Minnesota Pollution Control Agency

Performance Testing/CMS:

Developments, Requirements & Responsibilities

MPCA Speakers:

Curt Stock

Andy Place

Introduction

- Introductions:
  - Andy Place – Northern
  - Curt Stock – Metro

- New Staff
  - Sean O'Connor
  - Shanda Fisher
  - Assignments to be announced

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

Review Underlying Performance Testing/CMS Issues:

- ~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 needs to ensure that data is correct and valid
  - Several months to years to complete

Review Underlying Performance Testing/CMS Issues:

- Identifying Areas Needing Improvements:
  - Requirements distributed throughout permits
  - Not obvious to Stack Test Staff where testing requirements may be located in permit
- Need for Consistent Submittals:
  - Numerous Facility Types
  - Multiple Report Formats
  - Lacking data to accurately review submittals

Review Underlying Performance Testing/CMS Issues:

- Resolving those Areas Needing Improvements
  - Performance Testing Checklists
  - Developing Permit Guidance with Permit Writers
  - CMS Advisory Group
- As you may be aware, changes have already been implemented and vast improvements have been achieved. So …

Review Underlying Performance Testing/CMS Issues:

Thank You and Thumbs Up!!!!

Review Underlying Performance Testing/CMS Issues:

But,

There's still room for improvement.

Performance Testing: Permit to Stack Test Report

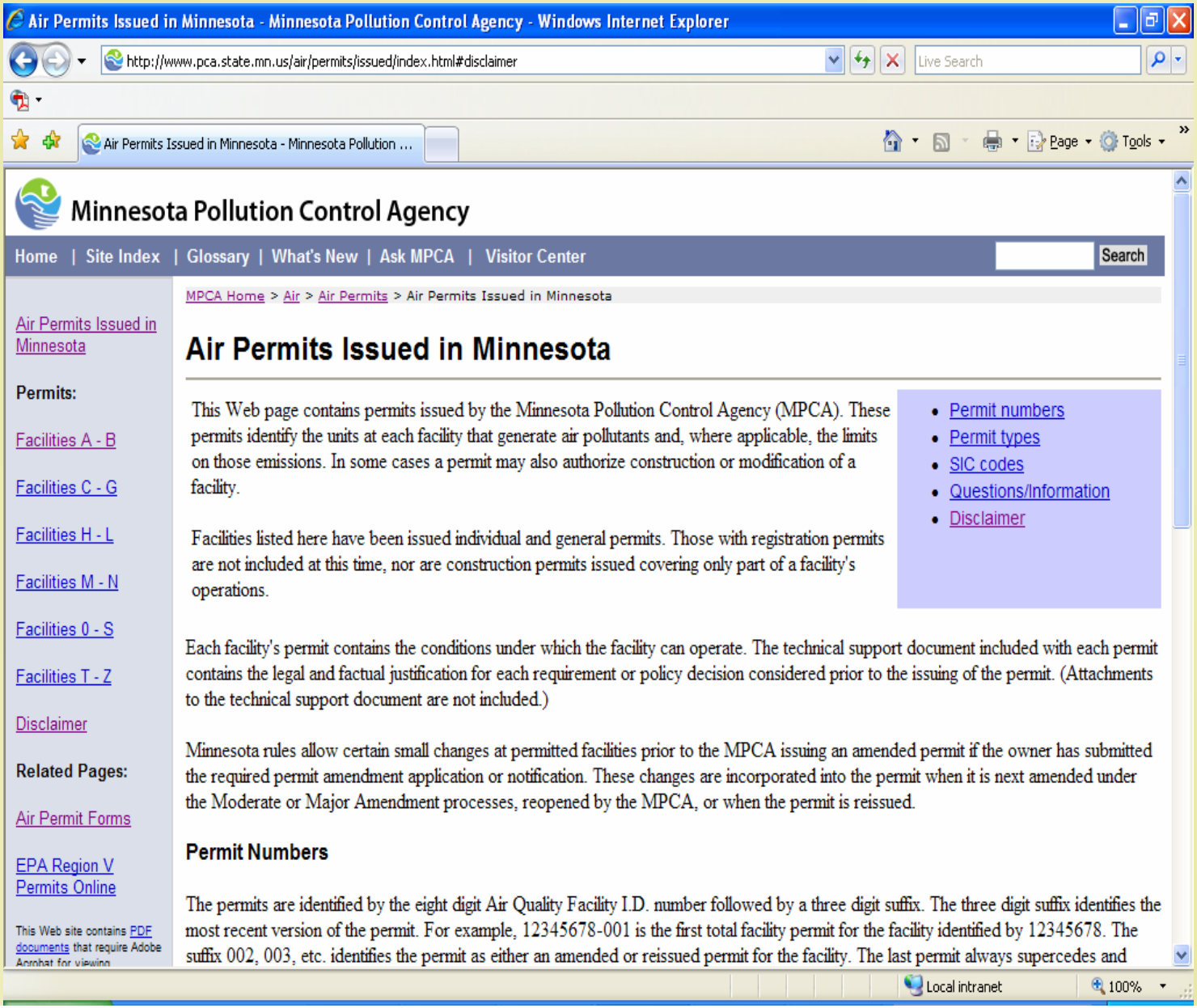
- Test Notification & Plan Submittal – 30 days prior to test
- Pre-Test Meeting – 7 days prior to test
- Test Plan Approval Letter
  - Emailed by MPCA after pretest meeting
- Test Day
- Test Report – 45 days after last day of test

