

**AIR EMISSION PERMIT NO. 02700001- 014  
IS ISSUED TO**

**American Crystal Sugar Company**

**American Crystal Sugar - Moorhead**  
2500 North 11th 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):

| Permit Type   | Application Date |
|---|------------------|
| Administrative Amendment to Total Facility Operating Permit | April 15, 1998   |

This permit authorizes the permittee to 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 and with all general conditions listed in Minn. R. pt. 7007.0800, subp. 16 [and all standard permit requirements listed in 40 CFR 70.6\(a\)](#) which are incorporated by reference. Any changes or modifications to the stationary source must be performed in compliance with Minn. Rules pts. 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

**Issue Date:** **September 27, 1998**

**Expiration:** All Title I Conditions do not expire.

Carolina Espejel-Schutt for

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Michael J. Sandusky  
Division Manager  
Air Quality Division

for Peder A. Larson  
Commissioner  
Minnesota Pollution Control Agency

BAB:yma

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**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 rule 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. Any requirements which have been determined not to apply are listed in Table A of this permit.

The permit shield, however does not apply to: Minn. R. ch. 7030 (Noise Pollution Control).

## **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. The Moorhead plant consists of three coal-fired (subbituminous) boilers which produce process steam; two natural gas-fired pulp dryers; one pulp pelletizer; 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; a wastewater treatment plant ground flare and dry sugar storage, handling, and sacking equipment.

Particulate matter emissions from the three boilers are controlled by electrostatic precipitators. 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 filter for powdered sugar bagging, fabric filters for sugar storage and conveying, a dual cyclone for the lime kiln, a rotocloner each for the sugar dryer and sugar cooler, and wet collectors (steam addition) for each ash removal system. 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 startup two to three days before starting to slice sugar beets and shutdown two to four days after beet slicing has stopped.

This Title V air permit is a consolidation of existing air permits and air quality regulations. New things required by this permit are the need for more stack testing of emission units to show compliance with the standards, daily compliance demonstration methods for all significant emission units, the requirement for computer dispersion modeling of the plants emissions to show compliance with the ambient standards, the requirement to retain an operation and maintenance plan on site describing the proper operation and maintenance of all pollution control equipment on site, and the requirement for submitting a fugitive dust compliance plan.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**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  |
|--|---|
| Operating and/or production limits will be placed on emission units based on operating conditions during performance testing. Limits set as a result of a performance test (conducted before or after permit issuance) apply until new operating/production limits are set following formal review of a performance test as specified by Minn. R. 7017.2025  | Minn. R. 7017.2025  |
| Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.   | 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.   | 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, B, and/or C, 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  |
| Shutdowns: Notify the Commissioner at least 24 hours in advance of a planned shutdown or as soon as possible after an unplanned shutdown of any process or control equipment, if the shutdown would cause an increase in the emission of any regulated air pollutant. At the time of notification, notify the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over.   | Minn. R. 7019.1000, subp. 3                                     |
| Breakdowns: Notify the Commissioner with 24 hours after a breakdown of more than one hour duration of any process or control equipment if the breakdown causes an increase in the emission of any regulated air pollutant. At the time of notification or as soon thereafter as possible, the permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.   | Minn. R. 7019.1000, subp. 2                                     |
| Initial Notification of Deviations Endangering Human Health or the Environment: Immediately after discovery, notify orally or by facsimile the Commissioner or state duty officer, of any deviation from permit conditions which could endanger human health or the environment.   | Minn. R. 7019.1000, subp. 1                                     |
| Written 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: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. | Minn. R. 7019.1000, subp. 1                                     |
| 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.  | Minn. R. 7007.0800, subp. 2;<br>Minn. R. 7007.0800, subp. 16(J) |
| 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.  | Minn. R. 7011.0150  |
| 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.  | Minn. R. 7007.1150 through Minn. R. 7007.1500                   |
| 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)   | Minn. R. 7007.1400, subp. 1(H)                                  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

