NORM Surveyor
Course Outline

Prerequisites: This course shall have no formal pre-requisite 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 shall be added for the practical session once 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.
- Delegates will have no more than thirty (30) minutes to complete the exam.
- Grades shall be calculated by dividing the number of questions answered correctly by the total number of exam questions.
- Successful completion of practical session is mandatory.

Course Content Summary
- Classroom
- Practical’s

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
- 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.

Practical shall verify the following:
- Properly 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 frisking 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