

**AIR EMISSION PERMIT NO. 02700001- 006  
IS ISSUED TO**

**American Crystal Sugar Company**

**American Crystal Sugar - Moorhead**  
2500 North 11<sup>th</sup> Street  
Moorhead, Clay County, Minnesota 56560

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

<b>Permit Type</b>	<b>Application Date</b>
Total Facility Operating Permit	January 13, 1995 & October 20, 1995
Administrative Amendment	April 15, 1998
Major Amendment	February 9, 1999
Major Amendment	October 11, 1999
Administrative Amendment	March 31, 2000 & July 10, 2000

This permit authorizes the permittee to operate and modify the stationary source at the address listed above unless otherwise noted in Table A. The permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

**Permit Type:** Federal; Part 70/NSR Authorization  
**Issue Date:** June 27, 2001  
**Expiration:** March 10, 2003

All Title I Conditions do not expire.

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Rodney E. Massey, P.E.  
Director  
North/South District

for Karen A. Studders  
Commissioner  
Minnesota Pollution Control Agency

## **TABLE OF CONTENTS**

**Notice to the Permittee**

**Permit Shield**

**Facility Description**

**Table A: Limits and Other Requirements**

**Table B: Submittals**

**Appendices: Attached and Referenced in Table A**

**NOTICE TO THE PERMITTEE:**

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

**PERMIT SHIELD:**

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Certain requirements which have been determined not to apply are listed in Table A of this permit.

## **FACILITY DESCRIPTION:**

American Crystal Sugar Company owns and operates a sugar beet processing plant at 2500 North 11th Street, Moorhead, Clay County, Minnesota. In addition to this stationary source, the Company owns processing plants in both East Grand Forks and Crookston, Minnesota and also has a research center in Moorhead. The Moorhead plant consists of three coal-fired (subbituminous) boilers which produce process steam; two natural gas-fired pulp dryers; one pulp pellet cooler; pulp pellet handling, storage and loading equipment; one lime kiln (calciner); one lime slaker; one sugar dryer; one sugar cooler; ash removal systems and dry sugar storage, handling, and sacking equipment.

The Moorhead plant employs about 250 people and it operates from late August through May of each year, 24 hours per day. The plant will typically startup two to three days before starting to slice sugar beets and shutdown two to four days after beet slicing has stopped.

The Minnesota Pollution Control Agency (MPCA) issued the Title V permit for the Company's Moorhead facility on March 10, 1998. The MPCA issued a major amendment for the elimination of operating hour restrictions on the sugar dryer, sugar cooler and pellet cooler on May 13, 1999. An Environmental Assessment Worksheet (EAW) was required as a part of that permit application because the project was projected to result in a greater than 100 ton per year increase air emissions. An air emissions risk analysis (AERA) was also conducted as a part of the EAW process.

This permit concerns a number of unrelated changes to the previous permit. Some of the changes include corrections to errors found in the previous permit. One change concerns follow up addressing a modeling related issue with how sulfur dioxide emissions from the boilers are measured and compared to their limits. Another change concerns addressing the results of measurements of key fugitive emission parameters from roads that were made last fall at the facility. Increased watering for unpaved roads was proposed to offset the potential increase in particulate emissions that would otherwise have resulted from the use of these new parameters in emission calculations. A third change is the extension of the monitoring season for the ambient measurement of hydrogen sulfide. See the technical support document for this permit for a more complete description of the changes made to the permit.

The majority of these changes were Title I modifications, and as such required a major amendment. There is no change in air emissions associated with this permit amendment. In addition, there is no construction authorized with this amendment.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.**

**Subject Item: Total Facility**

What to do	Why to do it
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A and/or B.	Minn. R. ch. 7017
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued as required by this permit.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A and/or B, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.  At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.  At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

<p>Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description:</p> <ol style="list-style-type: none"> <li>1. the cause of the deviation;</li> <li>2. the exact dates of the period of the deviation, if the deviation has been corrected.</li> <li>3. whether or not the deviation has been corrected;</li> <li>4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and</li> <li>5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.</li> </ol>	<p>Minn. R. 7019.1000, subp. 1</p>
<p>Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.</p>	<p>Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)</p>
<p>Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.</p>	<p>Minn. R. 7011.0150</p>
<p>Application for Permit Amendment: If you need a permit amendment, submit application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.</p>	<p>Minn. R. 7007.1150 through Minn. R. 7007.1500</p>
<p>Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H)</p>	<p>Minn. R. 7007.1400, subp. 1(H)</p>
<p>Record keeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.</p>	<p>Minn. R. 7007.0800, subp. 5(B)</p>
<p>Record keeping: Retain all records required by this permit at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).</p>	<p>Minn. R. 7007.0800, subp. 5(C)</p>
<p>Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. R. 7030.0010 - 7030.0080</p>
<p>The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16</p>	<p>Minn. R. 7007.0800, subp. 16</p>
<p>Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.</p>	<p>Minn. R. 7007.0800, subp. 9(A)</p>
<p>Emissions Inventory Report: due 91 days after the end of each calendar year following permit issuance (April 1). To be submitted on a form approved by the Commissioner.</p>	<p>Minn. R. 7019.3000 through Minn. R. 7019.3010</p>
<p>Emission Fees: due 60 days after receipt of an MPCA bill.</p>	<p>Minn. R. 7002.0005 through Minn. R. 7002.0095</p>
<p>Parameters Used in Modeling: The stack heights, emission rates, and other parameters used in the modeling for this major PSD modification are listed in the Appendix of this permit. The Permittee must submit to the Commissioner for approval any revisions of these parameters and must wait for a written approval before making such changes. The information submitted must include, at a minimum, the locations, heights and diameters of the stacks, locations and dimensions of nearby buildings, the velocity and temperatures of the gases emitted, and the emission rates. The plume dispersion characteristics due to the revisions of the information must be equivalent to or better than the dispersion characteristics modeled in the application for this permit as approved in a memo from Margaret McCourtney to Trent Wickman, dated March 8, 1999. The Permittee shall demonstrate this equivalency in the proposal.</p>	<p>Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