|  |   |
|--|---|
| 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.   | Minn. R. 7007. 0800, subp. 5(B)               |
| Record keeping: Retain all records 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). | Minn. R. 7007.0800, subp. 5(C)                |
| 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 federally enforceable.  | Minn. R. 7030.0010 - 7030.0080                |
| The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16  | Minn. R. 7007.0800, subp. 16                  |
| 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.                           | Minn. R. 7007.0800, subp. 9(A)                |
| Emission Fees: due 60 days after receipt of an MPCA bill.  | Minn. R. 7002.0005 through Minn. R. 7002.0095 |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**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

| <b>What to do</b>  | <b>Why to do it</b>         |
|--|-----------------------------|
| 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.   | 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. | Minn. R. 7007.0800, subp. 5 |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**Subject Item: GP 002 Insignificant Materials Handling Sources**

- Associated Items:** EU 009 Pneumatic Pellet Conveying System  
 EU 012 Packaging Vacuum System  
 EU 013 Packaging Dust Control System No. 1  
 EU 014 Packaging Dust Control System No. 2  
 EU 015 Packaging Dust Control System No. 3  
 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)  
 EU 024 Sugar storage conveyor system  
 EU 025 Weibull Bin Dust Control System  
 EU 026 Ash Removal System, boilers  
 EU 027 Ash Removal System, Precipitators  
 EU 028 Starch Bin Receiving System  
 EU 031 Pulp Pellet Area Dust Control System  
 EU 032 Sugar Reclaim (Azo) System  
 EU 033 Bag Clipping Collection System  
 EU 034 Brown Sugar Batching Conveying System  
 EU 035 Powdered Sugar Reclaim/Cube Line Conveyer  
 EU 036 Bag in box conveyor system

| What to do  | Why to do it                   |
|---|--------------------------------|
| 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 (this limit applies individually to each emission unit listed above under Associated Items). | 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) |
| Operation and Maintenance Plan Requirement: All emission units listed above under Associated Items shall be covered in the facility Operation and Maintenance Plan.   | Minn. R. 7011.0800, subp. 2    |



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

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

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

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

SV 001

| What to do   | Why to do it   |
|--|--|
| 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 except that a maximum of 60% opacity shall be permissible for four minutes in any 60-minute period, and that a maximum of 40% shall be permissible for four additional minutes in any 60-minute period.  | Minn. R. 7011.0510, subp. 2  |
| 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 |
| Sulfur Content of Fuel: less than or equal to 0.55 percent by weight for subbituminous coal.   | Minn. R. 7007.0800, subp. 2  |
| Fuels Allowed: subbituminous coal, on-site generated used oil, and used oil sorbents.  | Minn. R. 7007.0800, subp. 2  |
| 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 total particulate matter standard in Minn. R. 7011.0510, subp. 1.   | 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.  | Minn. R. 7007.0800, subp. 5  |
| The Permittee shall measure the fuel sulfur content by either Method 1 or 2. All fuel sulfur content data shall be recorded at the time the data is received.<br>Method 1. The Permittee shall obtain and maintain a fuel supplier receipt from the fuel supplier for each shipment of subbituminous coal delivered certifying that the shipment complies with the current American Society of Testing and Materials (ASTM) specification for the respective fuel and that the sulfur content is less than or equal to the fuel sulfur content limitation.<br>OR<br>(continued on next requirement)  | Minn. R. 7007.0800, subp. 5  |
| Method 2. The Permittee may also analyze the fuel in the following manner:<br>a) The Permittee shall sample the fuel after each delivery but not more than once each calendar week when multiple deliveries are made in a calendar week. Sampling shall be conducted within 48 hours after each delivery, or within 48 hours after the last of multiple deliveries in a calendar week. Samples shall be collected from a representative location. Record the date and time of delivery, time of fuel sampling, initials of person recording the information, and the results of the fuel analysis.<br>b) The Permittee shall analyze the fuel sample to determine sulfur content of the fuel in percent by weight, in accordance with the current ASTM method. | Minn. R. 7007.0800, subp. 5  |
| Initial Performance Test: due before 01/04/1999 to measure particulate matter and sulfur dioxide emissions.  | Minn. R. 7017.2020, subp. 1  |
| Performance Test Pre-test Meeting: due 7 days before Initial Performance Test  | Minn. R. 7017.2030, subp. 4  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

