

AIR EMISSION PERMIT NO. 10500053- 001

IS ISSUED TO

Minnesota Soybean Processors - Brewster

Minnesota Soybean Processors - Brewster
Corner 200th Street & Zeh Avenue
Brewster, Nobles County, MN 56119

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
Total Facility Operating Permit	Feb. 27, 2001

This permit authorizes the permittee to operate and construct 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; PSD/NSR

Issue Date: December 19, 2002

Expiration: December 19, 2007

All Title I Conditions do not expire.

Ann M. Foss
Major Facilities Section Manager
Majors and Remediation Division

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. Subject to limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

This total facility operating permit authorizes Minnesota Soybean Processors (MnSP) to construct and operate a soybean processing plant in the city of Brewster, Nobles County, Minnesota.

The proposed facility will receive raw soybeans and process them to extract crude soybean oil. The crude soybean oil will be further refined into products for human use and consumption. By-products of the oil processing are soy meal and hull which are sold for animal feed.

Soybeans will be received from via semi-trailers and railcar. The soybeans will be off-loaded into on-site grain elevators and cleaned to remove sticks, weed seeds, and dirt. After cleaning, the beans will be stored in grain elevators. From storage, the beans are sent to a screening and cleaning area in the preparation building where the trash accompanying the beans is removed. From here, the beans are routed to the dehulling process. In the preparation building, the hull of the bean is separated from the meat. The hull of the bean will be ground. The hulls are then formed into pellets, conveyed to storage, and eventually sold for use as animal feed. The meat of the bean is cracked into larger chunks, conditioned (heated), and then pressed into a flake or extruded as a pellet. The flakes are conveyed to the extraction building.

Inside the extraction building, the flakes or pelleted beans are washed in an extractor with commercial grade hexane, which strips the oil from the flakes. Two process streams leave the extractor: commercial hexane-laden flakes (solids) and miscella, which is a mixture of commercial hexane, oil, and water. The meal (solids) is “desolventized” by subjecting the commercial hexane-laden meal flakes to heat. The solvent is volatilized. The flakes are cooled, ground, and conveyed to storage bins. The ground and desolventized meal is sold as an animal feed. The commercial hexane that is driven off of the meal is piped to the solvent recovery system for re-use.

The miscella is separated into its components – oil, commercial hexane, and water – using distillation processes. The hexane is reused. The water is disposed of. The separated oil is termed crude oil. The crude oil may be refined into various products for human consumption (such as vegetable oil) or made into a replacement fuel, biodiesel. The refining process can remove gums, colors, tastes, and odorous compounds from the crude oil.

Final products – crude oil, refined oil, meal, and hulls – will be shipped from the site primarily in bulk quantities via trucks and railcars. By-products will also be shipped via trucks and railcars.

Besides receiving, preparation and extraction, there will be other facilities at the plant. There will be weigh station, offices, and a lab, a steam generation plant, maintenance and warehousing. The primary boiler fuel, for steam, will be natural gas. Distillate fuel oil will be used as backup fuel.

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

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
OPERATIONAL REQUIREMENTS	hdr
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
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
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; 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
Fugitive Emissions Control Plan: The Permittee shall develop and comply with a Fugitive Emissions Control Plan. The Plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the Fugitive Emissions Control Plan, then the Permittee may be required by the Commissioner to amend the Control Plan and/or install and operate particulate matter ambient monitors.	Minn. R. 7007.0800, subp. 2
The Permittee shall maintain a designated contact, on-site, for the neighbors to telephone with concerns of any dust. This could be related to dust arising from trucks, either entering or leaving the facility premises as well as from the handling of the outside soybean storage. Upon such a complaint, the facility will investigate the complaint. Valid dust complaints are to be addressed by reasonable and appropriate mitigation measures. The Permittee shall record all complaints, investigation findings, and mitigation measures taken. A continued pattern of dust complaints may trigger a new PM10 modeling analysis.	Minn. R. 7007.0800, subp. 2
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.	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: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
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
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
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
Rain caps are not allowed on any stacks facility-wide.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(k) to demonstrate source impact analysis for attainment and increment standards.
NOTIFICATION REQUIREMENTS	hdr
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.	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.	

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

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
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
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: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
MONITORING REQUIREMENTS	hdr
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)
RECORDKEEPING REQUIREMENTS	hdr
Equipment List: The Permittee shall maintain a written list of all emission units on site that are not insignificant activities. The list shall include the type of equipment; identifying number; date of installation, modification, and/or reconstruction; and identification of any applicable Standards of Performance for New Stationary Sources (40 CFR pt. 60) and/or National Emission Standards for Hazardous Air Pollutants (40 CFR pt. 63).	Minn. R. 7007.0800, subp. 5
Recordkeeping: 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)
Recordkeeping: 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 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)
REPORTING REQUIREMENTS	hdr
Application for Permit Amendment: If a permit amendment is needed, submit an 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)
Emission 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.	Minn. R. 7019.3000 through Minn. R. 7019.3010
PERFORMANCE TESTING REQUIREMENTS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

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
<p>General Performance Test Requirements:</p> <p>Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test</p>	Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2
Testing Frequency Plan: due 60 days after completion of all permit specified Initial Performance Tests. The plan will address all of the tested units. 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.	Minn. R. 7017.2020, subp. 1
NESHAP REQUIREMENTS	hdr
The Permittee shall comply with the Maximum Achievable Control Technology (MACT) Standard for Solvent Extraction for Vegetable Oil Production.	40 CFR pt. 63
The Permittee shall not "construct" or "reconstruct" a major source of hazardous air pollutants as defined in 40 CFR section 63.2, without first obtaining a preconstruction permit.	40 CFR Sections 63.40 to 63.44; Minn. R. 7007.3010

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 001 Solvent Extraction (n-Hexane) Losses

What to do	Why to do it
The units in GP 001 are subject to requirements set under the preconstruction program required by 40 CFR pt. 63, Subpart B. As such, the units are also subject to any applicable requirements in 40 CFR pt. 63, Subpart A, General Conditions.	40 CFR Section 63.43
EMISSION LIMITS	hdr
Compliance Ratio: less than or equal to 1.00. The Compliance Ratio = (fhap * actual solvent loss)/(0.64* allowable solvent loss) where, fhap = the weighted average HAP content of solvent purchased during the previous 12 operating months (volume fraction); 0.64 = average volume fraction of HAP in solvent (dimensionless); Actual solvent loss = quantity of actual solvent loss during previous 12 operating months (gallons); Allowable solvent loss = quantity of soybeans processed during the previous 12 operating months (tons) multiplied by 0.2 (gallons/ton)	40 CFR Section 63.2840
GENERAL REQUIREMENTS	hdr
Calculations - Compliance Ratio: By the end of each calendar month following an operating month, calculate the compliance ratio for the previous 12 operating months. This requirement does not apply during the initial startup period (i.e., the first 6 calendar months following initial startup). The first compliance ratio will be determined following the first 12 operating months after initial startup (or the 19th operating month after initial plant startup). An operating month is any calendar month with at least one normal operating period. It does not include the initial startup period or malfunction period. A normal operating period is defined in the proposed 40 CFR 63.2872.	40 CFR Section 63.2840
By the end of each calendar month following an operating month, calculate the actual extraction solvent loss during the previous operating month. The monthly actual extraction solvent loss is to be determined as follows: Actual Solvent Loss = SOLVb - SOLVe + SOLVr +/- SOLVa where, SOLVb = gallons of solvent in the inventory at the beginning of the normal operating month. SOLVe = gallons of solvent in the inventory at the end of the normal operating month. SOLVr = gallons of solvent received between the beginning and ending inventory dates of the normal operating month. This includes purchased hexane and hexane recovered from imported oil that is added to the extraction plant inventory. SOLVa = gallons of solvent added or removed from the extraction solvent inventory during the normal operating month. For SSM Solvent loss events, the excluded solvent loss must be documented for the event and an estimated associated solvent loss must be provided.	40 CFR Section 63.2853
Calculations - 12-month Rolling Sum: Calculate the 12-month rolling sum actual solvent loss by summing the 12 most recent actual monthly solvent losses.	40 CFR Section 63.2853
Calculations - Monthly Weighted Average HAP Content: By the end of each calendar month following an operating month, calculate weighted average HAP content (volume fraction). The monthly weighted average HAP content is to be determined using the following equation: Monthly Weighted Average HAP Content = $\frac{\sum_{i=1}^n (\text{Received}_i * \text{Content}_i)}{\text{Total Received of Extraction Solvent (volume fraction)}}$ where, Received _i = gallons of extraction solvent received in delivery i; Content _i = volume fraction of HAP in extraction solvent delivery i; n = number of extraction solvent deliveries since the end of the previous operating month. Total received = total gallons of extraction solvent received since the end of the previous operating month.	40 CFR Section 63.2854

