

# Training Seminars

## Monday One-Day Seminars:

June 15 | 9:00am – 4:30pm

### DMC 3000™ Electronic Dosimeter Training (Hardware & Software)

**Prerequisites:** Attendees should have a basic understanding of radiation interaction with matter, the basic purpose of contamination monitoring systems, equipment, and their operational procedures. Attendees are encouraged to bring a laptop to run the contamination monitor demonstration program.

**Description:** This seminar is designed to support users tasked with the calibration, configuration and deployment of Mirion electronic dosimeters (DMC/SOR family). Attendees will gain insight into the capabilities of the dosimeter through parameter manipulation and hands-on exercises involving the use of the DMC User™ software. Attendees will become familiar with the variety of dosimeter customization options and advanced features of the configuration software, and how to leverage them for their own applications.

**Who Should Attend:** Existing users (SOR, DMC 2000™ or DMC 3000 units) who calibrate, configure, or repair electronic dosimeters will gain the most benefit; individuals interested in Mirion's dosimeter product line are welcome to attend.

#### Seminar Topics:

- Functional overview of the DMC and SOR communication protocols
- Dosimeter detection technology and self-test features
- DMC User configuration software overview
- Dosimeter deployment: creation and maintenance of standard configurations
- Configuration options for emergency deployment
- Histogram recovery and interpretation
- Dosimeter display customization
- Calibration procedures and calibration factor adjustment
- Common error messages and corrective actions
- Advanced DMC User configurations

**Instructors:** David Jarrow and Jess Griffin

**Cost:** \$950.00

**CECs:** 8



Learn more and register: [mirionconnect.com](https://www.mirionconnect.com)

## Monday One-Day Seminars:

June 15 | 9:00am – 4:30pm

### Mastering Vital® Supervision: Optimize Safety, Efficiency, and Integration – **NEW!**

**Description:** Unlock the full potential of Vital Supervision to enhance operational safety and streamline workflows. This hands-on training will show you why supervisory monitoring matters, with real-world examples of how instrument oversight improves productivity and compliance.

**Who Should Attend:** Whether you're a current Vital user or exploring its benefits, this seminar equips you to reduce time and cost, optimize plant systems, and improve safety through actionable insights.

#### Seminar Topics:

- Set up the system: Add instruments, configure site maps, create device grids, and manage user roles.
- Integrate real instruments: Work with Ethernet, WRM Wireless, and serial AWM connections.
- Connect access control systems: Incorporate HIS-20™, DosiServ™, or Sentinel for dose monitoring and worker/RWP data.
- Respond to alarms and events: Validate data connections, configure monitoring screens, and manage alerts to drive safety and maintenance actions.

**Instructors:** Steve Laskos and David Yostrum

**Cost:** \$950.00

**CECs:** TBD

### Contamination Monitoring Operations – Basic

**Prerequisites:** Attendees should have a basic understanding of radiation interaction with matter, the basic purpose of contamination monitoring systems, equipment, and their operational procedures. Attendees are encouraged to bring a laptop to run the contamination monitor demonstration program.

**Description:** This seminar will begin with a short review of the operating principles, setup, and calibration of the Mirion Argos™-5AB with Zeus™ option. These calibration principles can be applied and extended to the GEM™-5 gamma exit monitor, the Cronos® tool/object monitor and the Sirius™-5 Hand/Cuff and Foot monitor. The required steps to properly setup, calibrate, alarm test, and troubleshoot and perform required maintenance on the monitors will also be covered. Concepts are taught using lecture/demonstration format followed by hands-on participation by the user.

**Who Should Attend:** Technologists and supervisory personnel who are responsible for personnel or object contamination monitoring using any of the Mirion Argos, GEM, Sirius, or Cronos systems would benefit from attending this training seminar. Attendees should have a basic understanding of contamination monitoring systems and programs.

**How You Will Benefit:** Attendees who complete this seminar will establish or refresh a solid foundation in the calibration, operation, and use of Mirion contamination monitoring systems. Supervisors and managers benefit from an improved level of understanding on the part of their technologists, ensuring a more reliable and defensible contamination monitoring program.

