



Featured Technical Topic Summary **FGI Monthly Members Meeting** **Friday, January 4, 2024**



TOPIC: Determining Lining/Floating Cover Systems for Critical and Non-Critical Applications

Each month Tim Stark introduces a new technical topic for discussion and possible action. This month's topic is: **"Determining Lining Systems for Critical and Non-Critical Applications"**. This topic generated significant discussion with the main "take-aways" being listed below:

Non-Critical Applications

- **Relevant Factors/Questions:**

- Site Specific Determination – Activate ancient landslide or fault system? If so, critical application
- Does the owner accept some leakage?
- Regulations don't require zero leakage?
- What is the cost of a leak (environmentally or economically)?
- What is allowable (regulation)/acceptable (owner) leakage rate?
- What is subgrade condition? Soft, hard, existing asphalt, existing concrete, does it need remediation? If so, may be critical application
- What is geomembrane being selected?
- Site specific CQA/CQC requirements – depends on GM selected but usually less than critical applications
- Is site specific Leak Location Testing necessary? – depends on site
- Choice of material depends on availability, e.g., available soil v. GM

- **Non-Critical Applications:**

- Canal liners
- Temporary remediation
- Decorative ponds
- Landscape ponds
- Detention basins – control flow
- Stormwater collection – depends on level of contamination – natural and man-made
- Wetland mitigation
- Dewatering
- Fresh water containment if water is readily available
- Final cover systems
- Floating cover system for non-potable water – site specific

- **Applicable containment system:**

- Single barrier/liner
- Only GM or GCL with prepared subgrade and/or underlying cushion geotextile or gas collection

Critical Containment Applications

- **Relevant Factors/Questions:**

- What is cost/risk of environmental contamination?
- What is cost of water loss? - Could be fresh water depending availability – only 2% of water is fresh water
- What is allowable (regulation)/acceptable (owner) leakage rate?
- Smooth and stable subgrade is required
- Significant CQA/CQC required
- Recommend/require leak location testing
- Prepare post-installation inspection and maintenance plan
- Installation and testing of geomembrane aging/durability coupons

- **Critical Applications:**

- Hazardous material containment
- Hazardous waste landfills
- Tailings ponds
- Heap leach pads
- Brine and produced water
- Stormwater collection – depends on level of contamination – natural and man-made
- Final cover system for hazardous material and landfills
- Biogas covers – methane
- Floating cover system for potable water storage

- **Applicable containment system:**

- Single composite liner system
- Double lined system (2 geomembranes) with leak collection/removal layer in between
- Double composite liner system

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