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

<p>Calculations - 12-month Weighted Average of HAP Content of Solvent Received:</p> $\text{12-Month Weighted Average of HAP Content in Solvent Received (volume fraction)} = \frac{\sum_{i=1}^{12} (\text{Received}_i * \text{Content}_i)}{\text{Total Received}}$	40 CFR Section 63.2854
<p>Calculations - Oilseed Quantity Processed: By the end of each calendar month following an operating month, calculate the monthly quantity of each oilseed processed by using the following equation:</p> <p>Monthly Quantity of Oilseed Processed = The sum of (SEEDb - SEEDe + SEEDr +/- SEEDa)</p> <p>where, SEEDb = tons of soybeans in the inventory at the beginning of the normal operating month; SEEDe = tons of soybeans in the inventory at the end of the normal operating month; SEEDr = tons of soybeans received during the normal operating month; SEEDa = tons of soybeans added or removed from the oilseed inventory during the normal operating month.</p>	40 CFR Section 63.2855
<p>Calculations - 12-month Rolling Sum: Calculate the 12-month rolling sum of the oilseed quantity processed by summing the monthly oilseed quantity processed for the previous 12 operating months.</p>	40 CFR Section 63.2855
<p>Plan for Demonstrating Compliance: Develop and implement a written Plan for Demonstrating Compliance. This Plan will include:</p> <ol style="list-style-type: none"> 1) a detailed description of the procedures that will be followed to minimize solvent loss, at all times, including normal, startup/shutdown/malfunction (SSM), and non-operating conditions; and, 2) a detailed description of the method of measurement, measurement frequency, calculations, and quality assurance/quality control plan; recordkeeping; and reporting procedures that will be followed to determine source compliance. 	40 CFR Section 63.2862(b)
<p>Startup, Shutdown, and Malfunction Plan: Develop and implement a written Startup, Shutdown, and Malfunction (SSM) plan. At a minimum, this plan is to include:</p> <ol style="list-style-type: none"> 1) a detailed procedure for operating and maintaining the facility to minimize emissions during any SSM event, periods of non-operation associated with a SSM event, and periods of initial startup operation; and, 2) a specified program of corrective action for malfunctioning process and air pollution control equipment; and, 3) specified procedures for estimating solvent loss during each such SSM event. 	40 CFR Section 63.2862(b)
<p>RECORDKEEPING REQUIREMENTS</p>	hdr
<p>By the end of each calendar month following an operating month, record the compliance ratio for each 12 month operating period.</p>	40 CFR Section 63.2862(d)
<p>Upon delivery, record the volume fraction of each HAP comprising more than 1 percent by volume of the solvent in each delivery of solvent, including solvent recovered from off-site oil. For purchased solvent, a Certificate of Analysis provided by the solvent may be used to determine the average HAP content of solvent received. For recovered solvent from vegetable oil purchased from off-site locations, reasonable and sound methods for determining the HAP content shall be used.</p>	40 CFR Section 63.2862(c)
<p>Recording - Solvents: By the end of each calendar month following an operating month, record the following information for the previous operating month. These records shall include the sum of all hexane solvents. At a minimum, these records are to include:</p> <ol style="list-style-type: none"> 1) beginning and end dates defining the operating month; 2) extraction solvent inventories (gallons) at the beginning and end of the operating month; 3) quantity of all extraction solvent (gallons) received, purchased, and off-site recovered, during the operating month; 4) documentation of the reason for and quantity estimation of all extraction solvent inventory adjustments, additions or subtractions; 5) total solvent loss during the operating month; and, 6) 12-month rolling sum of the extraction solvent lost by the process (gallons). 	40 CFR Section 63.2862(b)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Recording - Average HAP Content: By the end of each calendar month following an operating month, record the following information for the average HAP content in the extraction solvent, for the previous operating month: 1) quantity of extraction solvent purchased and delivered during the operating month; 2) concentration of each HAP exceeding 1 percent by volume in each delivery of purchased solvent; 3) average HAP content of extraction solvent received during the operating month; and, 4) weighted average HAP content of extraction solvent received during the previous 12 operating months. (This is not required during the initial startup period.)	40 CFR Section 63.2862(c)
Recording - Processed Soybean Weight: Record the tons of soybeans processed for the operating month. At a minimum, these records are to include: 1) beginning and end dates defining the operating month; 2) inventory of each oilseed (tons) at the beginning and end of the operating month; 3) quantity of each oilseed received at the process (tons) during the operating month; 4) documentation as to reason for adjustment and estimation of the quantity of the adjustment for all oilseed inventory adjustments (additions or subtractions); 5) quantity of each oilseed processed (tons) during the operating month; and, 6) 12-month rolling sum of each oilseed processed (tons). (This is not required during the initial startup period.)	40 CFR Section 63.2862(c)
Record any process modifications resulting in changes to the solvent working capacity.	40 CFR Section 63.2853(a)
REPORTING REQUIREMENTS	hdr
Submit notifications before, during, and after construction according to the schedule listed in 40 CFR Section 63.9, but not sooner than the promulgation date of 40 CFR pt. 63, Subpart GGGG. The notifications are subject to the exceptions noted in 40 CFR Section 63.2860(b)(1). The application for approval of construction must include a brief description of the source including the types of listed oilseed processed, nominal operating capacity, and type of desolventizer used. The notification of actual startup shall state whether the Permittee has elected to operate under an initial startup period subject to 40 CFR Section 63.2850(c)(2) and provide an estimate and justification for the anticipated duration of the initial startup period.	40 CFR Section 63.2860
Notification of Deviation Report. A deviation notification report must be submitted, for each operating month, in which the compliance ratio exceeds 1.00. The report is to be submitted by the end of the month following the calendar month in which the deviation occurred. This report is to include the compliance ratio comprising the deviation.	40 CFR Section 63.2861(b)
Periodic SSM Report: By the end of the calendar month, submit a periodic SSM report for the previous month during which the facility has been operated under an initial startup period or a malfunction period. This SSM report is to include an estimate of the solvent loss during the initial startup or malfunction period with supporting documentation.	40 CFR Section 63.2861(c)
Immediate Startup, Shutdown, and Malfunction Reports: Within 2 working days after commencing actions inconsistent with the SSM plan, submit an Immediate Startup, Shutdown, and Malfunction Report consisting of a telephone call or facsimile transmission followed by a letter within 7 working days of the event. This SSM report is to include an estimate of the solvent loss during the SSM event with supporting documentation.	40 CFR Section 63.2861(d)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 002 Fabric Filter Equipment

What to do	Why to do it
OPERATING REQUIREMENTS (All requirements apply to each control equipment unit.)	hdr
The Permittee shall operate and maintain the control equipment any time that the process equipment that it controls is in operation.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); Minn. R. 7007.3000
Visible Emissions/Pressure Drop Monitoring: Once each day of operation of any GP 002 fabric filter, the Permittee shall check the outlet of each operating fabric filter during daylight hours for any visible emissions (VEs). If inclement weather prohibits a VE check, the Permittee shall observe and record the pressure drop across each operating fabric filter.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); Minn. R. 7007.0800, subp. 4
Install and operate a pressure differential monitoring gauge for determining the pressure drop across the baghouse. The pressure drop shall not exceed 6.0 inches of water column nor be less than 1.0 inch of water column.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); Minn. R. 7007.0800, subp. 4
The Permittee shall take corrective actions, as soon as possible, as based on the operation and maintenance plan to eliminate any visible emissions and/or any pressure drops outside the permitted range specified under this subject item, from any fabric filters.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); Minn. R. 7007.0800, subp. 2
Operate and maintain each control equipment such that it achieves a removal efficiency of each fabric filter for total PM: greater than or equal to 99.0 percent control efficiency.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); Minn. R. 7007.3000
Operate and maintain each control equipment such that it achieves a removal efficiency of each fabric filter for PM10: greater than or equal to 99.0 percent control efficiency.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); Minn. R. 7007.3000
Inspect each of the fabric filters quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subps. 2, 5, and 14
Inspect each of the fabric filters quarterly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subps. 2, 5, and 14
RECORDING REQUIREMENTS	hdr
Recordkeeping of daily monitoring: the Permittee shall keep a daily record, that contains, at a minimum, the following information for each fabric filter unit: 1) Printed name of observer; 2) Signature of observer; 3) Date and time of observation; 4) Are there any visible emissions observed from the fabric filters? ("yes" or "no") 5) Stack/Vent ID number for each "yes"; 6) Description of investigation and corrective actions completed for each "yes"; 7) Weather conditions (temperature, cloud cover, wind, precipitation). or 1) Pressure drop.	Minn. R. 7007.0800, subp. 5
Recordkeeping of corrective actions: The Permittee shall record the corrective actions taken, as soon as possible, as based on the operation and maintenance plan to eliminate any visible emissions and/or any pressure drops outside the permitted range specified under this subject item, from any fabric filters. The Permittee shall keep a record, on-site, of the corrective actions taken.	Minn. R. 7007.0800, subp. 5
Monitor and record pressure drop, for each fabric filter, once every seven days of operation.	Minn. R. 7007.0800, subps. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 003 VOC Losses

What to do		Why to do it	
OPERATING REQUIREMENTS		hdr	
(All requirements apply to the sum of all emission units.)			
Volatile Organic Compounds: less than or equal to 619 tons/year using 12-month Rolling Sum for VOC solvent loss (after first eighteen months of operation).		Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)	
During the first eighteen months of operation, the total sum VOC solvent loss shall be less than the following values as of any given month:		Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)	
Month	Sum VOC Loss (tons)	Month	Sum VOC Loss (tons)
1	387	13	1,005
2	646	14	928
3	688	15	851
4	732	16	773
5	776	17	696
6	820	18	619
7	864		
8	908		
9	951		
10	995		
11	1,039		
12	1,083		
13			
RECORDKEEPING		hdr	
By the end of each calendar month following an operating month, calculate the quantity of actual VOC solvent loss for the previous 12 months by using the monthly and 12 month solvent loss methods in GP 001.		Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); Minn. R. 7007.0800, subps. 4 & 5	

