Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Permit Evaluation
and
Statement of Basis
for
RENEWAL
of

MAJOR FACILITY REVIEW PERMIT

for

Owens Corning
Facility #A0041

Facility Address:
960 Central Expressway
Santa Clara, CA 95050

Mailing Address:
960 Central Expressway
Santa Clara, CA 95050

November 2012

Application Engineer: Krishnaswamy R. Bhagavan
Site Engineer: Krishnaswamy R. Bhagavan

Applications: 17948, 21632 and 23519

TABLE OF CONTENTS

Title V Statement of Basis

The Bay Area Air Quality Management District (BAAQMD or District) is proposing a 5-year renewal of the Title V Operating Permit of Owens Corning Insulating Systems, LLC (OCIS), a glass fiber manufacturing facility located in Santa Clara, California (Facility #A0041). The District issued the initial Title V permit to OCIS in 2003. The proposed action would be the first renewal of OCIS's Title V permit. As part of the renewal process, the District has reviewed and updated the terms and conditions of the initial Title V permit. The District is also proposing to make a significant revision to the initial Title V permit at this time, to add certain District permit conditions to which OCIS became subject after the initial Title V permit was issued. The conditions are discussed in more detail below.

A. Background

OCIS is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the "potential to emit" (as defined by BAAQMD Regulation 2-6-218) more than 100 tons per year of particulate matter (PM) and carbon monoxide (CO). Previously, the facility was also a major facility of hazardous air pollutants (HAPs) because it emitted more than 10 tons per year of phenol and methanol and more than 25 tons per year of phenol, methanol, and formaldehyde. However, in 2011, the facility changed the formulation of a binder used in its manufacturing process and as a result is no longer a major emitter of HAPs.

Title V permits must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all "applicable requirements" (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year. In the Bay Area, "applicable requirements" include state and District requirements in addition to federal requirements. State and District requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

The District processes Title V renewals under District Regulation 2-6-416. The District has reviewed the terms and conditions of OCIS's initial Title V permit to determine whether they are still valid and correct and made adjustments when necessary. For example, the District has reviewed the applicability determinations for all sources, including those that have been modified or permitted since the issuance of the initial Title V permit, and confirmed that all applicable requirements are included in the renewal permit and that any requirements that are not applicable have been deleted. The District has also updated the standard sections of the permit to include any new standard language and made corrections where necessary. The District also assessed all monitoring requirements in the initial permit and verified that they are sufficient to assure compliance.

OCIS received its initial Title V permit under Application 25819 on November 25, 2003. The District made a minor revision relating to monitoring to the initial Title V permit under Application 10469 on January 30, 2007. Please refer to Section X "Revision History" of the permit.

Proposed Significant Revisions

After being issued its initial Title V permit in 2003, OCIS submitted a number of applications to the District requesting to make changes at the facility. Each of the applications and the District's permitting actions in response are summarized in Table 1 below. For reference, the District's engineering evaluation reports for all of the applications summarized in Table 1 is included in Appendix B.

Some applications submitted by OCIS since 2003 pertained only to sources that were deemed to be exempt from District permitting requirements and/or sources that did not meet the criteria of a "significant source" in Regulation 2-6-239 (defined as a source that has a PTE greater than 2 TPY of any regulated air pollutant or more than 400 pounds/year of any HAP). These sources are described briefly in Table 1 below, but they are not required to be included and therefore do not appear in the Title V renewal permit.

Other applications submitted by OCIS since 2003 resulted in District permitting actions that do require a change, *i.e*., a "significant revision" under District Regulation 2-6-226, to the initial Title V permit. OCIS has submitted additional applications to make these changes to the Title V permit. Specifically, OCIS has submitted Application 21632 to make a "significant revision" to the initial Title V permit for the changes associated with Application 21631. It has submitted Application 23519 to make a "significant revision" to the initial Title V permit for the changes associated with Application 23518. The District is proposing to incorporate these significant revisions into the proposed renewal action. The "Summary of Changes" column of Table 1 below identifies the applications and District permitting actions that require a change to the Title V permit and where the changes can be found in the proposed renewal permit.

All proposed changes to the existing permit are identified in this Statement of Basis and are shown in the proposed renewal permit in ~~strikeout~~/underline format.

Table 1		
Application #	**Application Summary**	**Summary of changes**
9136	**Polypropylene fiber application test trials:** Under this application OCIS conducted test trials from May 2004 through July 2004 at a location	The project to install and operate S-169 did not impact and/or warrant any changes to the proposed renewal permit. S-169 no longer operates at

Table 1		
Application #	**Application Summary**	**Summary of changes**
	downstream of the "M" Rotary Spin Line Oven. The tests, referred to as S-169, consisted of several trial runs where Polypropylene (PP) fibers were formed and applied to a moving pack of glass fiber insulation and/or alternatively, a PP film was adhered to the bottom side of the pack. POC and PM emissions associated with S-169 were less than 10 pounds per highest day and the total emissions of the individual pollutants were less than 150 pounds per year. In light of the above, the project was deemed to be exempt from requiring a Permit to Operate per Regulation 2-1-103.3. The District sent OCIS a Letter of Exemption for S-169 in March 2004.	OCIS. Therefore, S-169 is not referenced in the proposed renewal permit.
12522	**Use of moldacide treated kraft facing paper at "M" & "O" line asphalt applicators:** Under this application OCIS implemented an operational change to use kraft paper impregnated with a fungicide/moldacide material at the "M" and "O" line asphalt applicators – sources S-69 and S-70, respectively. The District issued OCIS a Permit to Operate in August 2005.	The project to use moldacide treated kraft facing paper at S-69 and S-70 did not impact and/or warrant any changes to the proposed renewal permit.
16775	**Retail roll overwrap tape glue system at "M" & "O" lines:** OCIS operates two manufacturing lines the "M" and the "O" lines. Each of the above two manufacturing lines consist of glass batch melting, glass fiber & pack forming, curing, and cooling section sources.	**Table II A:** 1. Added S-170 and S-171. **Table IV:** 1. Added a new Table IV-Y for S-170 & S-171.

Table 1		
Application #	**Application Summary**	**Summary of changes**
	Under this application OCIS installed S-170 & S-171, the retail roll overwrap tape glue systems for the "M" and "O" lines, which are located downstream of the "M" and "O" line cooling sections (S-4 & S-22). The District issued OCIS a Permit to Operate for S-170 and S-171 in December 2007.	**Section VI:** 1. Added new permit condition 23812 for S-170 & S-171. **Table VII:** **1.** Added a new Table VII-U for S-170 & S-171.
17074	**Test trials to use non-POC water-based inks at the "M" & "O" line ink jet printers:** OCIS operates two manufacturing lines the "M" and the "O" lines. Each of the above two manufacturing lines consist of glass batch melting, glass fiber & pack forming, curing, and cooling section sources. Under this application OCIS conducted test trials at S-155 & S-156 – the ink jet printing systems for the "M" and "O" lines which are located downstream of the "M" and "O" line asphalt applicators (S-69 & S-70) that are downstream of the "M" and "O" line cooling sections (S-4 & S-22). During the test trials, a tote containing the non-POC water-based IJP ink supplied ink to the existing printing heads at S-155 & S-156. Because the inks used in the test trials contained no POCs, there were no POC emissions. Therefore, the use of the non-POC water-based IJP inks at S-155 & S-156 was deemed to be exempt from requiring a Permit to Operate per Regulation 2-1-103.	The project to use non-POC water-based IJP ink at S-155 & S-156 did not impact and/or warrant any changes to the proposed renewal permit.

Table 1		
Application #	**Application Summary**	**Summary of changes**
	The District sent OCIS a Letter of Exemption permitting the use of the non-POC water-based IJP ink at S-155 & S-156 in February 2008.	
19322	**<u>Installation of trial burners at "M" line curing oven:</u>** OCIS operates two manufacturing lines the "M" and the "O" lines. Each of the above two manufacturing lines consist of glass batch melting, glass fiber & pack forming, curing, and cooling section sources. The "M" line curing oven (S-3) is equipped with four oven zones with one burner per zone for a total of four oven zone burners. Under this application, OCIS replaced the four existing oven zone burners at S-3 with four new oven zone burners (trial burners). The installed thermal capacity of the trial burners was approximately the same as their existing counterparts. The District issued OCIS a Temporary Permit to Operate for S-3, which expired on April 6th, 2009 i.e., 90-days from the date of issuance.	The project to install the trial burners at S-3 did not impact and/or warrant any changes to the proposed renewal permit.
20620	**<u>Use of the Energy Complete® foam sealant spray system:</u>** Under this application OCIS intended to conduct training within the confines of an on-site training center to provide hands-on experience for contractors and technicians to gain practical experience in the use, service and cleaning of equipment used for applying OCIS' Energy Complete® sealant.	S-172 no longer operates at OCIS. Therefore, S-172 is not referenced in the proposed renewal permit.

Table 1		
Application #	**Application Summary**	**Summary of changes**
	The process, collectively referred to under S-172, consisted of pumping reactant materials Part A and Part B through a mixer head and out a spray nozzle towards a target area such as a joint or seam made by two construction materials such as exterior sheathing nailed to a 2" x 4" stud wall. The Part A and Part B materials would react to form an expanded acrylic latex foam sealant. Upon completion of the spraying operations at S-172, the application equipment, pumps, hoses, mixer, and nozzle would be flushed and cleaned with dipropylene glycol monobutyl ether that would be recycled and reused until it became too fouled for further use. The District issued OCIS a Permit to Operate for S-172 in October 2009.	
21631	**Use of starch-based binder at the "M" & "O" line forming sections:** OCIS operates two manufacturing lines the "M" and the "O" lines. Each of the above two manufacturing lines consist of glass batch melting, glass fiber & pack forming, curing, and cooling section sources. Under this application OCIS proposed using a starch-based binder in lieu of the phenol-formaldehyde based binder at each of its "M" and "O" line forming sections (S-2 and S-20). Emissions from the "M" and "O" line forming sections (S-2 & S-20), the curing sections (S-3 & S-21), and the cooling sections (S-4 & S-22) were affected by the change in binder type.	**Table II-B:** 1. Deleted citations and emission limits pertaining to MACT NNN for thermal oxidizers A-5 & A-6 , and A-25. 2. Deleted the reference to "Destruction Efficiency > 98 wt.% for A-5, A-6, and A-25. 3. Added BAAQMD Regulation 8-2-301 as an applicable requirement and cited rule limits for A-5, A-6, and A-25. 4. Added permit condition 24873 and cited limits outlined in the above permit condition for A-5, A-6, and A-25.

Table 1		
Application #	**Application Summary**	**Summary of changes**
	The District issued OCIS an Authority to Construct permitting the use of the starch-based binder as a replacement to the existing phenol-formaldehyde based binder at S-2 and S-20 in February 2011.	5. Added references to non-SIP approved& renumbered BAAQMD Regulation 6, Rule 1 and SIP approved Regulation 6 for A-7, A-26, A-34, A-35, A-38, A-40, A-44, A-48, A-70, A-99, A-100, A-101, A-102, A-149, and A-150. **Table IV:** 1. Added parts 1, 2, 13 through 16, and parts 77 through 82 of permit condition 24873 to Tables IV-B, C, D, and E. 2. Added parts 17 through 26 and part 83 of permit condition 24873 to Table IV-B (for S-2). 3. Added parts 3, 5, 9, 10, 11, 12, parts 27 through 36 and part 83 of permit condition 24873 to Table IV-C (for S-3). 4. Added parts 4, 5, parts 37 through 46 and part 83 of permit condition 24873 to Table IV-D (for S-4). 5. Added parts 47 through 56 and part 83 of permit condition 24873 to Table IV-B (for S-20). 6. Added parts 6, 8, 9, 10, 11, 12, parts 57 through 66 and part 83 of permit condition 24873 to Table IV-C (for S-21).

