

Prerequisites: This course shall have no formal prerequisite although it is recommended that the delegate complete a NORM Worker course.

Course Length: 6-8 hours – Course length shall vary depending on the number of delegates. Total course time includes breaks.

Class Size: The maximum number of delegates that may be trained and tested per instructor shall be thirty-five (35) in the classroom session and twenty (20) in the practical session. A second instructor is added for the practical session if the participation exceeds twenty (20).

Course Objective

- Provide delegates assigned to work with or around NORM the necessary skills to safely perform their jobs.
- Provide delegates with recommended practices and guidelines to perform safely while working with and surveying NORM.
- Delegates should be able to demonstrate the necessary skills during practical examination and demonstrate knowledge during written examination.

Course Design

- Power Point© / Lecture / Audio Video / Visual Aids
- Practical Exercises

Successful Course Completion

- Requires a minimum score of 75% or better.
- Grades shall be calculated by dividing the number of questions answered correctly by the total number of exam questions.
- Delegates will have no more than thirty (30) minutes to complete the exam.
- Successful completion of practical session is mandatory.

Course Content Summary

- Classroom
- Practicals

Breaks – 5 to 10 minutes (approximately every hour)

Lunch – 1 Hour

Course Outline

Survey Instruments

- Basic Radiation Detectors
- Detector Types
 - Scintillation Detectors

- Gas Filled Detectors
- Ludlum (Geiger/Mueller) Meter
- Meter Attachments
 - Probe Attachment
 - Pancake Attachment
- Detection Equipment Used at your Facility
- Calibration Requirements
- Pre-operational Checks
 - Physical
 - Battery
 - Response to a Source
 - Calibration
- Operational Check Example

Units of Measure

- Modifying Units of Measure
 - Milli
 - Micro
 - Nano
 - Pico
- How we Report
- Measurement Terms for NORM Detection
 - Roentgen
 - Micro Roentgen
 - Curie
 - Picocurie
 - Micro Roentgen per hour
 - Counts Per Minute (CPM)

NORM Legal Limits

- Federal NORM Regulations
- State NORM Regulations
 - Louisiana DEQ
- Equipment & Tubular Limits
- NORM Waste Limits
- NORM Land Limits
- NORM Wash & Rinse Water Limits

NORM Surveying

- Radiation Surveys
- Survey Documentation

- Radiation Survey Job Classification
- Radioactive Contamination
 - Loose Contamination
 - Fixed Contamination
- Survey Map Example
- Sampling for NORM
 - Soils & Land
 - Liquid & Sludge
- General Considerations when Performing Radiation Surveys
- Checking a Person for Radioactive Contamination
- Frisking Procedures

Signs & Labels

- NORM Container Markings
- Postings in NORM Areas
 - Restricted Areas
 - Radiation Areas
 - Stored Material Areas
 - Airborne Radiation Areas
 - High Radiation Areas
- Establish Safe Work Boundaries

Personal Protective Equipment

- Discuss Common PPE
 - Gloves
 - Respirators
 - Safety Glasses/Face Shields
 - Coveralls/Disposable Clothing
 - Rubber Boots
 - Hard Hats
- Discuss Techniques:
 - Proper Fit
 - Condition
 - Nature of Work
 - Donning PPE
 - Removing PPE (Potentially Contaminated)

Practical Session:

Practical training shall utilize a Survey Meter similar to the type the employee will utilize in the field and a response source. The practical shall verify the following:

- Select and wear appropriate PPE during practical training

- Perform proper pre-use physical integrity check of survey meter
- Perform proper pre-use battery check of survey meter
- Perform proper pre-use source response check of survey meter
- Perform proper pre-use calibration check of survey meter
- Correctly measure and report sample readings
- Determine background radiation levels
- Conduct site survey
- Hold probe ½ inch from surface
- Move probe 2-3 inches per minute
- Slowly frisk over potentially contaminated areas
- Recommend decontamination for contaminated area
- Draw a map to reflect the completed survey

Training Center Provided Material

- Course Materials
- Survey Meter

Delegate Requirements

- None

Reference Material / Documents

Department of Transportation (DOT)

- 49 CFR 173 – General Shipping Requirements

Department of Environmental Quality (DEQ)

Implementation Manual for Management of NORM in Louisiana

Radiation Protection Division