



# SOURCE EMISSIONS MONITORING TEST GUIDELINES

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**Version 2.0**

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Connecticut Department of Energy &  
Environmental Protection (DEEP)  
Bureau of Air Management  
Source Emissions Monitoring  
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*The DEEP SEM Unit has updated and revised the SEM Emissions Test Guidelines as part of its' LEAN Initiative to launch its new compliance emissions testing and Relative Accuracy Test Audit operational procedures.*

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## Section 1. Introduction

Emission tests are performed in the State of Connecticut for the purposes of (1) determining what the actual emissions of a pollutant are, (2) determining compliance with air pollution permits and regulations for both state and delegated federal standards, and (3) for conducting Continuous Emissions Monitoring (CEM) relative accuracy test audits (RATA). All emissions testing must be conducted in accordance with procedures prescribed by or acceptable to the Department of Energy and Environmental Protection (hereinafter referred to as the “DEEP”). These guidelines are designed to ensure standardization and uniformity of stack testing conducted to demonstrate compliance with state test requirements and federal standards (NSPS, NESHAP, MACT) where delegated to the DEEP; to pinpoint information that needs to be reported nationally into the national Compliance and Emissions Data Reporting Interface (CEDRI); to ensure that the DEEP’s **Intent to Test (ITT)** protocols identify the correct test requirements and test methods to ensure that the regulatory requirements of each applicable test program will be met; and to clarify the different requirements of both DEEP and EPA when both oversee emissions testing.

The source owner or operator should review all applicable permits, federal and state regulations and enforcement orders prior to completing the ITT form and an emission test protocol. Reference test and analysis methods for stack testing and CEM relative accuracy testing are as specified in Title 40, Code of Federal Regulations (CFR) <sup>1</sup>, Parts 51, 60, 61, 63 and 75. The test methods and equipment requirements must be strictly complied with, unless otherwise specified and agreed to (in advance) by the DEEP.

ITT Forms and attachments (when applicable), test protocols for non-standard tests, emissions test reports, and completed Compliance Certification forms and any associated testing correspondence should be submitted to the Source Emissions Monitoring (SEM) to [DEEP.SEM@ct.gov](mailto:DEEP.SEM@ct.gov) address. Section 4 of these Guidelines outline the ITT procedures.

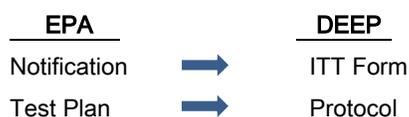
## Section 2. Clean Air Act National Stack Testing Guidance

The requirements contained in US EPA’s Clean Air Act National Stack Testing Guidance are hereby incorporated by reference. They are available at the following web address:

<http://www2.epa.gov/compliance/clean-air-act-national-stack-testing-guidance>

## Section 3. Performance Test Notifications (EPA Region 1) & Intent to Test (DEEP)

Compliance emissions testing starts with a notification process to both to EPA Region 1 (testing pursuant to a federal standard) and to the DEEP (testing pursuant to state and delegated federal standards) via an ITT Form.



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<sup>1</sup> *Code of Federal Regulations (eCFR)*

It's the responsibility of the source to ensure that compliance is met with both state and federal test requirements. Often state and federal test requirements may overlap particularly when a New Source Review and/or Title V permit cites federal test requirements (such as the RICE Rule). EPA uses different terms and the performance test starts with a *test notification* but sometimes also requires submittal of a complete site specific test plan. Subsequently, EPA Region 1 must be notified of a pending test pursuant to a federal standard as well as the DEEP within the required deadline(s) specified in a given Federal Standard (40 CFR Part 60, Part 61, Part 62, Part 63, or Part 75). Such test notifications should be submitted to the EPA Region 1 Air Compliance Clerk below.

