# Air Quality Stack Testing and Permit Applications Training Session

## Agenda:

- MPCA Stack Test and Monitoring Program Updates and Expectations
  - 1pm – 1:45pm
- Break 1:45-2:00
- Changes to the DRF-1 form
  - 2:00 – 2:45
- Break 2:45 – 3:00
- Changes to Permit Application Forms (CD-01)
  - 3:00 – 3:30
- Break 3:30 – 3:40
- Application Completeness Checklists
  - 3:40 – 4:10
- Questions 4:10 – 4:30

Minnesota Pollution Control Agency

# MPCA Stack Test and Monitoring Program: Updates and Expectations

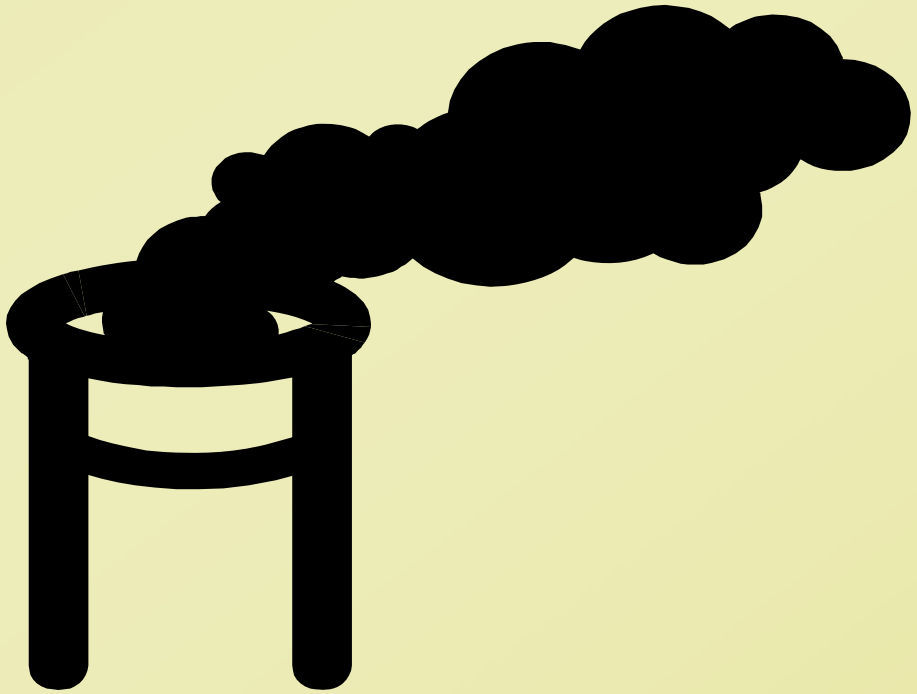
**MPCA Speakers:**

Curt Stock

Andy Place

# S.T.A.M.P.

- **S**tack
- **T**esting
- **A**nd
- **M**onitoring
- **P**rogram



# S.T.A.M.P. Staff

- Shanda Fisher – Metro, Asphalt Plants
- Curt Stock – Metro, Ethanol
- Sean O'Connor – Southern, Non-Metallic
- Andy Place – Northern, Waste Combustors

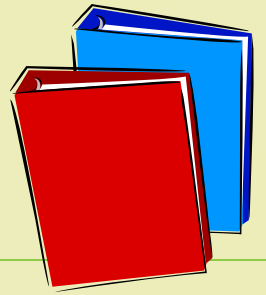
http://www.pca.state.mn.us/air/performancetest.html#staff

# Submittal Review

- ~1000 Submittals for the Team to review/year
- Results of those Submittals are used by:
  - Enforcement Staff
  - Permitting Staff
  - Policy Writers
  - Modeling Staff
  - EPA, other agencies and outside parties

- Submittal review ensures that data is correct and valid

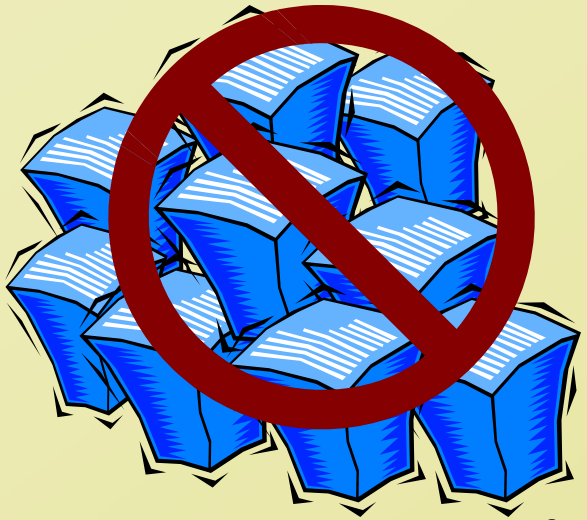
# S.T.A.R.R.



- **S**tack
- **T**est
- **A**ir
- **R**eport
- **R**eserve

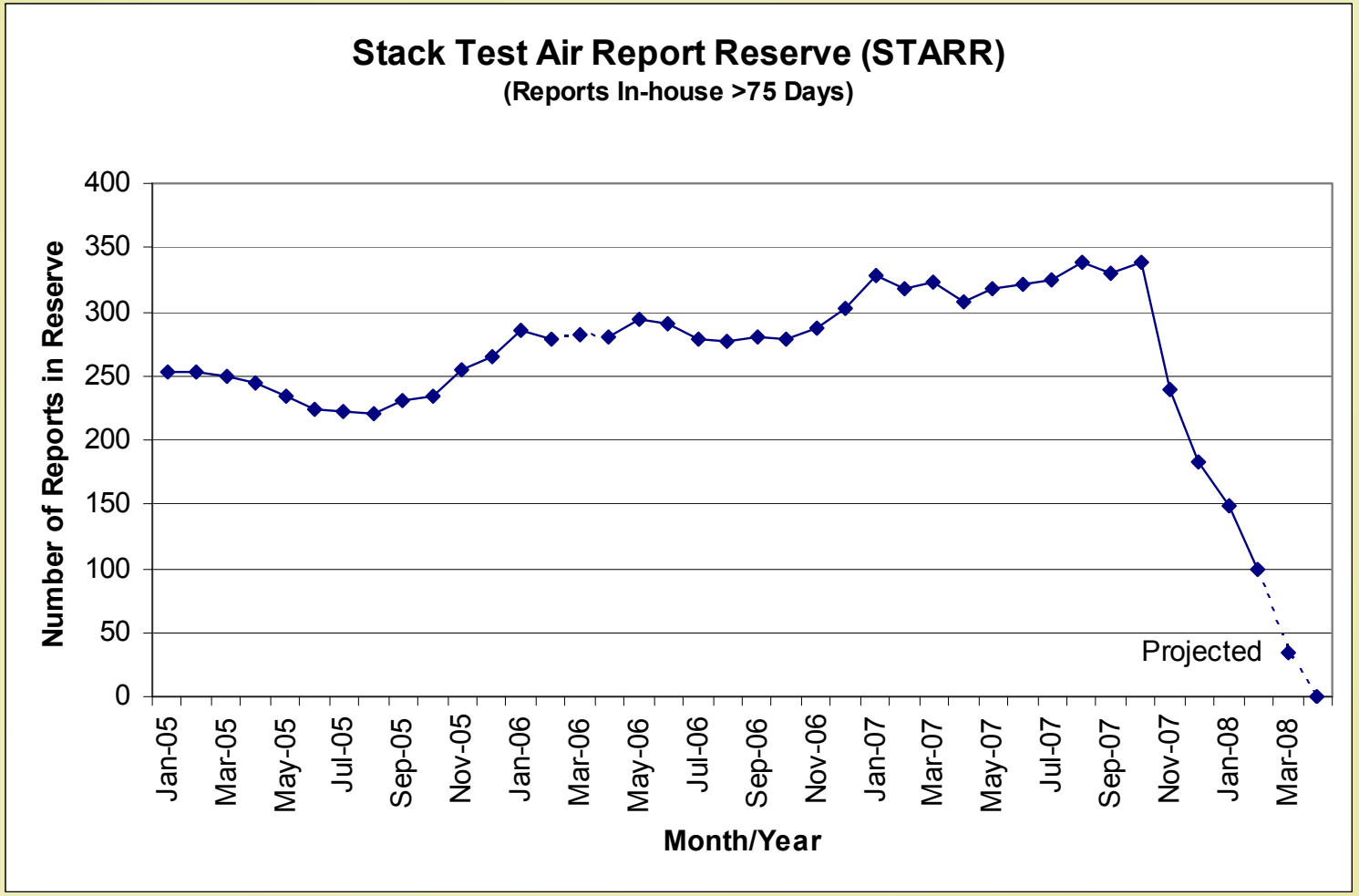
- **S.T.A.R.R. = reports “in house” > 75 days**
- **GOAL: to eliminate S.T.A.R.R. by March 31, 2008 and maintain zero S.T.A.R.R.**

