



Historical Landfills – Not Your Regular Brownfield Sites

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Modern landfills are typically well-managed facilities where operational revenues should cover the inevitable closure and post-closure costs. These facilities generally have engineered containment systems and adequate setbacks to prevent impacts to the surrounding environment as well as to human receptors. On the other hand, historical landfills often are not constructed in a manner that is conducive to containment or were conveniently used to “fill the land” in coulees, depressions or former gravel pits. Many of these older landfills are now surrounded by commercial and residential developments and the long-term environmental liability associated with these sites is generally not properly funded.

Landfills are unique facilities and require environmental assessment and management that is quite different from other impacted sites. For instance, source removal is often not feasible and measures to mitigate impacts and conduct “care-and-control” may be needed for decades. There are also new and emerging concerns like changing regulations related to methane gas emissions and the presence of Poly- and Perfluoroalkyl Substances (PFAS) in leachate, as well as opportunities like using the former landfill surface for solar energy generation or as public space. All of this requires a landfill-focused approach that carefully considers how landfills are constructed, how they behave, and how they are best managed.

This presentation will share information from several projects at historical landfill sites in Alberta and Saskatchewan. It will touch on typical leachate indicator parameters in groundwater, the evaluation of assessment data beyond just looking at exceedances, how to optimize monitoring programs and navigate regulatory uncertainties. Furthermore, examples of leachate extraction efforts, the use of solar, cover system improvements, and passive and active landfill gas extraction will be presented.

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