Minnesota Pollution Control Agency

# MPCA Stack Test and Monitoring Program: Asphalt and Aggregate Facilities

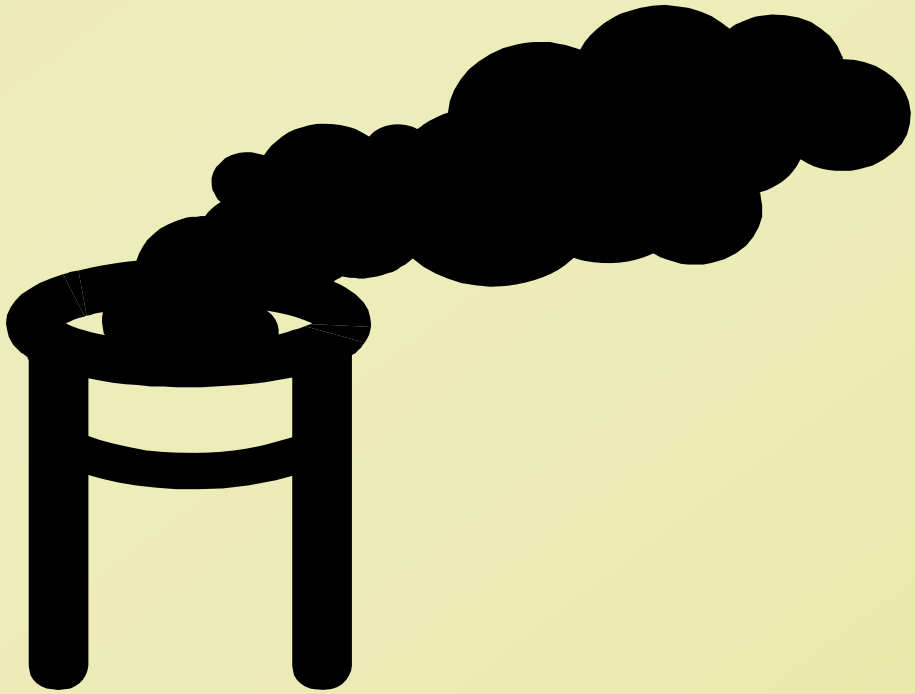
**MPCA Speakers:**

Shanda Fisher

Sean O'Connor

# 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
- Sean O'Connor – South, Non-Metallic
- Andy Place – North, Waste Combustors
- Curt Stock – Metro, Ethanol

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

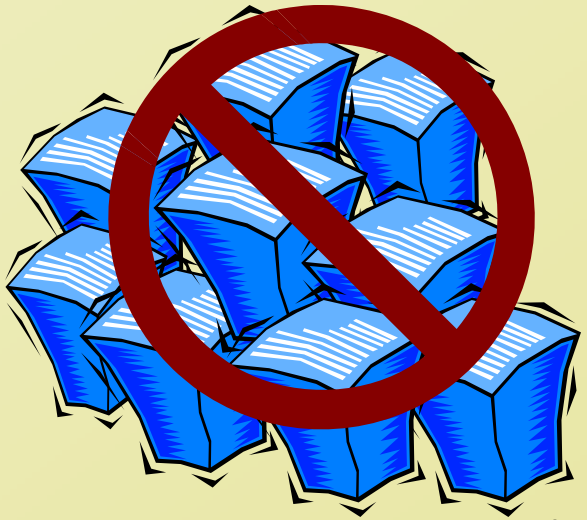
~1000 Submittals for the Team to review/year

