



Tier 1 and 2 Guideline Tool

Paul Fuellbrandt, Statvis Analytics Inc

Statvis and InnoTech Alberta collaborated with PTAC and AUPRF to create a web-based Tier 1 and 2 Guideline Tool that supports the appropriate application of Tier 1 guidelines as well as calculate site-specific guidelines under the Tier 2 guideline adjustment option. This is expected to decrease assessment and remediation costs by reducing soil remediation, groundwater monitoring requirements, and timelines to reach regulatory closure.

The web-based Tier 1 and 2 Guideline Tool has two modules. The first module provides decision support for accurate application of Tier 1 guidelines by providing references to sections of the various generic guideline documents that apply to the user's site. The second module calculates site-specific Tier 2 guidelines for benzene, toluene, ethylbenzene, xylenes (BTEX), and petroleum hydrocarbon (PHC) fractions F1-F4. Users enter site-specific

values for the parameters that are allowed to be altered under the Alberta Tier 2 guideline modification option and site-specific guidelines are calculated.

This presentation will demonstrate use of the tool including inputs, outputs and use cases.

Paul Fuellbrandt, P.Ag., PMP

Over the last 20+ years, Paul has cultivated a specialization in developing and executing attainable closure plans for contaminated. The motivation for this work is drawn from a desire to return as much land to productive use as possible. To that end, he co-founded Statvis Analytics Inc. to develop user-friendly software tools to understand and communicate environmental data.

Subsoil Salinity Tool Technical Manual

Greg Huber and Anthony Knafila, Equilibrium Environmental

The Subsoil Salinity Tool (SST) Version 3.0 Technical Manual is a supplement to the existing User Manual, and provides additional technical details and supporting information on a range of topics relevant to both subsoil chloride and subsoil SAR/sodium guidelines. This presentation provides a brief overview of these topics, including additional assumptions and techniques for the chloride software transport modeling in both vertical (using LeachM) and lateral (using 3DADE) directions. The diffusion effects on upward chloride transport and the influence of soil moisture content and water table depth are also discussed, along with details of the neural network for lateral transport. The more elaborate mixing models used for DUA and dugout guideline calculations are also discussed, along with some details and assumptions for the new sentinel well option for chloride.

For SAR/sodium guidelines, and some additional details on vertical sodium transport modeling and the incorporation of cation exchange effects are provided (using LeachC), along with further discussion of the factors affecting the subsoil SAR guideline for the soil structure pathway.

Greg Huber

Greg Huber has a Master of Science from the University of Calgary in Chemical and Petroleum Engineering with a focus on environmental topics. He has worked as a professional engineer and project manager for more than 25 years, and has been working with Equilibrium Environmental since 2005. He has been involved in a wide range of complex risk assessments, research projects, guideline development, and remediation projects related to a broad range of soil and groundwater contaminants. He is also involved in transport modeling and protocol and algorithm development for the Subsoil Salinity Tool, and has been teaching the SST course since 2011.