

**Draft IRP- and MMRP-related Trainings  
Online and In-Person Training**

Program Area (Installation Restoration Program (IRP) or Military Munitions Response Program (MMRP))	Course Title/ID	Date of Course/Location	Sponsor Organization	Weblink	Course Description	Length of Course	Cost	Audience	Test (Y/N)	Certificate (Y/N)
IRP	High-Resolution Site Characterization (HRSC) Training	Ongoing/In Person	EPA	<a href="https://www.clu-in.org/characterization/technologies/hrsc/hrscctraining.cfm">https://www.clu-in.org/characterization/technologies/hrsc/hrscctraining.cfm</a>	Specialized training course for groundwater HRSC.	Two and a half days	No tuition	Registered Guests	N	Y
IRP	Microgrid Implementation and Considerations for Improved Energy Resilience—Part 2	June 27, 2024/Webinar	SERDP and ESTCP	<a href="#">Microgrid Implementation and Considerations for Improved Energy Resilience—Part 2 (serdp-estcp.mil)</a>	Reliability and energy resilience of distributed energy resources (DERs), defining methods to quantify them, as well as outline performance expectations.	One and a half hours	No tuition	Registered Guests	N	N
IRP	Federal Facilities Online Academy: Federal Facility Five-Year Review	July 11, 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: Federal Facility Five-Year Review</a>	Overview of CERCLA five-year reviews.	Two hours	No tuition	Registered Guests	N	Y
IRP	Advances in Sustainable Energetics	July 11, 2024/Webinar	SERDP and ESTCP	<a href="#">Advances in Sustainable Energetics (serdp-estcp.mil)</a>	Advances in sustainable chemical biomanufacturing for commercial applications as well as solutions to address hazardous byproducts	One and a half hours	No tuition	Registered Guests	N	N
IRP	Evaluating and Integrating Cumulative Environmental Impacts in Superfund Human Health Risk Assessments	July 23, 2024/Webinar	EPA OLEM	<a href="#">CLU-IN   Training &amp; Events &gt; Evaluating and Integrating Cumulative Environmental Impacts in Superfund Human Health Risk Assessments</a>	Framework to assess and manage human exposure to a release and the threat of a release in the environment from pollutants and contaminants	One and a half hours	No tuition	Registered Guests	N	Y
IRP	Federal Facilities Online Academy: Role of Superfund Performance Measures	August 8, 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: Role of Superfund Performance Measures</a>	Course that will identify the role of performance measures, including environmental indicators, how to justify their status, and how to achieve an under-control status at Superfund sites	Two hours	No tuition	Registered Guests	N	Y
IRP	Improving Measurement Accuracy for PFAS Passive Samplers	August 8, 2024/Webinar	SERDP and ESTCP	<a href="#">Improving Measurement Accuracy for PFAS Passive Samplers (serdp-estcp.mil)</a>	The development of novel thin films to improve equilibrium passive sampling and the deployment of a high-resolution passive profiler at two DoD sites	One and a half hours	No tuition	Registered Guests	N	N

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IRP	2024 ASTSWMO Superfund and Brownfields Symposium	August 13, 2024 and August 15, 2024 in Portland, OR	ASTSWMO CERCLA and Brownfields Subcommittee	<a href="#">2024 ASTSWMO Superfund and Brownfields Symposium – ASTSWMO</a>	Information-sharing opportunities among speakers and attendees regarding approaches and strategies used by State Brownfield and Superfund programs in remediating, restoring, and revitalizing the various sites across the country	Two days	Specific cost information can be found on the Weblink.	State and territorial removals and emergency response program members, EPA headquarters and regional staff, Federal Agency officials, and other partners.	N	N
IRP	Development of Assessment Tools for Downscaled Global Climate Models	August 22, 2024/Webinar	SERDP and ESTCP	<a href="#">Development of Assessment Tools for Downscaled Global Climate Models (serdp-estcp.mil)</a>	The development of decision support tools designed to aid DoD infrastructures in assessing data from global climate models.	One and a half hours	No tuition	Registered Guests	N	N
IRP	2024 ASTSWMO Materials Management Workshop	September 10, 2024 and September 11, 2024 in Philadelphia, PA	ASTSWMO	<a href="#">2024 ASTSWMO Materials Management Workshop – ASTSWMO</a>	More information will be posted once it becomes available	Two days	Specific cost information can be found on the Weblink.	State and territorial removals and emergency response program members, EPA headquarters and regional staff, Federal Agency officials, and other partners.	N	N
IRP	Federal Facilities Online Academy: Record of Decision (RODs) and More at Federal Facilities	September 12, 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: Record of Decision (RODs) and More at Federal Facilities</a>	Overview of how early and interim actions, adaptive management, RODs, Explanations of Significant Differences (ESDs), and ROD Amendments are used at Federal Facilities.	Two hours	No tuition	Registered Guests	N	Y
IRP	Developing and Demonstrating Technologies for the Destruction of PFAS in Concentrated Liquid Waste Streams	September 12, 2024/Webinar	SERDP and ESTCP	<a href="#">Developing and Demonstrating Technologies for the Destruction of PFAS in Concentrated Liquid Waste Streams (serdp-estcp.mil)</a>	The validation of a novel photocatalytic media and the demonstration of hydrothermal alkaline treatment for PFAS treatment.	One and a half hours	No tuition	Registered Guests	N	N
IRP	Effects of Multiple Stressors on Marine Mammals and Terrestrial Species on DoD Lands	September 26, 2024/Webinar	SERDP and ESTCP	<a href="#">Effects of Multiple Stressors on Marine Mammals and Terrestrial Species on DoD Lands (serdp-estcp.mil)</a>	Advancing the understanding of the cumulative risk of multiple stressors on marine mammals, and exploring the nature, drivers, and impacts of interactions among multiple stressors affecting at-risk species.	One and a half hours	No tuition	Registered Guests	N	N
IRP	Understanding PFAS Toxicity in AFFF-Impacted Marine Environments and Relative Toxicities of PFAS-Free Foams	October 10, 2024/Webinar	SERDP and ESTCP	<a href="#">Understanding PFAS Toxicity in AFFF-Impacted Marine Environments and Relative Toxicities of PFAS-Free Foams (serdp-estcp.mil)</a>	Investigators will discuss impacts to marine food webs and benthic biota exposed to impacted marine sediments associated with aqueous film-forming foam (AFFF) impacts, as well as research on acute and chronic toxicity of PFAS-free foam alternatives.	One and a half hours	No tuition	Registered Guests	N	N