Air Compliance Clerk  
US EPA Region I  
Air Technical Unit OES04-2  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912  
E-mail: [Schwartz.Sandra@epa.gov](mailto:Schwartz.Sandra@epa.gov)  
Phone: (617) 918-1204 Fax: (617) 918-0204

Although a test notification starts the clock with regards to a federal test requirement, EPA does not have a performance test notification form. However, DEEP's ITT Form may serve as a "test notification" for EPA purposes. EPA Region 1 requires that a copy of a completed ITT Form and test protocol (for Non-Standard Tests) be sent to the address above to the Air Compliance Clerk. Please note that EPA requires a paper version of any compliance related document unless it is submitted through a CROMERR (cross media reporting rule) compliance system such as CEDRI <sup>2</sup>.

#### **Section 4. ITT Forms (DEEP)**

The DEEP has three different ITT Forms for different testing programs:

1. "*ITT Form for Compliance Emissions Testing*",
2. "*ITT Form for CEMS Relative Accuracy Test Audit*"; and
3. "*ITT Form for Visible Emissions Testing*"

Regardless of which ITT Form is submitted, the DEEP has also implemented a subcategory for the ITT process: Standard versus Non-Standard testing to ensure sufficient advance time is provided for test protocols that require more time to review. ITT Forms must be received by the SEM unit within the applicable timeframe specified below, unless a more stringent requirement is specified in an applicable regulation, permit or enforcement order. Providing sufficient time for the DEEP to review and approve the test protocols reduces the likelihood that ITT protocols or test results will be rejected.

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<sup>2</sup> EPA cannot accept emailed compliance related documents as official documents. EPA's website regarding the cross media electronic reporting rule (CROMERR) is at <https://www.epa.gov/cromerr/frequently-asked-questions-about-cromerr>. Additionally, scanned signatures are not considered valid electronic signatures however if an entity is registered through the central data exchange (CDX), any type of compliance document may be submitted through the CEDRI system.

The Emission Test Protocol will be evaluated for its compliance with a NSR permit, RCSA, CGS, and/or Federal requirements and conformance to applicable test methods and process conditions.

ITT Forms must be sent electronically to DEEP.SEM@ct.gov. Hard copies of the ITT forms are optional.

#### ***A. Standard Testing (Protocols Due 45-days in Advance of Proposed Test Date)***

Standard test protocols require the submittal of the stack drawings and a completed ITT Form and are due 45-days in advance of proposed test dates. The DEEP may not issue formal approval letters for Standard test protocols.

Standard test protocols may be submitted for the following test requirements:

1. For recurring compliance emissions testing - after an initial performance test has been approved by the DEEP; and
2. Annual RATA testing – after a certification RATA has been completed.

#### **Standard Testing Protocol Content**

The submittal of an ITT Form and stack drawings constitutes a complete test protocol.

#### ***B. Non-Standard Testing (Protocols Due 60-days in Advance of Proposed Test Date)***

Non-Standard test protocols must be submitted 60-days in advance and the DEEP may issue formal protocol approval or rejection letters.

Non-Standard test protocols are required for but not limited to the following tests:

1. Initial performance testing for new equipment;
2. Testing that proposes use of a non EPA Test Method or changes to an approved EPA Test Method;
3. MWC sources performing testing pursuant to RCSA Section 22a-174-38;
4. Any variance from the requirement to test at 90% of Maximum Rated Capacity (MRC) unless otherwise allowed pursuant to the Regulations of Connecticut State Agencies (RCSA) or NSR permit;
5. VOC or VHAP sources with requirements to measure VOC in “*lb VOC/hour*” pursuant to NSR or that have test requirements from a federal standard (e.g. 40 CFR Part 63 Subpart FFFF);
6. Testing required pursuant to both state and 40 CFR Part 63 requirements; and
7. Initial Certification RATA for new CEMS, changes to existing CEMS, or new equipment. **[Note: Initial CEMS RATA Certifications require that a CEMS Plan be submitted pursuant to the requirements in RCSA Section 22a-174-4 with the CEMS RATA ITT Form and RATA protocol];**

## Non-Standard Testing Protocol Content

The protocol must include, at a minimum, a completed ITT Form, Attachment 1 of the ITT Form (e.g. ITT Form Addendum) and Attachment 2 (e.g. the test protocol). The attached test protocol must contain the following information:

