Abstract: The Rocky Flats Environmental Technology Site (RFETS) was a U.S. Department of Energy (DOE) environmental cleanup site for a previous manufacturing plant that made components for the U.S. nuclear weapons arsenal. The facility was shut down in 1989 and left behind a legacy of contaminated facilities, soils, surface and ground water. Through a combination of expert judgment supported by state-of-the-art scientific measurements and geostatistical models, it was shown that under environmental conditions at Rocky Flats, plutonium and americium form insoluble oxides that adhere to small soil, organic, and mineral particles and colloids, or are colloidal materials themselves. The scientific understanding gained from such studies was used to guide stakeholder interactions and cleanup decisions on the Site. This talk will summarize how that understanding was developed into a science-based decision-making tool that saved billions of dollars by focusing Site-directed efforts in the correct areas, and aided the most extensive cleanup in the history of Superfund legislation to finish one year ahead of schedule, ultimately resulting in billions of dollars in taxpayer savings. This talk will discuss perspectives on how well the cleanup and closure has worked, and lessons learned for future cleanup activities.

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