



Minnesota Pollution Control Agency

**Air Individual Permit
State Permit
14100072- 001**

Permittee: Barton Sand & Gravel - Elk River Pit 718
Facility name: Barton Sand & Gravel - Elk River Pit 718
12450 Ranch Road NW
Elk River, MN 55330
Sherburne County

Operating permit issuance date: December 10, 2015

Expiration date: Permit is non-expiring

Permit characteristics: State; Limits to avoid Part 70/ Limits to avoid NSR; Limits to avoid NSR

The emission units, control equipment and emission stacks at the stationary source authorized in this permit issuance are as described in the Permit Applications Table.

This permit issuance supersedes Air Emission Permit No. 05301018-002, and authorizes the Permittee to operate, construct, and modify the stationary source at the address listed above unless otherwise noted in the permit. 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 are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Unless otherwise indicated, all the Minnesota rules cited as the origin of the permit terms are incorporated into the State Implementation Plan (SIP) under 40 CFR § 52.1220 and as such as are enforceable by U.S. Environmental Protection Agency (EPA) Administrator or citizens under the Clean Air Act.

Signature: *Carolina Espejel Schutt*

This document has been electronically signed.

for Don Smith, P.E., Manager
Air Quality Permits Section
Industrial Division

for the Minnesota Pollution Control Agency

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1. Permit applications table

Subsequent permit applications:

Title description	Application receipt date	Action number
Total Facility Operating Permit	5/18/2015	001

2. Where to send submittals

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

Chief Air Enforcement
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by Minn. R. 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 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

Send any application for a permit or permit amendment to:

Fiscal Services – 6th Floor
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 Document Coordinator notices of:

- a. Accumulated insignificant activities
- b. Installation of control equipment
- c. Replacement of an emissions unit, and
- d. Changes that contravene a permit term

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

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

3. Facility description

Barton Sand & Gravel Co. operates Elk River Pit 718, a construction sand and gravel processing facility. The processes include crushing, screening, conveying, and storage of material that is mined on-site and at other locations. Additionally, the facility processes recycled concrete and asphalt. An aggregate heater will also be added to produce an aggregate appropriate for ready-mix concrete products.

The air emissions from the facility are particulates (PM, PM₁₀ and PM_{2.5}) from processing and storing sand and gravel, truck loadout. The facility also emits NO_x, CO, and other combustion products from the natural gas and propane fueled aggregate heater. Water sprays on various processes control particulate emissions and the occurrence of fugitive dust. The facility is not engaging in silica sand mining operations.

This permit action is a first time issuance of an individual state air emissions permit. The Facility previously operated under the Nonmetallic Mineral Processing Air Emission General Permit No. 05301018-002. The Facility will no longer be eligible for this permit type after the addition of the aggregate heater and increases in production. Similar to the general permit, the state permit includes language to allow for equipment replacements without necessarily needing a permit amendment.

4. Summary of subject items

SI ID: Description	Relationship Type	Related SI ID: Description
ACTV1: All IA's		
COMG1: Main Sand and Gravel Spread	has members	EQUI2, EQUI3, EQUI4, EQUI5, EQUI6, EQUI7, EQUI8, EQUI9, EQUI10, EQUI11, EQUI12, EQUI13, EQUI14, EQUI15, EQUI16, EQUI17, EQUI18, EQUI19, EQUI20, EQUI21, EQUI22, EQUI23, EQUI24, EQUI25, EQUI26, EQUI27, EQUI28, EQUI29, EQUI30, EQUI31, EQUI32, EQUI33, EQUI34, EQUI35, EQUI36, EQUI37, EQUI38, EQUI39, EQUI40, EQUI41, EQUI42, EQUI43, EQUI44, EQUI45, EQUI46, EQUI47, EQUI48, EQUI49, EQUI50, EQUI51

SI ID: Description	Relationship Type	Related SI ID: Description
COMG2: Recycled Concrete and Asphalt Spread	has members	AISI150403
COMG3: Screening Spread Units	has members	AISI150403
COMG4: Aggregate Mining - NSPS subp. OOO Units Constructed/Modified After 4/22/2008	has members	EQUI3, EQUI47, EQUI48, EQUI49
COMG5: Aggregate Mining - NSPS subp. OOO Units Constructed/Modified Before 4/22/2008	has members	EQUI2, EQUI4, EQUI5, EQUI6, EQUI7, EQUI8, EQUI9, EQUI10, EQUI11, EQUI12, EQUI13, EQUI14, EQUI15, EQUI16, EQUI17, EQUI23, EQUI24, EQUI25, EQUI26, EQUI27, EQUI28, EQUI29, EQUI30, EQUI31, EQUI32, EQUI33, EQUI34, EQUI35, EQUI36, EQUI37, EQUI38, EQUI39, EQUI40, EQUI42, EQUI43, EQUI44, EQUI45, EQUI46, EQUI50, EQUI51
COMG6: Aggregate	has	EQUI18,

SI ID: Description	Relationship Type	Related SI ID: Description
Mining - Units Not Subject to NSPS subp. 000	members	EQUI19, EQUI20, EQUI21, EQUI22, EQUI41
COMG7: Stockpiles	has members	FUGI3, FUGI4, FUGI5, FUGI6, FUGI7
COMG8: Loading/Unloading	has members	EQUI52, FUGI8, FUGI9, FUGI10, FUGI11, FUGI12, FUGI13
EQUI10: Conveyor Set 1 - 3		
EQUI11: Conveyor Set 1 - 4		
EQUI12: Conveyor Set 1 - 5		
EQUI13: Conveyor Set 1 - 6		
EQUI14: Conveyor Set 1 - 7		
EQUI15: Conveyor Set 1 - 8		
EQUI16: Conveyor Set 1 - 9		
EQUI17: Conveyor Set 1 - 10		
EQUI18: Conveyor Set 2 - 1		
EQUI19: Conveyor Set 2 - 2		
EQUI1: Aggregate Heater		
EQUI20: Conveyor Set 2 - 3		
EQUI21: Conveyor Set 2 - 4		
EQUI22: Conveyor Set 2 - 5		
EQUI23: Conveyor Set 2 - 6		
EQUI24: Conveyor Set 2 - 7		
EQUI25: Conveyor Set 2 - 8		
EQUI26: Conveyor Set 2 - 9		
EQUI27: Conveyor		

SI ID: Description	Relationship Type	Related SI ID: Description
Set 2 - 10		
EQUI28: Conveyor Set 3 - 1		
EQUI29: Conveyor Set 3 - 2		
EQUI2: Jaw Crusher 1		
EQUI30: Conveyor Set 3 - 3		
EQUI31: Conveyor Set 3 - 4		
EQUI32: Conveyor Set 3 - 5		
EQUI33: Conveyor Set 3 - 6		
EQUI34: Conveyor Set 3 - 7		
EQUI35: Conveyor Set 3 - 8		
EQUI36: Conveyor Set 3 - 9		
EQUI37: Conveyor Set 3 - 10		
EQUI38: Conveyor Set 3 - 11		
EQUI39: Conveyor Set 3 - 12		
EQUI3: Cone Crusher 1		
EQUI40: Conveyor Set 3 - 13		
EQUI41: Conveyor Set 3 - 14		
EQUI42: Conveyor Set 3 - 15		
EQUI43: Conveyor Set 3 - 16		
EQUI44: Conveyor Set 4- 1		
EQUI45: Conveyor Set 4- 2		
EQUI46: Conveyor Set 4- 3		
EQUI47: Conveyor Set 4- 4		
EQUI48: Conveyor Set 4- 5		
EQUI49: Conveyor Set 4- 6		
EQUI4: Screens 1		

SI ID: Description	Relationship Type	Related SI ID: Description
EQUI50: Conveyor Set 4- 6		
EQUI51: Conveyor Set 4- 7		
EQUI52: Grizzly Feeder		
EQUI5: Screens 2		
EQUI6: Screens 3		
EQUI7: Screens 6		
EQUI8: Conveyor Set 1 - 1		
EQUI9: Conveyor Set 1 - 2		
FUGI10: Concrete & Asphalt Recycling Processing Truck Loading		
FUGI11: Aggregate Material Sales Load Out Truck Loading		
FUGI12: Overburden/Aggregate Transfer Truck Loading		
FUGI13: Overburden/Aggregate Transfer Truck Unloading		
FUGI1: Paved Haul Roads		
FUGI2: Unpaved Haul Roads		
FUGI3: Wash Plant/Main Stockpile Area - High Silt (multiple piles in each area)		

SI ID: Description	Relationship Type	Related SI ID: Description
FUGI4: Wash Plant/Main Stockpile Area - Medium Silt (multiple piles in each area)		
FUGI5: Wash Plant/Main Stockpile Area - Low Silt (multiple piles in each area)		
FUGI6: Stockpile Area - North (multiple piles in each area)		
FUGI7: Stockpile Area - South (multiple piles in each area)		
FUGI8: Wash Plant Truck Loading		
FUGI9: Concrete & Asphalt Recycling Processing Truck Unloading		
STRU1: Storage/Shop with a lab and scale		
TFAC1: Barton Sand & Gravel - Elk River Pit 718		

5. Limits and other requirements

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
TFAC 1	14100072	Barton Sand & Gravel - Elk River Pit 718	
	5.1.1		Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the appendices. [Minn. R. 7007.0800, subp. 2]
	5.1.2		Labeling Requirements: Permanently affix the manufacturer's serial number (or otherwise unique identifying number) to each piece of crushing, screening, and conveying equipment for tracking purposes within 60 days of permit issuance. The number shall be permanently affixed and maintained so that it is readable and visible at all times from a safe distance at each stationary source. This number shall correspond to the number contained in records regarding the piece of equipment. [Minn. R. 7007.0800, subp. 2]
	5.1.3		Equipment Inventory List: The Permittee shall maintain a written list of each emission unit and fugitive source on site. This list shall include a description of the emission unit, unique ID number (assigned and affixed as required by this permit), equipment capacity, construction date, and NSPS subp. 000 applicability. The list shall correlate the units to the numbers used in this permit (EQUI, COMG) and shall include the data in Appendix A. The date of construction shall be the date the piece of equipment was manufactured or otherwise modified or reconstructed. [Minn. R. 7007.0800, subp. 2]
	5.1.4		Non-Process Dust Control: All reasonable measures shall be taken to prevent avoidable amounts of particulate matter from becoming airborne. Control of non-process dust emissions can be achieved through such measures as applying water or commercially available dust suppressant to stockpiles, unpaved roads and handling areas. In addition, the following requirements apply to the Permittee: 1. Record date and time of each dust control action and initials of person making the record. 2. Record amount of water or dust suppressant applied. 3. If a commercially available dust suppressant is used, it shall be applied in accordance with the manufacturer's guidelines. The Permittee must keep a copy of these manufacturer's guidelines.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			4. Record the location (e.g., site plan) of water or dust suppressant application. 5. Install a rain gauge at the site and record the precipitation in the previous 24 hours for each day of operation at the site. 6. Unpaved roads at the site shall be posted with speed limit signs indicating a maximum speed of 15 miles per hour. 7. Equipment to apply water or dust suppressant shall always be available at the site or on call for use at the site within a given operating day. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.1.5		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]
	5.1.6		Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated. [Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2]
	5.1.7		Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 16(J)]
	5.1.8		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]
	5.1.9		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

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			in Minn. R. 7011.0150. [Minn. R. 7011.0150]
	5.1.10		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]
	5.1.11		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)]
	5.1.12		The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16. [Minn. R. 7007.0800, subp. 16]
	5.1.13		For a nonroad engine that is excluded from any requirements of 40 CFR Part 1068 because it is a stationary engine, the Permittee may not move it or install it in any mobile equipment, except as allowed by the provisions of 40 CFR Part 1068. The Permittee may not circumvent or attempt to circumvent the residence-time requirements of Section (2)(iii) of the Nonroad Engine definition at 40 CFR Section 1068.30. [40 CFR 1068.101(b)(3)]
	5.1.14		<p>The Permittee shall not have engines that meet section (1)(iii) under the definition of Nonroad Engine at 40 CFR Section 1068.30 in one location within the stationary source for more than 12 consecutive months. A location is any single site at a building, structure, facility, or installation.</p> <p>Any engine, or engines, that replaces an engine at a location and that is intended to perform the same or similar function as the engine it replaced will be included in calculating the consecutive time period. [40 CFR 1068.30]</p>
	5.1.15		<p>The Permittee shall conduct an inventory of all engines on-site that meet section (1)(iii) under the definition of Nonroad Engine at 40 CFR Section 1068.30, once each calendar quarter; inventories shall not take place in consecutive months. This applies to nonroad engines that are owned by the Permittee, or rented and operated by the Permittee, or brought onsite and operated by a vendor or contractor. The inventory shall include the following:</p> <ol style="list-style-type: none"> 1) Date that the nonroad engine is inventoried. 2) Identification number. 3) Function of the nonroad engine (e.g. compressor, welder). 4) Location of the engine within the stationary source.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			<p>5) Statement that the nonroad engine has not been located in a single location for 12 consecutive months, and movement between locations has not been for purposes of circumvention of residence time requirements of section (2)(iii) under the definition of Nonroad Engine at 40 CFR Section 1068.30. [40 CFR 1068.30(nonrd eng)(1)(iii), Minn. R. 7007.0800, subps. 4-5]</p>
	5.1.16		<p>A nonroad engine ceases to be a nonroad engine and becomes a new stationary engine if:</p> <p>1. At any time, it meets the criteria specified in section (2)(iii) under the definition of Nonroad Engine in 40 CFR Section 1068.30. For example, a portable generator engine ceases to be a nonroad engine if it is used or will be used in a single specific location for 12 months or longer. If the Administrator or the Permitting authority determines that an engine will be or has been used in a single specific location for 12 months or longer, it ceased to be a nonroad engine when it was placed in that location.</p> <p>OR</p> <p>2. It is otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411). [40 CFR 1068.31(e)]</p>
	5.1.17		<p>Performance Test Notifications and Submittals: Performance Tests are due as outlined in this permit. 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> <p>The Notification, Test Plan, and Test Report may be submitted in an alternative format as allowed by Minn. R. 7017.2018. [Minn. R. 7017.2018, Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2]</p>
	5.1.18		<p>Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in in this permit. [Minn. R. ch. 7017]</p>
	5.1.19		<p>Monitoring Equipment Calibration - The Permittee shall either:</p> <p>1. Calibrate or replace required monitoring equipment every</p>

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			<p>12 months; or</p> <p>2. Calibrate at the frequency stated in the manufacturer's specifications.</p> <p>For each monitor, the Permittee shall maintain a record of all calibrations, including the date conducted, and any corrective action that resulted. The Permittee shall include the calibration frequencies, procedures, and manufacturer's specifications (if applicable) in the Operations and Maintenance Plan. Any requirements applying to continuous emission monitors are listed separately in this permit. [Minn. R. 7007.0800, subp. 4(D)]</p>
	5.1.20		<p>Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change. [Minn. R. 7017.2025, subp. 3]</p>
	5.1.21		<p>Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, 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). Records may be maintained in either electronic or paper format. [Minn. R. 7007.0800, subp. 5(C)]</p>
	5.1.22		<p>Operation of Monitoring Equipment: Unless noted elsewhere in this permit, 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)]</p>
	5.1.23		<p>If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For non-expiring permits, these records shall be kept for a period of five years from the date that the change was made. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be</p>

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			maintained in either electronic or paper format. [Minn. R. 7007.1200, subp. 4]
	5.1.24		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)]
	5.1.25		<p>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.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over. [Minn. R. 7019.1000, subp. 3]</p>
	5.1.26		<p>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.</p> <p>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]</p>
	5.1.27		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]
	5.1.28		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

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			<p>written description:</p> <ol style="list-style-type: none"> 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]
	5.1.29		<p>Fugitive Emissions Control Plan: The Permittee shall submit to the Commissioner and implement a fugitive emissions control plan within 60 days of the date of permit issuance. The plan shall identify all fugitive emission sources, primary and contingent control measures, and record keeping. The Permittee shall follow the actions and record keeping specified in the control plan. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive emission control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors. The plan may be amended by the Permittee with the Commissioner's approval. [Minn. Stat. 116.07, subd. 4a, Minn. R. 7007.0800, subp. 2]</p>
	5.1.30		<p>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.</p> <p>Upon adoption of a new or amended federal applicable requirement, and if there are more than 3 years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150 - 7007.1500]</p>
	5.1.31		<p>Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H). [Minn. R. 7007.1400, subp. 1(H)]</p>
	5.1.32		<p>Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner. [Minn. R.</p>

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			7019.3000-7019.3100]
	5.1.33		Emission Fees: due 30 days after receipt of an MPCA bill. [Minn. R. 7002.0005-7002.0095]
COMG 1	GP001	Main Sand and Gravel Spread	
	5.2.1		<p>The following requirements apply to all COMG 1 units active at the site (Barton Sand & Gravel - Elk River Pit 718).</p> <p>For the purposes of this permit, the main sand and gravel spread (COMG 1) is defined as the group of crushing, screening, and conveying equipment that are used for nonmetallic mineral processing. (Other spreads are defined in COMGs 2 and 3.). [Minn. R. 7007.0800, subp. 2]</p>
	5.2.2		<p>PM/PM10/PM2.5 PreCap: If the Permittee replaces any of the main sand and gravel equipment (defined above), adds new main sand and gravel equipment, or modifies the existing equipment, such equipment is subject to this permit limit as well as all of the requirements of COMG 1 and one of the following groups: COMG 4, COMG 5, or COMG 6. The applicability of COMG 4, COMG 5, or COMG 6 is determined by the construction date of the equipment and applicability of the NSPS subp. 000.</p> <p>For modifications that solely involve equipment covered by the PM/PM10/PM2.5 PreCap, the Permittee is not required to complete PM/PM10/PM2.5 calculations described in Minn. R. 7007.1200, subp. 2. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.2.3		<p>A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.2.4		<p>The main sand and gravel spread shall consist of units at quantities at any one time not to exceed: two primary crushers with a combined capacity of 1650 tons/hr, three cone crushers with a combined capacity of 530 tons/hr, six screens with a combined capacity of 2730 tons/hr, and fifty five conveyors with combined capacity of 39,500 tons/hr. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>

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	5.2.5		Process Throughput <= 3.0 million tons per year 12-month rolling sum. This is the maximum amount of material that may be processed by the primary crushers. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.2.6		Process Throughput <= 2.70 million tons per year 12-month rolling sum for the final screen. The total throughput of the final screen before the wash plant shall not exceed 2,700,000 tons of material per year. [Minn. R. 7007.0200, Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.2.7		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the aggregate throughput for the primary crushers in tons for the previous day of operation. This shall be based on the use of belt scales immediately after the primary crushers. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.2.8		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the process throughput for the primary screen in tons for the previous day of operation. This shall be based on the use of belt scales located directly after the primary screen. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.2.9		<p>Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of:</p> <ol style="list-style-type: none"> 1. The amount of aggregate crushed by the primary crushers in tons for the previous month based on the daily aggregate production records; and 2. The amount of aggregate crushed by the primary crushers in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.2.10		<p>Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of:</p> <ol style="list-style-type: none"> 1. The amount of material processed by the primary COMG 5 screen in tons for the previous month based on the daily

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			<p>production records; and</p> <p>2. The amount of material processed by the primary COMG 5 screen in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.2.11		<p>EQUIPMENT REPLACEMENT PROCEDURES</p> <p>When an opacity compliance demonstration is required (see COMG 4, COMG 5, and COMG 6 Requirements) for a replacement unit, the replacement unit shall demonstrate compliance with the opacity limits within 60 days after achieving the maximum production rate of the unit, but not later than 180 days after initial startup. [40 CFR pt. 60, subp. OOO(Table 3), Minn. R. 7007.0800, subp. 2]</p>
	5.2.12		<p>If an additional unit or replacement unit would cause an exceedance of the COMG 1 capacities defined above, a permit amendment may be required as specified by Minn. R. 7007.1150. The Permittee shall document the evaluation of whether a permit amendment is required. The Permittee shall obtain the required permit amendment prior to making a change which requires a permit amendment. [Minn. R. 7007.0800, subp. 5, Minn. R. 7007.1150-7007.1500]</p>
	5.2.13		<p>Feed Material Moisture Content \geq 1.5 percent. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.2.14		<p>Demonstrate the feed material moisture content is greater than or equal to 1.5 percent by either Option 1 or 2:</p> <p>Option 1. Test moisture content of each different feed material source (sampled at an area representative of the feed source and physically capable of being sampled), as follows:</p> <ul style="list-style-type: none"> a. Use ASTM method numbers D 2216-92 or D 4643-93 (or equivalent). b. If the temperature is less than 35 degree F (1.7C), as measured at the facility during daylight operating hours, then moisture testing is not required. c. Keep records of each moisture content test summarizing the method used, results, date, time, and initials of person performing test. d. Test weekly, when operating, unless three consecutive

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			<p>tests at the stationary source location show moisture contents of greater than or equal to 1.5 percent after which testing is no longer required until the source of the feed material changes.</p> <p>e. When testing indicates that feed material moisture content is less than 1.5 percent, or in situations where it is infeasible to sample and test, or where the Permittee elects not to sample and test, the Permittee shall operate a moisture addition device at or immediately prior to the initial crusher(s) or initial screen(s) where unprocessed feed material is being fed to achieve a moisture content greater than or equal to 1.5 percent. Moisture addition during operation shall continue until subsequent moisture content testing demonstrates that feed material moisture content is greater than or equal to 1.5 percent.</p> <p>When testing indicates that feed material moisture content is less than 1.5 percent and the Permittee is operating a moisture addition device, daily, when operating, either:</p> <ul style="list-style-type: none"> (i) Keep records of the date, water flow rate, material throughput rate, and initials of the person making the record and the time the record was made; or (ii) Conduct moisture content testing weekly on the feed material after water application following a., b., and c. above, and if results show moisture content is less than 1.5 percent, increase water addition to insure moisture is 1.5 percent or greater and re-test to verify. <p>OR</p> <p>Option 2. Keep records indicating instances when feed material was sourced from or is being removed from below the water table or wet processed prior to arriving at the site. Records shall include a description of the source, the corresponding dates, and the initials of the person making the record. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
COMG 2	GP002	Recycled Concrete and Asphalt Spread	
	5.3.1		<p>The following requirements apply to all COMG 2 units active at the site (Barton Sand & Gravel - Elk River Pit 718).</p> <p>For the purposes of this permit, the recycled concrete and asphalt spread (COMG 2) is defined as the group of crushing, screening, and conveying equipment that are used for processing recycled concrete and asphalt. (Other spreads are defined in COMG 1 and COMG 3). [Minn. R.</p>

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			7007.0800, subp. 2]
	5.3.2		<p>PM/PM10/PM2.5 PreCap: If the Permittee replaces any of the existing recycled concrete and asphalt spread equipment (defined above), adds new recycled concrete and asphalt spread equipment, or modifies the existing equipment, such equipment is subject to this permit limit as well as all of the requirements of COMG 2 and one of the following groups: COMG 4, COMG 5, or COMG 6. The applicability of COMG 4, COMG 5, or COMG 6 is determined by the construction date of the equipment and applicability of the NSPS subp. 000.</p> <p>For modifications that solely involve equipment covered by the PM/PM10/PM2.5 PreCap, the Permittee is not required to complete PM/PM10/PM2.5 calculations described in Minn. R. 7007.1200, subp. 2. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.3.3		<p>A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.3.4		<p>The recycled concrete and asphalt spread shall consist of units at quantities at any one time not to exceed: one jaw crusher with a capacity of 500 tons/hr, one cone crusher with a capacity of 500 tons/hr, one recycling screen with a capacity of 500 tons/hr, and ten conveyors with individual capacities of 500 tons/hr. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.3.5		<p>Process Throughput <= 250000 tons per year 12-month rolling sum. This is the maximum amount of material that may be processed by the primary recycle crusher. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.3.6		<p>Process Throughput <= 375000 tons per year 12-month rolling sum. This is the maximum amount of recycled material that may be processed by the recycle cone crusher. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>

