VERMONT AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Air Pollution Control Division

TECHNICAL ANALYSIS OF AN AIR CONTAMINANT SOURCE

#AOP-98-015a
DEC PIN# RU95-0193

August 25, 1999
(Revised: October 20, 1999)

Prepared By: John Perreault, P.E.

APPLICANTS:	OMYA, Inc./Vermont Marble Power Division of OMYA, Inc. 61 Main Street Proctor, Vermont 05765
SOURCE:	East Plant Verpol Plant Cogeneration Plant Florence Road, P.O. Box 10 Florence, Vermont 05744
RESPONSIBLE OFFICIAL:	Neal Jordan, OMYA, Inc.
CONTACT:	Neal Jordan OMYA, Inc. Manager of Environmental and Regulatory Affairs TEL: (802) 770-7261 FAX: (802) 459-3428
COUNTY:	Rutland
AREA DESIGNATION:	Attainment for PM_{10}, SO_2, NO_2, CO, & Pb; Unclassified for ozone
UTM COORDINATES:	$^{6}55^{960}$ m E, $^{48}41^{150}$ m N (Verpol Plant)

1.0 INTRODUCTION

On July 20, 1999, OMYA, Incorporated (hereinafter "OMYA, Inc." and also referred to herein as "Owner/Operator"), a subsidiary of Pluess-Staufer Industries, Inc., informed the Agency of Natural Resources, Department of Environmental Conservation, Air Pollution Control Division ("Agency"), of its intentions to construct several modifications to its' Verpol Plant located in Florence, Vermont. These modifications are summarized as follows:

(1) Construction of new steel product silos;
(2) The existing bulk bagging system will be replaced with new bulk baggers served by new bulk bagger product silos;
(3) A new pneumatic conveyor will be installed to supplement existing systems for delivering finished product from silos to the new bulk bagger silos;
(4) A new vacuum system will be installed for cleanup of spilled dry product;
(5) Existing fabric filters serving 50-lb bag packaging machines (known as “rotopackers”) will be modified to vent to the ambient air;
(6) The burner for Spray Dryer #2 will be replaced with a larger burner to allow an increase in production through Spray Dryer #2;
(7) Continuation of the use of East Plant after normal startup of Flash Dryer #3 at the Verpol Plant;

Other noteworthy changes planned for the future, include: a conversion of existing Deagglomerators A and B to Surface Treaters A and C; a reduction in allowable sulfur dioxide (“SO_2") emission rates from the flash dryers at the East Plant, and the elimination of some existing equipment at the Verpol Plant.

1.1 Background

The East Plant and Verpol Plant are involved in the production of finely ground calcium carbonate materials. Various non-metallic mineral processing operations are employed in the production of the ground calcium carbonate materials. The processing of calcium carbonate materials at OMYA's facilities is classified as a source of air contaminants under §§5-401(5) and (12) of the *Regulations*. Additionally, located adjacent to the Verpol Plant is the Cogeneration Plant operated by Vermont Marble Power Division of OMYA, Inc. (formerly known as Vermont Marble Company). The Cogeneration Plant consists of two combustion turbines utilized for the generation of electrical power. Exhaust heat from the combustion turbines is used in the production of dried calcium carbonate materials at the Verpol Plant. The Cogeneration Plant is classified as a source of air contaminants under §5-401(3) of the *Regulations*.

The Cogeneration Plant, East Plant, and Verpol Plant are classified as one single stationary source of air contaminants within the definition of stationary source (see §5-101 of the *Regulations*), since the facilities are under common control and located on contiguous property (referred to herein collectively as “Facility”). This stationary source currently operates within the confines of an existing Air Pollution Control Permit to Construct and Operate #AOP-98-015 issued on November 16, 1998. Proposed modifications to any of the three facilities are subject to Agency review and approval pursuant to Subchapter V of the *Regulations*. The term modification is defined within

§5-101 of the *Regulations* as any physical change or change in the method of operation of the stationary source which would result in an actual emissions increase. Some of the projects described in item 1.0 above consist of physical changes or changes in the method of operation of the stationary source that have associated emissions increases and therefore meet the definition of modification. Consequently, those proposed projects are subject to Agency review and approval.

1.2 Project Description

OMYA proposes to:

(1) Construct new steel product silos;
(2) Replace the existing bulk bagging system with new bulk baggers served by new bulk bagger product silos;
(3) Install a new pneumatic conveyor to supplement existing systems for delivering finished product from storage silos to the new bulk bagger silos;
(4) Install a new vacuum system for cleanup of spilled dry product;
(5) Existing fabric filters serving 50-lb bag packaging machines (known as “rotopackers”) will be modified to vent to the ambient air;
(6) Replace the existing Spray Dryer #2 burner with a new larger burner to increase production through Spray Dryer #2;
(7) Convert the existing Deagglomerators A and B to Surface Treaters A and C;
(8) Continue the use of the East Plant after normal startup of Flash Dryer #3 at the Verpol Plant; and
(9) Reduce the allowable SO_2 emission rates from the flash dryers at the East Plant.

1.3 Administrative Milestones

The administrative steps completed in the processing of the application are summarized below:

Table 1-1: Administrative Summary

Administrative Item	Result or Date
Date Application Received:	07/20/99
Date Application Fee Received and Amount:	07/20/99 $ 11,000.00
Date Administratively Complete:	07/22/99
Date & Location Receipt of Application Noticed:	07/24/99 *The Rutland Herald*
Date Technically Complete:	08/25/99
Date Draft Decision:	09/09/99 Approved
Date & Location Proposed Decision & Public Comment Period & Public Meeting Noticed:	09/11/99 *The Rutland Herald*
Date of Public Meeting:	10/07/99
Deadline for Public Comments:	10/20/99
Classification of Source Under §5-401	§5-401(3) - Electrical power generation facilities; §5-401(5) - Mineral product industries, including mining, quarrying and crushing operations; §5-401(6)(a) - Fossil fuel burning equipment with a rated heat input of 10 MMBTU/hr or greater; §5-401(12) - Operations involving the handling or transferring of sand or dust producing materials.
Classification of Operating Permit:	Title V Subject Source
New Source Review Classification:	Major Modification to an Existing Major Stationary Source
Facility SIC Code(s) and Description(s):	1422 (Crushed and Broken Limestone)

Future Allowable Air Contaminant Emissions (tons/year) *						
PM/PM_{10}	**SO_2**	**NO_x**	**CO**	**NMHCs**	**Pb**	**Total HAPs**
129	178	154	105	12	<0.1	<1**

Notes: * PM - total particulate matter, PM_{10} - particulate matter sized 10 microns or smaller, SO_2 - sulfur dioxide, NO_x - nitrogen oxides, CO - carbon monoxide, NMHCs - non-methane hydrocarbons, Pb - lead, HAPs - hazardous air pollutants.
** All individual HAP emissions < 0.1 tpy.

2.0 BASIS OF REVIEW

As was stated previously, OMYA, Inc. proposes to install and operate new equipment and modify existing equipment at its Facility located in Florence, Vermont. The Facility

is classified as an existing air contaminant source, and modification of the source is subject to Agency review and approval pursuant to Title 10 *Vermont Statutes Annotated* ("10 *V.S.A*.") §556 and Subchapter V of the *Regulations*. Additionally, considering its allowable emissions (See Table 4-1 below), the Facility is classified as a "Title V Subject Source" (see §5-1002 of the *Regulations*) and is subject to the operating permit requirements of 10 *V.S.A*. §556a and Subchapter X of the *Regulations*, as well as the federal operating permit regulations in Title 40 *Code of Federal Regulations* ("40 *CFR*") Part 70. OMYA, Inc. was granted an Air Pollution Control Permit to Operate ("Permit to Operate") in conjunction with a previous construction permit amendment for a third flash dryer (issued on November 16, 1998). Pursuant to 10 *V.S.A.* §556(e), the Agency proposes to combine its review for approval of the proposed projects with an operating permit modification.

3.0 FACILITY DESCRIPTION AND LOCATION

3.1 Description of Plant Layout and Surrounding Area

The Facility operated by OMYA, Inc. is located approximately 65 kilometers ("km") north of the Lye Brook Wilderness Area, 9.4 km southwest of Mount Nickwaket (the nearest designated Vermont sensitive area) and 170 km southwest of the Great Gulf and Dry River Wilderness areas.

The geographical area surrounding the Facility property is depicted in Figure 1 of Appendix B of this Technical Analysis.

3.2 Equipment and Stack Information

3.2.1 Description of Equipment

Tables 3-1, 3-2, and 3-3 below describe the specific air contaminant emission points at the Verpol Plant, East Plant, and the Cogeneration Plant, along with their existing or proposed air pollution control strategies.

3.2.2 Description of Compliance Monitoring Devices

No devices have been proposed to continuously monitor emissions produced from the source. Note, however, as part of its approval for the construction of three flash dryer systems at the Verpol Plant and the issuance of a Permit to Operate, the Agency required the installation and use of continuous measurement systems on the fabric filter exhausts serving the flash dryers and Surface Treater B. These measurement systems were designed to provide OMYA, Inc. with information concerning the degradation of particulate matter control in the collectors over time, and thus assist the operator in scheduling preventative maintenance repairs to the control system. Additionally, the combustion turbines present at the Cogeneration Plant are equipped with devices to monitor the water injection rates and fuel flow into the turbines in order to monitor the water to fuel ratio used as a means of reducing NO_x emissions.

Table 3-1: Emission Points and Control Strategies at the Verpol Plant

POTENTIAL SOURCE	AIR POLLUTION CONTROL STRATEGY OR DEVICE
Surface Treater A (formerly Deagglomerator A)	fabric filter; PM emissions $\leq$ 0.01 gr/dscf
Surface Treater C (formerly Deagglomerator B)	fabric filter; PM emissions $\leq$ 0.01 gr/dscf
Deagglomerator C	fabric filter; PM emissions $\leq$ 0.01 gr/dscf
Storage Silos and Associated Conveying Systems	fabric filter; PM emissions $\leq$ 0.01 gr/dscf
Surface Treater B	fabric filter; PM emissions $\leq$ 0.01 gr/dscf; broken bag detector
Spray Dryer #1	ESP; PM emissions $\leq$ 1.7 lbs/hr, 80% reduction in uncontrolled fuel burning SO_2 emissions due inherent scrubbing effect of drying process - SO_2 emissions $\leq$ 2.4 lbs/hr (full direct-fire mode) and $\leq$ 0.5 lbs/hr (cogen./limited supplemental direct-fire mode)
Spray Dryer #2	multiple cyclones in series with an ESP; PM emissions $\leq$ 2.3 lbs/hr,80% reduction in uncontrolled fuel burning SO_2 emissions due inherent scrubbing effect of drying process - SO_2 emissions $\leq$ 2.7 lbs/hr (full direct-fire mode) and $\leq$ 1.4 lbs/hr (cogen./limited supplemental direct-fire mode)
19.7 MMBTU/hr Boiler	low sulfur distillate oil fuel (0.3% S by wt.)
24 MMBTU/hr Boiler	low sulfur distillate oil fuel (0.3% S by wt.)
Flash Dryer #1 System	fabric filter; PM emissions $\leq$ 0.01 gr/dscf; 80% reduction in uncontrolled fuel burning SO_2 emissions due inherent scrubbing effect of drying process - SO_2 emissions $\leq$ 0.7 lbs/hr; broken bag detector
Flash Dryer #2 System	fabric filter; PM emissions $\leq$ 0.01 gr/dscf; 80% reduction in uncontrolled fuel burning SO_2 emissions due inherent scrubbing effect of drying process - SO_2 emissions $\leq$ 0.7 lbs/hr; broken bag detector
Flash Dryer #3 System	fabric filter; PM emissions $\leq$ 0.01 gr/dscf; 80% reduction in uncontrolled fuel burning SO_2 emissions due inherent scrubbing effect of drying nprocess - SO_2 emissions $\leq$ 0.7 lbs/hr; broken bag detector
FD #1, #2 and #3 Product Conveyors	Use existing fabric filter collectors located on product silos; PM emissions $\leq$ 0.01 gr/dscf
Proposed Finished Product Silos	*fabric filter; PM emissions $\leq$ 0.01 gr/dscf*
Proposed Bulk Bagger Stations/Bulk Bagger Product Silos	*fabric filter; PM emissions $\leq$ 0.01 gr/dscf*
Proposed New Product Transfer System	*fabric filter; PM emissions $\leq$ 0.01 gr/dscf*
Proposed House Vacuum System	*fabric filter; PM emissions $\leq$ 0.01 gr/dscf*
Rotopackers	*fabric filter; PM emissions $\leq$ 0.01 gr/dscf*

