Visual Sample Plan (VSP): Helping Reduce Cost and Time While Ensuring Confident Decisions

VSP helps users obtain answers to these questions:

How many samples do I need? **Where should I take samples?** **What decisions does my data support?** **How confident am I in those decisions?**

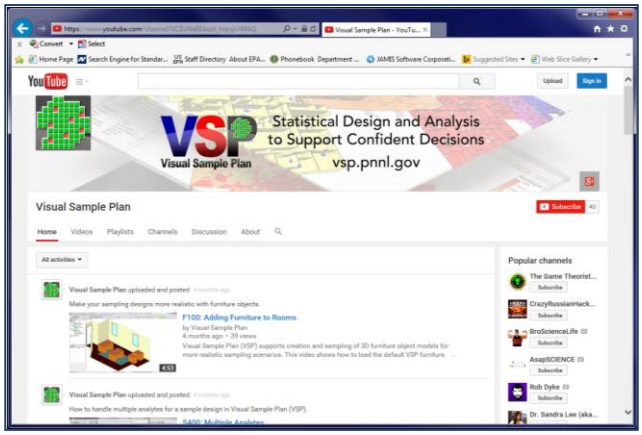
Before U.S. Department of Energy (DOE) sites gather environmental data to support decision-making, employing systematic planning helps ensure they will collect the right type, quantity, and quality of data to meet their needs and data quality objectives. The DOE Systematic Planning and Data Assessment Tools (SPADAT) Program is funded by the Office of Environment, Health, Safety and Security. SPADAT and the DOE Pacific Northwest National Laboratory developed VSP to meet DOE's need for a tool to support systematic planning.

VSP is a free, easy-to-use software tool that supports development of optimal sampling plans based on statistical sampling theory. VSP is widely accepted by regulatory agencies and is often recommended by them because it minimizes cost and sampling requirements while maximizing the available information and the user's confidence in the sampling results. VSP saves users time and money by providing real-time, cost-benefit information about sampling plans, such as the following:

- Immediate feedback on how different statistical sampling plans will affect confidence levels and the probability of making incorrect decisions.
- Evaluations that are based on the projected number of samples, total sampling costs, and sampling locations, which allows users to select the option that provides the right amount of sampling needed to support defensible decisions.
- Graphic decision tools that provide three-dimensional views, spatial mapping, contour sampling design, and the ability to import kriged data.
- Sampling plans to fill in the gaps at sites where samples were taken in the past.

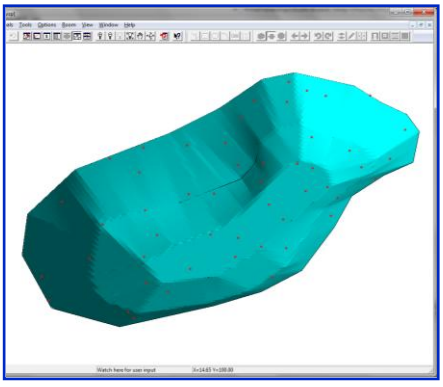
New Version of VSP: Version 7.5 has been released and is available for free download.

VSP Training on YouTube: VSP has posted video training courses on YouTube. These videos provide "how to" instructions for many of VSP's features.



***Multi-Agency Radiation Survey and Site Investigation Manual* (MARSSIM):** VSP has a long history as a tool for MARSSIM implementation. The U.S. Nuclear Regulatory Commission (NRC) is supporting expanded features for MARSSIM in VSP, including elevated measurement comparison, radionuclide series selection, and more.

NRC Radiation Protection Computer Code Analysis and Maintenance Program (RAMP): On October 24, 2014, the NRC Executive Director for Operations issued SECY-14-0117, *The Radiation Protection Computer Code Analysis and Maintenance Program*, which describes NRC's integrated plan for developing, maintaining, and distributing NRC's computer codes for radiation protection, dose assessment, and emergency response. VSP is one of the codes included in the NRC RAMP.



U.S. Department of Defense (DoD) Project ER-201329, Optimal Incremental Sampling Methods: Tools for Mean Estimation and Spatial Delineation: The objective of this project is to address a current need for application of statistical tools in a systematic planning process, such as the U.S. Environmental Protection Agency's data quality objectives process, which will enable the DoD to optimize incremental sampling approaches over large areas. The project document states that all of the incremental sampling method options in VSP have been vetted mathematically and will be demonstrated in practice. The DoD anticipates completion of this project in 2016.

VSP Website: http://vsp.pnnl.gov/