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IRP	Developing PFAS-Free Firefighting Foams	October 17, 2024/Webinar	SERDP and ESTCP	<a href="#">Developing PFAS-Free Firefighting Foams (serdp-estcp.mil)</a>	Research into surfactant transport and its applicability to both firefighting foams and bilgewater emissions, and the development of fluorine-free siloxane containing and alkylpolyglycoside surfactants to develop an optimized firefighting mixture.	One and a half hours	No tuition	Registered Guests	N	N
IRP	2024 ASTSWMO Annual Meeting	October 17, 2024 and October 18, 2024 in Washington D.C.	ASTSWMO	<a href="#">2024 ASTSWMO Annual Meeting – ASTSWMO</a>	ASTSWMO's annual meeting	Two and a half days	Specific cost information can be found on the Weblink.	State and territorial removals and emergency response program members, EPA headquarters and regional staff, Federal Agency officials, and other partners.	N	N
IRP	Federal Facilities Online Academy: RCRA/CERCLA Integration	October 24, 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: RCRA/CERCLA Integration</a>	Overview of how the RCRA and CERCLA can be integrated at Federal Facilities through use of Federal Facility Agreements, regulator coordination, and lead regulator approach	Two hours	No tuition	Registered Guests	N	Y
IRP	Federal Facilities Online Academy: Groundwater Policy Overview	November 13, 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: Groundwater Policy Overview</a>	Overview of EPA groundwater policies and guidance with emphasis on cleanups at federal facilities.	Two hours	No tuition	Registered Guests	N	Y
IRP	Tools and Sensors for Characterizing PFAS Source Zones	November 21, 2024/Webinar	SERDP and ESTCP	<a href="#">Tools and Sensors for Characterizing PFAS Source Zones (serdp-estcp.mil)</a>	Validation of analytical tools to provide information critical to overall PFAS mass discharge, perfluoroalkyl acid formation potential, and organic fluorine mass balance. In addition, investigators will talk about the use of real-time remote sensors to improve the efficiency of sampling and overall monitoring at PFAS vadose source zones.	One and a half hours	No tuition	Registered Guests	N	N
IRP	Federal Facilities Online Academy: Coordinating with Tribes at Federal Facilities	December 12, 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: Coordinating with Tribes at Federal Facilities</a>	Overview of EPA policy on consultation and coordination with Indian Tribes at federal facilities.	Two hours	No tuition	Registered Guests	N	Y
IRP	Analyzing Building Operations Data for Improved Performance and Energy Savings	December 12, 2024/Webinar	SERDP and ESTCP	<a href="#">Analyzing Building Operations Data for Improved Performance and Energy Savings (serdp-estcp.mil)</a>	Investigators will discuss fault detection and diagnostics technologies and their potential to provide cost savings and efficiency gains at DoD installations, as well as the use of automated fault detection and diagnostics for centralizing and streamlining mechanical faults in buildings.	One and a half hours	No tuition	Registered Guests	N	N
IRP	2025 ASTSWMO Annual Meeting	April 16, 2025 and April 17, 2025 in Oklahoma City, OK	ASTSWMO	<a href="#">2025 ASTSWMO Mid-Year Meeting – ASTSWMO</a>	2025 ASTSWMO Mid-Year Meeting	Two and a half days	Specific cost information can be found on the Weblink.	State and territorial removals and emergency response program members, EPA headquarters and regional staff, Federal Agency officials, and other partners.	N	N