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	5.3.7		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the recycled material throughput for the recycle primary crusher in tons for the previous day of operation. This shall be based on the use of belt scales located directly after the recycle primary crusher and before the material is conveyed to the recycle screens. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.3.8		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the recycled material throughput for the recycle cone crusher in tons for the previous day of operation. This shall be based on the use of belt scales located on a conveyor directly after processing and before the material is stockpiled. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.3.9		<p>Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of:</p> <ol style="list-style-type: none"> 1. The amount of recycled material crushed by the recycle primary crusher in tons for the previous month based on the daily aggregate production records; and 2. The amount of recycled material crushed by the recycle primary crusher in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.3.10		<p>Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of:</p> <ol style="list-style-type: none"> 1. The amount of recycled material crushed by the recycle cone crusher in tons for the previous month based on the daily aggregate production records; and 2. The amount of recycled material crushed by the recycle cone crusher in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.3.11		The Permittee shall keep records that the feed material is recycled concrete or recycled asphalt pavement. Records

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			<p>shall include a description of the source (if recycled asphalt pavement, so indicate), the corresponding dates, and the initials of the person making the record. [Minn. R. 7007.0800, subp. 5]</p>
	5.3.12		<p>When an opacity compliance demonstration is required (see COMG 4, COMG 5, and COMG 6 Requirements) for a replacement unit, the replacement unit shall demonstrate compliance with the opacity limits within 60 days after achieving the maximum production rate of the unit, but not later than 180 days after initial startup. [40 CFR pt. 60, subp. 000(Table 3), Minn. R. 7007.0800, subp. 2]</p>
	5.3.13		<p>If an additional unit or replacement unit would cause an exceedance of the COMG 2 capacities defined above, a permit amendment may be required as specified by Minn. R. 7007.1150. The Permittee shall document the evaluation of whether a permit amendment is required. The Permittee shall obtain the required permit amendment prior to making a change which requires a permit amendment. [Minn. R. 7007.0800, subp. 5, Minn. R. 7007.1150-7007.1500]</p>
COMG 3	GP003	Screening Spread Units	
	5.4.1		<p>The following requirements apply to all COMG 3 units active at the site (Barton Sand & Gravel - Elk River Pit 718).</p> <p>For the purposes of this permit, the screening spread (COMG 3) is defined as the group of screening and conveying equipment that are used for blending construction aggregate. (Other spreads are defined in COMG 1 and COMG 2.). [Minn. R. 7007.0800, subp. 2]</p>
	5.4.2		<p>PM/PM10/PM2.5 PreCap: If the Permittee replaces any of the existing screening spread equipment (defined above), adds new screening spread equipment, or modifies the existing equipment, such equipment is subject to this permit limit as well as all of the requirements of COMG 3 and one of the following groups: COMG 4, COMG 5, or COMG 6. The applicability of COMG 4, COMG 5, or COMG 6 is determined by the construction date of the equipment and applicability of the NSPS subp. 000.</p> <p>For modifications that solely involve equipment covered by the PM/PM10/PM2.5 PreCap, the Permittee is not required to complete PM/PM10/PM2.5 calculations described in Minn. R. 7007.1200, subp. 2. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.4.3		<p>A permit amendment will still be needed regardless of the</p>

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			emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.4		The screening spread shall consist of units at quantities at any one time not to exceed: one screening unit with a capacity of 800 tons/hr and fifteen conveyors with individual capacities of 500 tons/hr, each. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1), To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.5		Process Throughput <= 500000 tons per year 12-month rolling sum. This is the maximum amount of material that may be processed by the primary COMG 3 screen. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.6		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the process throughput for the primary screen in tons for the previous day of operation. This shall be based on the use of belt scales located directly after the primary screen. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.7		Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of: <ol style="list-style-type: none"> 1. The amount of material processed by the primary COMG 3 screen in tons for the previous month based on the daily production records; and 2. The amount of material processed by the primary COMG 3 screen in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.8		When an opacity compliance demonstration is required for a replacement unit (see COMG 4, COMG 5, and COMG 6 Requirements), the replacement unit shall demonstrate compliance with the opacity limits within 60 days after achieving the maximum production rate of the unit, but not later than 180 days after initial startup. [40 CFR pt. 60, subp. OOO(Table 3), Minn. R. 7007.0800, subp. 2]
	5.4.9		If an additional unit or replacement unit would cause an

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			<p>exceedance of the COMG 3 capacities defined above, a permit amendment may be required as specified by Minn. R. 7007.1150. The Permittee shall document the evaluation of whether a permit amendment is required. The Permittee shall obtain the required permit amendment prior to making a change which requires a permit amendment. [Minn. R. 7007.0800, subp. 5, Minn. R. 7007.1150-7007.1500]</p>
	5.4.10		<p>Feed Material Moisture Content >= 1.5 percent. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.4.11		<p>Demonstrate the feed material moisture content is greater than or equal to 1.5 percent by either Option 1 or 2:</p> <ol style="list-style-type: none"> 1. Test moisture content of each different feed material source (sampled at an area representative of the feed source and physically capable of being sampled), as follows: <ol style="list-style-type: none"> a. Use ASTM method numbers D 2216-92 or D 4643-93 (or equivalent). b. If the temperature is less than 35 degree F (1.7C), as measured at the facility during daylight operating hours, then moisture testing is not required. c. Keep records of each moisture content test summarizing the method used, results, date, time, and initials of person performing test. d. Test weekly, when operating, unless three consecutive tests at the stationary source location show moisture contents of greater than or equal to 1.5 percent after which testing is no longer required until the source of the feed material changes. e. When testing indicates that feed material moisture content is less than 1.5 percent, or in situations where it is infeasible to sample and test, or where the Permittee elects not to sample and test, the Permittee shall operate a moisture addition device at or immediately prior to the initial crusher(s) or initial screen(s) where unprocessed feed material is being fed to achieve a moisture content greater than or equal to 1.5 percent. Moisture addition during operation shall continue until subsequent moisture content testing demonstrates that feed material moisture content is greater than or equal to 1.5 percent. <p>When testing indicates that feed material moisture content is less than 1.5 percent and the Permittee is operating a</p>

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			<p>moisture addition device, daily, when operating, either:</p> <p>(i) Keep records of the date, water flow rate, material throughput rate, and initials of the person making the record and the time the record was made;</p> <p>(ii) Conduct moisture content testing weekly on the feed material after water application following a. and b. above, and if results show moisture content is less than 1.5 percent, increase water addition to insure moisture is 1.5 percent or greater and re-test to verify.</p> <p>OR</p> <p>Option 2. Keep records indicating instances when feed material was sourced from or is being removed from below the water table or wet processed prior to arriving at the site. Records shall include a description of the source, the corresponding dates, and the initials of the person making the record. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
COMG 4	GP004	Aggregate Mining - NSPS subp. OOO Units Constructed/Modified After 4/22/2008	
	5.5.1		<p>The requirements of this group only apply to the following:</p> <p>Each crusher, screening operation, and belt conveyor at the site which are subject to 40 CFR pt. 60, subp. OOO, and were constructed (manufactured), modified, or reconstructed after April 22, 2008. The construction date and NSPS subp. OOO applicability shall be recorded on the Permittee's Equipment Inventory (see Total Facility requirements). [Minn. R. 7007.0800, subp. 11, Minn. R. 7011.3350,]</p>
	5.5.2		<p>The conveyors which carry material from the wash plant are exempt from the NSPS subp. OOO. [40 CFR 60.670(a)(2), Minn. R. 7011.3550]</p>
	5.5.3		<p>When an existing unit (one which was constructed/modified/reconstructed before August 31, 1983) is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR Section 60.671, having the same function as the existing unit, and there is no increase in the amount of emissions, the new unit is exempt from the requirements in COMG 4 or COMG 5.</p> <p>When seeking to comply with this exemption the Permittee shall submit the information required in 40 CFR Section</p>

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			<p>60.676(a)(1 - 4).</p> <p>If the Permittee replaces all existing facilities (units which were manufactured before August 31, 1983) in a COMG 1, COMG 2, or COMG 3 spread with new facilities, the Permittee shall comply with the requirements of COMG 4 and COMG 5, as applicable. [40 CFR 60.670(d), Minn. R. 7011.3350]</p>
	5.5.4		<p>Opacity <= 7 percent for screening operations and transfer points on belt conveyors and units that commenced construction, reconstruction, or modification after April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as required under 40 CFR Section 60.11. [40 CFR 60.672(b), 40 CFR pt. 60, subp. 000(Table 3), Minn. R. 7011.3350]</p>
	5.5.5		<p>Opacity <= 12 percent for crushing units that commenced construction, reconstruction, or modification after April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as required under 40 CFR Section 60.11. [40 CFR 60.672(b), 40 CFR pt. 60, subp. 000, Minn. R. 7011.3350]</p>
	5.5.6		<p>Visible Emissions: The Permittee shall check active COMG 4 units for any visible emissions once each day of operation during daylight hours. The visible emissions observations shall be completed using EPA Method 22. [Minn. R. 7007.0800, subp. 4]</p>
	5.5.7		<p>Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of the visible emissions check, whether or not any visible emissions were observed and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]</p>
	5.5.8		<p>Monitoring: For any affected facility that uses wet suppression to control emissions from the affected facility, the Permittee shall perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The Permittee shall initiate corrective action within 24 hours and complete corrective action as expediently as practical if the Permittee finds that water is not flowing properly during an inspection of the water spray nozzles. The Permittee shall record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under 40 CFR Section 60.676(b). [40 CFR</p>

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			60.674(b)(1), Minn. R. 7011.3350]
	5.5.9		If the Permittee ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than wet sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under 40 CFR Section 60.676(b) shall specify the control mechanism being used instead of the water sprays. [40 CFR 60.674(b)(2), Minn. R. 7011.3350]
	5.5.10		The opacity standards set forth in 40 CFR pt. 60, subp. 000 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided. [40 CFR 60.11(c), Minn. R. 7017.2015, subp. 2(B)]
	5.5.11		At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015, subp. 2(B)]
	5.5.12		<p>Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subp. unless the Administrator:</p> <ol style="list-style-type: none"> 1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, 2. Approves the use of an equivalent method, 3. Approves the use of an alternative method the results of which it has been determined to be adequate for indicating whether a specific source is in compliance, 4. Waives the requirement for performance tests because the Permittee has demonstrated by other means to the Administrator's satisfaction that the affected facility is in compliance with the standard, or 5. Approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. <p>Nothing in this paragraph shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act. [40 CFR 60.8(c), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.5.13		The Permittee shall provide the Commissioner at least 7 days prior notice of any performance test, except as specified under other subparts, to afford the Commissioner

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			the opportunity to have an observer present. [40 CFR 60.8(d), Minn. R. 7017.2015, subp. 2(A)]
	5.5.14		<p>The Permittee shall provide, or cause to be provided, performance testing facilities as follows:</p> <ol style="list-style-type: none"> 1. Sampling ports adequate for test methods applicable to such facility. This includes (i) constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and (ii) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures. 2. Safe sampling platform(s). 3. Safe access to sampling platform(s). 4. Utilities for sampling and testing equipment. [40 CFR 60.8(e), Minn. R. 7017.2015, subp. 2(A)]
	5.5.15		<p>Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the control of the Permittee, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs. [40 CFR 60.8(f), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.5.16		<p>Records of Startup, Shutdown, or Malfunction: The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; and malfunction of the air pollution control equipment; or any period during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]</p>
	5.5.17		<p>Recordkeeping: The Permittee shall maintain a file of all measurements, including performance test measurements; and all other information required, recorded in a permanent form suitable for inspection. The file shall be retained for a minimum of two years following the date of such measurements, maintenance, reports and records. [40 CFR 60.7(f), Minn. R. 7019.0100, subp. 1]</p>
	5.5.18		<p>Notification of any physical or operational change which may increase emissions, in accordance with 40 CFR Section 60.7(a)(4). The notification shall be postmarked 60 days or as soon as practicable before the change is commenced and</p>

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			shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Commissioner may request additional relevant information subsequent to this notice. [40 CFR 60.7(a)(4), Minn. R. 7019.0100, subp. 1]
COMG 5	GP005	Aggregate Mining - NSPS subp. 000 Units Constructed/Modified Before 4/22/2008	
	5.6.1		<p>The requirements of this group only apply to the following:</p> <p>Each crusher, screening operation, bucket elevator, and belt conveyor at the site which are subject to 40 CFR pt. 60, subp. 000, and were constructed (manufactured), modified, or reconstructed before April 22, 2008. The construction date and NSPS subp. 000 applicability shall be recorded on the Permittee's Equipment Inventory (see Total Facility requirements). [40 CFR 60.670(a), Minn. R. 7007.0800, subp. 11, Minn. R. 7011.3350]</p>
	5.6.2		<p>When an existing unit (one which was constructed/modified/reconstructed before August 31, 1983) is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR Section 60.671, having the same function as the existing unit, and there is no increase in the amount of emissions, the new unit is exempt from the requirements in COMG 4 or COMG 5.</p> <p>When seeking to comply with this exemption the Permittee shall submit the information required in 40 CFR Section 60.676(a)(1 - 4).</p> <p>If the Permittee replaces all existing facilities (units which were manufactured before August 31, 1983) in a COMG 1, COMG 2, or COMG 2 spread with new facilities, the Permittee shall comply with the requirements of COMG 4 and COMG 5, as applicable. [40 CFR 60.670(a), Minn. R. 7007.0800, subp. 11, Minn. R. 7011.3350]</p>
	5.6.3		<p>Opacity <= 10 percent opacity for screening operations and transfer points on belt conveyors and units that commenced construction, reconstruction, or modification prior to April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as</p>

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			required under 40 CFR Section 60.11. [40 CFR 60.672(b), 40 CFR pt. 60, subp. OOO, Table 3, Minn. R. 7011.3550]
	5.6.4		<p>Opacity <= 15 percent opacity for crushing units that commenced construction, reconstruction, or modification prior to April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as required under 40 CFR Section 60.11. [40 CFR 60.672(b), 40 CFR pt. 60, subp. OOO(Table 3), Minn. R. 7011.3350]</p>
	5.6.5		Visible Emissions: The Permittee shall check active COMG 5 units for any visible emissions once each day of operation during daylight hours. The visible emissions observations shall be completed using EPA Method 22. [Minn. R. 7007.0800, subp. 4]
	5.6.6		Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of the visible emissions check, whether or not any visible emissions were observed and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]
	5.6.7		The opacity standards set forth in 40 CFR pt. 60, subp. OOO shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided. [40 CFR 60.11(c), Minn. R. 7017.2015, subp. 2(B)]
	5.6.8		At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015, subp. 2(B)]
	5.6.9		<p>Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subp. unless the Administrator:</p> <ol style="list-style-type: none"> 1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, 2. Approves the use of an equivalent method, 3. Approves the use of an alternative method the results of which it has been determined to be adequate for indicating whether a specific source is in compliance, 4. Waives the requirement for performance tests because the Permittee has demonstrated by other means to the

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			<p>Administrator's satisfaction that the affected facility is in compliance with the standard, or</p> <p>5. Approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors.</p> <p>Nothing in this paragraph shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act. [40 CFR 60.8(c), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.6.10		<p>The Permittee shall provide the Commissioner at least 7 days prior notice of any performance test, except as specified under other subparts, to afford the Commissioner the opportunity to have an observer present. [40 CFR 60.8(d), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.6.11		<p>The Permittee shall provide, or cause to be provided, performance testing facilities as follows:</p> <ol style="list-style-type: none"> 1. Sampling ports adequate for test methods applicable to such facility. This includes (i) constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and (ii) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures. 2. Safe sampling platform(s). 3. Safe access to sampling platform(s). 4. Utilities for sampling and testing equipment. [40 CFR 60.8(e), Minn. R. 7017.2015, subp. 2(A)]
	5.6.12		<p>Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the control of the Permittee, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs. [40 CFR 60.8(f), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.6.13		<p>Records of Startup, Shutdown, or Malfunction: The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; and malfunction of the air pollution control equipment; or any period during which a continuous monitoring system or monitoring device is</p>

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			inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]
	5.6.14		Recordkeeping: The Permittee shall maintain a file of all measurements, including performance test measurements; and all other information required, recorded in a permanent form suitable for inspection. The file shall be retained for a minimum of two years following the date of such measurements, maintenance, reports and records. [40 CFR 60.7(f), Minn. R. 7019.0100, subp. 1]
	5.6.15		Notification of any physical or operational change which may increase emissions, in accordance with 40 CFR Section 60.7(a)(4). The notification shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Commissioner may request additional relevant information subsequent to this notice. [40 CFR 60.7(a)(4), Minn. R. 7019.0100, subp. 1]
COMG 6	GP006	Aggregate Mining - Units Not Subject to NSPS subp. OOO	
	5.7.1		<p>The requirements of this group apply to each crusher, screening operation, belt conveyor, and enclosed truck loading station at the facility which were constructed (manufactured) prior to August 31, 1983, or are not subject to 40 CFR pt. 60, subp. OOO due to the exemption allowed under 40 CFR Section 60.670(d). The construction date and NSPS subp. OOO applicability shall be recorded on the Permittee's Equipment Inventory (see Total Facility requirements).</p> <p>The conveyors directly following the wash plant are not subject to COMG 6. [Minn. R. 7007.0800, subp. 2]</p>
	5.7.2		<p>The Permittee shall conduct visible emission checks once each day of operation (during daylight hours) from COMG 6 units. The visible emissions observations shall be completed using EPA Method 22.</p> <p>Visible emissions checks are not required for days when no material is processed by an applicable COMG 6 unit. [Minn. R. 7007.0800, subp. 4]</p>
	5.7.3		Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of each visible emission inspection, whether or not any visible emissions were observed, and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]
	5.7.4		Opacity <= 20 percent opacity. [Minn. R. 7011.0715, subp.

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			1(B)]
COMG 7	GP007	Stockpiles	
	5.8.1		The requirements of this group apply individually to each associated item in this group. [Minn. R. 7007.0800, subp. 2]
	5.8.2		Anytime fugitive emissions are observed from stockpile areas, the Permittee shall immediately eliminate fugitive emissions by applying water or a chemical dust suppressant to the stockpiles. [Minn. R. 7011.0150, Minn. R. 7007.0800, subp. 2]
	5.8.3		The Permittee shall conduct visible emission checks of each stockpile area once each week of operation (during daylight hours). [Minn. R. 7007.0800, subp. 4]
	5.8.4		Material Moisture Content >= 1.5 percent. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.8.5		<p>The Permittee shall demonstrate the moisture content is greater than or equal to 1.5 percent each week of operation by testing the moisture content of each source (sampled at an area representative of the source and physically capable of being sampled) as follows;</p> <ul style="list-style-type: none"> a. Use ASTM method numbers D 2216-92 or D 4643-93 (or equivalent). b. If the temperature is less than 35 degrees F (1.7 degree C), as measured at the facility during daylight operating hours, then moisture testing is not required. Weekly testing should resume when temperatures are above 35 degrees F. c. If the wet plant is operating and adding saturated material to the pile, then moisture testing is not required. Operation of the wet plant continuously adds saturated material to the piles ensuring the moisture content of the piles is above 1.5 percent. d. When testing indicates that the material moisture content is less than 1.5 percent, in situations where it is infeasible to sample and test, or where the Permittee elects not to sample and test, the Permittee shall operate a moisture addition device to achieve a moisture content greater than or equal to 1.5 percent. Moisture addition during operation shall continue until subsequent moisture content testing demonstrates that feed material moisture content is greater than or equal to 1.5 percent. e. Moisture testing is not required for stockpiles of aggregate which have a minimum size of 1.0 cm in average

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			<p>diameter or greater.</p> <p>f. Water application may be used in place of moisture testing. Water applications must be completed as described in the water application rate requirement below. [Title I Condition: 40 CFR 52.21(b)(1) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.8.6		<p>Water Application:</p> <p>The Permittee shall water the piles at the facility to maintain a moisture content greater than or equal to 1.5 percent at all times for exposed storage pile surfaces. Watering shall comply with the following conditions:</p> <p>a. The water application rate shall be at least 0.1 gallon of water for each 1 square foot every 24 hours;</p> <p>b. A rainfall of at least 0.16 inches during the previous 24 hours shall substitute for one water application.</p> <p>c. If storage piles cannot be watered because the ambient air temperature (as measured at the facility during daylight operating hours) will be less than 35 degrees F (1.7 degree C), then watering shall be postponed and accomplished as soon as the conditions preventing water application have abated. [Minn. R. 7007.0800, subp. 2]</p>
	5.8.7		<p>Moisture Testing Recordkeeping: The Permittee shall keep weekly records of the following:</p> <p>a. Keep records of each moisture content test summarizing the method used, results, date, time, and initials of person performing test.</p> <p>b. If a moisture test was not completed due to the temperature, it must be noted in the record along with the source of measurement (i.e. thermometer).</p> <p>c. If a moisture test was not completed due to the operation of the wet plant, it must be noted in the record along with the time of operation of the wet plant and the piles that saturated material was being applied to.</p> <p>d. If a moisture test was not completed because water application was used in place of moisture testing or a 0.16 inch or greater rainfall occurred, it must be noted in the record. Records needed for water applications and rainfall measurements are described in the water application recordkeeping requirement.</p>

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			e. If a weekly moisture test was not completed due to the stockpile having a minimum aggregate size of 1.0 cm in average diameter or greater, it must be noted in the record along with the piles which meet this exemption. [Minn. R. 7007.0800, subps. 4-5]
	5.8.8		<p>Water Application Recordkeeping: The Permittee shall keep records of the water applications, including the following:</p> <p>a. The stock piles watered, the amount of water applied, the time watered, and the method of application. If water was not applied because there was a 0.16 inch or greater rainfall or because of the temperature, it must be noted in the record along with the source of measurement (i.e. on-site rain gauge or thermometer).</p> <p>b. Records of watering equipment breakdowns and repairs, and records of corrective actions taken. [Minn. R. 7007.0800, subps. 4-5]</p>
	5.8.9		The Permittee shall keep records indicating instances when feed material was sourced from or is being removed from below the water table or wet processed prior to arriving at the site. Records shall include a description of the source, the corresponding dates, and the initials of the person making the record. [Title I Condition: 40 CFR 52.21(b)(1) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.8.10		Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of each visible emission inspection, whether or not any visible emissions were observed, and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]
COMG 8	GP008	Loading/Unloading	
	5.9.1		The requirements of this group apply individually to each associated item in this group. [Minn. R. 7007.0800, subp. 2]
	5.9.2		The Permittee shall conduct visible emission checks once each day of operation (during daylight hours) from associated item in COMG 8 while operating. The visible emissions observations shall be completed using EPA Method 22. [Minn. R. 7007.0800, subp. 4]
	5.9.3		Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of each visible emission inspection, whether or not any visible emissions were observed, and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]
	5.9.4		Opacity <= 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
EQUI 1	EU001	Aggregate Heater	

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	5.10.1		Allowed Fuels: Natural gas or propane only. [Minn. R. 7007.0800, subp. 2]
	5.10.2		Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0610, subp. 1(A)(2)]
	5.10.3		Total Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. [Minn. R. 7011.0610, subp. 1(A)(1)]
FUGI 1	FS001	Paved Haul Roads	
	5.11.1		Daily Inspection and Recordkeeping: On each day of operation, the Permittee shall visually inspect all paved surfaces to minimize or eliminate fugitive emissions. The facility shall maintain records of this inspection that include the date of the inspection, whether fugitive dust was observed, what corrective actions were taken, when the corrective actions were taken, and whether the corrective actions eliminated the fugitive dust. [Minn. R. 7007.0800, subp. 2, Minn. R. 7011.0150]
	5.11.2		Anytime fugitive emissions are observed on facility roadways, the Permittee shall immediately eliminate fugitive emissions by sweeping those road segments and/or apply water or a chemical dust suppressant. [Minn. R. 7011.0150, Minn. R. 7007.0800, subp. 2]
FUGI 2	FS002	Unpaved Haul Roads	
	5.12.1		<p>Facility-Wide Speed Limit: Vehicle Traffic speeds shall not exceed 15 mph on all facility roads or parking surfaces. The Permittee shall post the speed limit in a highly visible location near the facility entrance.</p> <p>The Permittee shall ensure that all vehicular traffic on unpaved roads shall comply with a speed limit not to exceed 15 miles per hour, unless responding to an emergency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000, , Minn. R. 7007.0800, subp. 2,]</p>
	5.12.2		Anytime fugitive emissions are observed on facility roadways, the Permittee shall immediately eliminate fugitive emissions by applying water or a chemical dust suppressant. [Minn. R. 7007.0800, subp. 2, Minn. R. 7011.0150]

6. Submittal/action requirements

This section lists most of the submittals required by this permit. Please note that some submittal requirements may appear in the Limits and Other Requirements section, or, if applicable, within a Compliance Schedule section.

