

**GSI W-18 Webinar Entitled:
“Surface Impoundment Design and Performance”**

Webinar Overview

The first surface impoundment with geomembranes were installed in the 1930s. Since that time the application has grown enormously. For example, of the many types of contained liquids, the hazardous types alone number 206,000 as estimated by the U.S. EPA. Other liquids being contained are potable water, architectural ponds, industrial water, sewage sludge, dredged sediments, agriculture wastes, heap leach ponds, slurried coal combustion residuals, etc. This webinar focuses on design of such facilities (which are fully illustrated) and their performance (including poor performance such as the occurrence of whales or hippos).

The webinar proceeds in discrete design stages whereby the output of one stage feeds directly into the next. In this regard, there are eight discrete design stages. These design stages contain both numeric examples and past failures so as to focus upon specific aspects of the entire process. Indeed, proper surface impoundment design leads directly to fully acceptable results provided that proper construction quality control and assurance are subsequently implemented.

Learning Objectives

Participants will understand that surface impoundment design is not a simplistic process of selecting a geomembrane, getting a warranty, and subsequent installation in a cavalier manner. Conversely, it is a prescribed methodology which will be fully explained and illustrated. Many of the design aspects utilize geotechnical, hydraulic and polymer knowledge which are illustrated by numeric examples. The ultimate objective is a safe and secure system properly functioning for the intended lifetime that is envisioned.

Webinar Benefits

1. Understand the variety of liquids contained by geomembrane liners
2. Understand that a subsurface exploration is critically important
3. Understand that whales/hippos of uplifted geomembrane can, and must, be prevented
4. Learn proper benefit/cost procedures for selecting a geomembrane for site-specific criteria
5. Learn details of thickness design, subgrade and cover soil stability, and anchorage design
6. Learn how to implement an electrical leakage survey after the facility is completed

Intended Audiences

Public and private owners of the following types of liquid impoundment facilities:

- potable water
- architectural ponds
- shutdown water
- industrial waters
- process waste waters
- sewage sludge
- industrial sludge
- agricultural wastes
- slurried CCR's
- hazardous liquids

As such, regulators and agency personnel, consultants and designers, soil and geosynthetic testing organizations, contractors and installers, academic and research groups, and lay people who are desiring technical related information on this important topic are welcomed.

Specific Topics Covered

1. Background
2. Geomembrane Considerations
3. Typical Cross Sections
4. Geomembrane Selection
5. Thickness Considerations
6. Subgrade and Cover Soil Stability
7. Runout and Anchor Trench Considerations
8. Leakage Through Geomembrane Holes
9. Summary and Conclusions