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IRP	Microgrid Implementation and Considerations for Improved Energy Resilience—Part 1	June 2024/Webinar	SERDP and ESTCP	<a href="#">Microgrid Implementation and Considerations for Improved Energy Resilience—Part 1 (serdp-estcp.mil)</a>	DoD-funded research efforts to increase energy resilience through microgrids	One and a half hours	Registered Guests	N	N
IRP	Federal Facilities Online Academy: Resolving Issues before Formal Dispute	June 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: Resolving Issues before Formal Dispute</a>	Federal Facilities Online Academy: Resolving Issues before Formal Dispute	Two hours	Registered Guests	N	Y
IRP	Microgrid Implementation and Considerations for Improved Energy Resilience—Part 1	June 2024/Webinar	SERDP and ESTCP	<a href="#">Microgrid Implementation and Considerations for Improved Energy Resilience—Part 1 (serdp-estcp.mil)</a>	The inclusion of private utilities in a microgrid planning framework to improve widespread cost-effective microgrid deployments. Investigators will also discuss the development of energy resilience training to standardize understanding and promote the use of microgrids at DoD installations.	One and a half hours	Registered Guests	N	N
IRP	Microplastics Training	June 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Microplastics Training</a>	Information on microplastics and the state of the applied science without having to go to the scientific literature.	Two hours	Registered Guests	N	Y
IRP	2024 ASTSWMO RCRA Subtitle C Corrective Action Training Workshop	June 2024/Charleston, SC	ASTSWMO	<a href="#">2024 ASTSWMO RCRA Subtitle C Corrective Action Training Workshop – ASTSWMO</a>	The Workshop will feature the theme “The Journey to 2030” to reflect progress towards the 2030 goals of the national corrective action program.	Two days	Registered Guests	N	N

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IRP	Fire Modeling and Mapping to Improve Decision Making	May 2024/Webinar	SERDP and ESTCP	<a href="https://serdp.estcp.mil">Fire Modeling and Mapping to Improve Decision Making (serdp.estcp.mil)</a>	Advancements that can help the planning and design of prescribed fires, and the use of an innovative fuel mapping tool (FuelsCraft) to aid with fuel characterization, fire behavior predictions, and post-fire monitoring	One and a half hours	Registered Guests	N	N
IRP	ITRC: Managed Aquifer Recharge (MAR) Training	May 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC: Managed Aquifer Recharge (MAR) Training</a>	Training is intended for state regulators and stakeholders who may not be familiar with the opportunities and challenges associated with MAR. It provides a basic understanding of MAR concepts, along with case studies, that showcase examples of successful MAR applications	Two hours	Registered Guests	N	Y
IRP	U.S. EPA Superfund Remedial Program's Approach for Risk Harmonization when addressing Chemical and Radioactive Contamination at Sites	May 2024/Webinar	EPA OLEM OSRTI ARD Science Policy Branch	<a href="#">CLU-IN   Training &amp; Events &gt; U.S. EPA Superfund Remedial Program's Approach for Risk Harmonization when addressing Chemical and Radioactive Contamination at Sites</a>	To help meet the EPA Superfund program's mandate to protect human health and the environment from current and potential threats posed by uncontrolled hazardous substance (both radiological and non-radiological), pollutant, or contaminant releases, the Superfund program has developed a human health evaluation process as part of its remedial response program.	Two hours	Registered Guests	N	Y
IRP	ITRC Contaminants of Emerging Concern (CEC) Identification Framework Training	May 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC Contaminants of Emerging Concern (CEC) Identification Framework Training</a>	Help environmental regulatory agencies and other stakeholders identify, evaluate, and manage CEC's while acknowledging uncertainties in their environmental fate and transport, receptor exposure, and/or toxicity.	Two hours	Registered Guests	N	Y

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IRP	SRP Progress in Research Webinar Series: Emerging Technologies in Occupational Health and Safety Training and Education - Session III	May 2024/Webinar	NIEHS Superfund Research Program	<a href="#">CLU-IN   Training &amp; Events &gt; SRP Progress in Research Webinar Series: Emerging Technologies in Occupational Health and Safety Training and Education - Session III</a>	Curricula and educational programs focused on emergent technologies in the sphere of occupational health and safety.	Two hours	Registered Guests	N	Y
IRP	Optimizing Injection Strategies and In situ Remediation Performance	May 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Optimizing Injection Strategies and In situ Remediation Performance Training</a>	Understanding better strategies and minimum design standards are required to decrease uncertainty and improve remedy effectiveness.	Two hours	Registered Guests	N	Y
IRP	Federal Facilities Online Academy: Determining Applicable or Relevant and Appropriate Requirements (ARARs) in RODs	May 2024/Webinar	EPA FFRRO	<a href="#">CLU-IN   Training &amp; Events &gt; Federal Facilities Online Academy: Determining Applicable or Relevant and Appropriate Requirements (ARARs) in RODs</a>	Highlights on how to determine ARARs in decision-documents based on EPA's guidance, identify commonly used ARARs, and when to involve partners.	Two hours	Registered Guests	N	Y