Table 1		
Application #	**Application Summary**	**Summary of changes**
		7. Added parts 7, 8, parts 67 through 76 and part 83 of permit condition 24873 to Table IV-E (for S-22). **Section VI:** 1. Added new permit condition 24873. **Table VII:** 1. Added applicable monitoring requirements of permit condition 24873 to Tables VII-B (for S-2 & S-20), VII-C (for S-3 & S-21), and VII-D (for S-4 & S-22).
21947	**Installation of storage tanks related to the binder replacement project:** Under this application OCIS installed 13 new tanks for storing the binder related materials, mixing and circulating binder and storing and circulating water that washes equipment and provides reclaimable binder solids. The 13 new tanks were determined to be exempt from requiring a Permit to Operate per Regulation 2-1-123. The District sent OCIS a Letter of Exemption permitting the installation and subsequent use of the 13 new tanks in May 2010.	The project to install and operate the 13 new tanks did not impact and/or warrant any changes to the proposed renewal permit.
23518	**Reestablishment of NOx, CO and PM10 emissions baseline limits for the "O" line forming (S-20) and cooling (S-22) sections:** OCIS operates two manufacturing	**Section VI:** 1. The daily CO emissions baseline limit of 117.92 pounds /day in part 51 of permit 24873 for S-

Table 1		
Application #	**Application Summary**	**Summary of changes**
	lines the “M” and the “O” lines. Each of the above two manufacturing lines consist of glass batch melting, glass fiber & pack forming, curing, and cooling section sources. As part of Application 21631, the District issued OCIS an Authority to Construct in February 2011 permitting the use of the starch-based binder as a replacement to the phenol-formaldehyde binder at the “M” and “O” line forming sections S-2 and S-20, respectively. Following the switch to the new binder, permit condition 24873 that was part of the District’s Authority to Construct required OCIS to perform a source test at the “M” and “O” line forming, curing, and cooling sections to demonstrate compliance with the pertinent daily and annual emissions baseline limits for each of the above sections outlined in the above permit condition. Because the “M” line was inactive at the time of the test, the source tests were conducted at the “O” line forming (S-20), curing (S-21), and cooling (S-22) sections in the April-May 2011 timeframe. S-20 was retested in February 2012 for NOx and CO. Using the source test results as the basis, the District revised the existing daily and annual NOx & CO emissions baseline limits for S-20, and the PM10 emissions baseline limits for S-22.	20 was revised to 211.51 pounds/day. 2. The annual CO emissions baseline limit of 20.87 tons/year in part 52 of permit 24873 for S-20 was revised to 37.44 tons/year. 3. The daily NOx emissions baseline limit of 27.68 pounds /day in part 53 of permit 24873 for S-20 was revised to 21.22 pounds/day. 4. The annual NOx emissions baseline limit of 4.28 tons/year in part 54 of permit 24873 for S-20 was revised to 3.28 tons/year. 5. The daily PM10 emissions baseline limit of 26.54 pounds /day in part 67 of permit 24873 for S-22 was revised to 40.86 pounds/day. 6. The annual PM10 emissions baseline limit of 4.70 tons/year in part 68 of permit 24873 for S-22 was revised to 7.23 tons/year.

B. Facility Description

The Owens Corning plant in Santa Clara manufactures wool glass fibers that are used in building insulation materials. Glass fiber manufacturing is the high-temperature conversion of various raw materials (predominantly borosilicates) into a homogenous

melt, followed by the fabrication of this melt into glass fibers. Glass fiber production can be segmented into four phases: Raw Materials Handling, Glass Melting and Refining, Wool Glass Fiber Forming and Wool Glass Fiber Finishing.

Raw Materials Handling –

Glass Batch – The primary component of glass is sand, but the batch may also contain other materials (e.g. sodium sulfate, anhydrous borax, etc.). The bulk supplies are received by rail car and/or truck. Lesser-volume supplies are received in drums, bags, or other packages. From storage, the materials are weighed according to the desired batch formulation and then blended well before their introduction into the melting unit. The weighing, mixing, and charging operations are conducted in either batch or continuous mode.

Binder – The binder is an aqueous solution of a thermosetting resin. Other materials may also be added, e.g. red dye, process oil, urea, etc. The bulk supplies are received by rail car and/or truck. Lesser volume supplies are received in drums, totes, bags, or other packages. From storage some of the materials are pre-mixed into solutions. The binder raw materials, along with the pre-mixed solutions are then metered into a mix tank. The resulting binder is transferred to storage for application in the forming section.

Glass Melting and Refining – In the glass-melting furnace, the raw materials are heated to temperatures that transform them through a sequence of chemical reactions to molten glass. Electric furnaces melt glass by passing an electric current through the fused mass or melt. In operation, mixed raw materials are introduced continuously on top of a bed of molten glass where they slowly melt.

Wool Glass Fiber Forming – During the formation of fibers into a wool fiberglass mat (the process known as “forming” in the industry), glass fibers are made from molten glass by using the rotary spin process: centrifugal force causes the fibers to flow through small holes in the wall of a rapidly rotating cylinder to create fibers that are broken into short lengths by an air stream. A chemical binder is simultaneously sprayed on the fibers as they are created. The binder is a thermosetting resin that holds the glass fibers together. After the glass fibers are created and sprayed with the binder solution, they are collected by gravity and suction air on a perforated conveyor belt in the form of a mat.

Wool Glass Fiber Finishing – The conveyor carries the newly formed mat through a large oven to cure the thermosetting binder and then through a cooling section where ambient air is drawn down through the mat. The cooled mat remains on the conveyor for trimming of the uneven edges. Then, if product specifications require it, a backing is applied with an adhesive, usually laminating asphalt, to form a vapor barrier. The mat is then cut into batts or rolls of the desired dimensions and packaged.

BAAQMD Regulation 2-6-412.2 requires a description of the emissions changes in the public notice. The following is a discussion of the changes in criteria air pollutants (NOx, CO, PM10, SO2, POC, and lead).

As previously discussed in the "Background" section under Table 1, OCIS proposed to use a starch-based binder in lieu of the phenol-formaldehyde based binder at each of its "M" and "O" line forming sections (S-2 and S-20) under Application 21631. OCIS started using the starch-based binder on the O-line on March 25, 2011, and the M-line is currently inactive. Permit condition 24873 authored under Application 21631 which accompanied the District's Authority to Construct required OCIS to conduct source tests when using the starch-based binder.

OCIS planned to switch binders without increasing emissions. A baseline was established through Application 21631. The baseline was incorporated into BAAQMD Condition 24873. The source tests that were required by Application 21631 showed that the emissions of CO at S-2, Forming, were higher than the baseline for CO. The CO baseline was amended with the help of additional information through Application 23518.

The source tests that were required by Application 21631 also showed that the emissions of PM were lower at S-2, Cooling, and S-3, Curing, but were slightly higher at S-4, Cooling. For the purposes of BAAQMD Regulation 2-1-234 and SIP Regulation 2-2-223, S-4 is considered to be modified. However, the overall emissions of particulate at the facility have been reduced.

The conclusion is that actual emissions and the potential to emit for all criteria pollutants (NOx, CO, PM10, SO2, POC, and lead) have either decreased or remained the same on a facility-wide basis. Following are tables showing the final baselines.

Table 2:
Criteria Pollutant Baseline Emissions for the M & O-Lines

Pollutant	Forming Section	Curing Section	Cooling Section	Total emissions from forming, curing, and cooling sections
	S-2 & S-20	S-3 & S-21	S-4 & S-22	
	TPY	TPY	TPY	TPY
PM (F)	149.23	3.97	11.86	165.06
PM (C)	17.91	28.06	8.12	54.09
PM (F+C)	167.14	32.03	19.98	219.15
NOx	7.04	73.61	1.37	82.02
SO2	10.54	1.59	1.75	13.88
POC	37.65	1.15	4.34	43.14
CO	53.15	136.72	3.65	193.52

Following is a discussion of the changes in hazardous air pollutants.

With the exception of acrolein, source tests conducted in the April-May 2011 timeframe found Toxic Air Contaminant (TAC) emissions of acetaldehyde, ammonia, formaldehyde, methanol, and phenol from the "O" line forming section (S-20), the curing section (S-21), and the cooling section (S-22) significantly reduced when using the starch-based binder in comparison to their corresponding baseline TAC emission levels that were established when using the phenol-formaldehyde based binder. Use of the starch-based binder in favor of the phenol-formaldehyde binder resulted in over 96% reduction in acetaldehyde (from 0.26 TPY to 0.01 TPY), over 99% reduction in ammonia (from 44.59 TPY to 0.06 TPY), over 95% reduction in formaldehyde (from 6.90 TPY to 0.30 TPY), over 99% reduction in methanol (from 23.48 TPY to 0.07 TPY), and a 100% reduction in phenol (from 8.72 TPY to 0 TPY). Please refer to Tables 3 through 6.

It can be seen from Table 5 below that the hourly and annual emission rates of acrolein are 0.001 lb/hr and 8.76 lb/yr (0.00438 TPY). The above emission rates of acrolein from the O-line cooling section are below the Regulation 2, Rule 5 acute and chronic trigger levels of 0.0055 lb/hr and 14 lb/yr, respectively, and do not pose any significant health risk.

Table 3:
O-line Forming Section (S-20)

Pollutant	Pre-Project Baseline		Post-Project Source Test Results		
	lb/day	TPY	lb/hr	lb/day	TPY
Acetaldehyde	1.33	0.20	0	0	0
Acrolein	None established		0	0	0
Ammonia	164.08	25.37	0.0051	0.12	0.02
Formaldehyde	42.92	6.64	0.045	1.08	0.20
Methanol	142.39	22.02	0	0	0
Phenol	50.52	7.81	0	0	0

Table 4:
O-line Curing Section (S-21)

Pollutant	Pre-Project Baseline		Post-Project Source Test Results		
	lb/day	TPY	lb/hr	lb/day	TPY
Acetaldehyde	0.20	0.03	0	0	0
Acrolein	None established		0	0	0
Ammonia	108.64	16.80	0.0059	0.14	0.03
Formaldehyde	0.13	0.02	0.0027	0.06	0.01
Methanol	0.16	0.02	0.008	0.192	0.03504

Table 4: O-line Curing Section (S-21)					
Pollutant	Pre-Project Baseline		Post-Project Source Test Results		
	lb/day	TPY	lb/hr	lb/day	TPY
Phenol	3.40	0.53	0	0	0

Table 5: O-line Cooling Section (S-22)					
Pollutant	Pre-Project Baseline		Post-Project Source Test Results		
	lb/day	TPY	lb/hr	lb/day	TPY
Acetaldehyde	0.22	0.03	0.003	0.072	0.01314
Acrolein	None established		0.001	0.024	0.00438
Ammonia	21.46	3.32	0.0017	0.04	0.01
Formaldehyde	1.54	0.24	0.0217	0.52	0.10
Methanol	9.30	1.44	0.007	0.168	0.03066
Phenol	2.46	0.38	0	0	0

Table 6: Emissions from S-20, S-21, & S-22						
Pollutant	Pre-Project Baseline		Post-Project Source Test Results		Net change in emissions	
	lb/day	TPY	lb/day	TPY	lb/day	TPY
Acetaldehyde	1.75	0.26	0.07	0.01	-1.68	-0.25
Acrolein	0.00	0.00	0.02	0.0044	0.02	0.0044
Ammonia	294.18	45.49	0.30	0.06	-293.88	-45.43
Formaldehyde	44.59	6.90	1.67	0.30	-42.92	-6.60
Methanol	151.85	23.48	0.36	0.07	-151.49	-23.41
Phenol	56.38	8.72	0.00	0.00	-56.38	-8.72

More detail regarding the determination of the final emission rates and limits can be found in the Engineering Evaluations for Applications 21632 and 21358, which are attached in Appendix B and form part of this statement of basis.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order presented in the permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Changes to permit

- The adoption and amendment dates of the rules in Standard Condition I.A have been updated.

- Reference to Regulation 3 as basis was deleted from Standard Condition I.E & I.F as this regulation applies to Fees only and has no concern with Records requirements.

- Section I.J.2 has been modified to clarify that the capacity limits shown in Table II-A are enforceable limits.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons per year of a "regulated air pollutant", as defined in BAAQMD Rule 2-6-222, or 400 pounds per year of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an "S" number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or "A") device. If the primary function of a device is a non-control function, the device is considered to be a source (or "S").

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Changes to Table II A of permit ("Permitted Sources")

- Deleted S-46, a 100,000 gallon vertical fixed roof tank that was used for storing asphalt. OCIS replaced S-46 with S-173, a 20,000 gallon vertical fixed roof tank that stores asphalt. The District's review under Application 18878 found S-173 was exempt from requiring a permit to operate per BAAQMD Regulation 2-1-123.3.7. S-173 is not a "significant" source as defined in BAAQMD Regulation 2-6-222 or 2-6-210. Therefore, S-173 has not been included in Table II-A of the proposed renewal permit.

- Deleted S-50 & S-51, two 15,000 gallon vertical fixed roof tanks that were used for storing the phenol-formaldehyde resin. As previously discussed in the "Background" section under Application 21631 in Table 1 above, OCIS no longer uses the phenol-formaldehyde binder. The above requirement disallowing the use of the phenol-formaldehyde binder is outlined in part 13 of permit condition 24873, which is found in Section VI of the proposed renewal permit. In light of the above, S-50 & S-51 have been cleaned, closed, and are abandoned in place.

- Amended "Make or Type", "Model", and "Capacity" for OCIS' seven engines S-65 through S-68, S-164, S-166 and S-167. Corrected the "Capacity" of S-66 (of 415 hp), S-67 (of 449 hp), and S-68 (of 390 hp) to 275 hp.

- Deleted S-92, natural gas fired steam boiler, rated at 12.20 MMBTU/hour. OCIS' steam needs will be met with the installation of a new waste heat boiler, which will be downstream of the "O" oven incinerator (A-25) that abates the "O" line curing section
(S-21). The new waste heat boiler will not feature a burner and will not generate any combustion emissions.

