

Quality Assurance for Air Pollution Measurement Systems (APTI 470)

April 16-20, 2012

West Valley City (Salt Lake City), Utah

NAME: _____

TITLE: _____

AGENCY: _____

ADDRESS: _____

PHONE: _____

FAX: _____

EMAIL: _____

Return to WESTAR:

715 SW Morrison, Ste. 503

Portland, OR 97205

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REGISTRATION DEADLINE:

Friday, March 16, 2012

HOTEL DEADLINE:

See list of Hotel

WESTAR Council

Quality Assurance for Air Pollution Measurement Systems

April 16-20, 2012

State of Utah
Air Monitoring Center
2861 West Parkway Blvd
West Valley City, Utah 84199



W E S T A R

Western States Air Resources Council

MONDAY, APRIL 16, 2012

8:30 am Welcomes, Registration & Course Information

9:00 am Pre-Test

SESSION #1: OVERVIEW OF EPA'S QUALITY SYSTEM REQUIREMENTS

9:30 am EPA's National Ambient Air Monitoring Strategy and Network

10:00 am Break

10:15 am EPA's Policy and Program Requirements for Mandated Agency Quality System (EPA Order 5360.3)

11:00 am EPA's Quality Management Plan (R-2) and Data Quality Objectives (G-4)

12:00 noon Lunch (on your own)

SESSION #2: PLANNING FOR DATA COLLECTION USING A SYSTEMACTIC PLANNING PROCESS

1:00 pm Data Quality Objectives (G-4), Quality Assurance Project Plans (R-5/G-5) and Standard Operating Procedures (G-6) Overviews

2:30 pm Break

2:45 pm Model QAPP for PM2.5 Network

3:30 pm Model DQOs and QAPP for NCore Monitoring Network

4:45 pm Day 1 Review/Questions and Answers

TUESDAY, APRIL 17, 2012

8:30 am Review of Day 1: Lecture Objectives & Homework Problem Review

SESSION #3: COLLECTING ENVIRONMENTAL DATA USING DOCUMENTED SAMPLING SCHEME

8:45 am Ambient Air Monitoring Systems: Manual Particulate Matter Systems QA/QC Activities (*Classroom Demonstration with Vendor Equipment: ThermoFisher Instruments*)

9:45 am Break

10:00 am Ambient Air Monitoring Systems: Manual Particulate Matter Systems QA/QC Activities (*Classroom Demonstration with Vendor Equipment: ThermoFisher Instruments*)

12:00 noon Lunch (on your own)

1:00 pm Ambient Air Monitoring Systems: Manual Particulate Matter

Systems QA/QC Activities (*Classroom Demonstration with Vendor Equipment: Met One Instruments*)

2:45 pm Break

3:00 pm Ambient Air Monitoring Systems: Manual Particulate Matter Systems QA/QC Activities (*Classroom Demonstration with Vendor Equipment: Teledyne-API Instruments*)

4:45 pm Day 2 Review/Questions & Answers

5:00 pm Adjourn for Day/Assignment of Homework Problem: Excel Exercise Involving NOx Data Determination of Precision, Relative Standard Deviation, Bias, etc...)

WEDNESDAY, APRIL 18, 2012

8:30 am Review of Day 2: Lecture Objectives & Homework Problem

9:00 am Ambient Air Monitoring Systems: Continuous Gaseous Monitoring Systems QA/QC (*Classroom Demonstration with Vendor Equipment: Teledyne-API Instruments*)

10:00 am Break

10:15 am Ambient Air Monitoring Systems: Continuous Gaseous Monitoring Systems QA/QC (*Classroom Demonstration with Vendor Equipment: Met One Instruments*)

12:00 pm Lunch (on your own)

1:15 pm Air Monitoring Station Components and Station Operator Concerns

2:30 pm EPA's Monitoring Siting Criteria and Station Operation

3:15 pm Trace Level Calibration Challenges and Other Practical QA Challenges (*Guest Speaker – Teledyne-API*)

4:45 pm Day 3 Review/Questions and Answers

5:00 pm Adjourn for Day/Assignment of Homework Problem

THURSDAY, APRIL 19, 2012

8:30 am Review of Day 3: Lecture Objectives & Homework Problem

SESSION #4: CONDUCT DATA QUALITY ASSESSMENT GUEST SPEAKER: WILLIAM SHUART, VCU

9:00 am Know Your Data

9:30 am Data Validation and Verification: The Process

10:00 am Break

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| 10:15 | am | Introduction to Statistics |
| 10:45 | am | Descriptive Statistics |
| 12:00 | pm | Lunch (on your own) |
| 1:00 | pm | Probability Models |
| 2:00 | pm | Analysis of Variance |
| 2:45 | pm | Break |
| 3:00 | pm | Regression Analysis |
| 3:30 | pm | Precision and Bias |
| 4:15 | pm | Comparison Means and Paired Samples (t-test) |
| 5:00 | pm | Day 4 Review/Questions and Answers |
| 5:15 | pm | Adjourn for Day/Assignment of Homework Problems |

