ATTACHMENT B

Rule 363 Staff Report

April 28, 2021

Santa Barbara County Air Pollution Control District
Community Advisory Council

260 San Antonio Road, Suite A
Santa Barbara, California 93110

SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT

Draft Staff Report for:

Rule 363. Particulate Matter (PM) Control Devices

Date: April 14, 2021

Aeron Arlin Genet
Air Pollution Control Officer

Prepared By:
Tim Mitro
Air Quality Engineer

<u>Main Office</u>
260 N. San Antonio Road, Suite A
Santa Barbara, California 93110
Telephone (805) 961-8800
www.ourair.org

<u>North County Office</u>
301 E Cook St, Suite L
Santa Maria, CA 93454

<u>Our Mission</u>
Our mission is to protect the people and the environment of Santa Barbara County from the effects of air pollution.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

Assembly Bill (AB) 617, enacted in July 2017, has a multitude of requirements to address the disproportionate impacts of air pollution in environmental justice communities. One of the key components of AB 617 is to reduce air pollutant emissions from large facilities that participate in the California Greenhouse Gas (GHG) Cap-and-Trade system. In December 2018, the District Board met one of the initial requirements of AB 617 by adopting a Rule Development Schedule. The rule schedule included six rules that needed to be evaluated for Best Available Retrofit Control Technology (BARCT), and these rules would apply to all six AB 617 industrial sources within Santa Barbara County. The first two rules on the rule schedule, both of which affect new and existing boilers and process heaters, have since been adopted.

Rule 363 is the third rule of the District's AB 617 BARCT rule schedule, and it regulates particulate matter (PM) control devices such as baghouses, cyclones, and wet scrubbers. The rule is designed to require visible emission observations and maintenance checks on the air pollution control equipment to make sure that they are properly maintained and not venting excessive amounts of PM. Large baghouses would also be required to use a bag leak detection system and be source tested to demonstrate compliance with the emission limits in the rule.

The standards in this rule only apply to the six AB 617 industrial sources in Santa Barbara County. One of those sources is Imerys Filtration Minerals, Inc. ("Imerys"), a diatomaceous earth mining and processing facility that is located south of Lompoc. Imerys uses over 60 different PM control devices of various sizes. In order to comply with the proposed rule, some of these devices will need to be retrofitted or replaced. The remaining AB 617 industrial sources do not have processes that necessitate the use of PM control devices, but the rule would still apply to these sources if they install the equipment in the future.

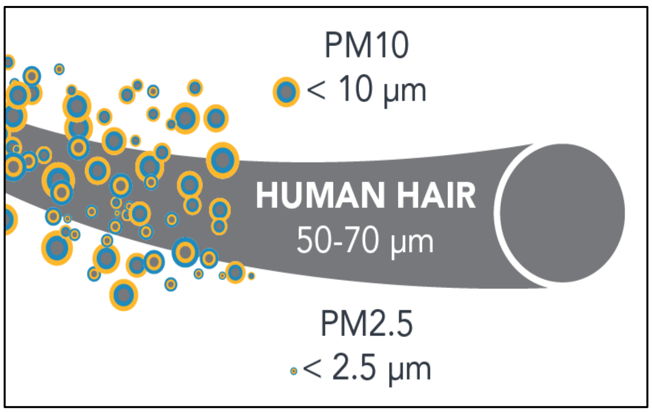
2. BACKGROUND

2.1 Particulate Matter and Health

PM pollution is composed of a variety of different substances, such as fine minerals, metals, soot, smoke, organic matter, and other particles that are suspended in the air. PM is directly emitted from various man-made and naturally occurring sources such as the crushing and grinding of aggregates, windblown dust, and agricultural operations. PM emissions are also formed in the atmosphere through chemical reactions of gaseous pollutants such as sulfur dioxide, nitrogen oxides, and reactive organic compounds, all of which are emitted through fuel combustion processes.

Particles are defined by their diameter for air quality regulatory purposes. Those with a diameter of 10 microns or less (PM_{10}) are inhalable into the lungs and can cause adverse health effects. Fine particulate matter is defined as particles that are 2.5 microns or less in diameter ($PM_{2.5}$). Therefore, $PM_{2.5}$ comprises a portion of PM_{10}. Figure 2.1 demonstrates how particles in this size range compare to the size of a human hair.

Figure 2.1 – Particulate Matter (PM) Size Comparison



Breathing of fine particulate matter can lead to a wide variety of cardiovascular and respiratory health effects such as heart attacks, asthma aggravation, decreased lung function, coughing, or difficulty breathing and may lead to premature death in people with heart or lung disease. For health reasons, the District is most concerned with inhalable PM_{10} and $PM_{2.5}$. Santa Barbara County is currently designated as attainment for the federal PM_{10} Ambient Air Quality Standard and for the state and federal $PM_{2.5}$ standards, but it is designated as nonattainment for the state PM_{10} standard.

2.2 The AB 617 BARCT Rule Development Schedule

Assembly Bill (AB) 617, enacted in July 2017, has a multitude of requirements to address the disproportionate impacts of air pollution in disadvantaged communities. One of the key components of AB 617 is to reduce air pollutant emissions from facilities that participate in the California Greenhouse Gas (GHG) Cap-and-Trade system. Cap-and-Trade is designed to limit GHG emissions and allows facilities to comply by either reducing GHG emissions at the source or by purchasing GHG emission allowances. Emissions of criteria pollutants and toxic air contaminants are often associated with large GHG-emitting sources, and these pollutants may impact local communities that are already experiencing a disproportionate burden from air pollution.

AB 617 helps alleviate the pollution burden near these communities by requiring each air district to adopt an expedited rule development schedule for Best Available Retrofit Control Technology (BARCT) by January 1, 2019. The District's AB 617 BARCT schedule was adopted at the December 2018 Board Hearing, and Rule 363 was included on the list of measures that were evaluated for BARCT.[1] BARCT is an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts. To meet the BARCT emission limits, a facility may need to install new air pollution controls on their existing unit(s) or replace the unit(s) in part or in whole.

The BARCT requirements apply to the following six facilities within the District boundaries since they are industrial sources subject to the California Cap-and-Trade requirements:

1) Exxon Mobil – Las Flores Canyon,
2) Exxon Mobil – Pacific Offshore Pipeline Company (POPCO),
3) Pacific Coast Energy Company (PCEC) – Orcutt Hill,
4) Cat Canyon Resources, LLC – Cat Canyon West[2],
5) Imerys Filtrations Minerals, Inc., and
6) Windset Farms.

These large facilities typically have both the resources and expertise to make process changes to meet the BARCT standards, and such changes will effectively reduce both criteria pollutants and toxic air contaminants. Out of these six facilities, only Imerys uses PM control devices at this time. The remaining AB 617 industrial sources are engaged in oil and gas operations or agricultural operations and do not use any non-combustion PM control devices, but the rule would still apply to them if they install such PM control devices in the future.

2.3 Imerys Filtration Minerals

Imerys Filtration Minerals, Inc. ("Imerys") is a diatomaceous earth mining and processing facility that is located approximately one mile south of the City of Lompoc. Mining has occurred at this site for over 100 years, with Imerys being the current owner and operator of the mine since 2012.[3] Diatomaceous earth is a sedimentary deposit composed of fossilized diatoms, a type of algae that contains siliceous skeletons. Imerys mines and processes the diatomite ore into powders of various grades for use by industries, such as for filtration aids or fillers.

Most of the ore is surface mined from lands within the facility boundaries, crushed and screened using mobile equipment, and then stored in stockpiles. The stockpiled material is eventually transported to the powder mills using covered conveyors. The powder mill production line consists of varying combinations of additional crushing, milling, drying, calcining, and

[1] Additional information on the AB 617 BARCT Rule Development Schedule is available on the District's website at www.ourair.org/community-air.
[2] Facility was previously operated by ERG Operating Company and has since been transferred to Cat Canyon Resources, LLC.
[3] Celite Corporation purchased the mine facility from Manville Sales Corporation in 1991 and changed its name to Imerys in 2012.

conveying. The natural diatomaceous earth is then transformed into calcinated powders via exposure to high temperatures in the natural gas-fired rotary kilns. Finally, the product is classified into a variety of grades before being bagged for shipment, by truck or by rail, for distribution to customers.

Particulate matter is created during all steps of processing, including the mining, crushing, screening, and conveying of the minerals. Imerys uses over 60 different emission control systems, such as baghouses, cyclones, and wet scrubbers, to reduce the amount of particulate matter emitted from the facility. Despite the existing emission controls, Imerys uses a number of processes that, when aggregated, has a Potential to Emit (PTE) of over 100 tons per year of criteria pollutants. This means that Imerys was required to obtain a consolidated local and federal operating permit under the federal Part 70 (Title V) program. Title V facilities are subject to enhanced monitoring, recordkeeping, and reporting requirements. These requirements promote ongoing internal vigilance and accountability, providing a higher level of confidence that all air quality regulations are being complied with.

2.4 New Source Performance Standard (NSPS) Subpart OOO

The Federal Clean Air Act requires the U.S Environmental Protection Agency (EPA) to identify categories of emission sources that contribute significantly to air pollution. For these source categories, EPA must set air quality emissions standards that reflect the best technology that has been adequately demonstrated, taking into account non-air quality impacts and energy requirements. These standards are known as the New Source Performance Standards (NSPS). There are approximately 90 different NSPS standards, with each one individually designed for a specific industry and separated into a different subpart.

