing PFAS by Electron Beam Technology |
| Thomas Holsen | Clarkson Univ. | Plasma Based Treatment Processes for PFAS Investigation Derived Waste |
| Lisa Yu | Amriton LLC | Destruction of PFAS and Organic Co-Contaminants in Water and Soil Present in Investigation-Derived Waste at DoD Sites using Novel Adsorbent and Ultrasound |
| Jennifer Wehrmann | Paragon Professional Services, LLC | Ex Situ Thermal Treatment of Perfluoroalkyl and Polyfluoroalkyl Substances |
| Ramona Iery | U.S. Navy Facilities Engineering | In Situ Thermal Treatment of PFAS in the Vadose Zone |
| Marc Deshusses | Duke Univ. | Supercritical Water Oxidation (SCWO) for Complete PFAS Destruction |
| Selma Mededovic | DMAX Plasma LLC | An Innovative Plasma Technology for Treatment of AFFF Rinsate from Firefighting Delivery Systems |
| Matthew Magnuson | U.S. EPA | Clean or Replace? Decontamination framework for firefighting equipment and hangers and disposal of PFAS contaminated waste |
| Ian Ross | Arcadis-US Inc | Demonstration and Validation of Environmentally Sustainable Methods to Effectively Remove PFASs from Fire Suppression Systems |
| Chris Bellona | Colorado School of Mines | Remediation of AFFF-Impacted Fire Suppression Systems Using Nanofiltration and Electrochemical Treatment |
| Kent Sorenson | CDM Smith | Sustainable Firefighting System Cleanout and Rinsate Treatment Using PerfluorAd Coupled with Electrochemical Destruction |
| ***Development of PFAS-Free AFFF*** | | |
| Satya Chauhan | Battelle | Validation of PFAS-free AFFF against Military Specification Performance Criteria |
| Jerry Back | Jensen Hughes, Inc. | Capabilities Assessment of Commercially Available PFAS-Free Foams |
| Brian Lattimer | Jensen Hughes, Inc. | Screening Tests for PFAS-Free Firefighting Foams |
| Hans Ewoldsen | Nu Element, Inc. | A PFAS-free, 100% Bio-based Fire-fighting Material |
| Joseph Tsang | USN Air Warfare Cntr. | Novel PFAS-Free Replacement For Aqueous Film Forming Foam |
| John Payne | National Foam | PFAS-Free Aqueous Film Forming Foam |
| Ramagopal Ananth | U.S. Naval Research Lab | PFAS-free Foams with Oleophobic Surfactants and Additives for Effective Pool Fire Suppression |
| Matthew Davis | NAWCWD China Lake | Surfactants with Organosilicate Nanostructures for Use as Fire-Fighting Foams (F3) |
| Ramagopal Ananth | U.S. Naval Research Lab | Stability of PFAS-free Foams with Siloxane Surfactants for Improved Pool Fire Suppression |
| Jaspreet Dhau | Molekule Inc | Innovative Nano-Encapsulated Ionic Liquid-based Surfactants for PFAS-free Fire Extingfuishing Foams |
| Kris Rangan | Materials Modification | PFAS free aqueous film forming foams based on functional siloxanes |
| Jeffery Owens | Air Force Civil Engineer Center | Enhancement of PFAS-free Fire Fighting Agents for Compressed Air Foam Applications |
| Braden Giordano | US Naval Research Laboratory | Polyethylene Oxide-based Polymer Formulations for PFAS Free Fire Suppression |
| Kris Rangan | Materials Modification | Additive Enhanced Siloxane Surfactants for Fire Fighting Foams |
| Jaspreet Dhau | Molekule Inc | Innovative Nano-Encapsulated Ionic Liquid-Based Surfactants for PFAS-Free Fire Extinguishing Foams |
| Tirumalai Sudarshan | Materials Modification | Aqueous Film Forming Foams based on Biodegradable Natural Surfactants and Additives |
| Kris Rangan | Materials Modification | Hollow Microspheres based Fire Fighting Foams |
| Robert Kasowski | P N Solutions Inc. | Extinguishing Class B Fires with PNS, an Environmentally-Friendly Compound |
| Satya Chauhan | Battelle Memorial Institute | Validation of PFAS-Free Fire Suppression Alternatives (FF_FSA) against Military Specifications |
| David Munroe | ACAF Systems | PFAS-Free Foam / Compressed Air Foam, Fire Suppression Alternative |
| Thierry Carriere | ADA Technologies, Inc. | Testing of New PFAS-Free Green Surfactant Mixtures to Replace AFFF |
| Amee Polk | CCDC Chemical Biological Center | Demonstration and Validation of PFAS Free Fire Suppression Alternatives |