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Visual Sample Plan Version 7.0 User's Guide

B.D. Matzke	J.E. Wilson
L.L. Newburn	S.T. Dowson
J.E. Hathaway	L.H. Segó
L.M. Bramer	B.A. Pulsipher

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Abstract

This user's guide describes Visual Sample Plan (VSP) Version 7.0 and provides instructions for using the software. VSP selects the appropriate number and location of environmental samples to ensure that the results of statistical tests performed to provide input to risk decisions have the required confidence and performance. VSP Version 7.0 provides sample-size equations or algorithms needed by specific statistical tests appropriate for specific environmental sampling objectives. It also provides data quality assessment and statistical analysis functions to support evaluation of the data and determine whether the data support decisions regarding sites suspected of contamination. The easy-to-use program is highly visual and graphic. VSP runs on personal computers with Microsoft Windows operating systems (XP, Vista, Windows 7, and Windows 8). Designed primarily for project managers and users without expertise in statistics, VSP is applicable to two- and three-dimensional populations to be sampled (e.g., rooms and buildings, surface soil, a defined layer of subsurface soil, water bodies, and other similar applications) for studies of environmental quality. VSP is also applicable for designing sampling plans for assessing chem/rad/bio threat and hazard identification within rooms and buildings, and for designing geophysical surveys for unexploded ordnance (UXO) identification.

Acronyms

ACS	Attribute Compliance Sampling
AL	Action Level or Action Limit
ANOVA	Analysis of Variance
AWE	U.K. Atomic Weapons Establishment
CDC	U.S. Center for Disease Control
CI	Confidence Interval
COG	Course-Over-Ground
CS	Collaborative Sampling
CSM	Conceptual Site Model
DCGLw	Derived Concentration Guideline Level for average concentrations over a wide area
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DHS	U.S. Department of Homeland Security
DPGD	Decision Performance Goal Diagram
DQA	Data Quality Assessment
DQO	Data Quality Objectives
EPA	U.S. Environmental Protection Agency
ESTCP	Environmental Security Technology Certification Program
GIGO	Garbage In, Garbage Out
GPS	global positioning system
LBGR	Lower Bound of the Gray Region
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual

MI	Multiple Increment
MK	Mann-Kendall
MQO	Measurement Quality Objectives
NFA	no-further-action
NIOSH	National Institute for Occupational Safety and Health
OSL	Optimum Segment Length
PCS	Projected Coordinate System
PI	Prediction Interval
RCRA	Resource Conservation & Recovery Act of 1976
RTF	rich text format
RI	Remedial Investigation
RMSE	Root Mean Square Error
RSS	Ranked Set Sampling
RTF	Rich Text Format
SE	Standard Error
SERDP	Strategic Environmental Research & Development Program
TOI	Targets of Interest
UCL	Upper Confidence Limit
UBGR	Upper Bound of the Gray Region
UTL	Upper Tolerance Limit
UTM	Universal Transverse Mercator
UXO	Unexploded ordnance
VSP	Visual Sample Plan

WRS	Wilcoxon Rank Sum
WSR	Wilcoxon Signed Rank

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