Table 3-2: Emission Points and Control Strategies at the East Plant

POTENTIAL SOURCE	AIR POLLUTION CONTROL STRATEGY OR DEVICE
Raymond Mill	fabric filter; PM emissions $\leq$ 0.02 gr/dscf
Flash Dryer #1	fabric filter; PM emissions $\leq$ 0.02 gr/dscf; 80% reduction in uncontrolled fuel burning SO_2 emissions due inherent scrubbing effect of drying process - SO_2 emissions $\leq$ 1.0 lbs/hr
Flash Dryer #1 Recycle	fabric filter; PM emissions $\leq$ 0.02 gr/dscf
Flash Dryer #2	fabric filter; PM emissions $\leq$ 0.02 gr/dscf; 80% reduction in uncontrolled fuel burning SO_2 emissions due inherent scrubbing effect of drying process - SO_2 emissions $\leq$ 1.0 lbs/hr
Silos #1-#4	fabric filter (each silo); PM emissions $\leq$ 0.02 gr/dscf
Bins A and B	fabric filter (each bin vent); PM emissions $\leq$ 0.02 gr/dscf
Bins C and D	fabric filter (each bin vent); PM emissions $\leq$ 0.01 gr/dscf
Bin C & D Receiver	fabric filter; PM emissions $\leq$ 0.01 gr/dscf
Manual Packaging Dust Relief	fabric filter; PM emissions $\leq$ 0.02 gr/dscf
Automatic Packaging Dust Relief	fabric filter; PM emissions $\leq$ 0.02 gr/dscf
40 Mesh Unloading	fabric filter; PM emissions $\leq$ 0.02 gr/dscf
10.5 MMBTU/hr Boiler	low sulfur distillate oil fuel (0.5% S by wt.)

Table 3-3: Emission Points and Control Strategies at Vermont Marble Power Division

POTENTIAL SOURCE	AIR POLLUTION CONTROL STRATEGY OR DEVICE
56 MMBTU/hr Combustion Turbines #1 & #2	natural gas or distillate oil fuel (0.3% S); water injection
Combustion Turbines Starting Engines #1 & #2 (136 bHP each)	low sulfur diesel fuel (0.3% S by wt.); operation restricted to less than 100 hours per year each
Emergency Diesel-Fired Engine Generator (145 bHP)	low sulfur diesel fuel (0.3% S by wt.); operation restricted to less than 100 hours per year

4.0 QUANTIFICATION OF POLLUTANTS

Emissions must be calculated for the Facility in order to establish the regulatory review process necessary for the construction and operating permit portions of the application and to determine applicability with various air pollution control requirements. These

determinations are normally based upon allowable emissions. Allowable emission is defined as the emission rate calculated using the maximum rated capacity of the source and, if applicable, either: (a) the applicable emission standard contained in the *Regulations*, if any, or (b) the emission rate or design, operational or equipment standard specified in any order or agreement issued under the *Regulations* that is state and federally enforceable. In addition, §5-101 of the *Regulations* defines a "stationary source" as any structures, equipment, installations, or operations, or combination thereof, which emit or may emit any air contaminant, which is located on one or more contiguous or adjacent properties and which is owned or operated under common control. Based upon this definition, all of the equipment, operations, and structures at Facility are grouped together as one stationary air contaminant source.

Under the Agency's construction permit program (see Subchapter V of the *Regulations*), a source is classified as a major stationary source if allowable emissions of any air contaminant equal or exceed fifty (50) tons per year ("tpy"), except the air contaminant lead which is five (5) tpy. Additionally, any modification to an existing stationary source which results in an emissions increase equal to or greater than the "significant" levels identified in §5-101 of the *Regulations*, is classified as a major modification and subject to the same review requirements as a new major source.

Under the Agency's operating permit program, a source is classified as a "Title V Subject Source" and subject to federal review of the Permit to Operate if the Facility satisfies any one of the following criteria:

1. The source has allowable emissions of oxides of nitrogen ("NO_x"), sulfur dioxide ("SO_2"), carbon monoxide ("CO"), particulate matter ("PM/PM_{10}") or any other air contaminant, except volatile organic compounds ("VOCs"), of 100 tpy or greater;

2. The source has allowable emissions of VOCs of fifty (50) tpy or greater;

3. The source is subject to a federal emission standard pursuant to §111 of the *Clean Air Act* ("*CAA*") and promulgated in 40 *CFR* Part 60 (Standards of Performance for New Stationary Sources);

4. The source is subject to a federal emission standard pursuant to §112 of the *CAA* and promulgated in 40 *CFR* Part 61or 63 (National Emission Standards for Hazardous Air Pollutants); or

5. The source has allowable emissions of any one hazardous air pollutant ("HAP") regulated by the U.S. EPA of ten (10) tpy or greater, or allowable emissions of a combination of HAPs regulated by the U.S. EPA of twenty-five (25) tpy or greater. The HAPs regulated by the U.S. EPA are identified in §112 of the *CAA*.

Note: Non-major stationary sources subject to a requirement in §111 or §112 of the CAA are currently not subject to the Title V operating permit program, since the U.S. EPA has deferred the requirement for a Title V operating permit for non-major sources pursuant to 40 CFR Part 70 §70.3(b)(1) and the fact that the U.S. EPA has not completed rulemaking establishing how the program should be structured for non-major sources.

Based upon its allowable emissions (see Table 4-1 below), the Facility is currently classified as a “major stationary source” under the construction permit program, and a “Title V subject source” under the operating permit program requirements. Upon completion of the proposed modifications, the Facility will retain these classifications.

4.1 Designation of the Existing Stationary Source

§5-101 of the *Regulations* defines a major stationary source as a source with allowable emissions of any air contaminant equal to or greater than 50 tpy (except for lead, which is 5 tpy). Allowable emissions are determined using applicable emission standards in the *Regulations*, permit conditions, or published emission estimates. OMYA, Inc. is currently operating under the restrictions of Air Pollution Control Permit to Construct and Operate #AOP-98-015 issued on November 16, 1998. Existing allowable emissions have been determined using the emission limits stated in this Permit. In some cases for fuel burning equipment, the permit limit was expressed in terms of a fuel usage limit. This fuel usage limit was converted to an allowable emissions value through the application of emission factors published by the United States Environmental Protection Agency ("U.S. EPA") in *AP-42 Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (5th Edition)*.

Table 4-1 below summarizes the existing allowable emissions for the East Plant, Verpol Plant, and the Cogeneration Plant. A breakdown of the estimated allowable emissions on an equipment specific basis is contained in Table 1: Existing Allowable Emission Estimates located in Appendix A of this Technical Analysis.

Table 4-1 Summary of Existing Allowable Emissions*

Facility	Air Contaminant Emissions, tons/year						
	PM/PM_{10}	SO_2	NO_x	CO	NMHCs	Pb	HAPs
East Plant	22	21	6	2	<1	<0.01	<1
Verpol Plant	61/60	28	39	10	<1	<0.01	<1
Cogeneration Plant	26	143	104	93	11	<0.01	<1
Total	109	192	149	104	13	<0.01	<1

* Based on allowable emissions contained in Air Pollution Control Permit #AOP-98-015a. Assumes the Cogeneration Plant is operating at Full Load and supplying heat for Spray Dryers #1 & #2 (limited supplemental firing of spray dryers).

As summarized in Table 4-1 above, total allowable emissions for the OMYA Plants (East and Verpol) and Cogeneration Plant result in the classification of this stationary source as major for particulate matter ("PM/PM_{10}"), sulfur dioxide ("SO_2"), oxides of nitrogen ("NO_x"), and carbon monoxide ("CO").

4.2 Designation of the Proposed Modification

The designation of an existing stationary source determines the appropriate levels for comparison when attempting to classify the size of the modification for new source review purposes. As an existing major source, any emissions increase resulting from

modifications must be compared to the *Significant Levels* described in §5-101 of the *Regulations* in order to determine whether or not the proposed modifications are subjected to the new source review requirements of §5-502 of the *Regulations* (Major Source and Major Modifications). If a proposed modification or aggregation of minor modifications at the source equal or exceed the "significant" levels, then the modification is classified as major and subject to the requirements of §5-502 of the *Regulations*.

Pursuant to §5-502(1), two forms of increases must be compared to the "significant" levels. First, the allowable emissions attributable to the proposed modification. Second, the emission increases attributable to the proposed modification in addition to the increase in emissions from prior minor modifications at the source since July 1, 1979. Prior modifications at the source which have been reviewed under §5-502 are not aggregated for the purposes of determining the applicability of major modification. This determination is performed on a pollutant-by-pollutant basis.

4.2.1 New Allowable Emissions

The allowable emissions increase associated with the proposed project is summarized in Table 4-2 below. The increase in emissions accounts for the following equipment additions or changes to existing equipment: (1) new bulk baggers served by new bulk bagger product silos; (2) a new pneumatic conveyor; (3) a new vacuum system for cleanup of spilled dry product; (4) ambient exhausting of the existing "rotopackers"; and (5) a increase in production through Spray Dryer #2. No emissions were associated with the new steel storage silos, since the silos will be served by existing conveying equipment, and emissions from this equipment have already been included. Table 2: New Allowable Emissions/Aggregated Emissions Increase, found in Appendix A of this Technical Analysis, gives a breakdown of the derivation of these emission estimates.

Table 4-2: New Allowable Emissions & Comparison to Significant Levels

	Air Contaminant Emissions, tons/year						
	PM/PM_{10}	SO_2	NO_x	CO	NMHCs	Pb	HAPs
Proposed Modification	27.5	6.1	14.3	3.6	0.2	<0.01	<1
Significant Levels	25/15	40	40	50	40	0.6	N/A

Based on the projected allowable emissions summarized in Table 4-2 above, the proposed modification is classified as a major modification and subject to the requirements in §5-502 of the *Regulations*.

4.2.2 Aggregated Emissions Increase - Addition of prior minor modifications with proposed modification.

Although the project has already been established to be subject to §5-502 of the *Regulations*, the aggregated emissions increase must still be performed in order to establish if any other pollutants will be significantly increased as a consequence of prior minor modifications. §5-502(1)(b) of the *Regulations* requires minor modifications be aggregated with prior minor modifications for the determining the applicability of major

modification review requirements. The purpose of this calculation is to prevent the circumvention of major modification review through the continued processing of minor modifications. A brief discussion of the permitting activity associated with the three facilities follows:

(1) OMYA was granted approval by the Agency to modify and operate the Verpol Plant on March 7, 1986. This Air Pollution Control Permit approved the installation and operation of Surface Treater B, an associated product storage silo and bagging equipment, and an increase in production through the existing spray dryer (Spray Dryer #1 - formerly known as Spray Dryer A).

(2) An amendment was issued on January 14, 1987, to restrict the production rates through four processes (i.e., Surface Treater B, Spray Dryer #1, Deagglomerator A, and the Product Bagging System) based upon the results of compliance emission testing.

(3) On March 8, 1988, OMYA's Air Pollution Control Permit was again amended to approve the modification of Ball Mill A, the addition of a new pneumatic product conveying system, and the reactivation of the existing Cone Crusher, Roller Mill Feed Silo, and Roller Mills A and B.

(4) In November 1989, OMYA proposed the installation of a second spray dryer (Spray Dryer #2 - formerly known as Spray Dryer B), a deagglomerator (Deagglomerator C), and new pneumatic product conveying equipment. This proposed modification coincided with the proposal by Vermont Marble Power Division of OMYA, Inc. for the construction of a cogeneration project on OMYA's property in Florence. The addition of OMYA's new processing equipment and the cogeneration project were reviewed as a major modification for PM/PM_{10}, SO_2, NO_x, and CO. The Agency issued an Air Pollution Control Permit (#AP-89-049) on July 27, 1990, approving the projects. At the same time as the Agency was taking action on the major modification, the Agency combined the conditions for the East Plant, Verpol Plant, and Cogeneration Plant together under one stationary source air pollution control permit. OMYA, Inc. had purchased the adjacent White Pigment Plant and renamed the facility, East Plant, in 1988.

(5) An administrative amendment of Permit #AP-89-049 was issued on July 18, 1991 to incorporate minor revisions to the permit conditions.