- Deleted S-159, one 375 gallon vertical closed top tank, which was used for storing pump seal cooling water because it has been removed from the plant.

- S-161 & S-162, two 4,500 gallon vertical fixed roof tanks, for mixing phenol/formaldehyde resin and urea solution storing this premix until it was mixed with other binder ingredients such as lignin, dye, silane, process oil, reclaimed water, and ammonium sulphate. The above materials along with other materials were used to formulate the phenol-formaldehyde binder, which as of March 2011 is no longer used at OCIS. Therefore, OCIS demolished S-161 and

S-162 because the starch-based binder currently used at the facility is not formulated using urea, phenol/formaldehyde resin or ammonium sulphate.

- Deleted S-163 “Maintenance Paint Shop Spray Booth” per OCIS’ request because it qualifies for the exemption under Regulation 2-1-119.2. Specifically, the coating usage at the spray booth is less than 30 gallons/year, and it meets the back stops in Regulation 2-1-319. Exempting S-163 does not absolve OCIS from ensuring that the spray booth complies with applicable rules and regulations. The District’s enforcement staff will verify compliance of the spray booth with the above exemption and applicable rules and regulations during their routine inpsections.

- Added S-170 & S-171, the “M” & “O” line retail overwrap tape glue systems previously discussed in the “Background” section under Application 16775 in Table 1 above. OCIS installed S-170 & S-171 downstream of the “M” & “O” line cooling sections (S-4 & S-22).

Changes to Table II B of permit (“Abatement Devices”)

- Deleted citations pertaining to the NESHAPS for Wool Fiberglass Manufacturing (40 CFR 63, Subpart NNN) for row entries associated with A-5, A-6, and A-25. Effective March 20, 2011, OCIS stopped using the phenol-formaldehyde based binder in favor of the starch-based binder. Therefore, OCIS’ forming (S-2 & S-20), curing (S-3 & S-21), and cooling (S-4 & S-22) sections are no longer subject to the above rule. The “Changes to the renewal permit stemming from federal regulations” discussion under Section C.IV of this document explains why.

- The reference to “Destruction efficiency > 98 wt.%” was deleted for A-5, A-6, and A-25. This is not an applicable requirement, since it is not part of any existing permit condition, any BAAQMD regulation, or any state or federal regulation, including 40 CFR 63, Subpart NNN. It is simply OCIS’ estimate of the control efficiency of the incinerators. Instead, S-3 abated by A-5 & A-6 and S-21 abated by A-25 are subject to daily and annual baseline emissions limits of 5.33 lb/day and 0.75 TPY for A-5 & A-6 (combined), and individual POC limits of 2.28 lb/day and 0.40 TPY for A-25, respectively.

- When OCIS were issued their initial Title V permit under Application 25819 on November 25, 2003, the District had incorrectly exempted sources S-2 through S-4 and S-20 through S-22 via Regulation 8-1-110.3 from Regulation 8 “Organic Compounds”, Rule 2 “Miscellaneous Operations”. In this permitting action (renewal of OCIS’ Title V permit under Application 17948) the District has determined that all of the above sources are subject to BAAQMD Regulation 8, Rule 2. Therefore, Regulation 8-2-301 is cited in row entries for A-5, A-6, and A-25. The discussion under Section C.IV of this document explains the reasons surrounding the applicability of the above rule.

- Part 9.a. of permit condition 24873 requires OCIS to maintain the firebox temperature of thermal oxidizers A-5 & A-6 abating S-3 and thermal oxidizer A-25 abating S-21 at/above 1,340 ^{o}F to ensure the requirements of permit condition 24873 pertaining to the M and O line curing ovens (S-3 and S-21) are complied with at all times that they operate. If OCIS demonstrates to the satisfaction of the APCO that the requirements in permit condition 24873 can be met by operating the thermal oxidizers at a firebox temperature lower than 1,340 ^{o}F, part 9.a. provides the facility the flexibility to do so. Therefore, row entries corresponding to the firebox operating temperature requirement for A-5, A-6, and A-25 in the proposed permit have been amended accordingly.
  On December 5, 2007, Regulation 6 "Particulate Matter and Visible Emissions," was renumbered as Regulation 6, Rule 1, and renamed as "Particulate Matter, General Requirements". As it currently exists, the District's particulate rule in the SIP is Regulation 6, and Regulation 6, Rule 1 is pending EPA approval into the SIP. Therefore, all references to SIP Regulation 6 now also cite BAAQMD Regulation 6, Rule 1 for A-7, A-26, A-34, A-35, A-38, A-40, A-44, A-48, A-70, A-99, A-100, A-101, A-102, A-149, and A-150. For example, consider A-7. The applicable requirement for A-7 used to only cite SIP Regulation 6-301. The proposed renewal permit now cites both SIP Regulation 6-301 and BAAQMD Regulation 6-1-301.

- Modified the pressure drop range for A-40 abating S-61 and S-62 to 0.5" wc to 21" wc from 8" wc to 21" wc per OCIS' request.

- Modified the pressure drop range for A-150 abating S-69 to 1.5" wc to 5.5" wc from 1.5" wc to 4.5" wc per OCIS' request. The above change is intended to make the operating parameters for A-70 abating S-70 and A-150 the same.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may still, however, be included in a Title V permit if they are "significant sources" as defined in BAAQMD Rule 2-6-239.

<u>Changes to permit</u>

- The section has been modified to say that SIP standards are now found on the EPA website and are not included as part of the permit.

- The rule adoption dates were updated.

- The following BAAQMD rules were added: Regulation 1, Regulation 2, Rules 1, 2, 4, 5, & 6, Regulation 3; Regulation 6, Rule 1, Regulation 8, Rules 16; 19, 40, & 47, and Regulation 9, Rule 1.

- The following SIP rules were added: Regulation 1, Regulation 2, Rule 1, Regulation 2-1-429; Regulation 2, Rules 2, 4, & 6; Regulation 3; Regulation 6; Regulation 8, Rule 40; and Regulation 9, Rule 1.

- All sections of Regulation 8, Rule 4, which has been effective since October 16, 2002, are federally enforceable. Therefore, the SIP version of the rule dated 12/23/97 was deleted.

- The District's review of glue used at S-170 and S-171 under Application 16775 cited in Table 1 above found that the VOC content of the glue was below 20 g/L (0.17 lb/gal). Therefore, OCIS is exempt from Regulation 8, Rule 51 via Section 115. In light of the above, the SIP and non-SIP versions of Regulation 8, Rule 51 were deleted per OCIS' request.

- The following section of the California Health and Safety Code was added: Section 41750.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The requirements are listed in the following order:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.

- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District or EPA websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Changes to permit

As discussed in more detail below, the District is proposing the following types of changes to the initial Title V permit:

- Changes to the federal enforceability status and/or the applicability of BAAQMD regulations for a source or group of sources.
- Changes in applicable federal (non-BAAQMD regulations) requirements for a source or group of sources.
- Addition/deletion of new/existing tables, and consolidation of existing tables.

Changes to permit stemming from BAAQMD regulations:

The proposed renewal permit updates citations to, and the SIP approval status of, any applicable District regulations. The changes the District made in the proposed renewal permit as a result of changes to District regulations and/or their SIP approval statuses are discussed below.

BAAQMD Regulation 6 "Particulate Matter", Rule 1 "General Requirements":

The purpose of this rule is to limit the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions and opacity.

Regulation 6, Particulate Matter and Visible Emissions, was renumbered as Regulation 6, Rule 1, and renamed as Particulate Matter, General Requirements on December 5, 2007. The equivalent rule in the State Implementation Plan (SIP) is Regulation 6, Particulate Matter and Visible Emissions, which was adopted on December 19, 1990 and was published in the Federal Register on September 4, 1998. The rule in its current form (Regulation 6, Rule 1) is not federally enforceable, although its requirements exactly mirror those contained in the SIP approved version of the rule (Regulation 6). In light of the above, Tables IV-A, B, C, D, E, F, J, K, L, M, N, O, P, and Q and Tables VII-A, B, C, D, E, G, H, I, J, L, M, N, and O in the proposed permit were amended to include the non-SIP approved version of the rule.

BAAQMD Regulation 8 "Organic Compounds", Rule 2 "Miscellaneous Operations":

The purpose of this rule is to reduce emissions of precursor organic compounds from miscellaneous operations.

The effective date of the rule was changed in Table IV-N from 6/15/94 to 7/20/05. All sections of the BAAQMD rule with the exception of 8-2-117 and 201, which are not contained/referenced in the permit, are federally enforceable.

Table 7 below summarizes the non-federally enforceable sections of the rule.

Table 7		
BAAQMD Regulation	**Effective Date of the Rule**	**Non-Federally Enforceable Sections of the Rule (Sections either not contained in or deleted from SIP approved version of the rule)**
Regulation 8 "Organic Compounds", Rule 2 "Miscellaneous Operations"	July 20, 2005	<u>General:</u> 8-2-117 <u>Definitions:</u> 8-2-201

When OCIS was issued its initial Title V permit under Application 25819, the District incorrectly exempted S-2 through S-4 and S-20 through S-22 from Regulation 8, Rule 2 via Regulation 8-1-110.3, which states:

> **8-1-110** **Exemptions:** The following shall be exempted from the provisions of this regulation:
> 110.3 Any operation or group of operations which are related to each other by being a part of a continuous process, or a series of such operations on the same process material, which are subject to Regulation 8, Rule 2 or Rule 4, and for which emissions of organic compounds are reduced at least 85% on a mass basis. Where such reduction is achieved by incineration, at least 90% of the organic carbon shall be oxidized to carbon dioxide."

Whereas it is true that the operations at the forming, curing, and cooling sections are related by being part of a continuous process working on the same process material, i.e., wool fiberglass, it is incorrect to state that the emissions of organic compounds from the above sections are reduced by at least 85% and/or by at least 90% (via incineration) on a mass basis as explained below.

Though the forming, curing, and cooling sections are related to each other by being part of a continuous process working on the same process material, organic compound emissions from each of the above sections are not collectively exhausted to a control device and/or to the atmosphere via a common exhaust stack. Therefore, it is impossible to state with any level of certainty whether organic compounds from the above sections are reduced by at least 85% on a mass basis.

Second, organic compound emissions from the forming, curing, and cooling sections are abated via different control technologies. Organic compound emissions from the M

& O line forming sections are not abated and vent to the atmosphere via four stacks (or zones) per line. Thermal incinerators A-5 & A-6 and A-25 abate organic compound emissions from the M & O line curing sections, respectively, and control devices geared toward abating particulate matter (and not organic compounds) abate the M & O line smoke stripper and cooling sections.

Third, source testing conducted in the April-May 2011 timeframe at the O-line forming, curing, smoke stripper, and cooling sections when using the starch-based binder determined the average hydrocarbons concentration expressed as methane and measured via Method 25A CEM to be equal to 13.105 ppm (average of Zone A through D), 2.32 ppm, 13.19 ppm, and 4.37 ppm, respectively. It can be seen from above that the hydrocarbons concentration decreased by about 82% (13.105 ppm to 2.32 ppm) from the forming to the curing section, increased by about 569% (2.32 ppm to 13.19 ppm) from the curing section to the smoke stripper section, and decreased by about 67% (13.19 ppm to 4.37 ppm) from the smoke stripper section to the cooling section. Even if one were to just consider the net change in hydrocarbons concentration from the forming section to the cooling section (13.105 ppm to 4.37 ppm) it can be seen that the concentration of hydrocarbons decreased by about 67%.

For all of the above reasons the exemption in Regulation 8-1-110.3 is not applicable to the M & O line forming, curing, and cooling sections. Therefore, the sources at the M & O line forming (S-2 & S-20), curing (S-3 & S-21), and cooling (S-4 & S-22) sections are subject to Regulation 8, Rule 2. Specifically, the above sources will have to comply with Regulation 8-2-301, which states:

> **8-2-301 Miscellaneous Operations:** A person shall not discharge into the atmosphere from any miscellaneous operation an emission containing more than 6.8 kg. (15 lbs.) per day and containing a concentration of more than 300 PPM total carbon on a dry basis.

A violation of Regulation 8-2-301 requires that both POC emissions are greater than 15 lb/day and the POC concentration is in excess of 300 PPM total carbon on a dry basis. The April-May 2011 source tests conducted at S-20, S-21, and S-22 (S-2, S-3, and S-4 are inactive and were therefore not source tested) determined the hourly non-methane hydrocarbon emission rates from the above sources to be 0.32 lb/hr (7.68 lb/day), 0.05 lb/hr (1.2 lb/day), and 0.12 lb/hr (2.88 lb/day), respectively. As previously discussed, the average hydrocarbons concentration expressed as methane and measured via Method 25A CEM from S-20, S-21, and S-22 (including the smoke stripper) was found to be equal to 13.105 ppm, 2.32 ppm, and 8.78 ppm, respectively. It can be seen from above that S-20, S-21, and S-22 comply with Regulation 8-2-301 because the POC emissions from the above sources is less than 15 lb/day and the POC concentrations expressed in terms of hydrocarbons as methane are less than 300 PPM total carbon on a dry basis. OCIS will demonstrate continued compliance with Regulation 8-2-301 for sources at the M & O line forming (S-2 & S-20), curing (S-3 & S-21), and cooling (S-4 & S-22) sections via annual source tests required by part 78 of permit condition 24873.