One of those subparts is NSPS Subpart OOO, which addresses nonmetallic mineral processing plants. NSPS Subpart OOO contains a variety of operational and work practice standards on new and modified devices at mineral processing plants. These standards may include limiting the amount of fugitive emissions from the device and monitoring requirements to verify the device's operational integrity. NSPS Subpart OOO was originally adopted in 1985 and it was amended in 2009 to include additional PM control requirements. The NSPS requirements apply to the Imerys facility and are already integrated into Imerys' permit. However, older devices at Imerys may be exempt from the NSPS requirements if they were installed before the regulation was adopted or amended. A summary of the NSPS standards as they relate to the proposed rule is incorporated into Section 4.2 of this report.

2.5 Review of Particulate Matter Control Technologies

Baghouses

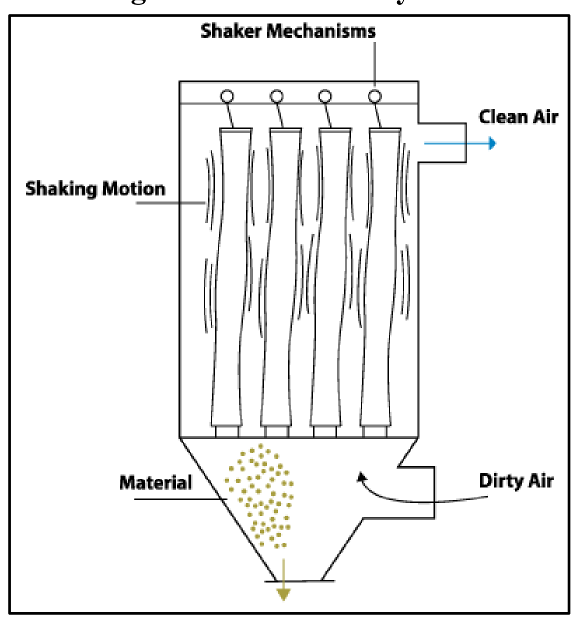
A baghouse is an air filtration control device designed to remove PM from exhaust gases using long cylindrical filter bags, cartridge filters, or envelope-type filters. The basic concept of a baghouse is that PM-laden air flows through the inlet, the PM is captured by the filters, and the clean air is exhausted from the baghouse outlet. Most baghouses use fans or blowers to force the air through the filters. The blowers can either be placed upstream of the baghouse, creating a positive-pressure system, or downstream of the baghouse, creating a negative-pressure system that draws the air through the filters. When designed properly, baghouses can achieve a control efficiency of 99 percent or higher. An example of a baghouse is shown in Figure 2.2.

Figure 2.2 – Baghouse

During their normal operating cycle, baghouse filters accumulate enough PM that it forms solid dust layers or dust cakes on top of the filters, and these need to be cleaned out to prevent excessive pressure increases. The three main baghouse cleaning methods are shaker systems, reverse air systems, and pulse jet systems. Each cleaning method causes the dust cakes to fall into a collection hopper. The dust is typically removed from the collection hopper through a rotary airlock onto a conveyer system or into a larger discharge bin. A description of each method is provided below:

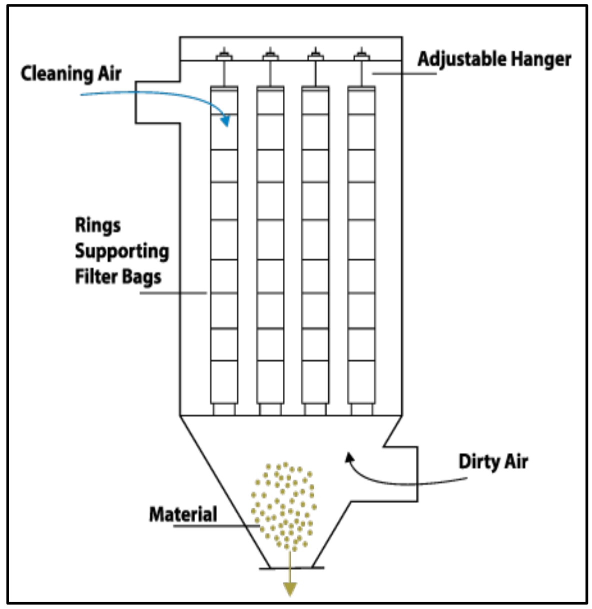
1) Shaker systems use physical shaking motion to remove the dust cakes. The shaking motion can be performed manually by facility operators or by using an automated mechanical shaker mechanism. Manual cleaning cycles can take up to a half an hour to complete while automatic cleaning cycles only take a few minutes. For safety reasons, the baghouse air flow needs to stop for the duration of the cleaning cycle. This means that shaker systems are not suited for applications with high dust loads since the bags would need to be cleaned often, resulting in increased process downtime. A diagram of a shaker system is shown in Figure 2.3.

Figure 2.3 – Shaker System



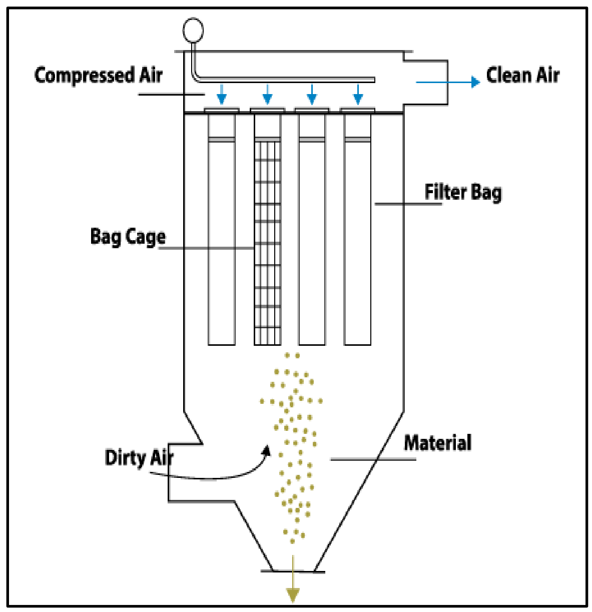
2) A reverse air system uses a low-pressure flow of air to break the dust cake and clean the bags of material build-up. Since the air flows in a reverse direction during the cleaning cycle, a separate fan is necessary to provide the required air flow for about 30 seconds. Many reverse air baghouses can continue operating during the cleaning cycle since the baghouses are separated into compartments and only one compartment is cleaned at a time. The low-pressure flow of a reverse air system allows the bags to have a longer lifespan, but the system may have difficulties in removing the residual dust stuck within the bag fibers. A diagram of a reverse air system is shown in Figure 2.4.

Figure 2.4 – Reverse Air System



3) A pulse jet system uses a high-pressure jet of compressed air to remove the dust cake on the bags at regularly timed intervals. The compressed air is more effective at removing the residual dust, but it can have some unintended consequences such as propelling the dust cake onto other nearby bags. Nevertheless, pulse jet systems are the most common type of cleaning system that accounts for the majority of new installations. An advantage of pulse jet systems, compared to shaker or reverse air systems, is that less fabric filter area is needed to handle the exhaust stream. This results in a smaller, more compact baghouse design with lower capital costs. The cleaning cycle requires approximately 0.5 seconds to complete and it can be performed while the baghouse remains in operation. A diagram of a pulse jet system is shown in Figure 2.5.

Figure 2.5 – Pulse Jet System



For the purposes of this rule, the term "baghouse" is used to consolidate the requirements for other filter-types, many of which do not actually use bags. For instance, cartridge filters have pleated filter media supported on a perforated metal cartridge. Due to their pleated design, cartridge filters are usually used for processes with lower air flows, but higher cleaning requirements. The dirty cartridges can be cleaned with a pulse jet system, or they can be entirely replaced after their service life with new cartridges.

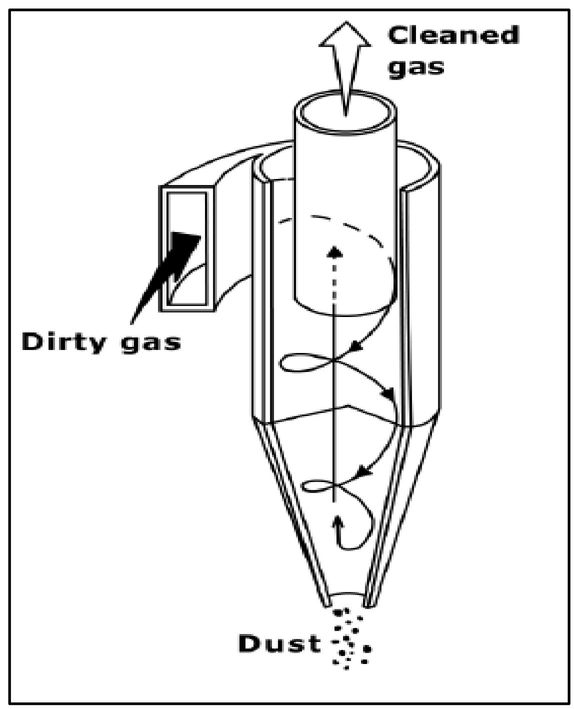
Also, bin vents are considered a type of baghouse. A bin vent is a dust collector that is installed on top of a storage silo. It is typically a passive system that captures the displaced particulate matter during material loading operations. If the silo is completely sealed, the displaced air can only go in one direction, through the dust collector. Bin vents are typically cleaned by either a shaker or pulse jet system and they require periodic filter change-outs to maintain their integrity. An example of two bin vents is shown in Figure 2.6.