(6) The Permit was again amended on July 12, 1993, to incorporate minor modifications at the East Plant and to performed administrative revisions of various conditions of the Permit. The minor modifications at the East Plant included: adding a dust collector onto Silo #1, extending the pneumatic conveying system feeding Silos #3 and #4 to also serve Silos #1 and #2; and provide the ability to convey product from the Roller Mill to either Bins A through D or the 40 Mesh Feed Silo. Previously, the Agency incorrectly calculated an emissions increase resulting from these minor modifications. However, the modifications involved only changes in the routing of the existing pneumatic conveyors. No new pneumatic conveying capacity was installed with these minor modifications. Therefore, emission rates from the East Plant did not increase as

a result of these minor modifications.

(7) On August 24, 1994 and February 23, 1996, the Agency received an application requesting an increase in the permitted level of distillate fuel oil usage at the East Plant. The fuel consumption limit was increased from 445,000 gallons annually to 600,000 gallons, and reviewed as a minor modification. A permit amendment was issued on March 29, 1996, approving the increase in the permitted fuel consumption limit.

(8) On September 13, 1996, the Agency approved, as a minor modification, the installation and operation of two flash dryers and associated product conveying equipment at the Verpol Plant.

(9) On December 2, 1997, the Agency approved, as a minor modification, the installation and operation of a replacement boiler at the Verpol Plant. The Agency's approval also allowed the transference of approved fuel use (480,000 gallons per year) from the flash dryers to the boilers at the Verpol Plant, and increased the permitted emission limit for Spray Dryer #1 from 1.32 pounds per hour ("lbs/hr") to 1.7 lbs/hr.

(10) The Agency granted approval for the installation of a third flash dryer and associated product conveying system at the Verpol Plant on November 16, 1998.

As stated in item (4) above, all modifications permitted prior to 1991 have been reviewed under §5-502 for PM/PM_{10}, SO_2, NO_x, and CO. Therefore, with the exception of volatile organic compounds ("VOCs") [classified as non-methane hydrocarbons ("NMHCs") for fuel burning equipment] and lead, only emission increases since 1991 must be aggregated with the proposed modification for determining the applicability of §5-502 of the *Regulations*. These modifications include:

(a) The minor modification of East Plant in 1996 to increase the permitted fuel consumption limitation;

(b) The minor modification of the Verpol Plant in 1996 to allow the installation and operation to two (2) flash dryers and associated product conveying systems;

(c) The minor modification of the Verpol Plant in 1997 to allow the installation and operation of a replacement boiler and transference of approved fuel use to the boilers, and increased PM/PM_{10} emission rate for Spray Dryer #1; and

(d) The minor modification of the Verpol Plant in 1998 to allow the installation and operation of a third flash dryer and associated product conveying system.

It should be noted that site-wide allowable emissions of lead and VOCs, including NMHC emissions from fuel burning equipment, are less than the "significant" levels for these pollutants. Additionally, HAPs do not have an applicable "significant" level. Consequently, it is unnecessary to document the aggregated emissions increase of lead, VOCs, and HAPs at the stationary source, since it is impossible for prior modifications to exceed the "significant" level for lead and VOCs at the Facility or it is irrelevant.

Table 4-3 below summarizes the aggregated emissions increase since 1991. Table 2: New Allowable Emissions/Aggregated Emissions Increase, found in Appendix A of this Technical Analysis, gives a breakdown of the derivation of these emission estimates.

Table 4-3: Aggregated Emissions Increase & Comparison to Significant Levels

	Air Contaminant Emissions, tons/year			
	PM/PM_{10}	**SO_2**	**NO_x**	**CO**
Proposed Modification	27.5	6.1	14.3	3.6
Prior Minor Modifications	16.6	18.7	25.0	6.3
Aggregated Modifications	44.1	24.8	39.3	9.9
Significant Levels	25/15	40	40	50

As summarized Table 4-3 above, the proposed modification, in combination with prior minor modifications, will generate an emissions increase above the "significant" level for PM and PM_{10}. Therefore, the proposed modification retains its classification as a major modification to a major stationary source for PM/PM_{10}, but does not involve a "significant" increase for any other air contaminant.

4.3 Designation of the Future Stationary Source

The designation of the stationary source in the future is determined by the allowable emissions that it will be limited to in the future. The future allowable emissions are quantified based on proposed equipment specifications, applicable emission standards in the *Regulations*, proposed operating conditions, or published emission estimates. Future allowable emissions include the emissions associated with the proposed modification. Table 4-4 below summarizes the future allowable emissions. Table 3: Future Allowable Emissions Estimates, found in Appendix A of this Technical Analysis, provides a breakdown of these emissions on an equipment specific basis.

Table 4-4: Summary of Future Allowable Emissions

Facility	Air Contaminant Emissions, tons/year						
	PM/PM_{10}	**SO_2**	**NO_x**	**CO**	**NMHCs**	**Pb**	**HAPs**
Verpol Plant	80	30	44	11	<1	<0.1	<1
East Plant	22	5	6	2	<1	<0.1	<1
Cogeneration Plant	26	143	104	93	11	<0.1	<1
Total	129	178	154	105	12	<0.1	<1

As summarized in Table 4-4 above, the Facility will retain its classification as a major

stationary source of PM/PM_{10}, SO_2, NO_x, and CO.

4.5 Enforceable Operating Restrictions

In addition to the control strategies identified in Tables 3-1 through 3-3 above, OMYA, Inc. and Vermont Marble Power Division of OMYA, Inc. have proposed operational restrictions for their facilities. These are summarized as follows:

(1) Whenever the combustion turbines are in use, distillate oil firing in Spray Dryers #1 and #2 will not exceed 62 and 169 gallons per hour, respectively;

(2) Annual distillate fuel oil usage at the Verpol Plant will not exceed 11,235,000 gallons (based upon worst case fuel use scenario) and in addition annual limitations for the combustion turbines, dryers, boilers, and diesel engines at 6,815,280; 5,500,000; 680,000; and 18,516 gallons, respectively;

(3) Sulfur content of distillate fuel oil used at Verpol Plant will not exceed 0.3 percent by weight ("% by wt.");

(4) Annual distillate fuel oil usage at the East Plant will not exceed 600,000 gallons; and

(5) Sulfur content of distillate fuel oil used at East Plant will not exceed 0.5 % by wt.

4.6 Identification of Insignificant and Exempt Activities

Activities which qualify as an "insignificant activity" pursuant to §5-1002(h) of the *Regulations* need not be considered when determining the applicability of Subchapter X of the *Regulations* and must only be listed as such within the operating permit application. Additionally, guidance provided by the U.S. EPA (entitled "White Paper for Streamlined Development of Part 70 Permit Applications") lists activities which are considered as "trivial" sources of air contaminants, and may be presumptively omitted from operating permit applications.

Although not required for determining applicability with Subchapter X, quantifiable emissions from "insignificant activities" must be included for the purposes of establishing whether or not a source is subject to other air pollution control requirements, including, but not limited to: reasonably available control technology, major source status, and Title V operating permit applicability.

OMYA, Inc. has identified the below listed equipment/activities as insignificant activities pursuant to §5-1002(h) of the *Regulations*:

(1) 0.35 MMBTU/hr distillate oil (formerly waste oil) out-building space heater at the Verpol Plant;
(2) Diesel-fired engine generator set which operates less than 100 hours per year at the Cogeneration Plant; and
(3) Two start-up diesel-fired engines which each operate less than 100 hours per

year at the Cogeneration Plant.

In addition to the above insignificant activities, emissions of VOCs are considered negligible from the storage and transfer of fuel oil into OMYA's two storage tanks (270,000 gallon tank and 500,000 gallon tank).

With the exception the diesel generator sets which have been previously quantified for the purposes of new source review, emissions have not been quantified from the above insignificant activities because they are considered negligible or not quantifiable. The exclusion of emissions produced by the insignificant and trivial activities does not alter the applicability status of the Facility under Subchapter X of the *Regulations*.

5.0 MOST STRINGENT EMISSION RATE

§5-502(3) of *Regulations* requires that applicable new major sources and major modifications achieve the Most Stringent Emission Rate ("MSER") with respect to those air contaminants for which it would have a "significant" increase in actual emissions. MSER must be achieved for each proposed physical or operational change which contributes to the increased emissions of the air contaminant. As calculated in item 4.2 above, OMYA, Inc. must achieve MSER for PM/PM_{10}.

MSER is defined as:

> *A rate of emissions which the Secretary, on a case-by-case basis, determines is achievable for a source based on the lowest emission rate achieved in practice by such category of source, unless the source demonstrates it cannot achieve such a rate due to economic impacts and costs. Costs of achievement of MSER will be accorded less weight for sources or modifications locating in non-attainment areas than for sources or modifications locating in attainment areas for the applicable air contaminant. In no event shall application of MSER result in emissions of any contaminants in excess of any federal emission standard or any emission standard contained in these regulations. If the Secretary determines that imposition of an emission standard is infeasible, a design, equipment, work practice or operational standard, or combination thereof, may be prescribed instead as constituting MSER.*

MSER is established following the procedures identified in the Agency's "Air Pollution Control Permitting Handbook," NESCAUM's "BACT Guideline," and the U.S. EPA's "New Source Review Workshop Manual." Essentially, the process of determining MSER begins by listing all available options for reducing emissions first and then ranking the alternatives in order of effectiveness from top to bottom (top being the most effective). MSER requires the application of the top option unless it can be demonstrated based upon costs (economic, energy, and environment) or technical constraints that such an option is not achievable for the proposed project. If the Agency concurs with the applicant that an option is not achievable, then the next most effective option is selected as MSER. Again, the same arguments may be presented. If found unacceptable, the next most stringent option is considered. Depending on the circumstances, this process may take several iterations before MSER is established.

As stated previously, MSER applies to each physical change or change in the method of operation of the source which caused or contributed to the significant increase. MSER will be applied to the following equipment at the Verpol Plant:

(1) Spray Dryer #2;
(2) Three flash dryers and associated product conveying systems;
(3) 24 MMBTU/hr Boiler;
(4) New steel storage silos;
(5) Bulk bagging stations/silos;
(6) House vacuum system;
(7) New product transfer conveyor; and
(8) Rotopackers.

Except for the spray dryers and boiler at the Verpol Plant, the Agency has previously established MSER as the application of a fabric filter achieving an emission concentration of 0.01 grains per dry standard cubic foot ("gr/dscf") of undiluted exhaust air from equipment processing dry calcium carbonate product. It is the Agency's opinion that such control equipment and emission concentration still achieves MSER for PM/PM_{10} from non-metallic mineral processing operations. The proposed Spray Dryer #2 emission limit is expressed in lbs/short ton of material processed and is equivalent to 0.01 gr/dscf, but will be achieve via the existing multiple cyclones in series with an electrostatic precipitator ("ESP"). MSER for the boiler is the use of a low sulfur distillate oil and proper operation and maintenance of the device. The application of additional PM/PM_{10} control on the boiler cannot be justified, and has not been required for distillate oil-fired boilers of this size.

MSER for mineral processing equipment: 0.01 gr/dscf of undiluted exhaust
MSER for boiler: 0.35 pounds per million British Thermal Units ("lbs/MMBTU") of heat input

6.0 APPLICABLE REQUIREMENTS

6.1 Citation and Description of all Applicable Requirements

§5-1006(e)(4) of the *Regulations* requires the Owner/Operator of a stationary air contaminant source to submit a complete application including, but not limited to a demonstration of compliance with all applicable air pollution control requirements. Additionally, pursuant to 10 V.S.A. §556 and Subchapter V of the *Regulations,* a source must demonstrate compliance with all applicable requirements prior to receiving approval for the construction or modification of a source. Applicable requirements include both state and federal regulations, and the conditions of any permit. Note that compliance relative to §5-261 and §5-1010 of the *Regulations* will be discussed separately under items 7.0 and 8.0 below.

The compliance analyses and determinations in this technical analysis rely on data and representations provided by the Owner/Operator. Any statements and conclusions regarding the compliance status contained herein are not binding against the state of Vermont in any future legal or administrative proceedings.

<u>Vermont Air Pollution Control Regulations</u>

§5-211(1) - Prohibition of Visible Air Contaminants - Installations constructed subsequent to April 30, 1970. This standard applies to any equipment installed subsequent to April 30, 1970, and specifies that visible emissions may not exceed twenty (20) percent ("%") opacity for a period or periods aggregating to six (6) minutes or more in any hour, and at no time may they exceed sixty (60) % opacity. Compliance with this standard is based upon the procedures contained in proposed Reference Method F-1 (51 *Federal Register*, page 31076, August 29, 1986).

