

# TRI CQA WEEK

MAY 5 – 9, 2025



REGISTER ONLINE: [tri-environmental.com/education](http://tri-environmental.com/education)

## 5 Half-Day Online Sessions

### LINER INTEGRITY SURVEYS/ASSESSMENTS

May 5, 2025

### CONSTRUCTION QA/QC FOR COMPACTED CLAY LINER & GCL INSTALLATION

May 8–9, 2025



Live Virtual Sessions

### CONSTRUCTION QA/QC FOR GEOSYNTHETIC INSTALLATIONS

May 6–7, 2025

### GEOSYNTHETIC CERTIFICATION INSTITUTE – INSPECTORS CERTIFICATION PROGRAM

(GCI-ICP) EXAM

May 9, 2025



Accredited Geosynthetics Laboratories  
Accreditation Designation # GAI-LAP-001



Learn to properly specify and utilize this growing, in-demand service. LISA complements existing services offered by most CQA firms practicing in waste management. Water resource conservation, tank lining, mining, and other containment sectors use LISA too.



## LISA PRIMER

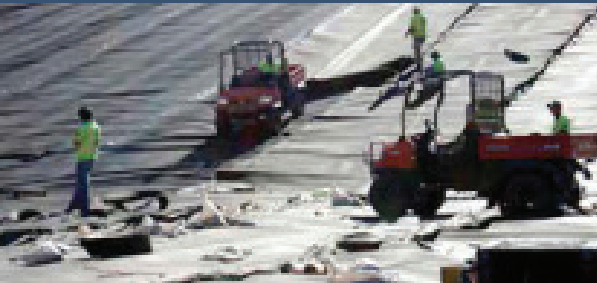
May 5, 2025 8:00 am - 12:00 pm CST

A Liner Integrity Survey (Electrical Leak Location) is a state-of-the-art, nondestructive method of locating leaks in installed geomembranes. LIS equipment, rooted in geophysical measurement techniques, tests exposed and soil or water-covered geomembranes. TRI's training course disseminates the theoretical and practical knowledge required to employ and specify the quality of LIS methods and equipment.

The Liner Integrity Surveys/Assessments (LISA) class provides the most up-to-date information on survey methods and standards (e.g., ASTM). It is ideal for design engineers, CQA firms, site owners, and regulators interested in specifying and employing this service.

**Professionals who benefit from this course:**

- Specifying/Certifying Engineers
- Construction/Quality Assurance
- Project Managers
- Installers/Contractors
- Third-Party Inspectors
- Regulators



**FIELD CQC / CQA TRAINING**

May 6 – 9, 2025      8:00 am - 12:00 pm CST

These two 2-day courses may be taken singly or as a package. They are designed specifically for those who need a detailed understanding of proper CQC and CQA procedures at waste containment facilities.

The courses provide ideal preparation for the Geosynthetic Certification Institute’s Inspectors Certification Program (GCI-ICP) exam.

Gain comprehensive understanding of:

- Preparing CQC/CQA plans
- Reviewing CQC/CQA plans
- Performing CQC/CQA observations and tests
- Reviewing field CQC/CQA procedures

Each course presents material that complements the other. Course 1 focuses on installation of geomembranes, geotextiles, geocomposites, geogrids, and geo-appurtenances. It includes discussion of geomembrane seaming and seam peel and shear testing. Course 2 focuses on the installation of compacted clay and geosynthetic clay liners (GCLs). Special emphasis will be given to establishing rationale and standard operating procedures for field inspections, documentation of test and visual observations, and implementation of CQA plans. A broad appreciation for the manufacture and installation of containment facility materials will be provided.





## **GCI-ICP CERTIFICATION EXAMS**

May 9, 2025

CQA course students will be allowed to sit for the Geosynthetic Certification Institute-Inspectors Certification Program (GCI-ICP) exams immediately following the CQA courses. All exam-interested students **MUST REGISTER** with the Geosynthetic Institute (GSI) and pay GSI's certification fee before the test. TRI does **NOT** collect this fee. Contact GSI (+1 610 522 8440) for more information.

## **EXCEPTIONAL PROFESSIONAL DEVELOPMENT**

Thorough training in CQA of geosynthetic installations serves to expand opportunities for engineering consulting and design practice. TRI's Short Course Training Week participants will be provided a certificate of course completion, suitable for use in proposals and statements of qualifications for CQC/CQA work. This unique program provides professional growth and business development opportunities.

## **ABOUT TRI**

TRI/Environmental, Inc. (TRI) has been active in geosynthetics testing, inspection and research and development for 30 years. TRI is an independent, third-party laboratory unaffiliated with any manufacturing, engineering/consulting, or construction management firm.

