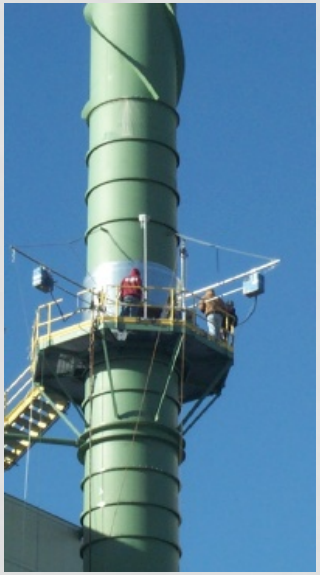
STACK TESTING OVERSIGHT

- The Emission Measurement Section is responsible for overseeing the quality assurance/quality control of air emissions measurements in New Jersey.
- Stack Test QA/QC is accomplished through:
  - Protocol Review – Initial step. Ensures that not only the proper methods are selected, but that they are tailored to the source specific conditions.
  - Test Observation – The most critical step. Testing is complicated and often conducted in harsh conditions. Errors affecting the data quality could not be documented without direct observation.
  - Report Review – The final step. Includes calculation confirmation and review of laboratory data. Validated results can then be compared to Permit limits or other standards.



STACK TESTING OVERSIGHT

- 1994 EMS Internal Assessment

  - **47%** of the test observations resulted in significant corrections by EMS.

- EPA Inspector General Audit of 1998 Test Programs

  - Test Protocols: EMS found **86%** of the protocols to be deficient.

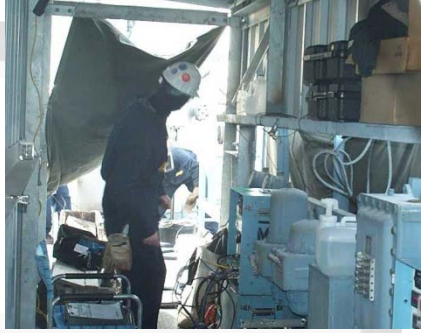
  - Test Observations: EMS made significant corrections in **57%** of the test programs.

  - Test Reports:

    - **26%** of the reports required significant correction, clarification or were rejected by EMS.
    - EMS required **29%** of the test programs to be repeated for at least one parameter (**23%** exceeded an emission limit and **6%** were deemed invalid by EMS.)

"In conclusion, we found NJDEP had an effective and efficient stack testing program."

STACK TESTING OVERSIGHT



- EPA Emissions Factors Workgroup went to over 30 States collecting over 4,000 test reports.
  - It was stated they “noticed a definite change in the quality of the test reports when they toured New Jersey. Most test reports in other States were poor quality. Being at the site and observing tests makes a big difference in the quality of the final product.”

- A 40 CFR Part 75 rule requires minimum competency standards for testers.
  - In the response to comments, EPA acknowledged that even if adopted, this will “not guarantee proper performance of any individual test” and “EPA also believes that third party (e.g. State agency) oversight helps ensure that testing is properly conducted and strongly encourages such oversight to continue.”
  - It was further stated that “EPA believes the evidence is strong that unqualified, under-trained and inexperienced testers are routinely deployed on testing projects.”

  - The adopted rule states, “EPA recommends that proper observation of tests and review of test results continue, regardless of whether an AETB fully conforms to ASTM D7036-04.”

REGULATIONS RELATED TO PROTOCOLS

NJ Requirements:

- **Preconstruction Permits - 7:27-8.13 Conditions of approval**
  - **(d)(1) - ….** The testing or measurement shall be conducted in accordance with a standard testing procedure acceptable to the Department or a source-specific testing protocol approved in advance by the Department, if such a protocol is required in the conditions of approval of the preconstruction permit or certificate;

- **Operating Permits - 7:27-22.18 Source emissions testing and monitoring**
  - **(b) -** Within 90 days after approval of the operating permit, or within the time frame specified in the operating permit, a permittee shall submit, pursuant to this section, a request for approval of a protocol prepared in accordance with the Department's published technical manual on Air Contaminant Testing and Monitoring.

Federal Requirements (protocol submittals to EMS included in the NJ Permit, and therefore subject to above)**:**

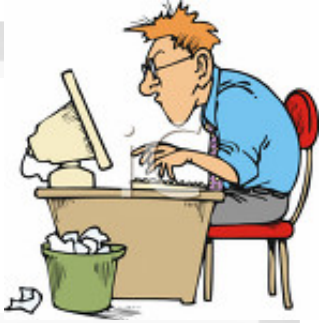
- 40 CFR Parts 60 (NSPS) and 61 (NESHAPs) do not require facilities to submit protocols prior to conducting a stack test.

- 40 CFR Part 63 (MACT) requires submission of protocols "upon request."

EPA NATIONAL STACK TESTING GUIDANCE

- **Protocols**
  - "However, many delegated agencies routinely request that the plans be submitted at the time of notification for review and approval."
  - "The submission of plan prior to the stack test helps to ensure that the testing requirements are interpreted correctly and required test methods are followed; minimizes potential problems encountered during the test; and reduces the possibility of testing errors."
  - "Ultimately, having the plan reviewed and approved prior to the test reduces the number of retests."

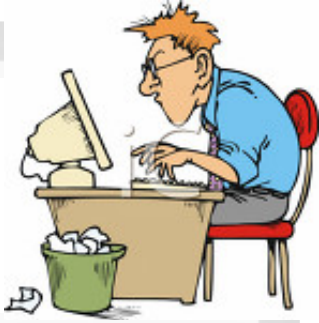
TYPICAL PROTOCOL DEFICIENCIES



Note: We recommend using available Technical Manual 1004 Protocol Templates to speed our review. Using Templates can prevent many of the issues that follow:

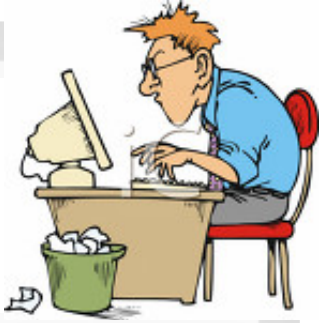
- Not including a stack diagram with the port locations, stack diameter, the distances from disturbances, and the number and location of traverse points.
- Proposing an inappropriate method.
- Not including an adequate description of the sampling train, including materials of construction and reagents used.
- Not including an adequate description of sample train operation, including leak checks, required temperatures, sample rates/volumes, sample times, and other method-specific requirements.

TYPICAL PROTOCOL DEFICIENCIES (CONT.)



- Not calculating in-stack detection limits and/or proposing sample train operation that will not provide an adequate detection limit to demonstrate compliance.
- Not including an adequate description of sample train recovery, including reagents and recovery equipment.
- Not providing an adequate description of the analytical methods or procedures, including calibration and QA/QC procedures (ie: replicate analysis, blanks, spikes, audits, etc.)
- Not providing analyzer operating ranges and/or calibration gases, or proposing an inappropriate range (ie: 0 – 1000 ppm for a 10 ppm allowable).

TYPICAL PROTOCOL DEFICIENCIES (CONT.)



- Not specifying the source and control device operation during testing and/or the monitoring to verify the operation during testing. (Permits require operation at worst-case with respect to meeting the emission limits without creating an unsafe condition.)
- Not specifying sample location acceptability verification procedures (ie: cyclonic flow check and stratification check, as applicable).
- Not specifying what will be included in the test report, including required certifications, and/or specifying a report submittal date that is contrary to the Permit requirements.
- Not filling out all required fields when using the Electronic Reporting Tool (ERT) to prepare the protocol.