#### Seminar Topics:

- Detector and System Fundamentals
- High Voltage Optimization
- Calibration
- Self-Shielding Basics
- Troubleshooting
- System Maintenance & Repair
- What's in the Software

**Instructor:** Kurt Dickhoff

**Cost:** \$950.00

**CECs:** 8

## Monday One-Day Seminars:

June 15 | 9:00am – 4:30pm

### Practical QA/QC Considerations in Gamma Spectroscopy

**Description:** Users of analytical equipment understand that an extensive and consistent Quality Assurance (QA) program is integral to delivering defensible and valid results. With the advancements in electronic storage of the data, creating quality control charts and reports is the easy part. However, knowing what parameters to track, what types of QA tests to use and how to interpret the QA results is more difficult and is critical to having a good QA/QC program.

During this seminar, we will focus on quality assurance practices for gamma spectroscopy systems. We will present parameters that should be monitored in order to maintain a gamma spectroscopy system at peak performance over the equipment's lifetime. Data from these parameters give early warnings as to possible problems with the system as well as information for troubleshooting the problems.

**How You Will Benefit:** The information presented is based on years of intensive cooperation between many users of electronic QA packages and consultancy work performed by Mirion to help customers successfully pass their audits and achieve accreditations for their counting laboratories. The goal is to provide advice as to how to create an accurate and balanced QA program which can alert the user to any situation that may cause the system to report erroneous results.

#### Seminar Topics:

- Overview of Quality Assurance Requirements
- Use of QA Files for Monitoring System Performance
- Frequency of Quality Control Measurements
- Recommended QA Parameter Definitions
- Using the Genie™ Quality Assurance Editor
- Performing Routine QA Counts
- Transferring QA Parameter Results to a QA File
- Reviewing QA File Results
- Additional Methods for Evaluating Data Quality
- Recommended Responses to QA Test Failures
- Implementing QA counts in basic Genie and Apex® Software
- Automation of QA counts in basic Genie and Apex Software

**Instructor:** Terry Schwager

**Cost:** \$950.00

**CECs:** 8

### MDA from the Ground Up

**Description:** Minimum Detectable Activity (MDA) is one of the hardest concepts to understand in gamma spectroscopy. This 1-day seminar provides a thorough explanation of the concepts starting from basic counting statistics, through a review of the Currie method, and concluding with examples of more complex measurement scenarios.

**Who Should Attend:** The intended audience includes anyone working with gamma spectroscopy analysis and supervisory personnel who want to get a better understanding of the MDA and detection limit concepts. Attendees should be familiar with fundamental principles of gamma spectroscopy.

**How You Will Benefit:** Attendees who complete this seminar will attain a good understanding of the concept of MDA. This knowledge will enable attendees to better understand a key concept that is often reported to regulators and other stakeholders. A good understanding of MDA and what factors that influence it is a necessary skill when trying to optimize your gamma spectroscopy system for increased throughput or lowest possible detection limit.

#### Seminar Topics:

- Basic counting statistics
- Defining the concept of MDA and detection limits
- Review of the Currie method, including practical examples
- Discussion of the factors that influence the MDA

**Instructor:** Emerson Dang

**Cost:** \$950.00

**CECs:** 8

## Monday One-Day Seminars:

June 15 | 9:00am – 4:30pm

### **Mirion Telemetry System Training: Design, Configuration, and Optimization – *NEW!***

**Description:** This seminar provides an in-depth introduction to the Mirion WRM Telemetry System, combining foundational concepts with practical, real-world application. Participants will learn the fundamentals of telemetry technology and how it applies to radiation monitoring environments, with a focus on system architecture, component selection, and data communication principles. Through guided instruction and examples, attendees will gain hands-on knowledge in designing, configuring, and optimizing telemetry systems to achieve reliable, long-term performance. The training emphasizes industry best practices and proven methodologies to ensure dependable connectivity of in-field instrumentation, even in challenging or demanding operational environments, using Mirion WRM technology.

**Who Should Attend:** Technical professionals, engineers, and system administrators responsible for radiation monitoring and telemetry system management.

#### **Seminar Topics:**

- Understand the core principles of the WRM Telemetry System.
- Learn proper system design and configuration techniques.
- Explore optimization strategies for dependable connectivity in demanding environments.