In light of the above, Regulation 8, Rule 2 has been added to Tables IV-B, C, D, and E and Tables VII- B, C, and D in the proposed permit.

BAAQMD Regulation 8 "Organic Compounds", Rule 4 "General Solvent and Surface Coating Operations":

The purpose of this rule is to limit emissions of volatile organic compounds from the use of solvents and surface coatings in operations such as model making, printed circuit board manufacturing and assembly, electrical and electronic component manufacturing, surface coating of test panels, training facilities where the application of coating is for training purposes, stencil coatings, low usage coating activities exempt from other Regulation 8 rules, coatings specifically exempt from other Regulation 8 rules or solvent usage not specified by other Regulation 8 rules.

All sections of this rule, which has been effective since October 16, 2002, are federally enforceable. Therefore, the SIP version of the rule dated 12/20/95 was deleted from Table IV-S, and all sections of the District's version of the rule were deemed federally enforceable in Tables IV-S & Y and Tables VII-Q & U of the proposed permit.

BAAQMD Regulation 8 "Organic Compounds", Rule 5 "Storage of Organic Liquids":

The purpose of this rule is to limit emissions of organic compounds from storage tanks. Sources S-33, S-149, S-150, and S-160 though potentially subject to the above rule are exempt from it via Reg. 8-5-117 because the true vapor pressure of their tank contents is less than 0.5 psia. Therefore, the above storage tanks are shielded from the above rule in Table IXA-D.

BAAQMD Regulation 8 "Organic Compounds", Rule 19 "Surface Preparation and Coating of Miscellaneous Metal Parts and Products":

The purpose of this rule is to limit the emission of volatile organic compounds from the surface preparation and coating of miscellaneous metal parts and products.

All sections of this rule, which has been effective since October 16, 2002, are federally enforceable. Therefore, the SIP version of the rule dated 12/20/95 was deleted from Table IV-W and Table VII-S in the proposed permit.

BAAQMD Regulation 8 "Organic Compounds", Rule 20 "Graphic Arts Printing and Coating Operations":

The purpose of this rule is to limit the emission of volatile organic compounds from graphic arts operation.

The effective date of the rule was changed in Table IV-T from 3/3/99 to 11/19/08. Several sections of this rule, which has been effective since November 19, 2008, are not federally enforceable. Therefore, references to Sections 302, 320, and 503, which

are not federally enforceable, in Table IV-T and Table VII-R of the proposed permit were amended to include the non-SIP approved version of the rule.

Table 8 below summarizes the non-federally enforceable sections of the rule.

Table 8		
BAAQMD Regulation	**Effective Date of the Rule**	**Non-Federally Enforceable Sections of the Rule (Sections either not contained in/deleted from SIP approved version of the rule)**
Regulation 8 "Organic Compounds", Rule 20 "Graphic Arts Printing and Coating Operations"	November 19, 2008	<u>General:</u> 8-20-101, 110, 111, 117, and 119 through 123. <u>Definitions:</u> 8-20-201, 202, 204, 205, 207, 209 through 216, 218 through 220, 223 through 229, and 231 through 245. <u>Standards:</u> 8-20-302, 306 through 309, and 320. <u>Administrative Requirements:</u> 8-20-408 and 409. <u>Monitoring and Records:</u> 8-20-503, 505, and 506. <u>Manual of Procedures:</u> 8-20-601, 602, and 605 through 607.

<u>BAAQMD Regulation 8 "Organic Compounds",</u>
<u>Rule 31 "Surface Preparation and Coating of Plastic Parts and Products":</u>

The purpose of this rule is to limit the emission of volatile organic compounds from the surface preparation and coating of plastic parts and products, including polyester resin (fiberglass) products.

All sections of this rule, which has been effective since October 16, 2002, are federally enforceable. Therefore, the SIP version of the rule dated 12/20/95 was deleted from Table IV-W and Table VII-S in the proposed permit.

<u>BAAQMD Regulation 9 "Inorganic Gaseous Pollutants",</u>
<u>Rule 8 "Nitrogen Oxides and Carbon Monoxide From Stationary Internal Combustion Engines":</u>

The purpose of this rule is to limit emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower. BAAQMD rule sections 9-8-330, 502, and 530 cited in Table IV-M (consolidated Tables IV-M & X into Table IV-M), which have been effective since July 25, 2007, are not federally enforceable. Neither are any of the above sections part of the SIP approved version of the rule that was published in the Federal Register on December 15, 1997. Therefore, only the non-federally enforceable sections of the rule are cited in Table IV-M.

Sources S-65 through S-68, S-164, S-166, and S-167 are “in-use” diesel engines that are solely used as a standby source of motive power for emergency standby generators that they are part of. These sources were exempt from District until May 17, 2000, when BAAQMD Regulation 2, Rule 1, General Requirements, was amended to require permits for all stationary engines over 50 hp. The requirement for permits is not federally enforceable because SIP Regulation 2, Rule 1 still has an exemption for standby engines.

BAAQMD Regulation 9, Rule 8, as adopted on January 20, 1993, did not apply to engines under 250-hp, liquid-fueled engines, or emergency standby engines. On August 1, 2001, the rule was amended to include hours of operation limits for emergency standby engines. On July 25, 2007, the rule was amended to include limits for non-emergency liquid fueled engines and engines under 250-hp. These new limits became effective on January 1, 2012. Since the engines at OCIS are emergency standby engines, they will only be subject to the following sections of the rule: 9-8-330, 502, and 530, which essentially restrict the hours of operation for standby engines. These provisions are not federally enforceable because the SIP rule is the 1993 rule.

On November 8, 2004, the California Air Resources Board (CARB or ARB) adopted an Air Toxics Control Measure (ATCM) for stationary diesel engines, which was effective on January 1, 2005. The measure restricted the hours of operation for older standby engines and required controls and/or lower emission rates for prime and new standby engines. Since the ATCM is a state standard, it is not federally enforceable.

The CARB’s ATCM applicable requirements for S-65 through S-68, S-164, S-166, and S-167 have been incorporated into the proposed renewal permit. In addition, applicable requirements contained in Regulation 6, Rule 1, Regulation 9, Rules 1 and 8 were also incorporated into Table IV-M and Table VII-J (consolidated Tables VII-J, K, and T into Table VII-J). The engines, which were previously governed by permit condition 19142, will henceforth be subject to BAAQMD Standard Condition #22820.

Following discussion pertains to the ATCM that became effective on May 19, 2011. Section 93115.5 requires the use of CARB diesel or several alternatives. The owner/operator will comply by burning CARB diesel.

The operating requirements and emissions standards are contained in Section 93115.6.

The engines are not subject to Section 93115.6(a) because they are not new as defined by the ATCM.

The engines are not subject to Section 93115.6(b)(1) of the ATCM because the BAAQMD permit does not allow operation in anticipation of a rotating outage.

The engines are not subject to Section 93115.6(b)(2) of the ATCM because the engines are not located within 1000 feet of a school.

Section 93115.6(b)(3)(A) allows the owner/operator to choose 20 hours of operation for maintenance and testing, to show that the engine has particulate emissions below 0.15 g/bhp, or to control the particulate emissions of the engine by 85%. The owner/operator has chosen to operate the engines for less than 20 hours/yr for maintenance and testing. An unlimited number of hours is allowed during emergencies.

Section 93115.6(b)(3)(A)(2), which allows more hours for maintenance and testing in certain cases is not cited because the owner/operator will comply by not operating the engines for more than 20 hr/yr for maintenance and testing.

Fire pumps are not subject to Section 93115.6(b)(3), that are onlyoperated the number of hours necessary to comply with the testing requirements of National Fire Protection Association (NFPA) 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems." S-65 is a fire pump and therefore is allowed to operate up to 34 hr/yr for maintenance and testing.

The engines are not subject to Section 93115.6(b)(3)(B) because the owner/operator is not using an emission control strategy that is not verified through CARB's Verification Procedure.

The engines are not subject to Section 93115.6(b)(3)(C) because the District has not established more stringent standards for these engines.

The engines are not subject to Section 93115.6(c) because the engines are not being used in a demand response program.

The requirements of 93115.7 are not cited because these requirements are for prime engines.

The requirements of 93115.8 are not cited because these requirements are for agricultural engines.

The requirements of 93115.9 are not cited because these requirements are for new engines under 50-hp.

The only requirements in Section 93115.10 that pertain to OCIS' emergency standby engines are those cited under Sections 93115.10(d)(1) and (f). Therefore, the remaining

sections haven't been cited under Table IV-M. The notification requirements of Section 93115.10(a) are not cited because the requirements have already been met.

Section 93115.11 is not cited because the owner/operator has 3 or more engines.

Section 93115.12 is cited because the owner/operator has 4 or more engines. The compliance schedule in 93115.12(a) applies to the engines because the owner/operator has chosen to comply by reducing the hours of operation to 20 hr/yr.

Section 93115.12(b) is not cited because the owner/operator has chosen to comply with Section 93115.12(a).

Section 93115.13 is not cited because the owner/operator will comply by reducing the hours of operation, not by testing or installing diesel particulate filters.

Section 93115.14 is not cited because the owner/operator is not required to test the engines.

Section 93115.15, Severability, is cited because invalidation of one part of the ATCM does not invalidate the remaining parts.

Monitoring for opacity for diesel standby reciprocating engines, such as S-65 through S-68, S-164, S-166, and S-167, is not required in accordance with Section I.O.1 in CAPCOA/ARB/EPA Region IX Periodic Monitoring committee recommendations in the June 24, 1999 document entitled: "Periodic Monitoring Recommendations For Generally Applicable Requirements in SIP." The reason is that sources in California burn low-sulfur, low-aromatic fuels. When the recommendations were written, California diesel contained 0.05% sulfur. Now the fuels contain 0.0015% sulfur, so particulate emissions should be even lower.

In addition, in the Bay Area, the standard for opacity for emergency standby engines is Ringelmann 2, which is roughly equivalent to 40% opacity. It is unlikely OCIS' engines would exceed 40% opacity.

Moreover, these engines operate infrequently.

In light of the above, no monitoring for opacity is required for these engines.

Monitoring for filterable particulate (FP) for diesel standby reciprocating engines is not required in accordance with Section II.A.1 in CAPCOA/ARB/EPA Region IX Periodic Monitoring committee recommendations in the June 24, 1999 document entitled: "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources." This determination applies to engines that are operated for maintenance and testing for less than 200 hours/yr. These engines are operated for maintenance and testing for less than 20 hours/yr. Therefore, monitoring the engines for FP is not justified.

The generally applicable FP limit in the Bay Area is 0.15 grains/dscf. It is highly unlikely that any engine could exceed this standard, especially taking the fuel's low sulfur and aromatic content into account

No monitoring is required for the 0.5% standard for S by weight in BAAQMD Regulation 9, Rule 1, because the only diesel fuel available in California has a sulfur content of 0.0015% by weight.

The CARB ATCM and BAAQMD permit condition 22820 have a limit of 20 hours/yr for maintenance and testing for all engines (S-66 through S-68, S-164, S-166, and S-167) except the fire pump engine (S-65). BAAQMD permit condition 22851 has a limit of 34 hours/yr for maintenance and testing for the fire pump engine. The engines must have non-resettable meters for the hours of operation and the owner/operator is required to keep monthly records. This is appropriate monitoring for the operational limit.

Changes to the proposed renewal permit stemming from federal regulations:

OCIS operates two manufacturing lines the "M" and the "O" lines. Each manufacturing line consists of glass batch melting, glass fiber & pack forming, curing, and cooling section sources. The M-line consists of S-1 (glass batch melting), S-2 (glass fiber & pack forming), S-3 (curing), and S-4 (cooling) sections. Likewise, sources S-19, S-20, S-21, and S-22 make up the glass batch melting, glass fiber & pack forming, curing, and cooling sections on the O-line. Until March 2011, OCIS had used a phenol-formaldehyde based binder at the M and O-line forming sections (S-2 and S-20). Therefore, S-1 through S-4 and S-19 through S-22 were subject to 40 CFR Part 63 "National Emission Standards for Hazardous Air Pollutants", Subpart NNN "Wool Fiberglass Manufacturing" (MACT NNN). Because the above sources were constructed or reconstructed before March 31, 1997, the District subjected them to MACT NNN applicable requirements for "existing" sources when it issued OCIS its initial Title V permit under Application 25819 on November 25, 2003. OCIS started using a starch-based binder instead of the phenol-formaldehyde binder at S-20 on March 25, 2011. The M-line is currently inactive. When reactivated, the starch-based binder will be used at S-2. Because OCIS no longer uses the phenol-formaldehyde binder, the District has deleted the MACT NNN applicable requirements for S-1 through S-4 and S-19 through S-22 in the proposed permit as discussed below.