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IRP	ITRC: Pump & Treat Optimization	May 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC: Pump &amp; Treat Optimization Training</a>	Summarization existing information and best practices while also developing a systemic and adaptive optimization framework specifically for P&T well-network design and management.	Two hours	Registered Guests	N	Y
IRP	SRP Progress in Research Webinar Series: Emerging Technologies in Occupational Health and Safety Training and Education - Session II	May 2024/Webinar	NIEHS Superfund Research Program	<a href="#">CLU-IN   Training &amp; Events &gt; SRP Progress in Research Webinar Series: Emerging Technologies in Occupational Health and Safety Training and Education - Session II</a>	Curricula and educational programs focused on emergent technologies in the sphere of occupational health and safety.	Two hours	Registered Guests	N	Y
IRP	Advances in PFAS Destructive Technologies	May 2024/Webinar	SERDP and ESTCP	<a href="#">Advances in PFAS Destructive Technologies (serdp-estcp.mil)</a>	Developing and validating novel semiconductor photocatalysts and demonstrating a commercially available smoldering technology for PFAS treatment	One and a half hours	Registered Guests	N	N
IRP	Sediment Cap Chemical Isolation Training	April 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Sediment Cap Chemical Isolation Training</a>	Improving consistency in sediment cap performance outcomes.	Two hours	Registered Guests	N	Y

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IRP	SRP Progress in Research Webinar Series: Emerging Technologies in Occupational Health and Safety Training and Education - Session I	April 2024/Webinar	NIEHS Superfund Research Program	<a href="#">CLU-IN   Training &amp; Events &gt; SRP Progress in Research Webinar Series: Emerging Technologies in Occupational Health and Safety Training and Education - Session I</a>	Curricula and educational programs focused on emergent technologies in the sphere of occupational health and safety.	Two hours	Registered Guests	N	Y
IRP	Environmental Data Management (EDM): Real Life Application of Data Management Planning and Field Data Collection Best Practices	April 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Environmental Data Management (EDM): Real Life Application of Data Management Planning and Field Data Collection Best Practices</a>	This training is a series of guidance documents and case studies on best practices for all phases of EDM to address the need for guidance on managing large stores of environmental data.	One and half hour	Registered Guests	N	Y
IRP	2024 ASTSWMO Mid-Year Meeting	April 23, 2024 and April 24, 2023 in Boston, MA	ASTSWMO	<a href="#">2024 ASTSWMO Mid-Year Meeting – ASTSWMO</a>	ASTSWMO's mid-year meeting	N/A	Registered Guests	N	N
IRP	Beyond the Basics: PFAS Human Health, Ecological Effects and Regulations Training	April 23, 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Beyond the Basics: PFAS Human Health, Ecological Effects and Regulations Training</a>	In-depth information on preparing for and implementing sampling events.	Two hours	Registered Guests	N	Y
IRP	WV Mine Drainage Task Force Symposium & 15th International Mine Water Association Congress	April 21, 2024 - April 26, 2024/Morgantown WV	The West Virginia Mine Drainage Task Force	<a href="#">West Virginia Mine Drainage Task Force (wvmdtaskforce.com)</a>	Discussion on current and future issues of mine drainage science, control and treatments.	N/A	Registered Guests	N	N



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IRP	ITRC PFAS Beyond the Basics: Sampling, Analysis, Surface Water, & Air Occurrence Training	April 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC PFAS Beyond the Basics: Sampling, Analysis, Surface Water, &amp; Air Occurrence Training</a>	In-depth information on preparing for and implementing sampling events.	Two hours	Registered Guests	N	Y
IRP	U.S. EPA Superfund Remedial Program's Approach for Addressing Radioactive Contamination	April 2024/Webinar	EPA OLEM OSRTI ARD Science Policy Branch	<a href="#">CLU-IN   Training &amp; Events &gt; U.S. EPA Superfund Remedial Program's Approach for Addressing Radioactive Contamination</a>	Overview of EPA's recommended guidance documents on ARARs and risk assessment, models for conducting risk and dose assessments, and community involvement tools for engaging in meaningful involvement with the public that are intended to be used during the process to determine cleanup levels for radioactively contaminated Superfund sites.	Two hours	Registered Guests	N	Y
IRP	Environmental Data Management (EDM): Best Practices for Exchanging Environmental Data	April 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Environmental Data Management (EDM): Best Practices for Exchanging Environmental Data</a>	This training is a series of guidance documents and case studies on best practices for all phases of EDM to address the need for guidance on managing large stores of environmental data.	One and half hour	Registered Guests	N	Y
IRP	Design and Construction Issues at Hazardous Waste Sites (East)	April 2024/Philadelphia, PA	Society of American Military Engineers (SAME)	<a href="#">DCHWS (google.com)</a>	Applications of engineering and science associated with cleaning up hazardous waste sites.	Three days	Registered Guests	N	N
IRP	ITRC 2024 Annual Meeting	April 2024/Long Beach, CA	ITRC	<a href="#">2024 Annual Meeting - ITRC (itrcweb.org)</a>	ITRC's annual meeting	Four days	Registered Guests	N	N
IRP	Novel Research on PFAS Adsorptive Technologies	April 2024/Webinar	SERDP and ESTCP	<a href="#">Novel Technologies for PFAS Treatment (serdp-estcp.mil)</a>	DoD-funded research efforts to develop technologies for PFAS removal and destruction. Specifically, investigators will discuss ex situ (gliding arc plasma) and in situ (granular activated carbon) technologies to destroy and retain PFAS in water and solids, respectively.	One and a half hours	Registered Guests	N	N

