

**GSI W-19 Webinar Entitled:
“Wave (or Wrinkle) Management for Proper Deployment of Geomembranes”**

Webinar Overview

An intrinsic property of all exposed geomembranes is that they expand and contract depending upon the ambient temperature. During times of high temperature this is evidenced by the appearance of waves (also called wrinkles) in installed geomembranes before they are backfilled or otherwise covered. The thicker and stiffer the geomembrane, the more the phenomenon is evidenced. This webinar will show that such waves when backfilled will not disappear. Laboratory and field exhumations indicate that the waves squash forming creases in the subsequent installed material.

The disadvantages of this situation are lack of intimate contact, increased potential seepage, tensile stresses at folds, mini-dam formation and possible equipment damage to the tops of folds. That said, there are a number of methods which can be used by the contractor/installer to avoid the situation from occurring. They are the following:

- push/accumulate/cut/seam
- fixing berms
- white sheet
- temporary tent
- backfill in early morning or night

The webinar advances in progressive stages of overview/background, fate of waves, implications of entombed waves, achieving intimate contact, and summary/recommendations.

Learning Objectives

Participants will learn the basic reason for the occurrence of geomembrane waves and the various reasons for not entombing them during backfilling. Entombed waves as small as 14 mm (0.6 in.) in height do not disappear after backfilling! While the methods used to avoid the situation are time consuming and tend to be somewhat expensive, they are necessary for a proper geomembrane installation.

Webinar Benefits

1. Understand the cause of field deployed geomembrane waves
2. Understand the fate of waves upon backfilling
3. Appreciate the negative implications of entombed waves
4. Learn methods of achieving intimate contact without waves
5. Appreciate the current status of the situation and how current practice must be improved

Intended Audiences

- Federal, state and local governmental agencies dealing with geomembrane lined solid waste facilities

- Private and public owners of such facilities
- Solid waste consultancies and testing laboratories
- Construction quality assurance inspectors of lined waste facilities
- Perhaps most of all, geomembrane installers and earthwork contractors for solid waste facilities

Specific Topics Covered

1. Overview and Background
2. Fate of Waves; A Laboratory Study
3. Implications of Entombed Waves
4. Achieving “Intimate Contact”
5. Summary and Recommendation

Webinar Instructor

Dr. George R. Koerner is the current director of the Geosynthetic Institute, a position that he has held since 2014. George’s interest in geosynthetics spans his entire professional life from undergraduate work in the 1980’s to the present. He holds his PH.D. in Civil, Architectural and Environmental Engineering from Drexel University in Philadelphia. George’s master thesis was on direct shear testing of geosynthetic interfaces and his doctoral dissertation was on landfill leachate clogging of soil and geosynthetic filters. Both are regularly cited to this day.

Dr. George Koerner is a Professional Engineer in both Pennsylvania and New Jersey, and is an ASQC Quality Auditor. During his 30-years of geosynthetic activities, Dr. Koerner’s output has been tremendous and he has to his credit the following publications:

- Books Edited or Co-Edited – 15
- Journal Papers – 18
- Symposium and Conference Publications – 40
- Book Chapters and Published Reports – 4
- Miscellaneous Articles – 30

The Geosynthetic Institute is a nonprofit research and development organization dedicated to the proper use of geosynthetics in its myriad applications. As director of the Geosynthetic Institute, Dr. George Koerner is also in charge of the laboratory accreditation and inspection certification programs.