<p>If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must remodel.</p> <p>For changes that do not involve an increase in an emission rate and that do not require a permit amendment, this proposal must be submitted as soon as practicable, but no less than 60 days before beginning actual construction of the stack or associated emission unit.</p> <p>For changes involving increases in emission rates and that require a minor permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before beginning actual construction of the stack or associated emission unit.</p> <p>For changes involving increases in emission rates and that require a permit amendment other than a minor amendment, the proposal must be submitted with the permit applicaiton.</p>	<p>Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000</p>
<p>Hydrogen Sulfide: less than or equal to 0.05 parts per million as a half hour average not to be exceeded more than twice per year in the ambient air around the facility. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. R. 7009.0080</p>
<p>Hydrogen Sulfide: less than or equal to 0.03 parts per million as a half hour average not to be exceeded more than twice in any five consecutive days in the ambient air around the facility. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. R. 7009.0080</p>
<p>Hydrogen Sulfide Ambient Monitoring: the Permittee shall continue to operate a hydrogen sulfide monitoring network in accordance with the plan approved by the MPCA to measure the ambient concentration of hydrogen sulfide during the warm weather months (April through October). The Permittee may make a written request to the North District Manager to cease operation of the network at any time. An analysis of the ambient H2S data collected to date shall accompany this request. This is a state only requirement and is not enforceable by the EPA Administrator citizens under the Clean Air Act.</p>	<p>Minn. R. 7007.0800, subp. 4</p>
<p>Re-modeling Protocol for Air Toxics: due within 4 years of May 13, 1999. This protocol will describe the proposed modeling methodology and input data, clearly identifying any changes from the original modeling protocol and air emissions risk analysis (AERA) dated March 4, 1999 and revised/supplemented on April 2, 1999, May 24, 1999, and May 2000. If no changes have been made, the protocol may consist solely of the statement "no changes have been made." This is a state only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>Re-modeling Air Toxics Study Results: due within 5 years of May 13, 1999. To be submitted after the MPCA has reviewed and approved the Re-modeling Protocol. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>Inapplicable Requirements: at the time of the issuance of this permit the Permittee did not contain any affected facilities under 40 CFR Section 60, subps: D, Db, Dc, Hh, or Kb. At the time of the issuance of this permit EU 001, EU 002, and EU 003 are existing facilities with respect to 40 CFR Section 60, subp Db. The Permittee is not subject to 40 CFR Section 61.</p>	<p>40 CFR Section 60; 40 CFR Section 61</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** GP 001 Boilers #1, #2, and #3

**Associated Items:** EU 001 Boiler #1, North

EU 002 Boiler #2, Center

EU 003 Boiler #3, South

What to do	Why to do it
Fuel Limitation (Used Oil and Used Oil Sorbents): less than 1,250 gallons per month of on-site generated used oil/used oil sorbents based on a 12-month rolling average calculated by the 15th day of each month for the previous month. This is a state only requirement and is not enforceable by the EPA Administrator citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2
Fuel Limitation Recordkeeping: The Permittee shall maintain records of the amount of used oil and used oil sorbents combusted in the boilers every month and generate and maintain on-site a 12-month rolling sum of this usage. This is a state only requirement and is not enforceable by the EPA Administrator citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 5



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item: GP 003 Sugar Silos**

- Associated Items:** EU 016 Sugar Silo Dust Control System (8 identical)  
 EU 017 Sugar Silo Dust Control System (8 identical)  
 EU 018 Sugar Silo Dust Control System (8 identical)  
 EU 019 Sugar Silo Dust Control System (8 identical)  
 EU 020 Sugar Silo Dust Control System (8 identical)  
 EU 021 Sugar Silo Dust Control System (8 identical)  
 EU 022 Sugar Silo Dust Control System (8 identical)  
 EU 023 Sugar Silo Dust Control System (8 identical)

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.02 grains/dry standard cubic foot	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000; also meets Minn. R. 7011.0715, subp. 1(A)
Only two silos may be operated at one time.	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Recordkeeping: once each day record the number of silos operating	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 4
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the presence or absence of visible emissions from each baghouse once each day while in operation. If visible emissions are observed, the Permittee shall take corrective action as soon as possible and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subp. 5
Performance Test: due before 09/30/2003 and every 36 months thereafter to measure particulate matter and particulate matter less than 10 microns from one representative sugar silo dust control system. A previously untested system shall be selected for each performance test until all systems have been tested. The tests shall be conducted at an interval of 36 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item: GP 005 Material Handling Performance Tests****Associated Items:** SV 014 Packaging Dust Control #1

SV 015 Packaging Dust Control #2

<b>What to do</b>	<b>Why to do it</b>
Performance Test: due before 09/30/2005 and every 60 months thereafter to measure particulate matter and particulate matter less than 10 microns from EU 013 (SV 014) and EU 014 (SV 015). The tests shall be conducted at an interval of 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item: GP 006 Material Handling Source Requirements**

