

## **Those Stubborn Sterilants - Environmental Management of Sites Impacted with Bromacil, Dicamba and Tebuthiuron in Alberta**

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Vegetation management, whether it is selective or non-selective, is inextricably linked to industries ranging from food production to transmission operations. Typically, chemical management of vegetation is utilized for ease of application and lasting effects which in turn provides cost savings. Two properties of herbicides that allow for easy application and lasting effects are the high solubility of the herbicide and the slow rate of decay. The combination of these two properties allow for solid herbicides to be easily put into solution and applied as a liquid; or applied as a solid, which will dissolve in water and become available for uptake by a plant. In either state, the herbicide can persist for extended periods of time without degradation. Sterilants are a group of non-selective herbicides that are designed to persist for extended periods of time. These types of non-selective herbicides have historically been favored by various types of industries for providing total and long lasting vegetation control on sites.

This presentation will provide a summary of the environmental impact of three sterilants (Bromacil, Dicamba, and Tebuthiuron), which are commonly used in the transmission industry. A review of the properties of Bromacil, Dicamba and Tebuthiuron will be discussed to understand the environmental fate of each sterilant, which in turn provide guidance in how to properly scope the assessment of sterilants as part of a Phase I and/or Phase II Environmental Site Assessment. Once it is confirmed that a sterilant is present in soil and/or groundwater, the next step is to determine what guidelines are applicable for a site and how those guidelines might be modified based on site specific conditions. Lastly this presentation will provide an overview of some remedial options to deal with sterilants, as well as some case studies documenting the effectiveness of past remediation experiences.

Barry Rakewich, P.Ag., EP (presenter)

Mr. Rakewich is a Professional Agrologist with over 15 years of consulting and industry experience specializing in soil and groundwater assessments; site remediation evaluation, design and implementation; in-situ remediation and chemical oxidation; and emergency spill response. Mr. Rakewich has completed assessment and remediation projects across Canada and into the southern USA. As the General Manager of the environmental department at Nichols Environmental, Mr. Rakewich oversees a diverse team of technologist, engineers, scientists and project managers.

Hans Bakker, P.Geo.

Mr. Bakker has a B.Sc. in Geology from the University of Alberta and more than six years of consulting experience. Mr. Bakker has a wide variety of experience that includes Phase I and II environmental site assessments, groundwater monitoring and sampling, project management, remediation, and spill response. He is also one of Nichols Environmental's certified UAV pilots.

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