Figure 2.6 – Bin Vents

Cyclones

Cyclones are air pollution control devices that remove the heavier particles in a gas stream through the use of centrifugal force. Large particles have enough inertia that they hit the cyclone walls and fall out of the gas stream while most of the smaller particles remain in the exhaust. The control efficiency for conventional cyclones is estimated to be 70 to 90 percent for PM, 30 to 90 percent for PM_{10}, and 10 to 40 percent for $PM_{2.5}$. Cyclones are often used as pre-cleaning systems since they effectively reduce the total amount of particulate matter to downstream devices (such as baghouses) by removing the larger, more abrasive particles. A cyclone diagram is shown in Figure 2.7.

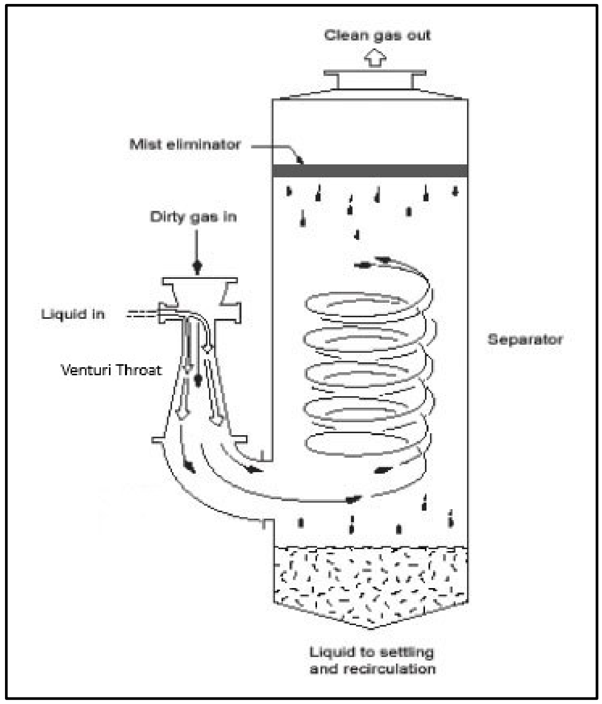
Figure 2.7 – Cyclone



Wet Scrubbers

A wet scrubber is a control device designed to remove particulate and gaseous emissions (such as sulfur dioxide) from the exhaust gas stream by transferring the pollutants to the scrubbing liquid. Wet scrubbers typically use a venturi system to improve gas-liquid contact and the pollution control efficiency. Venturi systems accelerate the waste gas stream during the throat section, causing increased turbulence and droplet atomization. After the throat section, the mixture decelerates, causing the droplets to reform. This allows the exhaust gas to be cleaned by approximately 80 to 99+ percent depending on the configuration and the specific pollutants being controlled.

Figure 2.8 – Wet Scrubber



Before the exhaust gas leaves the wet scrubber, it may flow through a cyclonic separator and/or a mist eliminator to remove any entrained liquid particles, preventing the liquid from damaging or corroding any downstream equipment. A drawback of using a wet scrubber is that it creates a new waste stream of scrubbing liquid, but the scrubbing liquid is often recycled through the process until it no longer meets the necessary operational parameters. A diagram of a wet scrubber is shown in Figure 2.8.

3. PROPOSED RULE REQUIREMENTS – Rule 363

3.1 Overview of Proposed Rule

Rule 363, as proposed, includes the following major requirements to satisfy the BARCT provisions in AB 617:

- No visible emissions from the PM control devices;
- Weekly EPA Method 22 observations on smaller units; and
- Emission limits, source tests, and Bag Leak Detection Systems (BLDS) on larger units.

The rule standards are based on South Coast Air Quality Management District Rule 1155, which was initially adopted in December 2009. Based on the District's analysis, most operations at the AB 617 industrial sources meet the current BARCT standards for this source category. However, some of the older baghouses may not achieve the highest level of control when compared to new baghouses being designed today. The proposed rule addresses all particulate matter control devices to ensure that the older baghouses meet the BARCT standards. All of the amendments are described in further detail in their corresponding sections below. Summary Table 3.1 is included at the end of this section to help visualize the requirements and the specific operating exemptions. An evaluation of the costs and impacts of the new requirements are listed in Section 5 of this report.

3.2 Requirements – No Visible Emissions

Beginning one year after rule adoption, no visible emissions are allowed to be emitted from any PM air pollution control device. Visible emissions typically indicate that the control device is in need of maintenance or that the control device is not designed properly to control the source of PM emissions. If visible emissions are observed, the operator shall take correction action to fix the issue and reduce the PM emissions from the facility. This requirement will apply to nearly all units except those covered under certain operating exemptions, as listed in Section 3.9.

3.3 EPA Method 22 – Weekly Observations

Since EPA promulgated Method 22 in 1982, it has become an important tool in the control of visible emissions. Method 22 is a qualitative technique that consists of a visual check for the presence or absence of visible emissions. Users don't have to be certified to conduct this method, but they need to have a working knowledge of certain observation techniques to perform it correctly. Therefore, Method 22 requires the user to be trained by attending the lecture session of the EPA Method 9 opacity/smoke school or by reading and applying the techniques from the EPA-prescribed Visible Emissions Field Manual. The California Air Resources Board (CARB) also has a Visible Emission Evaluation (VEE) handbook and they can provide the required training online.

Proposed Rule 363 requires that, no later than one year after rule adoption, each affected facility has at least one trained person that is able to conduct EPA Method 22. A facility will be required to perform weekly six-minute visible emission observations on each of their PM control devices to verify that no visible emissions are being emitted. Some devices can be exempted from the weekly Method 22 observation, and the exemptions are explained in more detail in Section 3.9.

However, the weekly observations will still apply to nearly 50 different control devices. Observations of multiple PM air pollution control devices can be performed at a single time by a single observer as long as all of the control devices and their stacks are located in the same field of view and records are kept for each observation.

If visible emissions are observed during a Method 22 observation or at any other time, the operator shall take corrective actions within 24 hours to eliminate the visible emissions. Once the corrective actions are taken, the operator needs to perform a new Method 22 observation to verify that no further action is necessary. If the corrective actions were successful and no visible emissions are present, normal operations may resume. However, if visible emissions are still present after the 24-hour period, the operator must shutdown the PM emitting equipment until additional adjustments can be made.

If an operator complies with the above requirements with subsequent corrective actions within the 24-hour period and maintains documentation of all actions, the operator will not be in violation of the “no visible emissions” monitoring requirement. This will encourage the facility operator to check visible emissions frequently and take corrective actions in an expeditious manner to correct any problems.

3.4 Tier 2 Baghouses – Emission Rate and Source Tests

For the purpose of this rule, baghouses are separated into two types based on their cumulative filter surface area:

- “Tier 1” baghouses are considered the small baghouses with a cumulative filter surface area less than or equal to 7,500 square feet, and
- “Tier 2” baghouses are the large baghouses with greater than 7,500 square feet of cumulative filter surface area.

Typically, a baghouse with more cumulative filter surface area means that it controls a larger source of PM emissions and it has the potential to emit more particulate pollution. The smaller sources of pollution can be cost-effectively controlled and monitored with the “no visible emissions” requirement and weekly Method 22 observations, but the larger sources of pollution are held to a higher BARCT standard since they have a much larger potential to emit.

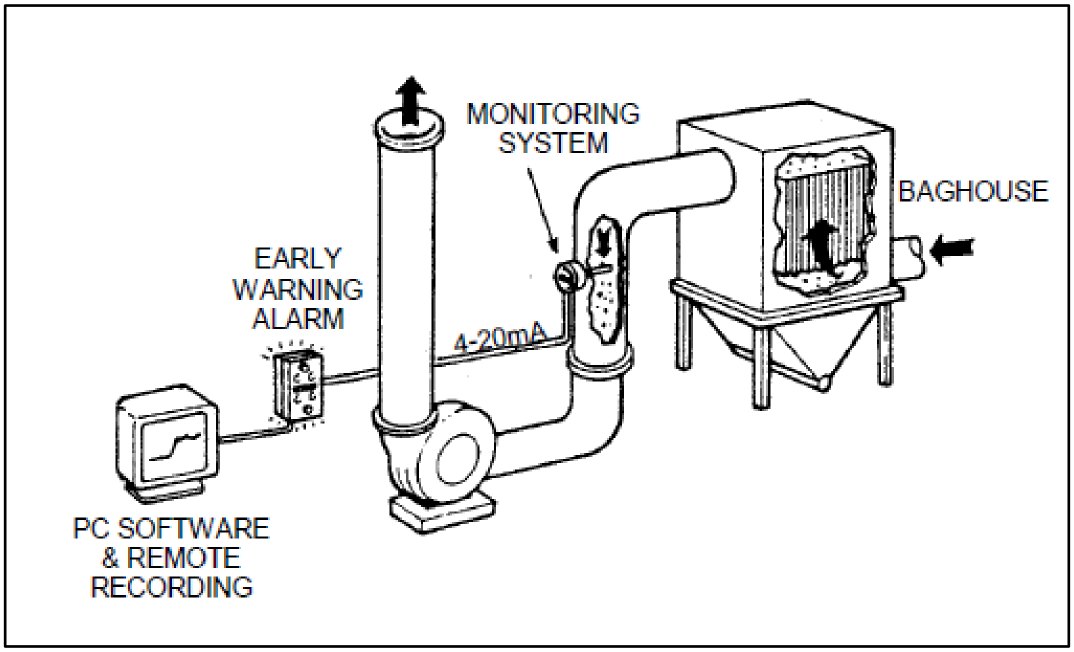
To establish the BARCT standard for Tier 2 baghouses, the District first reviewed the South Coast AQMD staff report that was published in 2009. The South Coast AQMD found that baghouses used in all industries could feasibly meet a PM emission rate of 0.01 grains per dry standard cubic foot (gr/dscf). District staff then reviewed multiple permitting applications from the last two decades at the affected AB 617 industrial sources and found that the baghouses could feasibly meet an even lower PM emission rate of 0.005 gr/dscf. This 0.005 gr/dscf emission rate has been identified by the District as Best Available Control Technology (BACT) since multiple baghouse manufacturers provided emission guarantees that their systems could meet the limit.