- 1) A description of each test method to be used;
- 2) A schematic diagram of each sampling train, including construction materials;
- 3) The type or types of media to be used to determine each gas stream component;
- 4) Sample recovery, clean-up methods and solvents to be used (sample recovery procedures must be performed on-site);
- 5) A sample of all field data sheets to be used during the test;
- 6) Sampling area description:
  - a. Stack configuration;
  - b. Sampling port locations; and
  - c. Sampling point locations for each port.
- 7) A description of process operations and monitoring to include, but not be limited to the following:
  - a. Material usage and associated recordkeeping;
  - b. Throughput rates and monitoring (e.g., feed, fuel flow and steam flow rates, VOC throughput in lb VOC/hr);
  - c. MRC of equipment and parameters to be monitored to show MRC;
  - d. Typical (and, if necessary, historical) operating levels; and
  - e. Control equipment operation and monitoring (as applicable).
- 8) Quality assurance/quality control procedures; and
- 9) Equations and test methods used to calculate emissions in lb/hour, lb/MMBTU – be explicit and provide step-by-step calculations. Ensure Method 2 flowrate data is used where required for mass emissions rate calculations or as stipulated in a Test Method.

## **Section 5. VOC Sources (e.g. Coating, Printing Lines, Foam Blowing, etc.)**

### ***A. Federal Required Testing***

Testing for VOC or total organic compounds, etc. pursuant to a federal standard shall be required to employ the proscribed test methods set forth in that standard.

### ***B. State Required Testing***

For state required testing, the DEEP does not accept the use of EPA Test Method 25A alone to determine VOC emissions on a mass basis (e.g. in lb VOC/hour). Test protocols must propose a combination of test methods that will achieve the total mass of VOCs measured.

As a result of the shortcomings of any one given VOC test method for the measurement of VOCs on a mass basis in lb VOC/hour, the DEEP recommends one of the following for testing performed pursuant to NSR with no federal test requirements:

**1) Use Material Balances to Quantify VOC with Tested Destruction Efficiency/Capture Efficiency**

One alternative to stack testing VOC in lb/hr is to utilize material balances. The quantity of VOC entering the process should be measured as well as the quantity leaving the process as waste and the quantity which is entrained in the product. The difference between the VOC input, and the waste plus the product entrainment is assumed to be equal to the VOC emissions to the air. NSR permits require monitoring and record keeping to document and quantify VOC consumption from production records and MSDS (PSDS) or product formulations so this data is readily available.

Testing must still be performed to measure the VOC destruction efficiency of air pollution control equipment such as thermal and catalytic oxidizers but this also requires that a capture efficiency test be performed to determine the overall control efficiency (overall control efficiency = capture efficiency x destruction/collection efficiency). Method 25A is generally accepted for performing VOC destruction efficiency testing. With this approach, the inlet VOC loading can be calculated based on material balance.

**2) Use Test Methods that Measure VOC Directly**

Certain test methods can directly quantify individual VOC compounds including Method 18 and Method 320, and possibly Method 0030. However, the use of such methods can result in expensive test programs due to the extensive pretest analysis necessary to identify the VOC compounds and corresponding relative concentrations present in the emissions prior to a test program.

**3) Use Method 25A with Method 18**

Identify the predominant VOC components and percent by weight then use the heaviest molecular weight to determine VOC emissions in lb VOC/hour; or identify the majority of VOC components in the emissions and add all the components for VOC emissions in lb/hour.

**4) Propose an Alternative Method(s)**

## **Section 6. Performance Test Timeframes (Including Waivers and Extension)**

Table 1 of this section, summarizes the performance test timeframes for both Federal and State test requirements. Please be attentive to overlapping test requirements. For emissions testing required pursuant to federal standards, there are no regulatory mechanisms to extend a deadline for stack testing

required by the federal NSPS, NESHAP, and MACT programs, with the exception of testing delayed by a force majeure event. A force majeure event is defined in the federal subparts of those programs as:

*“Circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified time frame despite the affected facility’s best efforts to fulfill the obligation.”*

Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility. For emissions testing driven by a federal standard, an extension of the test deadline must be solicited directly from EPA well in advance of the proposed test deadline.