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IRP	Vapor Intrusion Mitigation (VIM-1) - A Two Part Series: Session 2	March 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Vapor Intrusion Mitigation (VIM-1) - A Two Part Series</a>	The Vapor Intrusion Mitigation training series provides an overview of vapor intrusion mitigation and presenting information from the ITRC fact sheets, technology information sheets, and checklists.	Two hours	Registered Guests	N	Y
IRP	Sustainable Resilient Remediation (SRR)	March 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Sustainable Resilient Remediation (SRR)</a>	This training provides resources and tools for regulators, stakeholders, consultants, and responsible parties to help integrate sustainable and resilient practices into remediation projects.	Two and a half hours	Registered Guests	N	Y
IRP	Comprehensive Initiatives in Climate Management Planning	March 2024/Webinar	SERDP and ESTCP	<a href="#">Comprehensive Initiatives in Climate Management Planning (serdp-estcp.mil)</a>	DoD-funded research efforts to better understand how disturbance and climate variability impact DoD lands. Specifically, investigators will cover newly developed methods for anticipating the impacts of climate change at DoD facilities internationally as well as preparing DoD facilities for extreme weather events.	One and a half hours	Registered Guests	N	N
IRP	Environmental Data Management (EDM): Best Practices for Achieving and Maintaining Quality within Environmental Data Management	March 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Environmental Data Management (EDM): Best Practices for Achieving and Maintaining Quality within Environmental Data Management</a>	This training focuses on a series of guidance documents and case studies on best practices for all phases of EDM to address the need for guidance on managing large stores of environmental data.	One and a half hours	Registered Guests	N	Y

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IRP	Vapor Intrusion Mitigation (VIM-1) - A Two Part Series: Session 1	March 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Vapor Intrusion Mitigation (VIM-1) - A Two Part Series</a>	The Vapor Intrusion Mitigation training series provides an overview of vapor intrusion mitigation and presenting information from the ITRC fact sheets, technology information sheets, and checklists.	Two hours	Registered Guests	N	Y
IRP	Analytics and Artificial Intelligence to Improve Water Conservation Measures for DoD Installations	March 2024/Webinar	SERDP and ESTCP	<a href="#">Analytics and Artificial Intelligence to Improve Water Conservation Measures for DoD Installations (serdp-estcp.mil)</a>	More information about this webinar will be available soon.	One and a half hours	Registered Guests	N	Y
IRP	1,4-Dioxane: Science, Characterization & Analysis, and Remediation	March 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; 1,4-Dioxane: Science, Characterization &amp; Analysis, and Remediation</a>	The 1,4-Dioxane training series provides an overview of 1,4-Dioxane and presenting six sections from the ITRC guidance document (1,4d-1, 2021): History of Use and Potential Sources, Regulatory Framework, Fate and Transport, Sampling and Analysis, Toxicity and Risk Assessment, Remediation and Treatment Technologies.	Two and a half hours	Registered Guests	N	Y
IRP	rEDM: an R package for Empirical Dynamic Modeling and Convergent Cross Mapping	March 2024/Webinar	SERDP and ESTCP	<a href="#">Empirical Dynamics: A New Paradigm for Understanding and Managing Species and Ecosystems in a Non-Stationary Nonlinear World (serdp-estcp.mil)</a>	Developing empirical dynamic modeling (EDM) as a practical nonparametric approach for environmental science that explicitly acknowledges the reality of natural (non-engineered), nonlinear (state dependent, non-separable, and ephemerally non-stationary), interconnected systems.	N/A	Registered Guests	N	Y
IRP	ITRC PFAS Introductory Training	February 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC PFAS Introductory Training</a>	This training will include emerging science on PFAS, including topics such as Properties of PFAS, Fate and Transport, Sampling and Analysis, and Treatment Technologies.	Two hours	Registered Guests	N	Y
IRP	Microplastics	February 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Microplastics</a>	This training course uses a conceptual site model to navigate microplastics in the environment.	Two and a half hours	Registered Guests	N	Y

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IRP	Novel Research on PFAS Adsorptive Technologies	February 2024/Webinar	SERDP and ESTCP	<a href="#">Novel Research on PFAS Adsorptive Technologies (serdp-estcp.mil)</a>	DoD-funded research efforts to develop adsorptive technologies for PFAS removal. Specifically, investigators will discuss the use of various injectable particulate amendments for PFAS adsorption in subsurface permeable barriers.	One and a half hours	Registered Guests	N	N
IRP	Predicting Climate Risks to Improve Resilience	February 2024/Webinar	SERDP and ESTCP	<a href="#">Predicting Climate Risks to Improve Resilience (serdp-estcp.mil)</a>	DoD-funded research efforts to mitigate risk by implementing methods to improve predictions and reactions to climate extremes. Specifically, investigators will cover research on modeling advancements to predict climate extreme risk and building simulations for adapting to environmental surprises.	One and a half hours	Registered Guests	N	N
IRP	ITRC: Managed Aquifer Recharge (MAR)	February 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC: Managed Aquifer Recharge (MAR)</a>	A basic understanding of MAR concepts, along with case studies, that showcase examples of successful MAR applications.	Two hours	Registered Guests	N	Y
IRP	Correcting Some Misconceptions about EPA's Superfund Approach for Radiation Risk Assessment	January 2024/Webinar	EPA	<a href="#">CLU-IN   Training &amp; Events &gt; Correcting Some Misconceptions about EPA's Superfund Approach for Radiation Risk Assessment</a>	This presentation will help clarify some of these misunderstandings by focusing on misstatements about the Superfund approach that the author has encountered from radiation professionals.	Two hours	Registered Guests	N	Y
IRP	ITRC: Pump & Treat Optimization	January 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC: Pump &amp; Treat Optimization</a>	This training provides a roadmap for optimizing a pump and treatment systems and refining the remedial strategy or shifting toward another remedial approach.	Two and a half hours	Registered Guests	N	Y
IRP	Advances in Additive Manufacturing	January 2024/Webinar	SERDP and ESTCP	<a href="#">Advances in Additive Manufacturing (serdp-estcp.mil)</a>	This SERDP and ESTCP webinar focuses on DoD funded research efforts to develop and demonstrate different additive manufacturing approaches.	One and a half hours	Registered Guests	N	N

