Developing Interactive Site Models to Overcome Challenges Associated with PFAS Site Investigation and Characterization

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Background/Objectives. As per- and polyfluoroalkyl substances (PFAS) gain increasing attention across the country, various entities are faced with challenges regarding the characterization and delineation of PFAS in the environment. Given the complexity of PFAS fate and transport mechanisms, robust and accurate site models are needed to support technical decisions that will dictate the investigative and remedial approaches needed to address both current and future environmental concerns. These decisions are supported by site-specific and regional environmental data that is stored across multiple systems and in various locations. To effectively manage, analyze and share information among project teams and stakeholders, the project data management system and site models must be robust, integrated, and adaptable. The systems should also be flexible, customizable, and equipped to accomplish project-specific data assimilation and reporting requirements. A single, easy-to-use interface that manages and displays data facilitates the delivery of critical information and assessments to decision makers and project stakeholders in a format that is easily accessible via a modern web browser. This integrated system quickly becomes an interactive site model where the most up-to-date understanding of the project site can be accessed by entire project teams.

Approach/Activities. A-specific data management system has been employed to provide Department of Defense project teams with a single data management platform that integrates environmental information with key project management data in an intuitive four-dimensional virtual model. By assessing regional and site-specific information sources in concert with Environmental Sequence Stratigraphy (ESS)-based hydrogeologic models, project teams are provided with a unique data collaboration view of their site(s) to support project decision making activities and stakeholder communications.

Results/Lessons Learned. Given the inherent site complexity, data volume, and heightened attention and stakeholder concern associated with PFAS investigation and remediation projects, the timely and effective dissemination of communications, conceptual site model presentations, project status updates, and other key information will be critical. Applying this data management approach to PFAS site characterization projects has integrated key aspects of data management, reporting, and data assessment into a single platform; thereby streamlining decision making processes and allowing for multiple data sources (e.g. - chemical, hydrogeological, stakeholder information, meteorological data, site infrastructure/assets, etc) to be considered when developing and refining working site models. Once performance metrics are identified, customized reports were generated to provide project team members and stakeholders with critical information in the most efficient format possible.