Section 63.1380 (b) in the "Applicability" section of MACT NNN states:

> (b) The requirements of this subpart apply to emissions of hazardous air pollutants (HAPs), as measured according to the methods and procedures in this subpart, emitted from the following new and existing sources at a wool fiberglass manufacturing facility subject to this subpart:
>
> (1) Each new and existing glass-melting furnace located at a wool fiberglass manufacturing facility; [and]
>
> (2) Each new and existing rotary spin wool fiberglass manufacturing line producing a bonded wool fiberglass building insulation product [….]

With regards to OCIS' existing Title V permit, it can be seen from above that MACT NNN applied to the existing "M" and "O" line glass melting furnaces (S-1 & S-19) and to the existing "M" and "O" rotary spin wool fiberglass manufacturing line (S-2, S-3, S-4 & S-20, S-21, S-22) producing a "bonded" wool fiberglass building insulation product.

Section 63.1381 in the "Definition" section of MACT NNN defines the terms cited under Section 63.1380 (b) (1) and (2) as follows:

> *Glass-melting furnace* means a unit comprising a refractory vessel in which raw materials are charged, melted at high temperature, refined, and conditioned to produce molten glass. The unit includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, melter cooling system, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation, and appendages for conditioning and distributing molten glass to forming processes. The forming apparatus, including flow channels, is not considered part of the glass-melting furnace.
>
> *Wool fiberglass manufacturing facility* means any facility manufacturing wool fiberglass on a rotary spin manufacturing line or on a flame attenuation manufacturing line.
>
> *Rotary spin* means a process used to produce wool fiberglass building insulation by forcing molten glass through numerous small orifices in the side wall of a spinner to form continuous glass fibers that are then broken into discrete lengths by high-velocity air flow. Any process used to produce bonded wool fiberglass building insulation by a process other than flame attenuation is considered rotary spin.
>
> *Wool fiberglass* means insulation materials composed of glass fibers made from glass produced or melted at the same facility where the manufacturing line is located.
>
> *Manufacturing line* means the manufacturing equipment for the production of wool fiberglass that consists of a forming section where molten glass is fiberized and a fiberglass mat is formed and which may include a curing section where binder resin in the mat is thermally set and a cooling section where the mat is cooled.
>
> *Bonded* means wool fiberglass to which a phenol-formaldehyde binder has been applied.
>
> *Building insulation* means bonded wool fiberglass insulation, having a loss on ignition of less than 8 percent and a density of less than 32 kilograms per cubic meter (kg/m^3) (2 pounds per cubic foot [lb/ft^3]).

Effective March 20, 2011, part 13 of permit condition 24873 authored under Application 21631 in February 2011 precluded OCIS from using the phenol-formaldehyde binder in wool fiberglass manufacturing operations at sources S-2, S-3, S-4, S-20, S-21, and S-22. OCIS currently uses a starch-based binder at S-20 and will start using the above binder when S-2 is reactivated. OCIS' current use of the starch-based binder at S-20 (and at S-2 in the future) means that the wool fiberglass product is no longer "bonded" and that OCIS no longer manufactures a "bonded wool fiberglass insulation product". Because the product is no longer "bonded", OCIS' existing M & O line glass-melting furnaces (S-1 and S-19) and the rotary spin wool fiberglass manufacturing lines (S-2, S-3, S-4, S-20, S-21, and S-22) are no longer subject to the standard. Therefore, MACT NNN applicable requirements pertaining to S-1 through S-4 and S-19 through S-22 have been deleted from Tables IV-A, B, C, D, and E, permit condition 16834, and Tables VII-A, B, C, and D in the proposed permit.

Metal HAPs:
Particulate matter (PM) serves as the surrogate for metal HAPs (arsenic, chromium, and lead). When using the phenol-formaldehyde based binder at S-2 and S-20, the PM emissions from the M and O line glass-melting furnaces are limited by Section 63.1382(a)(1) to 0.5 lb/ton of glass pulled/glass-melting furnace. Because OCIS no longer uses the above binder and instead uses a starch-based binder at S-20 (and at S-2 in the future), the above PM limit no longer applies. Based on source tests conducted in the November 2007 timeframe at the M and O-lines, the PM emission rates (in lb/hour) measured when using the phenol-formaldehyde based binder at S-2 and S-20 were 0.819 and 1.003, respectively. Assuming a glass pull rate of 6 tons per hour at each of the above glass-melting furnaces, the PM emission rate (in lb/ton of glass pulled) measured during the source tests were 0.137 and 0.167, respectively. Thus, when OCIS was using the phenol-formaldehyde binder, PM emissions from the M and O line glass-melting furnaces were below the Section 63.1382(a)(1) PM limit of 0.5 lb/ton of glass pulled/ glass-melting furnace. Because the use of the starch-based binder at the M and O line forming sections (S-2 and S-20) occurs downstream of the M and O line glass-melting furnaces (S-1 and S-19), it is unlikely that the use of the new binder at S-2 and S-20 would affect PM emissions from S-1 and S-19. Among other requirements, part 8 of permit condition 16834 requires OCIS to conduct source tests at S-1 and S-19 when using the starch-based binder to ensure the PM emission rate is at/below 0.5 lb/ton of glass pulled/ glass-melting furnace. These source tests will show whether the use of the new binder has any impact on PM emissions from S-1 and S-19. For the interim, it is reasonable to assume that deleting the MACT NNN requirements (such as Section 63.1382(a)(1)) in the proposed permit will not result in an increase in PM emissions from the glass-melting furnaces.

In addition to determining PM emissions from S-1 and S-19, the November 2007 source tests also determined the sulfur dioxide and lead emissions from the M and O line glass-melting furnaces when using the phenol-formaldehyde based binder at S-2 and S-20. Parts 9 and 10 of permit condition 16834 required OCIS to test for sulfur dioxide and lead emissions to ensure compliance with BAAQMD Regulation's 9-1-302 (sulfur dioxide concentration < 300 ppm(dry)) and 11-1-301 (lead emission rate < 15 lb/day). The lead emission rates (in lb/hour) from S-1 and S-19 were 0.00012 and 0.000088,

respectively. Assuming a glass pull rate of 6 tons per hour at each of the above glass-melting furnaces, the lead emission rates (in lb/ton of glass pulled) from S-1 and S-19 during the source tests were 0.00002 and 0.000015, respectively. The average sulfur dioxide concentration (in ppm (dry)) from S-1 and S-19 were 0.99 and 0.84, respectively. The November 2007 source tests did not determine emissions of arsenic and chromium – the other metal HAPs targeted by MACT NNN in addition to lead.

Table 2-5-1 in BAAQMD Regulation 2, Rule 5 "New Source Review for Toxic Air Contaminants" summarizes acute and chronic trigger levels for toxic air contaminants (TACs) such as lead, arsenic, and chromium. As it currently exists, emissions from S-1 and S-19 are not abated by any add-on control devices (such as ESP, baghouse, etc.). In order to ensure deleting the MACT NNN requirements will not cause an increase in TACs that would trigger a review of health risks posed by the metal HAPs, the District has amended permit condition 16834 by adding parts 18 through 24 in the proposed permit to require OCIS to source test the metal HAP emissions at S-1 and S-19 when using the starch-based binder. These source tests will show whether the use of the new binder has any impact on TAC emissions from S-1 and S-19. In accordance with Regulation 2-5-301, OCIS would have to apply Best Available Control Technology for Toxics (TBACT) to S-1 and S-19 if the source risk is a cancer risk greater than 1.0 in one million (10^{-6}), and/or a chronic hazard index greater than 0.20. For the interim, it is reasonable to assume that the deleting the MACT NNN requirements (such as Section 63.1382(a)(1)) will not result in an increase in TAC emissions from the glass-melting furnaces.

Organic HAPs:

Formaldehyde serves as the surrogate for organic HAPs (phenol, methanol, and formaldehyde) and the formaldehyde emissions from the M and O line rotary spin manufacturing lines are limited by Section 63.1382(a)(2)(i) to 1.2 lb of formaldehyde per ton of glass pulled per rotary spin manufacturing line when using the phenol-formaldehyde based binder. In other words, the combined formaldehyde emissions from S-2 through S-4 and S-20 through S-22 is limited to not exceed 1.2 lb/ton of glass pulled/ manufacturing line when using the phenol-formaldehyde based binder. Because OCIS no longer uses the above binder and uses a starch-based binder instead, the above formaldehyde limit no longer applies. Even if the formaldehyde limit were applicable, and based on recent source tests conducted in the April-May 2011 timeframe at the O-line (because the M-line is inactive) the formaldehyde emission rates (in lb/ton of glass pulled) measured when using the starch-based binder at S-20, S-21, and S-22 were 0.2981, 0.0009, and 0.0107, respectively. It can be seen from above, that the sum-total of formaldehyde emissions from the O- rotary spin manufacturing line was 0.3097 lb/ton of glass pulled, which is below the Section 63.1382(a)(2)(i) formaldehyde limit of 1.2 lb/ton of glass pulled/rotary spin manufacturing line.

In addition to the above, it can also be seen from Tables 3 through 6 above that the use of the starch-based binder in favor of the phenol-formaldehyde binder resulted in over 95% reduction in formaldehyde (from 6.90 TPY to 0.30 TPY) from S-20 through S-22. Therefore, the District is assured that deleting the MACT NNN requirements from

Tables IV-B, C, D, and E and Tables VII-B, C, and D in the proposed permit for the above sources and S-2 through S-4 will not result in an increase in formaldehyde emissions at OCIS.

Changes to the proposed renewal permit stemming from addition/deletion of new/existing tables, and consolidation of tables:

- Renumbered parts 6 and 7 of permit condition 15250 to parts 8 and 9, respectively in Tables IV-F and VII-E pertaining to S-26 in the proposed permit.

- One 375 gallon vertical closed top tank (S-159), which was used for storing pump seal cooling water has been removed from the plant. Therefore, a reference to S-159 under Table IV-G was deleted in the proposed renewal permit.

- Deleted Tables IV-H and VII-F for S-46, 100,000 gallon vertical fixed roof tank, that was used for storing asphalt. OCIS replaced S-46 with S-173, 20,000 gallon vertical fixed roof tank that stores asphalt. The District's review under Application 18878 found S-173 was exempt from requiring a permit to operate per BAAQMD Regulation 2-1-123.3.7. Because S-173 is not a "significant" source as defined in BAAQMD Regulation 2-6-222 or 2-6-210, the tank is not cited in the proposed renewal permit.

- Deleted Table IV-I for S-50 & S-51, two 15,000 gallon vertical fixed roof tank, that were used for storing the phenol-formaldehyde resin. Effective March 2011, OCIS no longer uses the phenol-formaldehyde binder. S-50 & S-51 have been cleaned, closed, and are abandoned in place.

- Deleted Tables IV-R and VII-P for S-92 because OCIS permanently removed the boiler from service on November 20, 2011. OCIS' steam needs will be met with the installation of a new waste heat boiler, which will be downstream of the "O" oven incinerator (A-25) that abates the "O" line curing section (S-21). The new waste heat boiler will not feature a burner and will therefore, not generate any combustion emissions.

- Deleted Table IV-V for S-161 & S-162, two 4,500 gallon vertical fixed roof tanks, for mixing phenol/formaldehyde resin and a urea solution and storing this premix until it was mixed with other binder ingredients such as lignin, dye, silane, process oil, reclaimed water, and ammonium sulphate. The above materials along with other materials were used to formulate the phenol-formaldehyde binder, which as of March 2011 is no longer used at OCIS. Therefore, OCIS demolished S-161 and S-162 because the starch-based binder currently used at the facility is not formulated using. urea, phenol/formaldehyde resin or ammonium sulphate.

- Deleted IV-W and VII-S for S-163 because the spray booth qualifies for the exemption in Regulation 2-1-119.2.

- Deleted Tables IV-X and VII-T for S-164 because applicable requirements for OCIS' engines were consolidated into Table IV-M (for S-65 through S-68, S-166, & S-167).

- Added Tables IV-Y and VII-U for S-170 & S-171 the "M" & "O" line retail overwrap tape glue systems permitted under Application 16775.

Complex Applicability Determinations:

OCIS is not subject to the Standard of Performance for New Stationary Sources (NSPS) requirements contained in 40 CFR Part 60. Specifically, the "M" and "O" Line Electric Furnace, Channel and Forehearth sections (S-1 and S-19) are exempt from NSPS Subpart CC "Standards of Performance for Glass Manufacturing Plants", because the furnaces are electrically powered.

