**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., DEEKevin Mattison, B.S. |
| **DAY/TIME** | **SUBJECT** | **LESSON** |
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| ***(Monday, Day 1)*** |
| 8:30 AM | **Welcome** |  |
| 8:45 | Introduction to/Sources of Methods | **1** |
|  |  |  |
|  | **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 andHAP’s | 16 |
| 11:30 | Federal Reference Method 18, 25, & 25AWeaknesses/Strengths of FRMs 18, 25, 25A | 17 |
| 12:30  | Adjourn/Homework |  |
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| Friday Day 5 |  |  |
|  |  |  |
| 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) Samplingand 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 TestFinal Exam InstructionsCourse Adjourn | 24 |