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 004 Hull Grind; Ground Hull Bin; Pellet Tank; Blending Tank; Clay/Earth Bleach

What to do	Why to do it
EMISSION LIMITS (All limits apply individually to each emission unit.)	hdr
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot using 1-Hour Average for any process emissions from each stack vent in GP 004.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot using 3-hour Average for any process emissions from each stack vent in GP 004.	Title Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING REQUIREMENTS	hdr
Fabric filters for each individual stack shall be operated at all times when the emission unit is in operation. See GP 002 for Fabric Filter requirements.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
PERFORMANCE TESTS	hdr
Initial Performance Test: due 180 days after Initial Startup to measure PM10 for both SV 005 and SV 006 within GP 004. For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject item "Total Facility."	Minn. R. 7007.0800, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 005 Cyclone Units

What to do	Why to do it
EMISSION LIMITS	hdr
(All limits apply individually to each emission unit.)	
Total Particulate Matter: less than or equal to 0.026 grains/dry standard cubic foot using 1-Hour Average for any process emissions from each stack vent in GP 005.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); also meets the requirements of Minn. R. 7011.0715, subp. 1A
Particulate Matter < 10 micron: less than or equal to 0.013 grains/dry standard cubic foot using 3-hour Average for any process emissions from each stack in GP 005.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING REQUIREMENTS	hdr
Cyclones for each individual stack shall be operated at all times whenever the emission unit vented to that stack is in operation.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Install and maintain a monitoring device in each cyclone that will continuously monitor for plugging of the cyclone. The monitoring devices will be connected to audible and visible alarms to indicate plugging or failure of the probe.	Title I Condition: BACT Limit as per 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
The monitoring devices and alarm system shall be operated whenever the corresponding cyclone is operating.	Minn. R. 7007.0800, subps. 4 & 5
Inspect each cyclone quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subps. 2, 5, and 14
Inspect each cyclone quarterly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subps. 2, 5, and 14
PERFORMANCE TESTS	hdr
Initial Performance Test: due 180 days after Initial Startup to measure PM10 for each stack vent (SV 004, SV 007, SV 010, SV 011, SV 013, SV 014, SV 015, SV 016, SV 022) within Group 5.	Minn. R. 7007.0800, subp. 4
For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject item "Total Facility."	

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 006 Storage Tanks

What to do	Why to do it
Keep readily accessible records showing the dimension of each individual storage vessel and an analysis showing the capacity of each individual storage vessel.	40 CFR Section 60.116b(b)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 007 Boilers

What to do	Why to do it
EMISSION LIMITS	hdr
(All limits apply to each emission unit.)	
Nitrogen Oxides: less than or equal to 0.050 lbs/million Btu heat input when combusting natural gas, using 3-hour average.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Nitrogen Oxides: less than or equal to 0.1250 lbs/million Btu heat input when combusting distillate fuel oil, using 3-hour Average.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Volatile Organic Compounds: less than or equal to 0.00524 lbs/million Btu heat input when combusting natural gas.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Volatile Organic Compounds: less than or equal to 0.00143 lbs/million Btu heat input when combusting distillate fuel oil.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Total Particulate Matter: less than or equal to 0.00181 lbs/million Btu heat input when combusting natural gas.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Total Particulate Matter: less than or equal to 0.00143 lbs/million Btu heat input when combusting distillate fuel oil.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Particulate Matter < 10 micron: less than or equal to 0.00724 lbs/million Btu heat input when combusting natural gas.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Particulate Matter < 10 micron: less than or equal to 0.023 lbs/million Btu heat input when combusting distillate oil.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Sulfur Dioxide: less than or equal to 0.0507 lbs/million Btu heat input	Title I Condition: Limit to avoid classification as major for SO ₂ under 40 CFR Section 52.21; also meets the requirements of 40 CFR Section 60.42c(d)
Opacity: less than or equal to 20 percent except for one 6-minute period per hour of not more than 27 percent opacity.	40 CFR Section 60.43c(c)
OPERATING REQUIREMENTS	hdr
Fuel Usage: Limited to pipeline natural gas and low sulfur distillate oil. (Maximum sulfur content 0.05% by weight for distillate oil.)	Title I Condition: Limit to avoid classification as major for SO ₂ under 40 CFR Section 52.21
Fuel Usage: less than or equal to 6080000 gallons/year using 12-month Rolling Sum of #2 fuel oil to be consumed by both Boilers #1 (EU 026) and #2 (EU 027), based on a calculated 12-month rolling sum.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j) (for NO _x); Title I Condition: Limit to avoid classification as major under 40 CFR Section 52.21 (for SO ₂)
Except during start-up and shutdown, operate CE 027 at all times that EU 026 is operating and operate CE 028 at all times that EU 027 is operating.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
MONITORING REQUIREMENTS	hdr
The Permittee shall obtain the supplier certifications for each delivery of distillate oil which specify the sulfur content in percent by weight.	Minn. R. 7007.0800, subp. 4
Record the quantity #2 fuel oil consumed for Boilers #1 and #2 (in gallons) on a monthly basis. Keep records on site.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j) (for NO _x); Title I Condition: Limit to avoid classification as major under 40 CFR Section 52.21 (for SO ₂)
SUBMITTAL AND REPORTS	hdr
Fuel supplier certifications shall include: i) the name of the oil supplier; and, ii) a statement from the oil supplier that the oil sulfur content is less than or equal to 0.05 percent by weight for distillate oil.	Title I Condition: BACT Limit as per 40 CFR Section 52.21; also meets the requirements of 40 CFR Section 60.48c(f)
Record and maintain records of the amounts of each fuel combusted during each month.	40 CFR Section 60.48c(g); Feb. 20, 1992 EPA Memo
PERFORMANCE TESTS	hdr
Initial Performance Test: due 180 days after Initial Startup for each individual unit (EU 026 and EU 027), but not to exceed 60 days after achieving the maximum production rate at which the affected facility will be operated to measure opacity. For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject Item "Total Facility."	40 CFR Section 60.45c(a); Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup for each individual unit (EU 026 and EU 027) to measure NO _x . For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject Item "Total Facility."	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: GP 008 Loadout Units

What to do	Why to do it
EMISSION LIMITS (All limits apply to each emission unit.)	hdr
Total Particulate Matter: less than or equal to 0.003 grains/dry standard cubic foot using 1-Hour Average for any process emissions from each stack vent in GP 008.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); also meets the requirements of 7011.1005, subp. 3(D)
Particulate Matter < 10 micron: less than or equal to 0.003 grains/dry standard cubic foot using 3-hour Average for any process emissions from each stack vent in GP 008.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 10 percent	Minn. R. 7011.1005, subp. 3(D)
OPERATING REQUIREMENTS	hdr
Fabric filters for each individual stack shall be operated at all times when the emission unit is in operation. See GP 002 for Fabric Filter requirements.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Clean up commodities spilled on facility property, as required, to minimize emissions to a level required with RACT.	Minn. R. 7011.1005, subp. 3(D)
Maintain air pollution control equipment in proper operating condition and utilize the air pollution control systems as designed.	Minn. R. 7011.1005, subp. 3(D)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: EU 001 Receiving

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.003 grains/dry standard cubic foot using 3-hour Average .	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); also meets the requirements of 40 CFR 60.302(b)(1) and Minn. R. 7011.1005, subp. 2
Particulate Matter < 10 micron: less than or equal to 0.003 grains/dry standard cubic foot using 3-hour Average .	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 0 percent for any process emissions.	40 CFR Section 60.302(b)(2); Minn. R. 7011.1005, subp. 2
Opacity: less than or equal to 5 percent for fugitive emissions from any grain unloading station	40 CFR Section 60.302(c)(1); Minn. R. 7011.1005, subp. 2
Opacity: less than or equal to 0 percent for any fugitive emissions from grain handling operations	40 CFR Section 60.302(c)(2); Minn. R. 7011.1005, subp. 2
OPERATING REQUIREMENTS	hdr
Clean up commodities spilled on facility property, as required, to minimize emissions to a level required with RACT	Minn. R. 7011.1005, subp. 1
Maintain air pollution control equipment in proper operating condition and utilize the air pollution control systems as designed. See GP 002 for Fabric Filter requirements.	Minn. R. 7011.1005, subp. 1
Maintain total enclosure around the grain truck for the entire grain receiving by complete closure of all doors on the grain receiving building.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
RECORDING REQUIREMENTS	hdr
PERFORMANCE TESTS	hdr
Initial Performance Test: due 180 days after Initial Startup to measure PM (PM to include organic condensables). For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject Item "Total Facility."	Title I Condition: BACT Limit as per 40 CFR 52.21(j); 40 CFR Section 60.303(b); 40 CFR Section 60.8(a); Minn. R. 7011.1005, subp. 2
Initial Performance Test: due 180 days after Startup to measure Opacity. For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject item "Total Facility."	40 CFR Section 60.303(b); 40 CFR Section 60.8(a); Minn. R. 7011.1005, subp. 2
Initial Performance Test: due 180 days after Initial Startup to measure PM10. For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject item "Total Facility."	Minn. R. 7007.0800, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: EU 002 Grain Elevator Transfer

