Featured Technical Topic Summary
FGI Monthly Members Meeting
Friday, November 3, 2023

TOPIC: Use of Geomembranes and Geosynthetics in Energy Applications

Each month Tim Stark introduces a new technical topic for discussion and possible action. This month's topic is: "**Use of Geomembranes and Geosynthetics in Energy Applications**". This topic generated significant discussion with the main "take-aways" being listed below:

1. **Use of Geomembranes and Geosynthetics in Energy Applications**
   - Hydropower
   - Solar Power – white reflective geomembranes below solar panels increase solar capture
     - San Antonio Landfill – fPP-R cap and acres of solar panels – TVA 300 acres site
     - Closure turf – solar panels on artificial turf instead of on the ground – sure grip geomembrane from AGRU holds panels in place
     - Solar panels on rails so they can be placed on 3:1 slopes – flat panels only on crest - https://watershedgeo.com/products/powercap/
   - Pumped Storage Hydropower (PSH) projects –
     - Use geomembrane for bottom liner system but flow velocities are difficult
     - Use floating cover to reduce evaporation
     - Mt. Elbert PSH project = bottom liner system with 18" soil cover to project geomembrane from high flow velocities– 240 acres – installed in 1980 - chlorinated polyethylene (CSPE) geomembrane
     - Traditional pumped storage liner system = asphalt and concrete
     - Research topic – conduct 40-year cost analysis for Mt. Elbert PSH project – initial cost v. decrease loss of water & no seepage into old landslide in hillside b/c of slope instability concerns
     - Forebay/water conveyance projects – typically use asphalt or concrete liner system, which will eventually crack and leak – geomembrane installed to replace cracked compacted clay liner
   - Gas collection in landfills – near surface gas collection to capture methane
   - Coal fired powerplants – bottom liner systems – single composite bottom liner system – GM & clay
   - Oil and gas applications – geomembranes
   - Secondary containment – oil and gas
   - Wind Power = application uncertain for geosynthetics