**Table 1 - Performance Test Deadlines**

Regulation	Test	Timeframe
NSR Permit & 40 CFR 60 – New Source Performance Standards (NSPS)	Initial	Within 180 days after the initial startup date or within 60 days after reaching maximum production rate [40 CFR §60.8(a)] or at such other times specified by part 60 or any corresponding NSR Permit.
	Recurring	As specified in the corresponding NSR permit the NSPS subparts. It could range from 8760 hours of operation to up to 5 years from the previous stack test.
40 CFR 61 – National Emission Standards for Hazardous Air Pollutants (NESHAP)	Initial	a. Within 90 days after the effective date, for an existing source or a new source which has an initial startup date before the effective date. b. Within 90 days after initial startup, for a new source which has an initial startup date after the effective date [40 CFR §61.13(a)].
	Recurring	The DEEP may require to test emissions from the source at any other time when the action is authorized by section 114 of the Act [40 CFR §61.13(b)].
40 CFR 63 - NESHAP for Source Categories: Maximum Achievable Control Technology (MACT)	Initial	Within 180 days of the compliance date, or within 180 days after startup of the source, whichever comes later [40 CFR §63.7] unless another time frame (shorter) is specified in the applicable Subpart.
	Recurring	Certain NESHAPs have differing test frequencies – please check the applicable Subpart (e.g. after 8760 operating hours, biennially, etc.)
Nitrogen Oxides (NOx) RACT [RCSA §22a-174-22e]	Initial	No later than one year after the source becomes subject to RCSA §22a-174-22e. Phase 1 and Phase 2 have different deadlines.
	Recurring	Any owner or operator of a stationary source who has not installed and operated a continuous emissions monitor at such source shall conduct emission testing once every 63 months from the date of the previous test or 63 months from the date the previous test was due, whichever is earlier [RCSA §22a-174-22e(l)].

**Table 1 - Performance Test Deadlines, continued**

Regulation	Test	Timeframe
Municipal Waste Combustor (MWC) Regulation [RCSA §22a-174-38]	Initial	As specified in the corresponding NSR permit
	Recurring	Annual performance test for dioxin/furan, particulate matter, hydrogen chloride, cadmium, lead, mercury and fugitive ash at least once per calendar year. Such test shall be conducted no less than nine(9) Calendar months and no more than fifteen (15) calendar months following the previous performance test for such pollutant or the frequency as specified in RCSA §22a-174-38(i)(3) [RCSA §22a-174-38 (i)].
Sewage Sludge Incinerators [Connecticut General Statutes (CGS) §22a.191a(b)]	Initial	As specified in the corresponding NSR permit.
	Recurring	Annual Performance Test for the presence of mercury, metals and hydrocarbons for each incinerator at least once per calendar year.
Sewage Sludge Incinerators 40 CFR Part 62, Subpart LLL for Existing SSIs and 40 CFR Part 60, Subpart LLLL For New SSIs	Initial and Recurring	As specified in each applicable Subpart for initial and recurring testing required on annual basis. Initial testing for new SSI must be completed within 60 days after the SSI reaches the feed rate at which it will operate or 180 days after initial startup whichever comes first. Recurring testing is required on an annual basis.
Initial Relative Accuracy Test Audit	Initial	Timeframe is specified in the applicable permit or regulation.
Ongoing Annual Relative Accuracy Test Audit	Recurring	Every four calendar quarters for sources subject to 40 CFR Part 60 RATA; Every 2 or 4 QA operating quarters (calendar quarter in which there are at least 168 unit or stack operating hours) but no less than 8 calendar quarters plus a grace period for sources subject to Part 75 RATAs.