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot using 1-Hour Average	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); also meets the requirements of 40 CFR 60.302(b)(1) and Minn. R. 7011.1005, subp. 2
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot using 3-hour Average	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 0 percent from any process emissions	40 CFR Section 60.302(b)(2); Minn. R. 7011.1005, subp. 2
Opacity: less than or equal to 0 percent for any fugitive emissions from grain handling operations	40 CFR Section 60.302(c)(2); Minn. R. 7011.1005, subp. 2
OPERATING REQUIREMENTS	hdr
Clean up commodities spilled on facility property, as required, to minimize emissions to a level required with RACT	Minn. R. 7011.1005, subp. 1
Maintain air pollution control equipment in proper operating condition and utilize the air pollution control systems as designed. See GP 002 for Fabric Filter requirements.	Minn. R. 7011.1005, subp. 1
REPORTING REQUIREMENTS	hdr
PERFORMANCE TESTS	hdr
Initial Performance Test: due 180 days after Initial Startup to measure PM (PM to include organic condensibles).	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); 40 CFR Section 60.303(b); 40 CFR Section 60.8(a); Minn. R. 7011.1005, subp. 2
For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject Item "Total Facility."	
Initial Performance Test: due 180 days after Initial Startup to measure Opacity.	40 CFR Section 60.303(b); 40 CFR Section 60.8(a); Minn. R. 7011.1005, subp. 2
For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject item "Total Facility."	
Initial Performance Test: due 180 days after Initial Startup to measure PM10.	Minn. R. 7007.0800, subp. 4
For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject item "Total Facility."	

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: EU 003 Bean Cleaning

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.003 grains/dry standard cubic foot using 1-Hour Average .	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Particulate Matter < 10 micron: less than or equal to 0.003 grains/dry standard cubic foot .	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING REQUIREMENTS	hdr
Fabric filters for each individual stack shall be operated at all times when the emission unit is in operation. See GP 002 for Fabric Filter requirements.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Cyclones for each individual stack shall be operated at all times whenever the emission unit vented to that stack is in operation.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Install and maintain a monitoring device in each cyclone that will continuously monitor for plugging of the cyclone. The monitoring devices will be connected to audible and visible alarms to indicate plugging or failure of the probe.	Title I Condition: BACT Limit as per 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 14
The monitoring devices and alarm system shall be operated whenever the corresponding cyclone is operating.	Minn. R. 7007.0800, subps. 4 & 5
Inspect each cyclone quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subps. 2, 5, and 14
Inspect each cyclone quarterly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subps. 2, 5, and 14
PERFORMANCE TESTS	hdr
Initial Performance Test: due 180 days after Initial Startup to measure PM10 for the stack vent.	Minn. R. 7007.0800, subp. 4
For additional applicable performance test requirements see 'General Performance Test Requirements' in Table A, subject item "Total Facility."	

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: EU 020 Meal Grinding

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.003 grains/dry standard cubic foot using 1-Hour Average .	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Particulate Matter < 10 micron: less than or equal to 0.003 grains/dry standard cubic foot .	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING REQUIREMENTS	hdr
Fabric filters for each individual stack shall be operated at all times when the emission unit is in operation. See GP 002 for Fabric Filter requirements	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Maintain air pollution control equipment in proper operating condition and utilize the air pollution control systems as designed. See GP 002 for Fabric Filter requirements.	Minn. R. 7011.1005, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: EU 021 Meal Bin

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 grains/actual cubic foot using 1-Hour Average	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j); also meets the requirements of 7011.1005, subp. 3(D)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot using 3-hour Average	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Opacity: less than or equal to 10 percent	Minn. R. 7011.1005, subp. 3(D)
OPERATING REQUIRMENTS	hdr
Fabric filters for each individual stack shall be operated at all times when the emission unit is in operation.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Clean up commodities spilled on facility property, as required, to minimize emissions to a level required with RACT.	Minn. R. 7011.1005, subp. 1
Maintain air pollution control equipment in proper operating condition and utilize the air pollution control systems as designed. See GP 002 for Fabric Filter requirements.	Minn. R. 7011.1005, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: EU 028 Fire Pump Engine

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input (0.29 lbs/million Btu per equipment design).	Minn. R. 7011.2300, subp. 1
OPERATING CONDITIONS	hdr
Operating Hours: less than or equal to 500 hours/year	Title I Condition: Limit to avoid classification as major for SO ₂ under 40 CFR Section 52.21
Fuel Type: No. 2 distillate fuel only, by design.	Minn. R. 7005.0100, subp. 35a
Operation: emergency usage, training, or testing purposes only.	Minn. R. 7007.0800, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping -- Hours of Operation: The Permittee shall maintain documentation on-site for the hours of operation that the unit is to be used for emergency, training, or testing purposes.	Minn. R. 7007.0800, subps. 4 and 5
Recordkeeping -- Fuel Type: The Permittee shall keep records of the type of fuel burned in EU 028 when in operation.	Minn. R. 7007.0800, subps. 4 and 5
Fuel Supplier Certification: Obtain and maintain a fuel supplier certification for each shipment of No. 2 distillate oil, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subps. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: EU 031 Genset (Emergency)

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input (0.29 lbs/million Btu per equipment design).	Minn. R. 7011.2300, subp. 1
OPERATING CONDITIONS	hdr
Fuel Type: No. 2 distillate fuel only, by design.	Minn. R. 7005.0100, subp. 35a
Operation: emergency usage, training, or testing purposes only.	Minn. R. 7007.0800, subp. 2
Alternative Operating Scenario: Other than for limited testing/training purposes, the emergency generator is only allowed to operate for providing power to the compressed air system, the cooling water pumps, and the emergency lighting during the event of a power outage.	Title I Condition: BACT limit as per 40 CFR Section 52.21(j)
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping -- Hours of Operation: The Permittee shall maintain documentation on-site that the unit is to be used for emergency (including training and testing) purposes only that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to hours per year.	Minn. R. 7007.0800, subps. 4 and 5
Recordkeeping -- Fuel Type: The Permittee shall keep records of the type of fuel burned in EU 031 when in operation.	Minn. R. 7007.0800, subps. 4 and 5
Fuel Supplier Certification: Obtain and maintain a fuel supplier certification for each shipment of No. 2 distillate oil, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subps. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Subject Item: FS 003 Soybean Pile

What to do	Why to do it
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
Operation: During soybean piling, the free fall height between conveyance drop point and top of soybean pile shall not exceed 5 feet.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
All paved roads and areas shall be cleaned to minimize the discharge to the atmosphere of fugitive particulate emissions. Such cleaning shall be accomplished in a manner which minimizes the resuspension of particulate matter.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)
Clean up all bean/bean material spilled on roads or access areas, as soon as practicable, using methods that minimize the amount of dust suspended.	Title I Condition: BACT Limit as per 40 CFR Section 52.21(j)

TABLE B: SUBMITTALS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster
Permit Number: 10500053 - 001

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

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

What to send	When to send	Portion of Facility Affected
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	EU001, EU002, GP007
Notification of the Date Construction Began	due 30 days after Start Of Construction	EU001, EU002, GP007
Submittal	due 610 days after Initial Startup Certification of Compliance Status. This notification shall include: 1) name and address of owner; 2) physical address of facility; 3) type of oilseed type processed; 4) each HAP, present in purchased solvent, in concentrations greater than 1 percent by volume, during the initial compliance determination; 5) statement designating either being a major or area source; 6) compliance certification of Plan for Demonstrating Compliance and SSM as complete and available, procedures in Plan for Demonstrating Compliance are being followed, and compliance ratio is less than or equal to 1.00.	GP001
Testing Frequency Plan	due 60 days after Initial Performance Test for both EU 026 and EU 027. The plan shall specify a testing frequency to measure opacity and NOx 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 upon written MPCA approval per Minn. R. 7017.2020, subp. 1.	GP007
Testing Frequency Plan	due 60 days after Initial Performance Test for each Stack Vent (SV 004, SV 007, SV 010, SV 011, SV 013, SV 014, SV 015, SV 016, SV 022) within Group 5. The plan shall specify a testing frequency to measure PM10 using the test data and MPCA guidance for each Group 5 Stack Vent. Future performance tests based on year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written MPCA approval per Minn. R. 7017.2020, subp. 1.	GP005
Testing Frequency Plan	due 60 days after Initial Performance Test for each SV 005 and SV 006 within Group 4. The plan shall specify a testing frequency to measure PM10 using the test data and MPCA guidance for each stack vent. Future performance tests based on year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written MPCA approval per Minn. R. 7017.2020, subp. 1.	GP004
Testing Frequency Plan	due 60 days after Initial Performance Test for the Stack Vent. The plan shall specify a testing frequency to measure PM10 using the test data and MPCA guidance for the Stack Vent. Future performance tests based on year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written MPCA approval per Minn. R. 7017.2020, subp. 1.	EU003
Testing Frequency Plan	due 60 days after Initial Performance Test. The plan shall specify a testing frequency to measure PM, PM10, and Opacity using the test data and MPCA guidance for the stack vent. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required upon written MPCA approval per Minn. R. 7017.2020, subp. 1.	EU002