# S.T.A.R.R.

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

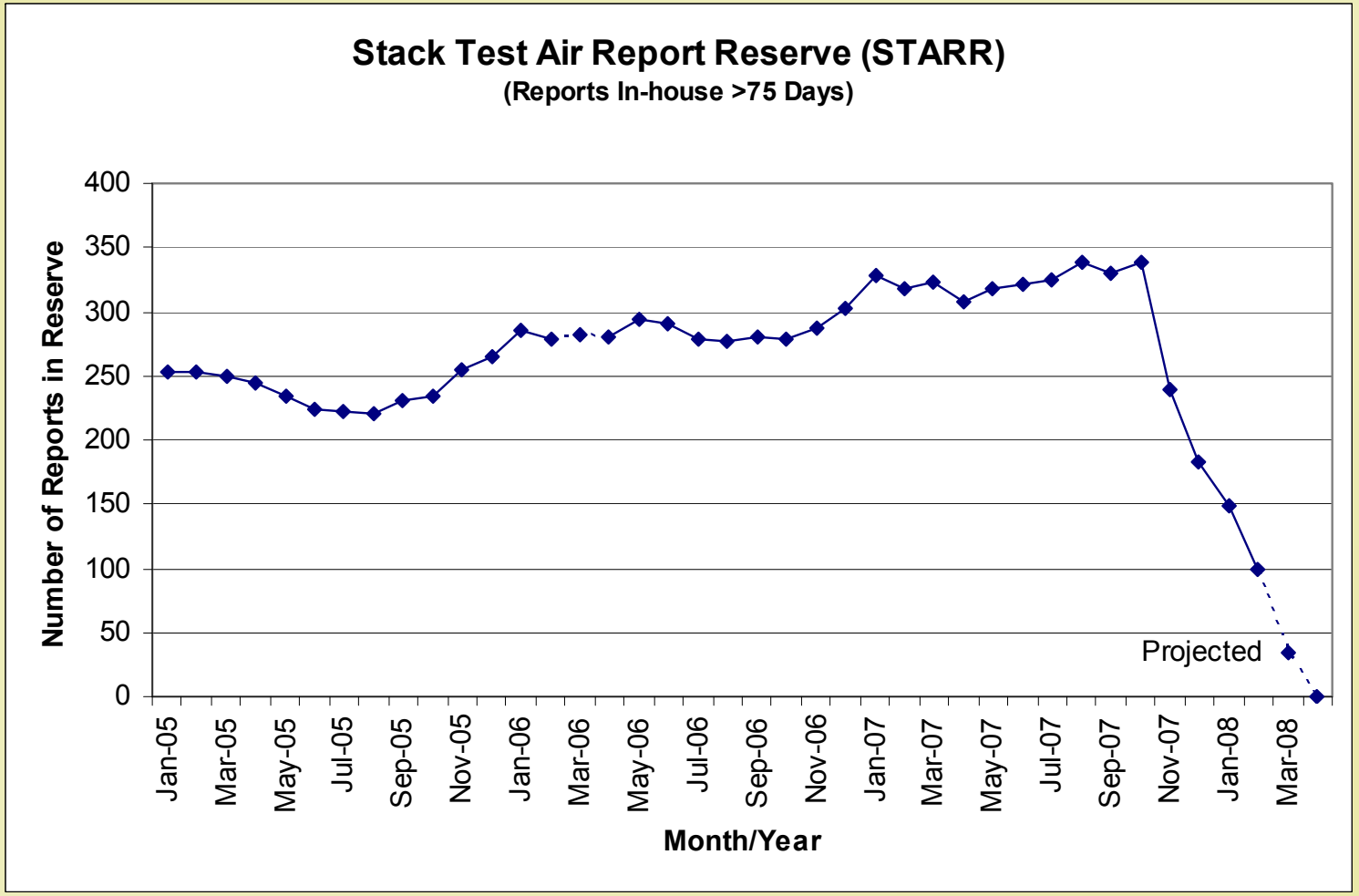
- **S.T.A.R.R. = reports "in house" > 75 days**
- **GOAL: to eliminate S.T.A.R.R. by March 31, 2008 and maintain zero S.T.A.R.R.**

**Reports "in house" < 75 days**



**Reports "in house" > 75 days**

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



# Performance Testing

- If you retain any Minnesota Air Permit, you are required to follow: Minn. R. 7017.2030 - Performance Test Pretest Requirements
- For S&G Equipment, if tested in another state and reviewed by the state regulatory agency. The tested equipment does not need to be retested in Minnesota.