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TFAC 1	14100072	Barton Sand & Gravel - Elk River Pit 718	
	6.1.1		The Permittee shall submit an annual report : Due annually following permit issuance The Permittee shall submit an annual report by January 31st of each year that describes the changes made at the facility during the previous calendar year. The report shall include the emission unit, stack/vent, group, and control equipment data for any new or replaced units or control devices, and the dates the units were brought onsite or taken offsite. The report shall document the PM-10 12-month rolling sum calculations for the previous calendar year. The report shall be submitted with the annual Compliance Certification listed in Section 6 of this permit (Submittal/action requirements). As part of the Annual Report, the Permittee shall verify and certify that the facility has maintained minor source status for Title V and New Source Review. [Minn. R. 7007.0800, subp. 2]
	6.1.2		The Permittee shall submit a semiannual deviations report : Due semiannually, by the 30th of January and July 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. If no deviations have occurred, the Permittee shall submit the report stating no deviations. [Minn. R. 7007.0800, subp. 6(A)(2)]
	6.1.3		The Permittee shall submit a compliance certification : Due annually, by the 31st of January (for the previous calendar year). The Permittee shall submit this to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year. [Minn. R. 7007.0800, subp. 6(C)]
COMG 4	GP004	Aggregate Mining - NSPS subp. OOO Units Constructed/Modified After 4/22/2008	
	6.2.1		The Permittee shall conduct initial performance test : Due 180 calendar days after Initial Startup Date, or 60 days after achieving maximum capacity at which the affected crushing, screening, or conveying unit will be operated, and according to 40 CFR Section 60.11 and 40 CFR Section 60.675 to measure

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			opacity from a new replacement unit. EPA Method 9 shall be used to determine the opacity. [40 CFR 60.675(b)(2), Minn. R. 7011.3350]
	6.2.2		<p>Performance Test: due before end of each 60 months following Initial Performance Test to measure opacity from a new replacement unit. EPA Method 9 shall be used to determine the opacity.</p> <p>Affected facilities controlled by water or from water carryover from upstream water sprays that are inspected according to the requirements in 40 CFR Sections 60.674(b) and 60.676(b) are exempt from this 5-year repeat testing requirement. [40 CFR 60.675(b)(2), Minn. R. 7011.3350]</p>
COMG 5	GP005	Aggregate Mining - NSPS subp. OOO Units Constructed/Modified Before 4/22/2008	
	6.3.1		The Permittee shall conduct initial performance test : Due 180 working days after Initial Startup Date, or 60 days after achieving maximum capacity at which the affected crushing, screening, or conveying unit will be operated, and according to 40 CFR Section 60.11 and 40 CFR Section 60.675 to measure opacity from a new replacement unit. EPA Method 9 shall be used to determine the opacity. [40 CFR 60.675(b)(2), Minn. R. 7011.3350]

7. Appendices

APPENDIX A. Equipment Inventory

Appendix A is an electronic spreadsheet created for the ongoing tracking of equipment at the facility. The following table is presented as a short summary of the electronic document. This table also represents the minimum amount of information to be tracked by the Permittee.

ID #	GP ID	Description	Capacity [tons/hr]	Construction Date*	Startup Date	Subject to NSPS subp. 000? (Y/N)
EQUI 1	None	Aggregate Heater	16 [MMBtu/hr]			N
EQUI 2	COMG 1/COMG 5	Jaw Crusher 1	1100	1/1/2002	6/1/2002	Y
EQUI 3	COMG 1/COMG 4	Cone Crusher 1	230	1/1/2009	9/1/2009	Y
EQUI 4	COMG 1/COMG 5	Screens 1	1100	1/1/2000	2/1/2000	Y
EQUI 5	COMG 1/COMG 5	Screens 2	550	1/1/1998	12/1/1998	Y
EQUI 6	COMG 1/COMG 5	Screens 3	230	1/1/2002	4/1/2002	Y
EQUI 7	COMG 1/COMG 5	Screens 6	550	1/1/1998	12/1/1998	Y
EQUI 8	COMG 1/COMG 5	Conveyor Set 1-1	1100	1/1/1992	5/1/1992	Y
EQUI 9	COMG 1/COMG 5	Conveyor Set 1-2	1100	1/1/1985	6/1/1985	Y
EQUI 10	COMG 1/COMG 5	Conveyor Set 1-3	1100	1/1/1987	4/1/1987	Y
EQUI 11	COMG 1/COMG 5	Conveyor Set 1-4	1100	1/1/1988	4/1/1988	Y
EQUI 12	COMG 1/COMG 5	Conveyor Set 1-5	1100	1/1/2001	4/1/2001	Y
EQUI 13	COMG 1/COMG 5	Conveyor Set 1-6	1100	1/1/2001	4/1/2001	Y
EQUI 14	COMG 1/COMG 5	Conveyor Set 1-7	1100	1/1/1998	4/1/1998	Y
EQUI 15	COMG 1/COMG 5	Conveyor Set 1-8	1100	1/1/2000	4/1/2000	Y
EQUI 16	COMG 1/COMG 5	Conveyor Set 1-9	1100	1/1/1995	6/1/1995	Y
EQUI 17	COMG 1/COMG 5	Conveyor Set 1-10	1100	1/1/1996	10/1/1996	Y
EQUI 18	COMG 1/COMG 6	Conveyor Set 2-1	550	1/1/1969	8/1/1969	N
EQUI 19	COMG 1/COMG 6	Conveyor Set 2-2	550	1/1/1980	3/1/1980	N
EQUI 20	COMG 1/COMG 6	Conveyor Set 2-3	550	1/1/1966	6/1/1966	N
EQUI 21	COMG 1/COMG 6	Conveyor Set 2-4	550	12/1/1982	4/1/1985	N
EQUI 22	COMG 1/COMG 6	Conveyor Set 2-5	550	12/1/1982	4/1/1988	N
EQUI 23	COMG 1/COMG 5	Conveyor Set 2-6	550	1/1/1989	4/1/1989	Y
EQUI 24	COMG 1/COMG 5	Conveyor Set 2-7	550	1/1/1998	12/1/1988	Y
EQUI 25	COMG 1/COMG 5	Conveyor Set 2-8	550	1/1/1990	4/1/1990	Y
EQUI 26	COMG 1/COMG 5	Conveyor Set 2-9	550	1/1/1993	3/1/1993	Y
EQUI 27	COMG 1/COMG 5	Conveyor Set 2-10	550	1/1/1989	4/1/1989	Y
EQUI 28	COMG 1/COMG 5	Conveyor Set 3-1	550	1/1/1993	11/1/1993	Y
EQUI 29	COMG 1/COMG 5	Conveyor Set 3-2	550	1/1/1993	11/1/1993	Y
EQUI 30	COMG 1/COMG 5	Conveyor Set 3-3	550	1/1/1994	7/1/1994	Y

EQUI 31	COMG 1/COMG 5	Conveyor Set 3-4	550	1/1/1994	7/1/1994	Y
EQUI 32	COMG 1/COMG 5	Conveyor Set 3-5	550	1/1/1994	7/1/1994	Y
EQUI 33	COMG 1/COMG 5	Conveyor Set 3-6	550	1/1/1995	6/1/1995	Y
EQUI 34	COMG 1/COMG 5	Conveyor Set 3-7	550	1/1/1996	7/1/1996	Y
EQUI 35	COMG 1/COMG 5	Conveyor Set 3-8	550	1/1/1996	12/1/1996	Y
EQUI 36	COMG 1/COMG 5	Conveyor Set 3-9	550	1/1/1996	12/1/1996	Y
EQUI 37	COMG 1/COMG 5	Conveyor Set 3-10	550	1/1/2000	4/1/2000	Y
EQUI 38	COMG 1/COMG 5	Conveyor Set 3-11	550	1/1/2000	9/1/2000	Y
EQUI 39	COMG 1/COMG 5	Conveyor Set 3-12	550	1/1/2006	9/1/2006	Y
EQUI 40	COMG 1/COMG 5	Conveyor Set 3-13	550	1/1/1985	11/1/1985	Y
EQUI 41	COMG 1/COMG 6	Conveyor Set 3-14	550	1/1/1968	4/1/1968	N
EQUI 42	COMG 1/COMG 5	Conveyor Set 3-15	550	1/1/1989	4/1/1989	Y
EQUI 43	COMG 1/COMG 5	Conveyor Set 3-16	550	1/1/1989	4/1/1989	Y
EQUI 44	COMG 1/COMG 5	Conveyor Set 4-1	800	1/1/2001	7/1/2001	Y
EQUI 45	COMG 1/COMG 5	Conveyor Set 4-2	800	1/1/2003	4/1/2003	Y
EQUI 46	COMG 1/COMG 5	Conveyor Set 4-3	800	1/1/2004	4/1/2004	Y
EQUI 47	COMG 1/COMG 4	Conveyor Set 4-4	800	1/1/2015	7/1/2015	Y
EQUI 48	COMG 1/COMG 4	Conveyor Set 4-5	800	1/1/2015	8/1/2015	Y
EQUI 49	COMG 1/COMG 4	Conveyor Set 4-6	800	1/1/2015	8/1/2015	Y
EQUI 50	COMG 1/COMG 5	Conveyor Set 4-7	800	1/1/2000	4/1/2000	Y
EQUI 51	COMG 1/COMG 5	Conveyor Set 4-8	800	1/1/2000	4/1/2000	Y
EQUI 52	COMG 8	Grizzly Feeder	800	1/1/2006	5/1/2006	N

* For NSPS subp. OOO applicability, the construction date is the date of manufacture or the most recent date of modification or reconstruction.

Appendix B. Insignificant Activities and General Applicable Requirements

The table below lists the insignificant activities that are currently at the Facility and their associated general applicable requirements.

Minn. R.	Rule description of the activity	General applicable requirement
Minn. R. 7007.1300, subp. 3(B)(2)	Indirect heating equipment with a capacity less than 420,000 Btu/hour, etc. <ul style="list-style-type: none"> - Space heaters: For these units, based on the fuels used and EPA published emissions factors, it is highly unlikely that it could violate the applicable requirement. In addition, these types of units are typically operated and vented inside a building, so testing for PM or opacity is not feasible. 	PM \leq 0.6 or 0.4, depending on year constructed Opacity \leq 20% with exceptions (Minn. R. 7011.0510/0515)
Minn. R. 7007.1300, subp. 3(H)(3)	Brazing, soldering or welding equipment <ul style="list-style-type: none"> - For these units, based on EPA published emissions factors, it is highly unlikely that they could violate the applicable requirement. In addition, these units are typically operated and vented inside a building, so testing for PM or opacity is not feasible. 	PM, variable depending on airflow Opacity \leq 20% (Minn. R. 7011.0710/0715)
Minn. R. 7007.1300, subp. 3(I)	Individual units with potential emissions less than 2000 lb/year of certain pollutants <ul style="list-style-type: none"> - Propane fired belt heaters: For the propane heaters, it is highly unlikely that they could violate the applicable requirement due to the type of fuel. 	PM, variable depending on airflow Opacity \leq 20% (Minn. R. 7011.0710/0715 and Minn. R. 7011.0610)
Minn. R. 7007.1300, subp. 3(I)	Individual units with potential emissions less than 2000 lb/year of certain pollutants <ul style="list-style-type: none"> - Conveyors from wash plant directly to storage piles: The wash plant fully saturates the aggregate so minimal PM emissions are expected. 	PM, variable depending on airflow Opacity \leq 20% (with exceptions) (Minn. R. 7011.0715)
Minn. R. 7007.1300, subp. 3(I)	Individual units with potential emissions less than 2000 lb/year of certain pollutants <ul style="list-style-type: none"> - Large boulder piles: The large boulder area is not expected to generate significant emissions 	PM, variable depending on airflow Opacity \leq 20% (with exceptions) (Minn. R. 7011.0715)
Minn. R. 7007.1300, subp. 3(J)	Fugitive dust emissions from unpaved roads and parking lots <ul style="list-style-type: none"> - Entrance and parking lots: The dust emissions from the unpaved entrance roads and parking lots 	Requirement to take reasonable measures to prevent PM from becoming airborne (Minn. R. 7011.0150)

Minn. R.	Rule description of the activity	General applicable requirement
	<p>qualify as insignificant. The permit contains a general requirement that this standard must be met.</p>	
<p>Minn. R. 7007.1300, subp. 3(K)</p>	<p>Infrequent use of spray paint equipment for routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source: While spray equipment will have the potential to emit particulate matter, these particular activities are those not associated with production, so they would be infrequent and usually occur outdoors. Testing or monitoring is not feasible.</p>	<p>PM, variable depending on airflow Opacity <= 20% (Minn. R. 7011.0710/0715)</p>

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 14100072-001

This technical support document (TSD) is intended for all parties interested in the permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR §70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the permit.

1. General Information

1.1 Applicant and Stationary Source Location

Table 1. Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code: 1442)
Barton Sand & Gravel Co. PO Box 1480 Maple Grove, MN 55311	Barton Sand & Gravel - Elk River Pit 718 12450 Ranch Rd NW Elk River Sherburne County, Minnesota 55330
Contact: Paul Schultz Phone: (763) 425-4191	

1.2 Facility Description

Barton Sand & Gravel Co. operates Elk River Pit 718, a construction sand and gravel processing operation (henceforth referred to as the 'Facility'). The processes include crushing, screening, conveying, and storage of material that is mined on-site and at other locations. Additionally, the facility processes recycled concrete and asphalt. An aggregate heater will also be added to produce an aggregate appropriate for ready-mix concrete products.

The air emissions from the Facility are particulates (PM, PM₁₀ and PM_{2.5}) from processing and storing sand and gravel, as well as truck loadout stations. The Facility also emits NO_x, CO, and other combustion products from the natural gas and propane fueled aggregate heater. Water sprays on various processes control particulate emissions and the occurrence of fugitive dust. The Facility is not engaging in silica sand mining operations.

1.3 Description of the Activities Allowed by this Permit Action

This permit action is a first time issuance of an individual state air emissions permit. The Facility previously operated under the Nonmetallic Mineral Processing Air Emission General Permit No. 05301018-002. The Facility will no longer be eligible for this permit type the general permit after the addition of the aggregate heater and increases in production. Similar to the general permit, the state individual permit includes language to allow for equipment replacements without necessarily needing a permit amendment.

The MPCA has a combined operating and construction permitting program under Minnesota Rules Chapter 7007. Under that authority, this permit action authorizes construction and operation at the Facility.

1.4 Facility Emissions

Table 2. Total Facility Potential to Emit Summary

	PM tpy	PM ₁₀ tpy	PM _{2.5} tpy	SO ₂ tpy	NO _x tpy	CO tpy	CO ₂ e tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	148.0	59.8	20.36	0.04	10.0	5.78	9,753	0.77	0.12	0.13
Total Facility Actual Emissions (2013)†	131.9	55.9	n/a	2.65	23.7	4.87	*	1.91	*	

*Not reported in MN emission inventory.

†The Facility operated under a different permit type in 2013

Table 3. Facility Classification

Classification	Major	Synthetic Minor/Area	Minor/Area
PSD		X	
Part 70 Permit Program		X	
Part 63 NESHAP			X

2. Regulatory and/or Statutory Basis

New Source Review

The Facility is subject to federally enforceable limits such that all NSR regulated air pollutants are less than the major source thresholds for NSR (40 CFR §52.21(b)(1)). Therefore, as defined by the federal rules, the Facility is not considered an existing major source for NSR.

Part 70 Permit Program

The Facility is subject to federally enforceable limits such that all Part 70 regulated air pollutants are less than the major source thresholds for Part 70 (40 CFR §70.2). Therefore, as defined by the federal rules, the Facility is not considered a major source under the Part 70 permit program.

New Source Performance Standards (NSPS)

The Permittee is subject to 40 CFR pt. 60, subp. OOO – Standards of Performance for Nonmetallic Mineral Processing Plants. The crushing, conveying, and screening operations at the site which were constructed after August 31, 1983 are affected facilities under subp. OOO. According to 40 CFR §60.671 grizzly feeders are not considered screening operations, so EQUI 052 is not subject to subp. OOO. A 1988 EPA Region 5 Applicability Determination (Attachment 4 to this TSD) clarified that the construction date is the manufacture date of the specific unit. The wet material processing operations at the site's wash plant are not subject to the NSPS subp. OOO because the materials are saturated at the wash plant (40 CFR §60.670(a)(2)).

This Facility is not subject to 40 CFR pt. 60, subp. Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The aggregate heater (EU 001) is used to heat

aggregate for ready-mix concrete and is considered a process heater; therefore, Subpart Dc does not apply.

The construction sand and gravel that are processed at the Facility do not meet the definition of industrial sand or the description of light aggregate in AP-42 section 11.20. Therefore, 40 CFR pt. 60, subp. UUU – Standards of Performance for Calciners and Dryers is not applicable.

The Permittee has stated that no other New Source Performance Standards apply to the operations at the Facility.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The Facility is an area source of HAPs under 40 CFR pt. 63. Thus, no major source NESHAPs apply. In addition, the Permittee has stated that no area source NESHAPs apply to any of the operations at the Facility. All engines used at the Facility are portable and qualify as nonroad engines. Therefore, 40 CFR pt. 63, subp. ZZZZ – Standards of Performance for Stationary Reciprocating Internal Combustion Engines is not applicable.

Compliance Assurance Monitoring (CAM)

CAM does not apply to this Facility. CAM only applies at sources required to obtain a permit under 40 CFR pt. 70.

Environmental Review & Air Emissions Risk Analysis (AERA)

The project triggered the need for an Environmental Analysis Worksheet (EAW) under Minn. R. 4410.4300 subp. 12(B) for development of a facility for the extraction or mining of sand and gravel which will excavate 40 acres of land or more to a mean depth of ten feet or more. Barton Sand & Gravel submitted an EAW to the responsible governmental unit (RGU), the City of Elk River, in April 2007 and a negative declaration was issued June 18, 2007 by the City for the expansion. The project does not meet any of the mandatory Environmental Impact Statement (EIS) categories addressed in Minn. R. 4410.4400.

Minnesota State Rules

Portions of the Facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0610 Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment

Table 4. Regulatory Overview of Facility

Level*	Applicable Regulations	Comments:
COMG 1 - Main Sand and Gravel Spread	Title I limit to avoid major source classification under 40 CFR §52.21 and 40 CFR §70.2	These throughput limits have been relied upon to limit Total PM, PM ₁₀ , and PM _{2.5} emissions to less than the 250 tpy PSD threshold as well as the 100 tpy Part 70 threshold for PM ₁₀ and PM _{2.5} . The PTE of the remaining pollutants are less than Part 70 thresholds before taking into account these limits.

COMG 2 - Recycled Concrete and Asphalt Spread	Title I limit to avoid major source classification under 40 CFR §52.21 and 40 CFR §70.2	These throughput limits have been relied upon to limit Total PM, PM ₁₀ , and PM _{2.5} emissions to less than the 250 tpy PSD threshold as well as the 100 tpy Part 70 threshold for PM ₁₀ and PM _{2.5} . The PTE of the remaining pollutants are less than Part 70 thresholds before taking into account these limits.
COMG 3 - Screening Spread Units	Title I limit to avoid major source classification under 40 CFR §52.21 and 40 CFR §70.2	These throughput limits have been relied upon to limit Total PM, PM ₁₀ , and PM _{2.5} emissions to less than the 250 tpy PSD threshold as well as the 100 tpy Part 70 threshold for PM ₁₀ and PM _{2.5} . The PTE of the remaining pollutants are less than Part 70 thresholds before taking into account these limits.
COMG 4 – Aggregate Mining – NSPS subp. OOO Units Constructed/Modified After 4/22/2008	40 CFR pt. 60, subp. OOO	Standards of Performance for Nonmetallic Mineral Processing Plants. 40 CFR pt. 60, subp. OOO applies to fixed or portable nonmetallic mineral processing plants: each crusher, screening operation, or belt conveyor constructed after August 31, 1983. The applicability of active units shall be maintained through the Facility's Equipment Inventory. Under the NSPS rules, construction is defined as the manufacture date. The 7% opacity limit applies to screeners and conveyors constructed after April 22, 2008. The 12% opacity limit applies to crushers constructed after April 22, 2008.
COMG 5 – Aggregate Mining – NSPS subp. OOO Units Constructed/Modified Before 4/22/2008	40 CFR pt. 60, subp. OOO	Standards of Performance for Nonmetallic Mineral Processing Plants. 40 CFR pt. 60, subp. OOO applies to fixed or portable nonmetallic mineral processing plants: each crusher, screening operation, or belt conveyor constructed after August 31, 1983. The applicability of active units shall be maintained through the Facility's Equipment Inventory. Under the NSPS rules, construction is defined as the manufacture date. The 10% opacity limit applies to screeners and conveyors constructed before April 22, 2008. The 15% opacity limit applies to crushers constructed before April 22, 2008.
COMG 6 – Aggregate Mining – Units Not Subject to NSPS subp. OOO	Minn. R. 7011.0715, subp. 1(B) Minn. R. 7011.0110	Standards of Performance for Post-1969 Industrial Process Equipment (IPER). This rule applies to all units at the site that are not subject to the NSPS subp. OOO, besides EQUI 1 and 52. Since the emissions from these units are uncaptured, only the opacity limit applies.
COMG 7 - Stockpiles	Title I limit to avoid major source classification under 40 CFR §52.21 and 40 CFR §70.2	Material moisture content limits and corresponding recordkeeping requirements ensure that the stockpiles moisture content will match what was used in the PTE calculation assumptions.
COMG 8 - Loading/Unloading	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment (IPER). This rule applies since NSPS subp. OOO only applies to enclosed loading stations and material is unloaded and loaded via front end loader at the site. Since the emissions from the units from this group are uncaptured, only the opacity limit applies.
EQUI 1 - Aggregate Heater	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment. The sand heater applies heat directly to washed aggregate. This unit combusts natural gas and propane only, so the sulfur dioxide limit does not apply.

FUGI 1 – Paved Haul Roads	Minn. R. 7011.0150	The Facility is required to suppress any fugitive emissions on paved haul roads.
FUGI 2 - Unpaved Haul Roads	Title I limit to avoid major source classification under 40 CFR §52.21 and 40 CFR §70.2	The Facility is required to limit vehicle traffic speeds to 15 miles per hour for vehicles traveling on unpaved roads (except in the case of emergencies). By limiting vehicle traffic speeds, the Facility controls the emissions from unpaved roads by 80%.

*Location of the requirement in the permit (e.g., EQUI, STRU, COMG, etc.).

3. Technical Information

Pre-Cap Permit Language

The permit makes use of pre-cap limits in order to allow the Permittee to make changes to the Facility with reduced permitting requirements if certain emission unit requirements are met. The MPCA uses pre-caps in situations where emissions from the existing facility are low, potential emissions from the new units may be high, but actual emissions are low, and changes to the facility are not expected to cause the facility to exceed NSR and Part 70 thresholds.