OCIS's "M" and "O" Line Rotary Spin (RS) Forming, Curing, and Cooling sections (S-2 through S-4 and S-20 through S-22) are not subject to the Standard of Performance for New Stationary Sources (NSPS) requirements contained in 40 CFR Part 60, Subpart PPP, Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants, because the rotary spin wool manufacturing lines (forming, curing and cooling sections) were constructed before February 7, 1984. The sources have not been modified or reconstructed for the purposes of the NSPS. For the NSPS, emissions of particulate would have to increase for the binder change to be considered a modification. Section 60.681 of the NSPS considers the affected source to be "the manufacturing equipment comprising the forming section, where molten glass is fiberized and a fiberglass mat is formed; the curing section, where the binder resin in the mat is thermally "set;" and the cooling section, where the mat is cooled." The limit in Section 60.682 is a particulate limit that applies to the forming, curing, and cooling combined. As discussed in the emission discussion in Section B of this statement of basis, the overall particulate emissions have decreased. Therefore, the line is not subject to the NSPS because it has been modified for the purposes of NSPS.

OCIS is not subject to any National Emission Standard for Hazardous Air Pollutants (NESHAP) requirements contained in 40 CFR Part 61, because it does not meet the applicability requirements for any of those standards.

OCIS' seven engines S-65 through S-68, S-164, S-166 and S-167 are rated at 220 hp, 275 hp, 275 hp, 275 hp, 900 hp, 80 hp and 162 hp, respectively. The ENGINES are subject to 40 CFR 63, Subpart ZZZZ (MACT ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). With the exception of S-164, the remaining engines (S-65 through S-68, S-166 and S-167) are considered to be existing stationary RICE under the above rule because they were constructed before June 12, 2006 and are rated at less than 500 hp. Because S-164 was constructed before December 19, 2002 and is rated at more than 500 hp, it is considered to be an existing stationary RICE under MACT ZZZZ. As such there are no standards/numerical/operational limits for S-65 through S-68, S-164, S-166 and S-

167 in MACT ZZZZ. However, the above engines are subject to the following operating limitations summarized under Table 2.d. in the above rule for an existing CI RICE:

1. Change oil & filter every 500 hours of operation or annually, whichever comes first.
2. Inspect air cleaner every 1000 hours of operation or annually, whichever comes first
3. Inspect all hoses and belts every 500 hours or annually, whichever comes first, and replace as necessary.

In addition to the above, S-65 through S-68, S-164, S-166 and S-167 are subject to requirements such as the general maintenance for safety and to minimize emissions, limited operation for non-emergency maintenance checks and testing, and the continuous compliance and recordkeeping requirements in MACT ZZZZ. Lastly, the above sources are not subject to the fuel requirements, performance testing, initial compliance, and notification requirements in MACT ZZZZ.

MACT ZZZZ applicable requirements have been added to Tables IV-M and VII-J in the proposed permit.

OCIS is the only wool fiberglass manufacturer within the District's jurisdiction. Therefore, following discussion is limited to evaluating the applicability and/or lack thereof of District regulations pertaining to OCIS' cold top electric furnaces (S-1 and S-19), the forming sections (S-2 and S-20), the curing sections (S-3 and S-21), and the cooling sections (S-4 and S-22).

The "M" and "O" line furnaces S-1 and S-19 are not subject to Regulation 9, Rule 12 – "Inorganic Gaseous Pollutants - Nitrogen Oxides from Glass Melting Furnaces" for the following reasons:

Regulation 9-12-110.1 states:
"9-12-110 Exemptions: The requirements of this Rule shall not apply to the following: 110.1 Furnaces in which all the heat required for melting is provided by electric current from electrodes submerged in the molten glass, except that heat may be supplied by fossil fuels for start-up when the furnace contains no molten glass."

S-1 and S-19 are equipped with natural gas fired burners and electrode equipment. During start-up and after all glass is removed from the furnace from a prior shutdown, the gas-fired burners are used to melt the initial batch mixture into molten glass. Once the initial batch mixture is melted, the gas-fired burners are shut off and electrode equipment inside each furnace provides the thermal energy to keep the glass in a molten state and to melt additional batch mix that is added to the top of the furnace. The addition of batch mix at the top of the furnaces forms a cold crust on top of the molten glass within the furnace. Therefore, S-1 and S-19 are referred to as cold top electrically powered furnaces. Because there are no District regulations geared toward limiting emissions from cold top furnaces, S-1 and S-19 are not subject to Regulation 9.

In order to demonstrate compliance with Regulation 6 "Particulate Matter", Rule 1 "General Requirements", OCIS is required by permit condition 24873 to do the following for the M & O-line forming (S-2 & S-20), curing (S-3 & S-21), and cooling (S-4 & S-22) sections:

- Part 15: Perform a daily visible emissions check at the above sources and/or at the outlet of the abatement devices that abate their emissions once per day.

- Part 78: Perform an annual source test every year to demonstrate compliance with the Regulation 6-1-310 particulate weight limit (of 0.15 grains per dscf per exhaust gas volume) and the Regulation 6-1-311 TSP limit.

The District's enforcement staff will verify compliance of the above sources with Regulation
6-1-301 during their routine plant inspections.

Reg. 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. This is a "grain loading" standard. Source tests performed by OCIS at the O-line sources (M-line was not source tested because it is inactive) as part of Application 23518 in the April-May 2011 time frame showed that the outlet grain loading rates recorded (in terms of gr/dscf) at S-20, S-21, the smoke stripper, and S-22 were well below the Regulation 6-1-310 limit, at 0.0157, 0.0027, 0.0027, and 0.0055, respectively.

Therefore, S-20, S-21, and S-22 (and S-2 through S-4 when activated) are expected to comply with Regulation 6-1-310.

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = $4.10\ P^{0.67}$, where P is the process weight rate in tons/hr. The "P" recorded during the April-May 2011 tests was 12 tons/hour. Substituting the "P" value into the above equation, the allowable emission rate E for S-20, S-21, and S-22 is 21.67 lb/hour i.e., $E = 4.10 \times 12^{0.67} = 21.67$ lb/hour

The actual filterable particulate emissions rate, recorded during the April-May 2011 tests at S-20, S-21, and S-22 (including the smoke stripper) were 14.3 lb/hour, 0.273 lb/hour, and 0.6740 lb/hour, respectively. It can be seen from above, that the actual filterable particulate emissions at S-20, S-21, and S-22 were lower than the allowable filterable particulate emissions.

Therefore, S-20, S-21, and S-22 (and S-2 through S-4 when activated) are expected to comply with Regulation 6-1-311.

Section 301 under Regulation 8 "Organic Compounds", Rule 2 "Miscellaneous Operations" states the following:

> A person shall not discharge into the atmosphere from any miscellaneous operation an emission containing more than 6.8 kg. (15 lbs.) per day and

> containing a concentration of more than 300 PPM total carbon on a dry basis.

A violation of Regulation 8-2-301 requires that both POC emissions are greater than 15 lb/day and the POC concentration is in excess of 300 PPM total carbon on a dry basis. The April-May 2011 source tests determined the TOC as C1 at S-20, S-21, the smoke stripper, and S-22 to be 17.3 ppm, 3.36 ppm, 10.7 ppm, and 3.32 ppm, respectively. The TOC as C1 emissions calculated on per day basis were 84 lb/day, 1.74 lb/day, 1.13 lb/day, and 2.10 lb/day, respectively.

Therefore, S-20, S-21, and S-22 (and S-2 through S-4 when activated) are expected to comply with Regulation 8-2-301.

Per Section 501 of Regulation 9, Rule 1, area monitoring to demonstrate compliance with the ground level SO_2 concentration requirements of Regulation 9-1-301 is at the APCO's discretion. The SO_2 concentrations recorded at S-20, S-21, the smoke stripper, and S-22 during the April-May 2011 source test were 0.159 ppm (0.167 lb/hour), 0.503 ppm (0.015 lb/hour), 0.0295 ppm (0.0008 lb/hour), and 0.0307 ppm (0.004 lb/hour), respectively.

Due to the low emission rates, the APCO has not required OCIS to conduct ground level monitoring at S-20, S-21, and S-22 (and S-2 through S-4 when activated).

The "M" and "O" line forming, curing, and cooling sections are not subject to the various rules of Regulation 9 "Inorganic Gaseous Pollutants," discussed below, for the following reasons:

Forming: The natural gas fired fiberizers that are used at the forming sections (S-2 and S-20) are not subject to Regulation 9 because there is no District rule and/or emission limit in the regulation that controls this category of sources.

Curing: The curing section ovens (S-3 and S-21) are not subject to Regulation 9, Rule 7 – "Inorganic Gaseous Pollutants - Nitrogen Oxides And Carbon Monoxide From Industrial, Institutional, And Commercial Boilers, Steam Generators, And Process Heaters", because they falls under the exemption provided in Regulation 9-7-110.6. That section states that "[t]he requirements of [Regulation 9, Rule 7] shall not apply to . . . Kilns, ovens, and furnaces used for drying, baking, heat treating, cooking, calcining, or vitrifying," and the "O" line curing section oven will be used to dry and cure thermosetting resins sprayed on the glass fibers in the "O" line forming section.

Cooling: There is no combustion emissions associated with the smoke stripper and cooling sections (S-4 & S-22). Therefore, S-4 & S-22 are not subject to Regulation 9.

Applicability of 40 CFR 64, Compliance Assurance Monitoring (CAM):

The Compliance Assurance Monitoring (CAM) regulation in 40 CFR 64 was developed to provide assurance that facilities comply with applicable emissions limitations by adequately monitoring control devices. The CAM rule was effective on October 22, 1997. Facilities such as OCIS are not affected by CAM requirements until they submit an application to renew their Title V permit.

Appendix D contains OCIS' CAM applicability analysis for S-3, S-4, S-21, and S-22. Section 64.2 "Applicability" states:

(a) *General applicability.* Except for backup utility units that are exempt under paragraph (b)(2) of this section, the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, "potential pre-control device emissions" shall have the same meaning as "potential to emit," as defined in §64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

Section 64.1 "Definitions" defines a *Pollutant-specific emissions unit* means an emissions unit considered separately with respect to each regulated air pollutant.

40 CFR 70 defines "*Potential to emit*" and "*Regulated air pollutant*" as follows:

Potential to emit means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the Administrator. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in title IV of the Act or the regulations promulgated thereunder.

Regulated air pollutant means the following:

(1) Nitrogen oxides or any volatile organic compounds;

(2) Any pollutant for which a national ambient air quality standard has been promulgated;

(3) Any pollutant that is subject to any standard promulgated under section 111 of the Act;

(4) Any Class I or II substance subject to a standard promulgated under or established by title VI of the Act; or

(5) Any pollutant subject to a standard promulgated under section 112 or other requirements established under section 112 of the Act, including sections 112(g), (j), and (r) of the Act, including the following:

(i) Any pollutant subject to requirements under section 112(j) of the Act. If the Administrator fails to promulgate a standard by the date established pursuant to section 112(e) of the Act, any pollutant for which a subject source would be major shall be considered to be regulated on the date 18 months after the applicable date established pursuant to section 112(e) of the Act; and

(ii) Any pollutant for which the requirements of section 112(g)(2) of the Act have been met, but only with respect to the individual source subject to section 112(g)(2) requirement.

It can be seen from above that CAM applies to a unit (source) of criteria pollutant and/or hazardous air pollutant (HAP) emissions if it satisfies all of the following criteria:

- The source is located at a major source that requires a Title V permit; and
- The source is subject to an emission limitation or standard for a criteria pollutant or HAP; and
- The source does not qualify for any of the exemptions under Section 64.2 and is therefore not exempt from CAM; and
- The source uses a control device to comply with the emission limitation or standard; and
- The source has potential pre-control device emissions of criteria pollutant or HAP emissions that are equal to or greater than the major source threshold for the applicable pollutant (in BAAQMD, the major source thresholds are 100 tons per year for each criteria pollutant, 10 tons per year for a single HAP, and 25 tons per year for two or more HAPs).

OCIS is a major source and is therefore required to operate within the confines of their Title V permit. Specifically, the District established daily and annual baseline emission

limits for PM, NOx, SO2, POC, CO, phenol, formaldehyde, methanol, ammonia, ethanol, and acetaldehyde pertaining to S-2 through S-4 and S-20 through S-22 under Applications 21631 and 23518. Permit condition 24873, which governs the operation of the above sources, outlines the daily and annual baseline emission limits for PM, NOx, SO2, POC, and CO in the proposed permit. Tables 9 through 12 below summarize the annual baseline emissions limits for S-2 through S-4 and S-20 through S-22 that the District established for the above sources under Applications 21631 and 23518.