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

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

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

SV 002

| What to do  | Why to do it   |
|---|--|
| 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 except that a maximum of 60% opacity shall be permissible for four minutes in any 60-minute period, and that a maximum of 40% shall be permissible for four additional minutes in any 60-minute period.   | Minn. R. 7011.0510, subp. 2  |
| 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  |
| 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 total particulate matter standard in Minn. R. 7011.0510, subp. 1.  | 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.   | Minn. R. 7007.0800, subp. 5  |
| Sulfur Content of Fuel: less than or equal to 0.55 percent by weight for subbituminous coal.  | Minn. R. 7007.0800, subp. 2  |
| <p>The Permittee shall measure the fuel sulfur content by either Method 1 or 2. All fuel sulfur content data shall be recorded when the data is received.</p> <p>Method 1. The Permittee shall obtain and maintain a fuel supplier receipt from the fuel supplier for each shipment of subbituminous coal delivered certifying that the shipment complies with the current American Society of Testing and Materials (ASTM) specification for the respective fuel and that the sulfur content is less than or equal to the fuel sulfur content limitation.</p> <p>OR<br/>(continued on next requirement)</p>  | Minn. R. 7007.0800, subp. 5  |
| <p>Method 2. The Permittee may also analyze the fuel in the following manner:</p> <p>a) The Permittee shall sample the fuel after each delivery but not more than once each calendar week when multiple deliveries are made in a calendar week. Sampling shall be conducted within 48 hours after each delivery, or within 48 hours after the last of multiple deliveries in a calendar week. Samples shall be collected from a representative location. Record the date and time of delivery, time of fuel sampling, initials of person recording the information, and the results of the fuel analysis.</p> <p>b) The Permittee shall analyze the fuel sample to determine sulfur content of the fuel in percent by weight, in accordance with the current ASTM method.</p> | Minn. R. 7007.0800, subp. 5  |
| Initial Performance Test: due before 01/04/1999 to measure particulate matter and sulfur dioxide emissions.   | Minn. R. 7017.2020, subp. 1  |
| Performance Test Pre-test Meeting: due 7 days before Initial Performance Test   | Minn. R. 7017.2030, subp. 4  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

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

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

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

SV 003

| What to do  | Why to do it   |
|---|--|
| 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 except that a maximum of 60% opacity shall be permissible for four minutes in any 60-minute period, and that a maximum of 40% shall be permissible for four additional minutes in any 60-minute period.   | Minn. R. 7011.0510, subp. 2  |
| 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  |
| 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 total particulate matter standard in Minn. R. 7011.0510, subp. 1.  | Minn. R. 7007.0800, subp. 14   |
| Boiler Pollution Control Equipment Monitoring/Recordkeeping: The Permittee shall record the minimum number of fields online in the electrostatic precipitator for EU 003, once each day while in operation.   | Minn. R. 7007.0800, subp. 5  |
| Sulfur Content of Fuel: less than or equal to 0.55 percent by weight for subbituminous coal.  | Minn. R. 7007.0800, subp. 2  |
| <p>The Permittee shall measure the fuel sulfur content by either Method 1 or 2. All fuel sulfur content data shall be recorded at the time the data is received.</p> <p>Method 1. The Permittee shall obtain and maintain a fuel supplier receipt from the fuel supplier for each shipment of subbituminous coal delivered certifying that the shipment complies with the current American Society of Testing and Materials (ASTM) specification for the respective fuel and that the sulfur content is less than or equal to the fuel sulfur content limitation.</p> <p>OR<br/>(continued on next requirement)</p>   | Minn. R. 7007.0800, subp. 5  |
| <p>Method 2. The Permittee may also analyze the fuel in the following manner:</p> <p>a) The Permittee shall sample the fuel after each delivery but not more than once each calendar week when multiple deliveries are made in a calendar week. Sampling shall be conducted within 48 hours after each delivery, or within 48 hours after the last of multiple deliveries in a calendar week. Samples shall be collected from a representative location. Record the date and time of delivery, time of fuel sampling, initials of person recording the information, and the results of the fuel analysis.</p> <p>b) The Permittee shall analyze the fuel sample to determine sulfur content of the fuel in percent by weight, in accordance with the current ASTM method.</p> | Minn. R. 7007.0800, subp. 5  |
| Initial Performance Test: due before 01/04/1999 to measure particulate matter and sulfur dioxide emissions.   | Minn. R. 7017.2020, subp. 1  |
| Performance Test Pre-test Meeting: due 7 days before Initial Performance Test   | Minn. R. 7017.2030, subp. 4  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**Subject Item:** EU 005 Vertical Lime kiln