Barton Sand & Gravel has multiple mining pits that utilize portable equipment. The mineral processing units go to various sites to process materials based on the expected market demand. The air emissions permit therefore contains language to allow for flexibility in replacing, removing, or adding new units. COMG 1, COMG 2, and COMG 3 describe the three different production lines planned at the site. Each line will require different combinations of crushers, screens, and conveyors, but the quantity of each type of unit may change. The permit stipulates the maximum number and capacity of each type of equipment that are allowed in each of these three lines. At the time of permit issuance, COMG 1 is the only production line currently at the Facility. COMG 2 and COMG 3 do not contain emission units, but the Permittee will be able to add to these groups based on predicted demand following permit issuance.

The emission unit list provided in the emission calculations represents the maximum amount of equipment that could be active at the site at any given time. As such, this was implemented as a permit requirement in COMG 1, COMG 2, and COMG 3. The site's PTE is limited by the process throughput limits so this requirement is not required to limit emissions to below Part 70 and NSR thresholds. This requirement adds clarity to the other flexibility requirements and also limits the hourly emissions.

In order to demonstrate compliance with replacement procedures in COMG 1, COMG 2, and COMG 3 the site will maintain an inventory of the size and number of each equipment type onsite at all times. Within the equipment inventory, the Permittee is also required to keep an updated list of the manufacture/construction dates of the equipment currently on site. This is to determine whether a unit added to the site after permit issuance is subject to the requirements of COMG 4, COMG 5, or COMG 6.

Despite the pre-cap, the remaining traditional analyses still apply to determine if some type of amendment is needed. For instance, the Permittee may still need a major amendment if the modification is Title I for some other reason (e.g., triggers 112(g) or is a modification under an NSPS), if the unit will be subject to an applicable requirement not currently listed in the permit, or if monitoring and recordkeeping requirements need to be amended or added.

3.1 Calculations of Potential to Emit (PTE)

Attachment 1 to this TSD contains a summary of the PTE of the Facility, calculation spreadsheets, and supporting information prepared by the MPCA and the Permittee. Based on the calculations, the modification and the entire Facility are not subject to NSR under 40 CFR §52.21.

COMG 1 (GP 001) - Main Sand and Gravel Spread

Barton Sand & Gravel has proposed to process up to 3,000,000 tons per year of material. The aggregate material is initially loaded directly into two primary crushers, EQUI 2 and EQUI 3. Emission factors from Table 11.19.2-2 of AP-42 were used to determine the particulate emissions in terms of lb of particulate per ton of material processed. Therefore limits on the amounts of material that may be processed effectively limit emissions and provide a basis for calculations of potential to emit. Following primary crushing, the material passes through two initial screens, EQUI 7 or EQUI 8. 40% of this material is conveyed to stockpiles while 60% is sent to secondary crushing, EQUI 4, 5, or 6. Approximately 50% of the material that passes through secondary crushing passes through the secondary crushers and screens a second time before passing through final screening (EQUI 12) and being conveyed to various stockpiles. The calculations of PTE accounted for these divisions in the process stream. Therefore it was necessary to add another process throughput limit to COMG 3 in addition to the limit of how much material may be input into the process stream. These will enforce the percentage of material passing through equipment twice or bypassing units in the group.

Recycled Concrete and Asphalt Spread and Screening Spreads

Emissions from COMG 2 (Recycled Concrete and Asphalt Spread) and COMG 3 (Screening Spread) were calculated very similar to COMG 1. Emission factors in terms of lb of particulate matter per ton of material processed were sourced from Table 11.19.2-2 of AP-42. Any assumptions of the number of material passes or percentage of material sent for further processing became permit limits on process throughputs. This ensures that the actual emissions at the site could not exceed what was calculated.

Moisture addition to the feed material for COMG 2 is not required because of the nature of the recycled material. The feed material is large chunks of cured concrete, which typically has a moisture content between 1 to 3%. Supplemental water application to this feed material might also have an inadvertent negative environmental effect. This is because it is often fed back into an asphalt plant where it is heated. Excess water requires the combustion of additional fuel with the associated air emissions of the products of combustion. Water sprays are available if visible emissions are observed.

Fugitive Emission Sources

Fugitive emissions are those that could not reasonably pass through a stack, vent, or otherwise be captured. The site will have the potential to emit fugitive emissions from stockpiles, roads, and loading/unloading stations. Particulate emissions from paved roads at the Facility relied upon Equation 2 of AP-42, Section 13.2.1. This accounts for silt loading tests conducted at the Facility, weight of vehicles using the road, and precipitation characteristics of the region to determine an emission factor in terms of pounds of particulate matter per vehicle mile traveled. The total vehicle miles traveled was calculated based on assumptions of the annual throughput and the capacity of the haul trucks. Assumed annual

throughputs at the loading and unloading stations used in calculating the PTE exceed the limits imposed on the process lines. As long as the throughput limits are met, it would be impossible for the actual loading and unloading throughputs to exceed the values used in PTE calculations. Permit limits on these throughputs are therefore unnecessary.

Fugitive particulate emissions from unpaved roads used Equations 1a and 2 of AP-42 Section 13.2.2.2, which is similar to how paved road fugitive emissions were calculated. A control efficiency of 80% was assumed when implementing control measures such as a Facility wide speed limit of 15 miles per hour and application of water or other chemical dust suppressant. These control measures were therefore implemented into the permit.

Stockpiles used at the Facility also have the potential to emit fugitive particulate emissions. An emission factor in terms of pounds of particulate per day per acre of stockpile was obtained from the EPA's report on Control of Open Fugitive Dust Sources, September 1988. The number, location and size of the piles at the site fluctuate throughout the year so a variability factor of 2 was conservatively added to the estimated pile sizes. Many of the stockpiles are made directly after the wash plant so the minimum moisture content typically exceeds 1.5%. Minimum moisture content limits were added to COMG 7 – Stockpiles. For purposes of the emission calculations, the Facility has conservatively not accounted for additional control of fugitive emissions due to the moisture content of the material.

Truck loading and unloading of material is accomplished through front end loaders, which create fugitive particulate emissions. The material throughput estimates used to estimate emissions were conservative with respect to the permit limits and limits on the amount of material that may be loaded or unloaded is therefore unnecessary.

Aggregate Heater

Heater natural gas combustion emission factors were sourced from AP-42 Chapter 1.4: Natural Gas Combustion, while heater propane combustion factors were from AP-42 Chapter 1.5: Liquefied Petroleum Gas Combustion. PTE calculations assumed that the heater would be operated 8760 hours per year.

3.2 Monitoring

In accordance with the Clean Air Act, it is the responsibility of the Permittee of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considered the following:

- the likelihood of the facility violating the applicable requirements;
- whether add-on controls are necessary to meet the emission limits;
- the variability of emissions over time;
- the type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- the technical and economic feasibility of possible periodic monitoring methods; and
- the kind of monitoring found on similar units elsewhere.

Table 5 summarizes the monitoring requirements.

Table 5. Monitoring

Level	Requirement (basis)	Additional Monitoring	Discussion
COMG 1 - Main Sand and Gravel Spread	Material Moisture Content: $\geq 1.5\%$ (limit to avoid NSR and Pt. 70)	Moisture content testing, recordkeeping of where the material was sourced from	The underlying emissions calculations and basis for the permit limits are based on this moisture content level. The testing and/or recordkeeping is required to demonstrate compliance with this permit condition. In Minnesota, most sources of natural feed material are usually over 1.5%.
	Limit on Quantities of Units (limit to avoid NSR and Pt. 70)	Recordkeeping: Maintaining current equipment inventory, annual reports	This limit is needed in order to allow the units to be replaced without necessarily needing a permit amendment. Limiting the number of units on site also limits hourly emissions since units may not be replaced by ones with larger capacities. Notifications are required if a unit is replaced via the exemption allowed under 40 CFR §60.610(d), although certain replacements are allowed past this exemption.
	Process Throughput (primary crushers): $\leq 3,000,000$ tons/year, 12 month rolling sum (limit to avoid NSR and Pt. 70)	Recordkeeping: Daily records of the amount of material crushed by the primary crushers; monthly calculations of process throughput.	Records can be generated on a daily basis since the material that is crushed by the primary crushers is weighed after crushing. In order to demonstrate compliance with the limit on crushing, the material must be weighed before being combined with downstream material going through multiple passes. Monthly calculation of material throughput will be based on the daily throughput records.
	Process Throughput (final screen): $\leq 2,700,000$ tpy, 12 month rolling sum (limit to avoid NSR and Pt. 70)	Recordkeeping: Daily records of the amount of material passing through final screening; Monthly calculations of aggregate throughput.	Records can be generated on a daily basis since the material that is screened is weighed after screening. Monthly calculation of material throughput will be based on the daily throughput records.
COMG 2 – Recycled Concrete and Asphalt Spread	Process Throughput (primary recycle crusher): $\leq 250,000$ tons/year, 12 month rolling sum (limit to avoid NSR and Pt. 70)	Recordkeeping: Daily records of the amount of material crushed by the primary jaw crusher. Monthly calculations of material throughput.	Records can be generated on a daily basis since the material that is crushed by the primary jaw crusher is weighed after crushing. In order to demonstrate compliance with the limit on crushing, the material must be weighed before being combined with downstream material going through multiple passes. Monthly calculation of material throughput will be based on the daily throughput records.
	Process Throughput (recycle cone crusher): $\leq 375,000$ tons/year, 12 month rolling sum (limit to avoid NSR and Pt. 70)	Recordkeeping: Daily records of the amount of material crushed by the primary cone crusher. Monthly calculations of material throughput.	Records can be generated on a daily basis since the material that is crushed by the primary cone crusher is weighed after crushing. In order to demonstrate compliance with the limit on crushing, the material must be weighed before being combined with downstream aggregate going through multiple passes. Monthly calculation of material throughput will be based on the daily throughput records.

	Limit on Quantities of Units (limit to avoid NSR and Pt. 70)	Recordkeeping: Maintaining current equipment inventory, annual reports	This limit is needed in order to allow the units to be replaced without necessarily needing a permit amendment. Limiting the number of units on site also limits hourly emissions since units may not be replaced by ones with larger capacities. Notifications are required if a unit is replaced via the exemption allowed under 40 CFR §60.610(d), although certain replacements are allowed past this exemption.
COMG 3 - Screening Spread	Process Throughput \leq 500,000 tons/year, 12 month rolling sum (limit to avoid NSR and Pt. 70)	Recordkeeping: Daily records of the amount of material screened. Monthly calculations of material throughput.	Records can be generated on a daily basis since the material is weighed after initial screening. Only one throughput limit is necessary since there are no multiple passes through the screening spread.
	Material Moisture Content: \geq 1.5% (limit to avoid NSR and Pt. 70)	Moisture content testing, recordkeeping of where the material was sourced from	The underlying emissions calculations and basis for the permit limits are based on this moisture content level. The testing and/or recordkeeping is required to demonstrate compliance with this permit condition. In Minnesota, most sources of natural feed material are usually over 1.5%.
COMG 4 - NSPS subp. OOO Units Constructed/Modified After 4/22/2008	Opacity (screens, transfers, conveyors) \leq 7% (40 CFR pt. 60, subp. OOO)	Initial performance testing. Daily visible emissions checks. Monthly monitoring of wet suppression equipment. Recordkeeping of results from visible emissions checks and wet suppression equipment monitoring.	The NSPS requires initial performance testing only when wet suppression is used to control emissions from these units. Daily visible emissions checks are necessary to ensure the proper amount of water is being applied to the material before screening, conveying and storage.
	Opacity (crushers) \leq 12% (40 CFR pt. 60, subp. OOO)	Initial performance testing. Daily visible emissions checks. Monthly monitoring of wet suppression equipment. Recordkeeping of visible emissions checks and wet suppression equipment.	Each applicable crusher is subject to this limit. The NSPS requires initial performance testing only when wet suppression is used to control emissions from these units. Daily visible emissions checks are necessary to ensure the proper amount of water is being applied to the material before crushing.
COMG 5 - Aggregate Mining - NSPS subp. OOO Units Constructed/Modified Before 4/22/2008	Opacity (screens, transfers, conveyors) \leq 10% (40 CFR pt. 60, subp. OOO)	Initial performance testing. Daily visible emissions checks. Monthly monitoring of wet suppression equipment. Recordkeeping of results from visible emissions checks and wet suppression equipment monitoring.	The NSPS requires initial performance testing only when wet suppression is used to control emissions from these units. Daily visible emissions checks are necessary to ensure the proper amount of water is being applied to the material before screening, conveying and storage.

	Opacity (crushers) \leq 15% (40 CFR pt. 60, subp. 000)	Initial performance testing. Daily visible emissions checks. Monthly monitoring of wet suppression equipment. Recordkeeping of visible emissions checks and wet suppression equipment monitoring.	Each applicable crusher is subject to this limit. The NSPS requires initial performance testing only when wet suppression is used to control emissions from these units. Daily visible emissions checks are necessary to ensure the proper amount of water is being applied to the material before crushing.
COMG 6 - Aggregate Mining - Units Not Subject to NSPS subp. 000	Opacity \leq 20% (Minn. R. 7011.0715)	Daily visible emissions checks.	This limit applies to any mineral processing unit at the site which is not otherwise subject to COMG 4 or COMG 5 requirements. Daily visible emissions checks for the opacity limit required by Minn. R. 7007.0800, subp. 2 are sufficient monitoring for this limit and ensure the proper amount of water is being applied to the material before screening, conveying and storage.
COMG 7 - Stockpiles	Material Moisture Content: \geq 1.5% (limit to avoid NSR and Pt. 70)	Moisture content testing, recordkeeping of where the material was sourced from	The underlying emissions calculations and basis for the permit limits are based on this moisture content level. The testing and/or recordkeeping is required to demonstrate compliance with this permit condition. Testing is not required when the wet plant is operating.
COMG 8 - Loading/ Unloading	Opacity \leq 20% (Minn. R. 7011.0715)	Daily visible emissions checks.	This limit applies to all loading and unloading stations at the site as well as the grizzly feeder, which are not subject to the NSPS, subp. 000. Daily visible emissions checks for the opacity limit required by Minn. R. 7007.0800, subp. 2 are sufficient monitoring for this limit and ensure the proper amount of water is being applied to the material before screening, conveying and storage.
EQUI 1 - Aggregate Heater	Total PM \leq 0.30 grains/dry standard cubic foot unless required to further reduce emissions (Minn. R. 7011.0610 and Minn. R. 7011.0715) Opacity \leq 20% (Minn. R. 7011.0610)	None	The potential to emit of this unit is 0.12 lb/hr due to equipment design and allowable fuels. The likelihood of exceeding the limit is low considering the allowable fuels; therefore no additional monitoring is required.

3.3 Insignificant Activities

Barton Sand & Gravel - Elk River Pit 718 has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in Appendix II to the permit. The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA

guidance. The insignificant activities are subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities. See Attachment 1 of this TSD for PTE information for the insignificant activities.

The conveyors which carry material from the Facility’s wash plant are considered insignificant activities due to the exemption at 40 CFR §60.670(a)(2) for conveyors processing saturated material, in addition to having emissions of less than 1.0 ton/year, each.

Table 6. Insignificant Activities

Insignificant Activity	General Applicable Emission Limit	Discussion
Fuel use: space heaters fueled by natural gas, less than 420,000 Btu/hr (Minn. R. 7007.1300, subp. 3(B)(2))	PM ≤ 0.6 or 0.4 lb/MMBtu, depending on year constructed Opacity ≤ 20% with exceptions (Minn. R. 7011.0510/0515)	For this unit, based on the fuels used and EPA published emissions factors, it is highly unlikely that it could violate the applicable requirement. In addition, these types of units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Welding equipment (Minn. R. 7007.1300, subp. 3(H)(3))	PM, variable depending on airflow Opacity ≤ 20% (Minn. R. 7011.0710/0715)	For these units, based on EPA published emissions factors, it is highly unlikely that they could violate the applicable requirement. In addition, these units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Individual units with potential emissions less than 2000 lb/year of certain pollutants (7007.1300, subp. 3(I))	PM, variable depending on airflow Opacity ≤ 20% (with exceptions) (Minn. R. 7011.0715 and Minn. R. 7011.0610) SO ₂ ≤ 0.5 lb/MMBtu Opacity ≤ 20% (Minn. R. 7011.2300)	These are propane-fired belt heaters; the wash plant (including conveyors from wash plant directly to storage piles); and the large boulder piles. For the propane heaters, it is highly unlikely that they could violate the applicable requirement due to the type of fuel. The wash plant fully saturates the aggregate so minimal PM emissions are expected. The large boulder area is also not expected to generate significant emissions.
Fugitive emissions from unpaved roads and parking lots (7007.1300, subp. 3(J))	Requirement to take reasonable measures to prevent PM from becoming airborne (Minn. R. 7011.0150)	The dust emissions from the unpaved entrance roads and parking lots qualify as insignificant. The permit contains a general requirement that this standard must be met.
Infrequent use of spray paint equipment for routine upkeep not associated with primary production processes at the stationary source (Minn. R. 7007.1300, subp. 3(K)).	PM, variable depending on airflow or process weight rate Opacity ≤ 20% (Minn. R. 7011.0715)	While spray equipment will have the potential to emit particulate matter, these particular activities are those not associated with production, so they would be infrequent and usually occur outdoors. Testing or monitoring is not feasible.

3.4 Permit Organization

Except the aggregate heater, the requirements for each emission unit are split across two different groups. One set of groups (COMG 1, COMG 2, and COMG 3) are used to describe throughput and equipment capacity limits, pre-cap requirements, and minimum moisture contents. From here, each

COMG 1, COMG 2, and COMG 3 emission unit will be subject to one of the following groups: COMG 4, COMG 5, or COMG 6. The applicability of these groups is determined by the manufacture date and NSPS subp. OOO applicability of each emission unit. For example, EQUI 2 (jaw crusher) is a unit in the Main Sand and Gravel Spread (COMG 1). EQUI 2 was constructed in 2002 and is not otherwise exempt from the NSPS subp. OOO. The NSPS subp. OOO requirements are identified in COMG 5. Therefore EQUI 2 is subject to COMG 1 and COMG 5.

In general, the permit meets the MPCA Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be electronically tracked (e.g., limits, submittals, etc.), should be in the permit. The main reason is that the appendices are word processing sections and are not part of the electronic tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

Another area that deviates from the guidance is in the use of groups where the requirements in the group apply to the members of the group individually. This was done in order to shorten the permit and where no testing or tracking specific to a unit is in the permit (thereby reducing the likelihood that there will be further unit-specific requirements later).

At the time of permit issuance, COMG 1 is the only production line currently at the Facility. COMG 2 and COMG 3 do not contain emission units, but the Permittee will be able to add to these groups based on predicted demand following permit issuance.

3.5 Comments Received

Public Notice Period: October 9, 2015 – November 9, 2015

EPA 30-day Review Period: October 9, 2015 – November 9, 2015

Comments were not received from the public during the public notice period.

4. Permit Fee Assessment

This permit action is the issuance of an individual state permit based on an application received May 18, 2015. Attachment 3 to this TSD contains the MPCA's assessment of Application and Additional Points used to determine the permit application fee for this permit action as required by Minn. R. 7002.0019. The permit action includes one NSPS and limits to avoid 40 CFR pt. 52 and 40 CFR pt. 70 for which additional points apply.

5. Conclusion

Based on the information provided by the Permittee, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 14100072-001 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Eric Sulita (permit engineer)
Jennifer Carlson (compliance/enforcement)

Jeff Hedman (peer reviewer)
Beckie Olson (permit writing assistant)
Laurie O'Brien (administrative support)

AQ File No. 4627; DQ 5239

- Attachments:
1. PTE Summary Calculation Spreadsheets
 2. Applicable Requirements
 3. Points Calculator
 4. NSPS subp. OOO Applicability Determination

Attachment 1 – PTE Summary and Calculation Spreadsheets

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
Process Weight Rate Calculation for Form GI-09i

Emission Unit ID	Hourly Throughput ¹ (ton/hr)	Hourly Throughput ¹ (lb/hr)	Quantity	Allowable Emission Rate - One Unit ² (lb/hr)	Allowable Emission Rate - All Units ² (lb/hr)
EU002 - Jaw Crusher 1	1,100	2,200,000	1	53.08	53.08
EU003 - Jaw Crusher 2	550	1,100,000	1	47.51	47.51
EU004 - Cone Crusher 1	230	460,000	1	41.32	41.32
EU005 - Cone Crusher 2	200	400,000	1	40.41	40.41
EU006 - Cone Crusher 3	100	200,000	1	36.17	36.17
EU007 - Screens 1	1,100	2,200,000	1	53.08	53.08
EU008 - Screens 2	550	1,100,000	1	47.51	47.51
EU009 - Screens 3	230	460,000	1	41.32	41.32
EU010 - Screens 4	200	400,000	1	40.41	40.41
EU011 - Screens 5	100	200,000	1	36.17	36.17
EU012 - Screens 6	550	1,100,000	1	47.51	47.51
EU013 - EU022 Conveyor Set 1	1,100	2,200,000	10	53.08	530.79
EU023 - EU032 Conveyor Set 2	550	1,100,000	10	47.51	475.07
EU033 - EU052 Conveyor Set 3	550	1,100,000	20	47.51	950.13
EU053 - EU067 Conveyor Set 4	800	1,600,000	15	50.44	756.63
EU068 - Recycling Jaw Crusher	500	1,000,000	1	46.79	46.79
EU069 - Recycling Cone Crusher	500	1,000,000	1	46.79	46.79
EU070 - Recycling Screens	500	1,000,000	1	46.79	46.79
EU071 - EU077 - Recycling Conveyor Set 1	500	1,000,000	7	46.79	327.51
EU078-EU080 - Recycling Conveyor Set 2	500	1,000,000	3	46.79	140.36
EU081 - Screens 7	800	1,600,000	1	50.44	50.44
EU082 - EU096 - Screening Spread Conveyors	500	1,000,000	15	46.79	701.82

1. Hourly throughput based on equipment rating.

2. Allowable Emission Rate calculated based on Minn. R. 7011.0730 for process weight rate higher than 60,000 lbs/hr.

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
IA001 - Propane Fired Belt Heaters (portable)

Average Heat Input per Belt Heater: ¹	300,000	Btu/hr
Annual Operating Hours for Belt Heater: ²	8,760	hr/yr
Propane Heat Content: ³	90,500	Btu/gal

1. Average heat input based on manufacturer's specifications.
2. Conservatively assume 8,760 operating hours a year.
3. Propane heat content via AP-42 Chapter 1.5 (07/08).

Individual Propane Heater Emissions

Pollutant	Emission Factor ¹ (lb/kgal)	Max Hourly Emissions (lb/hr)	Max Annual Emissions (lb/yr)	Insignificant Threshold ² (lb/yr)	Exceed?
PM (total)	0.7	2.32E-03	20.33	2,000	NO
SO ₂	0.054	1.79E-04	1.57	2,000	NO
NO _x	13.0	0.04	377.5	2,000	NO
CO	7.5	0.02	217.8	4,000	NO
VOC	1.0	3.31E-03	29.0	2,000	NO

1. Emission factors per AP-42 Chapter 1.5 (07/08), Table 1.5-1. Sulfur content of propane from "A National Methodology and Emission Inventory for Residential Fuel Combustion" <http://www.epa.gov/ttnchie1/conference/ei12/area/haneke.pdf>
2. Insignificant threshold as found in Minn R. 7007.1300(3)(l).

Propane Heater Greenhouse Gas Summary

Pollutant	Emission Factors ¹ (lb/MMBtu)	Global Warming Potential ²	Max Hourly Emissions (lb/hr)	Max Annual Emissions (ton/yr)	Insignificant Threshold ³ (tpy)	Exceed?
CO ₂	139	1	42	182.1		
N ₂ O	1.32E-03	298	3.97E-04	1.74E-03		
CH ₄	6.61E-03	25	1.98E-03	8.69E-03		
Total CO ₂ e	--	--	42	182.9	1,000	NO

1. Emission factors per 40 CFR Part 98 (11/2013) Subpart C, Table C-1 & C-2.
2. Global warming potentials from 40 CFR Part 98 (11/2013) Subpart A, Table A-1.
3. Insignificant threshold as found in Minn R. 7007.1300(3)(l).

