FRTR Spring 2024 General Meeting

Artificial Intelligence and Machine Learning to Optimize Site Remediation

May 21, 2024
8:00 AM to 5:00 PM Eastern Time
Location
U.S. Environmental Protection Agency
William Jefferson Clinton West Building
1301 Constitution Ave. NW
Washington, DC 20004

Meeting Objective

The FRTR Spring 2022 General Meeting explored applications of artificial intelligence (AI) and machine learning (ML) concepts to site cleanups. Technology advances in robotics, unmanned systems, and analysis of large data sets to support site characterization and remediation were reviewed. Projects seeking to advance use of AI/ML and support remedy decisions were presented. Potential benefits, risks, and limits of deploying AI/ML technologies were identified.

The FRTR 2024 Spring General Meeting provides an opportunity to share progress and results of recent AI/ML projects providing advanced contaminant plume characterization and predictive modeling, and improved cleanup efficiency. The meeting highlights site-specific case studies where AI/ML has substantially enhanced remedial decisions, remedy implementation and performance monitoring, and reduced needs for extensive sampling. Discussions during the meeting seek to provide remedial project managers and technical staff with information and best practices for deploying AI/ML technology.

8:00	**Welcome** *Greg Gervais, Director EPA/ FFRRO with Gilberto "Tito" Irizarry, Director, EPA OSRTI TIFSD*
8:10	**Meeting Objectives** *Jean Pabon, USDOE/EM*
8:20	**Using AI Machine Learning Approaches to Predict Potential Future Environmental Violation** *Hunter Klein, NAVFAC/EXWC*
9:00	**Artificial Intelligence and Machine Learning for Advanced Long-Term Environmental Monitoring Systems** *Carol A. Eddy-Dilek, SRNL*
9:40	**Break– Agency Announcements**
10:00	**Application of AI, ML, and Digital Twins for Radiological Characterization, Survey, and Remediation for Decommissioning** *Leonel E. Lagos, FIU*
10:40	**Application of AI, ML, and Digital Twins for Radiological Characterization, Survey, and Remediation for Decommissioning – Case Studies** *Brad Bonn, Boston Dynamics*
11:20	**Web-Based Tool for Remedy Transition Assessments** *David Adamson and Charles Newell, GSI Environmental*
12:00	**LUNCH – Agency Announcements**
1:00	**Leveraging Data-Driven Approaches for Performance-Based Management of Pump-and-Treat Remedies** *Inci Demirkanli, PNNL*
1:40	**4D Electrical Resistivity Tomography Monitoring of Vadose Zone Soil Flushing at the Hanford 100-K Area Reactor Facility: Machine-Learning Based Assessment** *Tim Johnson, PNNL*
2:20	**Break – Agency Announcements**
2:40	**TRAC – A Tool for Tracking Groundwater Restoration Across Multiple Sites** *Christian Johnson, PNNL*
3:20	**A Scalable Reactive Transport Framework for PFAS** *Christian Johnson, PNNL*
4:00	**Roundtable with Presenters**
5:00	**Action Items/Adjourn**