**Associated Items:** SV 012 Pellet Convey System/Pulp Pellet Area Dust Control

SV 013 Packaging Vacuum

SV 014 Packaging Dust Control #1

SV 015 Packaging Dust Control #2

SV 016 Packaging Dust Control #3

SV 025 Sugar Storage Conveyor

SV 026 Weibull Bin Dust Control

SV 029 Starch Bin Receiving

SV 030 Sugar Reclaim (Azo) System

SV 031 Bag Clipping Collection

SV 032 Brown Sugar Batching Convey

SV 033 Powdered Sugar Reclaim

SV 034 Bag-in-Box Conveyor

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.02 grains/dry standard cubic foot (this limit applies individually to each emission unit listed above under Associated Items).	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot (this limit applies individually to each emission unit listed above under Associated Items).	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000; also meets Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity (this limit applies individually to each emission unit listed above under Associated Items).	Minn. R. 7011.0715, subp. 1(B)
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the presence or absence of visible emissions from each baghouse once each day while in operation. If visible emissions are observed, the Permittee shall take corrective action as soon as possible and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subp. 5

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 001 Boiler #1, North

**Associated Items:** CE 001 Electrostatic Precipitator - High Efficiency

GP 001 Boilers #1, #2, and #3

SV 001 Boiler #1

What to do	Why to do it
EMISSION AND OPERATIONAL LIMITS	hdr
Particulate Matter < 10 micron: less than or equal to 15.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 15.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0510, subp. 2
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight (0.93 lb/MMBTU) for subbituminous coal as received. The long term emission rate of 0.93 lb/MMBTU is equivalent to a short-term (1- to 3-hour) emission rate of 1.23 lb/MMBTU, based on the coal sulfur analysis methodology contained in this permit.	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 1.0 lbs/million Btu heat input	Minn. R. 7007.0800, subp. 2; meets the requirements of Minn. R. 7011.0510, subp. 1
Fuels Allowed: subbituminous coal, on-site generated used oil, and used oil sorbents.	Minn. R. 7007.0800, subp. 2
MONITORING, RECORDKEEPING AND TESTING	hdr
Boiler Pollution Control Equipment Requirement: The Permittee shall operate the electrostatic precipitator (CE001) on EU 001 with no less than the number of fields online as during the most recent performance test that has shown compliance with the particulate matter limits listed above.	Minn. R. 7007.0800, subp. 14
Boiler Pollution Control Equipment Monitoring/Recordkeeping: The Permittee shall record the number of fields online in the electrostatic precipitator for EU 001, once each day while in operation. If the number of fields observed to be online is less than the number during the last performance test that demonstrated compliance, take corrective action and record the action taken.	Minn. R. 7007.0800, subp. 5
Fuel Sulfur Content: Determine the sulfur content of each delivery of coal by either of the following methods:  1) obtain from the fuel supplier, for each shipment of fuel delivered, a signed certification of the sulfur content of the fuel, or  2) according to the current American Society of Testing and Materials (ASTM) sampling and analysis methods.  With either method, the weight represented by each sulfur content analysis shall be less than or equal to five train cars. Maintain these records for a minimum of five years from the date the information was obtained.	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 5
Performance Test: due before 01/04/2004 and every 60 months thereafter to measure particulate matter, particulate matter < 10 micron and sulfur dioxide emissions. Tests shall be conducted at intervals of 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 002 Boiler #2, Center

**Associated Items:** CE 002 Electrostatic Precipitator - High Efficiency

GP 001 Boilers #1, #2, and #3

SV 002 Boiler #2

What to do	Why to do it
EMISSION AND OPERATIONAL LIMITS	hdr
Particulate Matter < 10 micron: less than or equal to 15.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 15.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0510, subp. 2
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight (0.93 lb/MMBTU) for subbituminous coal as received. The long term emission rate of 0.93 lb/MMBTU is equivalent to a short-term (1- to 3-hour) emission rate of 1.23 lb/MMBTU, based on the coal sulfur analysis methodology contained in this permit.	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 1.0 lbs/million Btu heat input	Minn. R. 7007.0800, subp. 2; meets the requirements of Minn. R. 7011.0510, subp. 1
Fuels Allowed: subbituminous coal, on-site generated used oil, and used oil sorbents.	Minn. R. 7007.0800, subp. 2
MONITORING, RECORDKEEPING AND TESTING	hdr
Boiler Pollution Control Equipment Requirement: The Permittee shall operate the electrostatic precipitator (CE002) on EU 002 with no less than the number of fields online as during the most recent performance test that has shown compliance with the particulate matter limits listed above.	Minn. R. 7007.0800, subp. 14
Boiler Pollution Control Equipment Monitoring/Recordkeeping: The Permittee shall record the number of fields online in the electrostatic precipitator for EU 002, once each day while in operation. If the number of fields observed to be online is less than the number during the last performance test that demonstrated compliance, take corrective action and record the action taken.	Minn. R. 7007.0800, subp. 5
Fuel Sulfur Content: Determine the sulfur content of each delivery of coal by either of the following methods:  1) obtain from the fuel supplier for each shipment of fuel delivered, a signed certification of the sulfur content of the fuel, or  2) according to the current American Society of Testing and Materials (ASTM) sampling and analysis methods.  With either method, the weight represented by each sulfur content analysis shall be less than or equal to five train cars. Maintain these records for a minimum of five years from the date the information was obtained.	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 5
Performance Test: due before 01/04/2004 and every 60 months thereafter to measure particulate matter, particulate matter < 10 micron and sulfur dioxide emissions. Tests shall be conducted at intervals of 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 003 Boiler #3, South