OMYA, Inc. has stated that it complies with this standard.

The Agency will verify compliance with this standard in the future during any inspections of the Facility.

§5-221(1)(a) - Prohibition of Potentially Polluting Materials in Fuel. This section prohibits the use of any fuel, in fuel burning equipment, with a sulfur content more than 2.0% by weight. This prohibition applies to all fuel burning equipment at the Facility. Compliance with this standard is based on fuel analyses following the procedures prescribed by the American Society for Testing and Materials ("ASTM").

OMYA, Inc. has stated that it complies with this standard based upon their use of distillate oil having a maximum sulfur content of 0.3 % by wt. at the Verpol Plant and 0.5 % by wt. at the East Plant, and their contract(s) with fuel suppliers.

The continued use of these methods are sufficient to ensure compliance with this limitation in the future.

§5-231(1) - Prohibition of PM; Industrial Process Emissions. This section limits the discharge of PM from industrial processes. An emission limit is derived based upon the limitations established in Table 1 of the *Regulations*, or depending upon the circumstances, a concentration limit of 0.06 grains per dry standard cubic foot ("gr/dscf") of undiluted exhaust gas. Table 1 of the *Regulations* specifies a maximum PM discharge rate based upon the maximum processing rate in units of pounds per hour ("lbs/hr") for any given piece of process equipment. Where the processing rate is not considered an appropriate measure of pollution potential, such as wood processing equipment, Table 1 is substituted by the concentration standard. Compliance with this standard is based upon the use of Reference Method 5 (40 *CFR* Part 60, Appendix A).

OMYA, Inc. has stated that it complies with this standard.

The Agency will assess compliance with this section in the future as follows: (1) OMYA, Inc. will be required to properly operate and maintain its dust collection systems including fabric filter collectors and electrostatic precipitators ("ESP"); (2) visual observations of each exhaust will be conducted during Agency inspections of the Facility; and, (3) if visible emissions are determined to be in excess of the limits specified in §5-211 of the *Regulations* or the conditions of OMYA's permit, the Agency may require the performance of a stack test to verify compliance with the above referenced PM standard or that other corrective measures be taken. Additionally, the Agency has required the use of continuous measurement systems on the flash dryer

systems and Surface Treater B to assist OMYA's operators in monitoring the dust emitted from these systems.

§5-231(3)(a)(i) - Prohibition of PM; Combustion Contaminants. This standard applies to each fuel burning device with a heat input rating of 10 MMBTU/hr or less, and specifies that PM emissions may not exceed 0.5 lbs/hr/MMBTU of heat input. The emission standard in this regulation applies to installations in which fuel is burned for the primary purpose of producing steam, hot water, hot air or other liquids, gases, or solids, and in the course of doing so, the products of combustion do not come into direct contact with the process material. Therefore, the above standard does not apply to dryers. Compliance with this standard is based upon the procedures contained in Reference Method 5 (40 *CFR* Part 60, Appendix A).

OMYA, Inc. has stated that it complies with this requirement.

The Agency will assess compliance with this standard in the future as follows: (1) OMYA, Inc. will be required to properly operate and maintain all fuel burning equipment used on-site; (2) visual observations of the exhausts will be conducted during any Agency inspection of the Facility; and, (3) if visible emissions are determined to be in excess of the limits specified in §5-211 of the *Regulations*, the Agency may require the performance of a stack test to verify compliance with the above referenced PM standard or that other corrective measures be taken.

§5-231(3)(a)(ii) - Prohibition of PM; Combustion Contaminants. This standard applies to each fuel burning device with a rated heat input greater than 10 MMBTU/hr but equal to or less than 250 MMBTU/hr. The actual value of the standard is based upon the heat input of the unit and calculated using a formula. The emission standard in this regulation applies to installations in which fuel is burned for the primary purpose of producing steam, hot water, hot air or other liquids, gases, or solids, and in the course of doing so, the products of combustion do not come into direct contact with the process material. Therefore, the above standard does not apply to dryers. Compliance with the standards identified above is determined using the procedures contained in Reference Method 5 (40 *CFR* Part 60, App. A).

OMYA, Inc. has stated that it complies with this requirement.

The Agency will assess compliance with this standard in the future as follows: (1) OMYA, Inc. will be required to properly operate and maintain its fuel burning equipment; (2) visual observations of each exhaust will be conducted during any Agency inspections of the Facility; and, (3) if visible emissions are determined to be in excess of the limits specified in §5-211 of the *Regulations*, the Agency may require the performance of a stack test to verify compliance with the above referenced PM standard or that other corrective measures be taken.

§5-231(4) - Prohibition of PM; Fugitive PM. This section specifies that each process operation must be equipped with a fugitive PM control system. Additionally, this section requires the use of reasonable precautions to prevent the discharge of fugitive PM from any handling, storage, or transportation of materials, or the construction of buildings, or use of roads. This section applies to the Facility, including: the handling, processing,

storage, disposal and transportation of marble ore and material collected by the fabric filter collectors and ESPs.

OMYA, Inc. has stated that it complies with this requirement.

The Agency will assess compliance with this standard in the future as follows: (1) OMYA, Inc. will be required to properly operate and maintain its dust collection systems including fabric filter collectors and ESPs; (2) OMYA, Inc. will be required to comply with the fugitive PM control measures specified within its permit; (3) visual observations of each exhaust will be conducted during Agency inspections of the Facility, and if visible emissions are determined to be in excess of the limits specified in §5-211 of the *Regulations* or the conditions of OMYA's permit, the Agency may require the performance of a stack test to verify compliance with the applicable PM/PM_{10} standard or that other corrective measures be taken; and, (4) require the implementation of additional reasonable precautions based upon the results of an Agency inspection. Additionally, the Agency has required the use of continuous measurement systems on the flash dryer systems and Surface Treater B to assist OMYA's operators in monitoring the dust emitted from these systems.

§5-241(1) & (2) - Prohibition of Nuisance and Odor. This requirement applies to the entire Facility and prohibits the discharge of air contaminants that would be a nuisance to the public or be source of objectionable odors beyond the property-line.

OMYA, Inc. has stated that it complies with this requirement.

The Agency will verify compliance with this requirement in the future during any inspections of the Facility. Additionally, the Agency investigates all complaints that it receives in order to determine whether or not there is a violation of this requirement.

§5-502(3) - Most Stringent Emission Rate. As part of obtaining approval for the installation of Spray Dryer #2, Deagglomerator C with pneumatic conveying, and the Cogeneration Plant, the Agency required OMYA, Inc. to achieve the MSER pursuant to §5-502(3) of the *Regulations*. See item 5.0 above for more information regarding the applicability of MSER for the proposed project.

OMYA, Inc. has stated that it complies with this requirement.

The Agency will verify compliance with this standard in the future during any inspections of the Facility.

Subchapter VIII - Registration of Air Contaminant Source. This Subchapter requires the registration of a stationary source, with the Agency, if it produces five (5) tons per year or greater of actual emissions during the preceding calendar year. The Owner or Operator of a source is required to submit information regarding their operations and pay a fee based on the quantity of emissions they produce and the fuels that they use.

Based upon its past actual emissions, OMYA, Inc. is subject to the registration requirements of Subchapter VIII of the *Regulations*. OMYA, Inc. currently registers it's Facility, and proposes to continue to comply with this requirement in the future.

The Agency will ensure compliance with this requirement in the future during any inspections of the Facility.

Air Pollution Control Permit #AP-98-015 (Issued November 16, 1998)

OMYA, Inc. currently operates within the confines of an Air Pollution Control Permit to Construct and Operate issued on November 16, 1999. Although the conditions of this permit are currently applicable requirements, the Agency is reviewing each condition to determine whether or not it will be incorporated into any future permit for this Facility as part of its approval for the proposed modifications.

Federal Air Pollution Control Regulations

Clean Air Act*, Title I - Air Pollution Prevention and Control, Part A - Air Quality and Emission Limitations, §111 - Standards of Performance for New Stationary Sources. OMYA, Inc. is subject to three applicable federal new source performance standards established under §111 of the federal *Clean Air Act* and promulgated within Title 40 *Code of Federal Regulations* ("*CFR*") Part 60.

40 *CFR* Part 60 Subpart Dc - The replacement boiler (24 MMBTU/hr boiler at Verpol Plant) approved by the Agency in 1997 is considered an affected facility subject to 40 *CFR* Part 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Subpart Dc specifies emission limitations for PM/PM_{10}, SO_2, and opacity, as well as monitoring, record keeping, notification and reporting requirements. Applicability to Subpart Dc also subjects OMYA, Inc. to the general notification, record keeping, and other requirements of 40 *CFR* Part 60 Subpart A.

OMYA, Inc. has stated that it complies with these requirements.

The Agency will incorporate the applicable requirements of 40 *CFR* Part 60 Subpart A and Dc within any permit issued to OMYA, Inc. approving the proposed modifications.

40 *CFR* Part 60 Subpart GG - The design rated heat input of each combustion turbine at the Cogeneration Plant exceeds 10.7 gigajoules per hour. Each turbine is actually rated at 54 gigajoules per hour. Therefore, the combustion turbines are subject to the federal regulations contained in 40 *CFR* Part 60 Subpart GG - Standards of Performance for Stationary Gas Turbines. This new source performance standard sets limits for emissions of NO_x and SO_2, specifies maximum sulfur contents of fuels, requires continuous monitoring of fuel consumption and ratio of water to fuel injected into the turbine (if NO_x emission are controlled using water injection), monitoring of sulfur and nitrogen contents in the fuel, and reporting requirements. Emissions of NO_x and SO_2 may not exceed 176 and 150 parts per million on a volume and dry basis ("ppmvd") corrected to 15 % oxygen ("O_2") at ISO standard conditions, respectively. The maximum sulfur content in fuel cannot exceed 0.8% by weight.

OMYA, Inc. has stated that it complies with these requirements.

The Agency will incorporate the applicable requirements of 40 *CFR* Part 60 Subpart GG which have not been superceded by more stringent state requirements or which have not already been completed (i.e., initial performance testing). See item 6.2 for more information.

40 *CFR* Part 60 Subpart OOO - On August 1, 1985, a federal new source performance standard was promulgated which applied to non-metallic mineral processing operations such as those operated by OMYA, Inc. at its Verpol and East Plants. This federal standard is contained in 40 CFR Part 60 Subpart OOO and is entitled Standards of Performance for Non-metallic Mineral Processing Plants. This new source performance standard applies to new or modified affected facilities commencing construction or modification after August 31, 1983. The federal standard sets limits on emissions of PM and visible air contaminants from non-metallic processing plants and requires compliance testing. Affected equipment at the OMYA facilities include the following:

East Plant: Product Bin C, Product Bin D, and
Bin C & D Receiver;

Verpol Plant: Surface Treater B, with product conveying;
Deagglomerator C, with product conveying;
Finished Product Silos 9 through 16; and
Deagglomerator mills associated with Flash Dryers #1, 2, and #3.

Additionally, the following new equipment at the Verpol Plant will be subject to the requirements in 40 *CFR* Part 60 Subpart OOO:

New finished product silos;
Bulk Bagger Silos; and
Rotopackers.

OMYA, Inc. has stated that it complies with these requirements for its affected equipment.

The Agency will incorporate the applicable requirements of 40 *CFR* Part 60 Subpart OOO which have not been superceded by a more stringent state requirements or which have not already been completed (i.e., initial performance testing). See item 6.2 for more information.

Section 112 of the Clean Air Act - National Emission Standards for Hazardous Air Pollutants (NESHAPs)

No promulgated NESHAPs in 40 *CFR* Part 61 currently are applicable to the Facility.

There are currently no promulgated NESHAPs in 40 *CFR* Part 63 that apply to the Facility. The NESHAPs in 40 *CFR* Part 63 identify the "maximum achievable control technology" ("MACT") standards for major sources of hazardous air pollutants ("HAPs"). Although there is currently no MACT standard that applies to OMYA, Inc., the U.S. EPA has identified the following source categories at the Facility as potentially regulated by MACT standard to be promulgated on or before November 15, 2000:

- Industrial Boilers,
- Institutional/Commercial Boilers,
- Process Heaters,
- Stationary Internal Combustion Engines, and
- Stationary Turbines.