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

Testing Frequency Plan	due 60 days after Initial Performance Test. The plan shall specify a testing frequency to measure PM, PM10, and Opacity using the test data and MPCA guidance for the stack/vent. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required upon written MPCA approval per Minn. R. 7017.2020, subp. 1.	EU001
------------------------	---	-------

TABLE B: RECURRENT SUBMITTALS

12/19/02

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053 - 001

What to send	When to send	Portion of Facility Affected
Quarterly Report	due 30 days after end of each calendar quarter following Quarterly Report. Keep records and submit quarterly reports. Each quarterly report shall be postmarked by the 30th day following the end of the reporting period. The quarterly report shall include both 1) the calendar dates covered in the reporting period, 2) a copy of all certifications of fuel deliveries for fuel oil burned during the quarter, and 3) a statement certifying that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.	GP007
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. 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 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Certification shall be submitted on a form approved by the Commissioner, both to the Commissioner, and to the U.S. EPA regional office in Chicago. This report covers all deviations experienced during the calendar year. The EPA copy shall be sent to: Mr. George Czerniak, Chief, Air Enforcement and Compliance Assurance Branch, Air and Radiation Division, EPA Region V, 77 West Jackson Boulevard, Chicago, Illinois 60604.	Total Facility
Compliance Certification	due 365 days after end of each calendar year following Notification of compliance status	GP001

APPENDIX MATERIAL

Facility Name: Minnesota Soybean Processors - Brewster

Permit Number: 10500053-001

INSIGNIFICANT ACTIVITIES

Activity

- 1) Lab Hood

TECHNICAL SUPPORT DOCUMENT
For
DRAFT AIR EMISSION PERMIT NO. 10500053-001

This Technical Support Document (TSD) 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 and Operator Address and Phone Number (list both if different)	Facility Address (SIC Code: 2075)
Minnesota Soybean Processors	Corner 200 th & Zeh Avenue Brewster Nobles County, MN 56119

1.2. Description of the facility

This total facility operating permit authorizes Minnesota Soybean Processors (MnSP) to construct and operate a 3,000 ton per day soybean processing plant in the city of Brewster, Nobles County, Minnesota.

The facility at Brewster will receive raw soybeans and process them, extracting crude soybean oil from the beans. By-products of the oil processing are soy meal and hulls, which are sold for animal feed.

Soybeans will be delivered from the local farmers or grain storage facilities by semi-trailer truck. The soybeans are off-loaded and stored in bins having a storage capacity of 2.3 million bushels. From storage the beans are sent to a screening and cleaning area in the preparation building where trash accompanying the beans is removed. From here the beans are routed to the dehulling process. The hull of the bean will be ground. The ground soybean hulls are usually formed into pellets and sold as animal feed. The meat of the bean is cracked into larger chunks, conditioned (heated) and then pressed into flakes. These materials are then sent to the extraction building.

The flakes are washed in the extraction building with a solvent, commercial hexane, to strip the oil from the flakes. The mixture of solids and solvent are separated. The solids, which are still laden with hexane, are sent to a meal desolventizer where they are heated and the solvent is volatilized. The solvent-free solids are then cooled, ground and stored as meal. This meal is sold as animal feed. The liquid removed from the solids consists of hexane, soybean oil and water and is called the miscella.

The miscella is separated into its components using distillation. The hexane is reused, the water disposed of and the oil, termed “crude oil,” is stored. The crude oil will be shipped off-site, to be refined into various products. Minnesota Soybean Processors plans to evaluate the possibility of

establishing the capability to formulate biodiesel, a replacement for petroleum diesel fuel, from the crude oil.

The meal and oil products will be shipped from the facility by rail and truck.

Besides receiving, preparation and extraction there will be a weigh station, offices and a lab, a steam generation plant, maintenance, and warehousing. The steam plant will fire, primarily, natural gas.

The following are groups of equipment that will emit regulated air pollutants:

Headhouse

Particulate emissions: Receiving pits and conveyors

Preparation

Particulate emissions: Screeners, pod grinders, aspirators, crackers, heaters, hull grinders, conveyors, pelletizers, coolers, flakers

Solvent Extraction

VOC, HAPs (n-hexane), and particulate: Extractors, desolventizers, MOS, reboilers, work tank

Meal Preparation

Particulate emissions: Meal conveyors, grinders, loadout

Steam Plant

The boiler emits particulate, VOCs, sulfur dioxide (SO₂), oxides of nitrogen (NO_x) and carbon monoxide (CO).

This project was subject to Federal New Source Review (NSR). The NSR review resulted in the following air emission controls.

PM/PM ₁₀ generating processes with dry exhaust stream	Fabric filters
PM/PM ₁₀ generating processes with wet exhaust stream (with process cyclones)	Good process control (after cyclones)
VOC emitting processes	Good solvent recovery practices
Boilers	Dry Low NO _x combustors with flue gas recirculation
Back-up generator	Aftercoolers
Cooling Tower	High efficiency drift eliminators

Bean Storage

Best management practices, including an enclosed loading spout

In addition, fuel oil burned in any of the combustion sources must contain less than 0.05% sulfur, by weight. Fuel oil is a backup fuel to natural gas. The facility can burn no more than 6,080,000 gallons of fuel oil in the boilers during any consecutive 12-month period.

1.3 Description of any changes allowed with this permit issuance

This permit allows construction and operation of the new source.

1.4. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary:

Emission Unit Description	EU #	SV #	PM (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	NO _x (tpy)	VOC (tpy)	CO (tpy)	Pb (tpy)	Single HAP (tpy)	All HAPs (tpy)
Receiving	001	001	3.94	3.94							0.00
Transfer	002	002	2.82	2.82							0.00
Bean cleaning	003	003	0.73	0.73							0.00
Bean heating	004	004	57.26	28.63							0.00
Jet drying	005										
Hulloosensors	006										
Cracking	007										
Secondary aspirator	008										
Hot Dehulling											
Hull grinding	009	005	2.25	2.25							0.00
Ground Hull Bins	010	006	0.13	0.13							0.00
Pellet cooler	011	007	6.83	3.42							0.00
Flakers	012	011	19.52	9.76							0.00
Mineral Oil System	013	020					54.02			47.41	47.41
Pellet storage tank	014	008	0.13	0.13							0.00
Blending	015	009	1.22	1.22							0.00
Dryer deck # 1	016	013									
Dryer deck # 2	017	014									
Cooling deck # 1	018	015									
Cooling deck # 2	019	016									
Dryer deck # 3 (future)	029	031									
Cooler deck # 3 (future)	030	032									
DT/DC Decks			105.42	52.71			486.16			426.65	426.65

Meal grinding	020	012	1.80	1.80							0.00
Meal bin	021	017	1.23	1.23							0.00
Bleach clay/diatomaceous earth	022	025	0.14	0.14							0.00
Meal/hull load-out (Truck #1)	024	018	4.80	4.80							0.00
Meal/hull load-out (Truck # 2/rail)	025	019	4.80	4.80							0.00
Boilers		021									
First Boiler	026		6.37	6.37	11.05	32.22	2.13	32.46	1.99E-03		1.41E-01
Second Boiler	027		6.37	6.37	11.05	32.22	2.13	32.46	1.99E-03		1.41E-01
Fire Pump Engine	028	030	0.17	0.17	0.15	2.33	0.19	0.50			0.00
Genset (Emergency)	031	033	0.11	0.11	0.10	1.56	0.12	0.34			0.00
Commercial Hexane 1	TK 001	020									0.00
Commercial Hexane 2	TK 002	020									0.00
Commercial Hexane 3	TK 003	020									0.00
Commercial Hexane 4	TK 004	020									0.00
First Distillate FO #2	TK 005						0.01				0.00
Second Distillate FO#2	TK 006						0.01				0.00
Fugitive Emissions		FS 001					540.18			474.06	474.06
Onsite Vehicle Traffic		FS 002	13.03	2.54		0.79					0.00
Bean Pile		FS 003	4.94	1.23							0.00
Cooling Tower		FS 004	0.27	0.20							0.00
Lab Hood		IA 001					0.33			0.16	0.33
		Totals	244.27	135.50	22.36	69.12	1085.25	65.76	3.98E-03	948.28	948.72

	PM (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	NO_x (tpy)	VOC (tpy)	CO (tpy)	Pb (tpy)	Single HAP (tpy)	All HAPs (tpy)
Total Facility Limited Potential Emissions*	244.27	135.50	22.36	69.12	1085.25	65.76	3.98E-03	948.28	948.72

Table 2. Emissions Associated with the Construction

Pollutant	Limited Potential to Emit from the Construction (tpy)	NSR* and HAP Major Threshold Level (tpy)	NSR/ MACT Review Applicable (yes or no)
PM	244.3	250/25	Yes
PM ₁₀	135.5	250/15	Yes
SO ₂	22.4	250/40	No
NO _x	69.1	250/40	Yes
VOC	1085.3	250/40	Yes
CO	65.8	250/100	No
Lead	3.98E-03	250/0.6	No
n-hexane	948.3	10	Yes
Total HAPs	947.7	25	Yes

* NSR: PSD major threshold = 250 tpy/PSD significant thresholds

For Tables 1 and 2, VOC, n-hexane, and Total HAPs emissions totals are based on the first 12 months of operation, including the 180-day startup period.

