

Sustainable Risk Management Strategies Associated with Reuse and Redevelopment of Uncontrolled Landfill Sites

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Background/Objectives. Reuse and redevelopment of uncontrolled landfill sites requires development of conceptual site models and remedies that consider not only the environmental conditions of a site but also the suitability of a site to support structures and the development overall. This presentation will review sustainable risk management considerations associated with the reuse and redevelopment of three historical municipal landfill sites.

Approach/Activities. The use of risk management strategies common to uncontrolled municipal landfill sites include considerations for methane, preventing direct contact with waste, storm water retention and conveyance design, and structural support of buildings. The approach for this presentation includes a review of these considerations for a municipal park, a minor league baseball stadium, and a public safety training complex. The discussion of the risk management considerations will include:

- Methane
 - How to characterize
 - Venting systems under buildings
 - Ventilation trenches – where they are needed and how to incorporate into a design
 - What can happen when the dynamics change due to construction
 - How to develop an effective monitoring program during and after construction
- Direct Contact
 - What constitutes a sufficient cover for recreational fields
 - How to design for wear and tear, and how to institute an O&M program for repairs when needed
- Storm water and Infrastructure
 - How to design for retaining storm water on site
 - Venting considerations
- Structural Support
 - Should waste be removed or can it stay in place
 - What considerations are needed for geotechnical design, and how do these considerations affect project environmental costs
 - What types of geotechnical solutions have been implemented

Results/Lessons Learned. Reuse and redevelopment of uncontrolled municipal landfill sites is possible provided sustainable risk management strategies are utilized. The presentation will include a review of the challenges and solutions associated with three projects as part of site characterization, design, construction, and after redevelopment. These challenges include developing conceptual site models that sufficiently characterize site conditions and encompass redevelopment considerations, designing for changing methane dynamics during and after construction, and creating effective and sustainable post-construction monitoring and O&M programs.