Although the above source categories exist at the Facility, it is not anticipated that the MACT standards will apply to OMYA, Inc. due to the fact that total emissions of HAPs have been estimated to be less than 1 tpy from the Facility (including operational restrictions). See item 7.3 for more information.

40 *CFR* Part 64 - Compliance Assurance Monitoring. Pursuant to requirements concerning enhanced monitoring and compliance certification under the *Clean Air Act* ("*CAA*"), EPA promulgated new regulations and revised regulations on October 22, 1997. These new requirements implemented compliance assurance monitoring ("CAM") for major stationary sources of air pollution that are required to obtain operating permits under Title V of the *CAA*. Subject to certain exemptions, the new regulations require owners or operators of such sources to conduct monitoring that satisfies particular criteria established in the rule to provide a reasonable assurance of compliance with applicable requirements under the *CAA*. Monitoring is proposed focus on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards. The regulations also provide procedures for coordinating these new requirements with the operating permits program regulations.

As a result of comments received during the rule making process and the lengthy delay in the adoption of the CAM rule, U.S. EPA provided an extended implementation schedule for this rule. Facilities which had submitted a complete operating permit application prior to April 20, 1998, were not required to address CAM as part of their initial operating permit application unless they proposed to make significant changes to the facility subsequent to this date. OMYA, Inc. was previously not required to address CAM because it had submitted an administratively complete operating permit application prior to April 20, 1998. However, with the proposal of further modifications to the facility and the reopening of the operating permit, OMYA, Inc. must address the applicability of these requirements for the pollutant-specific emissions units affected by the permit reopening.

§64.2 in 40 *CFR* Part 64 specifies that each pollutant specific emission unit at a facility the meets a three-part test is subject to the requirements for CAM. An emission unit must:

(A) be subject to an emission limitation or standard,
(B) use a control device to achieve compliance, and
(C) have **pre-control** emissions that exceed or are equivalent to the major source threshold in 40 *CFR* Part 70 (i.e., 10 tpy individual HAP, 25 tpy total HAPs, 50 tpy VOCs, or 100 tpy for any other air contaminant).

Note that the term “control device” means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the

atmosphere. The term "control device" does not include passive methods such as lids or seals or inherent process equipment provided for safety or material recovery. Additionally, the CAM rule provides some exemptions, such as an exemption for any affected facility subject to an NSPS or NESHAP promulgated after November 15, 1990.

Equipment affected by the proposed project and possibly subject to CAM now rather than at renewal of the operating permit include: Spray Dryer #2, bulk bagging stations/silos, rotopackers, new product conveying system, new finished product silos, and the new vacuum cleaning system. Spray Dryer #2 is equipped with multiple cyclones in series with an ESP, while the remaining equipment is serviced by fabric filter collectors. The cyclones and ESP serving Spray Dryer #2 are generally considered control devices, but due to the design of the process, the noted devices are primarily designed for dry product recovery, and therefore do not meet the definition of "control device" as stated in the CAM regulations. The remaining process equipment each have pre-control potential emissions less than 100 tpy. Therefore, OMYA, Inc. has been determined to not be subject to CAM for the affected equipment noted above at this time.

***Clean Air Act*, Title VI - Stratospheric Ozone Protection.** The requirements of Title VI of the Clean Air Act are implemented through regulations and standards within 40 *CFR* Part 82 Subparts A through F. Of these regulations, OMYA, Inc. is subject to Subpart F - Recycling and Emissions Reduction. This requirement is applicable to any facility that owns, services, maintains, repairs, and disposes of appliances containing ozone depleting substances. OMYA, Inc. utilizes a refrigeration unit which employs R-22 (an HCFC) and regulated ozone depleting chemical. The Agency will incorporate the applicable requirements of 40 *CFR* Part 82 Subpart F into any permit issued to OMYA.

6.2 Equivalency and Streamlining

Particulate Matter Emission Standards

The federal standard for non-metallic mineral processing plants specifies a limit of 0.05 grams per dry standard cubic meter [equivalent to 0.022 grains per dry standard cubic foot ("gr/dscf")] for affected facilities equipped with fabric filter collectors. Due to major modification applicability in 1990, as well as for the proposed modifications, the Agency has specified an emission limit of 0.01 gr/dscf for the affected facilities noted previously (See item 6.1 above) as part of achieving the Most Stringent Emission Rate ("MSER"). The emission concentrations specified by MSER are more stringent and therefore overrule the federal emission standards in 40 *CFR* Part 60 Subpart OOO for the affected facilities noted in item 6.1 above. Additionally, the same equipment is subject to a PM/PM_{10} emission limit in §5-231(1)(a) and Table 1 of the *Regulations*. The requirements of §5-231(1)(a) and Table 1 of the *Regulations* are also less stringent than MSER and are also overruled by the MSER concentration of 0.01 gr/dscf.

Sulfur Dioxide Emission Standards

The federal standard for SO_2 specified in 40 *CFR* Part 60 Subpart GG is overruled by the sulfur in fuel restrictions specified for the Cogeneration Plant as part of achieving MSER. The combustion turbines may not burn distillate oil with a sulfur content greater than 0.3 % by weight (corresponds to an emission concentration of 58 ppm), which is more stringent than the federal limit of 0.8 % by wt. and 150 ppmvd corrected to 15% O_2

at ISO conditions. Additionally, the MSER sulfur in fuel restriction is also more stringent and therefore overrules the sulfur in fuel restriction in §5-221(1)(a) of the *Regulations* (2.0% by wt. or less).

Nitrogen Oxides Emission Standards
The federal standard for NO_x specified in 40 *CFR* Part 60 Subpart GG is overruled by the NO_x limit specified for the Cogeneration Plant as part of achieving MSER. The combustion turbines may not emit NO_x in excess of 60 ppmvd corrected to 15% O_2 and ISO conditions, which is more stringent than the federal limit of 176 ppmvd corrected to 15% O_2 and ISO conditions.

6.3 Citation and Identification of Requirements For Which a Permit Shield Provision Has Been Requested

Pursuant to §5-1015(a)(11) of the *Regulations*, OMYA, Inc. has requested to be shielded from several potentially applicable requirements. The Agency's determinations are based upon the information submitted by the Owner/Operator in its application. The resulting permit shield shall be binding only with respect to activities disclosed in the Owner/Operator's application.
OMYA, Inc. has requested a permit shield from the requirements of 40 *CFR* Part 60 Subpart OOO [Standards of Performance for Non-metallic Mineral Processing Plants] for various pieces of process equipment installed prior to August 31, 1983 (except where noted), and located at the East and Verpol Plants, including:

East Plant
(1) 40 Mesh Silo,
(2) Raymond Mill w/ product conveying,
(3) Flash Dryer #1 w/ product conveying,
(4) Flash Dryer #1 recycle collector,
(5) Flash Dryer #2 w/ product conveying,
(6) Product Silos 1-4,
(7) Product Bins A and B,
(8) Manual and Automatic Packaging,

Verpol Plant
(1) Spray Dryer #1,
(2) Spray Dryer #2 (constructed in 1990/91, but not an “affected facility” per U.S. EPA definition),
(3) Surface Treaters A and C (formerly Deagglomerators A and B) with product conveying,
(4) Finished Product Silos 1 through 8, and
(5) Bulk truck/railcar loadout.

OMYA, Inc. has also requested a permit shield for the Cogeneration Plant from the regulations promulgated under Title IV of the *1990 Clean Air Act Amendments* pertaining to acid rain. The U.S. EPA identified the Cogeneration Plant as a potential source to be regulated by the requirements of Title IV. However, based upon information supplied by the Vermont Marble Power Division of OMYA, Inc., the U.S. EPA sent a letter (Letter from Brian J. McLean, Director, Acid Rain Division, U.S. EPA to William Gleason of

Vermont Marble Power Division of OMYA, Inc. dated September 18, 1996) to OMYA, Inc. notifying them that the requirements of Title IV do not apply to the Cogeneration Plant. However, pursuant to §5-1015(a)(11)(vii) of the Regulations, the Agency may not grant a permit shield from the requirements of Title IV of the *CAA*.

The Agency will grant a permit shield from 40 *CFR* Part 60 Subpart OOO for above noted equipment.

6.4 Description of Alternative Operating Scenarios and Related Applicable Requirements Not Previously Identified

OMYA, Inc. has not identified any alternative operating scenarios within its application.

7.0 HAZARDOUS AIR CONTAMINANTS

§5-261 of the *Regulations* addresses the release of hazardous air contaminants ("HACs") into the ambient air. Unless exempted from §5-261, the owner/operator of a source must quantify its emissions of HACs regulated by this rule. Any source whose emission rate of a HAC exceeds its respective Action Level ("AL") is subject to the rule for that HAC, and the owner/operator must then demonstrate that the emissions of the HAC are minimized to the greatest extent practicable and achieve the Hazardous Most Stringent Emission Rate (“HMSER”). An air quality impact evaluation may be required to further assess the ambient impacts that may be attributable to the source. The evaluation of the air quality impacts is performed using the Hazardous Ambient Air Standards ("HAAS") or Stationary Source Hazardous Air Impact Standard ("SSHAIS") contained in the *Regulations*.

7.1 Applicability of §5-261

Pursuant to §5-261(1)(b) of the *Regulations*, all fuel burning equipment burning virgin fossil fuel is exempted from review pursuant to this section. However, OMYA, Inc. was required to assess it compliance with §5-261 for its non-metallic mineral processing operations. Based upon information supplied in the application, OMYA, Inc. has determined that its emissions of crystalline silica exceed the AL of 0.010 pounds per eight hours (“lbs/8-hrs”). Laboratory analysis performed by OMYA, Inc. has indicated the silica content of its products is typically 0.16%. Assuming the silica content of its PM emissions are the same percentage as the product reporting to the air pollution control equipment, OMYA, Inc. has estimated its actual emissions of crystalline silica are 0.07 lbs/8-hrs. Consequently, it was determined that OMYA, Inc. is subject to §5-261 of the *Regulations* for emissions of crystalline silica.

7.2 Hazardous Most Stringent Emission Rate

OMYA, Inc. has proposed that HMSER for crystalline silica is the use Electrostatic Precipitators on the spray dryers and fabric filter control on the remaining non-metallic mineral processing equipment. The Agency concurs with OMYA’s determination of HMSER for crystalline silica. No further review of emissions of crystalline silica will be required by the Agency.

7.3 Federal Hazardous Air Pollutants

Although not subject to §5-261 of the *Regulations*, the federal EPA has listed fossil fuel burning equipment as a potentially regulated source category for emissions of hazardous air pollutants ("HAPs") listed in Section 112(b) of the federal *Clean Air Act*. Non-metallic mineral processing plants have not been identified as a source category that will be regulated by the U.S. EPA for emissions of HAPs.

A major HAP source is defined pursuant to the federal thresholds of 10 tpy (individual HAP) and 25 tpy (total HAPs). Major sources of HAPs are regulated within 40 *CFR* Parts 61 and 63. Although, OMYA, Inc. has the potential to emit some of the HAPs listed in Section 112(b) from its fuel burning equipment, estimates of the HAP emissions assuming the proposed fuel limits result in less than 1 tpy of total HAP emissions (See emission factors published by U.S. EPA in AP-42 Section 1.3), and therefore, OMYA, Inc. is not classified as a major source of HAPs.

8.0 REASONABLY AVAILABLE CONTROL TECHNOLOGY

At this time, the Agency has not established a Reasonably Available Control Technology ("RACT") requirement applicable to this Facility. Therefore, the source is currently in compliance with this requirement. The Agency will notify OMYA, Inc. if any applicable RACT requirement applies to this Facility in the future. If such RACT should apply to the source in the future, the Agency will ensure that OMYA, Inc. complies with such requirement at that time.

9.0 COMPLIANCE PLAN

9.1 Description of the Compliance Status for Each Applicable Requirement

See Part 6.1 above.

9.2 Compliance Schedule For Each Applicable Requirement for Which the Source is Not in Compliance

Not applicable to the East, Verpol and Cogeneration Plants.

