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Network Design and Site Selection for Monitoring PM_{2.5} and PM₁₀ in Ambient Air

Self-Instructional Course SI:433

Student Manual



Air Pollution Training Institute

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Notice

This is not an official policy and standards document. The opinions and selections are those of the authors and not necessarily those of the Environmental Protection Agency. Every attempt has been made to represent the present state of the art as well as subject areas still under evaluation. Any mention of products or organizations does not constitute endorsement by the United States Environmental Protection Agency.

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LESSON 1

Course Introduction and Overview

Course Description

This course is intended to provide you with a comprehensive, self-instructional, practical application of how to optimally design and determine site selection for a particulate matter (PM) monitoring network in accordance with federal regulations and guidelines. Course topics include:

- discussion of the new National Ambient Air Quality Standards (NAAQS) and their impact on PM monitoring
- overviews of the various network design and PM monitoring guidance documents
- fundamental properties of particles
- general considerations for PM network design
- basic concepts and principles of PM monitoring and siting strategies
- discussion of PM monitoring data and data analysis techniques currently available
- site selection, documentation and reporting requirements

Goals of Instruction:

Upon completion of this course, you should be able to:

1. Describe PM_{2.5} and PM₁₀ monitoring requirements.
2. Explain the network design elements required for accurate, appropriate, and community oriented monitoring of PM_{2.5} and PM₁₀.
3. Apply techniques needed to locate PM monitors that represent community exposure, transport, and background particulate concentrations.
4. Apply appropriate data analysis methods to evaluate compliance with NAAQS site selection, network evaluation, and annual reporting.

Audience

This course is designed for chemists, engineers, and other technical personnel responsible for the PM_{2.5} and PM₁₀ monitoring network design and site selection.

Required Materials

- *Network Design and Site Selection for Monitoring PM_{2.5} and PM₁₀ in Ambient Air*, Self-Instructional Course SI:433 Student Manual
- EPA Guidance Document, *Guidance for Network Design and Optimum Site Exposure for PM_{2.5} and PM₁₀*, December 1997

Desired Background:

It is highly recommended for students to successfully complete the following EPA Air Pollution Training Institute (APTI) courses or have comparable experience in ambient air monitoring:

1. APTI 452 *Principles and Practice of Air Pollution Control*

or

SI:422 *Air Pollution Control Orientation*

2. APTI 435 *Atmospheric Sampling*

or

SI:434 *Introduction to Ambient Air Monitoring*

Taking the Course

This course directs you through the referenced text *Guidance for the Network Design and Optimum Site Exposure for PM_{2.5} and PM₁₀* and selected excerpts for the EPA guidance document "*Guidelines for Speciated Particulate Monitoring*" and 40 CFR Part 50.

You should begin each lesson by reading the lesson's goal and the specific objectives for that lesson. Each lesson has assigned reading materials which consists of excerpts from existing documents or prepared text for this course. After completing the reading assignments, you need to complete the review exercise for that lesson to measure your comprehension of the required reading material. This self-test section will consist of a battery of short answer, multiple choice, fill-in-the-blank, and true/false questions. Each lesson should be completed in the following manner:

1. Complete the assigned reading material. Make notes in the margins or on the blank pages of this book.
2. Do the review exercises.
3. Check your answers using the review exercise answer key.
4. Review the pages from any material you might have missed.

Completing the Course

Two quizzes and a final examination accompany this book. Take the first quiz after Lesson 3, the second quiz after Lesson 6, and the final exam after you have finished the course.

The quizzes are provided for your review and practice only. Check your answers using the answer key provided, but *do not* send your quiz answers to the APTI Registrar.

The final examination counts as 100% of your course grade. In order to receive your certificate of completion and 3.5 Continuing Education Units (CEUs), you must score 70% or above on the exam. Forward the answer sheet by mail or fax to the appropriate Registrar listed below:

Registrar - *Private Sector*

NCSU Environmental Programs
Box 7513
Raleigh, NC 27695 - 7513

Phone: (919) 515-4659

Fax: (919) 515-4386

or

Registrar - *EPA/State Agency*

U.S. Environmental Protection Agency
MD-17
Research Triangle Park, NC 27711

Phone: (919) 541-2497

Fax: (919) 541-5598

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