

STONE PROCESSING OPERATIONS

Revision Date: January 3, 2005

I. PURPOSE

To specify guidelines for evaluating expected emissions from stone-processing facilities in a consistent manner for permit approval. This document is intended to be used with either the Stone Processing Plant permit application/emissions spreadsheet, the DEQ Form 7, or the Non-Metallic Mineral General Permit (Form 510-1). The construction of greenfield sites containing NSPS equipment (except one-time reporting and recordkeeping) always requires a permit to construct and operate per 9 VAC 5-80-1100 (E). A permit is required for construction of non-NSPS (greenfield) facilities and the modification of NSPS facilities (where there is a valid permit for a similarly affected facility) when the net emissions increase exceed the 9 VAC 5-80-1320(C) New Source Exemption Level and 9 VAC 5-80-1320 (D) Modified Source Exemption Level by emission rate, respectively. For stationary internal combustion engines, fuel fired dryers, boilers, storage silos, etc., use appropriate boilerplates and procedures. For stone processing plants without stationary diesel engines the primary pollutant is particulate matter (PM & PM-10). Minor new source permit applicability for stone processing plants can be determined by calculating PM-10 emissions per 9 VAC 5-80-1320(C)(2) and 9 VAC 5-80-1320(D)(3). PM is a currently regulated PSD pollutant and must be evaluated in respect to Article 8 of Chapter 80.

II. DEFINITIONS

- A. Affected Facility Affected facilities are subject to the provisions of NSPS Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, which includes: nonmetallic mineral processing facilities in fixed or portable plants (process equipment, except for equipment handling hot aggregates or asphalt at an asphalt plants or cement plants) fabricated or manufactured after August 31, 1983 and having a capacity (as defined in Subsection 60.671) equal to or greater than the equipment being replaced, which includes: each crusher, grinding mill, screening operation, belt conveyor, bucket elevator, bagging operation, storage bin, enclosed truck or railcar loading station. For example, a unit that was fabricated or manufactured prior to 9-1-83 but installed after 8-31-83 is not considered an affected facility and would not be subject to NSPS OOO. Note: storage silos that handle cement or lime are not subject to NSPS OOO. Please note, the stationary source must include a crusher (common control and same SIC number) for the emissions units to be subject to NSPS Subpart OOO.
- B. Air Classifier Air classifiers (also called air separators) are used to separate dry, extremely fine (420 microns to 44 microns) particles. The classifiers have an internal fan that generates an upward airflow that lifts the extremely fine particles, while allowing the larger particles to drop. The classifier has a double wall construction that allows the two products to remain separate for further processing. The air is recirculated inside the classifier, but there is some air leakage to the atmosphere. The particulate emissions from the classifier may be considered nil. A classifier may be a NSPS affected facility when used in conjunction with a fines mill (or crusher) or grinding mill.
- C. Primary Crusher Initial crushing of quarry stone normally introduced to the first crusher (jaw, gyratory, etc) to yield an approximate 5" to 6" product. Primary crushing includes the truck dumping, feeder, and discharge emissions.