**Associated Items:** CE 003 Electrostatic Precipitator - High Efficiency

GP 001 Boilers #1, #2, and #3

SV 003 Boiler #3

What to do	Why to do it
EMISSION AND OPERATIONAL LIMITS	hdr
Particulate Matter < 10 micron: less than or equal to 15.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 15.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0510, subp. 2
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight (0.93 lb/MMBTU) for subbituminous coal as received. The long term emission rate of 0.93 lb/MMBTU is equivalent to a short-term (1- to 3-hour) emission rate of 1.23 lb/MMBTU, based on the coal sulfur analysis methodology contained in this permit.	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 1.0 lbs/million Btu heat input	Minn. R. 7007.0800, subp. 2; meets the requirements of Minn. R. 7011.0510, subp. 1
Fuels Allowed: subbituminous coal, on-site generated used oil, and used oil sorbents.	Minn. R. 7007.0800, subp. 2
Steam Flow: less than or equal to 109000 lbs/hour using 8-hour Block Average unless a new maximum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average steam flow recorded during the most recent MCPA approved performance test where compliance was demonstrated. If the 8-hour block average rises above the maximum steam flow, this shall be reported as a deviation. Divide the total weight by the total operating time in each eight-hour block. Down time of 15 or more minutes is not to be included as operating time.	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7017.2025, subp. 3
MONITORING, RECORDKEEPING AND TESTING	hdr
Boiler Pollution Control Equipment Requirement: The Permittee shall operate the electrostatic precipitator (CE003) on EU 003 with no less than the number of fields online as during the most recent performance test that has shown compliance with the particulate matter limits listed above.	Minn. R. 7007.0800, subp. 14
Boiler Pollution Control Equipment Monitoring/Recordkeeping: The Permittee shall record the number of fields online in the electrostatic precipitator for EU 003, once each day while in operation. If the number of fields observed to be online is less than the number during the last performance test that demonstrated compliance, take corrective action and record the action taken.	Minn. R. 7007.0800, subp. 5
Fuel Sulfur Content: Determine the sulfur content of each delivery of coal by either of the following methods:  1) obtain from the fuel supplier for each shipment of fuel delivered, a signed certification of the sulfur content of the fuel, or  2) according to the current American Society of Testing and Materials (ASTM) sampling and analysis methods.  With either method, the weight represented by each sulfur content analysis shall be less than or equal to five train cars. Maintain these records for a minimum of five years from the date the information was obtained.	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 5
Performance Test: due before 12/31/2004 and every 60 months thereafter to measure particulate matter, particulate matter < 10 micron and sulfur dioxide emissions. Tests shall be conducted at intervals of 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 004 Vertical Lime kiln

**Associated Items:** CE 004 Centrifugal Collector - High Efficiency

CE 005 Other

SV 004 Vertical Lime Kiln

SV 005 Carbonation Process Vent

What to do	Why to do it
EMISSION AND OPERATIONAL LIMITS	hdr
Particulate Matter < 10 micron: less than or equal to 5.0 lbs/hour during normal operation	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 5.0 lbs/hour during normal operation	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 15.0 lbs/hour during bypass	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 15.0 lbs/hour during bypass	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 2.51 lbs/hour during normal operation	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 45 lbs/hour during bypass	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0610, subp. 1(A)(2)
Sulfur Dioxide: less than or equal to 4.0 lbs/million Btu heat input	Minn. R. 7011.0610, subp. 2(B)
Sulfur Content of Fuel: less than or equal to 0.9 percent by weight for coke as received.	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Fuels Allowed: industrial oven coke as the main fuel source and propane and wood as fuels for initiating combustion of the coke.	Minn. R. 7007.0800, subp. 2
Process Throughput: less than or equal to 26,000 lbs/hour using 8-hour Block Average of lime rock, unless a new maximum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average lime rock throughput recorded during the most recent MCPA approved performance test where compliance was demonstrated. If the 8-hour block average rises above the maximum lime rock throughput, this shall be reported as a deviation. Divide the total weight by the total operating time in each eight-hour block. Down time of 15 or more minutes is not to be included as operating time.	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7017.2025, subp. 3
MONITORING, RECORDKEEPING AND TESTING	hdr
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column across the cyclones	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the pressure drop across the dual cyclone system once each day while in operation.	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 5; and Minn. R. 7007.0800, subp. 14
Fuel Sulfur Content: Determine the sulfur content of each delivery of coke by either of the following methods:  1) obtain from the fuel supplier for each shipment of fuel delivered, a signed certification of the sulfur content of the fuel, or  2) according to the current American Society of Testing and Materials (ASTM) sampling and analysis methods.  With either method, the weight represented by each sulfur content analysis shall be less than or equal to one train car. Maintain these records for a minimum of five years from the date the information was obtained.	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 5
Performance Test: due before 12/31/2004 and every 60 months thereafter to measure particulate matter, particulate matter < 10 micron and sulfur dioxide emissions. Tests shall be conducted at intervals of 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 006 South Pulp Dryer

**Associated Items:** CE 007 Multiple Cyclone w/Fly Ash Reinjection-Common w/Coal Boilers

CE 008 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 007 South Pulp Dryer

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 20 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 20 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0610, subp. 1(A)(2)
Fuels Allowed: natural gas only.	Minn. R. 7007.0800, subp. 2
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 8 inches of water column across the multiclone	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column across the baghouse	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the pressure drops across the multiclone and the fabric filter baghouse once each day while in operation. If any of the pressure drops are found to be outside the ranges in the permit, the Permittee shall take corrective action as soon as possible to restore the parameter within the proper range and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, and Minn. R. 7007.0800, subp. 5
Performance Test: due before 04/06/2002 and every 36 months thereafter to measure particulate matter and particulate matter < 10 micron emissions. The tests shall be conducted at an interval of 36 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 007 North Pulp Dryer