By having the BACT standard in place for the last two decades, the majority of the permitted baghouses at the affected AB 617 industrial sources already meet the 0.005 gr/dscf standard. If a baghouse is having difficulties meeting the limit, it may need to be modernized with higher quality bags or filters, which is normal over the course of the baghouse’s lifespan. Bags typically have a normal service life between 1 to 3 years depending on the material being filtered and the overall system design. Based on the above, the 0.005 gr/dscf emission rate is considered BARCT for large, Tier 2 baghouses. To demonstrate compliance with the emission rate, an affected facility will need to perform source tests, at a minimum, once every five years using either EPA Method 5 or EPA Method 17.

3.5 Bag Leak Detection System (BLDS)

A BLDS is a qualitative tool that detects particles exiting from the stack of a control device. It consists of a stainless steel probe, signal-processing electronics, and the associated cable outputs. When the energized probe is placed in an exhaust gas stream, it can detect small current changes in the electrical charge. The current changes are created either by particles hitting the probe (called triboelectricity) or particles passing by or flowing near the probe (called electrostatic induction). After the system is fully tested and calibrated, a BLDS is able to provide data on the relative PM emissions of the control device based on the monitored current. A diagram of a BLDS is provided in Figure 3.1 below.

Figure 3.1 – Bag Leak Detection System (BLDS)



A BLDS is useful because it can detect bag leaks and similar bag failures at an early stage. It is equipped with an alarm that activates when the emissions are greater than a preset level, but before a full bag failure occurs. Gradual deteriorations can also be noted well in advance of the alarm set point, providing engineering and maintenance teams adequate time to respond, troubleshoot, and resolve developing issues in a proactive, lower stress environment. An early-warning system such as a BLDS helps contribute to increases in productivity by decreasing total system downtime and saving on baghouse maintenance costs.

Due to the benefits listed above, Proposed Rule 363 will require all Tier 2 baghouses to be equipped with a functional BLDS no later than one year after rule adoption. The rule also outlines the BLDS operational procedures that must be adhered to. For example, if the operator receives an alarm from the BLDS, the operator must investigate the baghouse and BLDS, and take all necessary corrective actions to eliminate the cause of the alarm within 3 hours. Corrective actions include, but are not limited to, inspecting and readjusting the seals on the bags, sealing off or fully replacing any defective bags, cleaning the bag leak detection system probe, or shutting down the equipment that vents into the baghouse. In most cases, the necessary corrective action will include shutting down the equipment so maintenance personnel can safely access and inspect the baghouse filters. Shutting down the equipment within the 3-hour period will satisfy the requirements in the rule, even if additional maintenance activities take longer than 3 hours to complete.

Overall, the baghouse shall be operated and maintained so the BLDS alarm activation is minimized and that the cumulative hours of alarm time within any continuous (rolling) six-month period do not exceed more than five percent of the total operating hours in that period. If cumulative alarm time exceeds five percent, the operator would need to shut down the equipment that vents into the baghouse until additional actions are taken to eliminate the excessive alarms.

It is important to note that not all BLDS alarms indicate baghouse malfunction or bag failure. For instance, when bags are cleaned by a pulse jet system, the bag surface is expanded and discharged dusts can penetrate the bag. The penetration of dust can activate the alarm if the dust level is higher than the preset level. Scenarios such as these should be identified during the initial testing phase of the BLDS alarm to make sure that the alarm is mainly capturing baghouse malfunctions, as opposed to the reoccurring cleaning operations. BLDS systems are likely to have little to no maintenance costs after the initial testing phase.

3.6 Baghouse Modernization – Manual Shaker Systems

Manual shaker baghouses are typically used on relatively small or infrequently used industrial applications. However, manual cleaning is not an effective method of removing the dust cakes and it can lead to a higher risk of leaks, tears, or complete bag failure. The proposed rule requires all manual shaker baghouses to be modernized no later than 2 years after the rule adoption date. At a minimum, the manual systems shall be retrofitted to a mechanical, automated shaking system, and this upgrade can be performed without fully replacing the baghouse. There are only three manual shaker systems permitted at the affected AB 617 industrial sources, but these units have not been operated for over a decade and they are anticipated to be exempt from the upgrade requirements, as discussed in Section 3.9.

3.7 General Best Practices

The rule includes some general best practices to make sure that each PM control device is operating properly. For instance, all control devices shall be operated and maintained pursuant to the manufacturer's operations and maintenance (O&M) manual or other similar written materials. Also, materials collected in a PM control device must be discharged for disposal in such a way as to prevent fugitive emissions from being re-entrained in the atmosphere. These practices are typically included in most air quality permits, and they are incorporated into the proposed rule to highlight their importance in reducing PM emissions.

3.8 Compliance Plan

The Compliance Plan is a useful tool to make sure that an affected facility will be able to meet all of the rule requirements by their effective dates. The plan needs to list all permitted PM air pollution control devices at the facility, verify that the description of each device in the permit is accurate, and document how each device will comply with the rule requirements or if any rule exemptions will be used. No later than 6 months after rule adoption, each facility subject to this rule shall submit a Rule 363 Compliance Plan to the District for review and approval. Since many of the rule requirements begin 1 year after rule adoption, this schedule will allow for sufficient lead time and coordination between an affected facility and District staff.

3.9 Exemptions

During the rule development process, staff evaluated the wide range of PM control devices and considered the rule impacts to each of the devices. A number of exemptions to all or part of the proposed rule requirements are included, with the intent of reducing impacts and costs where warranted. These exemptions are listed below:

1) All spray booths and their associated filters are proposed to be exempt from the provisions of this rule. Spray booths are widely regulated by other prohibitory rules that focus on reactive organic compound (ROC) emission reductions through the use of low-ROC coatings and solvents. These rules also include operation and maintenance procedures to reduce PM emissions associated with any spray booths.

2) With the exception of the "no visible emissions" requirement, small or temporary units are exempt from the additional monitoring and recordkeeping requirements of the rule. This includes baghouses with filter area less than or equal to 100 square feet, any portable dust collector, fume extractor, or negative air machine with a maximum rated capacity of less than or equal to 3,000 cubic feet per minute (cfm), and high-efficiency particulate air (HEPA) equipment.

3) Except for the compliance plan requirement, non-operational or inactive units that remain permitted are exempt from the rule. This provision was added to accommodate some of the control devices that have been verified as non-operational for a number of years. These units will not need to be upgraded or monitored on the timetable listed in the rule, but the exemption expires once operations recommence. In most instances, a new Authority to Construct permit application will be required prior to recommencement.

4) Certain units are proposed to be exempted from the weekly six-minute Method 22 observation. This includes infrequently used units such as noncontinuous processes (as defined in Proposed Rule 363) and bin vents. Also, any unit that is operated with a BLDS in accordance with the rule would no longer be subject to the weekly Method 22 observation. Tier 2 baghouses are required to be equipped with a BLDS, but other smaller units may still install a BLDS to be exempted from the weekly Method 22 observation.

5) Since many PM control devices need time to stabilize after being turned on, the proposed rule exempts the devices during their startup operations. For the purpose of this exemption, startup intervals shall not last longer than necessary to reach stable operating

conditions and in no case shall be longer than 45 minutes. However, this does not mean that the PM control device is allowed unlimited emissions during the startup period. The general PM rules, such as the opacity requirement in Rule 302 and the grain loading concentrations in Rules 304 and 305, still apply during startup operations.

6) Air pollution control devices are often used in series (e.g. cyclone functioning as a pre-cleaner for a baghouse). In these instances, the rule exempts the initial pre-cleaner devices from having to comply with the emission limits in the rule, the weekly Method 22 observation, and the BLDS requirements. These three rule standards are intended to control the final unit that exhausts particulate matter pollution into the atmosphere. Applying these three rule standards to a pre-cleaner device would achieve minimal air quality benefits, and so the pre-cleaner unit may be exempted.

Table 3.1. Summary Table of Rule 363 Requirements

Device Type	Rule Section					
	D.1 No Visible Emissions	**D.2 & F** Emission Limit & Source Test	**D.5 – D.7** Best Practices	**E.1** Weekly Method 22	**E.2** BLDS	**H** Compliance Plan
Spray Booth	B.1 – Exempt					
$\leq$ 100 ft^2 cloth area, Portable Units $\leq$ 3,000 cfm, HEPA systems	Applies	B.2 – Exempt				
Inactive equipment	B.3 – Exempt until operated again					Applies
Tier 2 Baghouse (7,500+ ft^2 area)	Applies	Applies	Applies	B.4 – Exempt	Applies	Applies
Tier 1 Baghouse (100 – 7,500 ft^2 cloth area)	Applies	Doesn't apply	Applies	Applies	Doesn't apply	Applies
Remaining PM Control Devices (scrubbers, cyclones, etc.)	Applies	Doesn't apply	Applies	Applies	Doesn't apply	Applies

* Additional operational exemptions may apply, as described in Section 3.9 of this staff report.

4. COMPARISON WITH OTHER AIR QUALITY REGULATIONS

4.1 District Rule 363 and SCAQMD Rule 1155

The District compared Rule 363 against South Coast Air Quality Management District's Rule 1155, as adopted in 2009 and amended in 2014. A comparison chart is shown below in Table 4.1. Based on the District's analysis, the proposed rule is written in such a way that it is as consistent as possible with the South Coast AQMD rule while still adequately acknowledging the permit history and concerns of the affected industries within the Santa Barbara County Air Pollution Control District.