- D. Second. Crusher Reduction of a sized product normally introduced to a crusher to yield an approximate 1" to 3" product. Includes feeder and discharge emissions.
- E. Tertiary Crushing Reduction of screened product normally introduced to a crusher to yield an approximate 1" or less product. Includes feeder and discharge emissions. Tertiary cone crushers are normally considered totally enclosed by being choke fed in addition to the enclosed discharge chute for spillage control. Normal hourly and annual thruputs often exceed primary thruput due to recirculating load.
- F. Feed Hopper A bin that is fed either by a truck dumping or front end loader. The feed hoppers or truck dump hoppers are not subject to the provisions of NSPS Subpart OOO per 40 CFR 60.672(d). However, feed hoppers may require a State permit to construct and operate based on the net emissions increase per 9 VAC 5-80-1320(C) or (D)).
- F. Fines Mill Reduction of screened product normally introduced to a ball mill, hammermill, or other types of crusher to yield a powder product such as agricultural lime or manufactured sand. Fines mill products can be characterized as having 80% (wt) passing through a 4 Mesh test screen (~0.20 inch). Includes feeder and discharge emissions. May have high hourly and annual thruputs due to recirculating load. When the fines mill circuit include an air classifier, cyclone, and pneumatic conveying equipment, the particulate emissions are included in the fines mill emission factor.
- F. Grizzlies A specialized screening device used to remove undersize material prior to crushing or in the separation of large stone fractions (<3") to produce a salable product such as riprap. This device normally consists of uniformly spaced parallel steel bars that allow fine material to fall through the steel bars. Grizzlies may be either static or powered. Grizzlies located in the primary crusher truck dump are not subject to the provisions of NSPS Subpart OOO. The grizzly's particulate emissions have been included in the primary crusher's emission factors. When grizzlies are used as screens, they are subject to NSPS Subpart OOO. Use truck unloading-fragmented stone emission factors for screening large rock (i.e. riprap).
- G. Load-Out Finished stone product transfer to trucks/rail cars. May be used to calculate emissions from loading feed hoppers for wash plants, pugmills, etc. Loading of open trucks and railcars via belt conveyor, storage bin, front end loader, etc. is not subject to NSPS Subpart OOO, but State regulations do apply. Loading of enclosed trucks and railcars is subject to NSPS Subpart OOO.
- H. Pugmill Plant Usually consisting of several feed hoppers, a belt conveyor, a cement silo, and a pugmill mixer. The pugmill is used to blend fine and coarse stone products into a homogeneous mixture with a high moisture content. The last belt conveyor feeding the pugmill mixer is the last emission point at this operation.

- I. Reclaiming Automated stockpile stone recovery belt conveyor system, usually located in a tunnel. Emissions are negligible.
- J. Screening Sizing separation of received or crushed stone product. Screening includes emissions from the feed conveyor, product bins located under the screens, and product discharge chutes. Tertiary screens often have higher hourly and annual thruputs that exceed primary throughput due to recirculating loads. Fines screen products can be characterized as having 80% (wt) passing through a 4 Mesh test screen (~0.20 inch).
- K. Storage Product reserve of crushed stone. Usually stored in open piles. Storage emissions generally calculated at 25% to 40% of primary throughput, since the larger size stone products have less 100 micron size particles by weight than other stone products and are washed to remove 100 micron particles. Emissions include product drop emissions from belt conveyors and/or stock trucks, and haul road emissions. Higher truck activity and miles of haul roads within the quarry will result in increased emissions. If not specified by source, use 33% of primary annual throughput.
- L. Transfer Point Stone product transfer directly from one conveyor or bucket elevator to another conveyor or bucket elevator.
- M. Surge Bins Temporarily store stone products (conveyor - bin - conveyor) in order to balance production capacity of different processing equipment. Using twice the conveyor transfer emission factors accounts for loading and discharge from the surge bin.
- N. Unload Discharge of stone from a vehicle. These emissions have been included in the storage pile and loadout emission factors. However, these emissions may be used in specialized cases (riprap plants, etc.)
- O. Wash Plant (Formerly wet screening) Used to remove the unwanted materials (minus 200 mesh/74 micron particles, dirt, clay, etc) from stone products. The wash plant usually consists of feed hoppers, belt conveyors, a screen, and possibly a sand classifier. The screen has permanently mounted spray bars capable of discharging hundreds of gallons/minute of water that completely saturates the stone and removes the unwanted material from the stone product. The belt conveyor that feeds the wash screen is the last emission point for this type of operation. Subpart OOO exempts the wash screen and all downstream production equipment, up to the next crusher or storage bin, from the initial performance testing and monitoring provisions of this Subpart. The wash plant has a "no visible emissions" limit and a one time notification to EPA Region III.

