

QUALIFIED SOURCE TESTING INDIVIDUAL (QSTI) EXAM PREPARATION

- **Objective:** Training for new or experienced stack testers in preparation for taking the Source Evaluation Society's (SES) Qualified Source Testing Individual (QSTI) exams.
- **Training Company:** Apex Instruments, Inc. ("AI" or "Apex")
Address: 212 Technology Park Ln., Fuquay-Varina, NC 27526 USA
Phone: +1-919-557-7110
Website: www.apexinst.com
 - Training Coordinator: Terrance Odom
 - Email: todom@apexinst.com
 - Phone: +1-919-342-1410
- **Days:** Office (5 Days)
 - Daily Start Time: 8:00am Eastern Time
 - First day registration start time is 7:45am Eastern Time
 - Daily Lunch Time: 12:00-13:00pm Eastern Time
 - Daily End Time: 16:00pm Eastern Time
- **Expenses:**
 - The following are **NOT** covered by Apex Instruments (these costs are not included in the course price):
 - Travel:
 - *Raleigh-Durham International Airport* – Morrisville (27 Miles)
 - 2400 John Brantley Blvd, Morrisville, NC 27560, USA
 - Hotel/Lodging Recommendations:
 - *Holiday Inn Express* – Holly Springs (2.5 Miles)
 - 150 Collins Crossing, Holly Springs, NC 27540, USA
 - *Hampton Inn* – Holly Springs (2.9 Miles)
 - 1050 S Main St, Holly Springs, NC 27540, USA
 - Transport: Airport transfers or hotel transfers
 - Meals: Only breakfast refreshments and lunch will be provided daily
 - **If you have any meal restrictions, please inform us upon registration**

DAY 1: GROUP 1 – MANUAL GAS VOLUME AND FLOW MEASUREMENTS AND ISOKINETIC PARTICULATE SAMPLING METHODS

*****Introduction*****

US EPA Method 1

M1 | Traverse Points

M1A | Small Ducts

US EPA Method 2

M2 | Velocity – S-Type Pitot

M2A | Volume Meters

M2C | Standard Pitot

M2D | Rate Meters

M2F | Flow Rate – 3-D Probes

M2G | Flow Rate – 2-D Probes

M2H | Velocity Decay Near Stack Walls

US EPA Method 3

M3 | Molecular Weight

M3B | O₂ and CO₂ – Orsat

US EPA Method 4

M4 | Moisture Content

US EPA Methods 5 and 17

M5 | Particulate Matter (PM)

M5A | PM Asphalt Roofing

M5B | PM Nonsulfuric Acid

M5D | PM Baghouses

M5E | PM Fiberglass Plants

M5F | PM Fluid Catalytic Cracking Unit

M5I | Low-Level PM

M17 | In-Stack PM

*****Lunch*****

US EPA Method 19

M19 | SO₂ Removal, PM, SO₂, and NO_x – Electric Utility Steam Generators

Other Particulate Matter

M201A | PM_{2.5} and PM₁₀ – Constant Sampling Rate

M202 | Condensable PM

Other Documentation

40 CFR Part 60.8(f) |

40 CFR Part 63.7(e)(3) |

*****Wrap-up*****

DAY 2: GROUP 2 – MANUAL GASEOUS POLLUTANTS SOURCE SAMPLING METHODS

*****Recap or Further Discussion
of Day 1's Overlapping Agenda*****

Overlap

M1 | Traverse Points

M2 | Velocity – S-Type Pitot

M3/3B | Molecular Weight

M4 | Moisture Content

*M19 | SO₂ Removal, PM, SO₂, and
NO_x – Electric Utility Steam
Generators*

M202 | Condensable PM

40 CFR Part 60.8(f) |

40 CFR Part 63.7(e)(3) |

US EPA Method 6

M6 | Sulfur Dioxide (SO₂)

*M6A | SO₂, Moisture, Carbon
Dioxide (CO₂) (Fossil Fuel
Combustion)*

*M6B | SO₂ and CO₂ Daily Avg.
Emissions (Fossil Fuel
Combustion)*

US EPA Method 7

M7 | Nitrogen Oxides (NO_x)

M7C | NO_x – Colorimetric

M7D | NO_x – Ion Chromatography

US EPA Method 8

M8 | Sulfuric Acid Mist

US EPA Method 11

*M11 | Hydrogen Sulfide (H₂S)
Content in Fuel*

*****Lunch*****

US EPA Method 13

*M13A | Total Fluoride – SPADNS
Zirconium Lake*

*Method 13B | Total Fluoride –
Specific Ion Electrode*

US EPA Method 15A

*Method 15A | Total Reduced Sulfur
(TRS) – Sulfur Recovery, Petroleum
Refineries*