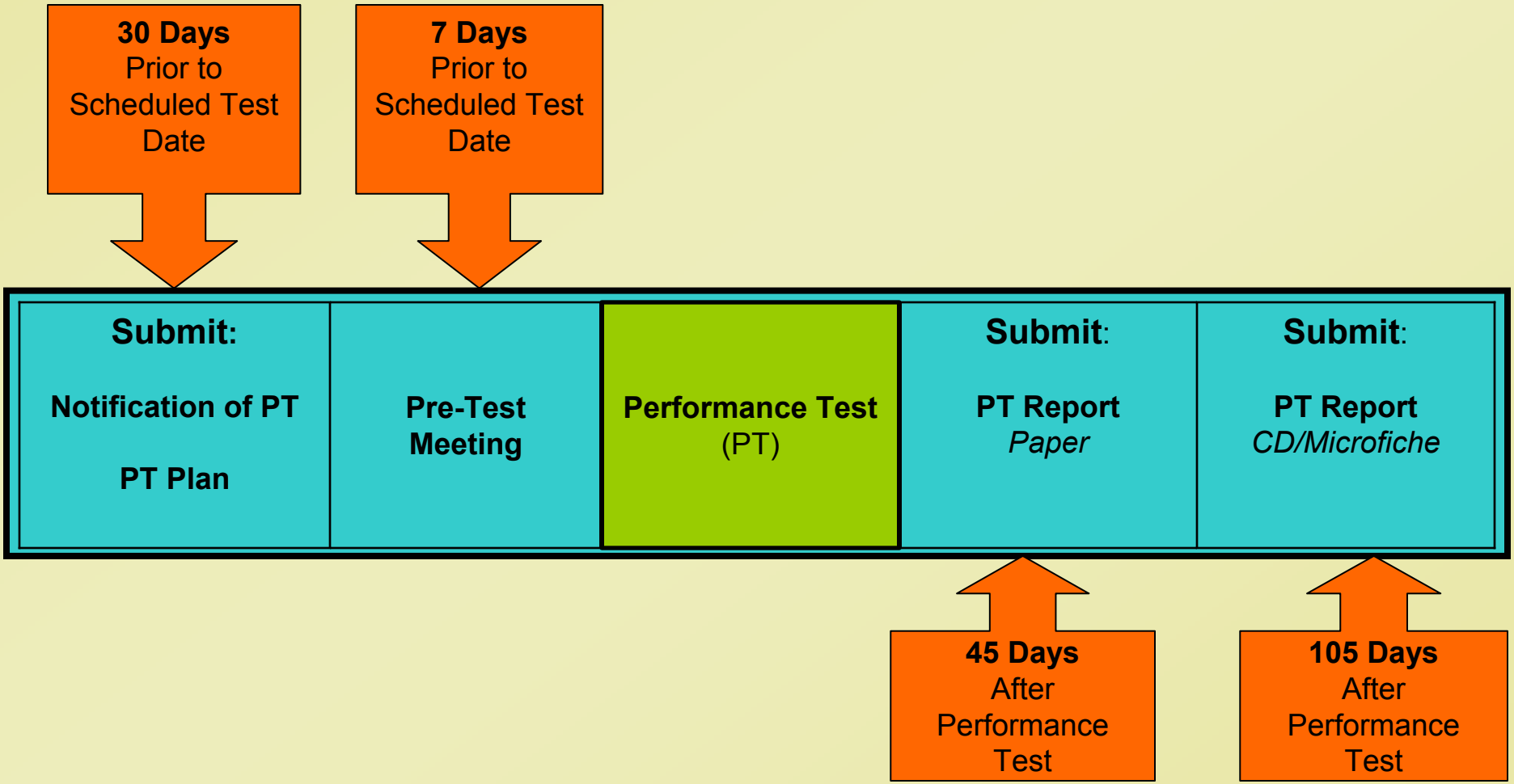
# Performance Testing

- **7017.2030 PERFORMANCE TEST PRETEST REQUIREMENTS.**
- Subpart 1. **Notification of testing.** Written notification of the planned test date shall be postmarked or received at least 30 days before the planned test date. The commissioner shall reject the results of a test if less than 30 days' notice was given unless written authorization of a shorter notice was given by the commissioner.
- Subp. 2. **Submittal and approval of test plan.** The owner or operator of the emission facility shall submit to the commissioner a test plan with or in advance of the test notification required under subpart 1 or in response to the commissioner's request for supplemental permit application information. If the proposed test plan does not contain sufficient or accurate enough detail to ensure that the performance test meets the requirements of the applicable requirement or compliance document, the commissioner shall ask for an updated test plan to be submitted or shall write a test plan in place of the submitted document.
- The commissioner shall give written approval of the test plan when the commissioner determines that it meets the requirements of parts 7017.2001 to 7017.2060. Written approval means any signed letter, note, or facsimile transmission which states that a given test plan may be used during a specific performance test. The commissioner shall reject the results of a performance test if it was conducted without written approval of the test plan or if no test plan was submitted.
- Subp. 3. **Format and content of test plan.** The test plan shall be submitted in the following format and include the following elements:
- A. Part I. General information:
- (1) name and address of emission facility;
- (2) name, title, telephone number, and facsimile number of contact person at emission facility;
- (3) permit number or name of other applicable compliance document;
- (4) reason for testing;
- (5) schematic drawing of stack and sample ports;
- (6) location of plant; and
- (7) name, contact person, telephone number, and facsimile number for testing company contracted to conduct the test.
- B. Part II. Testing requirements:
- (1) list of the emission units, as identified in the applicable requirement or compliance document, and pollutants to be tested, the emission limit for each pollutant, and the applicable rule or regulation for each emission limit; and
- (2) description of procedure for fuel sampling and analysis, where applicable.
- C. Part III. Operating conditions:
- (1) list of the process or operating rate and conditions of the process equipment and air pollution control equipment for the test;
- (2) explanation of why the proposed conditions are considered to be in accordance with part 7017.2025, subpart 2, for required testing conditions;