**Reports “in house” < 75 days**

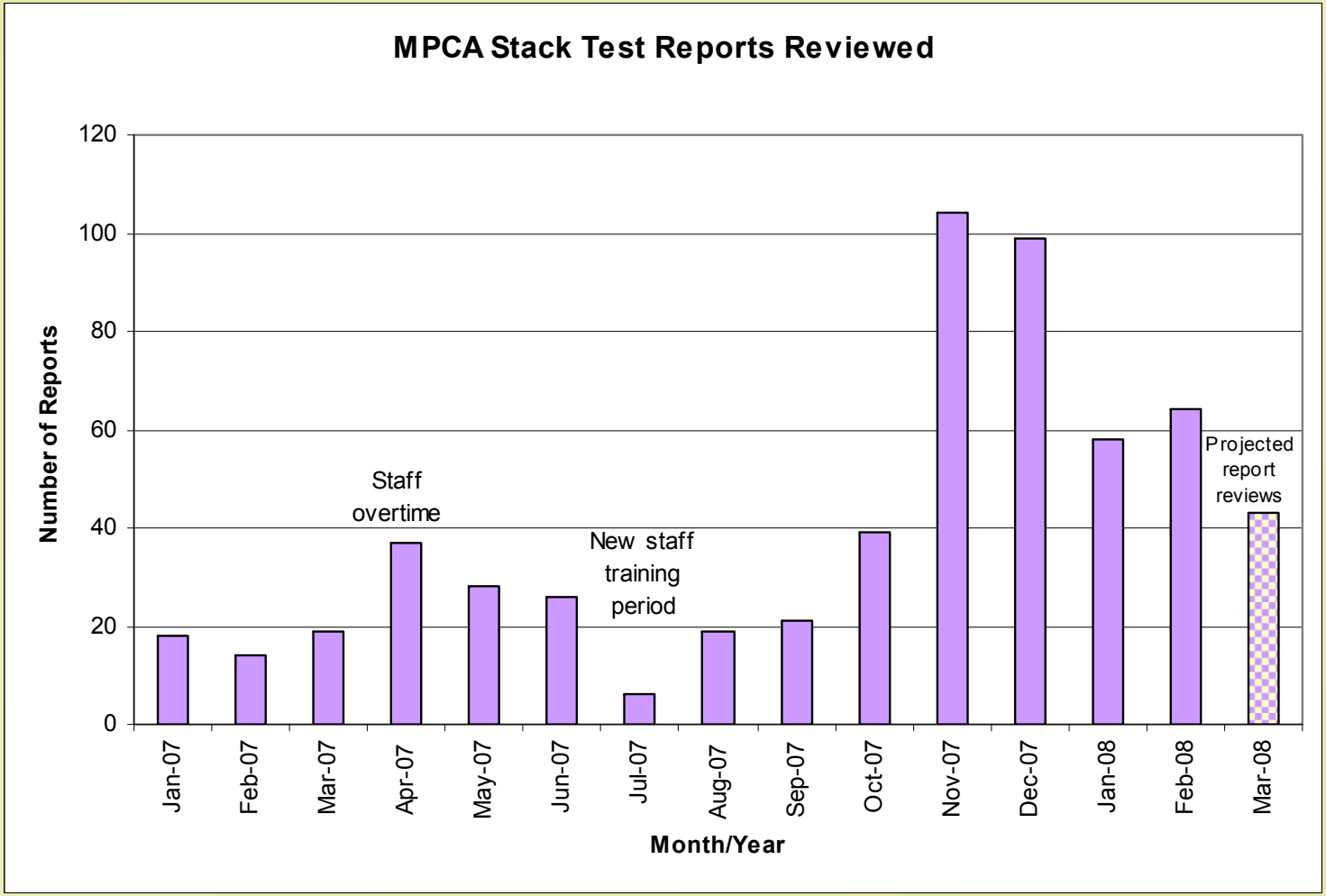


**Reports “in house” > 75 days**

# Historical S.T.A.R.R.



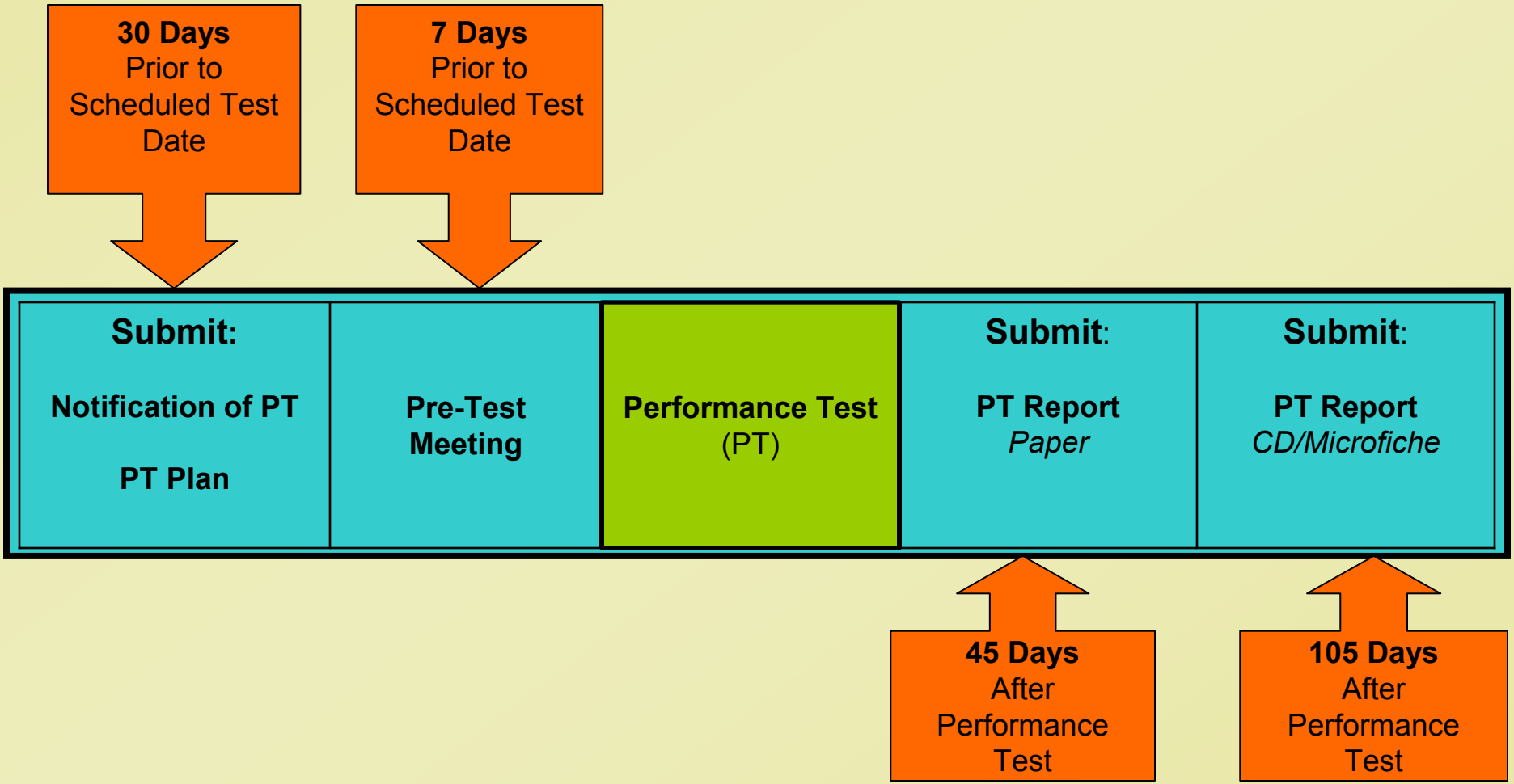
# Stack Test Report Reviews



# Performance Test Timeline

- **Notification & Test Plan Submittal**
  - 30 days prior to test
- **Pre-Test Meeting**
  - 7 days prior to test
- **Test Plan Approval Letter (TPAL)**
  - Emailed by MPCA after pretest meeting
- **Test Day**
- **Test Report Submittal**
  - 45 days after last day of test (paper copy)
- **Test Report Submittal**
  - 105 days after last day of test (cd copy)