US EPA Method 16A

Method 16A | TRS – Impinger

US EPA Method 26

*Method 26 | Hydrogen Halides and
Halogens*

*Method 26A | Hydrogen Halides
and Halogens – Isokinetic*

*****Wrap-up*****

DAY 3: GROUP 3 – GASEOUS POLLUTANTS INSTRUMENTAL METHODS

*****Recap or Further Discussion
of Day 1-2's Overlapping
Agenda*****

Overlap

M1 | Traverse Points

M2 | Velocity – S-Type Pitot

M3 | Molecular Weight

M4 | Moisture Content

*M19 | SO₂ Removal, PM, SO₂, and
NO_x – Electric Utility Steam
Generators*

M202 | Condensable PM

40 CFR Part 60.8(f) |

40 CFR Part 63.7(e)(3) |

US EPA Method 3A

M3A | O₂ and CO₂ – Instrumental

US EPA Method 6C

M6C | SO₂ – Instrumental

US EPA Method 7E

M7E | NO_x – Instrumental

US EPA Method 10

*M10 | Carbon Monoxide (CO) –
Instrumental*

*M10B | Carbon Monoxide (CO) –
Stationary Sources*

US EPA Method 20

M20 | NO_x – Gas Turbines

US EPA Method 25A

*M25A | Gaseous Organics (VOCs) –
Flame Ionization (FID)*

*****Lunch*****

US EPA Performance

Specification 2

*PS-2 | Sulfur Dioxide (SO₂) and
Nitrogen Oxides (NO_x)*

US EPA Performance

Specification 3

*PS-3 | Oxygen (O₂) and Carbon
Dioxide (CO₂)*

US EPA Performance

Specification 4

PS-4 | Carbon Monoxide (CO)

PS-4A | Carbon Monoxide (CO)

US EPA Performance

Specification 5

PS-5 | Total Reduced Sulfur (TRS)

US EPA Performance

Specification 6

PS-6 | Flow Rate

US EPA Performance

Specification 7

PS-7 | Hydrogen Sulfide (H₂S)

US EPA Performance

Specification 8

*PS-8 | Volatile Organic
Compounds (VOCs)*

US EPA Performance

Specification 15

*PS-15 | Extractive Fourier
Transform Infrared (FTIR)
Spectroscopy*

Other Documentation

40 CFR Part 75 Appendix A

40 CFR Part 75 Relative Accuracy

40 CFR Part 75 Appendix B

40 CFR Part 75 Appendix E

*****Wrap-up*****

DAY 4: GROUP 4 – HAZARDOUS METALS MEASUREMENTS METHODS

*****Recap or Further Discussion
of Day 1-3's Overlapping
Agenda*****

Overlap

M1 | Traverse Points

M2 | Velocity – S-Type Pitot

M3 | Molecular Weight

M4 | Moisture Content

*M19 | SO₂ Removal, PM, SO₂, and
NO_x – Electric Utility Steam
Generators*

40 CFR Part 60.8(f) |

40 CFR Part 63.7(e)(3) |

US EPA Method 12

M12 | Inorganic Lead

US EPA Method 29

M29 | Metals

US EPA Method 30B

*M30B | Mercury Sorbent Trap
Procedure*

*****Lunch*****

US EPA Method 101

*M101 | Mercury – Chlor-Alkali
Plants*

*M101A | Mercury – Sewage Sludge
Incinerators*

US EPA Method 102

*M102 | Mercury – Chlor-Alkali
Plants, Hydrogen Streams*

Other Documentation

**ASTM D6784-02 | Mercury –
Ontario Hydro Method**

*****Wrap-up*****

DAY 5: GROUP 5 – PART 75 CEMS RATA TESTING

*****Recap or Further Discussion
of Day 1-3's Overlapping
Agenda*****

Overlap

M1 | Traverse Points

M2/2F/2G/2H | Velocity

M3/3A/3B | Molecular Weight

M4 | Moisture Content

M6C | SO₂ – Instrumental

M7E | NO_x – Instrumental

*PS-2 | Sulfur Dioxide (SO₂) and
Nitrogen Oxides (NO_x)*

Other Documentation

40 CFR Part 60 Appendix B |

40 CFR Part 75 Appendix A |

**Section 3 – Performance
Specifications**

**Section 6 – Certification
Tests and Procedures**

Section 7 – Calculations

**Part 75 Emissions Monitoring
Policy Manual**

Section 3 – Flow Monitoring

**Section 8 – Relative
Accuracy**

*****Lunch*****

**U.S. EPA Traceability Protocol for
Assay and Certification of Gaseous
Calibration Standards**

**Section 2.1.1 – Purpose and
Scope of the Protocol**

**Section 2.1.2 – Using the
Protocol**

**Section 2.1.3 – Reference
Standards**

*****Wrap-up*****