- (3) list of the range of process or operating rates for each emissions unit; and
- (4) description of how air pollution control and process equipment will be monitored.
- D. Part IV. Test methods:
- (1) list of the methods to be used to determine the emission rate of each pollutant;
- (2) number of test runs, length of test run, and sampling rate for each method;
- (3) reference to any applicable requirement or compliance document requiring use of specific methods or procedures;
- (4) summary of reasons for proposing to use any alternative or equivalent method; and
- (5) for test methods other than reference methods, statement of the detection limit and the degree of accuracy of that method at the expected emission rate and under the conditions of the performance test.
- Subp. 4. **Pretest meeting.** The owner or operator of the emission facility shall contact the supervisor of the compliance determination unit to schedule a pretest meeting to be held between authorized employees of the agency and the owner or operator of the emission facility, with optional representation by the testing company. The pretest meeting shall be held at least seven days prior to the performance test date except that a shorter period shall be allowed if the commissioner has approved a test notification of less than 30 days. If the commissioner determines that an in-person meeting is not necessary, the pretest meeting will be conducted by telephone conference call unless the owner or operator of the emission facility requests an in-person meeting.

# 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

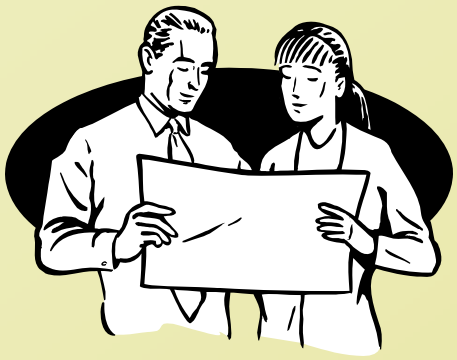


# Performance Testing

## Test Plan Development

# Performance Testing: Test Plan

- Test Plan Development
  - MPCA Website has resources to assist with plan development
    - Test Plan Completeness Criteria (TPCC)
    - Example Test Plans
    - http://www.pca.state.mn.us/air/ptest-planning.html
  - Test Plan must be complete and easy to understand
    - Requirements for content listed in 7017.2030 subp. 3



# Test Plan: Content

- General Information
  - Date of test plan origination/revision
  - Proposed test dates
  - Reason for testing
  - Testing company and contact information
    - include e-mail address
- 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: Content

- Emission units to be tested
  - EU 000, SV 000, CE 000 or unique number
- Pollutants to be tested
  - Opacity, Particulate Matter, etc
- Emission limits & citations of applicable regulations
  - Ex: 0.03 gr/dscf, Minn. R. 7011.0300
  - Where can you find your permit?
    - http://www.pca.state.mn.us/air/permits/issued/index.html
- Sampling Location Drawing
- Description of procedure for fuel sampling and analysis, when applicable

