

Panel Discussion on Geosynthetics CQC and CQA with

**Thursday, July 22, 2021
Noon CDT**

Panelist – Brian Queen

Brian Queen is a Lead Environmental Specialist with the Ohio EPA and a member of the GeoRG Group (Geotechnical Resource Group) at the OEPA. The GeoRG Group has created the leading guidance document on geotechnical and stability analyses for Ohio containment facilities as well as many other innovative guidelines.



Panelist – Shannon Goodrich

Shannon Goodrich is President of GO2CQA, which provides third party CQA inspection services. He has 32 years of Geosynthetics Construction Quality Assurance (CQA) field engineering experience.



Panelist – Tonya Switalski

Tonya Switalski is the General Manager of Titan Environmental Containment, Ltd. in Houston, TX. Titan is a major factory fabricator of geomembranes and geosynthetics in North America. Tonya will describe the importance of CQA testing on geomembrane welding and testing.



Panelist – Ryan Kamp

Ryan Kamp is President of Chesapeake Containment Systems, Inc., which is geosynthetics installation company, headquartered in Statesville, NC. Ryan began his career in geosynthetics 23 years ago starting as a laborer and progressing through the ranks to superintendent and operations manager. Ryan started Chesapeake in 2007 and with a strong reputation for safety, quality, and value, it has grown into one of the most respected and largest U.S. installation companies.



Please submit your questions for the panelists via the question portal on the GoToWebinar control panel.

If your question does not get answered today, it will be addressed during the FGI's follow up podcast.

Thank you for attending!!

MQC -

- Manufacturer controlled
- Resin, fibers, and additives meet vendor certified values
- Manufactured products meet specified values
- Certified values meet project requirements

MQA -

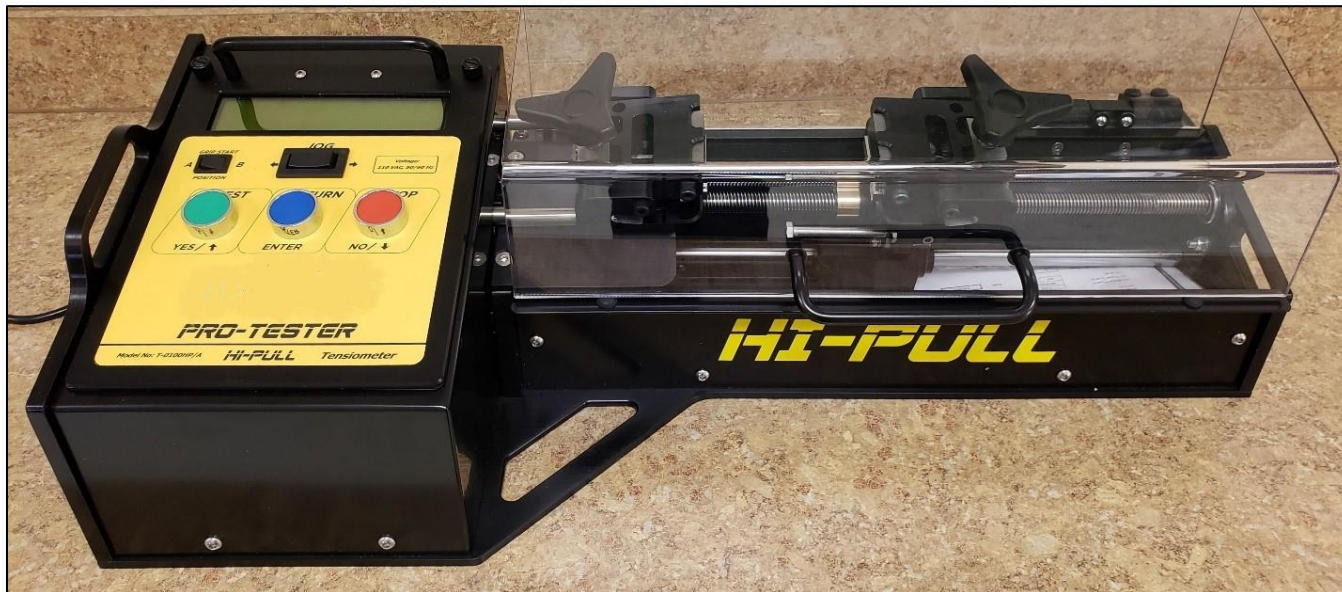
- Consultant controlled
- Certified values meet project requirements
- Plant visit(s) to inspect process and products

CQC -

- Fabricator controlled
- Confirm compliance with plans & specs
- Conduct product conformance testing
- **Factory CQC – Tonya Switalski**
- Field CQC – Ryan Kamp

Benefits – Factory CQC

- Wind, dirt, rain, temperature fluctuations can all affect field seaming.
- Factory welding produces higher quality and consistent seams and produces higher shear and peel strengths.