III. STONE PROCESSING FACILITY EMISSION FACTORS

(Refer to table below)

Source ^{Note 1} (SCC)	Uncontrolled Particulate Matter lbs/ton	Uncontrolled PM-10 lbs/ton	% Wet Suppression. Cont. Eff.	Controlled PM Emissions (lb/ton)	Controlled PM-10 Emissions (lb/ton)
Screening Pri., Sec., or Tert. (SCC 3-05-020-15)	0.025	0.0087	91.2 91.5	0.0022	0.00074
Primary Crushing ^{Note 3} (SCC 3-05-020-01)	0.00073	0.00071	95 95	0.0000365	0.0000355
Secondary Crushing ^{Note 2} (SCC 3-05-020-02)	0.0054	0.0024	77.8 77.8	0.0012	0.00054
Tertiary Crushing ^{Note 2} (SCC 3-05-020-03)	0.0054	0.0024	77.8 77.8	0.0012	0.00054
Fines Crushing (<4 Mesh) (SCC 3-05-020-05)	0.039	0.0150	92.3 92.0	0.0030	0.0012
Fines Screening (<4 Mesh) (SCC 3-05-020-21)	0.30	0.072	98.8 96.9	0.0036	0.0022
Conveyor (to conveyor) Transfer Point (SCC 3-05-020-06)	0.0030	0.0011	95.3 95.8	0.00014	0.000046
Open Storage ^{Notes 4, 5, 6, 7} (SCC 3-05-020-XX) (includes loading onto the piles, wind erosion, pile activity, and pit haul road)	0.33	0.156	95 95	0.0165	0.0078
Truck Unloading - Fragmented Stone ^{Note 8} Emissions included in primary crushing, used for special cases (riprap plants) (SCC 3-05-020-31)	0.000032	0.0000016	95 95	0.000016	0.0000008
Truck Unloading ^{Note 8} Crushed Stone (i.e. truck stockpiling of screened/crushed stone) (SCC 30502032)	0.0003	0.0001	95 95	0.000015	0.000005
Truck/Hopper Loading - Front End Loader ^{Notes 4, 5, 6, 7} (SCC 3-05-020-98)	0.06	0.03	95 95	0.003	0.0015

Notes: For fuel burning equipment (dryers, stationary internal combustion engines) or storage silos, etc, use appropriate emission factors from AP-42 or specific boilerplate procedures.

- A. Emission factors represent both uncontrolled and controlled emissions.
- B. Surge bins are considered as 2 transfer operations.
- C. Stone product transfers into and out-of crushers or screens are included with the crusher or screen emission factors.

Reference:

1. Unless otherwise noted, the emission factor and control efficiency based on Table 11.19.2-2 (Aug. 2004), AP-42.
2. Crusher operation includes use of enclosed discharge chutes and covered side skirts on the belt conveyor. Secondary crusher emission factors are same as tertiary crusher emission factors.
3. Emission factor from Table 11.19.2-2 (07/1994) AP-42. Primary crusher feeder and truck unloading.
4. Emission estimates determined as referenced in AP-42, Chapter 13.2 (Fugitive Dust Sources).
5. SCC assigned by VA DEQ, Air Division.
6. Emission factors for loadout and storage account for fugitive dust from storage, haul roads, front end loader movement, and customer truck traffic.
7. Emission factor based on storage pile PM-10 to filterable PM aerodynamic ratio; AP-42, Table 13.2.2-3.
8. Fragmented/crushed stone unloading PM emission factor is twice PM-10 emission factor.

IV. EMISSION CONTROLS - OTHER THAN WET SUPPRESSION

- A. Partial enclosure (significantly restricts air flow): 70% efficient (dry basis) [example: hooded transfer]
- B. Enclosure (completely restricts air flow while allowing opening for material flow): 90% efficient (dry basis) [example: enclosed screening deck unit or fines mill]
- C. Baghouse: 99% efficient.

Note: Enclosure is a control mechanism. Enclosures frequently used for maintenance, noise abatement, weather proofing, etc. are not to be confused with enclosures built for air pollution control.