10.0 AMBIENT AIR QUALITY IMPACT EVALUATION (Criteria Pollutants)

For modifications, §5-502(4)(a) of the *Regulations* and Agency procedures require an evaluation of impacts on air quality for each air contaminant that is predicted to increase by 10 tpy or greater (exception: no evaluation required for VOCs). An air quality impact evaluation is performed to demonstrate whether or not a proposed project will cause or contribute to violations of the ambient air quality standards ("AAQS") and/or significantly deteriorate existing air quality. In 1990, as part of its application for Cogeneration Plant, OMYA, Inc. demonstrated compliance with the AAQS and PSD increments. Comparison of the proposed future allowable emissions and the allowable emissions modeled in 1990 indicate emissions of PM_{10} and NO_x (as nitrogen dioxide) are proposed to increase by greater than 10 tpy. Consequently, OMYA, Inc. was required to perform an air quality impact evaluation for these two air contaminants.

Air quality impact evaluations rely on the use of mathematical dispersion models to simulate the operation of the source and assess the affects of meteorology, distance, topography, and time on pollutant dispersion. Output generated by the models is used to determine resultant air quality pollutant concentrations in the vicinity of the source. Important factors influencing pollutant concentrations include: source operation, meteorological conditions, distance to point of impact (commonly referred to as "receptors"), and nearby terrain and buildings.

10.1 General Information

The basic component of an air quality impact evaluation is the dispersion model. Acceptable dispersion models for use in regulatory application are identified by the U.S. EPA in *Guideline on Air Quality Models* found in Appendix W to 40 *CFR* Part 51. The dispersion model simulates the operation of the emission source(s) and takes into account the affects of meteorology, distance, nearby buildings and terrain, and time on pollutant dispersion. Results of the dispersion modeling estimate the source impact as ambient concentrations at given locations and periods of time in the vicinity of the source. The estimated impacts are combined with existing pollutant concentrations and/or concentrations produced by other nearby sources to determine the potential air quality impact once a project is built. Of particular importance to the air quality impact evaluation is the dispersion model selected and the assumptions utilized to simulate the operation of the source and meteorology.

Dispersion models vary in complexity and required input. Typically, applicants will make their first attempt to document compliance with air quality standards by using the most simple techniques, referred to as screening models. These models require a minimum of data input and provide the applicant will a conservative assessment of their potential impact. Conservative default meteorological conditions are used as input in the screening models in order to ensure a worst case analysis. Screening models are often used to define the impact area of a source. The impact area is used to select other nearby sources of the same pollutants that should be implicitly included in the air quality analysis. If an applicant cannot rely on a screening analysis to demonstrate compliance with air quality standards, then they may progress to a more refined dispersion model. Refined dispersion models require a greater level of data input and usually present a more realistic assessment of potential impacts.

10.2 Data Inputs

Attached Figure 1 in Appendix B depicts the geographical area in the vicinity of the Verpol Plant. Figure 2 depicts the location of OMYA's emission points and the building layouts of the East Plant, Verpol Plant, and Cogeneration Plant. Appendix F of the application includes several tables which summarize the various dispersion model inputs for each emission point at the Facility.

As part of its evaluation, OMYA, Inc. was required to determined the "good engineering practice" ("GEP") stack height for each emission point. The GEP analysis relied on plant

layout and elevation drawings to establish GEP for each emission point. Where a stack height is less than GEP, OMYA was required to consider the influence of any nearby buildings or terrain on pollutant dispersion. Summarized in Table F-1 and F-2 of the application are the results of the stack height analysis.

Meteorological data input into the refined dispersion model was obtained from the National Weather Service. Surface data was taken for Burlington, VT, while upper air data was for Albany, NY. The meteorological data covered the period 1987 to 1991.

10.3 Site Description and Receptor Locations

The East Plant, Verpol Plant, and Cogeneration Plant are located on one contiguous parcel of property in the town of Pittsford, Vermont. The Facility is located approximately 65 kilometers ("km") north of the Lye Brook Wilderness Area, 9.4 km southwest of Mount Nickwaket (the nearest designated Vermont sensitive area) and 170 km southwest of the Great Gulf and Dry River Wilderness areas.

Terrain located to West and Southwest is predominately above stack top. The closest complex terrain is approximately 1200 feet in the southwest direction from the Verpol Plant (series low rolling hills). Terrain to the East gradually drops below the Facility elevation for approximately 2 kilometers (just before the village of Pittsford). From thereon the terrain rises significantly above stack top. Terrain to the North mainly consists of rolling hills with some points being consider complex terrain. The nearest location above stack top in the northern direction is approximately 1.5 kilometers from the Verpol Plant. As was stated previously, Figure 1 in Appendix B depicts the geographical terrain in the vicinity of the Facility, including terrain elevations.

For its screening analysis, OMYA, Inc. utilized a Cartesian grid system based upon the Universal Transverse Mercator (“UTM”) coordinate system. Receptors were placed at ground level at a 50 meter spacing between receptors up to a distance of 1,000 meters from the Facility property boundary. Spacing between receptors was increased to 100 meters to a distance of 2,000 meters from the property boundary, and 250 meters between receptors to a distance of 5 kilometers from the property boundary. Receptors were placed 50 meters apart along the property boundary. No receptors were modeled inside the property boundary, since the area is not generally accessible by the public.

For its refined analysis, OMYA, Inc. modified the grid system to increase the number of receptors in the immediate area of anticipated highest concentrations (southeast of the property boundary). Additionally, receptor spacing in other directions was set at 100 meters between receptors to a distance of 2 kilometers from the property boundary, and 500 meters to a distance of 8 kilometers from the property boundary. A discrete receptor was also placed at the closest point in the Lye Brook Wilderness Area (closest Class I area to the Facility).

Elevations for the receptors were imported from the United States Geological Survey’s Digitized Elevation Model (“DEM”)

10.4 Ambient Background Concentrations

The town of Pittsford and surrounding areas are considered attainment for the air

contaminants, PM_{10} and nitrogen dioxide ("NO_2"). Consequently, OMYA, Inc. must demonstrate the proposed modification will not cause a violation of the AAQS for these contaminants. Compliance with the AAQS is based upon a comparison of the total estimated concentration to the AAQS for a particular pollutant and averaging period. The AAQS are contained in Subchapter III of the *Regulations*, and the PM_{10} and NO_2 AAQS are summarized in Table 10-1 below. The total estimated concentration is the sum of existing air quality concentrations and the estimated impact created by the Facility. Existing air quality concentrations consist of representative monitored concentrations (commonly referred to as "background") and the predicted impact concentrations from nearby sources. Impact concentrations from nearby sources are obtained through dispersion modeling of their emissions.

Table 10-1: AAQS for PM_{10} and NO_2

Pollutant	Averaging Period	Primary Standard	Secondary Standard
PM_{10}	Annual[a]	50 ug/m^3	50 ug/m^3
	24-hour[b]	150 ug/m^3	150 ug/m^3
NO_2	Annual[c]	100 ug/m^3	100 ug/m^3

Notes:
a - Standard is attained when the expected annual arithmetic mean is less than or equal to 50 ug/m^3.
b - Standard is attained when the expected number of exceedance is less than or equal to 1.
c - Never to be exceeded.

Representative monitored data is defined as the typical concentration expected at the point of predicted maximum impact from the source. Possible origins of monitoring data are the Agency's air monitoring network, the network of another agency or private concern, or a source specific network. In circumstances where non-source specific monitoring data will be used to determine existing concentrations, the latest three (3) years of data must be employed for determining the highest annual ambient concentrations for PM_{10} and NO_2, and the highest four highest 24-hour ambient concentrations.

The Agency currently operates and maintains an ambient monitoring site in downtown Rutland, Vermont. This site is approximately 15 kilometers from the Facility. The Agency has allowed the use of this monitoring data in establishing background concentrations for OMYA's application. Given the area in the vicinity of the Facility is rural, and the degree of human activity near the monitoring site, its proximity to the Facility, the Agency believes the use of this monitoring site data conservatively satisfies the criteria noted in the preceding paragraph. Summarized in Table 10-2 are the ambient concentrations of PM_{10} and NO_2 which are considered background for the AAQS evaluation.

Table 10-2: Representative Ambient Monitored Concentrations

Pollutant	Averaging Period	Background Values
PM_{10}	Annual	24 ug/m^3

	24-hour	55 ug/m^3
NO_2	Annual	24 ug/m^3

As was stated previously, existing concentrations must include the impact of nearby source(s), and thus may necessitate the evaluation of other sources using dispersion modeling. A nearby source must be included in the air quality impact evaluation if it produces a significant concentration gradient in the Facility's significant impact area. Due to the number of emission points present at the source, OMYA, Inc. utilized the U.S. EPA dispersion model, ISCST3, to assess its significant impact area. Based upon this dispersion model, OMYA, Inc. predicted a significant impact area ("SIA") out to 3 kilometers from the Facility. A review of the Agency's database indicates no facilities located within 3 kilometers of the Facility with the potential to generate a significant concentration gradient. Therefore, no additional nearby stationary sources were directly included in the impact evaluation.

10.5 Modeling Approach

OMYA, Inc. performed its air quality impact evaluation in two steps: first, a screening level analysis; and second, a refined analysis to complete the compliance demonstration. The screening analysis utilized the U.S. EPA model, ISCST3, with a standard set of meteorological conditions. The resultant concentrations were then adjusted to various averaging periods using adjustment factors. Based upon this technique, OMYA, Inc. was unable to document compliance with the AAQS and PSD increments. Consequently, OMYA, Inc. conducted a refined impact evaluation.

The refined impact analysis also relied on the use of the U.S. EPA model, ISCST3, but included the input of five (5) years of meteorological data for Burlington, Vermont and Albany, NY.

10.6 Results of Air Quality Impact Evaluation

10.6.1 Ambient Air Quality Standards

The AAQS are summarized in Table 10-1 above. The results of refined air quality impact evaluation demonstrating compliance with the AAQS are summarized in Table 10-3 below.

Table 10-3: Results of the AAQS Demonstration

Pollutant	Averaging Period	Total Estimated Air Quality Concentration	AAQS
PM_{10}	Annual	31 ug/m^3	50 ug/m^3
	24-hour	104 ug/m^3	150 ug/m^3
NO_2	Annual	31 ug/m^3	100 ug/m^3

10.6.2 Prevention of Significant Deterioration Increments

The prevention of significant deterioration ("PSD") increments are contained in Table 2 of the *Regulations*. Additionally, §5-502(5) of the *Regulations* specifies an increment allocation system for major sources and major modifications. New major sources and major modifications may not consume more than 25% of the annual and 75% of the short-term PSD increment values. The results of refined air quality impact evaluation demonstrating compliance with the PSD increments are summarized in Table 10-4 below.

Table 10-4: Results of the PSD Demonstration

Pollutant	Averaging Period	Max. Increment Consumption Per Table 2	Remaining Increment	Remaining Available PSD Increment (1)	Increment Consumption
Class I Area					
PM_{10}	Annual	4 ug/m^3	4 ug/m^3	1.0 ug/m^3	<0.1 ug/m^3
	24-hour	8 ug/m^3	8 ug/m^3	6.0 ug/m^3	<0.1 ug/m^3
NO_2	Annual	2.5 ug/m^3	2.5 ug/m^3	2.5 ug/m^3	<0.1 ug/m^3
Class II Areas					
PM_{10}	Annual	17 ug/m^3	13.6 ug/m^3	3.4 ug/m^3	2.7 ug/m^3
	24-hour (worst case)	30 ug/m^3	20 - 24.9 ug/m^3 (21 ug/m^3)	15.0 - 18.7 ug/m^3 (15.8 ug/m^3)	11.5 - 15.7 ug/m^3 (15.5 ug/m^3)
NO_2	Annual	25 ug/m^3	25 ug/m^3	25 ug/m^3	7 ug/m^3

Notes: (1) Total PSD increment values are stated in Table 2 of the *Regulations*. Pursuant to §5-502(5) of the Regulations, a new major source or major modification may not consume more than 25% and 75% of the remaining annual and 24-hour PSD increment values, respectively, for each significantly increasing air contaminant.

10.7 Special Modeling Considerations

§5-502(4)(d) of the *Regulations* specifies that the increase in allowable emissions caused by a new major source or major modification may not cause an adverse impact on visibility in any sensitive area or in any Class I Federal area and will not interfere with reasonably progress toward remedying of existing man-made visibility impairment in a sensitive area. OMYA presented in its application an analysis following the procedures in the U.S. EPA's "Workbook for Plume Visual Impact Screening and Analysis," that no such adverse impact would occur as a consequence of their proposed modifications.