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
Pre-Project GHG Calculations - Existing Sand Heater

Note - Pre-project criteria pollutant emissions based on General Permit Technical Support Document.

Heater Information		
Heat Capacity ¹	10	MMBtu/hr
Fuel Types ¹	Natural Gas, Propane	

1. Information from Technical Support Document associated with permit 05301018-002, Appendix II.

Fuel Type	Higher Heating Value ¹	Units	Emission Factors		
			CO ₂ ¹ (kg/MMBtu)	CH ₄ ² (kg/MMBtu)	N ₂ O ² (kg/MMBtu)
Natural Gas	1.03E-03	MMBtu/scf	53.06	1.00E-03	1.00E-04
Propane	0.091	MMBtu/gal	62.87	3.00E-03	6.00E-04

1. Higher Heating Value and CO₂ emission factors from 40 CFR 98, Subpart C, Table C-1.
 2. CH₄ and N₂O emission factors from 40 CFR 98, Subpart C, Table C-2.

Pollutant	Heater Calculations			
	Natural Gas		Propane	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
CO ₂	1,169.77	5,123.60	1,386.04	6,070.88
CH ₄	0.02	0.10	0.07	0.29
N ₂ O	2.20E-03	0.01	0.01	0.06
Mass Total	1,169.80	5,123.70	1,386.12	6,071.22
CO _{2e}	1,170.13	5,125.18	1,392.56	6,099.42

Worst Case Scenario: Propane		
Pollutant	Propane	
	(lb/hr)	(tpy)
CO ₂	1,386.04	6,070.88
CH ₄	0.07	0.29
N ₂ O	0.01	0.06
Mass Total	1,386.12	6,071.22
CO _{2e}	1,392.56	6,099.42

Reference Values	
Global Warming Potentials ¹	
CO ₂	1
CH ₄	25
N ₂ O	298

1. Global Warming Potentials from 40 CFR 98, Subpart A, Table A-1.

Barton Sand & Gravel Elk River Emission Calculation

- Pit #718 - Elk River, MN
- Fugitive Emissions From Storage Pile Areas
- FS003 - Wash Plant/Main Stockpile Area - High Silt (multiple piles in each area)
- FS004 - Wash Plant/Main Stockpile Area - Mid Silt (multiple piles in each area)
- FS005 - Wash Plant/Main Stockpile Area - Low Silt (multiple piles in each area)
- FS006 - Stockpile Area - North (multiple piles in each area)
- FS007 - Stockpile Area - South (multiple piles in each area)

Control of Open Fugitive Dust Sources

EPA-450/3-88-008, September 1988, Page 4-17, Equation 2.

$$E = 1.7 \left(\frac{s}{1.5} \right)^{0.365 - \frac{p}{2.35}} \left(\frac{f}{15} \right) \text{ (lb/day/acre)}$$

E = total suspended particulate emission factor

s = silt content of aggregate, percent

p = number of days with ≥ 0.01 in of precipitation per year

f = percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height

Fugitive Particulate Matter Emissions from Active Piles	FS003	FS004	FS005	FS006	FS007	Source/Units
Silt content (%) (s)	120	80	20	40	40	Silt content based on facility data.
Number of days with ≥ 0.01 " precipitation in a year (p)	110	110	110	110	110	From AP-42 Section 13.2.1 (1/11), Figure 13.2.1-2.
Percent of time wind speeds exceed 12 mph at mean pile height (%) (f)	24	24	24	24	24	Based on meteorological data from MPCA (STCMPX5Y modeling meteorological dataset), the average percentage of time that the wind speed is greater than 12 mph.
Number of days the pile is present	365	365	365	365	365	Days per year
Variability Factor	2	2	2	2	2	Safety factor to account for pile size variability throughout the year.
Total size of pile (Acres)	1.35	6.06	22.04	7.06	25.21	Pile footprint estimated from maximum potential size and multiplied by the variability factor.

	PM Emission Factor ¹ (lb/(days*acres))	PM ₁₀ Emission Factor ¹ (lb/(days*acres))	PM _{2.5} Emission Factor ¹ (lb/(days*acres))	PM			PM _{2.5}		
				Unrestricted/Limited Potential Emissions (lb/hr)	Unrestricted/Limited Potential Emissions (ton/yr)	Unrestricted/Limited Potential Emissions (lb/hr)	Unrestricted/Limited Potential Emissions (ton/yr)	Unrestricted/Limited Potential Emissions (lb/hr)	Unrestricted/Limited Potential Emissions (ton/yr)
FS003 - Wash Plant/Main Stockpile Area - High Silt	23,384	11,692	4,677	1,313	5,753	0,657	2,876	0,263	1,151
FS004 - Wash Plant/Main Stockpile Area - Mid Silt	15,589	7,795	3,118	3,938	17,250	1,969	8,625	0,788	3,450
FS005 - Wash Plant/Main Stockpile Area - Low Silt	3,897	1,949	0,779	3,578	15,673	1,789	7,837	0,716	3,135
FS006 - Stockpile Area - North	7,795	3,897	1,559	2,293	10,045	1,147	5,022	0,459	2,009
FS007 - Stockpile Area - South	7,795	3,897	1,559	8,188	35,863	4,094	17,932	1,638	7,173

1. Emissions are calculated using the methodology listed in Section 4.1.3 - Wind Emissions From Continuously Active Piles of the EPA document Control of Open Fugitive Dust Sources, EPA-450/3-88-008, September 1988, Page 4-7, to be 20% of PM per Control of Open Fugitive Dust Sources, EPA-450/3-88-008, September 1988, Page 4-7.

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
FS008 - FS013, EU097 - Truck Loading and Unloading Emissions

Truck Loading and Unloading Emission Factors

Variable	Units	Truck Loading Emission Factor ¹	Truck Unloading Emission Factor ¹
E (PM)	lb/ton	2.73E-04	4.36E-05
E (PM ₁₀)		1.00E-04	1.60E-05
E (PM _{2.5})		1.00E-04	1.60E-05

1. Truck Loading and Unloading emission factors for PM₁₀ from AP-42 Table 11.19.2-2 (8/04). PM_{2.5} emissions assumed the same as PM₁₀. PM emission factor estimated by ratio (PM/PM₁₀) of emission factors for uncontrolled conveyor transfer point. Only uncontrolled emission factor available in AP-42 Table 11.19.2-2 (8/04), so controlled emissions conservatively assumed equal to uncontrolled emissions.

Unrestricted/Limited Potential Summary

Emission Unit ID	Emission Unit	Annual Throughput ¹ (tons/year)	PM		PM ₁₀		PM _{2.5}	
			(lb/hr) ²	(tons/year)	(lb/hr) ²	(tons/year)	(lb/hr) ²	(tons/year)
FS008	Wash Plant Truck Loading	1,800,000	0.06	0.25	0.02	0.09	0.02	0.09
FS009	Concrete & Asphalt Recycling Processing Truck Unloading	150,000	7.47E-04	3.27E-03	2.74E-04	1.20E-03	2.74E-04	1.20E-03
FS010	Concrete & Asphalt Recycling Load Out Truck Loading	250,000	7.78E-03	0.03	2.85E-03	0.01	2.85E-03	0.01
FS011	Aggregate Material Sales Load Out Truck Loading	250,000	7.78E-03	0.03	2.85E-03	0.01	2.85E-03	0.01
FS012	Overburden/Aggregate Transfer Truck Loading	600,000	1.87E-02	0.08	6.85E-03	3.00E-02	6.85E-03	3.00E-02
FS013	Overburden/Aggregate Transfer Truck Unloading	600,000	2.99E-03	1.31E-02	1.10E-03	4.80E-03	1.10E-03	4.80E-03
EU052	Grizzly Feeder (associated with truck unloading)	7,008,000	0.0349	0.1529	0.0128	0.0561	0.0128	0.0561
FS008 - FS013, EU052 - Total Unrestricted/Limited Potential Emissions			0.13	0.56	0.05	0.21	0.05	0.21

1. Annual throughputs are based on proposed annual limits on facility material throughput. Grizzly feeder annual throughput based on 800 ton/hour rated capacity and 8,760 hours of operation.

2. Hourly emissions rates are based on the annual throughput and assume 8,760 hours of operation.

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
Paved Roadway Emissions
FS001 - Paved Haul Road Emissions

Typical / Maximum / Potential Emissions

$$E \left[\frac{lb}{VMT} \right] = [k * sL^{0.91} * W^{1.02}] * [(1 - P/(4 * N))]$$

AP-42, Section 13.2.1, Equation 2, 1/11

Parameter	Value	Definition	Source
k (PM)	0.011	Particle size multiplier (lb/VMT)	AP-42, Table 13.2.1-1, 1/11
k (PM ₁₀)	0.0022		
k (PM _{2.5})	0.00054		
sL	3.5	Road Surface Silt Loading (g/m ²)	Silt test data at a representative location at a similar facility, multiplied by safety factor (1.5).
W ₁	26	Mean Vehicle Weight of Sales Truck (tons)	Calculated
W ₂	46	Mean Vehicle Weight of 980 Front-End Loader (tons)	Calculated
P	115	Number of days with >= 0.01" precipitation in a year (p)	From AP-42, Figure 13.2.1-2, 1/11
N	365	Number of days in a year	

Estimate of Average Weight of Vehicles (W)¹

Vehicle Type	Weight Empty (tons)	Carrying Capacity (tons)	Average Weight (tons)
Sales Truck	15	21	26
980 Front-End Loader	39	13	46

1. Vehicle weights based on vendor information and vehicle sales loads.

Estimate of Facility VMT

Trip Description	Truck Type	Annual Throughput ¹ (tons/year)	Roundtrip Length ¹ (miles/trip)	# of Trips (trips/year)	Vehicle miles travelled per year
Wash Plant Load Out - Truck	Sales Truck	1,800,000	0.45	85,714	38,961
Wash Plant Load Out - Front End Loader	980 Front-End Loader	1,800,000	0.02	138,462	2,622

1. Annual throughputs are based on proposed annual limits on facility material throughput and roundtrip length calculated based upon facility maps.

Unrestricted/Limited Potential Facility Emission Calculation

Description	Wash Plant Load Out - Truck EF (lb/VMT)	Wash Plant Load Out - Truck (VMT/yr)	Wash Plant Load Out - Front End Loader EF (lb/VMT)	Wash Plant Load Out - Front End Loader (VMT/yr)	Unrestricted/Limited Potential Emissions ¹ (lb/hr)	Unrestricted/Limited Potential Emissions (ton/yr)
PM	0.85	38,961	1.54	2,622	4.26	18.66
PM ₁₀	0.17		0.31		0.85	3.73
PM _{2.5}	0.04		0.08		0.21	0.92

1. Hourly emissions are calculated from annual emissions and assume 8,760 hours of operation.

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
Unpaved Roadway Emissions
FS002 - Unpaved Haul Road Emissions

Typical / Maximum / Potential Emissions

$$E\left(\frac{lb}{VMT}\right) = \left[k(s/12)^a (W/3)^b \right] * [(365 - P)/365]$$

AP-42, Section 13.2.2.2, Equation (1a) & Equation (2), 11/06

Parameter	Value	Definition	Source
k (PM)	4.9	Particle size multiplier (lb/VMT)	AP-42, Table 13.2.2-2, 11/06
k (PM ₁₀)	1.5		
k (PM _{2.5})	0.15		
a (PM)	0.7	Empirical Constant	AP-42, Table 13.2.2-2, 11/06
a (PM ₁₀)	0.9		
a (PM _{2.5})	0.90		
b (PM)	0.45	Empirical Constant	AP-42, Table 13.2.2-2, 11/06
b (PM ₁₀)	0.45		
b (PM _{2.5})	0.45		
s	4.8	Surface Material Silt Content (%)	AP-42, Table 13.2.2-1, 11/06. Mean silt content for sand and gravel processing plant road.
W ₁	26	Mean Vehicle Weight of Sales Truck (tons)	Calculated
W ₂	63	Mean Vehicle Weight of 988 Front-End Loader (tons)	Calculated
W ₃	46	Mean Vehicle Weight of 980 Front-End Loader (tons)	Calculated
W ₄	58	Mean Vehicle Weight of 35-Ton Off-Road Truck (tons)	Calculated
P	115	Number of days with >= 0.01" precipitation in a year (p)	From AP-42 Section 13.2.2 (11/06), Figure 13.2.2-1
Control Efficiency	80%	Control Efficiency (%)	Estimated control efficiency based on limiting the speed to 15 mph, and the application of water or dust suppressant as necessary for unpaved roads (WRAP Fugitive Dust Handbook, September 7, 2006)

Estimate of Average Weight of Vehicles (W)¹

Vehicle Type	Weight Empty (tons)	Carrying Capacity (tons)	Average Weight (tons)
Sales Truck	15	21	26
988 Front-End Loader	55	15	63
980 Front-End Loader	39	13	46
35-Ton Off-Road Truck	40	35	58

1. Vehicle weights based on vendor information and vehicle sales loads.

Estimate of Facility VMT

Trip Description	Truck Type	Annual Throughput ¹ (tons/year)	Roundtrip Length ¹ (miles/trip)	# of Trips (Trips/year)	VMT (VMT/yr)
Concrete & Asphalt Recycling Load Out - Truck	Sales Truck	250,000	0.38	11,905	4,509
Concrete & Asphalt Recycle Load Out - Front End Loader	980 Front-End Loader	250,000	0.02	19,231	364
Concrete & Asphalt Recycling Incoming - Truck	Sales Truck	150,000	0.57	7,143	4,058
Concrete & Asphalt Recycle Processing - Front End Loader	980 Front-End Loader	250,000	0.04	19,231	728
Aggregate Material Sales Load Out - Truck	Sales Truck	250,000	0.45	11,905	5,411
Aggregate Material Load Out - Front End Loader	980 Front-End Loader	250,000	0.02	19,231	364
Overburden/Aggregate Transfer On-Site	35-Ton Off-Road Truck	600,000	0.50	17,143	8,571
Mining Traffic - Front End Loader	988 Front-End Loader	2,000,000	0.07	133,333	8,838
Mining Traffic - Front End Loader	980 Front-End Loader	1,000,000	0.07	76,923	5,099
Screening Traffic - Front End Loader	980 Front-End Loader	500,000	0.06	38,462	2,185

1. Annual throughputs are based on proposed annual limits on facility material throughput and roundtrip length calculated based upon facility maps.

Emission Factors

Trip Description	Emission Factor (lb/VMT)			Vehicle Miles Travelled (VMT)
	PM	PM ₁₀	PM _{2.5}	
Concrete & Asphalt Recycling Load Out - Truck	4.63	1.18	0.12	4,509
Concrete & Asphalt Recycle Load Out - Front End Loader	6.01	1.53	0.15	364
Concrete & Asphalt Recycling Incoming - Truck	4.63	1.18	0.12	4,058
Concrete & Asphalt Recycle Processing - Front End Loader	6.01	1.53	0.15	728
Aggregate Material Sales Load Out - Truck	4.63	1.18	0.12	5,411
Aggregate Material Load Out - Front End Loader	6.01	1.53	0.15	364
Overburden/Aggregate Transfer On-Site	6.67	1.70	0.17	8,571
Mining Traffic - 988 Front-End Loader	6.93	1.77	0.18	8,838
Mining Traffic - 980 Front-End Loader	6.01	1.53	0.15	5,099
Screening Traffic - Front End Loader	6.01	1.53	0.15	2,185

Unpaved Haul Road Summary¹

	Limited Potential Emissions					
	PM		PM ₁₀		PM _{2.5}	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
FS002 - Unpaved Haul Road Emissions	5.38	23.6	1.37	6.01	0.14	0.60

	Unrestricted Emissions					
	PM		PM ₁₀		PM _{2.5}	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
FS002 - Unpaved Haul Road Emissions	26.90	117.8	6.86	30.03	0.69	3.00

Barton Sand & Gravel Elk River Emission Calculation
 Pit #718 - Elk River, MN
 Limited Potential Emissions Summary

Emission Unit	Fugitives? (Y/N)?		NO _x		CO		SO ₂		PM		PM ₁₀		PM _{2.5}		VOC	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU001 - Natural Gas-Fired Aggregate Heater with Propane Backup																
GP 001 Crushers	2.29	10.01			1.32	5.78	9.49E-03	0.04	0.12	0.54	0.12	0.54	0.12	0.54	0.18	0.77
GP 001 Screens									2.62	2.61	1.18	1.17	0.22	0.22		
GP 001 Conveyors									6.01	7.76	2.02	2.61	0.14	0.18		
GP 002 Recycling Equipment Total									5.53	7.77	1.82	2.55	0.51	0.72		
GP 003 Screening Spread Equipment Total									3.00	0.99	1.14	0.37	0.19	0.06		
FS001 - Paved Haul Road Emissions									2.81	1.08	0.94	0.36	0.14	0.06		
FS002 - Unpaved Haul Road Emissions									4.26	18.66	0.85	3.73	0.21	0.92		
FS003 - Wash Plant/Main Stockpile Area - High Silt (multiple piles in each area)									5.38	23.57	1.37	6.01	0.14	0.60		
FS004 - Wash Plant/Main Stockpile Area - Mid Silt (multiple piles in each area)									1.31	5.75	0.66	2.88	0.26	1.15		
FS005 - Wash Plant/Main Stockpile Area - Low Silt (multiple piles in each area)									3.94	17.25	1.97	8.63	0.79	3.45		
FS006 - Stockpile Area - North (multiple piles in each area)									3.58	15.67	1.79	7.84	0.72	3.13		
FS007 - Stockpile Area - South (multiple piles in each area)									2.29	10.04	1.15	5.02	0.46	2.01		
EU 052, FS008 - FS013 - Truck Loading and Unloading Emissions									8.19	35.86	4.09	17.93	1.64	7.17		
Total (with Fugitives)	2.29	10.01	1.32	5.78	1.32	5.78	9.49E-03	0.04	49.17	148.12	19.14	59.85	5.57	20.42	0.18	0.77
Total (without Fugitives)	2.29	10.01	1.32	5.78	1.32	5.78	9.49E-03	0.04	20.09	20.74	7.21	7.61	1.32	1.77	0.18	0.77

1. Fugitive emissions are those emissions that cannot reasonably be routed through a stack.

Emission Unit	Lead		CO ₂		CH ₄		CO _{2e}		Total HAP		Single HAP (Hexane)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU001 - Natural Gas-Fired Aggregate Heater with Propane Backup	7.80E-06	3.42E-05	2.218	9.713	0.11	0.46	2.227	9.753	0.03	0.13	0.03	0.12
GP 001 Crushers												
GP 001 Screens												
GP 001 Conveyors												
GP 002 Recycling Equipment Total												
GP 003 Screening Spread Equipment Total												
FS001 - Paved Haul Road Emissions												
FS002 - Unpaved Haul Road Emissions												
FS003 - Wash Plant/Main Stockpile Area - High Silt (multiple piles in each area)												
FS004 - Wash Plant/Main Stockpile Area - Mid Silt (multiple piles in each area)												
FS005 - Wash Plant/Main Stockpile Area - Low Silt (multiple piles in each area)												
FS006 - Stockpile Area - North (multiple piles in each area)												
FS007 - Stockpile Area - South (multiple piles in each area)												
EU 052, FS008 - FS013 - Truck Loading and Unloading Emissions												
Total	7.80E-06	3.42E-05	2.218	9.713	0.11	0.46	2.227	9.753	0.03	0.13	0.03	0.12

1. Hexane is the maximum single HAP from the aggregate heater.

Barton Sand & Gravel Elk River Emission Calculation
 Pit #718 - Elk River, MN
 Unrestricted Potential Emissions Summary

Emission Unit	NO _x		CO		SO ₂		PM		PM ₁₀		PM _{2.5}		VOC	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU001 - Natural Gas-Fired Aggregate Heater with Propane Backup	2.29	10.01	1.32	5.78	9.49E-03	0.04	0.12	0.54	0.12	0.54	0.12	0.54	0.18	0.77
GP 001 Crushers							11.77	51.56	5.23	22.92	5.23	22.92		
GP 001 Screens							68.25	298.94	23.75	104.03	23.75	104.03		
GP 001 Conveyors							118.5	519.0	43.45	190.31	43.45	190.31		
GP 002 Recycling Equipment Total							32.90	144.10	12.25	53.66	12.25	53.66		
GP 003 Screening Spread Equipment Total							42.50	186.15	15.21	66.62	15.21	66.62		
FS001 - Paved Haul Road Emissions							4.26	18.66	0.85	3.73	0.21	0.92		
FS002 - Unpaved Haul Road Emissions							26.90	117.84	6.86	30.03	6.86	30.00		
FS003 - Wash Plant/Main Stockpile Area - High Silt (multiple piles in each area)							1.31	5.75	0.66	2.88	0.26	1.15		
FS004 - Wash Plant/Main Stockpile Area - Mid Silt (multiple piles in each area)							3.94	17.25	1.97	8.63	0.79	3.45		
FS005 - Wash Plant/Main Stockpile Area - Low Silt (multiple piles in each area)							3.58	15.67	1.79	7.84	0.72	3.13		
FS006 - Stockpile Area - North (multiple piles in each area)							2.29	10.04	1.15	5.02	0.46	2.01		
FS007 - Stockpile Area - South (multiple piles in each area)							8.19	35.86	4.09	17.93	1.64	7.17		
EU052, FS008 - FS013 - Truck Loading and Unloading Emissions	2.29	10.01	1.32	5.78	0.01	0.04	0.13	0.56	0.05	0.21	0.05	0.21	0.18	0.77
Total (with Fugitives)	2.29	10.01	1.32	5.78	0.01	0.04	324.7	1,422	117.4	514.3	104.8	459.1	0.18	0.77
Total (without Fugitives)	2.29	10.01	1.32	5.78	0.01	0.04	274.0	1,200	100.0	438.1	100.0	438.1	0.18	0.77

1. Fugitive emissions are those emissions that cannot reasonably be routed through a stack.

Emission Unit	Lead		CO ₂		N ₂ O		CH ₄		CO _{2e}		Total HAP		Single HAP (Hexane)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EU001 - Natural Gas-Fired Aggregate Heater with Propane Backup	7.80E-06	3.42E-05	2,218	9,713	2.12E-02	0.09	0.11	0.46	2,227	9,753	0.03	0.13	0.03	0.12
GP 001 Crushers														
GP 001 Screens														
GP 001 Conveyors														
GP 002 Recycling Equipment Total														
GP 003 Screening Spread Equipment Total														
FS001 - Paved Haul Road Emissions														
FS002 - Unpaved Haul Road Emissions														
FS003 - Wash Plant/Main Stockpile Area - High Silt (multiple piles in each area)														
FS004 - Wash Plant/Main Stockpile Area - Mid Silt (multiple piles in each area)														
FS005 - Wash Plant/Main Stockpile Area - Low Silt (multiple piles in each area)														
FS006 - Stockpile Area - North (multiple piles in each area)														
FS007 - Stockpile Area - South (multiple piles in each area)														
EU052, FS008 - FS013 - Truck Loading and Unloading Emissions	7.80E-06	3.42E-05	2,218	9,713	2.12E-02	0.09	0.11	0.46	2,227	9,753	0.03	0.13	0.03	0.12
Total	7.80E-06	3.42E-05	2,218	9,713	2.12E-02	0.09	0.11	0.46	2,227	9,753	0.03	0.13	0.03	0.12

1. Hexane is the maximum single HAP from the aggregate heater.

Barton Sand & Gravel Elk River Emission Calculation
 Pit #718 - Elk River, MN
 EU001 - Natural Gas-Fired Aggregate Heater with Propane Backup
 Natural Gas Emission Calculations

Heat Input: ¹	16,000,000	Btu/hr
Heat Content: ²	1,026	Btu/scf

1. Aggregate heater rated heat capacity.
2. Natural gas heat content per 40 CFR Part 98 Subpart C, Table C-1.

Natural Gas Combustion Criteria Pollutants

Pollutant	Emission Factor ¹ (lb/MMscf)	Emissions (lb/hr)	Limited/Unrestricted Potential Emissions ² (tpy)
NO _x	100	1.56	6.83
CO	24	0.37	1.64
PM/PM ₁₀ /PM _{2.5} (total)	7.6	0.12	0.52
SO ₂	0.6	0.01	0.04
VOC	5.5	0.09	0.38

1. Emission factors for NO_x and CO per AP-42 Chapter 1.4 (7/98), Table 1.4-1, for uncontrolled units with less than 100 MMBtu/hr capacity. Emission factors for other pollutants per AP-42 Chapter 1.4 (7/98), Table 1.4-2.
2. Limited and unrestricted potential emissions based on 8,760 hours/year of operation.