# Test Plan: Content

- Test Methods
  - List of test methods to be used
    - Method 9: Opacity, Method 5: Particulate Matter
- Proposed Operating Conditions
  - Emission Units & Control Equipment
    - EU001: 540 tph (max. design 600 tph)
      - Do not write boilerplate language like “90% of worst case conditions”
    - CE001: 4-6 inches of water column pressure drop
    - Explain justification for worst case conditions

# Performance Testing

## Pre-Test Meeting

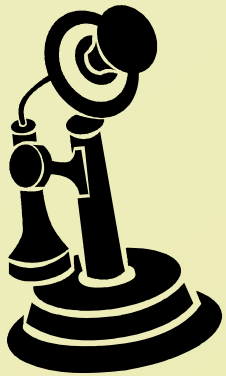
**Requirements and Expectations**

# 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 Testing: Testing Responsibility

- If during testing…….
  - problems are experienced
  - you deviate from the test plan
  - ???



**…..contact the MPCA to determine how to proceed**

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

# Performance Testing: 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

# Performance Testing

Submittals

# Submittals: Test Report

- Test reports due 45 days after test completion
- CD-ROM copy of test report due 105 days after test completion
  - Must be exact duplicate of test report including all required certification signatures
  - Submittal clock starts on the last day of testing
    - i.e. day one is the day after the last day of testing
- Submittals past deadline should be prearranged with MPCA

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

# 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.

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

# Air Performance Test Form

## Operating Data Summary for Asphalt Sources

| Test No. | Fuel input (gal/hr) | Heat content (Btu/gal-as received) | Heat input (Btu/hr) | % - 200 fines | % Moisture of virgin aggregate material |
|---|---|---|---|---|---|
| **Run 1** | | | | | |
| **Run 2** | | | | | |
| **Run 3** | | | | | |
| **Average** | | | | | |

| **Other control equipment parameters** | **Design** | **During testing** |
|---|---|---|
| Cleaning cycles *(fabric filter)* | | |
| Air to cloth ratios *(fabric filter)* | | |
| No. of spray bars and psi *(scrubber)* | | |
| No. of nozzles per spray bar *(scrubber)* | | |
| Water flow rate in gpm *(scrubber)* | | |
| **Describe the location of the thermocouples reading exiting dryer and mix temperature:** | | |
| | | |

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

# Air Performance Test Form

## Operating Data Summary for Asphalt Sources

| | Time in 15 minute intervals | Virgin (V) Material tph | Asphalt (A) Material tph | Total Throughput (V+A) tph | Temp. of Gases Exiting Dryer °F | Hot Mix Temp °F | Dust Collector ΔP inches w. c. | Water Flow Rate Gpm | Water Supply Pressure Psig |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **Average** | | | | | | | | | |

# Performance Testing

## Performance Test Review

# Performance Test Review: Operating Limits

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

# Performance Test Review: 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

# Asphalt: General Notes

- Operating limit
  - 7011.0922: "*the owner or operator of a hot mix asphalt plant shall not exceed the production throughput at which compliance…was demonstrated during the plant's most recent performance test*"
  - Dependent upon exhibited emission rate & control equipment, an increase in throughput may be granted (10%, 15%, or 20%)
- New vs. Existing Sources
  - Separate Emission Limits
  - 7011.0905: Existing Hot Mix Asphalt Plants
  - 7011.0909: New Hot Mix Asphalt Plants (40 CFR pt. 60,subp. I)
- #6 Fuel Oil & Sulfur Content
  - 0.70%

# 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

- **Pre-test Examples and Test Plan Checklist:**
  http://www.pca.state.mn.us/air/ptest-planning.html
- **Post-test 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:

Questions & Further Discussion

# Performance Testing

Additional Information

# 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?

# 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

# 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)
- **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; 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.

