



Featured Technical Topic Summary FGI Monthly Members Meeting Friday, April 5, 2024



TOPIC: Surface Repair of Thin Geomembranes

Each month Tim Stark introduces a new technical topic for discussion and possible action. This month's topic is: **"Surface Repair of Thin Geomembranes"**. This topic generated significant discussion with the main "take-aways" listed below:

Geomembrane Thickness

- Thin geomembranes (\leq 30 mil thickness) for temporary and non-critical containment applications
- Examples of thin geomembranes = Woven Coated Polyethylene (WCPE) & linear low density polyethylene (LLDPE)
- Thin geomembranes can be welded in a factory but difficulties in field
- Thin geomembranes are preferred to create large factory fabricated factory panels
- IAGI CWT Program could be expanded to include thin geomembranes

Temporary Repair/Welding Techniques

- Solid Wedge weld – 12 to 20 mil is possible
- Hot air wedge weld – 12 to 20 mil is possible
- Hot air gun – Patches – 12 to 20 mil is possible
- Tapes – available but not preferred unless for cap strip over a patch
- Available tapes – Tapecoat/Chase Adhesives is a tape and primer supplier
- Tape maybe stable for a temporary small patch until crew arrives to install proper patch
- Tape is available single-sided and double-sided tape
- Tape may be useful for underwater applications
- Can use tape to help seal penetrations
- Tape is not preferred for long-term applications
- No good adhesive for polyethylene based materials
- Do you require trial welds for patches? Not for heat guns,
- Need some documentation/guideline to improve quality of field welding thin geomembranes -

Repair Testing

- Air lance testing is preferred – ASTM D4437
- Vacuum box testing preferred but limited with WCPE geomembranes b/c air can pass through patch with a thin geomembrane
- Electrical leak surveys can be used with thin geomembranes

CQA of Thin Geomembranes

- Can field test seams in shear
- Peel testing of seams is limited
- Same seam test procedures as thick geomembranes including documentation
- No warranty on patching old thin geomembranes – case by case determination – only warranty repair was made "with good workmanship"