Natural Gas Combustion Greenhouse Gases

Pollutant	Emission Factors ¹ (lb/MMBtu)	Global Warming Potential ²	Emissions (lb/hr)	Limited/Unrestricted Potential Emissions ³ (tpy)
CO ₂	117	1	1,872	8,198
N ₂ O	2.20E-04	298	3.53E-03	0.02
CH ₄	2.20E-03	25	0.04	0.15
Total CO ₂ e	--	--	1,874	8,206

1. Emission factors per 40 CFR Part 98 (11/2013) Subpart C, Table C-1 & C-2.
2. Global warming potentials from 40 CFR Part 98 (11/2013) Subpart A, Table A-1.

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
EU001 - Natural Gas-Fired Aggregate Heater with Propane Backup
HAP Emission Calculations

Maximum Rated Heat Input:	16	MMBtu/hr
Conversion to lb/MMBtu for Natural Gas: ¹	1,026	MMBtu/MMscf

Pollutant	CAS	Emission Factors ² (lb/MMscf)	Hourly Emissions (lb/hr)	Limited/Unrestricted Potential Emissions ³ (tpy)
2-Methylnaphthalene	91-57-6	2.40E-05	3.74E-07	1.64E-06
3-Methylchloranthrene	56-49-5	1.80E-06	2.81E-08	1.23E-07
7-12-Dimethylbenz(a)anthracene	57-97-6	1.60E-05	2.50E-07	1.09E-06
Acenaphthene	83-32-9	1.80E-06	2.81E-08	1.23E-07
Acenaphthylene	203-96-8	1.80E-06	2.81E-08	1.23E-07
Anthracene	120-12-7	2.40E-06	3.74E-08	1.64E-07
Benz(a)anthracene	56-55-3	1.80E-06	2.81E-08	1.23E-07
Benzene	71-43-2	2.10E-03	3.27E-05	1.43E-04
Benzo(a)pyrene	50-32-8	1.20E-06	1.87E-08	8.20E-08
Benzo(b)fluoranthene	205-99-2	1.80E-06	2.81E-08	1.23E-07
Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.87E-08	8.20E-08
Benzo(k)fluoranthene	205-82-3	1.80E-06	2.81E-08	1.23E-07
Chrysene	218-01-9	1.80E-06	2.81E-08	1.23E-07
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.87E-08	8.20E-08
Dichlorobenzene	25321-22-6	1.20E-03	1.87E-05	8.20E-05
Fluoranthene	206-44-0	3.00E-06	4.68E-08	2.05E-07
Fluorene	86-73-7	2.80E-06	4.37E-08	1.91E-07
Formaldehyde	50-00-0	7.50E-02	1.17E-03	5.12E-03
Hexane	110-54-3	1.80E+00	2.81E-02	1.23E-01
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	2.81E-08	1.23E-07
Naphthalene	91-20-3	6.10E-04	9.51E-06	4.17E-05
Phenanathrene	85-01-8	1.70E-05	2.65E-07	1.16E-06
Pyrene	129-00-0	5.00E-06	7.80E-08	3.42E-07
Toluene	108-88-3	3.40E-03	5.30E-05	2.32E-04
Arsenic	7440-38-2	2.00E-04	3.12E-06	1.37E-05
Beryllium	7440-41-7	1.20E-05	1.87E-07	8.20E-07
Cadmium	7440-43-9	1.10E-03	1.72E-05	7.51E-05
Chromium	7440-47-3	1.40E-03	2.18E-05	9.56E-05
Cobalt	7440-48-4	8.40E-05	1.31E-06	5.74E-06
Manganese	7439-96-5	3.80E-04	5.93E-06	2.60E-05
Mercury	7439-97-6	2.60E-04	4.05E-06	1.78E-05
Nickel	7440-02-0	2.10E-03	3.27E-05	1.43E-04
Selenium	7782-49-2	2.40E-05	3.74E-07	1.64E-06
Lead	7439-92-1	5.00E-04	7.80E-06	3.42E-05
Total POM		8.82E-05	1.38E-06	6.02E-06
Total HAP		1.89	0.03	0.13
Maximum Individual HAP			0.03	0.12

1. Natural gas heat content per 40 CFR Part 98 Subpart C, Table C-1.

2. HAP Emission Factors from AP-42 Chapter 1.4 (7/98), Tables 1.4-2, 1.4-3 and 1.4-4. No HAP emission factors for propane, so natural gas emission factors were assumed to be worst case.

3. Limited and unrestricted potential emissions based on 8,760 hours/year of operation and maximum rate heat input of 16 MMBtu/hr.

**Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
EU001 - Natural Gas-Fired Aggregate Heater with Propane Backup
Propane Emission Calculations**

Heat Input: ¹	16,000,000	Btu/hr
Heat Content: ²	91,000	Btu/gallon
Fuel Sulfur Content ³	0.54	gr/100 ft ³

1. Aggregate heater rated heat capacity.
2. Propane heat content per 40 CFR Part 98 Subpart C, Table C-1.
3. Fuel Sulfur Content for propane from "A National Methodology and Emission Inventory for Residential Fuel Combustion" by B. Haneke (<http://www.epa.gov/ttnchie1/conference/ei12/area/haneke.pdf>).

Propane Combustion Criteria Pollutant Emissions

Pollutant	Emission Factor ¹ (lb/1,000 gal)	Emissions (lb/hr)	Limited/Unrestricted Potential Emissions ² (tpy)
NO _x	13	2.29	10.01
CO	7.5	1.32	5.78
PM/PM ₁₀ /PM _{2.5} (total)	0.7	0.12	0.54
SO ₂	0.05	0.01	0.04
VOC	1.0	0.18	0.77

1. Emission factors per AP-42 Chapter 1.5 (7/08), Table 1.5-1, for propane-fired industrial boilers.
2. Limited and unrestricted potential emissions based on 8,760 hours/year of operation.

Propane Combustion Greenhouse Gas Emissions

Pollutant	Emission Factors ¹ (lb/MMBtu)	Global Warming Potential ²	Emissions (lb/hr)	Limited/Unrestricted Potential Emissions ³ (tpy)
CO ₂	139	1	2,218	9,713
N ₂ O	1.32E-03	298	2.12E-02	0.09
CH ₄	6.61E-03	25	0.11	0.46
Total CO ₂ e	--	--	2,227	9,753

1. Emission factors per 40 CFR Part 98 (11/2013) Subpart C, Table C-1 & C-2.
2. Global warming potentials from 40 CFR Part 98 (11/2013) Subpart A, Table A-1.

Barnton Sand & Gravel Elk River Emission Calculation
 PH#718 - Elk River, MN
 Sand and Gravel Equipment Spread Emissions

Emission Factor Table

Pollutant	Controlled or Uncontrolled?	Source Description ¹ (all units lb/hr)		
		Screening	Conveyor Transfer Point	Primary/Secondary Crushing
PM	Controlled	0.0022	0.0014	0.0012
PM	Uncontrolled	0.0250	0.0054	0.0054
PM ₁₀	Controlled	0.0007	0.0005	0.0005
PM ₁₀	Uncontrolled	0.0087	0.0011	0.0024
PM _{2.5}	Controlled	0.0005	0.0013	0.0010
PM _{2.5}	Uncontrolled	0.0087	0.0011	0.0024

1. Emission factors for PM₁₀, PM_{2.5} for Tertiary crushers used as upper limit for Primary and Secondary Crushing, per AP-42 (9/94) Chapter 11, Table 11.192.2, footnote n. Assume PM emissions from Primary and Secondary Crushing the same as that of Tertiary Crushing. Tertiary crushing, screening and conveyor transfer PM_{2.5}, uncontrolled emissions assumed the same as PM₁₀ uncontrolled emissions.

The table below represents the maximum number of units that could be used in GP 001 - Main Sand and Gravel Spread

Unit Group	Emission Unit ID	Hourly Throughput ¹ (ton/hr)	Annual Throughput ¹ (million ton/yr)	AP-42, Table 11.192.2 Emission Factor Used	Controlled/Uncontrolled?	Passes ²	PM			PM ₁₀			PM _{2.5}									
							Limited Potential Emissions ³ Factor (lb/ton)	Emissions (tpy)	Factor (lb/ton)	Emissions (tpy)	Factor (lb/ton)	Emissions (tpy)	Limited Potential Emissions ³ Factor (lb/ton)	Emissions (tpy)	Factor (lb/ton)	Emissions (tpy)						
Crushers	Raw Crusher 1	20	20	Primary Crushing	Controlled	1	1	1.20E-03	0.62	0.40	5.40E-03	2.97	3.07	5.40E-03	0.30	0.27	2.40E-03	1.52	1.58	2.40E-03	1.52	1.58
	Raw Crusher 2	550	550	Primary Crushing	Controlled	1	1	1.20E-03	0.62	0.40	5.40E-03	2.97	3.07	5.40E-03	0.30	0.27	2.40E-03	1.52	1.58	2.40E-03	1.52	1.58
	Conc. Crusher 1	230	0.3	Secondary Crushing	Controlled	1.5	1	1.20E-03	0.28	0.27	5.40E-03	1.24	5.44	5.40E-03	0.55	2.42	2.40E-03	0.55	2.42	2.40E-03	0.55	2.42
	Conc. Crusher 2	200	0.3	Secondary Crushing	Controlled	1.5	1	1.20E-03	0.24	0.27	5.40E-03	1.08	4.73	5.40E-03	0.48	2.10	2.40E-03	0.48	2.10	2.40E-03	0.48	2.10
	Conc. Crusher 3	100	0.3	Tertiary Crushing	Controlled	1.5	1	1.20E-03	0.12	0.27	5.40E-03	0.54	2.37	5.40E-03	0.24	1.05	1.00E-04	0.01	0.02	2.40E-03	0.24	1.05
	Screens 1	1,100	2.0	Screening	Controlled	1	1	2.20E-03	2.42	2.20	2.50E-02	27.50	120.5	7.40E-04	0.81	0.74	8.70E-03	9.57	41.9	8.70E-03	9.57	41.9
Screens	Screens 2	550	1.0	Screening	Controlled	1	1	2.20E-03	1.21	1.10	2.50E-02	13.75	60.23	7.40E-04	0.41	0.37	8.70E-03	4.79	20.96	8.70E-03	4.79	20.96
	Screens 3	230	0.3	Screening	Controlled	1.5	1	2.20E-03	0.51	0.50	2.50E-02	5.75	25.19	7.40E-04	0.17	0.17	8.70E-03	2.00	8.76	8.70E-03	2.00	8.76
	Screens 4	100	0.3	Screening	Controlled	1.5	1	2.20E-03	0.22	0.50	2.50E-02	2.50	10.95	7.40E-04	0.07	0.17	8.70E-03	0.87	3.81	8.70E-03	0.87	3.81
	Screens 5	100	0.3	Screening	Controlled	1.5	1	2.20E-03	0.22	0.50	2.50E-02	2.50	10.95	7.40E-04	0.07	0.17	8.70E-03	0.87	3.81	8.70E-03	0.87	3.81
	Screens 6	550	1.8	Screening	Controlled	1.5	1	2.20E-03	1.21	2.97	2.50E-02	13.75	60.23	7.40E-04	0.41	1.00	8.70E-03	4.79	20.96	8.70E-03	4.79	20.96
	Conveyor Set 1	1,100	2.0	Conveyor Transfer Point	Controlled	1	10	1.40E-04	1.54	1.40	3.00E-03	33.00	144.5	4.60E-05	0.51	0.46	1.10E-03	12.10	53.00	1.10E-03	12.10	53.00
Conveyors	Conveyor Set 2	550	1.0	Conveyor Transfer Point	Controlled	1	10	1.40E-04	0.77	0.70	3.00E-03	16.50	72.27	4.60E-05	0.25	0.23	1.10E-03	6.05	26.50	1.10E-03	6.05	26.50
	Conveyor Set 3	550	1.8	Conveyor Transfer Point	Controlled	1.5	20	1.40E-04	1.54	3.78	3.00E-03	33.00	144.5	4.60E-05	0.51	1.24	1.10E-03	12.10	53.00	1.10E-03	12.10	53.00
	Conveyor Set 4	800	1.8	Conveyor Transfer Point	Controlled	1	15	1.40E-04	1.66	1.89	3.00E-03	36.00	157.7	4.60E-05	0.55	0.62	1.10E-03	13.20	57.82	1.10E-03	13.20	57.82

1. Hourly throughput based on equipment rating. Annual throughput based on proposed annual limits.

2. To represent multiple passes of throughput, values of 1.5 represent 50% of the throughput will receive a second pass.

3. Limited potential hourly emissions are based on the controlled emission factors and equipment hourly throughput rate. Unrestricted annual emissions are based on the uncontrolled hourly emissions and assume 6,760 hours of operation.

4. Unrestricted hourly emissions are based on the uncontrolled emission factors and equipment hourly throughput rate. Unrestricted annual emissions are based on the uncontrolled hourly emissions and assume 6,760 hours of operation.

Summary Table

Unit Group	PM			PM ₁₀			PM _{2.5}		
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
GP 001 Crushers	2,62	2,61	1,17	0,22	11,77	52	5,23	23	
GP 001 Screens	6,01	7,76	2,61	0,18	68,25	299	23,75	104	
GP 001 Conveyors	5,53	7,77	1,82	2,55	118,5	519	43,45	190	
GP 001 Total	14,15	18,14	5,01	0,87	198,5	870	72,43	317	

Barton Sand & Gravel Elk River Emission Calculation
 Pit #718 - Elk River, MN
 Recycling Spread Emissions

Emission Factor Table

Pollutant	Source Description* (all units lb/ton)			
	Controlled or Uncontrolled?	Screening	Conveyor Transfer Point	Secondary Crushing
PM	Controlled	0.0022	0.0014	0.0012
PM	Uncontrolled	0.025	0.030	0.0654
PM ₁₀	Controlled	0.00074	0.00054	0.00054
PM ₁₀	Uncontrolled	0.0087	0.0110	0.024
PM _{2.5}	Controlled	0.00050	0.00013	0.00010
PM _{2.5}	Uncontrolled	0.0087	0.0110	0.024

1. Emission factors for PM₁₀, PM_{2.5} for Tertiary crushers used as upper limit for Primary and Secondary Crushing, per AP-42 (b)(4) Chapter 11, Table 11.19.2-2, footnote n. Assume PM emissions from Primary and Secondary Crushing the same as that of Tertiary Crushing. Tertiary crushing, screening and conveyor transfer point PM_{2.5} uncontrolled emissions assumed the same as PM₁₀ uncontrolled emissions.

The table below represents the maximum number of units that could be used in GP 002 - Recycled Concrete and Asphalt Spread

Emission Unit ID	Hourly Throughput ¹ (ton/hr)	Annual Throughput ¹ (ton/yr)	AP-42, Table 11.19.2-2 Emission Factor Used	Controlled / Uncontrolled?	Passes ²	PM																	
						Limited Potential Emissions ³		Unrestricted Emissions ⁴		Limited Potential Emissions ³		Unrestricted Emissions ⁴											
						Emission Factor (lb/ton)	Emissions (tpy)	Emission Factor (lb/ton)	Emissions (tpy)	Emission Factor (lb/ton)	Emissions (tpy)	Emission Factor (lb/ton)	Emissions (tpy)										
Recycling Jaw Crusher	500	250,000	Primary Crushing	Controlled	1	1.20E-03	0.60	0.15	5.40E-03	2.70	11.83	5.40E-04	0.27	0.07	2.40E-03	1.20	5.26	1.00E-04	0.05	0.01	2.40E-03	1.20	5.26
Recycling Cone Crusher	500	250,000	Secondary Crushing	Controlled	1.5	2.20E-03	0.60	0.23	3.40E-03	2.70	11.83	5.40E-04	0.27	0.10	2.40E-03	1.20	5.26	1.00E-04	0.05	0.02	2.40E-03	1.20	5.26
Recycling Screens	500	250,000	Screening	Controlled	1.5	2.20E-03	0.40	0.12	3.40E-03	1.20	5.26	4.08E-05	0.17	0.04	1.00E-03	0.50	1.98	1.30E-05	0.05	0.01	1.00E-03	0.50	1.98
Recycling Conveyor Set 1	500	250,000	Conveyor Transfer Point	Controlled	7	1.40E-04	0.49	0.12	3.00E-03	1.50	45.59	4.08E-05	0.17	0.04	1.00E-03	0.50	1.98	1.30E-05	0.05	0.01	1.00E-03	0.50	1.98
Recycling Conveyor Set 2	500	250,000	Conveyor Transfer Point	Controlled	1.5	1.40E-04	0.21	0.08	3.00E-03	4.50	19.71	4.08E-05	0.07	0.03	1.00E-03	0.50	1.98	1.30E-05	0.02	0.01	1.00E-03	0.50	1.98

1. Hourly throughput based on equipment rating. Annual throughput based on proposed annual limits.

2. To represent multiple passes of throughput, values of 1.5 represent 50% of the throughput will receive a second pass.

3. Limited potential hourly emissions are based on the controlled emission factors and equipment hourly throughput rate. Limited potential annual emissions are based on the controlled emission factors and proposed annual throughput limits.

4. Unrestricted hourly emissions are based on the uncontrolled emission factors and equipment hourly throughput rate. Unrestricted annual emissions are based on the uncontrolled hourly emissions and assume 8,760 hours of operation.

Summary Table

Emission Unit ID	Limited Potential Emissions						Unrestricted Emissions					
	PM ₁₀			PM _{2.5}			PM ₁₀			PM _{2.5}		
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Recycling Crushers	1.20	0.38	0.54	0.17	0.10	0.03	5.40	23.65	2.40	10.51	2.40	10.51
Recycling Screens	1.10	0.41	0.37	0.14	0.03	0.03	12.50	54.75	4.35	19.05	4.35	19.05
Recycling Conveyors	0.70	0.20	0.23	0.07	0.07	0.02	15.00	65.70	5.50	24.09	5.50	24.09
Recycling Equipment Total	3.00	0.99	1.14	0.37	0.19	0.06	32.90	144.10	12.25	53.66	12.25	53.66

Barton Sand & Gravel Elk River Emission Calculation
Pit #718 - Elk River, MN
Screening Spread Emissions

Emission Factor Table

Pollutant	Source Description ¹ (all units lb/ton)			
	Controlled or Uncontrolled?	Screening	Conveyor Transfer Point	Primary Crushing
PM ₁₀	Controlled	0.022	0.030	0.052
PM _{2.5}	Controlled	0.0074	0.0094	0.0154
PM ₁₀	Uncontrolled	0.0087	0.0110	0.024
PM _{2.5}	Uncontrolled	0.00050	0.00013	0.0010
PM ₁₀	Uncontrolled	0.0027	0.00110	0.0024

¹ Emission factors for PM₁₀, PM_{2.5} for Tertiary crushers used as upper limit for Primary and Secondary Crushing per Apx 42 B704 Chapter 11, Table 11.10.2.2, footnote a. Assume PM emissions from Primary and Secondary Crushing the same as that of Tertiary Crushing. Tertiary crushing, screening and conveyor transfer point PM_{2.5} uncontrolled emissions assumed the same as PM₁₀ uncontrolled emissions.

The table below represents the maximum number of units that could be used in GP 003 - Screening Spread Units

Emission Unit ID	Hourly Throughput (ton/hr)	Annual Throughput (ton/yr)	AP-42, Table 11.19.2.2 Emission Factor Used	Controlled / Uncontrolled?	PM			PM ₁₀			PM _{2.5}			
					Limited Potential Emissions ² Emission (lb/ton)	Emissions (tpy)	Quantity	Limited Potential Emissions ³ Emission (lb/ton)	Emissions (tpy)	Factor (lb/hr)	Limited Potential Emissions ³ Emission (lb/ton)	Emissions (tpy)	Factor (lb/hr)	Limited Potential Emissions ³ Emission (lb/ton)
Screening Spread Conveyors	800	500,000	Screening	Controlled	1.76	0.55	1	2.00E-03	20,000	87.60	1	2.00E-03	20,000	87.60
Screening Spread Conveyors	300	500,000	Conveyor Transfer Point	Controlled	1.05	0.53	13	1.40E-04	1,400	98.55	4	3.00E-03	22,500	98.55
Screening Spread Conveyors	300	500,000	Conveyor Transfer Point	Controlled	1.05	0.53	13	1.40E-04	1,400	98.55	4	3.00E-03	22,500	98.55

¹ Heavy through spreader equipment that is used to spread material from trucks to the conveyor transfer points based on proposed annual throughput rate. Limited potential annual emissions are based on the controlled emission factors and proposed annual throughput limits.
² Limited potential hourly emissions are based on the uncontrolled emission factors and equipment hourly throughput rate. Unrestricted annual emissions are based on the uncontrolled emission factors and assumed 8,760 hours of operation.
³ Unrestricted hourly emissions are based on the uncontrolled emission factors and equipment hourly throughput rate. Unrestricted annual emissions are based on the uncontrolled emission factors and assumed 8,760 hours of operation.