11.0 PUBLIC PARTICIPATION

The proposed project is classified as a major modification with emissions increase of all air contaminants in excess of ten (10) tpy, and consequently, the application is subject to the public participation requirements of 10 *V.S.A.* §556. Additionally, based upon its allowable emissions, any operating permit for this Facility is subject to the public participation requirements of §5-1007 of the *Regulations*. Therefore, the Agency

published noticed on July 29, 1999 in the *Rutland Herald* that it had received an administratively complete application from OMYA, Inc. for the proposed projects and operating permit modification. Additionally, the affected states were also notified of the receipt of the administratively complete operating permit application on August 25, 1999. On August 25, 1999, the Agency determined the application satisfied the requirements for technical completeness.

Public notice was published in the *Rutland Herald* on September 11, 1999, of the Agency's plans to issue a draft decision approving the issuance of an amended Air Pollution Control Permit. This notification solicited comments on the application, the Agency's review, and draft decision for a minimum of thirty (30) days. The notice also notified the public of an informational meeting scheduled on Thursday, October 7, 1999. The affected states of New York, Massachusetts, and New Hampshire, the Federal Land Manager, and U.S. EPA were notified of the Agency's draft decision on September 9, 1999. The comment period closed on October 20, 1999, with the Agency receiving comments from OMYA, Inc. and the U.S. EPA.

12.0 CONCLUSIONS

Based on the foregoing technical analysis of the proposed modification, the following conclusions are made:

A. The proposed modification, subject to the recommended permit conditions, will meet the applicable emission standards contained in state and federal regulations. Furthermore, it is expected that emissions from the proposed modification will not significantly deteriorate air quality, nor will they cause or contribute to a violation of an ambient air quality standard.

B. Pursuant to regulatory definition, the proposed project is designated as a major modification to an existing major stationary source.

C. Recommended Permit Conditions - See draft permit.

Consistent with 10 V.S.A. §556(e) and for the purposes of reducing the administrative burden of enforcing two separate permits, the Agency proposes to issue the Air Pollution Control Permit to Construct (approving the proposed projects) in conjunction with the Air Pollution Control Permit to Operate (OMYA's facilities). The result will be a combined Air Pollution Control Permit to Construct and Operate ("Combined Permit").

APPENDIX A

Table 1: Existing Allowable Emission Estimates

Table 2: New Allowable Emissions/Aggregated Emissions Increase

Table 3: Future Allowable Emission Estimates

Figure 1: Plant Location (USGS Map)

Table 1 - Existing Allowable Emission Estimates

EAST PLANT - Process equipment controlled using fabric filters; Maximum PM concentration limited to 0.02 grains/dry standard cubic foot of undiluted exhaust ("gr/dscf"), unless otherwise noted; Unrestricted hours of operation; Only three of eight silos/bins discharge at any one time, since only three pneumatic conveying systems feeding the bins/silos (Use highest emission rates and air flow rates for three bins/silos to determine allowable emissions). Combustion emissions based on AP-42 emission factors for distillate oil firing: SO_2 - 142(S)lbs/1000 gals, S = % sulfur in fuel by wt., limited to 0.5% or less; NO_x - 20 lbs/1000 gals; CO - 5 lbs/1000 gals; NMHCs - 0.34 lbs/1000 gals. Combustion emissions from Raymond Mill, Flash Dryer #1, Flash Dryer #2, and Boiler based on existing permitted fuel consumption limit of 600,000 gpy, and following approximate breakdown of usage: Raymond Mill (1% of total limit); Flash Dryer #1 (47.5%); Flash Dryer #2 (47.5%); and Boiler (4%).

Equipment	Control Equipment	Max. Exhaust Flow Rate, dscfm	PM lbs/hr	PM tpy	SO_2 tpy	NO_x tpy	CO tpy	NMHCs tpy	Pb tpy	HAPs tpy
Raymond Mill	FF	2000	0.34	1.50	0.21	0.06	0.02	<0.01	<0.01	<0.01
Flash Dryer #11	FF	7530	1.29	5.65	10.12	2.85	0.71	0.05	<0.01	0.01
Flash Dryer #1 (Recycle)	FF	1560	0.27	1.17						
Flash Dryer #2 (w/ HE)	FF	8310	1.42	6.24	10.12	2.85	0.71	0.05	<0.01	0.01
Silo #1	FF	1700	0.29	1.28						
Silo #2	FF	1700	0.29	1.28						
Silo #3	FF	1700	0.29	1.28						
Silo #4	FF	1700	---	---						
Bin A	FF	1700	---	---						
Bin B	FF	1700	---	---						
Bin C	FF (0.01 gr/dscf)	1700	---	---						
Bin D	FF (0.01 gr/dscf)	1700	---	---						
Bin C & D Receiver	FF (0.01 gr/dscf)	800	0.07	0.30						
Man. Packaging Dust Relief	FF	1400	0.24	1.05						
Auto. Packaging Dust Relief	FF	2700	0.46	2.03						
40 Mesh Unloading	FF	900	0.15	0.68						
Boiler #1(10.5 MMBTU/hr)	Uncontrolled		0.15	0.02	0.85	0.24	0.06	<0.01	<0.01	<0.01
			TOTAL EAST	22.47	21.30	6.00	1.50	0.10	<0.01	0.02

VERPOL PLANT - Process equipment controlled using fabric filters, unless otherwise noted; Maximum PM concentration limited to 0.01 gr/dscf, unless otherwise noted; Unrestricted hours of operation; Combustion emissions based on AP-42 emission factors for distillate oil firing: SO_2 - 142(S)lbs/1000 gals, S = % sulfur in fuel by wt., limited to 0.3% or less; NO_x - 20 lbs/1000 gals; CO - 5 lbs/1000 gals; NMHCs - 0.34 lbs/1000 gals. Spray Dryer #1 limited to 0.07 lbs/short ton of total solids entering the spray dryer on an hourly basis and Spray Dryer #2 limited to 0.060 lbs/short ton. SO_2 emissions from flash dryer systems assume 80% reduction in SO_2 emissions due to calcium carbonate powder. Spray dryer combustion emissions assume the use of exhaust heat from the turbines and limited supplemental firing in the spray dryers to 62 gph or less each. Combustion emissions from the boilers is based upon fuel consumption limit of 680,000 gpy and the burning of this fuel within the largest boiler.

Equipment	Control Equipment	Max. Exhaust Flow Rate, dscfm	PM/PM_{10} lbs/hr	PM/PM_{10} tpy	SO_2 tpy	NO_x tpy	CO tpy	NMHCs tpy	Pb tpy	HAPs tpy
Flash Dryer #3	FF	10,000	0.86/0.77	3.8/3.4	2.98	7.0	1.75	0.12	<0.01	0.02
FD#3 Prod. Conveying	FF	2,700	0.23/0.21	1.0/0.91						
Flash Dryer #1	FF	10,000	0.86/0.77	3.8/3.4	2.98	7.0	1.75	0.12	<0.01	0.02
Flash Dryer #2	FF	10,000	0.86/0.77	3.8/3.4	2.98	7.0	1.75	0.12	<0.01	0.02
FD#1 & FD#2	FF	2,700	0.23	1.0						
Product Conveying	FF	2,700	0.23	1.0						
Raw Product Silos (2)	FF	1200 per silo	0.10	0.90						
Deagglomerator A Feed Silo	FF	1200	0.10	0.45						
Deagglomerator B Feed Silo	FF	1200	0.10	0.45						
Deagglomerator A	FF	16,700	1.43	6.27						
Deagglomerator B	FF	16,600	1.42	6.23						
Deagglomerator C	FF	16,200	1.39	6.08						
Prod. Conveying	FF	1200	0.10	0.45						
Prod. Conveying	FF	1200	0.10	0.45						
Prod. Conveying	FF	1200	0.10	0.45						
Surface Treater B	FF	24,400	2.09	9.16						
Finished Product Conveying	FF	2650	0.23	0.99						
Bulk Bagging Station	FF	3300	0.28	1.24						
Spray Dryer #1	ESP		1.70	7.45	2.31	5.43	1.36	0.09	<0.01	0.01
Spray Dryer #2	cyclone/ESP		1.32	5.78	2.31	5.43	1.36	0.09	<0.01	0.01
Boiler #2 (24 MMBTU/hr)	Uncontrolled		0.34	0.68	14.48	6.8	1.70	0.12	<0.01	0.02
Boiler #1(19.7 MMBTU/hr)	Uncontrolled		0.28	0	0	0	0	0	0	0
			TOTAL VERPOL	61.34/60.12	28.06	38.66	9.67	0.66	<0.01	0.10

COGENERATION PLANT - Emissions based on continuous operation at maximum capacity and emission data provided by the equipment manufacturer. NO_x from turbines controlled using water injection; diesel engines uncontrolled. Diesel-fired equipment hours of operation limited to 100 hours per year or less each and sulfur in fuel limit of 0.3% by weight.

Equipment	PM/PM_{10} tpy	SO_2 tpy	NO_x tpy	CO tpy	NMHC tpy	Pb tpy	HAPs tpy
Turbine #1	13.1	71.4	51.7	46.0	5.7	<0.01	<0.01
Turbine #2	13.1	71.4	51.7	46.0	5.7	<0.01	<0.01
Diesel Engine #1 (136 BHP)	0.01	0.02	0.18	0.07	0.01	<0.01	<0.01
Diesel Engine #2 (136 BHP)	0.01	0.02	0.18	0.07	0.01	<0.01	<0.01
Diesel-Fired Emergency Generator Set (145 BHP)	0.01	0.02	0.22	0.42	0.01	<0.01	<0.01
TOTAL COGENERATION PLANT	26.3	142.8	104.0	92.5	11.4	<0.01	<0.01
TOTAL FOR SOURCE	110.1/108.9	192.2	148.6	103.7	12.8	<0.01	0.1

Table 2 - New Allowable Emissions/Aggregated Emissions Increase

NEW ALLOWABLE EMISSIONS
Allowable Emissions Assumptions:

- Bulk bagger stations/silos, new product transfer conveyor, house vacuum system, and rotopackers each limited to PM/PM_{10} emission concentration of 0.010 gr/dscf of undiluted exhaust, respectively. Emissions calculated based on emission concentration and maximum rated exhaust air flow rate for fabric filter serving each process.
- Increase in emissions from Spray Dryer #2 associated with production increase, except PM/PM_{10}, based upon AP-42 emission factors for distillate oil-fired boiler. SO_2 emission rate also assumes 80% reduction from uncontrolled emission rate due to inherent scrubbing of SO_2 which occurs within the spray dryer by the calcium carbonate powder. PM/PM_{10} emissions based upon limit of 0.07 lbs/short ton of product introduced into the dryer and increase in production rate. Increase in production is the difference between current actual emissions (CY '98) and future potential emissions assuming no heat is being supplied by the cogeneration plant and 90% availability of the spray dryer.

SPRAY DRYER #2		**PM/PM_{10}**	**SO_2**	**NO_x**	**CO**	**NMHCs**	**Pb**	**Total HAPs**	**Indiv. HAPs**
Emission Limit:		0.07	142(S)=142(0.3)=42.6	20	5	0.34			
Emission Limit Units:		lbs/short ton	lbs/1000 gals.						
Factor assuming 80% control efficiency: 8.5 lbs/1000 gals.									
INCREASE IN EMISSIONS FROM SPRAY DRYER #2									
Emission Rate	(lbs/hr):	0.99	0.91	2.14	0.54	0.04	<0.01	0.01	<0.01
	(tpy):	5.4	6.08	14.28	3.57	0.24	<0.01	0.04	0.02
BULK BAGGING STATION/SILOS									
Emission Rate	(lbs/hr):	0.96 (total)							
	(tpy):	4.2 (total)							
NEW PRODUCT CONVEYING SYSTEM									
Emission Rate	(lbs/hr):	0.23							
	(tpy):	1.0							
HOUSE VACUUM SYSTEM									
Emission Rate	(lbs/hr):	0.21							
	(tpy):	0.9							
ROTOPACKERS									
Emission Rate	(lbs/hr):	3.65 (total)							
	(tpy):	16.0 (total)							
TOTAL									
Emission Rate	(lbs/hr):	6.04	0.91	2.14	0.54	0.04	<0.01	0.01	<0.01
	(tpy):	27.5	6.08	14.28	3.57	0.24	<0.01	0.04	<0.01

AGGREGATED EMISSIONS INCREASE: Since future allowable emissions of Pb & VOCs (including NMHCs from fuel burning) are less than significant levels not necessary to consider these emissions. Additionally, no significant level of HAPs, and therefore not relevant to aggregated emissions calculation process.