Table 9:
Baseline Emissions for the M-Line

Pollutant	Forming Section		Curing Section		Cooling Section	
	S-2		S-3		S-4	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	460.35	75.79	2.78	0.46	54.65	9
PM (C)	55.24	9.1	19.69	3.24	22.77	3.75
PM (F+C)	515.59	84.89	22.48	3.7	77.43	12.75
NOx	30.45	3.76	248.44	30.68	4.42	0.55
SO2	37.17	4.59	5.61	0.69	6.2	0.77
POC	94.4	13.22	5.33	0.75	18.36	2.55
CO	95.42	15.71	345.02	56.81	9.18	1.51
Phenol	42.13	5.17	2.84	0.35	2.05	0.25
Formaldehyde	18.19	2.23	0.34	0.04	4.27	0.52
Methanol	120.89	14.74	0.13	0.02	7.89	0.96
Ammonia	159.05	24.59	105.31	16.28	20.8	3.22
Ethanol	1.16	0.14	0.21	0.03	0.17	0.02
Acetaldehyde	1.33	0.2	0.57	0.07	0.73	0.09

Table 10: Baseline Emissions for the O-Line						
Pollutant	Forming Section		Curing Section		Cooling Section	
	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	415.03	73.44	19.83	3.51	16.17	2.86
PM (C)	49.8	8.81	140.27	24.82	24.69	4.37
PM (F+C)	464.84	82.25	160.11	28.33	40.86	7.23
NOx	21.22	3.28	277.64	42.93	5.33	0.82
SO2	38.51	5.95	5.81	0.9	6.36	0.98
POC	138.08	24.43	2.28	0.4	10.13	1.79
CO	211.51	37.44	451.58	79.91	12.07	2.14
Phenol	50.52	7.81	3.4	0.53	2.46	0.38
Formaldehyde	42.92	6.64	0.13	0.02	1.54	0.24
Methanol	142.39	22.02	0.16	0.02	9.3	1.44
Ammonia	164.08	25.37	108.64	16.8	21.46	3.32
Ethanol	1.39	0.21	0.21	0.03	0.23	0.04
Acetaldehyde	1.33	0.2	0.2	0.03	0.22	0.03

Table 11: Criteria Pollutant Baseline Emissions for the M & O-Lines				
Pollutant	Forming Section	Curing Section	Cooling Section	Total emissions from forming, curing, and cooling sections
	S-2 & S-20	S-3 & S-21	S-4 & S-22	
	TPY	TPY	TPY	TPY
PM (F)	149.23	3.97	11.86	165.06
PM (C)	17.91	28.06	8.12	54.09
PM (F+C)	167.14	32.03	19.98	219.15
NOx	7.04	73.61	1.37	82.02
SO2	10.54	1.59	1.75	13.88
POC	37.65	1.15	4.34	43.14
CO	53.15	136.72	3.65	193.52

Table 12:				
HAP/TAC Baseline Emissions for the M & O-Lines				
Pollutant	**Forming Section**	**Curing Section**	**Cooling Section**	**Total emissions from forming, curing, and cooling sections**
	S-2 & S-20	**S-3 & S-21**	**S-4 & S-22**	
	TPY	**TPY**	**TPY**	**TPY**
Phenol	12.98	0.88	0.63	14.49
Formaldehyde	8.87	0.06	0.76	9.69
Methanol	36.76	0.04	2.4	39.2
Ammonia	49.96	33.08	6.54	89.58
Ethanol	0.35	0.06	0.06	0.47
Acetaldehyde	0.4	0.1	0.12	0.62

The District's major source thresholds are 100 tons per year for each criteria pollutant, 10 tons per year for a single HAP, and 25 tons per year for two or more HAPs. It can be seen from Tables 11 and 12 above that OCIS is a major source because the emissions of PM10 and CO are above the District's major source thresholds. Although the baseline for phenol and methanol is high, the facility is no longer emitting large quantities of these pollutants, so OCIS is no longer a major source of hazardous air pollutants.

Because emissions from S-1, S-2, S-19, S-20, S-33, S-65 through S-68, S-149, S-150, S-155 through S-160, S-164, S-166, S-167, S-170, and S-171 are not abated, they are not subject to CAM. Please refer to Tables II-A and II-B of the proposed permit.

Table 13 summarizes sources at OCIS whose emissions of PM, POC, and/or HAP are abated:

Table 13:		
Source #	**What emission limits or standards is the source subject to?**	**Control device abating source to comply with the emission limits or standards.**
S-3	Reg. 6-1, 7, 8-2, 9-1, and permit condition 24873; Refer to Table IV-C	A-5 & A-6
S-4 (including smoke stripper)	Reg. 6-1, 7, 8-2, 9-1, and permit condition 24873; Refer to Table IV-D	S-4 abated by A-7; smoke stripper abated by A-101 & A-102
S-21	Reg. 6-1, 7, 8-2, 9-1, and permit condition 24873; Refer to Table IV-C	A-25
S-22 (including smoke stripper)	Reg. 6-1, 7, 8-2, 9-1, and permit condition 24873; Refer to Table IV-E	S-22 abated by A-26; smoke stripper abated by A-99 & A-100
S-26	Reg. 6-1 and permit condition 15250; Refer to Table IV-F	A-149
S-56	Reg. 6-1; Refer to Table IV-J	A-44
S-57	Reg. 6-1 and permit condition 12144; Refer to Table IV-K	A-48
S-61 & S-62	Reg. 6-1; Refer to Table IV-L	A-40
S-69 & S-70	Reg. 6-1, 7, 8-2, 9-2, and permit condition 12672; Refer to Table IV-N	S-69 abated by A-150; S-70 abated by A-70
S-86	Reg. 6-1 and permit condition 12144; Refer to Table IV-O	A-34
S-87	Reg. 6-1 and permit condition 12144; Refer to Table IV-P	A-35
S-90	Reg. 6-1; Refer to Table IV-Q	A-38

Test to check if CAM would apply for S-3, S-4, S-21, and S-22:
Permit condition 24873 sets forth daily and annual baseline emissions limits for criteria pollutants emitted from S-2 through S-4 and S-20 through S-22. Because S-2 and S-20 are not abated, the following discussion is limited to discussing if CAM would apply to S-3, S-4, S-21, and S-22. The pollutants of interest for the purposes of this discussion are POC (from S-3 and S-21) and PM (from S-4 and S-22). In order to subject the above sources to CAM, the pre-control device emissions from the above sources should be above the District's major source thresholds of 100 TPY for each of the above pollutants. If the post-control device emissions from the above sources is equal to/greater than 100 TPY, Section 64.3 (b)(4)(ii) would require OCIS to collect four or more data values equally spaced over each hour for each parameter monitored at the control device. If the pre-control device emissions from the above sources is equal to/greater than 100 TPY, Section 64.3 (b)(4)(iii) would require OCIS to collect at least one data value for each parameter monitored at the control device once per 24-hour period.

Under its BACT analysis that was part of Application 23518, the District had assumed an overall PM removal efficiency of A-99 & A-100 and A-26 to be about 75%. Refer to page 25 of 47 of the Application 23518's evaluation report that can be found in Appendix B of this document. In light of the above, the overall PM removal efficiency of A-101 & A-102 and A-7 is assumed to be about 75%. Consistent with guidance provided in the District's BACT/TBACT handbook, it is assumed that the overall POC destruction efficiency of thermal oxidizers A-5, A-6, and A-25 is at least 98.5%. Table 14 summarizes the pre-control device and post-control device emissions from S-3, S-4, S-21, and S-22.

Table 14:

Source #	Control device	Pollutant abated	Annual "post-control" baseline emissions limit (TPY)	Permit condition 24873	Overall removal/destruction efficiency assumed (%)	Calculated "pre-control" device emissions (TPY)
S-3	A-5 & A-6	POC	0.75	part 30	98.5	50
S-4	A-7, A-101, & A-102	PM	12.75	part 38	75	51
S-21	A-25	POC	0.40	part 60	98.5	27
S-22	A-26, A-99, & A-100	PM	7.23	part 68	75	29

It can be seen from Table 14 above that the pre-control device emissions from S-3, S-4, S-21, and S-22 are below the District's major source thresholds of 100 TPY for POC and PM. Therefore, the above sources are not subject to CAM.

Test to check if CAM would apply for S-26, S-56, S-57, S-61, S-62, S-69, S-70, S-86, S-87, and S-90:

With the exception of S-69 and S-70, which the District reviewed under Application 12522, the remaining sources listed above are grandfathered, i.e., they have operated at OCIS on/before March 7, 1979 and have not undergone any modifications. Though S-69 and S-70 are subject to Regulation 8, Rule 2, which is geared toward limiting POC emissions, the net increase in POC emissions was calculated by the District under Application 12522 to be 0.00116 TPY. Therefore, the pollutant of interest for the purposes of this discussion is PM. Because the majority of the sources are grandfathered i.e., these sources have not undergone NSR review and/or do not have District established baseline emissions limits, Table 15 below summarizes the annual pre-control PM emissions from S-26, S-56, S-57, S-61, S-62, S-69, S-70, S-86, S-87, and S-90 as provided by OCIS with their permit application to renew their Title V permit.

Table 15:

Source #	Control device	"Pre-control device" emissions (TPY)
S-26	A-149	3.19
S-56	A-44	42.47
S-57	A-48	5.51
S-61	A-40	22.52
S-62	A-40	22.52
S-69	A-150	40.88
S-70	A-70	40.88
S-86	A-34	45.05
S-87	A-35	45.05
S-90	A-38	13.52

Because pre-control device PM emissions from S-26, S-56, S-57, S-61, S-62, S-69, S-70, S-86, S-87, and S-90 are below the District's major source threshold of 100 TPY, the above sources are not subject to CAM.

Other changes to the permit.

- The section has been modified to say that SIP standards are now found on the EPA website and are not included as part of the permit.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

When OCIS was issued its initial Title V permit under Application 25819 on November 25, 2003, the District had identified one remedial measure for S-1 and S-19 with compliance milestone dates of March 1, 2004 and April 1, 2004. The remedial measure was intended to assure and demonstrate compliance with Sections 63.1382(b)(3) and 63.1383(d) of MACT NNN. OCIS installed the required temperature monitors at S-1 & S-19 to demonstrate compliance with MACT NNN. Further, as discussed above, MACT NNN is no longer applicable to OCIS due to the facility's change in 2011 from a phenol-formaldehyde to a starch-based binder. Therefore, a schedule of compliance to ensure compliance with MACT NNN is no longer required.

The BAAQMD Compliance and Enforcement Division has conducted a review of compliance since the date of issuance of the initial Title V permit (from November 25, 2003 to July 26, 2012) and has no evidence of on-going noncompliance or recurring violations at this facility. During the past year, there have been zero notices of violation issued to this facility.. The compliance report is contained in Appendix A of this permit evaluation and statement of basis.

Since the District has not determined that the facility is out of compliance with any applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 (a statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance) and 2-6-409.10.2 (a statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term).

VI. Permit Conditions

During this renewal process, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting requirements have been added to the permit.

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all "strike-out" language will

be deleted and all “underline” language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

The District has reviewed and, where appropriate, revised or added new annual and daily throughput limits on sources so as to help ensure compliance with District rules addressing preconstruction review. The applicability of preconstruction review depends on whether there is a “modified source” as defined in District Rule 2-1-234. Whether there is a modified source depends in part on whether there has been an “increase” in “emission level.” 2-1-234 defines what will be considered an emissions level increase, and takes a somewhat different approach depending on whether a source has previously permitted by the District.

Sources that were modified or constructed since the District began issuing new source review permits will have permits that contain throughput limits, and these limits are reflected in the Title V permit. These limits have previously undergone District review, and are considered to be the legally binding “emission level” for purposes of 2-234.1 and 2-1-234.2. By contrast, for older sources that have never been through preconstruction review (commonly referred to as “grandfathered” sources), an “increase” in “emission level” is addressed in 2-1-234.3. A grandfathered source is not subject to preconstruction review unless its emission level increases above the highest of either: 1) the design capacity of the source, 3) the capacity listed in a permit to operate, or 3) highest capacity demonstrated prior to March 2000. However, if the throughput capacity of a grandfathered source is limited by upstream or downstream equipment (i.e., is “bottlenecked”), then the relaxing of that limitation (“debottlenecking”) is considered a modification.

The District has written throughput limits into the Title V permit for grandfathered sources. As discussed above, these limits are written for the purpose of determining whether an increase in emission levels has occurred. The purpose of these limits is to facilitate implementation of preconstruction review program. If these limits are exceeded, the facility would be expected to report the exceedence, and the District would treat the reported exceedence as presumptively establishing the occurrence of a modification. The facility would then be expected to apply for a preconstruction permit addressing the modification and the District would consider whether an enforcement action was appropriate.

It is important to note the presumptive nature of throughput limits for grandfathered sources that are created in the Title V permit. These limits are generally based upon

the District's review of information provided by the facility regarding the design capacity or highest documented capacity of the grandfathered source. To verify whether these limits reflect the true design, documented, or "bottlenecked" capacity (pursuant to 2-10234.1) of each source is beyond the resource abilities of the District in this Title V process. Moreover, the District cannot be completely confident that the facility has had time or resources necessary to provide the most accurate information available in this regard. Creating throughput limits in the Title V permit for grandfathered sources is not required by either Part 70 or the District's Major Facility Review rules. Despite the lack of such a requirement, and despite the resource and information challenges presented in the Title V process, the District believes that writing presumptive limits for grandfathered sources into the Title V permit will provide a measure of predictability regarding the future applicability of the preconstruction review program, and that this increased predictability is universally beneficial.

