

**GSI W-6 Webinar Entitled:
“Geosynthetic Applications Used in Heap Leach Mining”**

Webinar Overview

The chemical extraction of precious metals from low grade ore and tailings has been ongoing since the 1950's. Gold, silver and copper are the general targets, wherein heaps of the ore are leached with cyanide or sulfuric acid which gravitationally flows to the base with its dissolved metals and is then collected by a drainage system. Of course, a geomembrane must be beneath or the pregnant leach solution will escape. (Incidentally, it is estimated that almost 40% of all geomembranes are being used for this application). The metal is then recovered from the leachate in an on-site processing plant. The barren liquid is then revitalized and sent to the top of the heap for recirculation until the process is no longer economic. In this webinar the various heap configurations and operations will be described.

The major design issues of geomembrane selection, leach drainage pads, slope and heap stability, liquefaction potential and pond liner decisions are described in as much detail as time permits. Reflections on the technology as well as summary, conclusions and recommendations are offered.

Learning Objectives

Webinar participants will learn the concept, technique and idiosyncrasies of heap leach mining as is currently practiced worldwide. Critical in the technique's success is the use of geosynthetics; including geomembranes, geonets, geotextiles, geosynthetic clay liners and geopipe. Five critical design issues will be emphasized. Among them are heap and slope stability (there are many stability failures) issues and procedures. Participants will learn about the economics of these massive operations vis-à-vis the environmental concerns which must be properly addressed.

Webinar Benefits

- Understanding the concept and select details of heap leach mining
- Appreciating to the enormous scale of operations and various heap configurations
- Learn about the application of the leaching chemicals
- Learn about geomembrane selection
- Learn about various leachate collection schemes
- Learn about stability issues and some failures that have occurred
- Learn of the importance of high liquid heads and the possibility of liquefaction
- Learn about pond liner design

Intended Audiences

Heap leach operations owners and operators; general civil and mining consulting engineers; geosynthetic manufacturers and distributors; testing organizations servicing these organizations; heavy construction contractors; federal and state regulatory agencies, academic and research groups; and others desiring technical information on this important aspect of precious metals recovery.

Specific Topics Covered

1. Background and Concept
2. Categories and Operations
3. Materials and Cross Sections
4. Major Design Categories

5. Final Comments and Issues

Webinar Instructor

Dr. Robert M. Koerner's (Professor Emeritus of Civil Engineering at Drexel University and Director Emeritus of the Geosynthetic Institute) interest in geosynthetics spans over thirty years of teaching, research, writing and advising. He holds his Ph.D. in Geotechnical Engineering from Duke University. He is a registered Professional Engineer in Pennsylvania, a Distinguished Member of ASCE, a Diplomate of the GeoInstitute and a member of the National Academy of Engineering. Bob has authored and co-authored about 650 papers on geosynthetics and geotechnical topics in journals and at national and international conferences. His most widely used publication is the sixth edition of the textbook entitled "*Designing with Geosynthetics*". He is the founding director of the Geosynthetic Institute which is a nonprofit research and development organization dedicated to the proper use of geosynthetics in its myriad applications. The institute also provides laboratory accreditation and inspection certification programs.