**Instructor:** Kris Bauer

**Cost:** \$950.00

**CECs:** TBD

## Tuesday One-Day Seminars:

June 16 | 9:00am – 4:30pm

### Image Reconstruction Design and Optimizing Algorithms for Gamma and Neutron Advanced Data Analysis – **NEW!**

**Description:** Physics principles in conjunction to mathematical and numerical methods will be presented, in detail, regarding the usage of image reconstruction as applied to gamma spectroscopy and passive/active neutron singles and coincidence measurement modalities. The goal is to enhance the visual experience leading to improved accuracy and ultimately lowering the Total Measurement Uncertainty (TMU). The training will transcend from the introductory basics to the more complex advanced algorithms and associated processes. Field measurements involving real nuclear waste containers and working reference materials will be utilized and supplemented/reinforced with data generated from various modeling techniques.

**Expectations:** Those that attend the full day session will have an excellent grasp of the power of image reconstruction, how to implement, and the various applications of such usually leading to improved nuclear waste characterization dispositions and inventory accountability.

**Who Should Attend:** Anyone involved in the disposition of nuclear waste, fuel characterization and material accountability.

**Instructor:** Dr. Marcel Villani

**Cost:** \$950.00

**CECs:** TBD

### Contamination Monitoring Operations – Advanced

**Prerequisites:** Attending the Contamination Monitoring Operations Basic seminar or experience with use, calibration and troubleshooting.

**Description:** This seminar is designed to give attendees a more in-depth look at achieving the performance standards provided by INPO, ANI, and EPRI with regard to personnel and object contamination monitoring. Several advanced tools and data gathering-analysis methods will be presented about alarm testing, radon progeny rejection tuning, passive monitoring, and self-shielding corrections. Bring your questions for discussion or send to me prior to the meeting, so we can make sure we have time to address all your questions. Bringing a laptop is encouraged so we can put those tools to use for training and analysis.

**Who Should Attend:** Technologists and supervisory personnel responsible for personnel or object contamination monitoring using any Mirion Argos™, GEM™, Sirius™, or Cronos® system will benefit from attending this training seminar. Attendees should have a basic understanding of contamination monitoring systems and programs.

**How You Will Benefit:** This seminar is designed to start you on the next level of understanding of maintenance, upgrades and how to understand and implement the industry guidance documents as well as perform and evaluate advanced concepts.

#### Seminar Topics:

- Advanced considerations for calibration and optimization
- Alpha, Beta and Gamma Calibration for optimal performance
- Standards and guidance for calibration
- Alarm Setting Strategies
- Detector Zone and Sum Zone Usage
- Minimizing Count Times with Maximum Sensitivity
- Alarm Testing Methodologies-Quality Assurance
- Extending alarm testing frequency and documentation
- Using Representative Plant Smears
- INPO, EPRI and ANI Guidance
- Passing INPO Performance Tests RP 1-4 How To
- Passive Monitoring: What is it? How do you do it? How do you satisfy ANI?
- Radon Progeny Rejection Settings and Experience
- Personnel Monitoring Results: Clean and Contaminated
- System backup and restoration
- Software and computer updates

**Instructor:** Kurt Dickhoff

**Cost:** \$950.00

**CECs:** 8

## Tuesday One-Day Seminars:

June 16 | 9:00am – 4:30pm

### iCAM™ Operations

**Purpose:** This seminar is designed to provide the iCAM user with an understanding of the hardware, software, and measurement application to ensure proper system setup and basic operation.

**Description:** This 1-day seminar is designed as an introduction to common air monitoring concepts, along with detailed instructions on iCAM calibration and maintenance functions. The seminar begins with an introduction of the iCAM instrument, including a description of all components and theory of operation. Explanation of faults and alarms will be discussed. After a discussion of the hardware components, the iCONFIG software will be demonstrated to show the functionality of this configuration tool. Once the iCAM setup is complete, we will discuss options and methods for calibrating the instrument for alpha and beta efficiency as well as airflow. Other topics for discussion will include radon rejection, activity calculations, false alarm reduction, and routine iCAM maintenance procedures.

**Who Should Attend:** Radiation protection, chemistry and operations personnel familiar with the concept and purpose of facility continuous air monitors, and knowledgeable with the generic fundamentals of this monitor. This seminar can be used as a refresher course for experienced plant personnel, or it can be used as an introductory course for new plant personnel.

**How You Will Benefit:** Attendees will obtain a working knowledge of continuous air monitor operation and maintenance required to support your equipment. Your facility, supervisors, and managers benefit from having key personnel with an improved level of understanding of the iCAM monitor and its operation.