Step a) Calculate allowable emissions for new equipment

Air Contaminant Emissions, tpy			
PM/PM_{10}	SO_2	NO_x	CO
27.5	6.08	14.28	3.57

Step b) Calculate allowable emissions for all existing processes that are affected by the modification. - Included in Step a) for Spray Dryer #2.

Step c) Calculate actual emissions for existing equipment that are affected by the modification but which were installed prior to 7/1/79 or have been previously reviewed under § 5-502. - Included in Step a) for Spray Dryer #2.

Step d) Calculate allowable emissions from all other equipment at the site added since 7/1/79 which have not been reviewed under § 5-502.

Modifications prior to 1991 reviewed as major modification for PM/PM_{10}, SO_2, NO_x, and CO. Therefore, no longer necessary to consider minor modifications prior to 1991 for the previously identified air contaminants for major source applicability.

* In 1996 - Modifications to East Plant to increase the permitted fuel consumption limit from 445,000 gpy to 600,000 gpy. Calculations provided in Technical Analysis dated March 29, 1996, with one change (must consider 80% SO_2 removal due to inherent scrubbing of SO_2 in drying process by calcium carbonate) and summarized as follows:

	Air Contaminant Emissions, tpy			
Modification	PM/PM_{10}	SO_2	NO_x	CO
Increase in Fuel Consumption Limit	<0.1	1.1	1.6	0.4

(Continued)

* In 1996 - Addition of new flash dryer systems and associated product conveying equipment at Verpol Plant. The emission increase for this modification has been changed to reflect a reduction in the permitted fuel consumption limit for the Flash Dryers #1 and #2 from 1,880,000 gpy to 1,400,000 gpy as requested by OMYA, Inc. in 1997, and again proposed to be reduced from 2,100,000 to 1,900,000 gpy for all three dryers (Flash Dryer #1, Flash Dryer #2, and Flash Dryer #3 - 633,333 gpy each). Calculations as provided in Technical Analysis dated September 13, 1996, with two other changes [(1) assume 80% reduction in SO_2 emissions rather than original estimate of 50% based upon emission testing; (2) flash dryer and conveyor PM_{10} emissions based on % of product handled being < 10 um in size (FD#1 for Omyacarb 5 at 70% and FD#2 for Omyacarb 3 at 90%] and summarized as follows:

	Air Contaminant Emissions, tpy			
Modification	PM/PM_{10}	SO_2	NO_x	CO
FD#1, FD#2, & prod. conveying	9.6	5.4	12.7	3.2

* Addition of replacement boiler at Verpol Plant approved in 1997. Emissions equivalent to the new allowable emissions identified in Technical Analysis dated December 2, 1997, minus actual emissions associated with operation of boilers which pre-exist 1991.

	Air Contaminant Emissions, tpy			
Modification	PM/PM_{10}	SO_2	NO_x	CO
New 24 MMBTU/hr Boiler	0.5	9.5	4.4	1.1

* Increase in emissions associated with increasing the allowable PM/PM_{10} emission rate for Spray Dryer #1 at Verpol Plant from 1.32 lbs/hr to 1.7 lbs/hr in 1997.

	Air Contaminant Emissions, tpy			
Modification	PM/PM_{10}	SO_2	NO_x	CO
Increase in PM/PM10 emission limit for Spray Dryer #1	1.7	—	—	—

* Addition of Flash Dryer #3 system and Flash Dryer #3 product conveying system in 1998. Emissions equivalent to the new allowable emissions identified in Technical Analysis revised November 6, 1998. The emission increase for this modification has been changed to reflect a reduction in the permitted fuel consumption limit for the Flash Dryer #3 from 700,000 gpy to 633,333 gpy as requested by OMYA, Inc. as part of this modification. Three flash dryers limited to 1,900,000 gpy (Flash Dryer #1, Flash Dryer #2, and Flash Dryer #3 - 633,333 gpy each).

	Air Contaminant Emissions, tpy			
Modification	PM/PM_{10}	SO_2	NO_x	CO
Flash Dryer #3	3.8	2.7	6.3	1.6
Flash Dryer #3 Product Conveying System	1.0	—	—	—
Total for Modification	4.8	2.7	6.3	1.6
TOTAL PRIOR MINOR MODIFICATIONS:	16.6	18.7	25.0	6.3

Step e) Calculate size of modification - Step a) + Step b) - Step c) + Step d)

Aggregated PM/PM_{10} Emissions Increase, tpy = 27.5 tpy + 0 tpy - 0 tpy + 16.6 tpy = 44.1 tpy
Aggregated SO_2 Emissions Increase, tpy = 6.1 tpy + 0 tpy - 0 tpy + 18.7 tpy = 24.8 tpy
Aggregated NO_x Emissions Increase, tpy = 14.3 tpy + 0 tpy - 0 tpy + 25.0 tpy = 39.3 tpy
Aggregated CO Emissions Increase, tpy = 3.6 tpy + 0 tpy - 0 tpy + 6.3 tpy = 9.9 tpy

Table 3 - Future Allowable Emission Estimates

EAST PLANT - Process equipment controlled using fabric filters; Maximum PM concentration limited to 0.02 grains/dry standard cubic foot of undiluted exhaust ("gr/dscf"), unless otherwise noted; Unrestricted hours of operation; Only three of eight silos/bins discharge at any one time, since only three pneumatic conveying systems feeding the bins/silos (Use highest emission rates and air flow rates for three bins/silos to determine allowable emissions). Combustion emissions based on AP-42 emission factors for distillate oil firing: SO_2 - 142(S)lbs/1000 gals, S = % sulfur in fuel by wt., limited to 0.5% or less; NO_x - 20 lbs/1000 gals; CO - 5 lbs/1000 gals; NMHCs - 0.34 lbs/1000 gals. Combustion emissions from Raymond Mill, Flash Dryer #1, Flash Dryer #2, and Boiler based on existing permitted fuel consumption limit of 600,000 gpy, and following approximate breakdown of usage: Raymond Mill (1% of total limit); Flash Dryer #1 (47.5%); Flash Dryer #2 (47.5%); and Boiler (4%). SO_2 emissions from dryer systems assume 80% reduction in SO_2 emissions due to calcium carbonate powder.

Process	Control Equipment	Max. Exhaust Flow Rate, dscfm	PM lbs/hr	PM tpy	SO_2 tpy	NO_x tpy	CO tpy	NMHCs tpy	Pb tpy	HAPs tpy
Raymond Mill	FF	2000	0.34	1.49	0.04	0.06	0.02	<0.01	<0.01	<0.01
Flash Dryer #11	FF	7530	1.29	5.65	2.02	2.85	0.71	0.05	<0.01	0.01
Flash Dryer #1 (Recycle)	FF	1560	0.27	1.18						
Flash Dryer #2 (w/ HE)	FF	8310	1.42	6.22	2.02	2.85	0.71	0.05	<0.01	0.01
Silo #1	FF	1700	0.29	1.27						
Silo #2	FF	1700	0.29	1.27						
Silo #3	FF	1700	0.29	1.27						
Silo #4	FF	1700	---	---						
Bin A	FF	1700	---	---						
Bin B	FF	1700	---	---						
Bin C	FF (0.01 gr/dscf)	1700	---	---						
Bin D	FF (0.01 gr/dscf)	1700	---	---						
Bin C & D Receiver	FF (0.01 gr/dscf)	800	0.07	0.31						
Man. Packaging Dust Relief	FF	1400	0.24	1.05						
Auto. Packaging Dust Relief	FF	2700	0.46	2.01						
40 Mesh Unloading	FF	900	0.15	0.66						
Boiler #1(10.5 MMBTU/hr)	Uncontrolled		0.15	0.02	0.85	0.24	0.06	<0.01	<0.01	<0.01
		TOTAL EAST		22.4	4.94	6.00	1.50	0.10	<0.01	0.02

VERPOL PLANT - Process equipment controlled using fabric filters, unless otherwise noted; Maximum PM concentration limited to 0.01 gr/dscf, unless otherwise noted; Unrestricted hours of operation; Combustion emissions based on AP-42 emission factors for distillate oil firing: SO_2 - 142(S)lbs/1000 gals, S = % sulfur in fuel by wt., limited to 0.3% or less; NO_x - 20 lbs/1000 gals; CO - 5 lbs/1000 gals; NMHCs - 0.34 lbs/1000 gals. Spray Dryer #1 limited to 0.07 lbs/short ton of total solids entering the spray dryer on an hourly basis and Spray Dryer #2 limited to 0.060 lbs/short ton. SO_2 emissions from all dryer systems assume 80% reduction in SO_2 emissions due to calcium carbonate powder. Spray dryer combustion emissions assume the use of exhaust heat from the turbines and limited supplemental firing in the spray dryers (i.e., SD #1 - 62 gph and SD #2 - 169 gph). Combustion emissions from the boilers are based upon fuel consumption limit of 680,000 gpy and the burning of this fuel within the largest boiler.

Process	Control Equipment	Max. Exhaust Flow Rate, dscfm	PM/PM_{10} lbs/hr	PM/PM_{10} tpy	SO_2 tpy	NO_x tpy	CO tpy	NMHCs tpy	Pb tpy	HAPs tpy
Bulk Bagger Stations/Silos	FF	800 each	0.07 ea.	4.2 total						
Product Transfer Conveyor	FF	2,700	0.23	1.0						
House Vacuum System	FF	2,450	0.21	0.9						
Rotopackers	FF	14,200 each	1.22 ea.	16.0 total						
Flash Dryer #1	FF	10,000	0.86	3.8	2.7	6.3	1.6	0.11	<0.01	0.02
Flash Dryer #2	FF	10,000	0.86	3.8	2.7	6.3	1.6	0.11	<0.01	0.02
Flash Dryer #3	FF	10,000	0.86	3.8	2.7	6.3	1.6	0.11	<0.01	0.02
FD#1 & FD#2	FF	2,700	0.23	1.0						
Product Conveying	FF	2,700	0.23	1.0						
FD#3 Prod. Conveying	FF	2,700	0.23	1.0						
Surface Treater A	FF	10,000	0.86	3.8						
Surface Treater C	FF	10,000	0.86	3.8						
Deagglomerator C	FF	16,200	1.39	6.09						
Prod. Conveying	FF	1200	0.10	0.44						
Prod. Conveying	FF	1200	0.10	0.44						
Prod. Conveying	FF	1200	0.10	0.44						
Surface Treater B	FF	24,400	2.09	9.15						
Finished Product Conveying	FF	2650	0.23	1.01						
Bulk Bag. Transfer Hopper	FF	1200	0.10	0.45						
Spray Dryer #1	ESP		1.70	7.45	2.1	4.9	1.2	0.08	<0.01	0.01
Spray Dryer #2	cyclone/ESP		2.31	10.1	5.7	13.3	3.3	0.23	<0.01	0.01
Boiler #2 (24 MMBTU/hr)	Uncontrolled		0.35	0.7	14.5	6.8	1.7	0.12	<0.01	0.02
Boiler #1(19.7 MMBTU/hr)	Uncontrolled		0.28	0	0	0	0	0	0	0
		TOTAL VERPOL		80.2	30.4	44.0	11.0	0.75	<0.01	0.10

(Continued)

COGENERATION PLANT - Emissions based on continuous operation at maximum capacity and emission data provided by the equipment manufacturer. NO_x from turbines controlled using water injection; diesel engines uncontrolled. Diesel-fired equipment hours of operation limited to 100 hours per year or less each and sulfur in fuel limit of 0.3% by weight.

	PM	SO_2	NO_x	CO	NMHC	Pb	HAPs
	tpy	tpy	tpy	tpy	tpy	tpy	tpy
Turbine #1	13.1	71.4	51.7	46.0	5.7	<0.01	<0.01
Turbine #2	13.1	71.4	51.7	46.0	5.7	<0.01	<0.01
Diesel Engine #1 (136 BHP)	0.01	0.02	0.18	0.12	0.01	<0.01	<0.01
Diesel Engine #2 (136 BHP)	0.01	0.02	0.18	0.12	0.01	<0.01	<0.01
Diesel-Fired Emergency Generator Set (145 BHP)	0.01	0.02	0.20	0.40	0.01	<0.01	<0.01
TOTAL COGENERATION PLANT	26.2	142.8	104.0	92.6	11.4	<0.01	<0.01
TOTAL FOR SOURCE	129	178	154	105	12.3	<0.01	0.1