**Draft IRP- and MMRP-related Trainings  
Archived Training and Webinars**

Program Area (Installation Restoration Program (IRP) or Military Munitions Response Program (MMRP))	Course Title/ID	Date of Course/Location	Sponsor Organization	Weblink	Course Description	Length of Course	Audience	Test (Y/N)	Certificate (Y/N)
IRP	ITRC Contaminants of Emerging Concern (CEC) Identification Framework	January 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; ITRC Contaminants of Emerging Concern (CEC) Identification Framework</a>	This training includes a discussion of the use of targeted and untargeted analysis to identify a CEC and participants will learn the elements of the CEC framework and gain an understanding of the framework application from case studies.	Two hours	Registered Guests	N	Y
IRP	Sediment Cap Chemical Isolation Training	January 2024/Webinar	ITRC	<a href="#">CLU-IN   Training &amp; Events &gt; Sediment Cap Chemical Isolation Training</a>	The Sediment Cap Chemical Isolation Training will cover several key elements of the recommended framework. Registered guests should read the following prior to the training: <a href="https://sd-1.itrcweb.org/#gsc.tab=0">https://sd-1.itrcweb.org/#gsc.tab=0</a>	Two hours	Registered Guests	N	Y
IRP	Rotary Waste to Energy Converter for Overseas Contingency Operations	January 2024/Webinar	SERDP and ESTCP	<a href="#">Rotary Waste to Energy Converter for Overseas Contingency Operations (serdp-estcp.mil)</a>	Fully automated and portable waste to energy system operating at military training Camp Buckner, located on the United States Military Academy in West Point, New York	N/A	Registered Guests	N	N
IRP	Advances in PFAS Leaching Models and Long-Term Monitoring	January 2024/Webinar	SERDP and ESTCP	<a href="#">Advances in PFAS Leaching Models and Long-Term Monitoring (serdp-estcp.mil)</a>	DoD-funded research efforts to develop tools for contaminant source tracking and monitoring. Specifically, investigators will discuss modeling platforms used to predict PFAS leaching in source zones and optimize groundwater monitoring.	One and a half hour	Registered Guests	N	N
IRP	Forensic Methods for PFAS Source Tracking and Allocation	December 2023/Webinar	SERDP and ESTCP	<a href="https://serdp-estcp.org/webinars/details/a9150471-09fb-4bdb-8dca-294f3f6c2fe0/forensic-methods-for-pfas-source-tracking-and-allocation">https://serdp-estcp.org/webinars/details/a9150471-09fb-4bdb-8dca-294f3f6c2fe0/forensic-methods-for-pfas-source-tracking-and-allocation</a>	DoD-funded research efforts to develop forensic methods for PFAS source tracking and allocation.	One and a half hour	Registered Guests	N	N

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<b>Program Area (Installation Restoration Program (IRP) or Military Munitions Response Program (MMRP))</b>	<b>Course Title/ID</b>	<b>Date of Course/Location</b>	<b>Sponsor Organization</b>	<b>Weblink</b>	<b>Course Description</b>	<b>Length of Course</b>	<b>Audience</b>	<b>Test (Y/N)</b>	<b>Certificate (Y/N)</b>
IRP	1,4-Dioxane: Science, Characterization & Analysis, and Remediation	November 2023/Webinar	ITRC	<a href="https://www.clu-in.org/conf/itrc/14D-1/">https://www.clu-in.org/conf/itrc/14D-1/</a>	Information to assist all interested stakeholders in understanding 1,4-Dioxane and for making informed, educated decisions.	Two and a half hours	Registered Guests	N	Y
IRP	Microplastics	November 2023/Webinar	ITRC	<a href="https://www.clu-in.org/conf/itrc/Microplastics/">https://www.clu-in.org/conf/itrc/Microplastics/</a>	Information on microplastics and the state of the applied science without having to go to the scientific literature.	Two and a half hours	Registered Guests	N	Y
IRP	Conservation Efforts for Managing Populations of Threatened and Endangered Species	November 2023/Webinar	SERDP and ESTCP	<a href="https://serdp-estcp.org/webinars/details/f9d5b093-c360-4d79-843f-2b60dda10f39/conservation-efforts-for-managing-populations-of-threatened-and-endangered-species">https://serdp-estcp.org/webinars/details/f9d5b093-c360-4d79-843f-2b60dda10f39/conservation-efforts-for-managing-populations-of-threatened-and-endangered-species</a>	DoD-funded research efforts to improve management approaches of threatened and endangered species.	One and a half hour	Registered Guests	N	N