## **REGISTRATION**

Online registration is available at:

[tri-environmental.com/education](http://tri-environmental.com/education)

ZOOM COURSE LINKS WILL BE EMAILED TO EACH REGISTERED STUDENT ONE WEEK BEFORE CLASS.



Sam Allen



Abigail Gilson



Jeffrey Kuhn



Mark Sieracke

## **Sam Allen**

### ***President and Director***

Sam Allen is the Vice President of Texas Research International's (TRI) Geosynthetics Services Division. He has served as Chairman of ASTM Committee D35 on Geosynthetics and currently serves on the Board of Directors of the Geosynthetic Institute (GSI).

## **Abigail Gilson, M.S., P.E.**

### ***M.S., P.E., Director of Liner Integrity Services, TRI Environmental, Inc.***

Ms. Gilson spent the first part of her career as a containment facility design engineer and electrical leak location survey practitioner. She joined TRI in 2012 to focus solely on the implementation and advancement of electrical leak location technologies. She has over seventeen years and 170 million square feet of electrical leak location survey experience. Her contribution to the field of electrical leak location includes numerous published technical papers, educational seminars, presentations worldwide, and heading the ASTM Task Groups for the recent revisions and additions to the ASTM Standard Guides and Practices.

## **Dr. Jeffrey Kuhn, P.E.**

### ***Executive Director***

Dr. Jeffrey A. Kuhn, P.E., is the Geotechnical Laboratory Director for TRI/Environmental, Inc. His doctoral work principally focused on alternative/evapotranspirative cover design and evaluation for the EPA, and he performed research with expansive clays for the Texas Department of Transportation (TxDOT). Prior to joining TRI, he served as a consulting engineer, where he worked on the design and installation of the Circuit of the Americas Formula One Race Track over expansive clays with tight differential movement criteria. Since 2012, he's led the expansion of TRI's geotechnical laboratory capabilities and reach within the geotechnical community.

## **Mark Sieracke, P.E.**

### ***Landfill Design and CQA Consultant***

Mark D. Sieracke, P.E., is an industry-recognized expert in the fields of landfill design and CQA. Mark serves as a Principal and Solid Waste Practice Area Manager for Weaver Consultants Group. Mark has served as a Technical Reviewer of the US EPA Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities (EPA/600/R-93/182, Sept. 1993). He has served as a hands-on CQA practitioner, certifying engineer, and consultant for 1000+ acres of geosynthetic installations. He contributes routinely to landfill failure investigations and constructability reviews for design engineers. Mark serves on the Waste Management Inc. (WMI) Geosynthetic Task Force, creating the corporate standards for CQA.

## SCHEDULE

### LISA PRIMER May 5, 2025

#### PART 1: INTRODUCTION TO THE METHODS

8:00 AM	Significance of Electrical Leak Location Testing and Intro to ELL Methods	Gilson
8:10 AM	Bare Geomembrane ELL Methods	Gilson
8:40 AM	Covered Geomembrane ELL Methods	Gilson
10:15 AM	Break	

#### PART 2: SPECIFYING ELL METHODS

10:30 AM	Method Selection	Gilson
10:45 AM	Covered Geomembrane Specification	Gilson
11:15 AM	Blind Leaks	Gilson
11:45 AM	Case Histories – Followed by Closing Q&A	Gilson

### CQA COURSE ONE May 6, 2025

8:00 AM	Introductions	Allen
8:15 AM	CQA Principles Philosophy - <i>Responsibilities, appreciation of role, professional considerations and on-site protocol, conflict resolution, etc.</i>	Sieracke
9:00 AM	Intro to Geomembrane Manufacturing and Properties - <i>Polymers to products, material properties, product manufacturing.</i>	Allen
10:00 AM	Break	
10:15 AM	Geomembrane Seams and Welding   Field Testing - <i>Double track fusion welds, extrusion welds, "T" welds, seam sampling, peel and shear testing, peel incursion and strain measurements, modes of failure, break codes, field vs. laboratory testing.</i>	Sieracke
11:15 AM	Smart Welders - <i>Double track fusion welds, extrusion welds, "T" welds, seam sampling, peel and shear testing, peel incursion and strain measurements, modes of failure, break codes, field vs. laboratory testing.</i>	Allen
11:30 AM	Electronic Leak Location (ELL)	Allen
12:00 PM	Questions/Answers	