- Federal Rules may set alternate requirements
- MPCA cannot change deadlines set by federal requirements

Developing the Test:

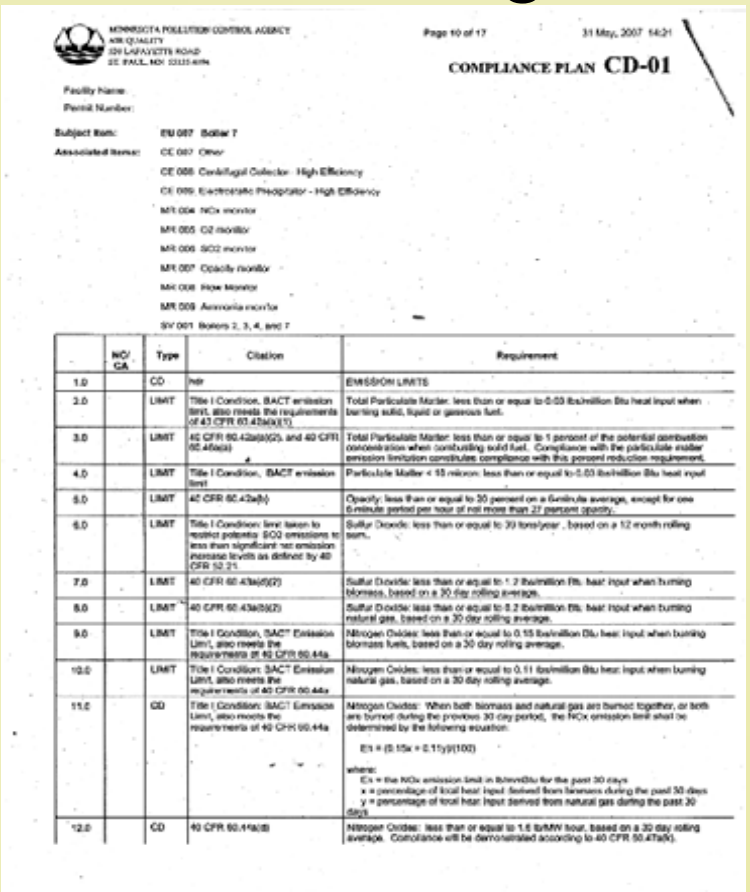
- Test Plan Development
  - Test Plan must be complete and easy to understand
  - Use all the correct information for the tested Unit with the limit as stated in the permit. This includes:
    - Designators (EU/SV/GP/CE)
    - Rule Citations
    - All appropriate limits
  - Where can you find the permit?
    - **http://www.pca.state.mn.us/air/permits/issued/index.html**

Developing the Test:



Developing the Test:

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:

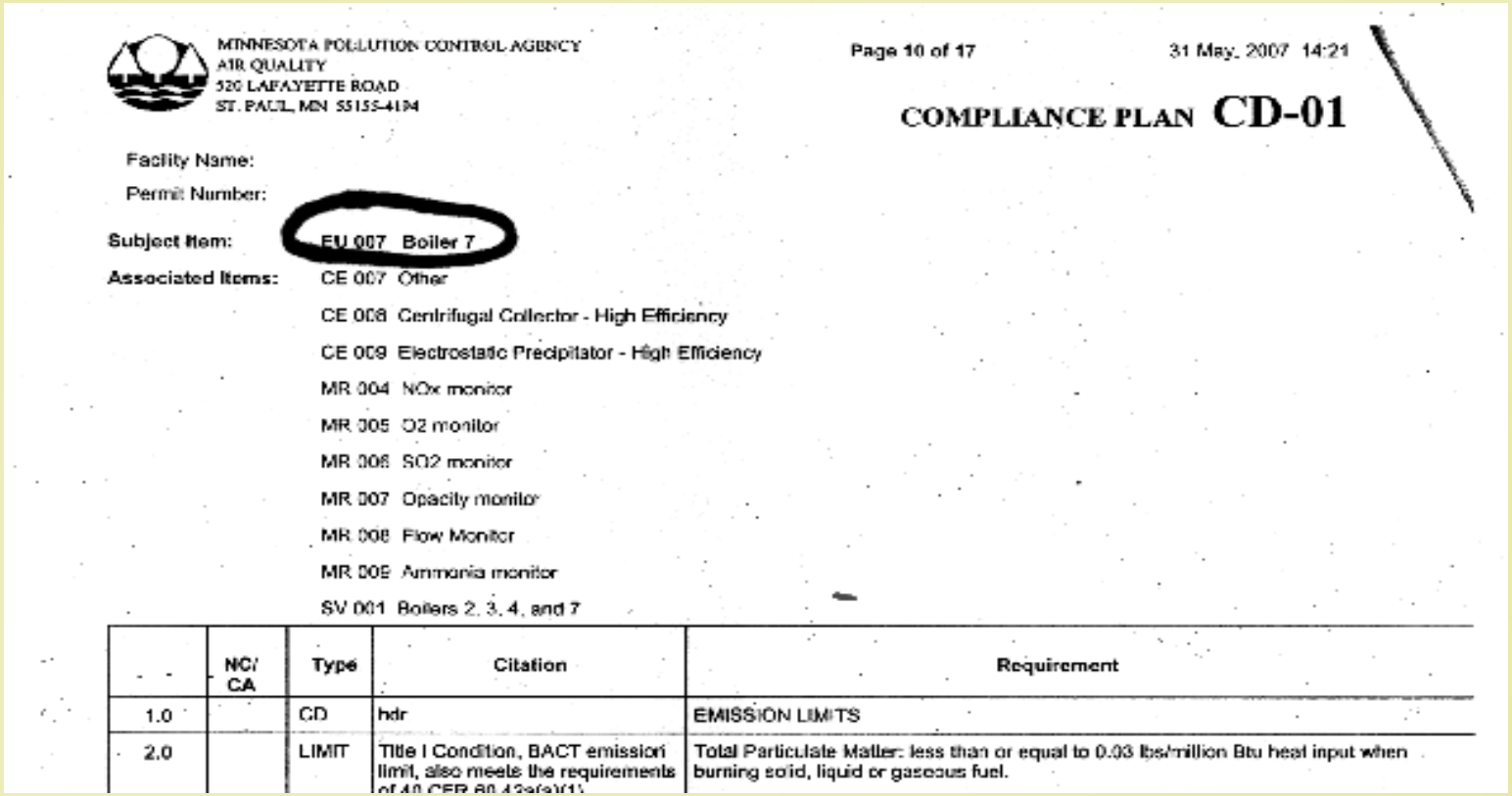
Subject Item: EU 007 Boiler 7

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/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 60.43Da(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 60.42Da(a)(2), and 40 CFR 60.45a(a)(i)	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(d)(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: E\ = (0.15x + 0.11y)/(100) where: E\ = the NOx emission limit in lb/mmBtu for the past 30 days x = percentage of total heat input derived from biomass during the past 30 days 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(k).

Developing the Test:

Tested Unit Designator



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/ 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.

Developing the Test:

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 restrict potential SO2 emissions to	Sulfur Dioxide: less than or equal to 39 tons/year , based on a 12 month rolling sum

Developing the Test:

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.

Developing the Test:

PM10 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 60.46a(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.

Developing the Test:

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..

Developing the Test:

- Test Plan Development
  - Test Plan Completeness Criteria (TPCC)
    - To be placed on Stack Test Website soon
  - Example Test Plans
    - http://www.pca.state.mn.us/air/ptest-planning.html

Developing the Test:

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

Developing the Test:

- General Information
  - Date of test plan origination/revision **(A)**
  - Proposed test dates **(B)**
  - Reason for testing **(C)**
  - Testing company and contact information **(D)**

Developing the Test:

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

Developing the Test:

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

Developing the Test:

Operating Conditions

- Description of process and air pollution control devices including emission units to be tested and operating conditions targeted for the test **(M)**

Developing the Test:

- Test Methods **(N)**
  - 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 methods other than US EPA reference methods you are requested to submit adequate documentation (i.e. QA/QC, MDL, expected pollutant concentration, etc.).