**Instructor:** Terry Schwager

**Cost:** \$950.00

**CECs:** 8

### ISOCS™ Uncertainty Estimator

**Description:** This 1-day seminar provides an in-depth understanding of the ISOCS Uncertainty Estimator, a tool that can be used to gauge the total measurement uncertainty contributions from components of the measurement geometry that are not well-known. Examples include inhomogeneities in the source matrix, uncertainty in key geometry dimensions such as the source-to-detector distance and many more. This tool greatly simplifies the process of estimating total measurement uncertainty.

**Who Should Attend:** The intended audience includes subject matter experts and personnel who are responsible for ensuring accurate results, including uncertainties, are being reported by their gamma spectroscopy systems. Attendees should have a strong familiarization with uncertainty estimation. Basic knowledge of efficiency calibrations will be helpful with understanding the seminar material.

**How You Will Benefit:** Whether you utilize source based on mathematical based efficiency calibrations, your calculated activity is only identically correct if your sample being measured is exactly the same as your calibration source/geometry. ISOCS Uncertainty Estimator (IUE) provides a rapid and accurate method to determine the contributions to measurement uncertainty from parameters in the calibration geometry that are either not well known or not well represented by the sample being measured. This seminar will teach you how to use the IUE tool and how to appropriately represent the uncertainty in your efficiency calibrations.

#### Seminar Topics:

- Review of efficiency calibrations and total measurement uncertainty
- Introduction to the ISOCS Uncertainty Estimator (IUE) software
- Case study/application of IUE

**Instructor:** Emerson Dang

**Cost:** \$950.00

**CECs:** 8

## Tuesday One-Day Seminars:

June 16 | 9:00am – 4:30pm

### Portable Instrument Repair Training – **NEW!**

**Description:** This hands-on seminar focuses on the repair and maintenance of Mirion portable instrumentation, providing attendees with the technical knowledge and practical experience needed to keep equipment operating at peak performance. Participants will learn systematic troubleshooting approaches, common failure modes, and proper repair techniques for a range of Mirion portable devices. The session also covers routine servicing, inspection procedures, and preventive maintenance practices designed to reduce downtime and extend equipment lifespan. By the end of the training, attendees will be better equipped to diagnose issues efficiently and perform repairs with confidence in both field and workshop settings.

**Who Should Attend:** Technicians, maintenance personnel, and anyone responsible for the upkeep of Mirion portable instruments.

#### Seminar Topics:

- Learn repair techniques for Mirion portable instruments, including AMP Series, TelePole II™ meter, RDS-32™ meter, and external probes.
- Understand preventive maintenance practices to extend equipment life.
- Gain confidence in diagnosing and resolving common issues.

**Instructors:** Kris Bauer

**Cost:** \$950.00

**CECs:** TBD

### Dose Calibrator Theory and Operation for Radiopharmaceutical Manufacturing – **NEW!**

**Description:** This training provides a general overview of dose calibrators and is designed for Scientists, Nuclear Pharmacists, Medical Physicist, and Radiation Safety Officers. This seminar focuses on the theory and operations of the dose calibrator, with special focus on how the calibration factors, quality assurance checks, and geometry/placement can affect the accuracy and uncertainty of the result.

#### Who Should Attend:

- Quality Managers/Quality Assurance personnel
- Radiation Safety Officers
- Research and Development Scientists

#### Seminar Topics:

- Overview of Dose Calibrator Applications
- Theory and Physics
- What are calibration factors and how are they determined?
- Recommended calibration checks
- Accuracy and uncertainty quantification
- Best practices

**Instructor:** Eric Offner

**Cost:** \$950.00

**CECs:** TBD

## Monday – Tuesday Two-Day Seminars:

June 15 – 16 | 9:00am – 4:30pm

### Fundamentals of Gamma Spectroscopy

**Prerequisites:** Mirion Course GP-101 Principles of Radiation Detection or equivalent knowledge and experience. A complimentary screening through a placement exam is strongly recommended if course GP-101 has not been completed in the previous 12 months.

**Description:** This seminar covers the complete range of gamma spectroscopy principles from a review of radiation detection principles to evaluation of results and everything in between. This is a concentrated, concise, fast-paced seminar that includes a practical approach to all aspects of gamma-ray spectrometry. The seminar is not for hardware or software operation training but does include an introduction to Mirion gamma spectroscopy software. The seminar is entirely in lecture format and includes mathematical exercises for many of the calculations germane to gamma spectroscopy.