**Associated Items:** CE 009 Multiple Cyclone w/Fly Ash Reinjection-Common w/Coal Boilers

CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 008 North Pulp Dryer

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 20 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 20 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0610, subp. 1(A)(2)
Fuels Allowed: natural gas only.	Minn. R. 7007.0800, subp. 2
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 8 inches of water column across the multiclone	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column across the baghouse	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the pressure drops across the multiclone and the fabric filter baghouse once each day while in operation. If any of the pressure drops are found to be outside the ranges in the permit, the Permittee shall take corrective action as soon as possible to restore the parameter within the proper range and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, and Minn. R. 7007.0800, subp. 5
Performance Test: due before 12/18/2001 and every 60 months thereafter to measure particulate matter and particulate matter < 10 micron emissions. The tests shall be conducted at an interval of 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 008 Pulp Pellet Cooler**Associated Items:** CE 011 Centrifugal Collector - High Efficiency

SV 009 Pulp Pellet Cooler

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 2.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 2.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 6 inches of water column across the cyclone	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the pressure drops across the cyclone once each day while in operation. If the pressure drop is found to be outside the range in the permit, the Permittee shall take corrective action as soon as possible to restore the parameter within the proper range and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, and Minn. R. 7007.0800, subp. 5
Performance Test: due before 12/18/2002 and every 36 months thereafter to measure particulate matter and particulate matter < 10 micron emissions. The tests shall be conducted at an interval of 36 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 010 Sugar Dryer

**Associated Items:** CE 012 Dynamic Separator (Wet)

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 1.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 1.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Pressure Drop: greater than or equal to 0.5 inches of water column and less than or equal to 8 inches of water column across the baghouse	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the pressure drops across the baghouse once each day while in operation. If the pressure drop is found to be outside the range in the permit, the Permittee shall take corrective action as soon as possible to restore the parameter within the proper range and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, and Minn. R. 7007.0800, subp. 5
Performance Test: due before 03/15/2005 and every 60 months thereafter to measure particulate matter and particulate matter < 10 microns emissions. The tests shall be conducted at an interval of 60 months between test dates.	Title I Condition: to remain a non-major modification under 40 CFR Section 52.21
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 011 Sugar Cooler

**Associated Items:** CE 013 Dynamic Separator (Wet)

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 1.0 lbs/hour	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 1.0 lbs/hour	Minn. R. 7007.0800, subp. 2
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Pressure Drop: greater than or equal to 0.5 inches of water column and less than or equal to 8 inches of water column across the baghouse	Minn. R. 7007.0800, subp. 2, and Minn. R. 7007.0800, subp. 4
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the pressure drops across the baghouse once each day while in operation. If the pressure drop is found to be outside the range in the permit, the Permittee shall take corrective action as soon as possible to restore the parameter within the proper range and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, and Minn. R. 7007.0800, subp. 5
Performance Test: due before 03/15/2005 and every 60 months thereafter to measure particulate matter and particulate matter < 10 microns emissions	Title I Condition: to remain a non-major modification under 40 CFR Section 52.21
Performance Test Notification (Written): due 30 days before each performance test	Minn. R. 7017.2030, subp. 1
Performance Test Plan: due 30 days before each performance test	Minn. R. 7017.2030, subp. 2 and 3
Performance Test Pretest Meeting: due 7 days before each performance test	Minn. R. 7017.2030, subp. 4
Performance Test Report: due 45 days after each performance test	Minn. R. 7017.2035, subp. 1
Performance Test Report - Microfiche Copy: due 105 days after each performance test	Minn. R. 7017.2035, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 029 Emergency Electrical Generator Set**Associated Items:** SV 035 Emergency Electrical Generator

<b>What to do</b>	<b>Why to do it</b>
Fuels Allowed: distillate fuel oil only.	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Recordkeeping: retain on site for each shipment of fuel oil received that is subsequently combusted in the generator fuel supplier certification that indicates the grade of the fuel oil and the sulfur content.	Minn. R. 7007.0800, subp. 5

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 030 Ground Flare**Associated Items:** SV 036 Ground Flare

<b>What to do</b>	<b>Why to do it</b>
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0110

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item:** EU 031 Pulp Pellet Area Dust Control System

**Associated Items:** CE 031 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

GP 002 Insignificant Materials Handling Sources

SV 037 Pulp Pellet Loadout

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.69 lbs/hour	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.69 lbs/hour	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0715, subp. 1(A)
The Permittee shall clean up commodities spilled on the driveway and other facility property as required to minimize fugitive emissions to a level consistent with RACT (reasonably available control technology).	Minn. R. 7011.1005, subp. 1(A)
Opacity: less than or equal to 10 percent opacity for fugitive emissions from truck loading at EU 031.	Minn. R. 7011.1005, subp. 3(B)
Opacity: less than or equal to 10 percent opacity for emissions vented through SV 037.	Minn. R. 7011.1005, subp. 3(D)
Total Particulate Matter: greater than or equal to 80 percent collection efficiency	Minn. R. 7011.1005, subp. 3(E)
Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the presence or absence of visible emissions from each baghouse once each day while in operation. If visible emissions are observed, the Permittee shall take corrective action as soon as possible and make a record of the corrective action taken.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subp. 5