# Performance Test Timeline



# Performance Test Timeline

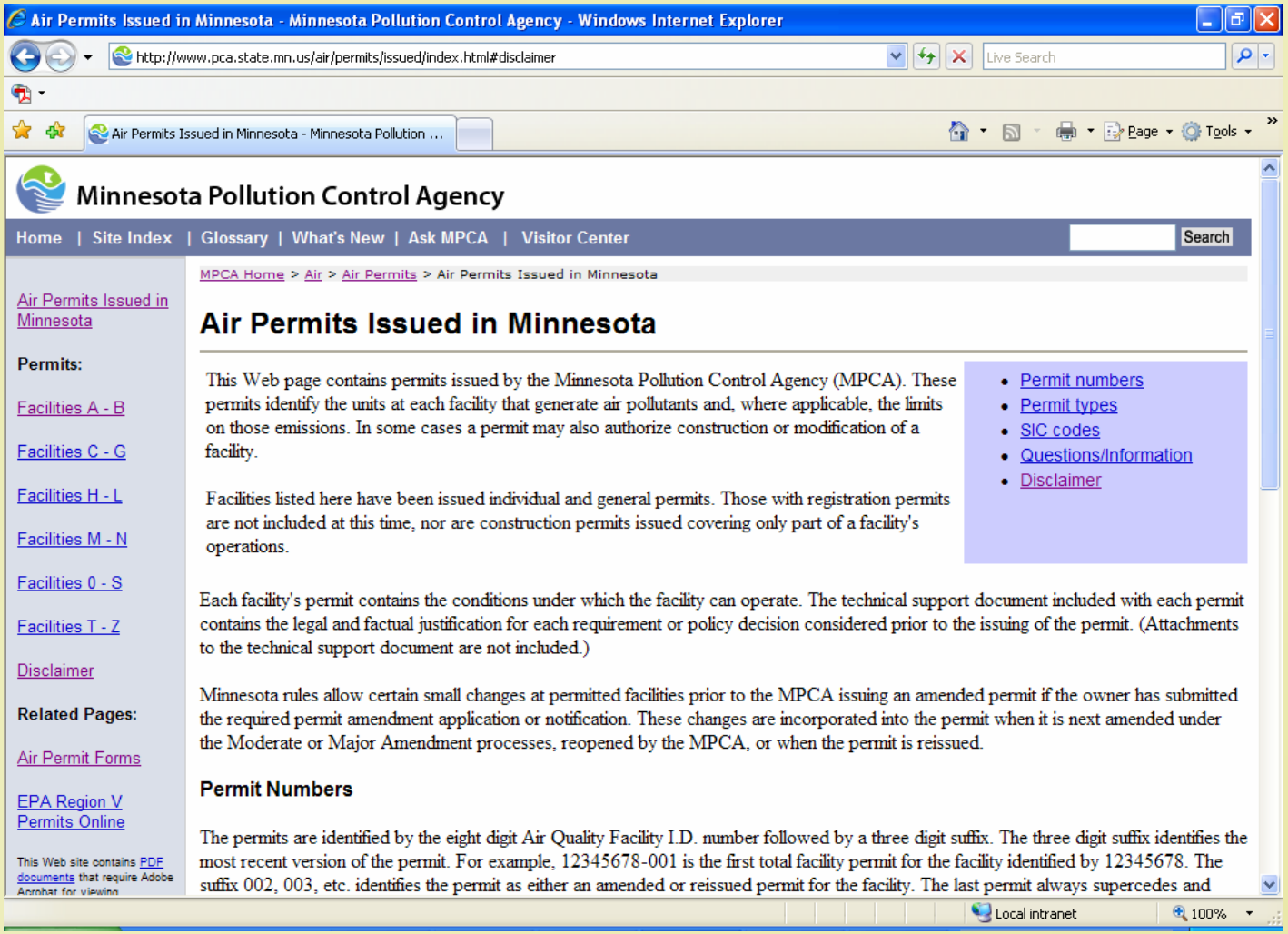
- Federal Rules may set alternate requirements for test plan and test report deadlines

- MPCA cannot change deadlines set by federal requirements

# Test Plan

- Test Plan Development
  - Test Plan must be complete and easy to understand
    - Requirements for content listed in 7017.2030 subp. 3
  - Use all the correct information for the tested Unit with the limit as stated in the permit. This includes:
    - Designators (EU/SV/GP/CE)
    - Rule Citations
    - All appropriate limits
      - Limits for a single unit may exist in more than one location in the permit
  - Where can you find the permit?
    - **http://www.pca.state.mn.us/air/permits/issued/index.html**

# Test Plan

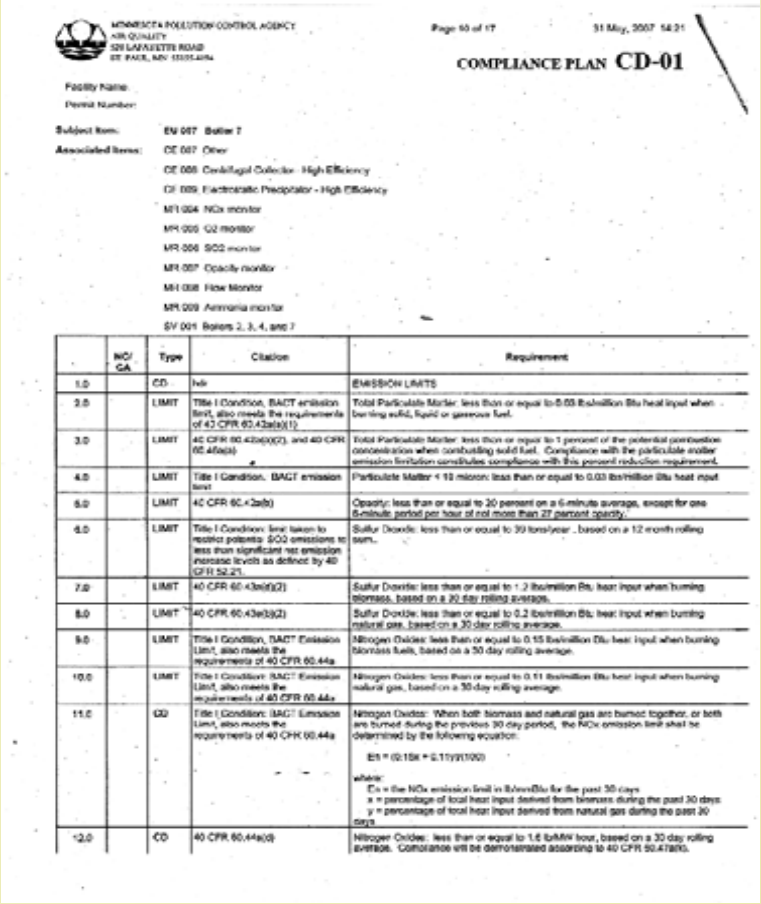





**http://www.pca.state.mn.us/air/permits/issued/index.html**

# Test Plan

Permit Page



MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

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**COMPLIANCE PLAN CD-01**

Facility Name:
Permit Number:

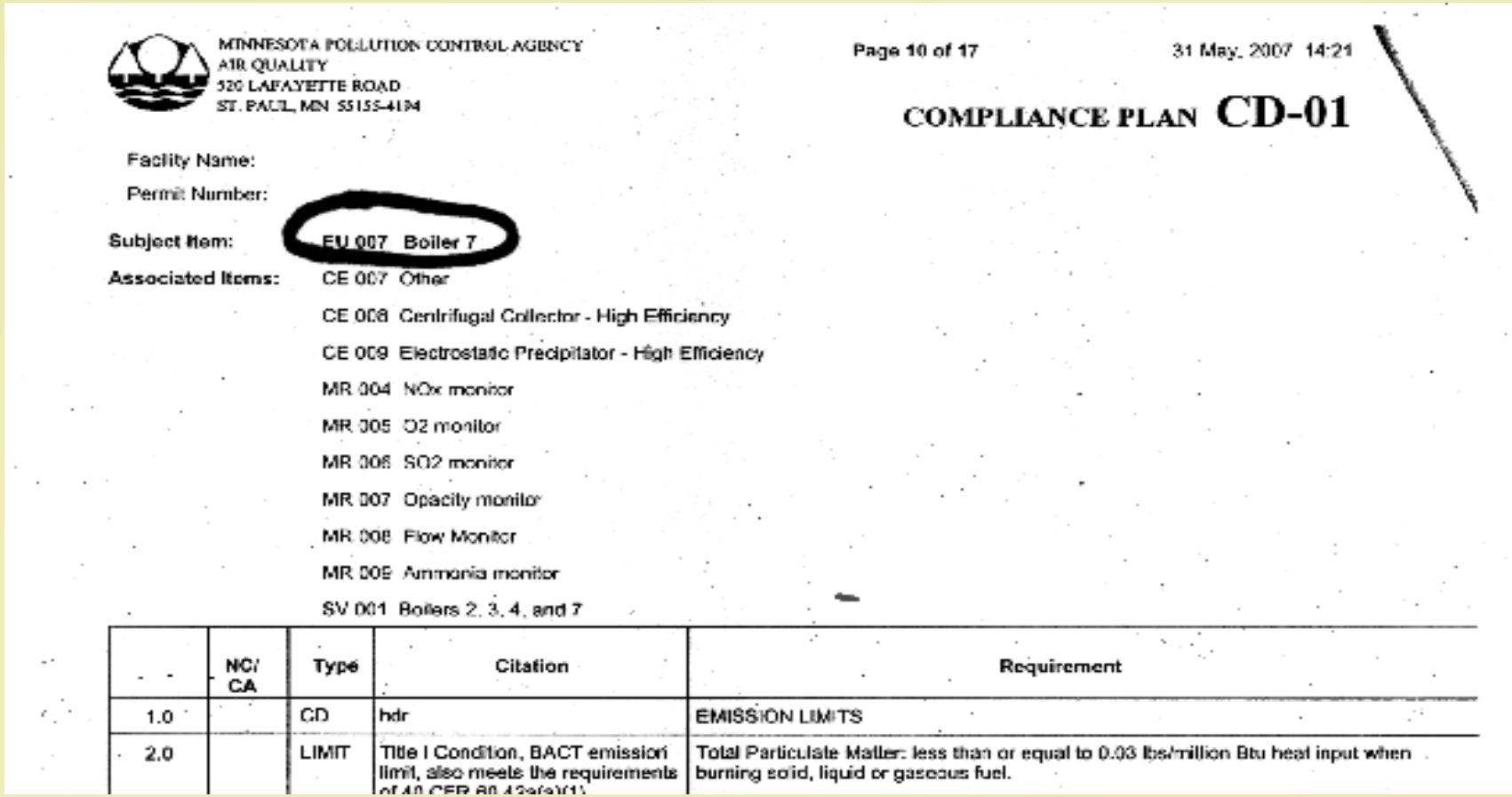
Subject Item: EU 007 Boiler 7

Associated Items:
CE 007 Other
CE 008 Centrifugal Collector - High Efficiency
CE 009 Electrostatic Precipitator - High Efficiency
MR 004 NOx monitor
MR 005 O2 monitor
MR 006 SO2 monitor
MR 007 Opacity monitor
MR 008 Flow Monitor
MR 009 Ammonia monitor
SV 001 Boilers 2, 3, 4, and 7

| | NC/GA | Type | Citation | Requirement |
|---|---|---|---|---|
| 1.0 | | CD | h/e | EMISSION LIMITS |
| 2.0 | | LIMIT | Title I Condition, BACT emission limit, also meets the requirements of 40 CFR 60.43a(a)(1) | Total Particulate Matter: less than or equal to 0.03 lb/million Btu heat input when burning solid, liquid or gaseous fuel. |
| 3.0 | | LIMIT | 40 CFR 60.42a(a)(2), and 40 CFR 60.46a(a) | Total Particulate Matter: less than or equal to 1 percent of the potential combustion concentration when combusting solid fuel. Compliance with the particulate matter emission limitation constitutes compliance with this percent reduction requirement. |
| 4.0 | | LIMIT | Title I Condition, BACT emission limit | Particulate Matter < 10 micron: less than or equal to 0.03 lbs/million Btu heat input |
| 5.0 | | LIMIT | 40 CFR 60.42a(b) | Opacity: less than or equal to 20 percent on a 6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity. |
| 6.0 | | LIMIT | Title I Condition: limit taken to restrict potential SO2 emissions to less than significant net emission increase levels as defined by 40 CFR 52.21. | Sulfur Dioxide: less than or equal to 39 tons/year , based on a 12 month rolling sum. |
| 7.0 | | LIMIT | 40 CFR 60.43a(a)(2) | Sulfur Dioxide: less than or equal to 1.2 lbs/million Btu heat input when burning biomass, based on a 30 day rolling average. |
| 8.0 | | LIMIT | 40 CFR 60.43a(b)(2) | Sulfur Dioxide: less than or equal to 0.2 lbs/million Btu heat input when burning natural gas, based on a 30 day rolling average. |
| 9.0 | | LIMIT | Title I Condition, BACT Emission Limit, also meets the requirements of 40 CFR 60.44a | Nitrogen Oxides: less than or equal to 0.15 lbs/million Btu heat input when burning biomass fuels, based on a 30 day rolling average. |
| 10.0 | | LIMIT | Title I Condition: BACT Emission Limit, also meets the requirements of 40 CFR 60.44a | Nitrogen Oxides: less than or equal to 0.11 lbs/million Btu heat input when burning natural gas, based on a 30 day rolling average. |
| 11.0 | | CD | Title I Condition: BACT Emission Limit, also meets the requirements of 40 CFR 60.44a | Nitrogen Oxides: When both biomass and natural gas are burned together, or both are burned during the previous 30 day period, the NOx emission limit shall be determined by the following equation:<br>Es = (0.15x + 0.11y)/(x+y)<br>where:<br>Es = the NOx emission limit in lb/mmBtu for the past 30 days<br>x = percentage of total heat input derived from biomass during the past 30 days<br>y = percentage of total heat input derived from natural gas during the past 30 days |
| 12.0 | | CD | 40 CFR 60.44a(d) | Nitrogen Oxides: less than or equal to 1.6 lb/MW hour, based on a 30 day rolling average. Compliance will be demonstrated according to 40 CFR 60.47a(b). |

# Test Plan

## Tested Unit Designator



MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194



31 May, 2007 14:21

**COMPLIANCE PLAN CD-01**

Facility Name:

Permit Number:

**Subject Item:** EU 007 Boiler 7

**Associated Items:**
CE 007 Other
CE 008 Centrifugal Collector - High Efficiency
CE 009 Electrostatic Precipitator - High Efficiency
MR 004 NOx monitor
MR 005 O2 monitor
MR 006 SO2 monitor
MR 007 Opacity monitor
MR 008 Flow Monitor
MR 009 Ammonia monitor
SV 001 Boilers 2, 3, 4, and 7

| - - | NC/ CA | Type | Citation | Requirement |
|---|---|---|---|---|
| 1.0 | | CD | hdr | EMISSION LIMITS |
| 2.0 | | LIMIT | Title I Condition, BACT emission limit, also meets the requirements of 40 CFR 60.43a(a)(1) | Total Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input when burning solid, liquid or gaseous fuel. |