Table 3. Total Facility and Permit Classification

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)	PM, PM ₁₀ , NO _x , VOC		CO, SO ₂ , Pb
NAAR (N/A)			
Part 70 Permit Program (list pollutant)	PM, PM ₁₀ VOC, n-hexane, Total HAP		NO _x , SO ₂ , CO, Pb

* 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.

1.5 EPA's 30-Day Review Comments

2. Regulatory and/or Statutory Basis

Federal New Source Review: Since the potential emissions of, at least, one criteria pollutant is above 250 tons per year, the source is considered major under the applicable NSR regulation, Prevention of Significant Deterioration (PSD), 40 CFR 52.21. Potential emissions of VOC are greater than the PSD major source threshold of 250 tpy. Because one of the criteria pollutants exceeded the major source threshold, PM, PM₁₀ and NO_x also became subject to PSD. This is

due to the potential emissions exceeding the PSD significant thresholds of 25 tpy, 15 tpy and 40 tpy, respectively. Hence, a PSD analysis was done for PM, PM₁₀, VOC and NO_x.

Federal New Source Performance Standards: The storage tank equipment is subject to 40 CFR 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels. The two 90 MMBtu/hr boilers are subject to 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

Federal National Emission Standard for Hazardous Air Pollutants: The solvent extraction process is subject to the requirement to apply Maximum Achievable Control Technology (MACT) in accordance with 40 CFR Part 63, Subpart GGGG - Solvent Extraction for Vegetable Oil Production. Under Section 112, any new source with an individual (HAP) potential emission greater than 10 tpy is considered a major source. A major HAP source is required to meet the new source MACT established for that source category. There is a planned MACT standard for industrial boilers, but it has not yet been proposed. The boilers at the Brewster facility will be regulated as sources once the rule is proposed. Due to the recently built 8 million gallon storage tank, the building site is not currently considered a greenfield site.

Minnesota Performance Standards: The two diesel engines (for the generator and the fire pump) are subject to the performance standards for internal combustion engines - Minn. R. 7011.2300. The receiving, meal storage, and meal loadout equipment are subject to the performance standards for dry bulk agricultural commodity facilities. Minn. R. 7011.1005.

Minnesota and National Ambient Air Quality Standards/Ambient Impacts: MnSP has performed dispersion modeling and determined that the predicted impacts of the plant's operation are below all ambient air quality standards, PSD increment levels, and Minnesota Health Risk Values.

Minnesota Draft Health Risk Values: MnSP has performed dispersion modeling and determined that the predicted impact of n-hexane emissions from the plant's operation is below the proposed Minnesota Health Risk Value (HRV).

Minnesota Environmental Assessment Worksheet: Minnesota rules require an environmental review if the potential emissions increase of any criteria pollutant exceeds 100 tpy. Hence, an Environmental Assessment Worksheet was prepared.

Below is a summary table of the regulations used to derive the limits and conditions set in the permit:

Regulatory Overview of Facility

EU, GRP, or	Applicable Regulations	Comments:
----------------	------------------------	-----------

SV #		
EU001 – EU012, EU014 – EU022, EU024, EU025, EU029, EU030, FS003	40 CFR Section 52.21(j)	Prevention of Significant Deterioration. BACT limits for PM and PM10.
EU001, EU002, GP008 (EU024, 025), EU021	Minn. R. 7011.1005, Subps. 1 & 3	Standards of Performance for Dry Bulk Agricultural Commodity Facilities
GP 003 (EU013,0 16-019, 029,030)	40 CFR Section 52.21(j)	Prevention of Significant Deterioration. BACT limits for VOCs.
EU028, EU031	40 CFR Section 52.21(j) Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines
GP 006 (TK001- TK006)	40 CFR Section 63 Subp. Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels
GP 001 (EU013,0 16-019, 029,030)	40 CFR Section 63, Subp. GGGG	Federal National Emission Standards for Hazardous Air Pollutants – Solvent Extraction for Vegetable Oil Production
GP 007 (EU026, 027)	40 CFR Section 60, Subp. Dc 40 CFR 52.21(j)	Standards of Performance for Small and Industrial Commercial and Institutional Steam Generating Units Prevention of Significant Deterioration. BACT limits for PM, PM10, NOx, and VOC.

3. Technical Information

3.1 Best Available Control Technology (BACT) Analysis

The BACT summary analysis is attached. It contains the BACT control technology summary, BACT emission limits summary, and control technology cost evaluation summary.

In addition, also attached are the Permittee's permit application BACT materials.

3.2 Air Quality Analysis (Modeling Results)

Air dispersion modeling was performed by MnSP for the proposed facility. The modeling was conducted to demonstrate compliance with the National and Minnesota Ambient Air Quality Standards (NAAQS and MAAQS) and PSD increment standards. In addition, modeling was used to evaluate the impact of n-hexane emissions.

The Industrial Source Complex Plume Rise Model Enhancements (ISC-PRIME) model, version 99207 was used to estimate concentrations at and around the proposed Brewster facility. The Minnesota Pollution Control Agency (MPCA) and the U.S. Environmental Protection Agency (EPA) have granted approval to use the ISC-PRIME model for previous similar PSD air quality modeling demonstrations. Cenex Harvest States Cooperatives received approval from EPA to use the ISC-PRIME model for a similar soybean processing plant to be located in Fairmont, Minnesota in the letter, dated August 23, 2000, from Bharat Mathur of EPA to Mike Sandusky of the MPCA. The ISC-PRIME model provides a more accurate characterization of the near-field dispersion of emissions by adding three building downwash parameters to the Industrial Source Complex Short Term 3 (ISCST3) base code. When compared to observational data, the ISC-PRIME model has been shown to perform as well as or better than ISCST3 for air dispersion modeling demonstrations with building downwash effects.

All major criteria pollutant background sources within 50 kilometers (km) of the plant that are major sources of criteria pollutants were included in the modeling to demonstrate compliance with the National and Minnesota Ambient Air Quality Standards. There are no major PM₁₀ and NO_x background sources in Iowa within 50 km of the facility, as identified through correspondence with the Iowa DNR. The MPCA confirmed that no baseline date has been triggered in Nobles County. However, submission of the PSD application for Minnesota Soybean Processors' proposed Brewster facility triggers the minor and major source baseline dates for NO_x and PM₁₀ in Nobles County. Therefore, no increment consumers in addition to the emission sources associated with the proposed facility were modeled.

The results of the air modeling for the ambient air impacts and ambient air quality standards are summarized in the table below. The air dispersion modeling results show that potential emissions do not cause or contribute to an exceedance of a NAAQS, MAAQS, or a PSD increment standard. In addition, the permit application air modeling materials (Section 6) are attached.

Ambient Air Impacts and Ambient Air Quality Standards Summary

(All values are in (ug/m³)).

Impact	NO _x Annual Average (□g/m ³) ^a	PM ₁₀		n-hexane Annual Average (□g/m ³) ^a
		24-Hour Average (□g/m ³)	Annual Average (□g/m ³) _a	
Minnesota Soybean Processors (there are no other increment consuming sources)	8.4	24.0	3.9	---
Increment Standard	25	30 ^b	17	---
Minnesota Soybean Processors and Background Sources	8.9	23.7	5.4	443
Background Concentration	16.2	43	13.8	---
Minnesota Soybean Processors and Background Sources Maximum Ambient Impact	25.1	66.7	19.2	443
National Ambient Air Quality Standard	100	150 ^c	50	---
Minnesota Ambient Air Quality Standard or Health Risk Value	100	150 ^d	50	2,000

^a Never to be exceeded

^b Not to be exceeded more than once per year per receptor location

^c Not to be exceeded for more than 1 percent of values, equivalent to the annual average fourth-high for dispersion modeling

^d Not to be exceeded more than five times during a five-year period

As can be seen from the above table, all modeled impacts are less than the NAAQS and MAAQS ambient standards as well as the PSD increment standards.

As part of the Minnesota Air Toxics Review process, MnSP was required to model the n-hexane emissions. Hence, MnSP performed dispersion modeling to predict ambient concentrations of n-hexane (also designated as a federal Hazardous Air Pollutant under federal rule) in addition to the criteria pollutants concentrations. The modeled concentration was compared to the Minnesota Health Departments chronic Health Risk Value (HRV). The modeled concentration was below the HRV. Accordingly, an air toxics risk assessment was not required. Below is a summary of the results.

Maximum n-hexane Pollutant Modeled Impacts:

Pollutant	Averaging Period	Maximum Modeled Concentration, (ug/m ³)	HRV Ambient Standard (ug/m ³)
n-hexane	Annual	443	2,000

3.3 Additional Impact Analysis

With no associated commercial or industrial growth projected, there are no expected growth-related air pollution impacts. Cultivated (farm) land is the most extensive land use in the area. Compliance with the secondary NAAQS will ensure that there are no expectations of adverse impacts to the types of soils and vegetation in the vicinity of the proposed plant. The Permittee prepared a visibility analysis, beginning with a screening procedure similar to that outlined in the EPA document Workbook for Estimating Visibility Impairment. Based on this analysis, there is no expected visibility impairment to occur within the source impact area and that the Level 2 and 3 analyses were unnecessary.