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item: FS 002 Vehicle Traffic on Paved Roads**

<b>What to do</b>	<b>Why to do it</b>
Control Operations: greater than or equal to 7 per day during the beet delivery period (about September 1 through October 31). Control operations include vacuum sweeping, water flushing, or broom sweeping and flushing.	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Recordkeeping: once per day during the period September 1 through October 31 record the total number of control operations	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 5; Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

**Subject Item: FS 006 Vehicle Traffic on Unpaved Roads**

<b>What to do</b>	<b>Why to do it</b>
Watering Operations: greater than or equal to 1 per day during non-freezing weather. Watering is not necessary during days that measurable rain (0.01 inch) is received.	Title I Condition: 40 CFR Section 52.21(k), Minn. R. 7007.3000
Recordkeeping: once per day record the total number of watering operations	Minn. R. 7007.0800, subp. 4; Minn. R. 7007.0800, subp. 5; Minn. R. 7007.0800, subp. 14

**TABLE B: SUBMITTALS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead  
Permit Number: 02700001 - 006

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor  
Permit Section  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor  
Compliance Determination Unit  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak  
Air and Radiation Branch  
EPA Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency  
Clean Air Markets Division  
1200 Pennsylvania Avenue NW (6204N)  
Washington, D.C. 20460

**TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility

**TABLE B: RECURRENT SUBMITTALS**

06/27/01

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 006

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance . The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	Total Facility
Compliance Certification	due 30 days after end of each calendar year starting 03/10/1998. To be submitted to the Commissioner on a form approved by the Commissioner. The report covers all deviations experienced during the calendar year. A copy of this report shall also be submitted to the U.S. EPA Regional Office.	Total Facility

## APPENDIX MATERIAL

**Facility Name: American Crystal Sugar - Moorhead**

**Permit Number: 02700001-006**

These modeling parameters were approved in a memo from Margaret McCourtney to Trent Wickman, dated March 8, 1999. Revised SO<sub>2</sub> modeling was submitted in a letter from Greg Raetz to Trent Wickman dated September 8 and 15, 1999.

**TABLE 1 - Modeled Emission Rates (lb/hr)**

Stack #	PM10	SO2	NOx	CO
*001	15.0	126.9, 168.5	99.4	159.9
*002	15.0	126.9, 168.5	99.4	159.9
*003	15.0	155.6, 203.0	121.8	192.6
*004	5.0, 15.0	2.51, 45	0.979	0.701
005	0.33	2.37	19.6	14.0
006	0.20	-	-	-
007	20.0	0.043	10.1	2.53
008	20.0	0.043	10.1	2.53
009	2.00	-	-	-
010	1.0	-	-	-
011	1.0	-	-	-
012	0.23	-	-	-
013	0.15	-	-	-

014	1.71	-	-	-
015	0.38	-	-	-
016	0.38	-	-	-
017	0.86	-	-	-
018	0.86	-	-	-
019	0.86	-	-	-
020	0.86	-	-	-
021	0.86	-	-	-
022	0.86	-	-	-
023	0.86	-	-	-
024	0.86	-	-	-
025	0.82	-	-	-
026	0.26	-	-	-
027	2.03	-	-	-
028	2.03	-	-	-
029	0.21	-	-	-
030	0.05	-	-	-
031	0.55	-	-	-
032	0.05	-	-	-

033	0.02	-	-	-
034	0.05	-	-	-
035	0.71	0.660	10.0	2.16
036	1.06	0.046	10.8	2.70
037	0.69	-	-	-
**paved traffic	6.62, 8.18, 5.58	-	-	-
**unpaved traffic	2.02, 0.09, 3.16	-	-	-

\*values represent: long term average, short term average

\*\* values represent: long term average, short term average during the beet haul period (September 1 through October 31), short term average during the non-beet haul period

**TABLE 2 - Modeled Stack Parameters**

Stack #	Height (ft)	Diameter (ft)	Flow Rate (acfm)	Temperature (°F)	Orientation
001	150.0	5.0	91,700	410	Vertical
002	150.0	5.0	91,700	410	Vertical
003	150.0	5.0	95,300	410	Vertical
004	102.0	1.0	400 {8,000}	163	Vertical
005	75.0	2.5	7,600 {0}	70	Vertical
006	90.0	5.0	10,000	120	Vertical



007	142.5	5.0	95,000	120	Vertical
008	142.5	4.0	95,000	120	Vertical
009	57.5	3.2	24,430	105	Vertical
010	99.3	2.25	21,000	130	Vertical
011	100.3	2.5	21,000	130	Vertical
012	34.5	0.58	1,340	70	Vertical
013	43.0	0.58	860	70	Vertical
014	49.0	2.08	10,000	70	Vertical
015	43.0	1.58	2,200	70	Vertical
016	43.0	0.92	2,200	70	Vertical
017	109.0	2.18	5,000	70	Horizontal
018	109.0	2.18	5,000	70	Horizontal
019	109.0	2.18	5,000	70	Vertical
020	109.0	2.18	5,000	70	Vertical
021	109.0	2.18	5,000	70	Vertical
022	109.0	2.18	5,000	70	Vertical
023	109.0	2.18	5,000	70	Vertical
024	109.0	2.18	5,000	70	Vertical
025	90.0	1.0	4,800	70	Vertical

026	104.0	0.5	1,500	70	Vertical
027	40.0	1.0	3,000	212	Vertical
028	40.0	1.0	3,000	212	Vertical
029	42.0	3.0	1,200	70	Vertical
030	43.0	0.5	310	70	Vertical
031	43.0	0.5	3200	70	Vertical
032	43.0	0.5	300	70	Vertical
033	43.0	0.5	130	70	Vertical
034	43.0	0.5	300	70	Vertical
035	15.0	0.67	8,000	800	Vertical
036	21.0	1.0	15,000	1,000	Vertical
037	24.0	2.0	8,000	70	Horizontal

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 02700001-006**

This technical support document is for all the interested parties of the draft permit. The purpose of this document is to set forth the legal and factual basis for the draft permit conditions, including references to the applicable statutory or regulatory provisions.

