**EPA APTI Course #450/468**

**Monitoring Compliance Testing and Source Test Observation**

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| **COURSE LOCATION**  Internet (CENSARA) | | | | **INSTRUCTORS**  William Franek, Ph.D., P.E., DEE  Kevin Mattison, B.S. | |
| **DAY/TIME** | | | **SUBJECT** | | **LESSON** |
|  | | |  | |  |
| ***(Monday, Day 1)*** | | | | | |
| 8:30 AM | | | **Welcome** | |  |
| 8:45 | | | Introduction to/Sources of Methods | | **1** |
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|  | | | **Topics Dealing with Source Testing Guidance** | |  |
| 9:15 | | | EPA’s National Stack Test Guidance and Compliance Monitoring Strategy | | 2 |
| 10:00 | | | Introduction to Stack Testing and Gas Physics   * Gas Physics * Boyle/Charles Laws * Correction to Standard Temperature and Pressure | | 3 |
| 10:45 | | | **BREAK** | |  |
| 11:00 | | | Overview of Federal Reference Methods 1-5 (Video) | |  |
| 11:30 | | | Stack Testing Basics: Overview of Federal Reference Methods  Federal Reference Methods 1-2   * Sampling Point Locations (IsoCalc Spreadsheet) * Stack Gas Velocity (IsoCalc Spreadsheet) * Cyclonic and Non-Parallel Flows & Port Locations | | 4 |
| 12:30 PM | | | Adjourn/Homework Problems Assignment | |  |
|  | | | **Topics Dealing with FRM’s 1 Through 5** | |  |
| (Tuesday, Day 2) | | |  | |  |
|  | | |  | |  |
| 8:30AM | | | Homework Review | |  |
| 8:45 | | | -Agency Observer Checklists | |  |
| 9:15 | | | Stack Testing Basics (Cont’d)  **Federal Reference Methods 3-4**   * Stack Gas Molecular Weight **(IsoCalc Spreadsheet)** * Stack Gas Moisture **(IsoCalc Spreadsheet)** * Sampling Train Configuration | | 5 |
| 10:30 | | | **BREAK** | |  |
| 10:45 | | | Federal Reference Method 5 Operation/Associated Equations/Setting % Isokinetic Sampling Rate  **Agency Observer Checklist** | | 6 |
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| **DAY/TIME** | **SUBJECT** | | | | **LESSON** |
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| ***(Tuesday, Day 2)*** | | | | | |
|  |  | | | |  |
| 11:45 | **The Source Test** | | | | 7 |
| 12:15 | Role of the Agency Inspector | | | | 8 |
| 12:30 | Homework/Adjourn | | | |  |
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| ***(Wednesday, Day 3)*** |  | | | |  |
|  |  | | | |  |
| 8:30 | Homework Review | | | |  |
| 8:15 | F-Factors | | | | 10 |
| 8:45 | FRM 201/201A for PM-10, PM-2.5 | | | | 9 |
| 9:15 | FRM 202 Condensable PM | | | | 11 |
| 10:30 | **BREAK** | | | |  |
| 10:45 | FRM 29/SW-846, Method 0060, Multi-Metals Sampling, FRM 12 for Inorganic Lead and FRM 306 for Chromium | | | | 12 |
| 11:15 | Federal Reference Method 26/26A/SW-846 Methods 0050/0051 (HCl/Cl2) | | | | 13 |
| 12:30 | Adjourn/Homework | | | |  |
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| **DAY/TIME** | **SUBJECT** | | | | **LESSON** |
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| ***( Day 4)* Topics Dealing With VOC Stack Testing** | | | | | |
| 8:30 | | Homework Review | | |  |
| 8:45 | | Introduction to VOCs/Selecting VOC Sampling and Analytical Methods **(State of Pennsylvania Selection Process)**  Reporting VOC Emissions (in ppms? In #/Hr.? etc.) and Calculations (i.e., “As Carbon?”; “As VOCs?”; “As Organics?”; “As Propane?”) | | | 14 |
| 9:45 | | Overview of Stack Testing for VOCs Utilizing FRMs 18, 25, 25A,  CTS 035 and SW-846 Methods | | | 15 |
| 10:45 | | **BREAK** | | |  |
|  | | **Topics Dealing with VOC Stack Testing (cont.)** | | |  |
| 11:00 | | Municipal Solid Waste Landfill Emissions and Sampling of VOC and  HAP’s | | | 16 |
| 11:30 | | Federal Reference Method 18, 25, & 25A  Weaknesses/Strengths of FRMs 18, 25, 25A | | | 17 |
| 12:30 | | Adjourn/Homework | | |  |
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| Friday Day 5 | |  | | |  |
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| 8:30 | | FRM Method 204 PTE/TTE Enclosures,  Capture Efficiency/Calculations | | | 18 |
| 9:30 | | Stack Testing Special Topics   * High Moisture Stacks * High Pressure Stacks * High VOC Concentration Stacks/Molecular Weight Determination | | | 19 |
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|  | | **Topics Dealing With Stack Testing Gas Turbines, Acid Gas Monitoring and Other Topics** | | |  |
| Day 5 | |  | | |  |
|  | |  | | |  |
| 10:00 | | Reciprocating Internal Combustion Engine (RICE) Sampling  and Overview of CEMS for Engines and Gas Turbine Testing   * Federal Reference Method 6C/7E/3A and 20 * Fourier Transform Infrared (FTIR) Spectroscopy Technology * ASTM D6522-00 (Portable Analyzer Technology) | | | 20 |
| 10:30 | | **BREAK** | | |  |
| 10:45 | | RATA and CGAs | | | 21 |
| 11:15 | | FRM 205 (Gas Dilution System) | | | 22 |
| 12:15 | | FRM 320/ASTM D6348-03 | | | 23 |
|  | | Safety on the Stack Test  Final Exam Instructions  Course Adjourn | | | 24 |