Summary Table

Emission Unit ID	Limited Potential Emissions			Unrestricted Emissions		
	PM lb/hr	PM ₁₀ lb/hr	PM _{2.5} tpy	PM lb/hr	PM ₁₀ lb/hr	PM _{2.5} tpy
Screens 7	1.76	0.55	0.04	20,000	87.60	6.96
Screening Spread Conveyors	1.05	0.53	0.10	22,500	98.55	8.25
GP 003 Screening Spread Equipment Total	2.81	1.08	0.14	42,500	186.15	15.21

Attachment 2 – Applicable Requirements

Limits and other requirements

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
TFAC 1	14100072	Barton Sand & Gravel - Elk River Pit 718	
	5.1.1		Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the appendices. [Minn. R. 7007.0800, subp. 2]
	5.1.2		Labeling Requirements: Permanently affix the manufacturer's serial number (or otherwise unique identifying number) to each piece of crushing, screening, and conveying equipment for tracking purposes within 60 days of permit issuance. The number shall be permanently affixed and maintained so that it is readable and visible at all times from a safe distance at each stationary source. This number shall correspond to the number contained in records regarding the piece of equipment. [Minn. R. 7007.0800, subp. 2]
	5.1.3		<p>Equipment Inventory List: The Permittee shall maintain a written list of each emission unit and fugitive source on site. This list shall include a description of the emission unit, unique ID number (assigned and affixed as required by this permit), equipment capacity, construction date, and NSPS subp. 000 applicability.</p> <p>The list shall correlate the units to the numbers used in this permit (EQUI, COMG) and shall include the data in Appendix I. The date of construction shall be the date the piece of equipment was manufactured or otherwise modified or reconstructed. [Minn. R. 7007.0800, subp. 2]</p>
	5.1.4		<p>Non-Process Dust Control: All reasonable measures shall be taken to prevent avoidable amounts of particulate matter from becoming airborne. Control of non-process dust emissions can be achieved through such measures as applying water or commercially available dust suppressant to stockpiles, unpaved roads and handling areas.</p> <p>In addition, the following requirements apply to the Permittee:</p> <ol style="list-style-type: none"> 1. Record date and time of each dust control action and initials of person making the record. 2. Record amount of water or dust suppressant applied. 3. If a commercially available dust suppressant is used, it shall be applied in accordance with the manufacturer's guidelines. The Permittee must keep a copy of these manufacturer's guidelines. 4. Record the location (e.g., site plan) of water or dust suppressant application. 5. Install a rain gauge at the site and record the precipitation in the previous 24 hours for each day of operation at the site. 6. Unpaved roads at the site shall be posted with speed limit signs indicating a maximum speed of 15 miles per hour. 7. Equipment to apply water or dust suppressant shall always be available at the site or on call for use at the site within a given operating day. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.1.5		Circumvention: Do not install or use a device or means that

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			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]
	5.1.6		Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated. [Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2]
	5.1.7		Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.800, subp. 16(J)]
	5.1.8		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]
	5.1.9		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]
	5.1.10		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]
	5.1.11		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)]
	5.1.12		The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16. [Minn. R. 7007.0800, subp. 16]
	5.1.13		NONROAD ENGINES The Permittee shall not have engines that meet section (1)(iii) under the definition of Nonroad Engine at 40 CFR Section 1068.30 in one location within the stationary source for more than 12 consecutive months. A location is any single site at a building, structure, facility, or installation. Any engine, or engines, that replaces an engine at a location and that is intended to perform the same or similar function as the engine it replaced will be included in calculating the consecutive time period. [40 CFR 1068.30]
	5.1.14		For a nonroad engine that is excluded from any requirements

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			of 40 CFR Part 1068 because it is a stationary engine, the Permittee may not move it or install it in any mobile equipment, except as allowed by the provisions of 40 CFR Part 1068. The Permittee may not circumvent or attempt to circumvent the residence-time requirements of Section (2)(iii) of the Nonroad Engine definition at 40 CFR Section 1068.30. [40 CFR 1068.101(b)(3)]
	5.1.15		<p>The Permittee shall conduct an inventory of all engines on-site that meet section (1)(iii) under the definition of Nonroad Engine at 40 CFR Section 1068.30, once each calendar quarter; inventories shall not take place in consecutive months. This applies to nonroad engines that are owned by the Permittee, or rented and operated by the permittee, or brought onsite and operated by a vendor or contractor. The inventory shall include the following:</p> <ol style="list-style-type: none"> 1) Date that the nonroad engine is inventoried. 2) Identification number. 3) Function of the nonroad engine (e.g. compressor, welder). 4) Location of the engine within the stationary source. 5) Statement that the nonroad engine has not been located in a single location for 12 consecutive months, and movement between locations has not been for purposes of circumvention of residence time requirements of section (2)(iii) under the definition of Nonroad Engine at 40 CFR Section 1068.30. [40 CFR 1068.30(1)(iii), Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subp. 5]
	5.1.16		<p>A nonroad engine ceases to be a nonroad engine and becomes a new stationary engine if:</p> <ol style="list-style-type: none"> 1. At any time, it meets the criteria specified in section (2)(iii) under the definition of Nonroad Engine in 40 CFR Section 1068.30. For example, a portable generator engine ceases to be a nonroad engine if it is used or will be used in a single specific location for 12 months or longer. If the Administrator or the Permitting authority determines that an engine will be or has been used in a single specific location for 12 months or longer, it ceased to be a nonroad engine when it was placed in that location. <p>OR</p> <ol style="list-style-type: none"> 2. It is otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411). [40 CFR 1068.31(e)]
	5.1.17		Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in in this permit. [Minn. R. ch. 7017]
	5.1.18		<p>Performance Test Notifications and Submittals: Performance Tests are due as outlined in this permit. 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>

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			<p>The Notification, Test Plan, and Test Report may be submitted in an alternative format as allowed by Minn. R. 7017.2018. [Minn. R. 7017.2018, Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2]</p>
	5.1.19		<p>Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change. [Minn. R. 7017.2025, subp. 3]</p>
	5.1.20		<p>Monitoring Equipment Calibration - The Permittee shall either:</p> <ol style="list-style-type: none"> 1. Calibrate or replace required monitoring equipment every 12 months; or 2. Calibrate at the frequency stated in the manufacturer's specifications. <p>For each monitor, the Permittee shall maintain a record of all calibrations, including the date conducted, and any corrective action that resulted. The Permittee shall include the calibration frequencies, procedures, and manufacturer's specifications (if applicable) in the Operations and Maintenance Plan. Any requirements applying to continuous emission monitors are listed separately in this permit. [Minn. R. 7007.0800, subp. 4(D)]</p>
	5.1.21		<p>Operation of Monitoring Equipment: Unless noted elsewhere in this permit, 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)]</p>
	5.1.22		<p>Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, 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)]</p>
	5.1.23		<p>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)]</p>
	5.1.24		<p>If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For non-expiring permits, these records shall be kept for a period of five years from the date that the change was made. The records shall be kept at the</p>

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format. [Minn. R. 7007.1200, subp. 4]
	5.1.25		<p>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 Permittee 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.</p> <p>At the time of notification, the Permittee shall inform the Commissioner of the cause of the shutdown and the estimated duration. The Permittee shall notify the Commissioner when the shutdown is over. [Minn. R. 7019.1000, subp. 3]</p>
	5.1.26		<p>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 Permittee. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the Permittee shall inform the Commissioner of the cause of the breakdown and the estimated duration. The Permittee shall notify the Commissioner when the breakdown is over. [Minn. R. 7019.1000, subp. 2]</p>
	5.1.27		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]
	5.1.28		<p>Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description:</p> <ol style="list-style-type: none"> 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]
	5.1.29		Fugitive Emissions Control Plan: The Permittee shall submit to the Commissioner and implement a fugitive emissions control plan within 60 days of the date of permit issuance. The plan

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			shall identify all fugitive emission sources, primary and contingent control measures, and record keeping. The Permittee shall follow the actions and record keeping specified in the control plan. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive emission control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors. The plan may be amended by the Permittee with the Commissioner's approval. [Minn. Stat. 116.07, subd. 4a, Minn. R. 7007.0800, subp. 2]
	5.1.30		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. Upon adoption of a new or amended federal applicable requirement, and if there are more than 3 years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150 - 7007.1500]
	5.1.31		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). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H). [Minn. R. 7007.1400, subp. 1(H)]
	5.1.32		Emission Fees: due 30 days after receipt of an MPCA bill. [Minn. R. 7002.0005-7002.0095]
	5.1.33		Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner. [Minn. R. 7019.3000-7019.3100]
COMG 1	GP006	Aggregate Mining - Units Not Subject to NSPS subp. 000	
	5.2.1		The requirements of this group apply to each crusher, screening operation, belt conveyor, and enclosed truck loading station at the facility which were constructed (manufactured) prior to August 31, 1983, or are not subject to 40 CFR pt. 60, subp. 000 due to the exemption allowed under 40 CFR Section 60.670(d). The construction date and NSPS subp. 000 applicability shall be recorded on the Permittee's Equipment Inventory (see Total Facility requirements). The conveyors directly following the wash plant are not subject to COMG 1. [Minn. R. 7007.0800, subp. 2]
	5.2.2		Opacity: less than or equal to 20 percent opacity [Minn. R. 7011.0715, subp. 1(B)]
	5.2.3		The Permittee shall conduct visible emission checks once each

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			<p>day of operation (during daylight hours) from COMG 1 units. The visible emissions observations shall be completed using EPA Method 22.</p> <p>Visible emissions checks are not required for days when no material is processed by an applicable COMG 1 unit. [Minn. R. 7007.0800, subp. 4]</p>
	5.2.4		<p>Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of each visible emission inspection, whether or not any visible emissions were observed, and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]</p>
COMG 2	GP007	Stockpiles	
	5.3.1		<p>The requirements of this group apply individually to each associated item in this group. [Minn. R. 7007.0800, subp. 2]</p>
	5.3.2		<p>Anytime fugitive emissions are observed from stockpile areas, the Permittee shall immediately eliminate fugitive emissions by applying water or a chemical dust suppressant to the stockpiles. [Minn. R. 7011.0150, Minn. R. 7007.0800, subp. 2]</p>
	5.3.3		<p>The Permittee shall conduct visible emission checks of each stockpile area once each week of operation (during daylight hours). [Minn. R. 7007.0800, subp. 4]</p>
	5.3.4		<p>Material Moisture Content \geq 1.5 percent. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.3.5		<p>The Permittee shall demonstrate the moisture content is greater than or equal to 1.5 percent each week of operation by testing the moisture content of each source (sampled at an area representative of the source and physically capable of being sampled) as follows;</p> <ul style="list-style-type: none"> a. Use ASTM method numbers D 2216-92 or D 4643-93 (or equivalent). b. If the temperature is less than 35 degrees F (1.7 degree C), as measured at the facility during daylight operating hours, then moisture testing is not required. Weekly testing should resume when temperatures are above 35 degrees F. c. If the wet plant is operating and adding saturated material to the pile, then moisture testing is not required. Operation of the wet plant continuously adds saturated material to the piles ensuring the moisture content of the piles is above 1.5 percent. d. When testing indicates that the material moisture content is less than 1.5 percent, in situations where it is infeasible to sample and test, or where the Permittee elects not to sample and test, the Permittee shall operate a moisture addition device to achieve a moisture content greater than or equal to 1.5 percent. Moisture addition during operation shall continue until subsequent moisture content testing demonstrates that feed material moisture content is greater than or equal to 1.5 percent.

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			<p>e. Moisture testing is not required for stockpiles of aggregate which have a minimum size of 1.0 cm in average diameter or greater.</p> <p>f. Water application may be used in place of moisture testing. Water applications must be completed as described in the water application rate requirement below. [Title I Condition: 40 CFR 52.21(b)(1) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.3.6		<p>Water Application: The Permittee shall water the piles at the facility to maintain a moisture content greater than or equal to 1.5 percent at all times for exposed storage pile surfaces. Watering shall comply with the following conditions:</p> <p>a. The water application rate shall be at least 0.1 gallon of water for each 1 square foot every 24 hours;</p> <p>b. A rainfall of at least 0.16 inches during the previous 24 hours shall substitute for one water application.</p> <p>c. If storage piles cannot be watered because the ambient air temperature (as measured at the facility during daylight operating hours) will be less than 35 degrees F (1.7 degree C), then watering shall be postponed and accomplished as soon as the conditions preventing water application have abated. [Minn. R. 7007.0800, subp. 2]</p>
	5.3.7		<p>Moisture Testing Recordkeeping: The Permittee shall keep weekly records of the following:</p> <p>a. Keep records of each moisture content test summarizing the method used, results, date, time, and initials of person performing test.</p> <p>b. If a moisture test was not completed due to the temperature, it must be noted in the record along with the source of measurement (i.e. thermometer).</p> <p>c. If a moisture test was not completed due to the operation of the wet plant, it must be noted in the record along with the time of operation of the wet plant and the piles that saturated material was being applied to.</p> <p>d. If a moisture test was not completed because water application was used in place of moisture testing or a 0.16 inch or greater rainfall occurred, it must be noted in the record. Records needed for water applications and rainfall measurements are described in the water application recordkeeping requirement.</p> <p>e. If a weekly moisture test was not completed due to the stockpile having a minimum aggregate size of 1.0 cm in average diameter or greater, it must be noted in the record along with the piles which meet this exemption. [Minn. R. 7007.0800, subps. 4-5]</p>
	5.3.8		<p>Water Application Recordkeeping: The Permittee shall keep</p>

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			<p>records of the water applications, including the following:</p> <p>a. The stock piles watered, the amount of water applied, the time watered, and the method of application. If water was not applied because there was a 0.16 inch or greater rainfall or because of the temperature, it must be noted in the record along with the source of measurement (i.e. on-site rain gauge or thermometer).</p> <p>b. Records of watering equipment breakdowns and repairs, and records of corrective actions taken. [Minn. R. 7007.0800, subps. 4-5]</p>
	5.3.9		<p>The Permittee shall keep records indicating instances when feed material was sourced from or is being removed from below the water table or wet processed prior to arriving at the site. Records shall include a description of the source, the corresponding dates, and the initials of the person making the record. [Title I Condition: 40 CFR 52.21(b)(1) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.3.10		<p>Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of each visible emission inspection, whether or not any visible emissions were observed, and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]</p>
COMG 3	GP001	Main Sand and Gravel Spread	
	5.4.1		<p>The following requirements apply to all COMG 3 units active at the site (Barton Sand & Gravel - Elk River Pit 718).</p> <p>For the purposes of this permit, the main sand and gravel spread (COMG 3) is defined as the group of crushing, screening, and conveying equipment that are used for nonmetallic mineral processing. (Other spreads are defined in COMGs 4 and 5.). [Minn. R. 7007.0800, subp. 2]</p>
	5.4.2		<p>PM/PM10/PM2.5 PreCap: If the Permittee replaces any of the main sand and gravel equipment (defined above), adds new main sand and gravel equipment, or modifies the existing equipment, such equipment is subject to this permit limit as well as all of the requirements of COMG 3 and one of the following groups: COMG 6, COMG 7, or COMG 8. The applicability of COMG 6, COMG 7, or COMG 8 is determined by the construction date of the equipment and applicability of the NSPS subp. 000.</p> <p>For modifications that solely involve equipment covered by the PM/PM10/PM2.5 PreCap, the Permittee is not required to complete PM/PM10/PM2.5 calculations described in Minn. R. 7007.1200, subp. 2. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.4.3		<p>A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit. Prior to making such a change, the Permittee shall apply for and obtain the</p>

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			appropriate permit amendment, as applicable. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.4		The main sand and gravel spread shall consist of units at quantities at any one time not to exceed: two primary crushers with a combined capacity of 1650 tons/hr, three cone crushers with a combined capacity of 530 tons/hr, six screens with a combined capacity of 2730 tons/hr, and fifty five conveyors with combined capacity of 39,500 tons/hr. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.5		Process Throughput <= 3.0 million tons per year 12-month rolling sum. This is the maximum amount of material that may be processed by the primary crushers. [Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.6		Process Throughput <= 2.70 million tons per year 12-month rolling sum for the final screen. The total throughput of the final screen before the wash plant shall not exceed 2,700,000 tons of material per year. [Minn. R. 7007.0200, Minn. R. 7007.3000, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)i, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.7		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the aggregate throughput for the primary crushers in tons for the previous day of operation. This shall be based on the use of belt scales immediately after the primary crushers. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.8		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the process throughput for the final screen before the wash plant in tons for the previous day of operation. This shall be based on the use of belt scales immediately after the final screening. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.9		Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of: 1. The amount of aggregate crushed by the primary crushers in tons for the previous month based on the daily aggregate production records; and 2. The amount of aggregate crushed by the primary crushers in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.4.10		Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of:

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			<p>1. The amount of aggregate screened by the final screen in tons for the previous month based on the daily production records; and</p> <p>2. The amount of aggregate screened by the final screen in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subs. 4-5, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.4.11		<p>EQUIPMENT REPLACEMENT PROCEDURES</p> <p>When an opacity compliance demonstration is required (see COMG 6, COMG 7, and COMG 8 Requirements) for a replacement unit, the replacement unit shall demonstrate compliance with the opacity limits within 60 days after achieving the maximum production rate of the unit, but not later than 180 days after initial startup. [40 CFR pt. 60, subp. OOO(Table 3), Minn. R. 7007.0800, subp. 2]</p>
	5.4.12		<p>If an additional unit or replacement unit would cause an exceedance of the COMG 3 capacities defined above, a permit amendment may be required as specified by Minn. R. 7007.1150. The Permittee shall document the evaluation of whether a permit amendment is required. The Permittee shall obtain the required permit amendment prior to making a change which requires a permit amendment. [Minn. R. 7007.0800, subp. 5, Minn. R. 7007.1150-7007.1500]</p>
	5.4.13		<p>Feed Material Moisture Content \geq 1.5 percent. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.4.14		<p>Demonstrate the feed material moisture content is greater than or equal to 1.5 percent by either Option 1 or 2:</p> <p>1. Test moisture content of each different feed material source (sampled at an area representative of the feed source and physically capable of being sampled), as follows:</p> <ul style="list-style-type: none"> a. Use ASTM method numbers D 2216-92 or D 4643-93 (or equivalent). b. If the temperature is less than 35 degree F (1.7C), as measured at the facility during daylight operating hours, then moisture testing is not required. c. Keep records of each moisture content test summarizing the method used, results, date, time, and initials of person performing test. d. Test weekly, when operating, unless three consecutive tests at the stationary source location show moisture contents of greater than or equal to 1.5 percent after which testing is no longer required until the source of the feed material changes. When testing indicates that feed material moisture content is less than 1.5 percent, or in situations where it is infeasible to sample and test, or where the Permittee elects not to sample and test, the Permittee shall operate a moisture addition

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			<p>device at or immediately prior to the initial crusher(s) or initial screen(s) where unprocessed feed material is being fed to achieve a moisture content greater than or equal to 1.5 percent. Moisture addition during operation shall continue until subsequent moisture content testing demonstrates that feed material moisture content is greater than or equal to 1.5 percent.</p> <p>When using Option 1 to demonstrate that feed material moisture content is greater than or equal to 1.5%, daily, when operating, either:</p> <p>(i) Keep records of the date, water flow rate, material throughput rate, and initials of the person making the record and the time the record was made;</p> <p>(ii) Conduct moisture content testing weekly on the feed material after water application following a. and b. above, and if results show moisture content is less than 1.5 percent, increase water addition to insure moisture is 1.5 percent or greater and re-test to verify.</p> <p>Option 2. Keep records indicating instances when feed material was sourced from or is being removed from below the water table or wet processed prior to arriving at the site. Records shall include a description of the source, the corresponding dates, and the initials of the person making the record. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
COMG 4	GP002	Recycled Concrete and Asphalt Spread	
	5.5.1		<p>The following requirements apply to all COMG 4 units active at the site (Barton Sand & Gravel - Elk River Pit 718).</p> <p>For the purposes of this permit, the recycled concrete and asphalt spread (COMG 4) is defined as the group of crushing, screening, and conveying equipment that are used for processing recycled concrete and asphalt. (Other spreads are defined in COMG 3 and COMG 5). [Minn. R. 7007.0800, subp. 2]</p>
	5.5.2		<p>PM/PM10/PM2.5 PreCap: If the Permittee replaces any of the existing recycled concrete and asphalt spread equipment (defined above), adds new recycled concrete and asphalt spread equipment, or modifies the existing equipment, such equipment is subject to this permit limit as well as all of the requirements of COMG 4 and one of the following groups: COMG 6, COMG 7, or COMG 1. The applicability of COMG 6, COMG 7, or COMG 1 is determined by the construction date of the equipment and applicability of the NSPS subp. 000.</p> <p>For modifications that solely involve equipment covered by the PM/PM10/PM2.5 PreCap, the Permittee is not required to complete PM/PM10/PM2.5 calculations described in Minn. R. 7007.1200, subp. 2. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p>
	5.5.3		A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new

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			applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.5.4		The recycled concrete and asphalt spread shall consist of units at quantities at any one time not to exceed: one jaw crusher with a capacity of 500 tons/hr, one cone crusher with a capacity of 500 tons/hr, one recycling screen with a capacity of 500 tons/hr, and ten conveyors with individual capacities of 500 tons/hr. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.5.5		Process Throughput <= 250000 tons per year 12-month rolling sum. This is the maximum amount of material that may be processed by the primary recycle crusher. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.5.6		Process Throughput <= 375000 tons per year 12-month rolling sum This is the maximum amount of recycled material that may be processed by the recycle cone crusher. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.5.7		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the recycled material throughput for the recycle primary crusher in tons for the previous day of operation. This shall be based on the use of belt scales located directly after the recycle primary crusher and before the material is conveyed to the recycle screens. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.5.8		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the recycled material throughput for the recycle cone crusher in tons for the previous day of operation. This shall be based on the use of belt scales located on a conveyor directly after processing and before the material is stockpiled. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.5.9		Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of: 1. The amount of recycled material crushed by the recycle primary crusher in tons for the previous month based on the daily aggregate production records; and 2. The amount of recycled material crushed by the recycle primary crusher in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To

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	5.5.10		<p>avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]</p> <p>Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of:</p> <ol style="list-style-type: none"> 1. The amount of recycled material crushed by the recycle cone crusher in tons for the previous month based on the daily aggregate production records; and 2. The amount of recycled material crushed by the recycle cone crusher in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.5.11		<p>The Permittee shall keep records that the feed material is recycled concrete or recycled asphalt pavement. Records shall include a description of the source (if recycled asphalt pavement, so indicate), the corresponding dates, and the initials of the person making the record. [Minn. R. 7007.0800, subp. 5]</p>
	5.5.12		<p>When an opacity compliance demonstration is required (see COMG 6, COMG 7, and COMG 1 Requirements) for a replacement unit, the replacement unit shall demonstrate compliance with the opacity limits within 60 days after achieving the maximum production rate of the unit, but not later than 180 days after initial startup. [40 CFR pt. 60, subp. 000(Table 3), Minn. R. 7007.0800, subp. 2]</p>
	5.5.13		<p>If an additional unit or replacement unit would cause an exceedance of the COMG 4 capacities defined above, a permit amendment may be required as specified by Minn. R. 7007.1150. The Permittee shall document the evaluation of whether a permit amendment is required. The Permittee shall obtain the required permit amendment prior to making a change which requires a permit amendment. [Minn. R. 7007.0800, subp. 5, Minn. R. 7007.1150-7007.1500]</p>
COMG 5	GP003	Screening Spread Units	
	5.6.1		<p>The following requirements apply to all COMG 5 units active at the site (Barton Sand & Gravel - Elk River Pit 718).</p> <p>For the purposes of this permit, the screening spread (COMG 5) is defined as the group of screening and conveying equipment that are used for blending construction aggregate. (Other spreads are defined in COMG 3 and COMG 4.). [Minn. R. 7007.0800, subp. 2]</p>
	5.6.2		<p>PM/PM10/PM2.5 PreCap: If the Permittee replaces any of the existing screening spread equipment (defined above), adds new screening spread equipment, or modifies the existing equipment, such equipment is subject to this permit limit as well as all of the requirements of COMG 5 and one of the following groups: COMG 6, COMG 7, or COMG 1. The applicability of COMG 6, COMG 7, or COMG 1 is determined by the construction date of the equipment and applicability of the NSPS subp. 000.</p> <p>For modifications that solely involve equipment covered by</p>

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			the PM/PM10/PM2.5 PreCap, the Permittee is not required to complete PM/PM10/PM2.5 calculations described in Minn. R. 7007.1200, subp. 2. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.6.3		A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.6.4		The screening spread shall consist of units at quantities at any one time not to exceed: one screening unit with a capacity of 800 tons/hr and fifteen conveyors with individual capacities of 500 tons/hr, each. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1), To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.6.5		Process Throughput <= 500000 tons per year 12-month rolling sum. This is the maximum amount of material that may be processed by the primary COMG 5 screen. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.6.6		Daily Recordkeeping: On each day of operation, the Permittee shall calculate, record, and maintain the process throughput for the primary screen in tons for the previous day of operation. This shall be based on the use of belt scales located directly after the primary screen. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.6.7		Monthly Recordkeeping: By the 15th day of each month, the Permittee shall calculate, record and maintain records of: 1. The amount of material processed by the primary COMG 5 screen in tons for the previous month based on the daily production records; and 2. The amount of material processed by the primary COMG 5 screen in tons for the previous 12-month period by summing the production records for the previous 12 months. [Minn. R. 7007.0800, subp. 2, Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)(i) & Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.6.8		When an opacity compliance demonstration is required for a replacement unit (see COMG 6, COMG 7, and COMG 1 Requirements), the replacement unit shall demonstrate compliance with the opacity limits within 60 days after achieving the maximum production rate of the unit, but not later than 180 days after initial startup. [40 CFR pt. 60, subp. 000(Table 3), Minn. R. 7007.0800, subp. 2]
	5.6.9		If an additional unit or replacement unit would cause an exceedance of the COMG 5 capacities defined above, a permit amendment may be required as specified by Minn. R. 7007.1150. The Permittee shall document the evaluation of