The analysis for growth, soils and vegetation, and visibility impairment are attached. Additional impacts are also described in more detail in the Environmental Assessment Worksheet materials.

3.4 Class I Area Impact Analysis

If a proposed source may affect a Class I area, Federal PSD regulations require notification of Federal land managers and inclusion of potential impacts on the area in the application. “May affect” is interpreted by EPA policy to include all major sources or major modifications which propose to locate within 100 km of a Class I area.

The Federal Class I areas closest to the proposed plant are the Boundary Waters Canoe Area Wilderness and Voyageurs National Park. Neither of these is within 100 km of the proposed source (62 miles). The closest, Boundary Waters, is approximately 470 km from Brewster, Minnesota.

Because of the great distance between the source and the PSD Class I areas of potential concern, no air emissions resulting from the operation of the proposed project are expected to impact those areas.

3.5 Federal National Emission Standard for Hazardous Air Pollutants (NESHAPs) MACT Analysis

The potential-to-emit (PTE) for n-hexane is 542 tpy. The solvent extraction process is subject to 40 CFR Part 63, Subpart GGGG - Solvent Extraction for Vegetable Oil Production. Under Section 112, any new source with an individual (HAP) potential emission greater than 10 tpy is considered a major source. A major HAP source is required to meet the new source MACT established for that source category. This NESHAP (Solvent Extraction for Vegetable Oil Production) has recently been promulgated.

3.6 Technical Notes/Discussion

Combustion Emission Limits

PSD review was triggered for PM, PM₁₀, NO_x, and VOC. Therefore, each combustion emission unit needed a permit emission limit for each of the PSD pollutants subject to PSD review. The emission limits were established through a case-by-case determination of BACT. For situations where the “baseline” level of control represents BACT, the emission limits are based on AP-42 emission factors. “Baseline” control for NO_x is low NO_x burners.

Grain Truck Receiving Total Enclosure

For grain truck receiving, all doors are to be closed during unloading. This is to achieve 100 percent capture. The 100 percent enclosure was assumed in the modeling.

Particulate Emission Units 100 percent Capture Efficiency

Capture efficiency is not specified in the permit requirements. This is due to the nature of the equipment being enclosed. All of the particulate generating emission sources are totally enclosed. Grain truck receiving and meal loadout total enclosure will be achieved by door closure. Hence, a capture efficiency of 100 percent will be achieved for all of the emission sources controlled by add-on fabric filters.

NSPS subp. Kb

Other than that provided in the permit (i.e., maintain tank dimensions on-site), the storage tanks were sized below the remaining thresholds from any additional NSPS, Subp. Kb requirements. These tanks are to be underground.

No Oil Strippers at Plant

There are to be no oil strippers at the facility. The facility will not recover hexane from any imported oil. Hence, this contingency was not addressed in the solvent extraction MACT requirements.

Air Emissions Risk Analysis

As part of the permit application process, MnSP conducted modeling of n-hexane emissions. The maximum modeled n-hexane ambient concentration was below the Minnesota Department of Health n-hexane health risk value. The remaining HAP emissions resulted from combustion sources. The MPCA management decided to exempt the combustion sources from review of air toxics. N-hexane is the only non-combustion toxic air pollutant. N-hexane has been evaluated as part of the PSD modeling and the results have been input into the Environmental Assessment Worksheet (EAW) process.

3.7 Emission Calculations

The Permittee's application emission calculations are attached.

3.8 Emission Limits and Averaging Times

A discussion of the averaging times set for the emission limits is attached.

3.9 RACT/BACT/LAER Clearinghouse

The RACT/BACT/LAER Clearinghouse (RBLC) database was one of the information sources investigated in determining BACT. Because the most restrictive controls were selected for

particulate generating equipment (fabric filters), the RBLC was not determinative for those sources. For the VOC BACT, n-hexane is the VOC of concern. The n-hexane emissions are subject to the National Emission Standard for Hazardous Air Pollutants for Vegetable Oil Extraction. The draft permit reflects these requirements. BACT determinations for the wet particulate generating sources, the combustion sources and the cooling tower were evaluated in the RBLC.

3.10 Bean Storage Pile BACT Determination

Best management practices were selected as BACT for the bean storage pile. This includes the installation of an enclosed loading spout. This spout consists of a stationary tube with damper doors spaced every five feet down the length of the spout. As the spout fills with beans, the beans will exert pressure on the doors, allowing the beans to spill from the doors onto the pile. The maximum drop height from the spout to the pile is limited to five feet, based on the spacing of the damper doors. Best management practices also include cleaning up spilled soybean products in a timely manner and maintaining a clean work area.

3.11 Emergency Generator

The emergency generator is not large enough to supply power to the processing equipment in the case of a power outage. The generator will only power safety systems, which include the cooling water pumps, the compressed air system, and emergency lighting during a power outage.

4. Conclusion

The permit application and modeling were reviewed by EarthTech, Inc.

Based on the information provided by Minnesota Soybean Processors and its consultants, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 10500053-001 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Attachments: BACT Summary Analysis
Emission Limits and Averaging Times
Permittee's Permit Application

BACT Summary Analysis

BACT ANALYSIS SUMMARY

A. BACT CONTROL TECHNOLOGY SUMMARY

See the attached permit application for additional detail on the BACT control technology selection process.

I. Particulate Matter Generating Processes

A. Dry Exhaust Stream Control

PM/PM₁₀ BACT = fabric filters

B. Wet Exhaust Stream Control Alternatives

PM/PM₁₀ BACT = good process control after the cyclones.

Note: These processes will incorporate cyclone collection systems as part of the process to reduce the amount of product lost during the process. The BACT Analysis is conducted on add-on controls after the cyclones.

C. Fugitive Sources

PM/PM₁₀ BACT = Best Management Practices, including installation of an enclosed loading spout

II. Oil Extraction

A. VOCs

VOC BACT = Best Management Practices with a 0.5 gallon of solvent loss per ton of soybean processed for the first six months. After the first six months, the limit becomes 0.2 gallons of solvent loss per ton of soybeans processed. Moreover, the n-hexane emissions must comply with MACT emission limits included in the Solvent Extraction for Vegetable Oil Production NESHAP.

III. Combustion Sources

A. Boilers 2 – 90 MMBtu/hr

NO_x BACT = Flue gas recirculation with low NO_x burners

PM/PM₁₀ BACT = Good combustion control

VOC BACT = Fuel usage limited to natural gas with No. 2 fuel oil as backup

B. Diesel Backup Generator (150 kW)

NO_x BACT = Aftercoolers

C. Diesel Fire Pump (300 hp)

NO_x BACT = Aftercoolers

Permit Action Number:

Date: 2/23/2004

B. BACT EMISSION LIMITS

See the attached permit application for additional detail on the BACT emission limits selection process.

I. Particulate Matter Generating Processes

A. Dry Exhaust Stream Control

Emission Unit ID	Emission Sources Associated with Soybean Processing Operations	PM/PM ₁₀ Grain Loading Standard (gr/dscf)
001	Grain Truck Receiving	0.003
002	Grain Transfer	0.005
003	Bean Cleaning	0.003
009	Hull Grinding	0.005
010	Hull Bin and Conveying	0.005
014	Pellet Storage and Conveying	0.005
015	Blending Tank and Conveying	0.005
020	Meal Grinding and Conveying	0.003
021	Meal Storage and Conveying	0.005
024	Truck Loadout and Conveying	0.003
025	Truck/Rail Loadout and Conveying	0.003
022	Refinery Filter Aid Bins/Conveying	0.005

B. Wet Exhaust Stream Control Alternatives

Emission Unit ID	Emission Sources Associated with Soybean Processing Operations	PM Grain Loading Standard (gr/dscf)	PM ₁₀ Grain Loading Standard (gr/dscf)
004 005 006 007 008	Bean Heaters Jet Dryers Hulloosensors Crackers Secondary Aspirator	0.026	0.013
011	Pellet Cooler/Cyclone	0.026	0.013
012	Flakers/Cyclone	0.026	0.013
029	DT-Dryer Deck/Cyclone No.3	0.026	0.013
016	DT-Dryer Deck/Cyclone No. 1	0.026	0.013
017	DT-Dryer Deck/Cyclone No. 2	0.026	0.013
018	DC-Cooler Deck/Cyclone No. 1	0.026	0.013
019	DC-Cooler Deck/Cyclone No. 2	0.026	0.013
030	DC-Cooler Deck/Cyclone No. 3	0.026	0.013

II. Oil Extraction

A. VOCs

VOC BACT = Best Management Practices with a 0.5 gallon of solvent loss per ton of soybean processed for the first six months. After the first six months, the limit becomes 0.2 gallons of solvent loss per ton of soybeans processed.

Permit Action Number:

Date: 2/23/2004

B. n-hexane

The n-hexane emissions must achieve the Solvent Extraction for Vegetable Oil Production NESHAP.