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Program Area (Installation Restoration Program (IRP) or Military Munitions Response Program (MMRP))	Course Title/ID	Date of Course/Location	Sponsor Organization	Weblink	Course Description	Length of Course	Audience	Test (Y/N)	Certificate (Y/N)
IRP	Sustainable Resilient Remediation (SRR)	October 2023/Webinar	ITRC	<a href="https://www.clu-in.org/conf/itrc/SRR/">https://www.clu-in.org/conf/itrc/SRR/</a>	An optimized solution to cleaning up and reusing a hazardous waste site that limits negative environmental impacts, maximizes social and economic benefits, and creates resilience against increasing threats. Pre Reading: <a href="https://srr-1.itreweb.org/">https://srr-1.itreweb.org/</a> and <a href="https://higherlogicdownload.s3-external-1.amazonaws.com/ITRC/8e842294-64ce-4e56-a80b-cd3dc1aa4af3_file.pdf?AWSAccessKeyId=AKIAVRDO7IEREB57R7MT&amp;Expires=1689797179&amp;Signature=uLO4r5ZjUSeAmxZVnD2bvoLAsEk%3D">https://higherlogicdownload.s3-external-1.amazonaws.com/ITRC/8e842294-64ce-4e56-a80b-cd3dc1aa4af3_file.pdf?AWSAccessKeyId=AKIAVRDO7IEREB57R7MT&amp;Expires=1689797179&amp;Signature=uLO4r5ZjUSeAmxZVnD2bvoLAsEk%3D</a>	Two and a half hours	Registered Guests	N	Y
IRP	Strategies for Preventing and Managing Harmful Cyanobacteria Blooms (Two Part Series)	October 2023/Webinar	ITRC	<a href="https://www.clu-in.org/conf/itrc/HCB-2/">https://www.clu-in.org/conf/itrc/HCB-2/</a>	Training reviews on two ITRC HCB Guidance Documents, 2021 Strategies for Preventing and Managing Harmful Cyanobacterial Blooms (HCB-1) and the 2022 companion document focused on benthic HCBs (HCB-2).	Five hours	Registered Guests	N	Y
IRP	Planning for Electric Vehicles on Military Installations	October 2023/Webinar	SERDP and ESTCP	<a href="https://serdp-estcp.org/webinars/details/6427abd7-2cf3-4fee-9df9-750cf27336e9/planning-for-electric-vehicles-on-military-installations">https://serdp-estcp.org/webinars/details/6427abd7-2cf3-4fee-9df9-750cf27336e9/planning-for-electric-vehicles-on-military-installations</a>	DoD-funded research efforts to support transition to electric vehicles on military installations.	Hour and a half	Registered Guests	N	N

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Program Area (Installation Restoration Program (IRP) or Military Munitions Response Program (MMRP))	Course Title/ID	Date of Course/Location	Sponsor Organization	Weblink	Course Description	Length of Course	Audience	Test (Y/N)	Certificate (Y/N)
IRP	Pump & Treatment Optimization	September 2023/Webinar	ITRC	<a href="https://www.clu-in.org/conf/itrc/PT-1/">https://www.clu-in.org/conf/itrc/PT-1/</a>	A summarization of existing information and best practices while also developing a systemic and adaptive optimization framework specifically for pump and treatment well-network design and management.	Two and a half hours	Registered Guests	N	Y
IRP	Transitioning from Active Remedies to Monitored Natural Attenuation	September 2023/Webinar	SERDP and ESTCP	<a href="https://serdp-estcp.org/webinars/details/0fab4f01-d010-42cb-9a3a-1ed8bde31f5f/transitioning-from-active-remedies-to-monitored-natural-attenuation">https://serdp-estcp.org/webinars/details/0fab4f01-d010-42cb-9a3a-1ed8bde31f5f/transitioning-from-active-remedies-to-monitored-natural-attenuation</a>	DoD-funded research efforts on transitioning from active to passive remedies at DoD sites.	Hour and a half	Registered Guests	N	N
IRP	PFAS Introductory Training	September 2023/Webinar	ITRC	<a href="https://www.clu-in.org/conf/itrc/PFAS-Introductory/">https://www.clu-in.org/conf/itrc/PFAS-Introductory/</a>	Introduction to PFAS.	Hour and a half	Registered Guests	N	Y
IRP	2023 ASTSWMO Tanks Workshop	September 2023/Tacoma, WA	ASTSWMO	<a href="https://www.astswmo.org/2023-ASTSWMO-Tanks-Workshop">2023 ASTSWMO Tanks Workshop – ASTSWMO</a>	Provide an overview of UST Release Prevention topics, challenges, and opportunities, interactive sessions surrounding Leaking UST (LUST), Financial Responsibility, Brownfields, and Emerging Issues.	N/A	State and territorial removals and emergency response program members, EPA headquarters and regional staff, Federal Agency officials, and other partners.	N	N
IRP	Optimizing Injection Strategies and In situ Remediation Performance	September 12, 2023/Webinar	ITRC and the American Institute of Professional Geologists	<a href="https://www.clu-in.org/conf/itrc/OIS-ISR/P/">https://www.clu-in.org/conf/itrc/OIS-ISR/P/</a>	A detailed site-specific strategy for critical success of in situ remedies. Pre reading needed: Optimizing Injection Strategies and In Situ Remediation Performance (OIS-ISR-1) and Integrated DNAPL Site Strategy (ITRC 2011c).	Two and a half hours	Registered Guests	N	Y