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

CE 005 Other

SV 005

| What to do  | Why to do it   |
|---|--|
| 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 , except that a maximum of 60% opacity shall be permissible for four minutes in any 60-minute period, and that a maximum of 40% shall be permissible for four additional minutes in any 60-minute period. | 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)   |
| 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  |
| 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 |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**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

| What to do  | Why to do it   |
|---|--|
| 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 , except that a maximum of 60% opacity shall be permissible for four minutes in any 60-minute period, and that a maximum of 40% shall be permissible for four additional minutes in any 60-minute period. | Minn. R. 7011.0610, subp. 1(A)(2)  |
| Fuels Allowed: natural gas only.  | Minn. R. 7007.0800, subp. 2  |
| 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.   | Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, and Minn. R. 7007.0800, subp. 5 |
| Performance Test: due before end of each 36 months starting 12/18/96 to measure particulate matter emissions. The tests shall be conducted at an interval not to exceed 36 months between test dates.   | Minn. R. 7017.2020, subp. 1  |
| Performance Test Pre-test Meeting: due 7 days before end of each 36 months following Performance Test (7 days before each Performance Test)   | Minn. R. 7017.2030, subp. 4  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**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

| What to do  | Why to do it   |
|---|--|
| 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 , except that a maximum of 60% opacity shall be permissible for four minutes in any 60-minute period, and that a maximum of 40% shall be permissible for four additional minutes in any 60-minute period. | Minn. R. 7011.0610, subp. 1(A)(2)  |
| Fuels Allowed: natural gas and biogas (methane) from the wastewater treatment system only.  | Minn. R. 7007.0800, subp. 2  |
| 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.   | Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, and Minn. R. 7007.0800, subp. 5 |
| Performance Test: due before end of each 60 months starting 11/21/96 to measure particulate mattter emissions. The tests shall be conducted at an interval not to exceed 60 months between test dates   | Minn. R. 7017.2020, subp. 1  |
| Performance Test Pre-test Meeting: due 7 days before end of each 60 months following Performance Test (7 days before each Performance Test)   | Minn. R. 7017.2030, subp. 4  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

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

| <b>What to do</b>  | <b>Why to do it</b>  |
|--|--|
| Particulate Matter < 10 micron: less than or equal to 2.0 lbs/hour   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Total Particulate Matter: less than or equal to 2.0 lbs/hour   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Opacity: less than or equal to 20 percent opacity  | Minn. R. 7011.0715, subp. 1(B)   |
| Operating Hours: less than or equal to 6000 hours/year   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Record Keeping: The Permittee shall keep records of the hours of operation of EU 008 on a daily basis.   | Minn. R. 7007.0800, subp. 5  |
| Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the pressure drop across the cyclone once each day while in operation. | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Initial Performance Test: due before 01/04/1999 to measure particulate matter and opacity emissions.   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Performance Test Pre-test Meeting: due 7 days before Initial Performance Test  | Minn. R. 7017.2030, subp. 4  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**Subject Item:** EU 010 Sugar Dryer**Associated Items:** CE 012 Dynamic Separator (Wet)