V. OPACITY LIMITS AND GRAIN LOADING (BACT)

- A. Baghouse exhausts and tertiary crushing: 7% opacity; filterable PM limit of 0.05 g/dscm (0.022 gr/dscf) for baghouse exhaust. Note: compare the results of using grain loading for calculating hourly emissions against the use of Stone processing Boilerplate emission factors for consistency. [example: tertiary crusher or fines mills discharge to fabric filtration]
- B. Fugitive primary and secondary crushing: 15% opacity.
- C. Fugitive screening, conveyor transfers, surge bins, loadout, stockpiles, other non-specified fugitive emission points: are limited to 10% opacity.
- D. Wet screening operations, up to next crusher or storage bin: have a "no visible emissions" opacity limit.

Note:

No visible emissions from structural enclosure itself (seam leakage, doors, etc.) - opacity limits refer to discharged material flow or mechanically induced air flow vent.

VI. PERMIT REQUIREMENTS

- A. Completed application (DEQ-Air Form 7, Non-Metallic Mineral Processing General Permit (Form 510-1), or VAA/DEQ spreadsheet) for any new, modified, or reconstructed process equipment facility:
- B. Relocation of a portable emissions unit requires notification to and approval from the Department. Portable plant permit conditions and relocation form letters are to be found in portable plant boilerplate. Note: portable plant process units cannot be split up for use at separate production sites unless permitted separately.
- C. Applicable NSPS requirements specify the minimum allowable conditions/emissions (Subpart 000). The source site must include crushing or grinding to be subject to NSPS (if a source only involves product storage, conveying, screening, and load-out [no onsite crushers] it is not subject to NSPS Subpart 000).
- D. Crushing and screening control to be wet suppression or equivalent (control shall be designed as needed to prevent excess emissions).
- E. Allowed particulate emissions to be specified in pounds per hour and tons per year. NSPS Subpart 000 stack, vent, enclosed truck, or railcar loadout emission limit must include the allowable NSPS PM emission rate of 0.05 g/m³. Coding input, for the inventory data base

(CEDs), enter the stone processing plant major component (Main Plant, Sand Plant, etc), with the calculated local pollutant emission factors. Lbs/hr emissions to be based on expected maximum equipment operation; tons/yr emissions to be based on process yearly throughput.

- F. Current-stone processing permit conditions do not address toxic emissions.
- G. Modeling not normally required. See minor NSR Permit Manual's modeling guidance for details..
- H. When including existing source units (unmodified, pre1972 source units currently operating at the site) in a permit, unit allowances are based on approved permit conditions and/or applicable existing source rules. See minor NSR Permit Manual for guidance on the inclusion of existing sources.
- I. EPA Region III notification is required for all construction, start up, and initial performance tests. The source is the responsible party for the dual submissions.
- J. EQUIPMENT REPLACEMENT

1. NSPS- Federal Requirements:

. Like-for Like Replacements no longer requires written notification to the EPA in Research Triangle Park, only EPA Region III notification is required.

- a. When replacing a piece of equipment that had been fabricated or manufactured prior to 9-1-83 with an affected piece of equipment (fabricated or manufactured after 8-31-83) and equal to or smaller in size (see capacity and having the same function).
- b. Permittee is subject to the reporting requirements of the NSPS Subpart 000 - Standards of Performance for Nonmetallic Mineral Processing Plants, Sections 60.7 Notification and Recordkeeping and 60.676 Reporting and Recordkeeping (other parts of Subpart 000 are not applicable). When the last piece of existing equipment (non-NSPS) has been replaced under like-for-like provisions, then the whole production line becomes an affected facility.
- c. When replacing a piece of equipment that had been fabricated or manufactured after 8-31-83, with an affected piece of equipment (fabricated or manufactured after 8-31-83), the equipment replaced is subject to all parts of the NSPS Subpart 000. Please note, this is not like-for-like replacement and doesn't require EPA notification per 40 CFR 60.676(a). All other notification requirements of 40 CFR 60.7(a) are required.
- d. EPA Region III notification per 40 CFR 60.676(a) and 40 CFR 60.7(a) is always required for replacement of nonNSPS equipment fabricated or manufactured prior to 8-31-83 by NSPS replacement equipment fabricated or manufactured after 8-31-83 (like-for-like). See permit boilerplate condition referencing permittee notification dates of construction, start-up, etc.