FRIDAY, APRIL 20, 2012

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|-------|------|---|
| 8:30 | am | Review of Day 4: Lecture Objectives & Homework Problem Review |
| 8:45 | am | Performance Audit Procedures/SOPs for IMPROVE and NCore Networks |
| 9:45 | am | EPA's National Performance Evaluation Program (PEP) for NCore/PM2.5/IMPROVE Networks |
| 10:30 | am | Break |
| 10:45 | am | Precursor Calibration Issues (i.e., gas flows, zero air purity, calibration standards validation, certification of mass flow controllers, etc.) |
| 11:30 | am | Daily Activities Associated with Stations (Documentation and Records, Monitor Calibration/Operational Issues) |
| 12:00 | noon | Lunch (on your own) |

SESSION #7: MAKE A DECISION OR MAKE INFERENCE USING THE DATA (COMPLIANCE)

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| 1:00 | pm | Date Review, Validation and Verification Requirements |
| 1:45 | pm | Data Quality Indicators (DQIs) Involving Precision, Accuracy Bias, and PARCCS |
| 2:45 | pm | Break |
| 3:00 | pm | Guidelines on Environmental Data Verification and Validation (G-8) |
| 3:45 | pm | Presentation of Data (AirNOW, EPA's Annual Trends Report, etc.) |
| 4:15 | pm | Post-Test |

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| 5:00 | pm | Review Post-Test/Course Critique |
| 5:15 | pm | Adjourn |

ABOUT THE WORKSHOP

WESTAR's Training Center will host and fund this training course for state, local and tribal air quality professional staff.

The objective of APTI 470: Quality Assurance for Air Pollution Measurement Systems training course is to provide agency personnel with the basic quality management principles and techniques applicable to air pollution monitoring systems. The course is designed for quality assurance coordinators and managers, field and laboratory supervisors, and technicians involved with quality assurance activities and/or responsibilities. The course covers four principal areas: management, measurement, systems, and statistics. The course has proven to be beneficial for personnel in governmental air pollution control agencies who are (or expect to become) involved with quality assurance of air pollution measurements.

At the end of the 5-day training attendees should/be able to:

- Understand EPA's Ambient Air Monitoring Strategy involving quality assurance, including the development of an organization chart indicating those positions that have major quality assurance responsibilities;
- Formulate a quality assurance policy for an air pollution monitoring organization;
- Develop objectives for a typical state agency ambient air monitoring project in terms of completeness, precision, accuracy, representativeness, and comparability;
- Design a reporting format for quality costs that allocates quality-related activities into cost categories;
- Compare, contrast, and understand a quality assurance program plan and a quality assurance project plan in terms of their components (elements) and functions;
- Explain the importance of establishing a closed-loop corrective action system;
- Explain the purpose for a basic document control system and a basic configuration control system and describe how these systems should be established;
- List the factors that should be considered in designing a preventive maintenance program;
- Describe the mechanisms that can be used to ensure the quality of procured items;
- Define the two kinds of audits recommended by EPA and describing the steps and factors that must be considered in the design of each;

- Describe the kinds of quality control checks that should be performed on sample collection and analysis systems (manual and continuous), and what statistical analyses and records should be maintained;
- Develop calibration programs incorporating the elements recommended in the *EPA Quality Assurance Handbook, Volume I1, Part I*;
- Select the appropriate kinds of control charts to be used to control measurement systems, calculate control limits for them, and interpret plotted results;
- Outline the basic elements of a data qualification scheme for estimating accuracy and precision, select the appropriate statistical techniques to be used, and calculate estimates of precision and accuracy;
- Explain the importance of timely data validation and develop a data validation scheme for a given air pollution monitoring system;
- Explain the specific quality assurance requirements and guidelines for ambient air monitoring of PM_{2.5} and PM₁₀.

SPACE LIMITATION: Registration is limited to 30 attendees. Air quality staff from the fifteen western states receive registration preference.

Registration Fees:

There are no registration fees for state, local or tribal air quality agency staff. For federal air quality professionals the registration fee is \$500.

TRAINING COURSE LOCATION

State of Utah
 Air Monitoring Center
 2861 West Parkway Blvd
 West Valley City, Utah 84199

HOTEL INFORMATION

WESTAR has not made hotel arrangements. If lodging accommodations are necessary, attendees/speakers are required to make their own reservations. Please check with the hotel for the availability of governmental rates; most hotels offer these rates.

Holiday Inn Express Hotel and Suites West Valley

3036 S Decker Lake Drive
 West Valley City, Utah 84119
 Reservations: 800-315-2621
 Hotel Front Desk: 801-517-4000
 Approx. 0.77 miles from Air Monitoring Center

Staybridge Suites Salt Lake-West Valley City

3038 S Decker Drive
 West Valley City, 84119
 Reservations: 800-225-1237
 Hotel Front Desk: 801-746-8400
 Approx. 0.77 miles from Air Monitoring Center

Crystal Inn Hotel & Suites West Valley City

2254 West City Center Court
 West Valley City, 84119
 Reservations: 888-977-9400
 Hotel Front Desk: 801-736-2000
 Approx. 1.04 miles from Air Monitoring Center

Baymont Salt Lake City - West Valley

2229 City Center Ct
 West Valley City, 84119
 Hotel Front Desk: 801-886-1300
 Approx. 1.06 miles from Air Monitoring Center

La Quinta Inn Salt Lake City West

3540 S 2200 W
 West Valley City, 84119
 Hotel Front Desk: 801-954-9292
 Approx. 1.28 miles from Air Monitoring Center

Hampton Inn Salt Lake City Central

2055 S Redwood Rd
 Salt Lake City, 84104
 Hotel Front Desk: 801-886-0703
 Approx. 1.50 miles from Air Monitoring Center