Table 4.1. Comparison of Air District Rules – Rule 363

RULE DESCRIPTION		SANTA BARBARA APCD Rule 363 (Proposed)	SOUTH COAST AQMD Rule 1155 (2014)
Section	**Rule Component**		
Applicability	Facility Type	AB 617 Industrial Sources	All facilities (aggregate, asphalt, concrete, metal products, etc.)
	Equipment Type	All PM Control Devices	All PM Control Devices
	When are the new limits effective?	1 to 2 years after rule adoption	5 months to 2 years after rule adoption
Exemptions		Small/Portable Equipment	Small/Portable Equipment
		Inactive Equipment	Inactive Equipment
		Startup Operations	Startup Operations
Requirements	Visible Emissions	None	None
	EPA Method 22 Observation Duration	6 minutes	5 minutes
	EPA Method 22 Observation Frequency	Every week	Every week
	Large Baghouse Threshold	7,500 ft^2 filter area	7,500 ft^2 filter area
	Emission Limits on Large Baghouses	0.005 gr/dscf	0.01 gr/dscf
	BLDS alarm time allowed	5%	5%, excluding some alarms
Testing	Source Test Applicability	Large Baghouses	Large Baghouses
	Source Test Frequency	Every 5 years	Every 5 years
	Test Methods	EPA Method 5 or 17	SCAQMD Method 5.1 – 5.3
Recordkeeping	Record Retention	5 years	5 years

4.2 District Rule 363 and NSPS Subpart OOO

New Source Performance Standard (NSPS) Subpart OOO establishes particulate matter standards for Nonmetallic Mineral Processing Plants. The subpart is applicable to equipment such as crushers, grinding mills, screening operations, belt conveyors, bagging operations, and storage bins, and any control devices used to capture particulate matter emissions from such equipment. NSPS Subpart OOO applies to equipment units and devices that commenced construction, reconstruction, or modification on or after September 1, 1983. More stringent requirements apply to units that commenced construction, reconstruction, or modification after April 22, 2008. Some of the NSPS Subpart OOO operational requirements for PM control devices are shown below in Table 4.2.

Table 4.2. NSPS Subpart OOO Requirements for PM Control Devices

Rule Component	Install or Modification Date	Emission Standard	Test Method
Emission Limit [1]	Sept 1, 1983 to April 22, 2008	0.022 gr/dscf	EPA Method 5 or 17
	After April 22, 2008	0.014 gr/dscf	EPA Method 5 or 17
Opacity Limit [2]	Sept 1, 1983 to April 22, 2008	7% opacity	EPA Method 9
	After April 22, 2008	No Visible Emissions	EPA Method 22 or BLDS

Since the original NSPS Subpart OOO standards have been in place for over three decades, many devices at mineral processing plants are complying with the emission limits and opacity limits as prescribed above. The NSPS Subpart OOO standards are similar to the standards proposed in Rule 363, but there are two main differences. First, Rule 363 will not use the device's installation or modification date to trigger the requirements. Rule 363 will apply the BARCT standards to all PM control devices at the facility, even the oldest units that have not been modified since 1983. The other main difference is the timing and frequency of the compliance demonstrations. For example, Rule 363 requires weekly Method 22 observations for 6 minutes while NSPS Subpart OOO requires quarterly Method 22 observations for 30 minutes. An affected facility will need to have its air quality permit streamlined to reflect all applicable requirements, but this will allow the facility to perform a single Method 22 observation to satisfy both rules at the same time. An evaluation of the additional Rule 363 impacts can be found in Section 5.

[1] Not applicable to bin vents.
[2] Not applicable to wet scrubbers. Individual bin vents subject to a 7% opacity limit.

5. IMPACTS OF THE PROPOSED RULE

5.1 Emission Impacts

This rule establishes minimum performance standards and maintenance requirements for PM control devices. This includes good maintenance and housekeeping practices, visible emissions monitoring, equipment or bag upgrades, and installation of a BLDS on the largest baghouses. All of these performance standards will lead to early detection and repair, thereby decreasing the frequency of unexpected upsets due to bag ruptures and other problems, and reducing the amount of particulate matter emitted.

Rule 363 will primarily have emission impacts at Imerys' diatomaceous earth processing facility. Imerys' Title V permit already contains some monitoring requirements to make sure the PM control devices are operating appropriately, but the proposed requirements in Rule 363 will further enhance the maintenance and monitoring standards. The rule is also expected to achieve PM emission reductions through the modernization and retrofit efforts for two positive-pressure, open sock baghouses at Imerys. These units are classified as Tier 2 baghouses and are over 30 years old. The open sock baghouses cannot reasonably be source tested using EPA Method 5 or EPA Method 17 because these methods require an enclosure, with emissions being diverted to an exhaust stack, in order to take measurements. Without specific verifiable and enforceable emission factors, the units are permitted using the generic Rule 306 emission limit of 40 lbs/hr. This equates to each unit having a Potential to Emit (PTE) of 175 tons per year of PM_{10}.[1] Under the proposed Rule 363 emission standard of 0.005 gr/dscf, the PTE for the two Tier 2 open sock baghouse units would be reduced by about 170 tons per year of PM_{10} per unit, or about 340 tons per year of PM_{10} for both units.

For the purpose of this evaluation, District staff made some assumptions to more accurately estimate the actual emission reductions achieved by the modernization of the two open sock baghouses. As a conservative scenario, the older baghouses are assumed to meet a 99 percent control efficiency, which is a reasonable estimate for the baseline conditions.[2] To meet the BARCT emission standard of 0.005 gr/dscf, a new or retrofitted baghouse will need to be used, and these units are able to achieve a 99.9 percent control efficiency.[3] Table 5-1, below, presents the calculation values for this method, and it shows that the baghouse modernization requirements are estimated to achieve approximately 32.1 tons per year of PM_{10} in total.

---

[1] The 175 tons per year is also classified as $PM_{2.5}$, but this evaluation is focused on PM_{10} since PM_{10} is the nonattainment pollutant being evaluated due to AB 617.
[2] EPA guidance typically assigns baghouses a 99% control efficiency.
[3] Newer baghouses are able to achieve upwards of 99.9% control due to advances in engineering designs over the last 30 years. Control efficiencies are highly dependent on a number of factors, such as the fabric filter material, particle composition, mass loading rate, air cloth ratio, and filter cleaning procedures.

Table 5-1: Estimated Emission Reductions from Rule 363 Open Sock Baghouses

Device ID	**Max Air Flow Rate** (scfm)	**Current Emission Factor** [1] (gr/dscf)	**BARCT Emission Factor** [2] (gr/dscf)	**Operating Capacity Factor** [3]	**PM_{10} reductions** (tons/year)
125 – Open BH #1	19,000	0.05	0.005	0.75	24.1
126 – Open BH #2	19,000	0.05	0.005	0.25	8.0
				Total:	**32.1**

Where:

Tons/year = ∑ [(Max Air Flow Rate) * (Current EF - BARCT EF) * (Operating Capacity Factor) * (60 mins/hr) * (8,760 hrs/year) / ((7,000 gr/lb) * (2,000 lbs/ton))]

5.2 Cost-Effectiveness

California Health and Safety Code section 40703 requires the District, in the process of adopting or amending a rule, to consider and make public its findings related to the cost-effectiveness of a control measure. Cost-effectiveness, for rulemaking purposes, is calculated by taking the estimated compliance costs of the rule and dividing it by the amount of air pollution reduced. Estimated compliance costs for a rule can include, but are not limited to, capital equipment costs, engineering design costs, installation costs, and ongoing maintenance costs, such as additional labor, fuel, or electrical costs.

This cost-effectiveness evaluation focuses on the modernization requirements for the two Tier 2 open sock baghouses since the estimated emission reductions were quantified in the previous section. District staff requested Imerys to provide a cost estimate for these two units to comply with the rule, whether through retrofits or total replacement. Imerys contacted a manufacturer with their existing equipment specifications. The manufacturer analysis[4] concluded that retrofitting the units was infeasible, but Imerys would be able to purchase two replacement units, each costing approximately $190,000. The estimate did not include the costs associated with decommissioning the existing units, installing and commissioning new units, external engineering, structural modifications, emissions monitoring, piping, fans, or permitting fees. To estimate these additional direct and indirect costs, District staff applied the capital cost factors for fabric filters, as described in Section 6 of the EPA Control Cost Manual. With the additional capital costs included, the total initial cost for each baghouse is estimated to be $460,000.

For cost-effectiveness calculations, the District uses the Levelized Cash Flow (LCF) method which uses a capital recovery factor (CRF) to transform any capital costs into an equivalent annual cost. The CRF is applied to account for the one-time capital expenditures that reduce emissions over the entire duration of the project life. The CRF equation is shown below, and it is

[1] Current Emission Factor assumes the old baghouses meet a 99% control efficiency. This factor is also reported by Imerys in their Compliance Verification Reports.

[2] BARCT Emission Factor represents the Rule 363 BARCT limit for Tier 2 baghouses. Assume the new baghouses meet 99.9% control efficiency to comply with this limit.

[3] Device-specific annual operating records were reviewed to estimate the average Operating Capacity Factor.