2. NSR State Requirements:

- a. Replacement of a piece of production equipment (either NSPS or existing) with a piece of equipment serving the same function and subject to the same emission standards or applicable requirements does not require a permit to construct, reconstruct, or relocate per 9 VAC 5-80-1100(E), as long as the facility has a current permit for a similar affected facility (i.e. same NSPS Subpart).

Notwithstanding, the modified source permit exemption levels per 9 VAC 5-80-1320 apply to the replacement unit. Article 6 allows for the like-for-like replacement of an NSPS emission unit without a permit, if the source has a permit for equipment subject to the same NSPS Subpart. But the net emissions increase (future potential - past actual) due to the change must be less than the 9 VAC 5-80-1320 (D) exemption level.

- K. Pug Mills are permit exempt, when defined as a process involving an enclosed drum to internally mix (with water) aggregate size to a uniform consistency.
 - 1. Material handling and other associated process steps, requiring a permit, are discussed in other items of this section (ref. VI).
 - 2. The pugmill itself is not subject to NSPS or State permitting. The purpose of the pugmill is to mix different sizes of aggregates and water to achieve a specified moisture content (5% to 10% by wt.) and gradation profile. Pugmills are not listed as affected facilities in 40 CFR 60.670(a) and are not subject to NSPS Subpart OOO.
 - 3. Emissions from the pugmill are considered negligible and visible emission evaluations (VEE's) are not required.

- L. Wash screens are not subject to monitoring and initial performance testing of NSPS Subpart OOO, when defined as a wet screening process with the primary function of removing unwanted material (clay, grit, etc.). However, the wet screening emission units (up to next crusher or storage bin) are subject to the "no visible emission" limitation. The current NSPS OOO require a one-time only reporting to EPA Region III for wash plant equipment (which includes downstream conveyors, loadouts, , etc. up to the next crusher or bin. If the wash plant equipment is subsequently relocated to a dry portion of the stone processing plant, the relocated equipment is subject to all provisions of NSPS OOO.
 - 1. Material handling and other associated process steps, requiring a permit, are discussed in other items of this section (ref. VI).
 - 2. Emissions are considered negligible and visible emission evaluations (VEE's) are not required.
 - 3. NSPS wash plants, from the last dry conveyor discharge to the next crusher or storage bin, have a "no visible emissions" opacity standard.

- M. Total screen unit replacement may be subject to permitting. However, the replacement of damaged screen components (decks) or screen cloth replacement is not subject to permitting.

- N. In-stack performance testing for NSPS affected facilities is required to satisfy particulate matter compliance from baghouse exhausts and other control device stack emissions, except for bin (sock filter) vents or storage bins/silo whose emissions are controlled by a single baghouse.

- O. Visible emission testing protocol is required when using EPA Test Method 9. In order to establish the design parameters for the wet suppression system, the source operating section of the Emissions Testing Protocol must be completed during the VEE.

VII. Refer to "Permit BoilerPlate" for other specific considerations.

EMISSIONS CALCULATIONS

VIRGINIA EMISSIONS SPREADSHEET

FOR

AGGREGATE PRODUCING FACILITIES

GUIDANCE DOCUMENT
&
EXAMPLE EMISSIONS CALCULATIONS
for Version 3.0

INTRODUCTION

The emissions spreadsheet (version 1.1 dated September 1, 1995) was developed through a cooperative effort by the Virginia Department of Environmental Quality (DEQ) and the Virginia Aggregates Association (VAA). The current version (v3.0) of the spreadsheet was subsequently updated to include the latest AP42 emission factors, additional belt conveyors and storage bins, a column calculating the uncontrolled 8,760 hr/yr PM-10 emissions from new emission units, and a section for determining eligibility for coverage by the Non-Metallic Mineral General Permit. This spreadsheet should accurately calculate emissions from all of the contributing processes at an aggregate processing facility. Every effort has been made to eliminate errors in the spreadsheet and this guidance document; however, neither the VAA nor DEQ warrant the accuracy of the information contained therein. This spreadsheet will calculate actual emissions, potential emissions, uncontrolled emissions and General Permit potential emissions.