**1. General Information**

1.1. Applicant and Stationary Source Location:

Owner/Operator Address and Phone Number (list both if different)	Facility Address (SIC Code: 2063)
American Crystal Sugar Company 101 North 3 <sup>rd</sup> Street Moorhead, Minnesota 56560 Mr. Joel Smith (218) 236-4347	Moorhead Processing Plant 2500 North 11 <sup>th</sup> Street Moorhead, Minnesota Clay County

1.2. Description Of The Facility

American Crystal Sugar Company (Company) owns and operates a sugar beet processing plant at 2500 North 11<sup>th</sup> Street, Moorhead, Clay County, Minnesota. In addition to this stationary source, the Company owns processing plants in both East Grand Forks, and Crookston, Minnesota and also has a research center in Moorhead. The Moorhead plant consists of three coal-fired (subbituminous) boilers which produce process steam, two natural gas-fired pulp dryers, one pulp pellet cooler, pulp pellet handling, storage and loading equipment, one lime kiln (calciner), one lime slaker, one sugar dryer, one sugar cooler, ash removal systems and dry sugar storage, handling, and sacking equipment.

Particulate Matter (PM) emissions from the three boilers are controlled by electrostatic precipitators (ESP). Other pollution control equipment consists of a multiclone with a hopper-aspiration fabric filter system for each pulp dryer, a cyclone for the pellet cooler, a fabric filters for sugar storage and conveying, a cyclone for the lime kiln, and fabric filters for the sugar dryer and sugar cooler. Coal, coke and limerock are received by rail and stored in uncovered storage piles.

The Moorhead plant employs about 250 people and it operates from late August through May of each year, 24 hours per day. The plant will typically start up two to three days before starting to slice sugar beets and shut down two to four days after beet slicing has stopped.

### 1.3 Description of the Activities Allowed By This Permit Action

The Minnesota Pollution Control Agency (MPCA) issued the Title V permit for the Company's Moorhead facility on March 10, 1998. The MPCA issued a major amendment for the elimination of operating hour restrictions on the sugar dryer, sugar cooler and pellet cooler on May 13, 1999. An Environmental Assessment Worksheet (EAW) was required as a part of that permit application because the project was projected to result in a greater than 100 ton per year increase in air emissions. An air emissions risk analysis (AERA) was also conducted as a part of the EAW process.

This amendment includes a number of unrelated changes to Air Emission Permit No. 02700001-015, a PSD permit issued on May 13, 1999. Some of the changes include corrections to errors found in the previous permit. Another concerns follow up addressing a modeling related issue with how sulfur dioxide emissions from the boilers are measured and compared to their limits. Another issue concerns addressing the results of measurements of key fugitive emission parameters from roads that were made at the facility and how those new parameters affect the emission rates from those sources. See the discussion below for a more complete description of the changes made to the permit. The majority of these changes were Title I modifications, and as such required a major amendment.

The majority of these changes were Title I modifications, and as such required a major amendment to be changed. There is no change in air emissions associated with this permit amendment. In addition, there is no construction authorized with this amendment.

No permit application was formally submitted for all of these changes, although there is correspondence in the file for each of them. Some of these changes were submitted individually as different types of amendments (e.g. the administrative amendment for the performance test extension).

#### *Information Specific to Each Change Made to the Permit*

One change this amendment makes is to amend the permit limits that were established for sulfur dioxide on the boilers at the facility in Air Emission Permit No. 02700001-015. The limits were established to protect the ambient standards for sulfur dioxide as a part of the ambient air modeling done for that permit per Prevention of Significant Deterioration (PSD) regulations. The ambient standards for sulfur dioxide have both long-term and short-term values. There was a concern that the boilers may not be able to meet the sulfur dioxide permit limits on a short-term basis. As a result the Company was required by Air Emission Permit No. 02700001-015 to compare their fuel sampling and sulfur analysis procedure with a continuous emission monitor (CEM) for sulfur dioxide. The results were submitted by the Company in a letter dated June 4, 1999. The MPCA responded on August 5, 1999. The MPCA response highlighted that the data showed short-term emission rates (as measured by the CEM) significantly above the results predicted by the fuel sampling and sulfur analysis procedure. The letter went on to lay out a number options that the Company could pursue. The Company chose to remodel at the higher observed short-term emission rates (1.23 lb/MMBtu versus 0.93 lb/MMBtu).

As outlined in a letter from Greg Raetz at Braun Intertec Corp. dated September 15, 1999, the facility was able to model compliance at these higher rates.

For future reference these new short-term emission rates must now be included in the permit for the facility. Modification of the sulfur dioxide limits on boilers #1, #2, or #3 in the future will require the modification of both the long-term and short-term sulfur dioxide permit limits. By demonstrating compliance with the long-term sulfur dioxide limits, the Permittee is also assumed to be in compliance with the short-term limits.