[4] In accordance with California Government Code Section 6254.7, Imerys requested that the quote is treated as confidential. The manufacturer name and analysis is not included in this staff report and only the final cost value is included.

a function of both the real interest rate and the project life. The real interest rate is assumed to be 6 percent[1] and the equipment is expected to operate for 30 years, similar to the existing baghouse units.[2]

$$CRF = \frac{i * (1 + i)^n}{(1 + i)^n - 1} = \frac{0.06 * (1 + 0.06)^{30}}{(1 + 0.06)^{30} - 1} = 0.073$$

Where:
i = Real Interest Rate (6%)
n = Project Life (30 years)

The cost-effectiveness calculations also include any additional annual operating costs, such as those costs associated with increased electricity usage, labor hours, or source test fees. Some of the incremental operational costs are assumed to be negated by the benefits and savings from the new systems. This is because a new system will have a better maintenance routine using BLDS, which reduces the number of bag replacements needed and the amount of system downtime. For the purposes of this evaluation, a conservative value of $2,000 per year is assigned to the incremental operational costs, which mainly consists of the source testing and permitting fees.

Table 5-2: Estimated Annualized Costs per Unit

Device ID	**Initial Capital Costs** ($/installation)	**CRF**	**Incremental Operational Costs** ($/year)	**Annualized Cost** ($/year) [3]
125 – Open BH #1	$460,000	0.073	$2,000	$35,400
126 – Open BH #2	$460,000	0.073	$2,000	$35,400

Where:
Annualized Cost = (Initial Capital Costs * CRF) + (Incremental Operational Costs)

As shown in Table 5-2 above, the annualized costs for each of the units are estimated to be $35,400. In order to calculate the final cost-effectiveness in dollars-per-ton, the annualized cost of a unit is divided by one year's worth of the estimated emission reductions for the unit. The final cost-effectiveness values for each unit are shown in Table 5-3 below.

Table 5-3: Cost-Effectiveness per Unit

Device ID	**Annualized Cost** ($/year)	**PM_{10} Reductions** (tons/year)	**Cost-Effectiveness** ($/ton)
125 – Open BH #1	$35,400	24.1	$1,470
126 – Open BH #2	$35,400	8.0	$4,410

[1] The real interest rate fluctuates over time. For all rule development projects, the District applies a 6% real interest rate so that rule projects throughout the years can be compared against each other.
[2] The initial installation date of these units could not be determined. However, historical permit records demonstrate that these units have been in operation for at least 30 years.
[3] Final values may appear slightly different based on rounding conventions and significant figure usage.

Where:

Cost-Effectiveness = (Annualized Cost) / (PM_{10} Reductions)

The cost-effectiveness for the full replacement of the two open sock baghouses is estimated to range from $1,470 to $4,410 per ton of PM_{10}. This range of values is considered to be cost-effective for rule projects within Santa Barbara County. For comparison, the District's cost-effectiveness threshold for BACT (Best Available Control Technology) determinations is approximately $32,000 per ton of PM_{10}.

5.3 Incremental Cost-Effectiveness

California Health and Safety Code section 40920.6(a)(3) requires the performance of an incremental cost-effectiveness analysis that identifies more than one control option that meets the emission reduction objective of the regulation. The incremental cost-effectiveness is the difference in cost between two successively more effective controls, divided by the additional emission reductions achieved.

This sections only applies to "rules or regulations to meet the requirements for best available retrofit control technology [BARCT] pursuant to Sections 40918, 40919, 40920, and 40920.5, or for a feasible measure pursuant to Section 40914….". All of these referenced laws pertain to district plans to "achieve and maintain state ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide…". Thus, Section 40920.6(a)(3) does not apply to rules relating to the BARCT requirements of Assembly Bill 617.

5.4 Socioeconomic Impacts

California Health and Safety Code section 40728.5 requires Districts with populations greater than 500,000 people to consider the socioeconomic impact of any new rule if air quality or emission limits are significantly affected. In 2019, the population of Santa Barbara County was approximately 455,000 persons based on data from the Santa Barbara County Association of Governments. Using the expected growth rates for the County, the current population estimate is still below the 500,000 person threshold. Therefore, the District is not required to perform a socioeconomic impact analysis for the proposed rule.

5.5 Impact to Industry

The proposed requirements in Rule 363 will affect all new and existing PM control devices at AB 617 industrial sources. At this time, the rule will mainly have a fiscal impact on Imerys' diatomaceous earth processing facility since the facility currently owns and operates equipment that does not meet the current BARCT requirements. Estimated costs for the changes at this facility are estimated below in Table 5.4.

Table 5.4 – Estimated Rule 363 Compliance Costs

Requirement	Number of Applicable Units [1]	Number of Affected Units [2]	Cost per Affected Unit	Total Cost
Baghouse Modernization: Open Sock Baghouses	4	2	$460,000	$920,000
Baghouse Modernization: Manual Shaker Systems	3	0	$12,500	$0
BLDS installation on Tier 2 Baghouses	9	6	$12,500	$75,000
Source Tests on Tier 2 Baghouses	9	4	$5,000 every 5 years	$20,000 every 5 years
Weekly Method 22	60	50	$500 every year	$25,000 every year

Imerys is already required to perform various source tests and EPA Method 9 and EPA Method 22 observations on their PM control devices in accordance with their Title V permit. Since some of the baghouses are already on a source testing schedule, the proposed rule will only require a few more units to be source tested every five years. Also, Imerys has multiple personnel that are fully trained and able to conduct Method 22 observations. Since the rule will require weekly tests, the estimated costs for each Method 22 test are based on the anticipated time it takes to perform the test and associated recordkeeping. On average, this work will take approximately 15 minutes per test, so each unit will require approximately 13 hours of labor per year.

Staff concludes that although there will be costs related to the baghouse modernizations efforts, BLDS installations, sources tests, and additional monitoring time, the costs are incurred in the interest of bringing the facility operations up to current control technology standards and complying with state legislation.

5.6 Impact to the District

The proposed rule is not expected to result in any significant increased workload for District staff. Staff will have to review the Rule 363 Compliance Plan(s) and process additional Authority to Construct permit application(s) to incorporate the new rule standards, but the District can manage the workload with existing staff and no additional hires will be necessary.

[1] "Applicable Unit" reflects the number of devices that are currently permitted that may be subject to the rule requirement.

[2] If a PM control device is already required to meet the specific standard per the facility's permit or if the device is anticipated to be exempt from rule requirements, it is not counted as an "Affected Unit" for the purpose of this cost estimate. An affected facility will determine the actual number of affected units when they submit their final Compliance Plan to the District.

6. ENVIRONMENTAL IMPACTS – CEQA

6.1 Environmental Impacts

California Public Resources Code section 21159 requires the District to perform an analysis of the reasonably foreseeable environmental impacts of the methods of compliance. The analysis shall take into account a reasonable range of environmental, economic, and technical factors, population and geographic areas, and specific sites.

The analysis must include the following information on the proposed rule:

1) *An analysis of the reasonably foreseeable environmental impacts of the methods of compliance.*

   Most PM control devices are expected to already comply with the "no visible emissions" standards in proposed Rule 363. Some of the larger Tier 2 baghouses may need modifications or overhauls to be able to demonstrate compliance with the emission standards in the rule. These units are over 30 years old and may be replaced if they cannot be retrofitted. The replacement of older units is not expected to result in any additional impacts above and beyond the activities associated with regular maintenance and replacement of plant equipment over time at the existing facility. Any new equipment will more than likely have power and electrical efficiency gains due to advances in baghouse designs. This rule will also be beneficial to the environment by reducing overall emissions. Based on the above, no adverse environmental impacts are expected.

2) *An analysis of the reasonably foreseeable mitigation measures.*

   Since no adverse environmental impacts are expected, no mitigation measures are proposed.

3) *An analysis of the reasonably foreseeable alternative means of compliance with the rule or regulation.*

   An affected facility could replace the existing PM control equipment with other types of PM control equipment that have less stringent requirements. For example, a facility could remove a large baghouse and replace it with a wet scrubber or a cyclone to avoid the source testing requirements for Tier 2 baghouses. However, the costs to perform this replacement far outweigh the on-going costs to comply with the rule, and so it is not considered a reasonably foreseeable alternative.

   An affected facility could also remove all PM control devices from a processing line to avoid the proposed rule requirements. However, this would cause excessive dust and opacity issues on the processing line itself, and so it is not considered a reasonably foreseeable alternative. Based on the above, there are no reasonably foreseeable alternative means of compliance.

The above analysis under Public Resource Code section 21159 further demonstrates that there is no reasonable possibility that the adoption of proposed Rule 363 will have a significant effect on the environment due to unusual circumstances.

6.2 California Environmental Quality Act (CEQA) Requirements

The California Environmental Quality Act (CEQA) requires environmental review for certain actions. This rulemaking project consists of additional monitoring and testing requirements for PM control devices at the AB 617 industrial sources. The project will provide additional verifications that the control equipment is operating properly and not venting excessive emissions. The rule contains emission standards, but most of the control equipment is already expected to meet those standards based on the design criteria of the units. The proposed rule requirements will not result in an expansion of use beyond the existing facility use and operations. The existing environment remains the same and there is no relaxation in standards.

A CEQA determination will be made when the proposed rule amendments are brought to the District Board of Directors for adoption. Any subsequent changes to the project description during the public review period will undergo additional environmental review under CEQA if required.

7. PUBLIC REVIEW

Industry Review

Over the last several months, District staff has worked directly with Imerys to review the rule language and the support documentation contained within the staff report. The draft rule language was initially made available to Imerys on September 25, 2020, and a slightly modified version along with a draft staff report was made available on December 1, 2020. Industry comments and District responses to those comments are included as Attachments #2 and #3 to this report. Additional modifications to the rule language and staff report have been incorporated in response to industry comments.

Community Advisory Council and Public Workshop

To facilitate the participation of the public and the regulated community in the development of the District's regulatory program, the District created the Community Advisory Council (CAC). The CAC is composed of representatives appointed by the District's Board of Directors. Its charter is, among other things, to review proposed changes to the District's Rules and Regulations and make recommendations to the Board of Directors on these changes.