The PM10 emission factors used in this program are the most recent factors published in AP-42 Table 11.19.2-2 dated August 2004. The Particulate Matter (PM) factors are those accepted by the Virginia Department of Environmental Quality as representing the emissions generated in the 100 micron and smaller range.. PM-10 emissions can be used to determine whether a permit or permit amendment is required for a greenfield site or change made at an previously permitted site. PM is a currently regulated PSD pollutant and must be evaluated to determine permit applicability for the major new source review program.

The emissions spreadsheet and this guidance document must be used in conjunction with the Stone Processing Plant Air Permit Boilerplate and Stone Processing Plant Procedures Document. Many of the terms used here and on the spreadsheet are defined in the other two documents. For brevity, no attempt has been made to duplicate here the information found in these other documents.

PROCESS FLOW DIAGRAM

In order to determine accurate actual process flow amounts (tph, tpy) for each item a current flow diagram for the plant must be used. This flow diagram should show the location of all crushers, screens, conveyors, bins, stockpiles and truck loadout areas. Some type of facility specific ID# should be shown for each item. This ID# can be in the form of a company number, serial number, flow diagram ID number or plant number.

If a wash plant is located in this facility, all of the items that process this wet material should be clearly identified. These items will not contribute emissions to the facility totals but still should be entered into the spreadsheet.

The Stone Processing Plant should be broken into the major components (Main Plant, Sand Plant, Wash Plant, Pug Mill Plant, etc). Each of the major components should be run separately using the spreadsheet. The permit should limit the throughput for each major component in a manner that is agreeable with the Agency and the Source. List the emissions per current Agency procedures.

ACTUAL PROCESS RATES

	PROCESS ID#
	Actual Processed (t/yr)
	Rated Capacity (t/hr)
	Allowable (t/yr)

In order to determine the actual emissions generated by the plant, the actual process flow rate must be determined for each item in the plant. Most plants keep an accurate record of the tons of aggregate delivered to the primary plant from the pit. This annual amount of aggregate is then processed through the plant in some normal flow pattern that is determined by the desired end products. For permit modifications or new constructions, the actual process throughput should be equal to the allowable throughput. One possible exception is the pugmill/cement silo - see the NOTE below.

One method for determining the actual amount handled by each item is to calculate the percentage of shipments that occurs from each stockpile. This percentage of shipments can be directly related to percentage of production when applied to an extended period of time. For example, if base material accounted for 45% of the shipments for the year it is safe to assume that 45% of the total production ended up at the base material stockpile. The total throughput should then be multiplied by this percentage to determine the annual tonnage amount that was processed to a particular stockpile. Using this method it is not difficult to back track values from the stockpiles through the plant. Also, general knowledge of the percent split from the primary to the secondary to the wash plant is also helpful.

Once this actual annual amount has been determined for each item the information can be shown on the flow diagram for input into the spreadsheet.

NOTE: For cement silos, you will have to calculate the tons of cement, not aggregate, processed annually. The emission factors shown on the spreadsheet include both pneumatic loading of the silo and eventual unloading of the cement into the product (cement treated aggregate).

RATED CAPACITY

	PROCESS ID#
	Actual Processed (t/yr)
	Rated Capacity (t/hr)
	Allowable (t/yr)

The rated capacity for each item can be determined from the permit limits or from information available from the manufacturer. If your permit issued by Virginia DEQ lists an hourly restriction for items in the plant this amount should be entered into the spreadsheet as the capacity for that item. If only the crushers and screens have capacity restrictions in the permit, the capacities of the additional items in the plant can be determined by the same flow pattern used in the actual calculations. For example, if screen #3 has a permit restriction of 300 tph and the items downstream in the plant are not included in the permit, this 300 tph would be distributed in a normal flow pattern on these remaining items. These flow amounts would be the restrictions for these additional items based on the fact that they cannot receive any additional material from the restricted screen.