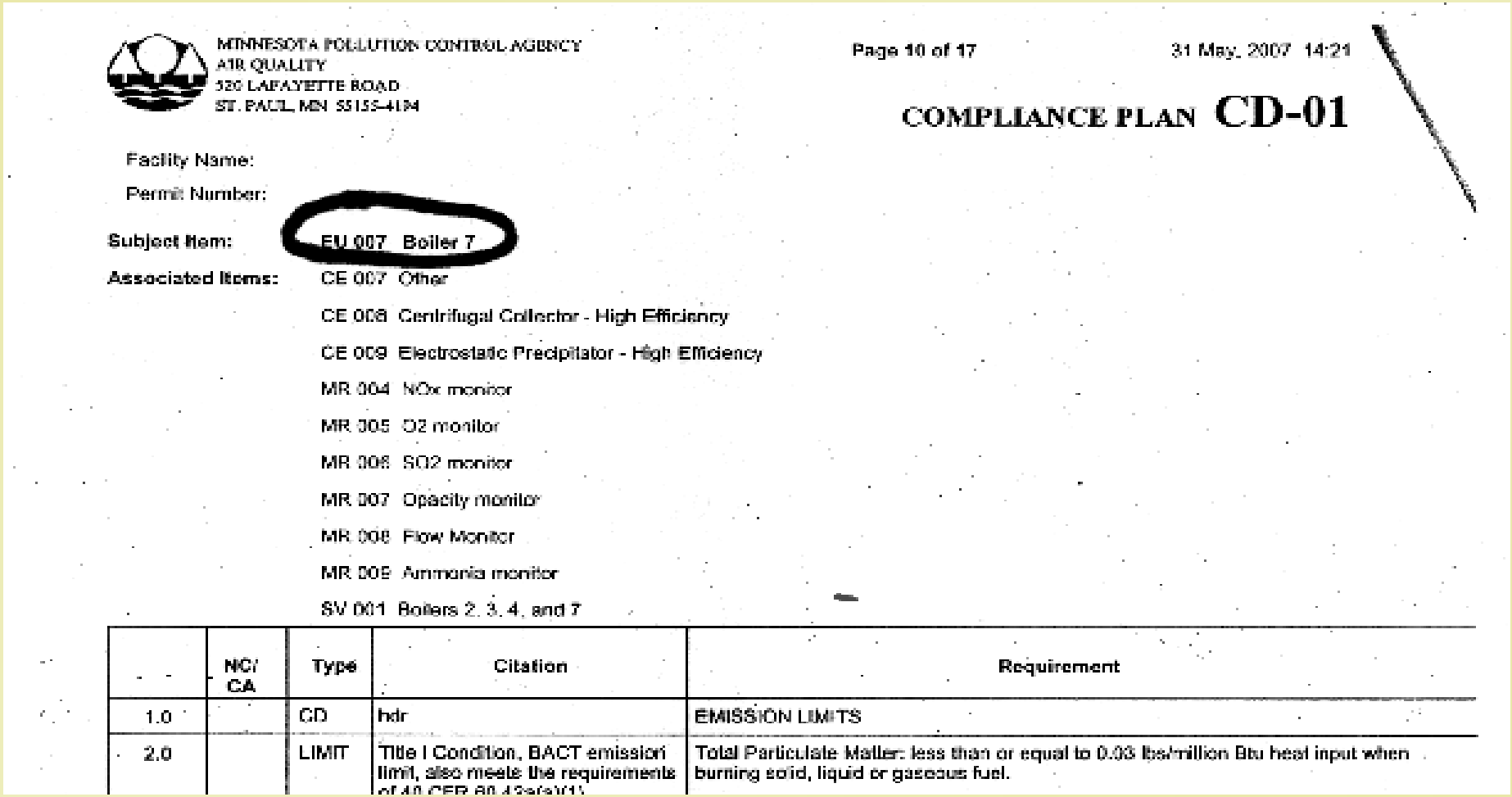
9. Provide all calculations necessary to account how raw test data was computed into test results

# 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

# Performance Testing: Test Plan

## 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. |

# Performance Testing: Test Plan

## Total Particulate Limit

| | NCI/ 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 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 |

# Performance Testing: 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 combuation 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. |

# Performance Test Review: General 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 |

# Sand&Gravel Plants – August 31, 1983

- **Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants**

- **Source:** 51 FR 31337, Aug. 1, 1985, unless otherwise noted.

**§ 60.670 Applicability and designation of affected facility.**

(a)(1) Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart.

(2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; and stand-alone screening operations at plants without crushers or grinding mills.

(b) An affected facility that is subject to the provisions of subpart F or I or that follows in the plant process any facility subject to the provisions of subparts F or I of this part is not subject to the provisions of this subpart.