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			whether a permit amendment is required. The Permittee shall obtain the required permit amendment prior to making a change which requires a permit amendment. [Minn. R. 7007.0800, subp. 5, Minn. R. 7007.1150-7007.1500]
	5.6.10		Feed Material Moisture Content >= 1.5 percent. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under 40 CFR 70.2 & Minn. R. 7007.0200]
	5.6.11		<p>Demonstrate the feed material moisture content is greater than or equal to 1.5 percent by either Option 1 or 2:</p> <p>Option 1. Test moisture content of each different feed material source (sampled at an area representative of the feed source and physically capable of being sampled), as follows:</p> <ol style="list-style-type: none"> a. Use ASTM method numbers D 2216-92 or D 4643-93 (or equivalent). b. If the temperature is less than 35 degree F (1.7C), as measured at the facility during daylight operating hours, then moisture testing is not required. c. Keep records of each moisture content test summarizing the method used, results, date, time, and initials of person performing test. d. When testing indicates that feed material moisture content is less than 1.5 percent, or in situations where it is infeasible to sample and test, or where the Permittee elects not to sample and test, the Permittee shall operate a moisture addition device at or immediately prior to the initial crusher(s) or initial screen(s) where unprocessed feed material is being fed to achieve a moisture content greater than or equal to 1.5 percent. Moisture addition during operation shall continue until subsequent moisture content testing demonstrates that feed material moisture content is greater than or equal to 1.5 percent. <p>When using Option 1 to demonstrate that feed material moisture content is greater than or equal to 1.5%, daily, when operating, either:</p> <ol style="list-style-type: none"> (i) Keep records of the date, water flow rate, material throughput rate, and initials of the person making the record and the time the record was made; or (ii) Conduct moisture content testing weekly on the feed material after water application following a. and b. above, and if results show moisture content is less than 1.5 percent, increase water addition to insure moisture is 1.5 percent or greater and re-test to verify. <p>Option 2. Keep records indicating instances when feed material was sourced from or is being removed from below the water table or wet processed prior to arriving at the site. Records shall include a description of the source, the corresponding dates, and the initials of the person making the record. [Title I Condition: Avoid major source under 40 CFR 52.21(b)(1)& Minn. R. 7007.3000, To avoid major source under</p>

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			40 CFR 70.2 & Minn. R. 7007.0200]
COMG 6	GP004	Aggregate Mining - NSPS subp. 000 Units Constructed/Modified After 4/22/2008	
	5.7.1		<p>The requirements of this group only apply to the following:</p> <p>Each crusher, screening operation, and belt conveyor at the site which are subject to 40 CFR pt. 60, subp. 000, and were constructed (manufactured), modified, or reconstructed after April 22, 2008. The construction date and NSPS subp. 000 applicability shall be recorded on the Permittee's Equipment Inventory (see Total Facility requirements). [Minn. R. 7007.0800, subp. 11, Minn. R. 7011.3350,]</p>
	5.7.2		<p>The conveyors which carry material from the wash plant are exempt from the NSPS subp. 000. [40 CFR 60.670(a)(2), Minn. R. 7011.3550]</p>
	5.7.3		<p>When an existing unit (one which was constructed/modified/reconstructed before August 31, 1983) is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR Section 60.671, having the same function as the existing unit, and there is no increase in the amount of emissions, the new unit is exempt from the requirements in COMG 6 or COMG 7.</p> <p>When seeking to comply with this exemption the Permittee shall submit the information required in 40 CFR Section 60.676(a)(1 - 4).</p> <p>If the Permittee replaces all existing facilities (units which were manufactured before August 31, 1983) in a COMG 3, COMG 4, or COMG 5 spread with new facilities, the Permittee shall comply with the requirements of COMG 6 and COMG 7, as applicable. [40 CFR 60.670(d), Minn. R. 7011.3350]</p>
	5.7.4		<p>Opacity <= 7 percent for screening operations and transfer points on belt conveyors and units that commenced construction, reconstruction, or modification after April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as required under 40 CFR Section 60.11. [40 CFR 60.672(b), 40 CFR pt. 60, subp. 000(Table 3), Minn. R. 7011.3350]</p>
	5.7.5		<p>Opacity: less than or equal to 12 percent for crushing units that commenced construction, reconstruction, or modification after April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as required under 40 CFR Section 60.11. [40 CFR 60.672(b), Minn. R. 7011.3350,]</p>
	5.7.6		<p>Visible Emissions: The Permittee shall check active COMG 6 units for any visible emissions once each day of operation during daylight hours. The visible emissions observations shall</p>

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			be completed using EPA Method 22. [Minn. R. 7007.0800, subp. 4]
	5.7.7		Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of the visible emissions check, whether or not any visible emissions were observed and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]
	5.7.8		Monitoring: For any affected facility that uses wet suppression to control emissions from the affected facility, the Permittee shall perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The Permittee shall initiate corrective action within 24 hours and complete corrective action as expeditiously as practical if the Permittee finds that water is not flowing properly during an inspection of the water spray nozzles. The Permittee shall record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under 40 CFR Section 60.676(b). [40 CFR 60.674(b)(1), Minn. R. 7011.3350]
	5.7.9		If the Permittee ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than wet sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under 40 CFR Section 60.676(b) shall specify the control mechanism being used instead of the water sprays. [40 CFR 60.674(b)(2), Minn. R. 7011.3350]
	5.7.10		The opacity standards set forth in 40 CFR pt. 60, subp. 000 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided. [40 CFR 60.11(c), Minn. R. 7017.2015, subp. 2(B)]
	5.7.11		At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015, subp. 2(B)]
	5.7.12		Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subp. unless the Administrator: <ol style="list-style-type: none"> 1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, 2. Approves the use of an equivalent method, 3. Approves the use of an alternative method the results of which it has been determined to be adequate for indicating whether a specific source is in compliance, 4. Waives the requirement for performance tests because the Permittee has demonstrated by other means to the Administrator's satisfaction that the affected facility is in compliance with the standard, or 5. Approves shorter sampling times and smaller sample

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			<p>volumes when necessitated by process variables or other factors.</p> <p>Nothing in this paragraph shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act. [40 CFR 60.8(c), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.7.13		<p>The Permittee shall provide the Commissioner at least 7 days prior notice of any performance test, except as specified under other subparts, to afford the Commissioner the opportunity to have an observer present. [40 CFR 60.8(d), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.7.14		<p>The Permittee shall provide, or cause to be provided, performance testing facilities as follows:</p> <ol style="list-style-type: none"> 1. Sampling ports adequate for test methods applicable to such facility. This includes (i) constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and (ii) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures. 2. Safe sampling platform(s). 3. Safe access to sampling platform(s). 4. Utilities for sampling and testing equipment. [40 CFR 60.8(e), Minn. R. 7017.2015, subp. 2(A)]
	5.7.15		<p>Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the control of the Permittee, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs. [40 CFR 60.8(f), Minn. R. 7017.2015, subp. 2(A)]</p>
	5.7.16		<p>Records of Startup, Shutdown, or Malfunction: The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; and malfunction of the air pollution control equipment; or any period during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]</p>
	5.7.17		<p>Recordkeeping: The Permittee shall maintain a file of all measurements, including performance test measurements; and all other information required, recorded in a permanent form suitable for inspection. The file shall be retained for a minimum of two years following the date of such measurements, maintenance, reports and records. [40 CFR 60.7(f), Minn. R. 7019.0100, subp. 1]</p>
	5.7.18		<p>Notification of any physical or operational change which may increase emissions, in accordance with 40 CFR Section 60.7(a)(4). The notification shall be postmarked 60 days or as</p>

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Commissioner may request additional relevant information subsequent to this notice. [40 CFR 60.7(a)(4), Minn. R. 7019.0100, subp. 1]
COMG 7	GP005	Aggregate Mining - NSPS subp. 000 Units Constructed/Modified Before 4/22/2008	
	5.8.1		<p>The requirements of this group only apply to the following:</p> <p>Each crusher, screening operation, and belt conveyor at the site which are subject to 40 CFR pt. 60, subp. 000, and were constructed (manufactured), modified, or reconstructed before April 22, 2008. The construction date and NSPS subp. 000 applicability shall be recorded on the Permittee's Equipment Inventory (see Total Facility requirements). [40 CFR 60.670(a), Minn. R. 7007.0800, subp. 11, Minn. R. 7011.3350]</p>
	5.8.2		<p>When an existing unit (one which was constructed/modified/reconstructed before August 31, 1983) is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR Section 60.671, having the same function as the existing unit, and there is no increase in the amount of emissions, the new unit is exempt from the requirements in COMG 6 or COMG 7.</p> <p>When seeking to comply with this exemption the Permittee shall submit the information required in 40 CFR Section 60.676(a)(1 - 4).</p> <p>If the Permittee replaces all existing facilities (units which were manufactured before August 31, 1983) in a COMG 3, COMG 4, or COMG 5 spread with new facilities, the Permittee shall comply with the requirements of COMG 6 and COMG 7, as applicable. [40 CFR 60.670(a), Minn. R. 7007.0800, subp. 11, Minn. R. 7011.3350]</p>
	5.8.3		<p>Opacity <= 10 percent opacity for screening operations and transfer points on belt conveyors and units that commenced construction, reconstruction, or modification prior to April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as required under 40 CFR Section 60.11. [Minn. R. 7011.0715, subp. 1(B)]</p>
	5.8.4		<p>Opacity <= 15 percent opacity for crushing units that commenced construction, reconstruction, or modification prior to April 22, 2008.</p> <p>This limit applies within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup as required under 40</p>

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			CFR Section 60.11. [40 CFR 60.672(b), 40 CFR pt. 60, subp. 000(Table 3), Minn. R. 7011.3350]
	5.8.5		Visible Emissions: The Permittee shall check active COMG 7 units for any visible emissions once each day of operation during daylight hours. The visible emissions observations shall be completed using EPA Method 22. [Minn. R. 7007.0800, subp. 4]
	5.8.6		Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of the visible emissions check, whether or not any visible emissions were observed and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]
	5.8.7		The opacity standards set forth in 40 CFR pt. 60, subp. 000 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided. [40 CFR 60.11(c), Minn. R. 7017.2015, subp. 2(B)]
	5.8.8		At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d), Minn. R. 7017.2015, subp. 2(B)]
	5.8.9		Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subp. unless the Administrator: <ol style="list-style-type: none"> 1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, 2. Approves the use of an equivalent method, 3. Approves the use of an alternative method the results of which it has been determined to be adequate for indicating whether a specific source is in compliance, 4. Waives the requirement for performance tests because the Permittee has demonstrated by other means to the Administrator's satisfaction that the affected facility is in compliance with the standard, or 5. Approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in this paragraph shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act. [40 CFR 60.8(c), Minn. R. 7017.2015, subp. 2(A)]
	5.8.10		The Permittee shall provide the Commissioner at least 7 days prior notice of any performance test, except as specified under other subparts, to afford the Commissioner the opportunity to have an observer present. [40 CFR 60.8(d), Minn. R. 7017.2015, subp. 2(A)]
	5.8.11		The Permittee shall provide, or cause to be provided, performance testing facilities as follows: <ol style="list-style-type: none"> 1. Sampling ports adequate for test methods applicable to such facility. This includes (i) constructing the air pollution

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and (ii) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures. 2. Safe sampling platform(s). 3. Safe access to sampling platform(s). 4. Utilities for sampling and testing equipment. [40 CFR 60.8(e), Minn. R. 7017.2015, subp. 2(A)]
	5.8.12		Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the control of the Permittee, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs. [40 CFR 60.8(f), Minn. R. 7017.2015, subp. 2(A)]
	5.8.13		Records of Startup, Shutdown, or Malfunction: The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; and malfunction of the air pollution control equipment; or any period during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]
	5.8.14		Recordkeeping: The Permittee shall maintain a file of all measurements, including performance test measurements; and all other information required, recorded in a permanent form suitable for inspection. The file shall be retained for a minimum of two years following the date of such measurements, maintenance, reports and records. [40 CFR 60.7(f), Minn. R. 7019.0100, subp. 1]
	5.8.15		Notification of any physical or operational change which may increase emissions, in accordance with 40 CFR Section 60.7(a)(4). The notification shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Commissioner may request additional relevant information subsequent to this notice. [40 CFR 60.7(a)(4), Minn. R. 7019.0100, subp. 1]
COMG 8	GP008	Loading/Unloading	
	5.9.1		The requirements of this group apply individually to each associated item in this group. [Minn. R. 7007.0800, subp. 2]
	5.9.2		Opacity: less than or equal to 20 percent opacity [Minn. R. 7011.0715, subp. 1(B)]
	5.9.3		The Permittee shall conduct visible emission checks once each day of operation (during daylight hours) from associated item

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			in COMG 8 while operating. The visible emissions observations shall be completed using EPA Method 22. [Minn. R. 7007.0800, subp. 4]
	5.9.4		Recordkeeping: The Permittee shall keep a record of all visible emission checks, the date and time of each visible emission inspection, whether or not any visible emissions were observed, and of any corrective actions taken. [Minn. R. 7007.0800, subp. 5]
EQUI 1	EU001	Aggregate Heater	
	5.10.1		Allowed Fuels: Natural gas or propane only. [Minn. R. 7007.0800, subp. 2]
	5.10.2		Total Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. The PTE of this unit is 0.12 lb Total PM/hr. [Minn. R. 7011.0610, subp. 1(A)1, Minn. R. 7011.0715, subp. 3]
	5.10.3		Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0610, subp. 1(A)2]
FUGI 1	FS001	Paved Haul Roads	
	5.11.1		Daily Inspection and Recordkeeping: On each day of operation, the Permittee shall visually inspect all paved surfaces to minimize or eliminate fugitive emissions. The facility shall maintain records of this inspection that include the date of the inspection, whether fugitive dust was observed, what corrective actions were taken, when the corrective actions were taken, and whether the corrective actions eliminated the fugitive dust. [Minn. R. 7007.0800, subp. 2, Minn. R. 7011.0150]
	5.11.2		Anytime fugitive emissions are observed on facility roadways, the Permittee shall immediately eliminate fugitive emissions by sweeping those road segments and/or apply water or a chemical dust suppressant. [Minn. R. 7011.0150, Minn. R. 7007.0800, subp. 2]
FUGI 2	FS002	Unpaved Haul Roads	
	5.12.1		Facility-Wide Speed Limit: Vehicle Traffic speeds shall not exceed 15 mph on all facility roads or parking surfaces. The Permittee shall post the speed limit in a highly visible location near the facility entrance. The Permittee shall ensure that all vehicular traffic on unpaved roads shall comply with a speed limit not to exceed 15 miles per hour, unless responding to an emergency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000, , Minn. R. 7007.0800, subp. 2,]
	5.12.2		Anytime fugitive emissions are observed on facility roadways, the Permittee shall immediately eliminate fugitive emissions by applying water or a chemical dust suppressant. [Minn. R. 7007.0800, subp. 2, Minn. R. 7011.0150]

Submittal/action requirements

This section lists most of the submittals required by this permit. Please note that some submittal requirements may appear in the Limits and Other Requirements section, or, if applicable, within a Compliance Schedule section.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
TFAC 1	14100072	Barton Sand & Gravel - Elk River Pit 718	
	6.1.1		Annual Report: due 30 days after end of each calendar year following Permit Issuance. The Permittee shall submit an annual report by January 31st that describes the changes made at the facility during the previous calendar year. The report shall include the emission unit, stack/vent, group, and control equipment data for any new or replaced units or control devices, and the dates the units were brought onsite or taken offsite. The report shall document the PM-10 12-month rolling sum calculations for the previous calendar year. The report shall be submitted with the annual Compliance Certification listed in Table B. As part of the Annual Report, the Permittee shall verify and certify that the facility has maintained minor source status for Title V and New Source Review. [Minn. R. 7007.0800, subp. 2]
	6.1.2		The Permittee shall submit a semiannual deviations report: Due semiannually, by the 30th of January and July 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. If no deviations have occurred, the Permittee shall submit the report stating no deviations. [Minn. R. 7007.0800, subp. 6(A)(2)]
	6.1.3		The Permittee shall submit a compliance certification: Due annually, by the 31st of January (for the previous calendar year). The Permittee shall submit this to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year. [Minn. R. 7007.0800, subp. 6(C)]
COMG 6	GP004	Aggregate Mining - NSPS subp. 000 Units Constructed/Modified After 4/22/2008	
	6.2.1		The Permittee shall conduct initial performance test : Due 180 calendar days after Initial Startup Date, or 60 days after achieving maximum capacity at which the affected crushing, screening, or conveying unit will be operated, and according to 40 CFR Section 60.11 and 40 CFR Section 60.675 to measure opacity from a new replacement unit. EPA Method 9 shall be used to determine the opacity. [40 CFR 60.675(b)(2), Minn. R. 7011.3350]
	6.2.2		Performance Test: due before end of each 60 months following Initial Performance Test to measure opacity from a new replacement unit. EPA Method 9 shall be used to determine the opacity.
			Affected facilities controlled by water or from water carryover

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			from upstream water sprays that are inspected according to the requirements in 40 CFR Sections 60.674(b) and 60.676(b) are exempt from this 5-year repeat testing requirement. [40 CFR 60.675(b)(2), Minn. R. 7011.3350]
COMG 7	GP005	Aggregate Mining - NSPS subp. OOO Units Constructed/Modified Before 4/22/2008	
	6.3.1		The Permittee shall conduct initial performance test : Due 180 working days after Initial Startup Date, or 60 days after achieving maximum capacity at which the affected crushing, screening, or conveying unit will be operated, and according to 40 CFR Section 60.11 and 40 CFR Section 60.675 to measure opacity from a new replacement unit. EPA Method 9 shall be used to determine the opacity. [40 CFR 60.675(b)(2), Minn. R. 7011.3350]

Attachment 3 – Points Calculator

Total Points 80

- 1) AQ Facility ID No.: 14100072
- 2) Facility Name: Barton Sand & Gravel - Elk River Pit 718
- 3) Small business? y/n? n
- 4) DQ Numbers (including all rolled) : 5239
- 5) Date of each Application Received: 5/18/2015
- 6) Final Permit No. 14100072-001
- 7) Permit Staff Eric Sulita
- 8) "Work completed" in which .xls file (i.e. unit 2b, unit 1a, biofuels)? n/a

<u>Application Type</u>	<u>DQ No.</u>	<u>Qty.</u>	<u>Points</u>	<u>Total Points</u>	<u>Details</u>
Administrative Amendment			1	0	
Minor Amendment			4	0	
Applicability Request			10	0	
Moderate Amendment			15	0	
Major Amendment			25	0	
Individual State Permit (not reissuance)	5239	1	50	50	
Individual Part 70 Permit (not reissuance)			75	0	

<u>Additional Points</u>	<u>Points</u>	<u>Details</u>
Modeling Review	15	
BACT Review	15	
LAER Review	15	
CAIR/Part 75 CEM analysis	10	
NSPS Review	10	subp. 000
NESHAP Review	10	
Case-by-case MACT Review	20	
Netting	10	
Limits to remain below threshold	10	
Plantwide Applicability Limit (PAL)	20	
AERA review	15	Limits to remain below Part 70 major source, Limits to avoid NSR
Variance request under 7000.7000	35	
Confidentiality request under 7000.1300	2	

FAW review	15	0
Part 4410.4300, subparts 18, item A; and 29	35	0
Part 4410.4300, subparts 8, items A & B; 10, items A to C; 16, items A & D; 17, items A to C & E to G; and 18, items B & C	70	0
Part 4410.4300, subparts 4; 5 items A & B; 13; 15; 16, items B & C; and 17 item D	Add'l Points	30

Attachment 4 – NSPS subp. OOO Applicability Determination



U.S. Environmental Protection Agency Applicability Determination Index

Control Number: NR30

Category: NSPS
EPA Office: Region 5
Date: 01/12/1988
Title: NSPS Applicability to Nonmetallic Mineral Processing Plants
Recipient: Slater, Judith A.
Author: Kertcher, Larry F.

Subparts: Part 60, 000, Nonmetallic Mineral Processing

References: 60.670
60.670(a)
60.670(d)(1)
60.671
60.673

Abstract:

Is a piece of equipment subject to the requirements of Subpart 000 based upon the day it was manufactured or the day it was installed? Is a conveyor subject to the same requirements? If a conveyor is replaced with one of the same capacity, manufactured before the standard date, is it subject to the standard?

Any affected facility, in fixed or portable nonmetallic mineral processing plants, is exempt from the requirements of Subpart 000 if it is manufactured prior to August 31, 1983, provided that it has not been modified or reconstructed after this date. Belt conveyors constructed prior to August 31, 1983, are not subject to Subpart 000. Belt conveyors constructed after that date are subject, unless they are replacing other belt conveyors that are of equal or larger size.

Letter:

Control Number: NR30

January 12 1988

Region 5

Judith A. Slater
Regulatory Compliance Section
Division of Air Quality
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, Minnesota 55155

Dear Ms. Slater:

This letter is in response to your question regarding the New Source Performance Standard (NSPS) 40 CFR 60 Subpart 000 - Standard of Performance for Nonmetallic Mineral Processing Plants. Specifically, you've asked the following questions:

1. Several plants have bought used equipment (manufactured before August 31, 1983) and have installed these equipment after August 31, 1983. Is a piece of equipment subject to the requirements based upon the date it was manufactured or the date it was installed?
2. One plant owns several portable conveyors. Some of these conveyors were manufactured before August 31, 1983. These conveyors are added and removed from the plant as deemed necessary. Sometimes an existing conveyor is replaced by another conveyor of equal or smaller size. Sometimes a conveyor is added as a new piece of equipment. Is each conveyor subject to the requirements based upon the date it was manufactured?
3. One plant replaced a 30 inch conveyor (approximate speed of 400 feet/minute) with a 42 inch conveyor (approximate speed of 250 feet/minute). Both conveyors were manufactured before August 31, 1983. The operator states that the capacity of both conveyors is equal. Is the conveyor subject to the requirements based upon the date it was manufactured? If not, what documentation should the operator provide to meet the "same size" exemption of part 60.670(d)(1)?

With regards to question 1, a telephone conversation between yourself and Chae Pak of my staff has clarified that the word "equipment" should read "affected facility," as it is defined in Section 60.670(a). Any affected facility, in fixed or portable nonmetallic mineral processing plants, is exempt from the requirement of Subpart 000 if it is manufactured (constructed) prior to August 31, 1983, and provided that it has not been modified or reconstructed after August 31, 1983. It does not matter whether the modification or reconstruction occurred at its current plant-site or elsewhere.

Modification means any physical change in, or change in the method of operation of, an existing facility (constructed before August 31, 1983, for facilities subject to Subpart 000) which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted. Reconstruction means the replacement of components of an existing facility to such an extent that: 1) the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility (except as provided in Section 60.673), and 2) it is technology and economically feasible to meet the applicable standards set forth in 40 CFR Part 60.

With regard to question 2, belt conveyors, as defined in Section 60.671, constructed prior to August 31, 1983, are not subject to the requirements of Subpart 000. Belt conveyors constructed after August 31, 1983, are subject to the requirements of Subpart 000, unless they are replacing other belt conveyors (on one for one basis) that are of equal or larger size. For belt conveyors, size is determined by the width of the conveyor belt.

With regards to question 3, both belt conveyors were constructed prior to August 31, 1983. As such, neither are subject to Subpart 000.

Should you have further questions regarding this determination, please forward them to Mr. Chae Pak of my staff at (312) 886-6797.

Sincerely yours,
(signed)
Larry F. Kertcher, Chief
Air Compliance Branch (5AC-26)