If your permit does not include some sort of hourly production restrictions, the manufacturer's rated capacity of the primary crusher should be the limit for the plant. It is also important to remember that the normal setting used at the primary crusher should be the opening that is used to determine the capacity. This is included in the definition of capacity as the physical and operational limitation of the facility. The plant is designed in its current configuration to produce specification material for the construction industry. If the crushers were allowed to open to the widest setting the material produced would not be a sellable product.

ALLOWABLE THROUGHPUTS

	PROCESS ID#
	Actual Processed (t/yr)
	Rated Capacity (t/hr)
	Allowable (t/yr)

If your permit states an annual production limit for the plant or for phases of the plant this amount should be used as the maximum rate the facility is allowed to produce. This amount should then be distributed throughout the plant in a normal flow pattern to determine the annual allowable amount for each item. The allowable throughput is used only as a convenience to remind the operator of the permit limit, it is not used to calculate particulate emissions.

If you do not have annual production limits in your permit or if you are a grandfathered source (only registered) you must hand calculate the limit based on operating at capacity for 8,760 hours a year. For example: 500 tons/hour x 8760 hours/year = 4,380,000 tons/year. This amount should also be distributed through the plant in a normal flow pattern.

NSPS ITEMS

	NSPS ?
	Dry

Wet Bag

The last information needed before the spreadsheet can be used is a determination of which process items in the plant fall under the requirements of New Source Performance Standards (NSPS). These items are defined as all crushers, screens, conveyors, bagging operations, storage bins, enclosed truck and railcar loadouts manufactured after August 31, 1983. If your operation contains NSPS items they should be noted on your flow diagram. Open truck loadouts, by front end loader, belt conveyor, or storage bin are not affected facilities subject to NSPS Subpart OOO.

Description

At each process item that corresponds to an item in the plant, fill in an appropriate Process ID# for that unit under the "Description" heading. This number should relate to the company number, serial number, plant number or flow diagram number. Alphanumeric entries are acceptable. Also under the Description heading the Actual Processed tonnage (tpy), Rated Capacity (tph) and Allowable tonnage (tpy) should be entered for each unit.

Flags

If the item is an NSPS affected unit, the number one "1" should be placed in the NSPS block under the "Flags" heading. This flag identifies the NSPS Subpart OOO affected facilities.

The next item under the "Flags" heading is the control method used at the item. If the unit is not permitted (only has a registration number) or has no active control system at the unit or that could contribute to controlling the unit, the dry emission factors must be chosen. This is done by entering the number one "1" in front of the "Dry" designation. All of the emission totals for this particular plant item will be calculated using the dry emission factors. If the process uses only total enclosure as the air pollution control system (example: fine screening of aglime), the expression (100% - 90% for enclosure) in decimal form will calculate the controlled hourly and expected annual emissions. However, the potential 8760 hr/yr emissions will be incorrectly calculated.

If the item was permitted with wet suppression at the item or with carry-over from wet suppression applied upstream in the process, the "Wet" designation should be used by entering a "1" adjacent to the word Wet. All emissions from this item will be calculated using the controlled emissions factors shown on the spreadsheet and in the Boilerplate Procedures Document (Table III, Page 4 of June 28, 1995 version).

If the emissions from the item are controlled by a baghouse, the "Bag" designation should be chosen. The emission factors have already been adjusted based upon an accepted control efficiency listed in the Boilerplate Air Permit. The dry emission factors are already adjusted by applying a 99% control efficiency. The program will calculate emissions from this item using the baghouse factors.

If the item is included in the wash plant, no emissions are possible from the unit. In order to show this item in the spreadsheet and calculate zero emissions the letters "WP" or "WET" should be placed in front of the "Wet" designation. No other entries should be present. The spreadsheet treats all alpha characters as zero. This will flag the item as a wash plant unit and will tell the spreadsheet to calculate zero emissions from the item.