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IRP	Developing and Demonstrating PFAS Passive Samplers	August 24, 2023/Webinar	SERDP and ESTCP	<a href="https://serdp-estcp.org/webinars/details/6afc34dc-6ed4-45ce-ab64-9d294b70cdf5/developing-and-demonstrating-pfas-passive-samplers">https://serdp-estcp.org/webinars/details/6afc34dc-6ed4-45ce-ab64-9d294b70cdf5/developing-and-demonstrating-pfas-passive-samplers</a>	DoD-funded research efforts to develop and demonstrate PFAS passive samplers.	N/A	Registered Guests	N	N
IRP	Brownsfields National Training Conference 2023	August 2023/Detroit, MI	EPA	<a href="#">Register Now for Brownsfields 2023</a>	Brownsfields cleanup and redevelopment. Training Conference focused on environmental revitalization and economic redevelopment.	Three days	Registered Guests	N	N
IRP	Effects of Phenology on Species of Management Concern on DoD Lands	July 2023/Webinar	SERDP and ESTCP	<a href="#">Effects of Phenology on Species of Management Concern on DoD Lands (serdp-estcp.org)</a>	DoD-funded research efforts to improve management approaches for threatened and endangered species. Specifically, investigators will discuss the effects of phenology on salamanders and butterflies.	Hour and a half	Open to all	N	N
IRP	Removals and Emergency Response Workshop	June 2023/Arlington, VA	ASTSWMO	<a href="#">ASTSWMO Removal and Emergency Response Workshop – ASTSWMO</a>	ASTSWMO Removals and Emergency Response Workshop.	N/A	State and territorial Superfund and Brownsfields managers, EPA headquarters and regional staff, and other invited guests.	N	N
IRP	Superfund and Brownsfields Symposium	August 9, 2022 at 8:00 am through August 11, 2022 at 12:00 pm	ASTSWMO Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Brownsfields Subcommittee	<a href="#">2022 ASTSWMO Superfund and Brownsfields Symposium – ASTSWMO</a>	Provided discussion and information-sharing opportunities among speakers and attendees regarding approaches and strategies used by State Brownfield and Superfund programs in remediating, restoring, and revitalizing the various sites across the country.	Two and a half days	State and territorial Superfund and Brownsfields managers, EPA headquarters and regional staff, and other invited guests.	N	N

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IRP	Getting Remedies Back on Track	January 2022/Webinar	ASTSWMO	<a href="#">Webinar- Getting Remedies Back on Track Webinar – ASTSWMO</a>	Resources and recommendations for how States can most efficiently keep remedies moving toward closure.	Two and a half hours	Open to all	N	N
IRP	Vapor Intrusion Mitigation	January 2022/Webinar	ITRC	<a href="#">January 27, 2022: Vapor Intrusion Mitigation (VIM-1) - A Two Part Series (clu-in.org)</a>	Online training for Vapor Intrusion Mitigation.	Two hours	Open to all	N	Y
IRP	How to Develop a State-led Contaminants of Emerging Concern (CEC) Program	July 2021/Webinar	ASTSWMO	<a href="#">Webinar – How to Develop a State-led Contaminants of Emerging Concern (CEC) Program – ASTSWMO</a>	The ASTSWMO CEC Steering Committee hosted a webinar that focuses on key considerations for States interested in developing a State CEC program.	Two hours	Open to all	N	N

**Draft IRP- and MMRP-related Informational Materials  
(Guidance/Manuals/Fact Sheets)**

Program Area (Installation Restoration Program (IRP) or Military Munitions Response Program (MMRP))	Title	Material Type	Date of Publication	Web link	Material Description	Sponsor Organization
IRP	N/A	Memorandums	Multiple Dates	<a href="#">ASD(EI&amp;E) - Per- and Polyfluoroalkyl Substances (PFAS) (osd.mil)</a>	DoD policies that ensure consistency across the DoD Components and help DoD track its PFAS cleanup progress and investments.	DoD
IRP	N/A	Position Paper	Multiple Dates	<a href="#">Position Papers – ASTSWMO</a>	Association of State And Territorial Solid Waste Management Officials (ASTSWMO) position papers on topics involving MMRP and IRP.	ASTSWMO
IRP	Infrared Spectral Database for Gas-Phase Quantitation of Volatile PFAS	Technical guidance document	Decmeber 2023	<a href="#">SERDP PFAS   Datahub (pnnl.gov)</a>	This training focuses on the PNNL-PFAS database which was constructed to provide quantitative infrared spectra of per- and polyfluoroalkyl substances (PFAS) in the gas phase.	SERDP and ESTCP
IRP	Acronyms and Glossary Taken from Final Draft of Army's Remedial Investigation/Feasibility Study (RI/FS) Guidance	PDF	May 2009	<a href="#">Military Munitions Support Services. Acronyms and Glossary (clu-in.org)</a>	Acronyms/glossary of the Army's Final MMRP RI/FS Guidance.	Army