# Test Plan

## Total Particulate Limit

| | NC/ CA | Type | Citation | Requirement |
|---|---|---|---|---|
| 1.0 | | CD | hdr | EMISSION LIMITS |
| 2.0 | | LIMIT | Title I Condition, BACT emission limit, also meets the requirements of 40 CFR 60.42a(a)(1) | Total Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input when burning solid, liquid or gaseous fuel. |
| 3.0 | | LIMIT | 40 CFR 60.42a(a)(2), and 40 CFR 60.48a(a) | Total Particulate Matter: less than or equal to 1 percent of the potential combustion concentration when combusting solid fuel. Compliance with the particulate matter emission limitation constitutes compliance with this percent reduction requirement. |
| 4.0 | | LIMIT | Title I Condition, BACT emission limit | Particulate Matter < 10 microns: less than or equal to 0.03 lbs/million Btu heat input |
| 5.0 | | LIMIT | 40 CFR 60.42a(b) | Opacity: less than or equal to 20 percent on a 6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity. |
| 6.0 | | LIMIT | Title I Condition: limit taken to | Sulfur Dioxide: less than or equal to 39 tons/year , based on a 12 month rolling |

# Test Plan

## Total Particulate Citation

| | NC/ CA | Type | Citation | Requirement |
|---|---|---|---|---|
| 1.0 | | CD | hdr | EMISSION LIMITS |
| 2.0 | | LIMIT | Title I Condition, BACT emission limit, also meets the requirements of 40 CFR 60.42a(a)(1) | Total Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input when burning solid, liquid or gaseous fuel. |
| 3.0 | | LIMIT | 40 CFR 60.42a(a)(2), and 40 CFR 60.46a(a) | Total Particulate Matter: less than or equal to 1 percent of the potential combustion concentration when combusting solid fuel. Compliance with the particulate matter emission limitation constitutes compliance with this percent reduction requirement. |
| 4.0 | | LIMIT | Title I Condition: BACT emission limit | Particulate Matter < 10 micron: less than or equal to 0.03 lbs/million Btu heat input |
| 5.0 | | LIMIT | 40 CFR 60.42a(b) | Opacity: less than or equal to 20 percent on a 6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity. |
| 6.0 | | LIMIT | Title I Condition: limit taken to restrict potential SO2 emissions to less than significant net emission | Sulfur Dioxide: less than or equal to 39 tons/year , based on a 12 month rolling sum. |

# Test Plan

## PM10 Limit

| | NG/ CA | Type | Citation | Requirement |
|---|---|---|---|---|
| 1.0 | | CD | hdr | EMISSION LIMITS |
| 2.0 | | LIMIT | Title I Condition, BACT emission limit, also meets the requirements of 40 CFR 60.42a(a)(1) | Total Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input when burning solid, liquid or gaseous fuel. |
| 3.0 | | LIMIT | 40 CFR 60.42a(a)(2), and 40 CFR 60.46a(a) | Total Particulate Matter: less than or equal to 1 percent of the potential combustion concentration when combusting solid fuel. Compliance with the particulate matter [illegible] limitation constitutes compliance with the [illegible] requirement. |
| 4.0 | | LIMIT | Title I Condition, BACT emission limit | Particulate Matter < 10 micron: less than or equal to 0.03 lbs/million Btu heat input |
| 5.0 | | LIMIT | 40 CFR 60.42a(b) | Opacity: less than or equal to 20 percent on a 6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity. |
| 6.0 | | LIMIT | Title I Condition: limit taken to restrict potential SO2 emissions to less than significant net emission increase levels as defined by 40 | Sulfur Dioxide: less than or equal to 39 tons/year , based on a 12 month rolling sum. |

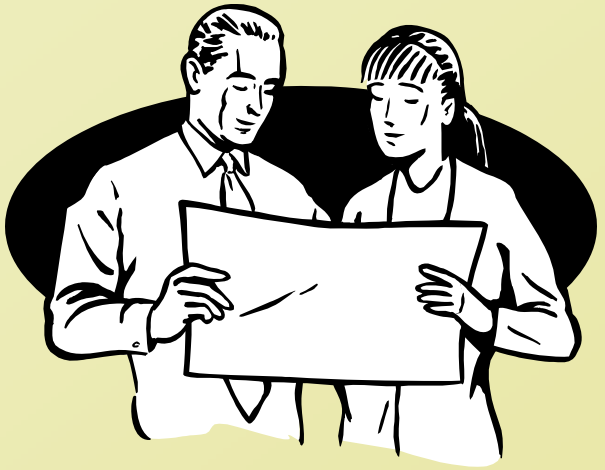
# Test Plan

## PM10 Citation

| | NC/ CA | Type | Citation | Requirement |
|---|---|---|---|---|
| 1.0 | | CD | hdr | EMISSION LIMITS |
| 2.0 | | LIMIT | Title I Condition, BACT emission limit, also meets the requirements of 40 CFR 60.42a(a)(1) | Total Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input when burning solid, liquid or gaseous fuel. |
| 3.0 | | LIMIT | 40 CFR 60.42a(a)(2), and 40 CFR 60.46a(a) | Total Particulate Matter: less than or equal to 1 percent of the potential combustion concentration when combusting solid fuel. Compliance with the particulate matter emission limitation constitutes compliance with this percent reduction requirement. |
| 4.0 | | LIMIT | Title I Condition, BACT emission limit | Particulate Matter < 10 micron: less than or equal to 0.03 lbs/million Btu heat input |
| 5.0 | | LIMIT | 40 CFR 60.42a(b) | Opacity: less than or equal to 20 percent on a 6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity. |
| 6.0 | | LIMIT | Title I Condition: limit taken to restrict potential SO2 emissions to less than significant net emission increase levels as defined by 40 CFR 52.21. | Sulfur Dioxide: less than or equal to 39 tons/year , based on a 12 month rolling sum.. |

# Test Plan

- Test Plan Development
  - http://www.pca.state.mn.us/air/ptest-planning.html
    - Test Plan Completeness Criteria (TPCC)
    - Example Test Plans



# Test Plan

- Most information in the Test Plan is required near the beginning of the report
- A good test plan leads to a good report

# Test Plan

- General Information
  - Date of test plan origination/revision
  - Proposed test dates
  - Reason for testing
  - Testing company and contact information

# Test Plan

- Facility Information
  - Name and address of emission facility
  - Name and contact information of person responsible for receiving correspondence regarding testing. Include email address
  - Permit #/Facility ID # (i.e. 13700006-002)
  - AQ File Number (i.e. AQ#136)

# Test Plan

- Testing Requirements
  - Identification of emission unit(s) (i.e. EU 000, SV 000, CE 000) to be tested
  - Pollutants to be tested with emission limits and applicable regulations citations as stated in your permit
  - Sample Location Drawing
  - Description of procedure for fuel sampling and analysis, where applicable

# Test Plan

## Operating Conditions

- Description of process and air pollution control devices including emission units to be tested and operating conditions targeted for the test
  - **Do not simply write boilerplate language like "90% of worst case conditions"**
  - **Provide actual rates for emission unit and control equipment**
  - **Explain justification for worst case conditions**

# Test Plan

- Test Methods
  - List of test methods to be used to determine the emissions rate of each pollutant.
  - Brief description of planned deviations from sampling procedures and analytical methods, when applicable.
  - If using methods other than US EPA reference methods you are requested to submit adequate documentation (i.e. QA/QC, MDL, expected pollutant concentration, etc.).

# Pretest Meeting

- **Approximately 1 week prior to test…Pretest Meeting**
  - The facility is ultimately responsible for completing the pretest meeting
- **Pre-Test Meeting Checklist**
  - http://www.pca.state.mn.us/air/ptest-planning.html
- **Discuss the Test**
  - Operating rates
  - Control equipment rates
  - Deviations from test methods
  - Ultimately want to avoid misinterpretations and assumptions that lead to problems during or after the test

# Performance Test Requirements

- When testing, if problems are experienced or you deviate from the test plan, contact the MPCA to determine how to proceed.

# Testing Responsibility

- Any periods of noncompliance with emission limits must be reported to the MPCA, this includes periods of noncompliance during engineering tests

# Testing Responsibility

- The owner or operator of an emissions facility is responsible for submitting a complete test report as defined by Minn. R. 7017.2035.
- A test report may be rejected if it is deemed incomplete.
- The test must be representative of operating conditions at your facility

# Setting Operating Limits

- When are they set?
- How are they set?