Likewise, it is suggested that you list all conveyors on the spreadsheet. Remember, only those conveyors that have a transfer point (belt to belt) will have emissions. For example, discharge out of a

crusher onto a belt which then discharges directly to a screen has no transfer point. The transfer emissions are included in the crusher and screen emission factors. For these belts, enter "NTP" or "NTE" in the Flags. NTP or NTE (or any alphabetical identifier) specifies that "no transfer points or no transfer emission" are present and, therefore, no emissions are calculated.

Emission Totals

Actual Emissions:

The spreadsheet will calculate all of the actual emissions based on the actual processed tonnage amounts entered under the "Description" heading. These tonnage figures will be multiplied by the factors chosen under the "Flags" section. All of the items in the plant will contribute to this total regardless of their NSPS designation. This actual emission total is shown in tons per year for Particulate Matter and for PM10.. Please note, stone processing plants covered by a single minor source permit currently do not pay permit fees. Stone processing plants with a State Operating Permit pay permit fees every other year. Title V permitted sites pay permit fees every year. Per 9 VAC 5-80-330(C), total annual Title V billable pollutant emissions less than 10 tons/yr are exempt from permit fees. This will also be the column used to update your annual emissions inventory submitted to DEQ.

Potential Emissions (Controlled)

This column of emission totals is given in pounds per hour for Particulate Matter and for PM10. These numbers are used in the permitting process and are used to verify that the facility remains below any current hourly emission limits set in the permit.

Uncontrolled

These PM10 emissions in tons per year are generated to determine if any of the processes are below the permitting limits set in the Virginia Air Regulations. The program automatically uses the dry factors for these calculations. For permit applicability, see the minor NSR Permit Manual.

Title V Potential

These emissions are based on the allowable PM10 emissions. The appropriate controlled factors are used for this calculation. The total allowable PM-10 emissions will be the amount used to determine how this facility will be classified under Title V. If the plant Title V Potential (permitted emissions or potential to emit) is greater than 100 tons the site may have to complete a Title V application with the state unless additional operating limits are taken. Contact DEQ on available permitting options.

Emissions Summary

All of the individual process category emissions are automatically totaled here. A facility total is also given under each emission category.

VIII. General Permit - Nonmetallic Mineral Processing Sheet

This Excel Workbook Sheet has been added to the Stone Processing Spreadsheet to determine eligibility for coverage by the NonMetallic Mineral General Permit (9 VAC 5 Chapter 510). The program imports data from user accessible cells in the Stone Processing Spreadsheet, and calculates the process units' (not fugitive dust from stockpiles and haul roads) controlled 8,760 hr/yr PM and PM-10 emissions. The total controlled 8,760 hr/yr PM and PM-10 emissions must be evaluated against the PSD Major Source thresholds per 9 VAC 5-80-1710 (C) and General

Permit threshold per 9 VAC 5-510-190 (D)(3), respectively.

The total facility-wide PM emissions should be compared to the PSD major stationary source thresholds of 9 VAC 5-80-1710 (C) to determine whether coverage under the General Permit is acceptable to the Department. If the potential facility-wide (non fugitive dust) PM emission exceed PSD Major Source threshold, then a permit (SOP or minor NSR) will be required to limit the PTE for PM to less than major source threshold prior to the issuance of the General Permit. The source will be required to comply with both the SOP or minor NSR and the General Permit.

The total facility-wide PM-10 emissions (including fugitive dust) should be compared to the 99 ton/yr regulatory threshold of 9 VAC 5-510-190 (D)(3) to determine whether coverage under the General Permit is possible. If the potential facility-wide PM-10 emissions exceed the 99 ton/yr General Permit threshold, then the source is not eligible for the General Permit.

IX. OTHER INFORMATION

Permits are also required from the Department of Mines, Minerals, and Energy; Division of Mineral Mining, Charlottesville (pit area, equipment installation safety, road accessibility, certified blasters, and foremen). The DEQ-Air Division permit does not cover these matters. The Division of Mineral Resources, Charlottesville, can assist with geologic data information.