**Section 7. Selection of the Measurement Site**

Selection of the measurement site must be in accordance with Method 1 of 40 CFR Part 60. Plan and elevation drawings of the duct and stack configuration must be submitted to the DEEP in accordance with the following:

**A. Stack Testing**

For existing and new or modified sources, drawings must be submitted with the test protocol described below showing the plan and elevation view of the ducting and stack arrangement. The drawings must include the position of all processes or operations venting to the stack or duct to be tested. It must also include the position of the sampling ports relative to the nearest upstream and downstream gas flow directional or duct dimensional change; and

**B. Relative Accuracy Testing**

For relative accuracy testing, the measurement site must be selected in accordance with the applicable relative accuracy test procedures contained in 40 CFR 60, 61, 63 and/or 40 CFR 75 (as may be applicable).

## Section 8. Conducting the Stack Test

### *A. Process Operating Conditions*

#### **1. Stack Testing**

Emission values obtained from any test program may be considered valid only for the process operating conditions existing during testing. During emissions testing the source must be operated at or above ninety percent (90%) of maximum rated capacity unless otherwise allowed pursuant to the RCSA or NSR permit.

For fuel burning sources, MRC is based on maximum gross heat input using the higher heating value of each fuel as specified in the NSR permit. For MWCs, MRC is based on steam load in pounds per hour. For VOC sources, MRC is based on material throughput i.e. lb/hour of VOCs. Refer to the NSR permit to determine worst case operational configuration for VOC sources that have multiple lines or products venting to a common incinerator/oxidizer.

Any variance from the requirement to test at 90% of MRC, unless otherwise allowed by the RCSA (e.g. RCSA Section 22a-174-22e), must be presented in the ITT form as a Non-Standard Test Protocol and must be approved by the DEEP in advance of the test.

It is recognized, however, that there are specific processes that may warrant testing at less than 90% of maximum rated capacity (e.g., a process with a control or removal efficiency of a specified pollutant, in which lower inlet loading to a control device may result in worst case operating conditions). Certain sources such as VOC lines or engines equipped with a carbon monoxide catalyst may test at alternative loads but must also include testing at 90% or greater of MRC. Once worst case load is identified based on results of testing at multiple loads, then future tests may be performed at that load.

#### **2. Relative Accuracy Testing**

For relative accuracy testing, the process operating level must be as specified in 40 CFR 60, 61, 63 and/or 40 CFR 75 (as may be applicable).

### *B. Representative Conditions*

Applicant must submit records showing operating conditions of the air pollution control equipment, such as the RTO operating temperature, ammonia feed rate for the SCR, etc., to justify that testing will be conducted at the representative conditions. The DEEP will not allow resetting of the control equipment operating parameters to achieve the desired test results during emissions testing. If control equipment parameters are altered during testing, then information gathered prior to the changes will be used for

compliance determination purposes. Such changes would re-start the test clock and 3 runs would need to be performed.

If maintenance has been performed or parts replaced on equipment during the year leading up to a test that effect process emissions or the control of such emissions, then records should be provided to document the part replacements.

### ***C. Test Stoppages, Postponements, and Interruptions***

An owner or operator must never stop or postpone a performance test *solely* because the testing showed that the emissions unit being tested was exceeding or might exceed an emission standard, or might otherwise fail the test. Depending on the circumstances surrounding the stoppage, the facility may be found in violation of the requirement to conduct a stack test, the underlying regulatory requirement, or both.

#### **1. Test Stoppage**

If a performance test is stopped, the source must contact the DEEP SEM at [DEEP.SEM@ct.gov](mailto:DEEP.SEM@ct.gov) not later than the end of the first business day after the occurrence. Testing may not be stopped solely due to failing or possibly failing results.

##### **a. Non-Title V Source**

Once a test is initiated but stopped due to failing results then at least 1 20-minute run must be completed and data submitted to the DEEP as soon as possible.

##### **b. Major Source (Title V Source)**

Once started, if a performance test is stopped (or postponed) because preliminary data indicated that the permit or regulatory limit was exceeded, the owner or operator must contact the DEEP SEM Supervisor as soon as possible, and in no case later than the end of the first business day after the occurrence. Once a test is initiated, at least 1 20-minute run must be completed and data submitted to the DEEP within 48 hours (email [DEEP.SEM@ct.gov](mailto:DEEP.SEM@ct.gov)) for all stopped compliance emissions testing.

