CENSARA – Oklahoma City

Presentation

of

APTI Course #450/468

Monitoring Compliance Testing

and

Source Test Observations

4.5 Day Workshop Agenda

May 15 – 19, 2023

EPA APTI Course #450/468
Monitoring Compliance Testing and Source Test Observation

COURSE LOCATION
Oklahoma City, OK

INSTRUCTORS
William J. Franek, Ph.D., P.E., DEE
Kevin Mattison, B.S.

DAY/TIME	SUBJECT	Lesson
(Monday, Day 1)		
8:30 AM	Welcome	
	Topics Dealing with Source Testing Guidance	
8:45	Driving Force for Stack Testing/Sources of Methods/Defining HAPs	1
10:00	**BREAK**	
10:15	EPA's National Stack Test Guidance and Compliance Monitoring Strategy	2
10:45	Introduction to Stack Testing and Gas Physics • Gas Physics • Boyle/Charles Laws • Correction to Standard Temperature and Pressure	3
11:15 PM	Stack Testing Basics: Overview of Federal Reference Methods **Federal Reference Methods 1-2** **(Classroom Demonstration with Method 5 Sampling Train)** • Sampling Point Locations **(On-line IsoCal Spreadsheet)** • Stack Gas Velocity **(On-line IsoCal Spreadsheet)** • **Agency Observer Checklist**	4A/B
12:00	**LUNCH**	
	Topics Dealing with FRMs 1 through 5	
1:00 PM	Stack Testing Basics: Overview of Federal Reference Methods **Federal Reference Methods 1-2** **(Classroom Demonstration with Method 5 Sampling Train)** • Sampling Point Locations **(On-line IsoCal Spreadsheet)** • Stack Gas Velocity **(On-line IsoCal Spreadsheet)** • **Agency Observer Checklist**	4A/B
2:00	Stack Testing Basics (Cont'd) **Federal Reference Methods 3-4** • Stack Gas Molecular Weight **(On-line IsoCal Spreadsheet)** • Stack Gas Moisture **(On-line IsoCal Spreadsheet)** • Sampling Train Configuration **State Agency Observation Checklist**	5
3:00	**BREAK**	
3:15	Homework Problem	
4:45	Review of Day 1/Adjourn/	

EPA APTI Course #450/468
Monitoring Compliance Testing and Source Test Observation

DAY/TIME	SUBJECT	Lesson
(Tuesday, Day 2)		
8:30 AM	Homework Review	
9:00	Federal Reference Method 5 Operation/Associated Equations/Setting % Isokinetic Sampling Rate	6
	• **Agency Observer Checklist**	
10:30	**BREAK (15 min)**	
11:30	The Source Test	7
12:00	**LUNCH**	
1:00 PM	Role of the Agency Inspector	8
2:00	FRM 201/201A for PM-10	9
2:45	FRM 202 Condensable and Update	11
3:30	Review of Laboratory Exercises at Source Simulator	
3:45	Laboratory Exercises at Source Simulator Station #1: Nozzle Diameter Station #2: DGM "γ" Station #3: Orifice Meter "ΔH@" Station #4: Stack Gas V_s & Q_s Station #5: Calibration of Type S Pitot Tube Station #6: Stack Gas Moisture Station #7: Pitot Tube Inspection Station #8: FRM 5 Sampling Train Station #9: Apex IsoCal Electronic Spreadsheet for FRM 5 Test Station #10: FRM 1 Traverse Point Determination	
4:45	Review of Day 2/Homework: Complete Laboratory Exercises/Day Adjourn	
(Wednesday, Day 3)		
8:30 AM	Homework Review/Laboratory Exercises Review	
8:45	Laboratory Exercises Station #1: Nozzle Diameter Station #2: DGM "γ" Station #3: Orifice Meter "ΔH@" Station #4: Stack Gas V_s & Q_s Station #5: Calibration of Type S Pitot Tube Station #6: Stack Gas Moisture Station #7: Pitot Tube Inspection Station #8: FRM 5 Sampling Train Station #9: Apex IsoCal Electronic Spreadsheet for FRM 5 Test Station #10: FRM 1 Traverse Point Determination	
12:00	**Lunch**	

DAY/TIME	SUBJECT	
1:00 PM	Laboratory Exercises Station #1: Nozzle Diameter Station #2: DGM "γ" Station #3: Orifice Meter "ΔH@" Station #4: Stack Gas V_s & Q_s Station #5: Calibration of Type S Pitot Tube Station #6: Stack Gas Moisture Station #7: Pitot Tube Inspection Station #8: FRM 5 Sampling Train Station #9: Apex IsoCal Electronic Spreadsheet for FRM 5 Test Station #10: FRM 1 Traverse Point Determination	
4:30	Review of Day 3/Homework: Complete Laboratory Exercises/Day Adjourn	
(Thursday, Day 4)		
8:30 AM	Homework Review	
9:00	F-Factors	10
10:00	**BREAK**	
10:15	Multi-metals Method 29/12/306	12
11:00	Federal Reference Method 26/26A/SW-846 Methods 0050/0051 (HCl/Cl_2) • Sampling Train Design • Sampling Techniques • Analytical Methodology • Agency Observer Checklist	13
11:45	**LUNCH**	
	Topics Dealing With VOC Stack Testing	
12:45 PM	• 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?") • Midwest Scaling Protocol Approach to VOC Emissions from Wet/Dry Grain Mills and Ethanol Production Facilities	14
1:15	Overview of Stack Testing for VOCs Utilizing FRMs 18, 25, 25A, CTS 035 and SW-846 Methods	15
1:45	Federal Reference Method 18	17A
2:30	Federal Reference Method 25	17B
3:00	**Break**	
3:15	Federal Reference Method 25A	17C
4:15	Weaknesses/Strengths of FRMs 18, 25, 25A	17D
4:45	Review of Day 4/Study for Final Exam/Day Adjourn	

DAY/TIME	SUBJECT	
(Friday, Day 5)		
8:30 AM	Review of Day 4	
9:00	FRM 204 PTE-TTE Enclosures Capture Efficiency Equations	18
10:15	**Break**	
Topics Dealing with Stack Testing Gas Turbines, Acid Gas Monitoring and Topics		
10:30	Landfill FRM Sampling Methods	16
	Overview of CEMS for Engines and Gas Turbine Testing	
	• Federal Reference Method 6C/7E/3A and 20	
	• Portable Electrochemical Systems (i.e., ECOM, Land Combustion, ANARAC etc.) and Required Protocols	20A/B 21
	• ASTM D6522-00 (Portable Analyzer Technology)	22
	• RATA and CGAs	
	• FRM 205 (Gas Dilution System)	
	FRM 320/ASTM D6348-03 Fourier Transform Infrared (FTIR) Spectroscopy Technology	23
	Stack Testing Special Topics	
	• High Moisture Stacks	
	• High Pressure Stacks	19
	• High VOC Concentration Stacks/Molecular Weight Determination	
	FRM 23/SW-846 Method 0023A, *Dioxin/Furans*	25
	Safety on the Stack	24
	FRM 30 Mercury (Hg) Sampling	25
11:30	Final Exam	
12:00	Course Adjournment	

Presenters

William J. Franek, Ph.D., P.E., DEE
312-919-0341
Email: billfranek@gmail.com

Kevin Mattison, B.S.