Seam Testing

- Seam test is used to verify seaming parameters, equipment, and personnel are in compliance with specifications.
- Test every welder at beginning of shift or every 4 hours of production, whichever is more frequent.
- Welders are re-tested when geomembrane is changed.
- Non-destructive sample welds are created by joining two pieces of geomembrane together with production welder.
- Seam samples are tested for peel and shear strength and compared to project specifications.
- If a seam fails, adjustments to welder are made and above process repeated.
- Results of each test seam are documented.

Construction Quality Control (CQC)

CQC -

- Fabricator controlled
- Confirm compliance with plans & specs
- Conduct product conformance testing
- Factory CQC – Tonya Switalski
- Field CQC – Ryan Kamp

Seaming Equipment



Heat Gun



Extrusion Welder



Fusion Welder (Hot Wedge)



Fusion Welder (Hot Air)

Testing Equipment



Manometer (Dual Track Welds)



Air Lance (Single track welds)



Vacuum Box



Spark Tester



Tensiometer



Bone/Coupon Cutter

Destructive Testing (CQC)

- Field Trial Seams (before welding)
- Seam End Bones (during welding)
- Field Destructive Testing (after welding)

Non-Destructive Testing (CQC)

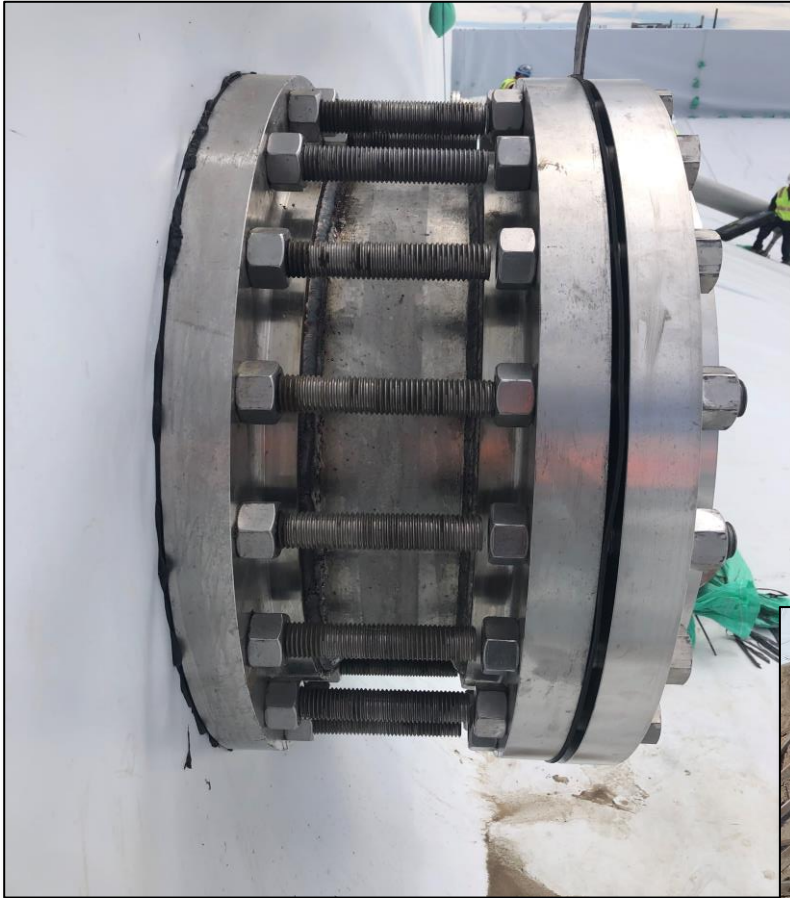
- Air Channel Testing (dual track welds)
- Air Lance Testing (single track welds and patches)
- Vacuum Box Testing (patches)
- Spark Testing (patches/boots/corners)

Construction Quality Assurance (CQA)

CQA -

- Consultant/Owner controlled
- Develop MQA & CQA plan
- Confirm conformity with design (plans & specs)
- Confirm compliance with permit/regulations
- Consultant/Owner CQA – Shannon Goodrich
- Regulatory Compliance – Brian Queen

Closure Spool Pipe Penetration



Seals to Structures



Well Prepared Subgrade Surface



Floating Covers Have to Withstand a Heavy Load



QC Field Test Followed By QA Field Test Results In Good Seams





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Field Installation Regulatory Oversight

In Ohio:

- Regulatory Minimums for Quality Control and Quality Assurance
- Authorizing Documents (Permit)
 - Incorporates regulatory minimums and additional requirements
- Quality Assurance firm submits certification
- Ohio EPA then approves or denies certification

Field Installation Regulatory Oversight



Typical Quality Control and Quality Assurance
Air Channel Testing

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Leachate Collection Systems - Design, Specifications, and Construction

Thursday, August 12, 2020 at Noon CDT

Free to Industry Professionals

1.0 PDH

Presenter

Robert Mackey, P.E., BCEE

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