## SCHEDULE

### CQA COURSE ONE May 7, 2025

8:00 AM	Review of Yesterday	Allen
8:15 AM	Geotextiles & Geosynthetic Drains - <i>Types and specifications, shipping receiving, unloading, storage &amp; installation</i>	Allen
9:15 AM	Geogrids   Pipe   Erosion Control - <i>Types and specifications, shipping receiving, unloading, storage &amp; installation</i>	Allen
10:00 AM	Break	
10:15 AM	Installation   Protection and Soil Cover	Sieracke
11:15 AM	CQA Paperwork and Record Keeping - <i>Importance of documentation, communication records, examples of record keeping and documentation, checklists</i>	Sieracke
12:00 PM	Questions/Answers	

### CQA COURSE TWO May 8, 2025

8:00 AM	Liner and Cover Systems - <i>Single liners/double liners/composite liners, leakage rates through soil, composite action with geomembranes, importance of drainage layer properties.</i>	Kuhn
8:45 AM	Compacted Clay Properties- <i>Materials, factors affecting hydraulic conductivity, clod vs. particle orientation theory, keys to low hydraulic conductivity, water content-density criteria, recommended procedures for determining acceptable zone, influence of overburden stress, bonding of lifts, thickness</i>	Kuhn
10:00 AM	Break	
10:15 AM	Compacted Clay Liner Construction - <i>Equipment, preprocessing of soil, soil moisture control, sieving, clod control, crushing/pulverizing materials, compaction, test pads.</i>	Kuhn
11:45 AM	Questions/Answers	

## SCHEDULE

### CQA COURSE TWO May 9, 2025

8:00 AM	Review of Yesterday	Kuhn
8:15 AM	GCL History - <i>Commercially-produced GCLs, geosynthetic materials, manufacturing of GCLs, manufacturing quality control, recommended specifications.</i>	Kuhn
9:15 AM	Bentonite Measurements - <i>Measures of and tests for bentonite quality, recommended specifications for bentonite in GCLs, contaminant-resistant bentonite.</i>	Kuhn
10:00 AM	Break	
10:15 AM	Installation of GCLs - <i>Transportation, handling, storage, subgrade preparation, placement procedures, seaming protection, construction quality control and assurance, observations, types of tests, frequency of testing, field case history.</i>	Kuhn
11:00 AM	Questions/Answers	Allen & Kuhn



## SCHEDULE

### GCI-ICP EXAM May 9, 2025

12:00 PM	Online Exam Geosynthetics
2:00 PM	Break
2:15 PM	Online Exam - Compacted Clay Liners

### Information regarding exams

- ALL students wishing to sit for the exam(s) MUST FIRST register for certification through the Geosynthetic Institute (GSI) and pay the applicable fees directly to GSI (phone: +1-610-522-8440). GSI registration must be received by the GSI 7-10 days before the exam(s).

### Time allowance and structure

- Students will be given two hours to take the geosynthetic test. One must answer 70% of the questions correctly in order to pass. Only one correct answer is possible for each question.
- Students will be given one hour to take the compacted clay liner test. At least 70% of the questions must be answered correctly in order to pass. There is only one correct answer for each question.
- The test is a multiple-choice test. Students must choose the correct answer (and only one answer) for each question. They must not select multiple answers for the same question.



## SHORT COURSE TUITION / GCI EXAM COST (SEE REGISTRATION FORM)

FOR REGISTRATIONS BEFORE April 21, 2025. *\$50 additional per registration thereafter.*  
CQC/CQA Short Courses and CQA Exam

### Liner Integrity Survey Short Course

May 5 - 1 registrant per company \$475.00/person

*Save 5% on 2 or more registrations to the class*

### CQC/CQA Short Courses

Both courses, 1 registrant per company \$825.00/person

*Save 5% on 2 or more registrations to the class*

Only one course, 1 registrant per company \$550.00/person

*Save 5% on 2 or more registrations to the class*

Both courses, government \$400.00/person

One course (day) only, government \$325.00/person

*Government Special! Save 10% on 2 or more registrations to the class*

### GCI EXAM May 9, 2025

TRI fee for one applicant only per company \$125.00/person\*

*\*The exam costs above DO NOT reflect the TOTAL cost for sitting for the GCI exam, only TRI's exam proctoring cost. The GCI exam is part of the GCI CQA technician certification program. Because of this, one MUST REGISTER with the Geosynthetic Institute (GSI) and pay its required certification fee in order to take this exam. TRI does NOT collect the fee for GSI; that fee must be paid directly to GSI. Call +1 610-522-8440 for more information.*

**REGISTER ONLINE**  
[tri-environmental.com/education](http://tri-environmental.com/education)