Hawai´i HEER DU-MIS Webinars (June 26-29, 2017)

Below are outlines for presentations and recordings of a six-part, 2017 webinar training series on Hawaii's *Decision Unit and Multi Increment Sample* site investigation guidance and *Environmental Hazard Evaluation* ("EAL") guidance. The outlines reflect time tags included with posted recordings of the webinars.

The webinars were presented by John Peard and Roger Brewer of the HDO-HEER Office, with special guest Diane Anderson of APPL presenting a webinar on laboratory processing of MI samples. PowerPoint or pdf copies of presentations and links to audio recordings of the presentations are posted to the HEER webinar webpage as well as the HEER Technical Guidance Manual and Environmental Hazard Evaluation webpages.

HEER webinars:
http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/Webinar

HEER Technical Guidance webpage:
http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/technical-guidance-and-fact-sheets

HEER Environmental Hazard Evaluation webpage:
http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/environmental-hazard-evaluation-and-environmental-action-levels

Part 1. Systematic Planning (John Peard, HDOH, June 26, 2017):

Part 1 of the series provides an overview of the Systematic Planning of environmental investigations prior to the collection of sample data.

- Introduction
- Initiation of DU-MIS in Hawaii
- Systematic Planning Approach
- Phase 1s and CSMs
- Potential Environmental Concerns
- DQOs and Decision Unit Basics
- Other DU Types (subsurface, stockpiles, etc.)
- Workplans and Reports

Part 2. DU Designation (Roger Brewer, HDOH, June 27, 2017):

Part 2 of the series presents case study examples of Decision Unit designation under a multitude of different site scenarios and environmental concerns.

- Introduction
- DU Basics Review
- Multi Increment Sample Basics
- Skeet Range Residential DUs (lead)
- Early Spill Area DU Concepts
- Shopping Mall Development (arsenic, dioxins, TPH)
- Municipal Incinerator (lead)
- Power Plant (PCBs)
- Pesticide Mixing Operation (arsenic)
- Ag Land Redevelopment (pesticides)
- Very Small DUs
- Skeet Range Ecological Risk (lead)
- Canec Plant Estuary Sediment (arsenic)
- Active Power Plant Sediment (PCBs)
- Ditches/Canals
- Excavations
- Stockpiles
- Trenches, Pits and Subsurface DU Layers
- Sugar Mill Residential Development (arsenic, dioxins)
- Asphalt Batch Plant (TPH, PAHs, metals, PCBs)
- Single Borehole DUs

Part 3. DU Characterization (Roger Brewer, HDOH, June 28, 2017):

Part 3 of the series summarizes the results and implications of an HDOH field study of discrete sample variability (refer to separately posted videos) and presents an introduction to sampling theory and the use of Multi Increment samples to characterize Decision Units.

- Introduction
- Decision Units Review
- TGM Section 4 Contents
- Why Collect Soil Samples?
- Origin of Discrete Sampling
- Common Discrete Data Investigation Problems
- HDOH Discrete Sample Field Study
- Implications of Discrete Sample Variability
- Discrete Small- vs Large-Scale Patterns
- Random 95% UCLs
- 21st Century Enlightenment
- Sampling Theory Explained with Salad
- Multi Increment Soil Sample Basics
- MIS for VOCs
- Evaluation of Replicate MIS Data
- Targeting Salad Spill Areas
- Example DU-MIS Investigation
- DU-MIS Subsurface Investigations
- Additional Notes
- MI Samples vs Composite Samples
- Discrete Data Precision and “Outliers”
- Testing Soil for Acute Toxicity
- MI Sample Data Precision
- Comparison of Discrete vs MIS Data
- Need to Transition from Discrete to MIS
- ITRC ISM Guidance Document

Part 4. DU-MIS Field Implementation (John Peard, HDOH, June 29, 2017):

Part 4 of the series presents details on the field implementation of DU-MIS investigations, packed with ten years of field experience by HEER staff and consultants in Hawaii and on the mainland.

- Introduction
- TGM Section 5 Contents
- Site Preparation and DU Designation
- MI Sample Increment Spacing
- Field Replicate Sample Collection
- Sample Collection Tools
- Hard-Packed Soils
- Stockpiles
- Pits and Trenches
- Subsurface Sample Collection
- Laboratory Processing of MI Samples
- MIS for Volatile Chemicals
- Sediment Sample Collection
- Field Screening Tools and Use of Portable XRFs
- Common DU-MIS Mistakes and Problems

Part 5. Laboratory Processing of MI Samples (Diane Anderson, APPL Labs, Nov 15, 2017):

This presentation by Diane Anderson of APPL Laboratories describes how Multi Increment soil and sediment samples should be processed, subsampled and tested in order to ensure that the resulting data are representative of the sample submitted.

- Introduction
- Where MIS has been used by APPL
- Laboratory's Role in MIS
- Sampling Theory and MIS vs Discrete Sample Data
- Implementing MIS in the Lab
- Choosing a Laboratory
- What Particle Size Do I Need?
- MIS Processing Options
- Grinding Samples
- Subsample Mass Requirements
- QC to Demonstrate Reproducibility
- MIS for Volatiles
- Common MIS Mistakes
- Laboratory Report Requirements
- Summary and Contacts

Part 6. EHE-EAL (ESL) Overview (Roger Brewer, HDOH, Nov 21, 2017)

Part 6 of the webinar series provides an overview of Hawaii's Environmental Hazard Evaluation process for the identification of potential environmental contamination at sites with contaminated soil and groundwater. An important part of this process is the use of reasonably but not excessively conservative "Environmental Action Levels" for soil, air and water. The approaches described are very similar to those used to develop California's "Environmental Screening Level" guidance.

- Introduction
- Contaminated Site Investigation Process
- Review of DU-MIS Site Characterization Series
- EHE Webinar Outline
- EHE Required Expertise
- Targeted Common Environmental Concerns
- Hawaii Groundwater Zones
- Environmental Action Level Sources
- Example PCE EALs
- Chemicals with Environmental Action Levels
- Tank Farm TPH EAL Screening Example
- Environmental Hazards vs Chemical Partitioning
- EAL Development for Specific Environmental Hazards
- Direct Exposure
- Soil Particle Size vs Soil DE Action Levels
- Vapor Intrusion
- Tropical vs Mainland VI Action Levels
- Errors in USEPA VI Guidance
- Soil Leaching
- Groundwater Discharge to Surface Water
- Gross Contamination
- EHE Report
- Environmental Hazard Management Plans
- Target EAL Risk Levels vs Remediation Risk Levels
- Cumulative Risk Considerations
- Risk vs Section of PCE Direct Exposure Action Level
- Risk vs Section of Arsenic Direct Exposure Action Level
- Chemical-Specific Target Risks for HDOH Guidance
- Hawaii EALs vs USEPA RSLs vs California EPA ESLs
- Use of 95% UCL with MIS vs Discrete Sample Data
- Assessment of Acute Direct Exposure Risk
- Summary