A second change this amendment makes is to redefine the periods of time in which the facility must take action on its paved and unpaved roads in a manner that is more flexible in its application from year to year. Currently the permit defines the beet delivery period specifically by dates and requires that actions be taken on the roads at the facility during this time. The problem with this approach is that the beet delivery period, will vary from year to year based on the size of the harvest and prevailing weather conditions. The new time periods used in this permit are described qualitatively. They are specified in such a way so as to allow flexibility in application from year to year. It is felt that it will be clear, to both company and MPCA compliance staff, when the "beet delivery period" is underway without having specific dates in the permit.

A third change this amendment makes is to correct the emission limits on the sugar cooler (EU 011). A typographical mistake was made with this limit. The PM limit (3.0 lbs/hr) should have been equal to the PM<sub>10</sub> limit of 1.0 lbs/hr, i.e. they should have both been 1.0 lb/hr.

A fourth change concerns the performance test requirements for the starch bin receiving unit (SV 029). It has been determined that it is technically infeasible to conduct a performance test for this unit. The tank's capacity is two truck loads. The average time between loads is about 30 days, but at full production the time between loads is 15 days. The time to unload a truck is 2 to 4 hours, about 3 hours average. Hence, there is no way to do a three-run test under normal operating conditions.

A fifth change corrects an oversight that was made with the previous amendment concerning the pulp pellet loadout unit (EU 031). This unit is subject to 7011.1005 and these requirements have been added to the permit.

A sixth change concerns the monitoring period for hydrogen sulfide at the facility. The period has been extended from the May through September period to April through October, based on the high values recorded at both the start and the end of the 1999 monitoring season. In addition, these requirements were clarified as being state only requirements.

A seventh change is the removal of requirement to submit a revised air emissions risk analysis, because it was submitted on 5/10/00. In addition, the fugitive control plan and operation and maintenance plan submittal requirements were removed since these have also been submitted.

An eighth change involves incorporation of the results of the ambient modeling for particulate emissions that was done in response to the fugitive parameter testing done during the fall of 1999. The fugitive parameter testing involved the sampling and measurement of the silt loading on paved roads and the silt content and moisture of the unpaved roads at the facility. The testing showed that some of the values used in the previous particulate modeling were not conservative when compared with the measured site-specific values. As a result, these site-specific values were used to recalculate the particulate emission rates for the cases where the previous values were not conservative. To maintain the emission rates at or below the levels they were previously, year-round watering was incorporated for the unpaved spent lime disposal road. Watering is not required during freezing conditions due to safety concerns. See the attached July 24, 2000, letter from Greg Raetz to Trent Wickman for more details. Since the actual silt loading on paved roads and the silt content of unpaved roads have now been measured, and their impacts determined, these two permit items are now being removed.

A ninth change involves the extension of the deadline to conduct a performance test on the GP 003 and 005 sources (sugar handling) at the facility for 120 days (9/11/00). This was requested in two 60-day blocks in administrative amendment applications dated March 31, 2000, and July 10, 2000.

A tenth change involves the addition of throughput limits on boiler #3 and the lime kiln as a result of performance testing done in December of 1999.

A revised risk analysis was received on May 12, 2000, that incorporated the H<sub>2</sub>S monitoring data from the summer of 1999. A memo, dated August 22, 2000, discussing the results of this analysis is attached.

In addition, other permit requirements that have already been fulfilled were removed. Typographical errors also have been corrected.

It should be noted that even though operating restrictions have been included in the permit based on previous performance tests, these restrictions can be changed (based on subsequent compliant tests) without first obtaining a permit amendment.

The "risk recalculation" requirement was changed to follow the guidelines proposed by the MPCA's internal air permit group. The high hazard quotients calculated previously are largely due to H<sub>2</sub>S (again see the memo, dated August 22, 2000). Through the MPCA's enforcement response to the monitored H<sub>2</sub>S values, it is expected that future H<sub>2</sub>S values will be brought down. For these reasons a less rigorous approach was taken in this permit.

The public comment period for this permit ran from May 23, 2001 to June 22, 2001. No comments were received.

1.4. Facility Emissions:

Table 1. Facility Classification

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)	PM, PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub> , & CO		
NAAR (list pollutant) Not Applicable			
Part 70 Permit Program (list pollutant)	PM, PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub> , & CO		

\* Refers to potential emissions that are less than those specified as major by 40 CFR 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

**2. Regulatory and/or Statutory Basis**

Summary Regulatory and/or Statutory Basis of the Emission or operational Limit

**Regulatory Overview of Units Affected by the Modification**

Table 4. Regulatory Overview

*EU, GRP, or SV #	Applicable Regulations	Comments
SV001 – SV003	40 CFR § 52.21	Modification of short-term sulfur dioxide emission limits and other limits, some of which were based on PSD review.

**3. Technical Information**

As described above, this permit modifies previously established short-term PSD limits for sulfur dioxide which were based on ambient modeling. The detailed development and basis for this permit can be found in the attachments to this document. Since some of the permit limits that are being changed are based on PSD, changing them requires a major amendment. For example, one PSD-related condition that was changed is the redefinition of the beet delivery period.

**4. Conclusion**

Based on the information provided by the Company, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 02700001-006 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Permit Action Number: 02700001-006

Date: 12/12/2003

Staff Members on Permit Team: Trent Wickman, Stuart Arkley, Cary Hernandez

Peer Review: Craig Thorstenson

Attachments: Letter From Joel Smith, dated June 4, 1999  
Letter From Trent Wickman, dated August 5, 1999  
Letter From Greg Raetz, dated September 15, 1999  
Letter From Greg Raetz , dated July 24, 2000  
Memo From Trent Wickman, dated August 22, 2000