III. External Combustion Sources

1. Boiler Nos. 1 and 2 – 90 MMBtu/hr

	Natural Gas Factor (lb/MMBtu)	No. 2 Oil Factor (lb/MMBtu)
NO _x	0.05	0.125
VOC	0.00524	0.00143
PM ₁₀	0.00724	0.023
PM	0.0018	0.0143

C. CONTROL TECHNOLOGY COST EVALUATION SUMMARY

See the attached permit application for additional detail on the control technology cost evaluation selection process.

I. Particulate Matter Generating Processes

TYPICAL COLLECTION EFFICIENCIES FOR VARIOUS PARTICULATE CONTROL DEVICES¹

Control Technology	Typical Control Efficiencies
Fabric Filter	99+%
Venturi Scrubber	90 – 99 %
Wet Scrubber	20 – 99 %
High Efficiency Cyclone	80 – 95%
Medium Efficiency Cyclone	50 – 85%
Low Efficiency Cyclone	10 - 50 %
Baseline (Process Cyclone)	-

¹ From AP-42 Table B2.3, dated 9/90, reformatted 1/95.

A. Dry Exhaust Stream Control Alternatives

Minnesota Soybean Processors proposed that fabric filters be selected as BACT for the PM/PM₁₀ emission sources with dry exhaust stream. Since fabric filters represent the control technology with the most effective control, additional control technology evaluation was not conducted.

B. Wet Exhaust Stream Control Alternatives

These processes use cyclone collection systems as part of the process to reduce the amount of product lost during the process. Because the cyclones are used to collect product, the BACT analysis was conducted on add-on controls after the cyclones.

Pellet Cooler

BACT Alternatives	PM (\$/ton)	PM ₁₀ (\$/ton)	Status
Venturi Scrubber	35,508	70,912	Rejected
Wet Scrubber	32,354	64,612	Rejected
Cyclone	11,037	29,388	Rejected
Good Process Control	0.026 gr/dscf	0.013 gr/dscf	Accepted

DT/DC Decks

BACT Alternatives	PM (\$/ton)	PM ₁₀ (\$/ton)	Status
Venturi Scrubber	15,980	31,960	Rejected
Wet Scrubber	13,421	26,843	Rejected
Cyclone	6,264	16,703	Rejected
Good Process Control	0.026 gr/dscf	0.013 gr/dscf	Accepted

Hot Dehuller

Permit Action Number:

Date: 2/23/2004

BACT Alternatives	PM (\$/ton)	PM ₁₀ (\$/ton)	Status
Venturi Scrubber	11,553	23,105	Rejected
Wet Scrubber	6,482	12,963	Rejected
Cyclone	7,027	18,739	Rejected
Good Process Control	0.026 gr/dscf	0.013 gr/dscf	Accepted

Additional end of pipe controls on this system would disrupt the pressure balance on the hot dehuller. Therefore, an additional fan and variable speed controller would need to be added to establish the proper pressure balance and ensure that the system operates properly. These additional costs were included in the cost estimates.

Flakers

BACT Alternatives	PM (\$/ton)	PM ₁₀ (\$/ton)	Status
Venturi Scrubber	14,859	29,718	Rejected
Wet Scrubber	12,196	24,391	Rejected
Cyclone	6,292	16,778	Rejected
Good Process Control	0.026 gr/dscf	0.013 gr/dscf	Accepted

C. Cooling Tower

Minnesota Soybean Processors proposed that installation of high-efficiency drift eliminators in the cooling tower be considered BACT. Additional end-of-pipe controls are technically infeasible for this sort of application, as their installation would interfere with the evaporative cooling process in the tower. A review of the RBLC database supports the use of high-efficiency drift eliminators as BACT.

D. Bean Storage Pile

Minnesota Soybean Processors plans to store raw soybeans on-site in an open storage pile. This pile will only be in place at the facility for a portion of the year, around harvest time. For purposes of the emissions calculation and BACT analysis, it was conservatively assumed that the pile is in place for the whole year. Best management practices are proposed as BACT for the storage pile. This includes installation of an enclosed loading spout. This spout will limit the drop height of the soybeans onto the pile to 5 feet.

Bean Storage Pile

BACT Alternatives	PM (\$/ton)	PM ₁₀ (\$/ton)	Status
Permanent Silo	218,209	1,303,413	Rejected
Temporary Enclosure	183,838	735,351	Rejected
Jacob's Ladder	14,037	56,148	Rejected
Baseline – Best Management Practices	-	-	Accepted

II. Combustion Sources

A. Boilers No. 1 and No. 2 – 90 MMBtu/hr each

NO_x

Control Technology	Cost Effectiveness (\$/ton removed)	Status
LTO	8,009	

Permit Action Number:

Date: 2/23/2004

SCR	13,452	Rejected
Selective SNCR	-	Technically infeasible
Flue Gas Recirculation	278	Accepted

PM/PM₁₀

Control Technology	Cost Effectiveness (\$/ton removed)	Status
ESP	60,024	Rejected
Fabric Filter	24,923	Rejected
Wet Scrubber	43,404	Rejected
Cyclone	15,205	Rejected
Good Combustion Practice	-	Accepted

B. Diesel Engines

Each emergency engine (generator and fire pump engine) is only expected to operate a few hours per year. Add-on control devices would be considered infeasible for these engines. Some air pollution control systems that depend on consistent exhaust temperature may be technically infeasible because of the discontinuous operation of the engines. Hence, Minnesota Soybean Processors proposes the aftercoolers, a low sulfur fuel, and good combustion practices as BACT.

Emission Limits and Averaging Times

EMISSION LIMITS AND AVERAGING TIMES:*Applicable Averaging Periods*

Pollutant	Applicable Averaging Period
NOx	Annual
PM10	24-Hour Annual
n-hexane (HAP)	Annual (chronic)

Below is a discussion of the averaging times set for each of the emission limits:

Emission Limit	Basis	Averaging Time	Discussion
20% Opacity	Minn. R. 7011.2300	None set in permit	Averaging time will be determined by the appropriate stack test method.
NOx While combusting natural gas	40 CFR 52.21, BACT Limit	3-hour	There is no shorter term ambient standard for NOx. This averaging time ensures that the annual ambient standard will be met.
NOx While combusting fuel oil	40 CFR 52.21 BACT Limit	3-hour	There is no shorter term ambient standard for NOx. This averaging time ensures that the annual ambient standard will be met.

PM and PM10	40 CFR 52.21	None set	Averaging time will be determined by the
-------------	--------------	----------	--

Permit Action Number:

Date: 2/23/2004

while combusting natural gas	BACT Limit		appropriate stack test method. The shortest averaging time for PM10 ambient standards is 24 hours. The compliance tests generally are performed using methods that consist of three 1-hour runs, effectively demonstrating compliance on a 3-hour average. Since this is less than the averaging time for the ambient standard, the limit is found to be protective.
PM and PM10 while combusting fuel oil	40 CFR 52.21 BACT Limit	None set	Averaging time will be determined by the appropriate stack test method. The shortest averaging time for PM10 ambient standards is 24 hours. The compliance tests generally are performed using methods that consist of three 1-hour runs, effectively demonstrating compliance on a 3-hour average. Since this is less than the averaging time for the ambient standard, the limit is found to be protective.
0.005 gr/dscf PM and PM10	40 CFR 52.21 BACT Limit	1-Hour (PM) 3-Hour (PM10)	The shortest averaging time for PM10 ambient standards is 24 hours. The compliance tests generally are performed using methods that consist of three 1-hour runs, effectively demonstrating compliance on a 3-hour average. Since this is less than the averaging time for the ambient standard, the limit is found to be protective.
0.003 gr/dscf PM and PM10	40 CFR 52.21 BACT Limit	1-Hour (PM) 3-Hour (PM ₁₀)	The shortest averaging time for PM10 ambient standards is 24 hours. The compliance tests generally are performed using methods that consist of three 1-hour runs, effectively demonstrating compliance on a 3-hour average. Since this is less than the averaging time for the ambient standard, the limit is found to be protective.

0.026 gr/dscf PM and PM ₁₀	40 CFR 52.21 BACT Limit	1-Hour (PM) 3-Hour (PM ₁₀)	The shortest averaging time for PM ₁₀ ambient standards is 24 hours. The compliance tests generally are performed using methods that consist of three 1-hour runs, effectively demonstrating compliance on a 3-hour average. Since this is less than the averaging time for the ambient standard, the limit is found to be protective.
0.013 gr/dscf PM and PM ₁₀	40 CFR 52.21 BACT Limit	1-Hour (PM) 3-Hour (PM ₁₀)	The shortest averaging time for PM ₁₀ ambient standards is 24 hours. The compliance tests generally are performed using methods that consist of three 1-hour runs, effectively demonstrating compliance on a 3-hour average. Since this is less than the averaging time for the ambient standard, the limit is found to be protective.
n-hexane (HAP): Compliance ratio - less than or equal to 1.00	40 CFR 63	12-month rolling sum; 12- month weighted average	The limit is set in accordance with the proposed MACT standard and recording times.
619 tons/year of non-combustion VOCs	40 CFR 52.21 BACT Limit	12-month rolling sum	Being that these VOCs are also HAPs, the compliance demonstration will be consist with the proposed MACT.

Permittee's Permit Application

Permit Action Number:
Date: 2/23/2004