| <b>What to do</b>  | <b>Why to do it</b>  |
|--|--|
| Particulate Matter < 10 micron: less than or equal to 4.5 lbs/hour   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Total Particulate Matter: less than or equal to 4.5 lbs/hour   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Opacity: less than or equal to 20 percent opacity  | Minn. R. 7011.0715, subp. 1(B)   |
| Operating Hours: less than or equal to 6000 hours/year   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Record Keeping: The Permittee shall keep records of the hours of operation of EU 010 on a daily basis.   | Minn. R. 7007.0800, subp. 5  |
| Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the liquid supply pressure (in pounds per square inch) and liquid flow rate (in gallons per minute) to the rotoclone once each day while in operation. | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Initial Performance Test: due before 01/04/1999 to measure particulate matter and opacity emissions.   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Performance Test Pre-test Meeting: due 7 days before Initial Performance Test  | Minn. R. 7017.2030, subp. 4  |



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**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 5.8 lbs/hour   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Total Particulate Matter: less than or equal to 5.8 lbs/hour   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Opacity: less than or equal to 20 percent opacity  | Minn. R. 7011.0715, subp. 1(B)   |
| Operating Hours: less than or equal to 6000 hours/year   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Record Keeping: The Permittee shall keep records of the hours of operation of EU 011 on a daily basis.   | Minn. R. 7007.0800, subp. 5  |
| Monitoring of Pollution Control Equipment: The Permittee shall monitor and record the liquid supply pressure (in pounds per square inch) and liquid flow rate (in gallons per minute) to the rotoclone once each day while in operation. | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Initial Performance Test: due before 01/04/1999 to measure particulate matter and opacity emissions.   | Title I Condition: to remain a non-major modification under 40 CFR Section 52.21 |
| Performance Test Pre-test Meeting: due 7 days before Initial Performance Test  | Minn. R. 7017.2030, subp. 4  |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**Subject Item: EU 029 Emergency Electrical Generator Set**

| <b>What to do</b>   | <b>Why to do it</b>         |
|---|-----------------------------|
| Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained. | Minn. R. 7011.2300, subp. 1 |
| Fuels Allowed: distillate fuel oil only.  | Minn. R. 7007.0800, subp. 2 |
| Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input                              | Minn. R. 7011.2300, subp. 2 |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

**Subject Item: EU 030 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 B: SUBMITTALS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead  
Permit Number: 02700001 - 003