If test data indicated that an emissions limit was exceeded, then the stopped test should be reported by the owner/operator to the DEEP CACU in a Title V deviation report. The owner or operator must take a failed test into consideration as part of its annual compliance certification and the DEEP will report the failed test in the national air data system. Moreover, DEEP may start enforcement action and assess penalties consistent with the HPV Policy and CAA Civil Penalty.

#### **2. Postponements**

When an owner or operator cannot conduct an emissions test on some or all of its emissions units because they are shut down, inoperable, unable to achieve the required load, or not on site, then the

source must notify the DEEP as soon as possible before performance testing is due. The DEEP will evaluate the circumstances surrounding the proposed postponement to determine if this action would violate a permit condition or an applicable regulatory requirement.

### **3. Interrupted Testing**

Test runs must be consecutive and may not be interrupted to service the equipment in any way. The equipment must be operated at normal operating conditions, and no changes or adaptations can be made to air pollution controls or other operating parameters. Each raw data set for each initiated test run must be submitted in the test report.

For situations outside of the source's control, for example if a test was interrupted because of insufficient fuel or an interrupted fuel supply, then the DEEP shall be notified and testing should be resumed as soon as practicable.

### ***D. Test Observations***

Pursuant to RCSA Section 22a-174-5 and EPA's Clean Air Act National Stack Testing Guidance, DEEP representatives (delegated authority) shall be entitled to observe the tests, including initial sampling, process and air pollution control operations, subsequent laboratory analysis and other related procedures.

As such, testing shall be scheduled during normal operating hours during first shift from Monday through Friday. For testing proposed outside of normal operating hours, a request along with justification must be submitted and be approved in advance by the DEEP prior to testing.

At a minimum, the following information will need to be supplied during each test program:

1. Prior to testing, calibration data as specified by the applicable test methods must be made available to the DEEP representative auditing the test. Frequency of calibration must be as specified by the appropriate test methods;
2. During testing, the DEEP's representative may collect copies of test data sheets and process documentation; and
3. Whenever an audit sample is required, the DEEP will review and approve audit samples proposed by lab vendors for use during a performance test effort. These results will remain confidential and will be used to analyze the test results. Failure to meet the audit criteria will result in rejection of the test results.

## **Section 9. Test Report Submittal Deadlines**

Unless a more stringent requirement is specified in an applicable regulation, permit or enforcement order, the following report submittal deadlines in Table 2, of this section shall apply:

**Table 2 - Test Report Submittal Deadlines**

Regulation	Report Submittal Deadline
40 CFR 60 – New Source Performance Standards (NSPS)	60 days if not otherwise specified in the NSPS.
40 CFR 61 – National Emission Standards for Hazardous Air Pollutants (NESHAP)	Within 31 days after completion of the test [40 CFR §61.13(f)].
40 CFR 63 –Maximum Achievable Control Technology (MACT)	Within 60 days after the test is completed unless another time frame is specified in the applicable subpart [40 CFR §63.9(h)(2)(i)(G)].
Nitrogen Oxides (NOx) RACT [RCSA §22a-174-22e]	Within 60 days after emission tests are completed [RCSA §22a-174-22e].
Municipal Waste Combustor (MWC) Regulations [RCSA §22a-174-38]	Within 60 days after tests are completed.
Sewage Sludge Incinerators [Connecticut General Statutes §22a-191a(b)]	Within 60 days after tests are completed.
New Source Review (NSR) permit	Within 60 days after tests are completed.
Initial Performance Testing pursuant to NSR	Within 180 days after the initial startup date or within 60 days after reaching maximum production rate [40 CFR §60.8(a)] or at such other times specified by an applicable Subpart.
Initial Relative Accuracy Test Audit	Deadlines are specified in applicable permit or regulation
Ongoing Relative Accuracy Test Audit	Within 30 days following the close of the calendar quarter in which the test is completed