# Setting Operating Limits

Based on Minn. R. 7017.2025, subp. 3. the test must be completed at ≥ 90% of worst case condition:

If 90% is not achieved, a limit is set:

| Tested Rate vs. Emission Limit | Process Operating Limit |
|---|---|
| ≥ 80% of emission limit | At rate operated at during the test |
| ≤ 80% of emission limit | 10% increase from rate operated at during the test |

# Setting Operating Limits

- Agency always has discretion to deviate from Minn. Rule 7017.2025, subp. 3
  - Reasons may include:
    - Previous Test Results
    - Enforcement History
    - Permit Concerns
    - Other Rules or Regulations

# Setting Operating Limits

## Control Equipment

- The 90% of worst case condition does not apply to control equipment.
- CE must be operated at permit limits or rate established in test plan often from manufacturer specifications.
  - If not, a limit is set/reset based on rate experienced during test
  - A 10% leniency is not typically applied to CE
  - Discuss the exact nature of your CE in the test plan and during the pretest meeting

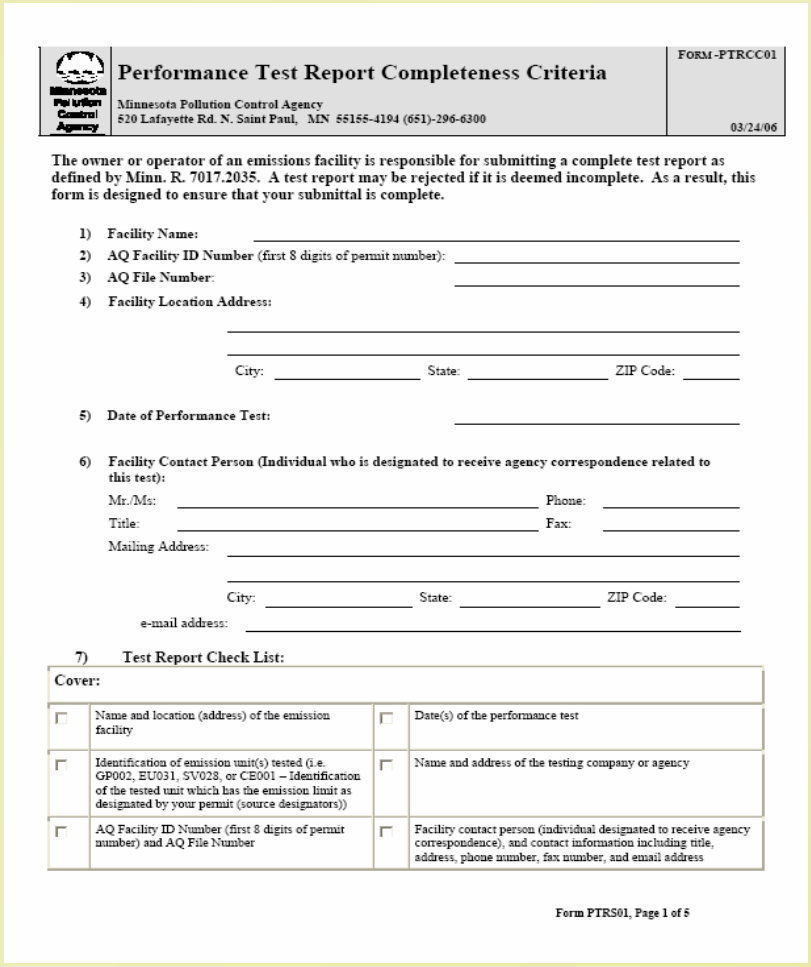
# Test Report

- Test reports due 45 days after test completion
- CD-ROM copy of test due 105 days after test completion
  - Must be exact duplicate of test report including all required certification signatures
- This standard applies even if other rules allow for an extended period of time
- Submittals past 45 days should be prearranged with MPCA

# Test Report

## Performance Test Report Completeness Criteria (PTRCC)

http://www.pca.state.mn.us/publications/ptrcc01.doc



**Performance Test Report Completeness Criteria**

FORM-PTRCC01

Minnesota Pollution Control Agency
520 Lafayette Rd. N. Saint Paul, MN 55155-4194 (651)-296-6300

03/24/06

**The owner or operator of an emissions facility is responsible for submitting a complete test report as defined by Minn. R. 7017.2035. A test report may be rejected if it is deemed incomplete. As a result, this form is designed to ensure that your submittal is complete.**

1) **Facility Name:** _____

2) **AQ Facility ID Number** (first 8 digits of permit number): _____

3) **AQ File Number**: _____

4) **Facility Location Address:**

_____

_____

City: _____ State: _____ ZIP Code: _____

5) **Date of Performance Test:** _____

6) **Facility Contact Person (Individual who is designated to receive agency correspondence related to this test):**

Mr./Ms: _____ Phone: _____

Title: _____ Fax: _____

Mailing Address: _____

_____

City: _____ State: _____ ZIP Code: _____

e-mail address: _____

7) **Test Report Check List:**

| **Cover:** | | | |
|---|---|---|---|
| ☐ | Name and location (address) of the emission facility | ☐ | Date(s) of the performance test |
| ☐ | Identification of emission unit(s) tested (i.e. GP002, EU031, SV028, or CE001 – Identification of the tested unit which has the emission limit as designated by your permit (source designators)) | ☐ | Name and address of the testing company or agency |
| ☐ | AQ Facility ID Number (first 8 digits of permit number) and AQ File Number | ☐ | Facility contact person (individual designated to receive agency correspondence), and contact information including title, address, phone number, fax number, and email address |

Form PTRS01, Page 1 of 5

# Test Report

## Performance Test Report Completeness Criteria (PTRCC)

- PTRCC is a tool to ensure the Performance Test Report is complete and all information is included in the proper sections

- PTRCC does not need to be submitted with the report unless report is lacking information and the form is used as a supplement to submit additional information

# 10 Quick Things You Can Do To Help With Timeliness of Test Report Review

1. Include the following
   - Facility ID Number (Permit Number)
   - AQ File Number
   - Unit Tested (EU000/SV000/GP000)
   - Test Date
   - Pollutant(s) Tested
   - Contact Information

   on the cover or within the first few pages of the Report and on the face of CD-ROM copy

# 10 Quick Things You Can Do To Help With Timeliness of Test Report Review

2. Use correct designator as used in permit
   - EU000 for emission unit
   - SV000 for stack vent
   - CE000 for control equipment
   - GP000 for group

3. Include correct and full citations in the executive summary table. Also, ensure all limits from permit are listed with correct unit (lbs/hour, gr/dscf, lbs/MMBtu) assigned.

# 10 Quick Things You Can Do To Help With Timeliness of Test Report Review

4. In executive summary and/or on the Operating Data Sheets include type (baghouse, RTO, scrubber, etc.) and the correct designator (CE000) of all associated control equipment.

5. Explain any problems experienced during the test or deviations from test plan in the Introduction and/or Results Summary

# Good

**Performance Test Report**

PM, Opacity, VOC and SO2 Test Results

Acme Company
AQ File #: 136
AQ Facility ID #: 01300006

**Test Location:**
Super Duper Acme Dryer (EU372/SV072)
Super Dry Facility
100 Toad Road, Factoryville, MN 55555

**Test Date:** January 1, 2007

**Prepared For:**
Mr. Warner Brothers, Environmental Manager
100 Neat Street, Anytown, MN 55556
Phone: (000) 000-0000
Fax: (000) 000-0001
wb@acme.com

**Tested By:**
Testers-R-Us
Mr. Jack Stack
100 Plain Lane
Any Othertown, MN 55557
Phone (111) 111-1111
jstack@testrus.com

# Bad

**Performance Test Report**

Acme Company

**Test Location:**
Dryer Oven

**Report Completed:** February 2, 2007

**Prepared For:**
Mr. Warner Brothers
Phone: (000) 000-0000

**Tested By:**
Test-R-Us

# Good

An overview of test results is below. Further summary is included on the following pages.