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

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

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

| What to send                              | When to send  | Portion of Facility Affected             |
|---|---|--|
| Application for Permit Reissuance         | due 180 days before expiration of Existing Permit   | Total Facility                           |
| Computer Dispersion Modeling Protocol     | due 180 days after Permit Issuance . Dispersion modeling is required for PM-10, SO2, and NOx. The protocol will describe the proposed modeling methodology and input data in accordance with all requirements of 40 CFR pt. 51, App. W. The protocol may be based on proposed operating conditions under the next permit term if necessary.   | Total Facility                           |
| Computer Dispersion Modeling Results      | due 365 days after Permit Issuance  | Total Facility                           |
| Fugitive Control Plan                     | due 60 days after Permit Issuance for review and approval by the Commissioner. The plan shall identify all fugitive emission sources, primary and contingent control measures, and records kept, if any.  | Total Facility                           |
| Operation and Maintenance Plan            | due 60 days after Permit Issuance summarizing the operation and maintenance for all pollution control equipment. Included in the plan should be the manufacturer's recommended operating ranges for parameters such as pressure drop across the system, liquid flow rate, liquid supply pressure, etc.; corrective action procedures to be followed to return the control equipment to within specified range(s); corrective action procedures to be followed in the event of a malfunction or breakdown; a description of inspection procedures to be followed; and records kept to demonstrate plan implementation. | Total Facility                           |
| Performance Test Notification (written)   | due 30 days before Initial Performance Test   | EU001, EU002, EU003, EU008, EU010, EU011 |
| Performance Test Plan                     | due 30 days before Initial Performance Test   | EU001, EU002, EU003, EU008, EU010, EU011 |
| Performance Test Report - Microfiche Copy | due 105 days after Initial Performance Test   | EU001, EU002, EU003, EU008, EU010, EU011 |
| Performance Test Report                   | due 45 days after Initial Performance Test  | EU001, EU002, EU003, EU008, EU010, EU011 |
| Testing Frequency Plan                    | due 60 days after Initial Performance Test for particulate matter and opacity emissions. The plan shall specify a testing frequency using the test data and MPCA guidance. Future performance tests based on year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required on written approval of MPCA per Minn. R. 7017.2020, subp. 1   | EU008, EU010, EU011                      |
| Testing Frequency Plan                    | due 60 days after Initial Performance Test for particulate matter, sulfur dioxide, and opacity emissions. The plan shall specify a testing frequency using the test data and MPCA guidance. Future performance tests based on year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required on written approval of MPCA per Minn. R. 7017.2020, subp. 1.   | EU003                                    |

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

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

|                        |   |              |
|------------------------|---|--------------|
| Testing Frequency Plan | due 60 days after Initial Performance Test for particulate matter, sulfur dioxide, and opacity emissions. The plan shall specify a testing frequency using the test data and MPCA guidance. Future performance tests based on year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required on written approval of MPCA per Minn. R. 7017.2020, subp. 1. The Company will be allowed to alternate testing between Boiler Nos. 1 and 2 provided the testing frequency determined by the initial performance test is greater than a year (12 months) for both units. | EU001, EU002 |
|------------------------|---|--------------|

**TABLE B: RECURRENT SUBMITTALS**

09/27/98

Facility Name: American Crystal Sugar - Moorhead

Permit Number: 02700001 - 003

| <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 following Permit Issuance . The report covers all deviations experienced during the calendar year.   | Total Facility                      |
| Emissions Inventory Report                | due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.   | Total Facility                      |
| Performance Test Notification (written)   | due 30 days before end of each 36 months following Performance Test (30 days before each Performance Test)   | EU006                               |
| Performance Test Plan                     | due 30 days before end of each 36 months following Performance Test (30 days before each Performance Test)   | EU006                               |
| Performance Test Report - Microfiche Copy | due 105 days after end of each 36 months following Performance Test (105 days after each Performance Test)   | EU006                               |
| Performance Test Report                   | due 45 days after end of each 36 months following Performance Test (45 days after each Performance Test)   | EU006                               |
| Performance Test Notification (written)   | due 30 days before end of each 60 months following Performance Test (30 days before each Performance Test)   | EU007                               |
| Performance Test Plan                     | due 30 days before end of each 60 months following Performance Test (30 days before each Performance Test)   | EU007                               |
| Performance Test Report - Microfiche Copy | due 105 days after end of each 60 months following Performance Test (105 days after each Performance Test)   | EU007                               |
| Performance Test Report                   | due 45 days after end of each 60 months following Performance Test (45 days after each Performance Test)   | EU007                               |

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 02700001-014**

This Technical Support Document (TSD) is for all the interested parties of the permit. The purpose of this document is to set forth the legal and factual basis for the permit conditions, including references to the applicable statutory or regulatory provisions.