**Who Should Attend:** New technologists or supervisory personnel who need to gain a thorough understanding of the process by which gamma spectrometric measurements are made. This seminar is also suitable for experienced technologists desiring a gamma spectroscopy fundamentals refresher.

**How You Will Benefit:** Attendees who complete this seminar will gain a thorough understanding of all the fundamental processes which contribute to the collection and analysis of gamma-ray spectral data. This knowledge will allow the attendee to understand the operation of gamma spectroscopy systems and accurately interpret basic gamma-ray spectral analysis results. Managers and supervisors benefit from the assurance that the technologist has a thorough working understanding of the fundamental principles that guide successful gamma spectroscopy analyses.

#### Seminar Topics:

- Review of Gamma Radiation Detection Principles
- Gamma Spectroscopy Signal Chain Components
- Energy and Peak Shape Calibrations
- Peak Search and Peak Area Calculations
- Efficiency Calibrations
- Nuclide Identification and Activity Calculations
- Detection Limit and MDA Calculations
- Quality Assurance and Quality Control Considerations
- Evaluation of Gamma Spectroscopy Analysis Results
- Introduction to Mirion Gamma Spectroscopy Software

**Instructor:** Mike Diaz

**Cost:** \$1900.00

**CECs:** 16

### Apex-Alpha/Beta™ Operations

**Prerequisites:** Basic familiarity with Microsoft Windows 7 or 10 operating systems as well as basic computer literacy is required.

**Description:** This 2-day course focuses on the Apex-Alpha/Beta software setup, database interaction and automated sample processing operations. The session is intended for count room managers and technicians responsible for setup, processing, reporting and data review of alpha/beta samples.

The training will cover the architecture of the Apex-Alpha/Beta software, installation, operational setups, calibrations, security, reports, QA, data review, and event logging. Discussions will also include supported modifications to the standard Apex-Alpha/Beta Stimulsoft reports.

This seminar is designed to be the basic system setup and operation training for the Apex-Alpha/Beta count room software product.

**Who Should Attend:** The session is intended for technicians and count room managers responsible for setup, processing, reporting and data review of alpha/beta samples.

**How You Will Benefit:** Attendees who complete this seminar gain the knowledge to correctly prepare and use the software as it is designed. Supervisors and managers benefit from an improved level of software understanding on the part of their count room personnel resulting in a more efficient and defensible analytical process in the laboratory.

#### Seminar Topics:

- Hardware Familiarization
- Apex-Alpha/Beta Software Description and Installation
- Basic and Advanced Operation
- Calibrations
- QC Checks
- Security
- Sample Counting
- Quality Control Charts and Setup
- Custom Report Generation and Modification
- Technical Support Options

**Instructor:** John Cox

**Cost:** \$1900.00

**CECs:** 16

## Monday – Tuesday Two-Day Seminars:

June 15 – 16 | 9:00am – 4:30pm

### How to Build LabSOCS™ Models and Incorporate into your Gamma Measurements

**Description:** During this two-day seminar we will build several common Gamma counting containers and use Mirion software to assist with determining the cascade summing correction and/or efficiency determination. The instructor will take students through the entire process of obtaining the measurements and using manufacturers' information to build the models. Students will work in groups using calipers on containers and manufacturer drawings to build the models. We will use the Beaker Editor to assist with more elaborate bottoms of containers and use the ISOCS™ Uncertainty Estimator (IUE) to propagate uncertainties for the models used for determining the efficiency. We will finish the process learning how to evaluate the model outcomes for obtaining accurate results. This class is not intended to teach the "science" as much as how to get the job done and how to evaluate the model. People will work in groups to complete each of the instructor-led exercises.

**Who Should Attend:** The intended audience includes people who need to build models or approve models using LabSOCS calibration software for cascade summing corrections and/or efficiency determinations for use in Gamma Spectroscopy measurements. Attendees should be familiar with fundamental principles of gamma spectroscopy and the general use of Genie™ or Apex-Gamma™ software.

**How You Will Benefit:** Attendees who complete this seminar will have hands-on experience building models used in the measurement of Gamma emitters in typical laboratory containers. Attendees will also have the tools to evaluate their models prior to incorporating into routine analysis. This knowledge will enable attendees to have the proper training to use our software tools to build a robust gamma measurement capability. This capability stands up to critical evaluation providing correct gamma results on Performance Evaluation Testing measurements and with the proper documentation and necessary evidence for audits.