The CAC will convene and discuss Draft Rule 363 on April 28, 2021. The event will also serve as a public workshop, where the District invites representatives from the general public and the AB 617 industrial sources to share information and directly comment on the draft rule. In accordance with California Executive Order N-33-20, the meeting will be held virtually. The District uses Zoom to host such virtual meetings. The public may attend and comment at the meeting, and the directions to participate will be clearly identified on the CAC agenda.

To inform the public about the meeting, District staff will email a public notice to everyone who subscribed to the District's noticing subscription list. Staff will also mail a hardcopy notice to the six industrial sources that could be affected by the rule revisions and will share information about the meeting on the District's website and social media.

At the meeting, staff will present the key aspects of both the rule and the staff report to the workshop participants and the CAC members. The workshop participants will have an opportunity to ask questions and submit verbal or written comments. The CAC will then consider those comments and be able to further deliberate the various aspects of the rules.

Public Hearing

In accordance with California Health and Safety Code section 40725, the proposed rule will be publicly noticed and made available at the District offices and on the District's website prior to the public hearing before the District's Board of Directors. The public will be invited to the hearing and can provide comments on the proposed amendments prior to or at the hearing.

8. REFERENCES

1) South Coast Air Quality Management District – *Rule 1155, Particulate Matter (PM) Control Devices,* Adopted December 4, 2009.
2) South Coast Air Quality Management District – *Staff Report for Rule 1155, Particulate Matter (PM) Control Devices*, December 2009.
3) South Coast Air Quality Management District – *Rule 1155, Particulate Matter (PM) Control Devices,* Amended May 2, 2014.
4) South Coast Air Quality Management District – *Rule 1155, PM Control Devices Summary and FAQs*, July 2015.
5) U.S. Environmental Protection Agency – *Visible Emissions Field Manual EPA Methods 9 and 22*, December 1993.
6) U.S. Environmental Protection Agency – *Air Pollution Control Cost Manual – Sixth Edition (EPA 452/B-02-001)*, January 2002.
7) U.S. Environmental Protection Agency – *Fabric Filter Bag Leak Detection Guidance (EPA-454/R-98-015)*, September 1997.
8) Santa Barbara County Air Pollution Control District – *Assembly Bill 617 Best Available Retrofit Control Technology Rule Development Schedule,* Adopted December 20, 2018.

9. ATTACHMENTS

9.1 Attachment #1. FAQs and Rule Clarification

9.2 Attachment #2. Public Comments

9.3 Attachment #3. Response to Public Comments

ATTACHMENT #1

FAQs and Rule Clarification

Attachment #1: FAQs and Rule Clarification

The following text provides rule clarifications in the format of frequently asked questions:

Applicability & Exemptions

1. **Question:** The rule only applies to units that control "direct (non-combustion)" PM emissions, but baghouses and scrubbers can be used to control emissions from external combustion equipment. Do these baghouses and scrubbers still fall under the rule applicability?

   Response: If the baghouses and scrubbers are used to vent any direct PM emissions, the units become subject to the rule. For example, baghouses are often used as the final venting point for dryers and kilns. Even though dryers and kilns primarily create combustion emissions, there are direct PM emissions associated with the screening and conveying of the material being dried (such as diatomaceous earth). The rule is intended to cover these types of units.

   The distinction in the rule language is necessary because the rule isn't intended to cover diesel particulate filters on engines or scrubbers on large, oil-fired boilers. These types of processes are only venting combustion emissions and have no direct, non-combustion emissions.

2. **Question:** Some cyclones are used as a material separation process and not as an air pollution control device. Would these cyclones fall under the rule requirements?

   Response: Cyclones that are solely used as a process for material separation and collection are not subject to the rule since they are not PM control devices.

3. **Question:** How does the startup exemption in B.5 apply to passive and active bin vents? Passive bin vents don't have any sort of exhaust fan, and active bin vents are only turned on for about an hour during silo loading operations.

   Response: The exemption in B.5 allows PM control devices up to a 45-minute period to reach normal, steady state operations. Startup operations may end before the 45-minute period if, based on manufacturer recommendations or facility procedures, the unit engages in normal operations.

   In the case of a passive bin vent, there are no startup operations since the unit is never turned on. It is effectively always operating, and so the startup exemption does not apply. Active bin vents, on the other hand, may have slight startup emissions when they're turned on after a maintenance activity or when they're preparing to receive product in the silo. However, once silo filling begins, the bin vent is no longer in startup mode and the "no visible emissions" requirement is applicable.

Visible Emission Observations

4. **Question:** Is there a certification process necessary to become trained in reading visible emissions using US EPA Method 22?

   Response: No. EPA Method 22 does not require certification; however, self-training and knowledge of implementing the method is required. Method 22 training can be obtained from written US EPA or CARB materials or from the lecture portion of the EPA Method 9 certification course.

5. **Question:** How does "opacity" relate to the visibility of the emissions?

   Response: Opacity is the degree to which the visibility of the background is reduced by particulate matter or smoke plumes. It is measured on a scale from 0% to 100%, with 0% being clear and 100% meaning that nothing can be seen beyond the plume. Opacity observations are conducted using EPA Method 9, which requires each 15 second observation to be rounded up or down to the nearest 5% opacity. Rule 363 does not require the facility to have anyone certified to conduct EPA Method 9, but District inspectors are certified and would therefore be able to perform a visible emissions evaluation.

6. **Question:** The "no visible emissions" requirement in Section E.1 of the rule seems to be focused on fixing any issues with the PM control devices as they're observed. If a facility doesn't maintain their equipment, will they ever receive a penalty or Notice of Violation (NOV) for having visible emissions?

   Response: Yes. If the District observes visible emissions from PM control devices subject to the "no visible emissions" requirement during an inspection, then an NOV may be issued. The language in the rule protects the facility if they've actively identified the issue and are working to correct it, as verified with their recordkeeping logs. But if the recordkeeping logs are not kept or a new visible emission is identified by a District inspector, it would be considered a violation.

7. **Question:** Does the "no visible emissions" requirement only apply to the control equipment exhaust stack?

   Response: No. EPA Method 22 readings can be taken on any part of the control equipment, including fugitive emissions from leaks or holes in the control device.

8. **Question:** If a PM control device at the facility is temporarily shut down for an extended period of time (greater than one week), is the operator still required to perform weekly Method 22 observations?

   Response: No, the operator is not required to conduct Method 22 observations while the PM control equipment is not in operation for the extended period, provided no process activity takes place and records regarding the operational status of the equipment are maintained. This scenario is included in the rule language under section E.1.a.

9. **Question:** Can the facility use a Continuous Opacity Meter System (COMS) instead of relying on the weekly Method 22 observations?

   Response: No, a COMS would not exempt a control device from the weekly Method 22 observations. If the facility would like to install a BLDS on a PM air pollution control device instead of performing the weekly Method 22 observations, the rule allows them to do so. A BLDS is required instead of a COMS because a COMS is more expensive and has a wider variety of data errors (affected by relative humidity, optical misalignment, and dust accumulation on the transceiver lens).

Baghouses and Bag Leak Detection Systems (BLDS)

10. **Question:** Why does the rule have requirements based on baghouse filter surface area?

    Response: Filter surface area is a key baghouse parameter that can easily be identified by the manufacturer. It is incorporated into the baghouse design and needs to be sufficiently large enough to handle the PM loading rate of the controlled emission units. Even if the operator temporarily closes or removes some of the bags, the manufacturer-designed filter surface area remains constant and it will be used to prevent circumvention of the rule requirements.

11. **Question:** Are the baghouses required to have magnehelic gauges to make sure they're operating in the desired pressure range?

    Response: The rule does not specifically require magnehelic gauges on each baghouse. Instead, Section D.5 of the rule requires each PM air pollution control device to be operated and maintained in accordance with the manufacturer's operation and maintenance manual (or other similar written materials supplied by the manufacturer) to ensure that the control device remains in proper operating condition. A magnehelic gauge will be a part of most baghouse systems.

13. **Question:** If a baghouse is retrofitted with a BLDS, will it require a permit modification?

    Response: Yes, the installation of a BLDS on an existing baghouse will require a permit modification.

14. **Question:** What type of alarms are you intending to see for a BLDS?

    Response: A BLDS alarm should sound under these three scenarios: 1) Alarm time with elevated emissions that are visible; 2) Alarm time with elevated emissions that aren't visible; and 3) Alarm time if the BLDS is malfunctioning.

    These three scenarios all count towards the requirement to maintain less than a 5 percent aggregated alarm time, but they each have different severities in relation to the PM emissions emitted. The recordkeeping elements of the rule will help the operator describe the severity of each alarm and these records will be made available to District staff.

15. **Question:** Can a BLDS be installed on non-baghouse PM control devices, such as on cyclones?

    Response: Yes, the BLDS technology is transferrable to other PM air pollution control devices besides baghouses. Thus, a cyclone may be exempt from weekly visible emission observations if a BLDS is installed.

ATTACHMENT #2

Public Comments

IMERYS

Imerys Filtration Minerals, Inc.

Sent via email: MitroT@sbcapcd.org

December 22, 2020

Ms. Aeron Arlin Genet
Director and Air Pollution Control Officer
Santa Barbara County Air Pollution Control District
260 N. San Antonio Rd., Suite A
Santa Barbara, CA 93110

Re: Draft Rule 363 – Particulate Matter (PM) Control Devices

Dear Ms. Arlin Genet:

We have reviewed the December 1, 2020 draft of Rule 363, which SBCAPCD provided to Imerys. Thank you for providing this draft.