**1. General Information**

1.1. Applicant and Stationary Source Location:

| <b>Owner and Operator Address and Phone Number</b>  | <b>Facility Address (SIC Code: 2063)</b>  |
|---|---|
| American Crystal Sugar Company<br>101 North Third Street<br>Moorhead, Minnesota 56560<br>Contact: Mr. Joel C. Smith, Regulatory Affairs Manager (218)236-4347 | American Crystal Sugar Company<br>2500 North 11th Street<br>Moorhead, Minnesota 56560<br>Contact: Mr. Joel C. Smith, Regulatory Affairs Manager (218)236-4347 |

1.2. Description of the facility

American Crystal Sugar Company (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; a wastewater treatment plant ground flare 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 filter for powdered sugar bagging, fabric filters for sugar storage and conveying, a dual cyclone for the lime kiln, a fabric filter each for the sugar dryer and sugar cooler, and wet collectors for each ash removal system. 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 startup two to three days before starting to slice sugar beets and shutdown two to four days after beet slicing has stopped.

1.3 Description of any changes allowed with this permit issuance

The Minnesota Pollution Control Agency (MPCA) issued the Title V permit for the Company's Moorhead facility on March 10, 1997. This permit is an administrative amendment that extends the deadline for the Initial Performance Test, found in the Title V Permit, by 120 days for the following emission units:



- EU-001 Boiler No. 1
- EU-002 Boiler No. 2
- EU-003 Boiler No. 3
- EU-008 Pulp Pellet Cooler
- EU-010 Sugar Dryer
- EU-011 Sugar Cooler

No new construction is requested nor granted with this permit. No Environmental Assessment Worksheet or Environmental Impact Statement were required as a part of this permit application.

#### 1.4 Description of all previous permits issued to this facility

| Permit Number and Issuance Date | Action Authorized   |
|---------------------------------|---|
| 29A-73-I-1<br>1973              | Installation of three scrubbers on the pulp dryers.   |
| 29-73-I-2<br>1973               | Installation of electrostatic precipitators on the three coal boilers                                   |
| 29A-75-I-3<br>1975              | Installation of scrubbers on the pulp dryers (new/different units)                                      |
| 29A-76-I-4<br>1976              | Installation of fertilizer plant ion exchange system (now defunct)                                      |
| 29A-78-I-2A<br>1978             | Installation of electrostatic precipitators on the three coal boilers                                   |
| 29A-79-O-2A<br>1979             | Operation of the intercampaign boiler using fuel oil (now defunct)                                      |
| 29A-80-I-5<br>1980              | Installation of a product receiving cyclone and venturi scrubber for the fertilizer plant (now defunct) |
| 29A-80-O-1<br>1980              | Operation of the four boilers   |
| 29A-82-I-6<br>1982              | Installation of a lime dust abatement system  |
| 29A-84-I/O-8<br>1984            | Installation and operation of the pulp pellet cooler  |
| 29A-80-O-1<br>1984              | Amd. No. 1 to previous permit to modify coal testing program and coal burning limit.                    |
| 29A-88-O-7<br>1988              | Installation of rotoclones on sugar granulator and sugar cooler.  |
| 29A-88-I/O-9<br>1988            | Installation of fiber plant (now defunct)   |
| 29A-91-OT-1<br>1991             | Draft total facility permit for entire plant. Was never issued.   |
| 29A-93-P-1<br>1993              | Permit for fuel storage tanks.  |

|  |   |
|--|---|
| 02700001-011<br>(29A-95-I/O-1)<br>1995 | Installation and operation of modification to the pulp dryers; converted to burning natural gas only.   |
| 02700001-012<br>(29A-95-I/O-2)<br>1995 | Installation and operation of rotoclones on the pulp pellet cooler, sugar granulator, and sugar cooler. |
| 02700001-001<br>1998                   | Title V Total Facility Operating Permit   |

1.5. Facility Emissions:

Emissions from the facility are unaffected by this administrative amendment.

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

Minn. R. 7007.1400, Subp. 1(H), allows performance tests to be extended 120 days.

**3. Technical Information**

N.A.

**4. Conclusion**

Based on the information provided by the American Crystal Sugar Company, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 02700001-014, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Tom Holstrom