Pre-Test Meeting

- Approximately 1 week prior to test
- Pre-Test Meeting Checklist
  - http://www.pca.state.mn.us/air/ptest-planning.html
- Discuss the Test (operating rates, control equipment, deviations from test Methods, etc.)
- When testing, if problems are experienced or you deviate from the test plan, contact the MPCA to determine how to proceed.

Testing Responsibility

- The test must be representative of operating conditions at your facility

- 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.

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

- 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.

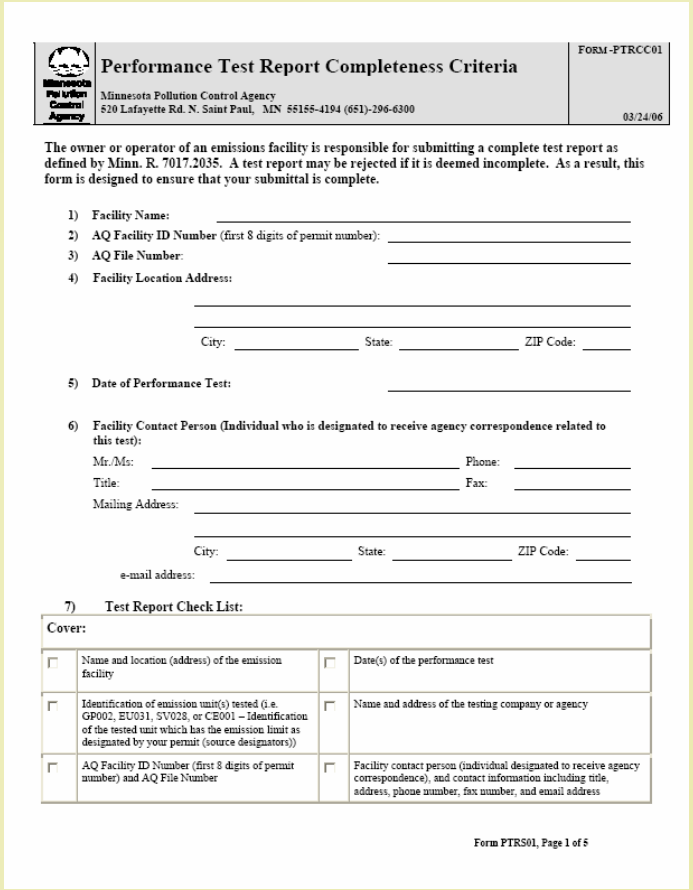
- If not, limit is set/reset based on rate experienced during test. The 10% leniency is not applied to CE.

Test Report

- Test reports due 45 days after test completion
- CD (preferred) or microfiche 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
  - How do I know what to include?

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

- PTRCC is a tool to ensure the Performance Test Report is complete and information is all 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
   - Facility ID Number (Permit Number)
   - AQD File Number
   - Unit Tested (EU000/SV000/GP000)
   - Test Date
   - Pollutant(s) Tested
   - Contact Information

   on cover or within first couple pages of Report and on the face of CD Copy

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

2. Use correct designator as used in permit such as EU000 for emission unit, SV000 for stack vent, GP000 for group, etc.

3. Include correct and full citation 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 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.

Bad

(See Handout)

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)
- **Baghouse, Cyclone, and Multi-clone:** ΔP (in. w.c.)
- **Catalytic Incinerator** :($°F_{in}$, $°F_{out}$) and Thermal Incinerator: ($°F_{temperature}$)
- **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

Note: This form provides only a summary of the operating conditions during the performance test. Additional and more detailed records are required to meet the requirements of Minn. R. 7017.2035, subp. 3. This form is to be submitted as part of the performance test report.

Good
(See Handout)

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)
- **Baghouse, Cyclone, and Multi-clone:** ΔP (in. w.c.)
- **Catalytic Incinerator** :($°F_{in}$,$°F_{out}$) and Thermal Incinerator: ($°F_{temperature}$)
- **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; gpm.-gallons per minute; in. w.c.-inches of water column; lbs.-pounds; psig-pressure per square inch gauge; ΔP- pressure drop

Note: This form provides only a summary of the operating conditions during the performance test. Additional and more detailed records are required to meet the requirements of Minn. R. 7017.2035, subp. 3. This form is to be submitted as part of the performance test report.

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

8. Include all calibration data for all thermocouple 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, if 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 is 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. Cannot be changed solely based on test results and submittal of new test frequency plan.

A Reminder Regarding 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?

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

Performance Testing/CMS:

Developments, Requirements & Responsibilities

Questions and Further Discussion