We question the necessity of this regulation since we are the only facility to which this rule would pertain, and we are the proverbial "class of one." *See Willowbrook v. Olech,* 528 U.S. 562 (2000) (holding that the Equal Protection Clause protects "class of one" plaintiffs from unequal treatment). We are also concerned that this rule is not cost effective when analyzed under the standards set forth in Assembly Bill (AB) 617 and Section 40920.6 of the California Health & Safety Code, due to the excessive cost required in relation to any emission reduction potential and the availability of less costly alternatives. Furthermore, SBCAPCD is adopting a rule similar to the SCAQMD Rule 1155, yet the reasons for such a PM control device rule do not exist in the SBCAPCD air basin. This is because in the SBCAPCD air basin, only emissions from Imerys' facility would be regulated as compared to the 1,477 facilities, 4,474 PM control devices and 66 baghouses in the SCAQMD air basin estimated to be regulated at the time of proposing SCAQMD Rule 1155. In addition, the SCAQMD air basin has been rated as being in nonattainment where SBCAPCD has received attainment ratings (e.g., for PM2.5).

Comment #1

Comment #2

Comment #3

To the extent SBAPCD determines this regulation is necessary and cost effective, we offer some minor technical suggestions below. Also, we are estimating the cost impacts on Imerys of the rule as drafted, as described below.

<u>Comments on draft Rule 363:</u>

Imerys submits the following comments on the December 1, 2020 draft of Rule 363.

1. Paragraph B.5:

The provision as drafted does not reflect that the startup time required for Imerys' System 7 is 45 minutes, not 30 minutes as stated in the draft rule. Therefore, the sentence setting forth this startup time requirement should be revised to state:

"For the purpose of this exemption, startup intervals shall not last longer than necessary to reach stable operating conditions and in no case shall be longer than ***45*** minutes." (Emphasis added.)

Comment #4

2. Paragraph E.2.e:

The provision as drafted is inconsistent with paragraph E.1.c, which provides 24 hours to implement all necessary corrective actions to eliminate visible emissions. The provision should be revised to state "24 hours" instead of "3 hours" to permit a reasonable time for implementing all necessary corrective actions.

Comment #5

3. Paragraph G.1.g and G.2.e:

The provision requires, among other things, "the name of the person performing the corrective action." Including the name of the person performing the corrective action may be misleading in recordkeeping because of the use of contractors to perform repairs. The provision should be revised to remove this requirement.

Comment #6

Cost impact estimates:

In addition, your staff requested information on cost impacts to Imerys. Preliminary review by Imerys indicates that Rule 363 as drafted would have considerable cost impacts, which must be considered in implementing the requirements of Assembly Bill (AB) 617 and Section 40920.6 of the California Health & Safety Code.

We are endeavoring to obtain the cost estimates you requested but as we are closing in on the end of year holidays, we are still gathering and will probably not have them for you until January.

We appreciate your attention to the issues raised in this letter, particularly as Imerys is the only entity proposed to be regulated by the rule.

Sincerely,

Vindi Ndulute
EHS Manager

ATTACHMENT #3

Response to Public Comments

Attachment #3: Response to Public Comments

#	Summarized Comment	District Response
1)	We question the necessity of this regulation since we are the only facility to which this rule would pertain, and we are the proverbial "class of one." See *Willowbrook v. Olech*, 528 U.S. 562 (2000) (holding that the Equal Protection Clause protects "class of one" plaintiffs from unequal treatment).	Rule 363 is being proposed to satisfy the state mandate that all AB 617 industrial sources are evaluated for BARCT. This mandate applies to all districts that are nonattainment for one or more air pollutants, and Santa Barbara County does not attain the state PM_{10} standard. The District outlined its plan to adhere to the AB 617 mandate with the BARCT Rule Development Schedule, which was adopted by the Board of Directors in December 2018. The rule schedule included six rules that needed to be evaluated, and these rules would apply to all six AB 617 industrial sources within Santa Barbara County. The rule schedule was adopted in a clear and transparent process that included public notices, a combined public workshop and Community Advisory Council meeting, and the Board Hearing. In accordance with AB 617, the rules on the rule schedule affect those industrial sources that are subject to compliance obligations under the state Cap-and-Trade program because they emitted greater than 25,000 metric tons of greenhouse gas (GHG) emissions per year. Regarding *Willowbrook v. Olech*, this case involves protecting individuals from intentional and arbitrary discrimination. Rule 363 is not arbitrary or discriminatory. As discussed above, Rule 363 is based on a statewide legislative requirement that was developed through a public process. The applicability of the proposed rule is based on a facility's historical GHG emissions. The AB 617 legislation demonstrated correlations between GHG emissions and both criteria and toxic air pollutants, and it specifically applies to existing large GHG-emitting sources with the intention of protecting nearby communities from the harmful effects of air pollution. Even though the other five AB 617 industrial sources do not currently use any non-combustion PM control devices, the rule would still apply to them if they install such PM control devices in the future.

Attachment #3: Response to Public Comments

#	Summarized Comment	District Response
2)	We are also concerned that this rule is not cost effective when analyzed under the standards set forth in Assembly Bill (AB) 617 and Section 40920.6 of the California Health & Safety Code, due to the excessive cost required in relation to any emission reduction potential and the availability of less costly alternatives.	As described in Section 5 of the staff report, Rule 363 is estimated to result in approximately 32 tons per year of PM_{10} emission reductions through early detection, repair, and modernization efforts. Most of the emission reductions will be achieved through the modernization of two positive-pressure, open sock baghouses that have been in operation at Imerys for over 30 years. These units are near the end of their useful life, and replacement units should be expected soon. Replacing or retrofitting these units will result in improved dust collection efficiency, an increased filter bag lifespan, and reduced maintenance costs. The cost-effectiveness for the modernization efforts are estimated to range from $1,470 to $4,410 per ton of PM_{10}, which is considered cost-effective for rule projects. The modernization efforts also meet a critical component of the AB 617 mandate because the legislation, as codified in Section 40920.6 of the California Health and Safety Code, is focused on reducing emissions from those permitted units that have not been modified for the greatest period of time. Each of the requirements in Rule 363 will have an associated cost, but the requirements are necessary to bring the facility operations up to current control technology standards. Based on the District's research, available manufacturer data, and information from other air districts, the BARCT requirements are considered to be cost-effective. If Imerys has additional data on less costly alternatives, please submit the data to District staff so that it can be incorporated into the staff report.
3)	SBCAPCD is adopting a rule similar to the SCAQMD Rule 1155, yet the reasons for such a PM control device rule do not exist in the SBCAPCD air basin…..the SCAQMD air basin is nonattainment while SBCAPCD has received attainment ratings (e.g., for $PM_{2.5}$).	Santa Barbara County is designated as nonattainment for the state PM_{10} standard and therefore has to comply with AB 617. See Response to Comment #1 for more information. Also, California Health and Safety Code §40001 authorizes air districts to adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards. This general power relates to our agency's mission to protect the people and the environment of Santa Barbara County from the effects of air pollution. Furthermore, the California Air Resources Board is in the process of updating its statewide plan to comply with the federal Regional Haze requirements.[1] One of the requirements in the plan is to evaluate large stationary sources of pollution near national parks and wilderness areas (termed "Class I areas") and show that the large sources are reducing their pollution over time. Imerys is included in CARB's evaluation because Imerys' emissions can potentially impact the nearby San Rafael Wilderness (approximately 30 miles to the northeast of the facility). It is the District's current understanding that CARB intends to rely on the emission reductions from Rule 363 to help satisfy the Regional Haze requirements.

[1] More information regarding the Regional Haze requirements can be found at www.epa.gov/visibility

Attachment #3: Response to Public Comments

#	Summarized Comment	District Response
4)	Rule 363, Section B.5: Startups Request to increase the allowable startup interval from 30 minutes to 45 minutes, as currently allowed in the permit for Imerys' System #7.	This change has been incorporated into the new draft version of the rule.
5)	Rule 363, Section E.2.e: BLDS The provision for a 3-hour window to perform a corrective action is inconsistent with paragraph E.1.c. The provision should be revised to state "24 hours" instead of "3 hours" to permit a reasonable time for implementing all necessary corrective actions.	Per the exemption in Rule 363 Section B.4, the provisions of Section E.1 (including the 24-hour corrective action window) do not apply to any PM control device that is equipped with a BLDS. Hence, there is no inconsistency and the BLDS corrective action window is intended to be limited to 3 hours. The 3-hour window for units with a BLDS is based on the conditions incorporated by the U.S. EPA into NSPS Subpart OOO, as amended in 2009. The 3-hour window is considered reasonable for most larger units since they would have adequate time to finish an operating cycle or shift. In most cases, the necessary corrective action will include shutting down the equipment so maintenance personnel can safely access and inspect the baghouse filters. Shutting down the equipment within the 3-hour period will satisfy the requirements in the rule, even if additional maintenance activities take longer than 3 hours to complete. The 3-hour window provides a practical balance between the need to limit excessive PM emissions from the unit and the operating needs of the facility. However, it may be infeasible for some equipment to shutdown within the 3-hour window. For these cases, the facility may request additional time in their Compliance Plan pursuant to the provisions of Rule 363 Section E.2.e.1.
6)	Rule 363, Section G.1.g & G.2.e: Recordkeeping Including the name of the person performing the corrective action may be misleading in recordkeeping because of the use of contractors to perform repairs. Request to remove this requirement.	The District does not agree that including the name of the person performing the corrective action is misleading. Many District prohibitory rules include this condition to document the responsible person and verify that the work was adequately performed. The proposed change has not been incorporated at this time.