## Section 10. Test Report Contents and Submission Requirements

### A. *State-Only Requirements and State with Federal Requirements (DEEP)*

For compliance emissions testing pursuant to state requirements such as: NSR, the Regulations of Connecticut State Agencies (e.g. RCSA Section 22e for NOx RACT), or Connecticut General Statutes (e.g. CGS Section 22a-121 for Mercury) and also pursuant to federal requirements delegated via a state license (e.g. NSR or Title V permit) that cite federal testing then such test reports should be submitted electronically to [DEEP.SEM@CT.gov](mailto:DEEP.SEM@CT.gov). Large files that can't be emailed due to size constraints may be uploaded to the SEM File Transfer Protocol website in either a PDF or Electronic Reporting Tool format:

FTP address: <https://sft.ct.gov> (case sensitive – use all lower case letters)

*Username and Password credentials will be provided upon request.*

The compliance emissions test report must include, at a minimum a completed Compliance Certification Form and the following information:

1. Compliance Certification Form for each unit tested and attached as a *cover* page for the test report;
2. Summary of the test program;
3. Key personnel involved in the test program;
4. Description of the process and operation (include schematic diagrams where applicable);
5. Description of the control equipment (include schematic diagrams where applicable);
6. Description of the flue gas sampling locations (with schematic diagrams where applicable);
7. Description of process sampling locations/ procedures (with schematic diagrams where applicable);
8. Test objectives and matrix;
9. Description of any test changes (i.e., deviations from the test protocol) and/ or problems encountered;
10. ***Step-by-step calculations*** demonstrating how and what data was utilized to calculate emissions; e.g. were measured exhaust flow rates used or fuel analysis?
11. Test results and emission limitations in tabular form including averages. The units of measurement must be consistent with units in the applicable permit, regulation or enforcement order;
12. A photocopy of all actual field data sheets used during the test. If any field data sheets are illegible, legible transcribed copies must also be included;
13. A breakdown of each formula use and calculations to arrive at emissions in each unit (ppmv, lb/hr, lb/MMBTU, micrograms/ACM, etc.)
14. Copies of all pre and post calibration data;
15. Quality assurance/ quality control documentation;
16. Fuel sampling results where applicable;
17. Process data (including percent of MRC) in tabular form averaged over each test period; and
18. Laboratory data sheets and laboratory QA/QC.

### ***B. Federal Requirements (EPA)***

Many Part 60 and Part 63 regulations require sources to electronically create test reports using the Electronic Reporting Tool (ERT) and upload the test report to the Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). For example for sources subject to 40 CFR Part 62, Subpart LLL for existing sewage sludge incinerators, compliance emissions test reports in the ERT format must be uploaded to CEDRI.

40 CFR Part 75 for CEMS regulations for sources operating pursuant to Acid Rain permits or Cross State Air Pollution Rule require electronic reports be submitted using EPA's Electronic Collection and Monitoring Plan System ECMPS.

These are helpful links to federal required electronic reporting:

1. [Emissions Collection and Monitoring Plan System \(ECMPS\) \(EPA\)](#)
2. [Electronic Reporting Tool \(ERT\) \(EPA\)](#)
3. [Compliance and Emissions Data Reporting Interface \(CEDRI\) \(EPA\)](#)

## **Section 11. Helpful Source Testing Web Links**

1. [SEM Web Address \(CT-DEEP\) ITT Form/Compliance Certification Form](#)
2. [Emission Measurement Center \(EPA\):](#)
3. [\*Code of Federal Regulations \(E-CFR\):\*](#)
4. [DEEP Source Monitoring Regulations for CEMS and COMS \(RCSA Section 22a-174-4\)](#)
5. [DEEP Stack Testing Regulations \(RCSA Section 22a-174-5\)](#)
6. [DEEP Nitrogen Oxides \(NOx\) RACT \(RCSA Section 22a-174-22e\)](#)
7. [DEEP Municipal waste combustors \(RCSA Section 22a-174-38\)](#)
8. [Connecticut General Statutes §22a-191a\(b\)](#)
9. [National Emission Test Guidelines](#)
10. [Stationary Source Audit Program](#)
11. [The NELAC Institute \(TNI\) Stationary Source Audit Program](#)
12. [EPA CAA Performance Audit Samples Effective April 15, 2014](#)