**SUMMARY OF PERFORMANCE TEST RESULTS**

| Emission Unit Tested | Limitation Basis | Pollutant and Emission Limit | Test Result |
|---|---|---|---|
| Super Duper Acme Dry Oven (EU372/ SV072) | Minn. R. 7011.0715, subp. 1(A) | Total Particulate Matter: 0.13 lbs/hour or 0.094 gr/dscf | Total Particulate Matter: 0.11 lbs/hour 0.096 gr/dscf |
| | Minn. R. 7011.0715, subp. 1(B) | Opacity: 20% | Opacity: 0% |
| | Minn. R. 7011.0610, subp. 2(B) | Sulfur Dioxide: 2.0 lbs/MMBtu | Sulfur Dioxide: 0.98 lbs/MMBtu |
| | Minn. R. 7007.0800, subp. 2 | Volatile Organic Compounds: 2.4 lbs/hour | Volatile Organic Compounds: 2.0 lbs/hour |

Due to stack conditions at the time of test, Method 201A was not able to be completed for PM10. Method 201A will be completed at a later date. Method 5 results are for Total Particulate only.

Since VOC total emissions were below the permitted emission limit the Afterburner Inlet was not tested. Destruction Efficiency not calculated.

HAPs Testing was not completed due to process upset.

# Bad

An overview of test results is below. Further summary is included on the following pages.

**SUMMARY OF PERFORMANCE TEST RESULTS**

| Emission Unit Tested | Limitation Basis | Pollutant and Emission Limit | Test Result |
|---|---|---|---|
| Dry Oven | Minn. Rule | Particulate: 0.3 gr/dscf | Particulate: 0.1 gr/dscf |
| | | Opacity: 20% | Opacity: 0% |
| | | SO2: 2.0 lbs/MMBtu | SO2: 30 lbs/hour |
| | | VOC: 1.5 lbs/hour | VOC: 2.0 lbs/hour |

No problems were experienced during testing.

# 10 Quick Things You Can Do To Help With Timeliness of Test Report Review

6. Report Particulate Matter (PM) emissions as Filterable, Organic and Inorganic Condensibles.
   - Filterable=Dry Catch=Front-Half PM
     (Particulate by Federal requirements)
   - Filterable + Organic Condensibles
     (Total Particulate by Minn. Rule)
   - Filterable + Organic + Inorganic/Aqueous Condensibles
     (PM10 Equivalent by Federal or MN Standards)

# 10 Quick Things You Can Do To Help With Timeliness of Test Report Review

7. Summarize Process Rates and Control Equipment Rates on the Operating Data Summary Form for all units tested.

   Average data for each test period and series of tests. Also, include supporting data to justify how rate determination was reached.

# Example of a Bad Operating Data Summary Form

Minnesota Pollution Control Agency

## Operating Data Summary For Process Sources

Minnesota Pollution Control Agency
520 Lafayette Rd. N. Saint Paul, MN 55155-4194 (651)-296-6300

Form ST-05

6/9/06

**Test Date(s):** January 1, 2007 **Process Equipment Number/Identification:** Dryer
**Company Name:** Acme Company

**Equipment & Operating Data**

1. **Process Equipment Description:** Dryer Oven
2. Were the process and control equipment operated consistent with normal procedures? YES☒ NO☐ If no, explain: _____
3. Include copy of production records or instrumentation which indicates rate of production or operation of the equipment, i.e. units per hour, pounds per hour, pressure, air flow, etc.
4. Date(s) and procedure(s) of last maintenance/cleaning within 6 months: ☒ Remains unchanged from info. provided in test plan _____
5. Process rate (amount of raw material or finished product per hour, wet or dry basis) while combusting (list fuel type(s) and ratios as appropriate) _____

| Process Parameter: list type and units | Run 1 | Run 2 | Run 3 | Average |
|---|---|---|---|---|
| Dryer Throughput | | | | 215 |
| | | | | |
| | | | | |
| Fuel Input (list units) | | | | |
| Heat Input ($10^6$ British thermal units/hour) | | | | |

6. Summarize control equipment operating data documented during testing. Values reported should reflect maximum, minimum, averages, or as approved in the test plan. (See test plan and approval letter)

**Examples of APC equipment and parameters generally monitored. Monitor as in test plan and/or approval letter.**

- **Scrubber** (list type of scrubber): ΔP (in. w.c.) and feed rate (gpm and psig)
- **Catalytic Incinerator** :($°F_{in}$ - $°F_{out}$) and Thermal Incinerator: ($°F_{temperature}$)
- **Baghouse, Cyclone, and Multi-clone:** ΔP (in. w.c.)
- **ESP:** Number and identity of operating field(s)

| APC and parameter monitored | Run 1 | Run 2 | Run 3 | Average |
|---|---|---|---|---|
| Wet Scrubber Flow (gal/minute) | 200 | 210 | 190 | |
| Afterburner (CE109) Temp. (degrees F) | 1500 | 1525 | 1540 | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| **List pollutant & averaging basis.--should reflect permit** | **Run 1** | **Run 1** | **Run 1** | **Average** |
| Continuous Opacity Monitor(list hourly average) | | | | |
| Monitor (list averaging basis): | | | | |
| Monitor (list averaging basis: | | | | |

**Abbreviations:** APC-air pollution control; lbs.-pounds; gpm.-gallons per minute; psig-pressure per square inch gauge; in. w.c.-inches of water column; ΔP- pressure drop

# Example of a Good Operating Data Summary Form

Minnesota Pollution Control Agency

## Operating Data Summary For Process Sources

Minnesota Pollution Control Agency
520 Lafayette Rd. N. Saint Paul, MN 55155-4194 (651)-296-6300

Form ST-05
6/9/06

**Test Date(s):** January 1, 2007 **Process Equipment Number/Identification:** EU375
**Company Name:** Acme Company

**Equipment & Operating Data**

1. Process Equipment Description: **Dryer Oven**
2. Were the process and control equipment operated consistent with normal procedures? YES☒ NO☐ If no, explain: _____
3. Include copy of production records or instrumentation which indicates rate of production or operation of the equipment, i.e. units per hour, pounds per hour, pressure, air flow, etc.
4. Date(s) and procedure(s) of last maintenance/cleaning within 6 months: ☒ Remains unchanged from info. provided in test plan _____
5. Process rate (amount of raw material or finished product per hour, wet or dry basis) while combusting (list fuel type(s) and ratios as appropriate) _____

| Process Parameter: list type and units | Run 1 | Run 2 | Run 3 | Average |
|---|---|---|---|---|
| Dryer Throughput (tons/hour) | 8.2 | 8.5 | 7.3 | 8.0 |
| | | | | |
| | | | | |
| Fuel Input (list units) scf of natural gas | 900 | 800 | 711 | 803.7 |
| Heat Input ($10^6$ British thermal units/hour) | 23 | 22 | 25 | 23.3 |

6. Summarize control equipment operating data documented during testing. Values reported should reflect maximum, minimum, averages, or as approved in the test plan. (See test plan and approval letter)

**Examples of APC equipment and parameters generally monitored. Monitor as in test plan and/or approval letter.**

- **Scrubber** (list type of scrubber): ΔP (in. w.c.) and feed rate (gpm and psig)
- **Catalytic Incinerator** :($°F_{in}$ , $°F_{out}$) and Thermal Incinerator: ($°F_{temperature}$)
- **Baghouse, Cyclone, and Multi-clone:** ΔP (in. w.c.)
- **ESP:** Number and identity of operating field(s)

| APC and parameter monitored | Run 1 | Run 2 | Run 3 | Average |
|---|---|---|---|---|
| Wet Scrubber (CE107) Flow (gallon/minute) | 200 | 210 | 190 | 200 |
| Wet Scrubber (CE107) pH | 9.0 | 8.5 | 10 | 9.0 |
| Wet Scrubber (CE107) Nozzle Pressure (psig) | 51 | 51 | 51 | 51 |
| Wet Scrubber (CE107) Δ P (in. water column) | 7.5 | 6 | 8 | 7.2 |
| ESP (CE108) Total Power Input | 45 | 37 | 52 | 44.7 |
| Afterburner (CE109) Temp. (degrees F) | 1540 | 1565 | 1580 | 1562 |
| | | | | |
| **List pollutant & averaging basis.--should reflect permit** | **Run 1** | **Run 1** | **Run 1** | **Average** |
| Continuous Opacity Monitor(list hourly average) | | | | |
| Monitor (list averaging basis): | | | | |
| Monitor (list averaging basis: | | | | |

**Abbreviations:** APC-air pollution control; lbs.-pounds; gpm.-gallons per minute; psig-pressure per square inch gauge; in. w.c.-inches of water column; ΔP- pressure drop

# 10 Quick Things You Can Do To Help With Timeliness of Test Report Review

8. Include all calibration data for all thermocouples, meters, pitot tubes, barometers and any other equipment used for emissions testing. For instrument calibrations include data recorder values used for calculating bias calibration accuracies.