(c) Facilities at the following plants are not subject to the provisions of this subpart:

(1) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 23 megagrams per hour (25 tons per hour) or less;

(2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 136 megagrams per hour (150 tons per hour) or less; and

(3) Common clay plants and pumice plants with capacities, as defined in §60.671, of 9 megagrams per hour (10 tons per hour) or less.

(d)(1) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in §60.671, having the same function as the existing facility, the new facility is exempt from the provisions of §§60.672, 60.674, and 60.675 except as provided for in paragraph (d)(3) of this section.

(2) An owner or operator complying with paragraph (d)(1) of this section shall submit the information required in §60.676(a).

(3) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (d)(1) of this section and must comply with the provisions of §§60.672, 60.674 and 60.675.

(e) An affected facility under paragraph (a) of this section that commences construction, reconstruction, or modification after August 31, 1983 is subject to the requirements of this part.

(f) Table 1 of this subpart specifies the provisions of subpart A of this part 60 that apply and those that do not apply to owners and operators of affected facilities subject to this subpart.

# Non-Metallic Performance Test Standards

- **Title 40: Protection of Environment**
  PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES
  Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants
- Browse Previous | Browse Next
- **§ 60.672 Standard for particulate matter.**
- (a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any stack emissions which:
- (1) Contain particulate matter in excess of 0.05 g/dscm (0.022 gr/dscf); and
- (2) Exhibit greater than 7 percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing control device. Facilities using a wet scrubber must comply with the reporting provisions of §60.676 (c), (d), and (e).
- (b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under §60.11 of this part, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 percent opacity, except as provided in paragraphs (c), (d), and (e) of this section.
- (c) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under §60.11 of this part, no owner or operator shall cause to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions which exhibit greater than 15 percent opacity.
- (d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.
- (e) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a), (b) and (c) of this section, or the building enclosing the affected facility or facilities must comply with the following emission limits:
- (1) No owner or operator shall cause to be discharged into the atmosphere from any building enclosing any transfer point on a conveyor belt or any other affected facility any visible fugitive emissions except emissions from a vent as defined in §60.671.
- (2) No owner or operator shall cause to be discharged into the atmosphere from any vent of any building enclosing any transfer point on a conveyor belt or any other affected facility emissions which exceed the stack emissions limits in paragraph (a) of this section.
- (f) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under §60.11 of this part, no owner or operator shall cause to be discharged into the atmosphere from any baghouse that controls emissions from only an individual, enclosed storage bin, stack emissions which exhibit greater than 7 percent opacity.
- (g) Owners or operators of multiple storage bins with combined stack emissions shall comply with the emission limits in paragraph (a)(1) and (a)(2) of this section.
- (h) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, no owner or operator shall cause to be discharged into the atmosphere any visible emissions from:
- (1) Wet screening operations and subsequent screening operations, bucket elevators, and belt conveyors that process saturated material in the production line up to the next crusher, grinding mill or storage bin.
- (2) Screening operations, bucket elevators, and belt conveyors in the production line downstream of wet mining operations, where such screening operations, bucket elevators, and belt conveyors process saturated materials up to the first crusher, grinding mill, or storage bin in the production line.

# HMA Plants – June 11, 1973

- **Subpart I—Standards of Performance for Hot Mix Asphalt Facilities**

**§ 60.90 Applicability and designation of affected facility.**

(a) The affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

(b) Any facility under paragraph (a) of this section that commences construction or modification after June 11, 1973, is subject to the requirements of this subpart.

[42 FR 37936, July 25, 1977, as amended at 51 FR 12325, Apr. 10, 1986]

**§ 60.91 Definitions.**

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) *Hot mix asphalt facility* means any facility, as described in §60.90, used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements.

[51 FR 12325, Apr. 10, 1986]

**§ 60.92 Standard for particulate matter.**

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf).

(2) Exhibit 20 percent opacity, or greater.

[39 FR 9314, Mar. 8, 1974, as amended at 40 FR 46259, Oct. 6, 1975]

**§ 60.93 Test methods and procedures.**

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the particulate matter standards in §60.92 as follows:

(1) Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).

(2) Method 9 and the procedures in §60.11 shall be used to determine opacity.

[54 FR 6667, Feb. 14, 1989]