

Speaker: Michael Murray

Title: Reuse Guidance Development — A Consultant's Perspective

Organization: HDR Engineering

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Session Title: Non-Growing Season Reclaimed Water Land Treatment

Abstract: Land application of industrial wastewater during the non-growing season is an important treatment method used by many industrial permit holders in Idaho. Permitted hydraulic loading rates during the non-growing season are based on the water holding capacity of the soil and the climate factors of precipitation and soil surface evaporation. The goal in designing a non-growing season application program is to store wastewater constituents in the soil system such that they are available in the spring for plant root uptake. Such a goal minimizes leaching of constituents below the root zone. This presentation will describe the environmental parameters that must be taken into account when designing a non-growing season land application program. Soil science fundamentals, along with current understandings of non-growing season evaporation, will be described. To reinforce this understanding, results of computer simulations of non-growing season soil water dynamics using HYDRUS (2D/3D) software will be presented.

Professional Background: Mike Murray is the Manager for the Federal, Energy, and Resource Management Group at HDR's Boise office. He holds a Ph.D. in Soil Science from Penn State University. Mike moved to Boise in 1991 and has been involved in land application projects, wastewater facility planning, biosolids management, and soil and groundwater investigations of hazardous materials. Mike joined the Wastewater Land Application Program Technical Work Group in 1993 and has been actively involved with that group working with the IDEQ in the development of reuse guidance.