9. Provide all calculations necessary to account how raw test data was computed into test results

# 10 Quick Things You Can Do To Help With Timeliness of Test Report Review

10. If test is noncompliant, when possible provide an explanation why the failure occurred and what corrective action is being completed

# Test Frequency Plan

- Often due 60 days after completion of test results
- A letter will suffice
- May submit with report – Please make obvious
- Include emission limit, test result, result as % of limit, and suggested frequency
- Test frequency typically based off of results compared to limit

# Test Frequency Plan

- Other factors:
  - Previous Test Results
  - Enforcement History
  - Permit Concerns

- If test frequency is already included in permit, an amendment is required to change.
- Test frequency cannot be changed solely based on test results and submittal of new test frequency plan.

# A Reminder……The Permit

- It all starts with the Permit
  - Review your permit and the DELTA data that produced it
    - Does it make sense?
    - Does it accurately portray your facility's operation?

# Updated DRF-1 Reporting Form

- Changes made to address both MPCA and facility needs
- Facilities must report all excess emissions
  - Inconsistencies as to what was being reported
  - Receiving multiple versions of reports
- Looking toward future of electronic submittals
- Excel version to aid with data dumping
- Location: http://www.pca.state.mn.us/air/permits/forms.html

# Updated DRF-1 Reporting Form

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

## Excess Emissions Reporting Form

## DRF-1

**Continuous Monitoring Systems Reporting Form**

**Please note: This form has been updated. Please print, complete and remit only the forms. Please see the instructions to ensure proper use and understanding of definitions. DO NOT print and return the instructions.**

Use this form to record and report excess emissions (EE) that are identified by *Continuous Monitoring Systems.* This includes Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS). DRF-1 is the form you must use to report excess emissions from a stack as recorded by your facility's Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS).

Address hard copy report submittals to: Compliance Tracking Coordinator, Fourth Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

### General Facility Information

Company name: _____

AQ file no.: _____ AQ permit no.: _____

Report covers Quarter: _____ Year: _____

### CEMS/COMS Data Summary Table

| | | | | Duration of Monitor Downtime | | Duration of Excess Emissions (EE) | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2a) | 2b) | 2c) | 2d) | 3i) | 2e) | 4l) | 2f) | 4m) | 2g) |
| Monitor ID Number | Monitor ID Pollutant | EU/SV ID Number | Total Operating Time (TOT) | Total Duration of Monitor Downtime | **Downtime % Of TOT** | Cumulative Duration of Exempt EE | **Exempt EE % of TOT** | Cumulative Total Duration of All EE | **Total EE % of TOT** |
| **MR042** | **Opacity** | **EU020** | **129600** | **1080** | **0.83%** | **126** | **0.098%** | **456** | **0.35%** |
| | | | | | | | | | |

# Updated DRF-1 Reporting Form

**Duration of Monitor Downtime:** Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

| 3a) | 3b) | 3c) | 3d) | 3e) | 3f) | 3g) | 3h) |
|---|---|---|---|---|---|---|---|
| Monitor ID Number | Pollutant or Parameter Monitored | Emission Unit Being Monitored | Beginning Date and Time of Downtime | End Date and Time of Downtime | Duration of Downtime | Reason for Monitor Downtime (clarifying comments) | Corrective Action Taken (clarifying comments) |
| **MR042** | **Opacity** | **EU020** | **1/01/08 0806** | **3/31/08 0818** | **1080 (Min.)** | **Twelve minute daily calibration for 90 operating days (12X90=1080 min** | **No Corrective Action Required** |
| | | | | | | | |

***Opacity time listed in minutes**

| **3i) Total Duration of Downtime:** | **1080 Min.** |
|---|---|

# Updated DRF-1 Reporting Form

**Duration of Excess Emissions:** Provide the following information regarding each individual excess emission identified by a monitor. Make a separate table for each monitor, as needed

| 4a) | 4b) | 4c) | 4d) | 4e) | 4f) | 4g) | 4h) | | 4i) | 4j) | 4k) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Emission Unit ID Number | Monitor ID Number | Pollutant or Parameter Monitored | Beginning Date and Time of EE | End Date and Time of EE | Limit and Averaging Period | Highest Reading of EE with Units (i.e. 5, Lb/Hr, Etc) | Duration of Exempt EE (include these entries as part of 4i) | | Total Duration of All EE | Cause of EE (clarifying comments) | Corrective Action Taken (Clarifying Comments) |
| EU020 | MR042 | Opacity | 1/1/08 0800 | 1/1/08 0859 | 20% 6 min avg | 44% | 60 Min. | | 60 Min. | Start-up | No Corrective Action Required |
| | | | 1/1/08 1800 | 1/1/08 1905 | | 32% | 66 Min. | | 66 Min. | Shutdown | No Corrective Action Required |
| | | | 1/3/08 0500 | 1/3/08 0529 | | 28% | 0 | | 30 Min. | Soot Blowing | No Corrective Action Required |
| | | | 1/8/08 1500 | 1/8/08 1759 | | 28% | 0 | | 180 Min. | Known Cause / Incorrect Fuel Burned | Fuel Mix Adjusted, Operator Education |
| | | | 1/15/08 1100 | 1/15/08 1359 | | 57% | 0 | | 120 Min. | Known Cause | ESP malfunction, total power increased |
| | | **4l) Cumulative Duration of Exempt Excess Emissions:** | | | | | 126 Min. | | 456 Min. | **4m) Cumulative Total Duration of All Excess Emissions** | |

# Updated DRF-1 Reporting Form

**Monitor Bypasses:** Provide the following information for each period in which an emission is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

| 5a) Monitor Id Number | 5b) Emission Unit Required to be Monitored | 5c) Pollutant and Limit Required to be Monitored | 5d) Beginning Date And Time Of Bypass Period | 5e) End Date and Time of Bypass Period | 5f) Duration of Monitor Bypass (Minutes) | 5g) Was P.C.E. Operating During Bypass Period? | 5h) Duration of Allowable Monitor Bypass | 5i) Reason for Monitor Bypass (clarifying comments) | 5j) Corrective Action Taken (clarifying comments) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | **5k) Total Duration of Allowable Monitor Bypass:** | | | | | | |

**6) CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature of Responsible Official

Printed Name of Responsible Official

Title

Date

**Please note:** The individual signing must meet the definition of "responsible official" in Minn. R. 7007.0100, subp. 21.

# Helpful Websites

- **Stack Test Website:**
  http://www.pca.state.mn.us/air/performancetest.html
- **Permits on the Web:**
  http://www.pca.state.mn.us/air/permits/issued/index.html
- **State CEMS/Performance Test Rules:**
  http://www.revisor.leg.state.mn.us/arule/7017/
- **Operating Rates Requirements:**
  http://www.revisor.leg.state.mn.us/arule/7017/2025.html
- **Pretest Deadlines and Requirements for a Test Plan:**
  http://www.revisor.leg.state.mn.us/arule/7017/2030.html

# Helpful Websites

- **Pretest Examples and Test Plan Checklist:**
  http://www.pca.state.mn.us/air/ptest-planning.html
- **Posttest Deadlines and Report Requirements:**
  http://www.revisor.leg.state.mn.us/arule/7017/2035.html
- **Test Report Forms and PTRCC Form:**
  http://www.pca.state.mn.us/air/ptest-forms.html
- **Test Methods and Performance Specifications:**
  http://epa.gov/ttn/emc/

Minnesota Pollution Control Agency

# MPCA Stack Test and Monitoring Program: Updates and Expectations

Questions & Further Discussion