#### Seminar Topics:

- Which measurements are important
- Using calipers to build models
- Using manufacturers' information to build models
- How to use the Beaker Editor software tool to create a more elaborate model
- Comparison of efficiency generated using the beaker editor to a basic model
- When can we use the concept of averaging to obtain accurate results without the use of the Beaker Editor
- Consideration of shelving and centering gigs and how to address
- How to evaluate models
- How to incorporate needed files in Genie and Apex-Gamma software
- How to use the ISOCS Uncertainty Estimator (IUE) for the propagation of uncertainties for the models used for the determination of efficiency to completely address

**Instructor:** Celeste Olive

**Cost:** \$1900.00

**CECs:** 16

## Monday – Tuesday Two-Day Seminars:

June 15 – 16 | 9:00am – 4:30pm

### HPGe Detector Setup and Troubleshooting

**Description:** This seminar will present the steps required to properly setup your HPGe detector for analytical measurements and some suggested troubleshooting techniques to ensure peak performance of your gamma spectroscopy system. This seminar will also provide an overview of the different types of germanium detectors available for various applications.

**Who Should Attend:** This seminar is intended for spectroscopists who are responsible for setting up, calibrating, and operating gamma spectroscopy systems. This seminar is relevant for both laboratory applications and in situ applications.

**How You Will Benefit:** Attendees will develop competency for ensuring their system is operating properly, allowing for high quality gamma spectroscopy measurements. Also, attendees will gain basic troubleshooting skills that will enable them to identify common detector problems and initiate corrective actions. Attendees are encouraged to bring real world examples from their facility to promote discussions with the group.

#### Seminar Topics:

- What types of HPGe detectors are available and benefits of each:
  - LEGe™ Low Energy Detectors
  - SEGe™ Standard Electrode Coaxial Detectors
  - BEGe™ Broad Energy Detectors
  - SAGe™ Well Detectors
- How to setup the HPGe detector for your application
- Understanding signal chain information from detector spec sheets
  - Parameters that can be adjusted and their effect on your system
- Calibration of your HPGe detector
- Quality Control checks to monitor system performance
  - Verify system functionality
- Troubleshooting your HPGe detector system:
  - What can go wrong and how to identify the problem
  - Troubleshooting techniques aimed at identifying and correcting the problem
  - Leakage current measurements
  - Pole Zero adjustments
  - Thermal cycles

**Instructors:** Jeff Wetzler and Tim Royals

**Cost:** \$1900.00

**CECs:** 16

### Alpha Analyst™ Hardware and Troubleshooting Training – **NEW!**

**Description:** This seminar will present the steps required to properly set up your Alpha Analyst system for analytical measurements and some suggested troubleshooting techniques to ensure peak performance of your alpha spectroscopy system.

**Who Should Attend:** This seminar is intended for spectroscopists who are responsible for setting up, calibrating, and operating alpha spectroscopy systems.

**How You Will Benefit:** Attendees will develop a competency for ensuring their system is operating properly, allowing for high quality alpha spectroscopy measurements. Also, attendees will gain basic troubleshooting skills that will enable them to identify common problems and initiate corrective actions. Attendees are encouraged to bring real world examples from their facility to promote discussions with the group.

#### Seminar Topics:

- Overview of hardware components of the Alpha Analyst system and functions of each:
  - PIPS® Detector
  - Dual Alpha Spectrometer
  - Power Supply
  - Backplane
  - Vacuum Pumps
- How to set up the Alpha Analyst system for your application:
  - Understanding the complete signal chain
  - Understanding parameters that can be adjusted and their effect on your system
- Calibration of your Alpha Analyst system
- Quality Control checks to monitor system performance:
  - Verify system functionality
  - Background Checks
  - Calibration Checks
  - Pulser Checks
- Troubleshooting your Alpha Analyst system:
  - What can go wrong and how to identify the problem
  - Troubleshooting techniques aimed at identifying and correcting problems
  - PIPS detector leakage current and resolution issues
  - How to properly change out an alpha spectrometer
  - Vacuum issues and corrective actions

**Instructor:** Kharis Johnson

**Cost:** \$1900.00

**CECs:** TBD