It follows from the presumptive nature of these throughput limits for grandfathered sources that exceedence of these limits is not per se a violation of the permit*. Failure to report an exceedence would be a permit violation.* In this sense, the throughput limits function as monitoring levels, and are imposed pursuant to the District's authority to required monitoring that provide a reasonable assurance of compliance. If an exceedence occurs, the facility would have an opportunity to demonstrate that the throughput limit in fact did not reflect the appropriate limit for purposes of 2-1-234.3. If the facility can demonstrate this, no enforcement action would follow, and the permit would be revised at the next opportunity. It also follows that compliance with these limits is not a "safe harbor" for the facility. If evidence clearly shows that a grandfathered source has undergone a "modification" as defined in 2-1-234.3, the District would consider that a preconstruction review-triggering event, notwithstanding compliance with the throughput limit in the Title V permit. In other words, the protection afforded the facility by complying with the throughput limit in the Title V permit is only as strong as the information on which it was based. There is no Title V "permit shield" associated with throughput limits for grandfathered sources, as they are being proposed. A shield may be provided if the District determines with certainty that a particular limit is appropriate for purposes of 2-1-234.3.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

Conditions have also been deleted due to the following:

- Redundancy in recordkeeping requirements.
- Redundancy in other conditions, regulations and rules.
- The condition has been superseded by other regulations and rules.
- The equipment has been taken out of service or is exempt.
- The event has already occurred (i.e. initial or start-up source tests).

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO that limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

Changes to the renewal permit stemming from amendments to existing permit conditions and/or incorporation of new permit conditions:

The following permit conditions were deleted, amended, or added to the proposed permit:

- Permit conditions deleted: 10924, 13835, 19142, 20565, and 20566.
- Permit conditions amended: 12378, 12672, 14277, 14391, 15250, and 16834.
- Permit conditions added: 22820, 22851, 23812, and 24873.

1. Deleted permit condition 10924 (for S-92) because OCIS permanently removed S-92 from service on November 20, 2011. OCIS' steam needs will be met with the installation of a new waste heat boiler, which will be downstream of the "O" oven incinerator (A-25) that abates the "O" line curing section (S-21). The new waste heat boiler will not feature a burner and will therefore, not generate any combustion emissions.

2. Amended part 2 of permit condition 12378 governing S-157 and S-158. The proposed changes are intended to ensure OCIS would use District approved laboratory test methods to analyze the inks used at the above sources. For a given ink, assuming there is no change in its formulation, the lab report (event based) would help OCIS demonstrate to the District's enforcement staff that compliant POC inks are being used.

3. Deleted reference to S-46 from permit condition 12672 and renumbered parts 4 (to part 1) and 5 (to part 2) pertaining to S-69 and S-70. OCIS replaced S-46 with S-173, a 20,000 gallon vertical fixed roof tank that stores asphalt. The District's review under Application 18878 found S-173 was exempt from requiring a permit to operate per BAAQMD Regulation 2-1-123.3.7. Because S-173 is not a "significant" source as defined in BAAQMD Regulation 2-6-222 or 2-6-210, the tank is not cited in the proposed renewal permit.

4. Regulation 6, Particulate Matter and Visible Emissions, was renumbered as Regulation 6, Rule 1, and renamed as Particulate Matter, General Requirements on December 5, 2007. Regulation 6, Rule 1 is not federally enforceable, although its requirements exactly mirror those contained in the SIP approved version of the rule (Regulation 6). Therefore, the reference to SIP approved 6-301 was amended to 6-1-301 in the renumbered part 1 (from part 4) of permit condition 12672 in Tables IV-N and VII-L for S-69 & S-70. Because Reg. 6-1-301 is not federally enforceable, the row entry corresponding to part 1 of permit condition 12672 was changed to "N" (from "Y") in Table IV-N.

5. Deleted permit condition 13835 (for S-161 & S-162). OCIS used S-161 & S-162, two 4,500 gallon vertical fixed roof tanks, for mixing phenol/formaldehyde resin and a urea solution and storing this premix until it was mixed with other binder ingredients such as lignin, dye, silane, process oil, reclaimed water, and ammonium sulphate. The above materials along with other materials were used to formulate the phenol-formaldehyde binder, which as of March 2011 is no longer used at OCIS. Therefore, OCIS demolished S-161 & S-162 because the starch-based binder currently used at the facility is not formulated using urea, phenol/formaldehyde resin or ammonium sulphate.

6. One 375 gallon vertical closed top tank (S-159), which was used for storing pump seal cooling water has been removed from the plant. Therefore, references to S-159 under parts 1 and 2 of permit condition 14277 were deleted in the proposed renewal permit.

7. Changed reference to Table 2-1-316 in part 6 of permit condition 14391 (for S-155 & S-156) to Table 2-5-1.

8. Deleted references to S-163 from permit condition 15250 because it qualifies for the exemption under Regulation 2-1-119.2. Renumbered parts 6 and 7 pertaining to S-26 parts to 8 and 9, respectively.

9. Regulation 6, Particulate Matter and Visible Emissions, was renumbered as Regulation 6, Rule 1, and renamed as Particulate Matter, General Requirements on December 5, 2007. Regulation 6, Rule 1 is not federally enforceable, although its requirements exactly mirror those contained in the SIP approved version of the rule (Regulation 6). Therefore, the reference to SIP approved 6-301 was amended to 6-1-301 in part 6 of permit condition 15250 (for S-26).

10. The basis for permit condition 16834, part 5 is Regulation 2-1-234, which is not federally enforceable. The condition is federally enforceable based on Sections 2-1-307 and 2-1-403, so these sections have been added to the basis.

11. Regulation 6, Particulate Matter and Visible Emissions, was renumbered as Regulation 6, Rule 1, and renamed as Particulate Matter, General Requirements on December 5, 2007. Regulation 6, Rule 1 is not federally enforceable, although its requirements exactly mirror those contained in the SIP approved version of the rule (Regulation 6). Therefore, references to SIP approved 6-301, 6-310, and 6-311 in parts 7 & 8 of permit condition 16834 were amended in Table IV-A (for S-1 & S-19) to 6-1-301, 6-1-310, and 6-1-311, respectively. Amended parts 13 through 16 and deleted part 17 of permit condition 16834 in Table IV-A (for S-1 & S-19) as discussed below.

12. When OCIS was issued its initial Title V permit under Application 25819 on November 25, 2003, the District had identified one remedial measure for S-1 and S-19 with compliance milestone dates of March 1, 2004 and April 1, 2004. The remedial measure, which was incorporated into permit condition 16834, was intended to assure and demonstrate compliance with Sections 63.1382(b)(3) and 63.1383(d) of MACT NNN. Because OCIS has installed the required temperature monitors at S-1 & S-19 to demonstrate compliance with MACT NNN and given that the April 2004 date to implement the remedial measure has passed, references to March 1, 2004 and Reg. 2-6-409.10.3 in parts 12, 13, 14, 15, and 16 were deleted. For the same reasons, the requirement in part 17 to submit progress reports to come into compliance with the remedial measure was also deleted. Lastly, the regulatory basis of parts 12, 13, 14, 15, and 16 was changed to Reg. 2-6-503 (from Reg. 2-6-409.10.3).

13. MACT NNN requirements have been deleted from the proposed permit. Therefore, references to applicable requirements of MACT NNN in the proposed permit were deleted from part 8 of permit condition 16834. Part 8 of permit condition 16834 in the proposed permit requires OCIS to conduct source tests at S-1 and S-19 when using the starch-based binder to ensure the PM emission rate is at/below 0.5 lb/ton of glass pulled/ glass-melting furnace. In addition to the above and to help ensure deleting the MACT NNN requirements will not cause an increase in emissions of arsenic, chromium, and lead from furnaces S-1 and S-19 that would trigger a review to evaluate the health risks posed by the metal HAPs, permit condition 16834 was amended by adding parts 18 through 24 to it in the proposed permit.

14. Deleted permit condition 19142 because the operation of OCIS' in-use diesel engines (S-66 through S-68, S-164, S-166, and S-167) is now governed by ATCM permit condition 22820, and the fire pump diesel engine (S-65) is governed by ATCM permit condition 22851. Therefore, permit condition 19142 was deleted from Tables IV-M and VII-J for S-65 through S-68, S-164, S-166, and S-167 and permit condition's 22820 and 22851 were added to Tables IV-M and VII-J.

15. Permit condition 20565 was replaced by permit condition 24873. Therefore, permit condition 20565 was deleted from Tables IV-B & C and VII-B & C for S-2, S-3, S-20 & S-21, and applicable parts of permit condition 24873 were added to Tables IV-B & C and VII-B & C.

16. Permit condition 20566 was replaced by permit condition 24873. Therefore, permit condition 20566 was deleted from Tables IV-D & E and VII-D for S-4 and S-22, and applicable parts of permit condition 24873 were added to Tables IV-D & E and VII-D.

17. Added permit condition 23812 (for S-170 & S-171). The District authored the above permit condition under Application 16775 cited in Table 1 above when

reviewing OCIS' "M" & "O" line retail overwrap tape glue systems.

18. Added permit condition 24873 (for S-2 through S-4 & S-20 through S-22). The District authored the above permit condition under Applications 21631 & 23518 cited in Table 1 above when reviewing OCIS' binder change permit application i.e., use of the starch based binder in favor of the phenol-formaldehyde based binder at S-2 & S-20.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The District has reviewed all monitoring and has determined the existing monitoring is adequate. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements**.** It follows that, although Title V calls for a re-examination of all monitoring**,** there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation**.** Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring requirements only when it can support a conclusion that existing monitoring is inadequate**.**

SO_2 Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring

SO_2 Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S -1 – "M" Furnace S-2 – "M" Forming S-3 – "M" Curing S-4 – "M" Cooling S -19 – "O" Furnace S-20 – "O" Forming S-21 – "O" Curing S-22 – "O" Cooling S-65, S-66, S-67, S-68, S-164, S-166, S-167 Emergency Standby Diesel Generators	BAAQMD 9-1-301	Ground level concentrations of SO2 shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	None
S-2 – "M" Forming S-3 – "M" Curing S-4 – "M" Cooling S-20 – "O" Forming S-21 – "O" Curing S-22 – "O" Cooling	BAAQMD 9-1-302	300 ppm (dry)	None
S-65, S-66, S-67, S-68, S-164, S-166, S-167 Emergency Standby Diesel Generators	BAAQMD 9-1-304	Sulfur content of fuel less than 0.5% by wt.	None
S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Condition 24873	Various SO2 daily and annual emission limits S2: 37.17 lb/day; 4.59 tpy S3: 5.61 lb/day; 0.69 tpy S4: 6.20 lb/day; 0.77 tpy S20: 38.51 lb/day, 5.95 tpy S21: 5.81 lb/day; 0.90 tpy S22: 6.36 lb/day; 0.98 tpy	Daily calculations and annual source tests

SO2 Discussion:

Compliance with Regulation 9-1-301:

"M" & "O" Line Furnaces, Forming Sections, Curing Sections and Cooling Sections: SO2 emissions result from melting the batch in the furnaces (S-1, S-19), the natural gas combustion at the fiberizers in the forming section and the curing ovens (S-2, S-3, S-20,

S-21), the residual emissions from the cured mats in the cooling section (S-4, S-22) and the thermal decomposition of the sulfate compounds in the binder.

Per Section 501 of Regulation 9, Rule 1, area monitoring to demonstrate compliance with the ground level SO2 concentration requirements of Regulation 9-1-301 is at the APCO's discretion.
S-1 and S-19 were source tested in November 2007. The SO2 concentrations recorded at S-1 and S-19 during the November 2007 source tests were 1.98 ppm (0.149 lb/hour) and 1.68 ppm (0.128 lb/hour), respectively. The SO2 concentrations recorded at S-20, S-21, the smoke stripper, and S-22 during the April-May 2011 source test were 0.159 ppm (0.167 lb/hour), 0.503 ppm (0.015 lb/hour), 0.0295 ppm (0.0008 lb/hour), and 0.0307 ppm (0.004 lb/hour), respectively. The M-line has been inactive for quite some time. As a result, OCIS has not performed any District approved source tests at S-2, S-3, and S-4 when using the starch-based binder. However, because both the M & O lines are almost identical it is reasonable to expect SO2 concentrations from S-2, S-3, and S-4 to be similar (or at least be comparable) to S-20, S-21, and S-22 when the M-line is activated. At such low emission rates, it is reasonable to expect that the APCO will not require OCIS to conduct ground level monitoring to demonstrate compliance with the ground level SO2 concentration requirements of Regulation 9-1-301.

Emergency Standby Diesel Generators (Engines):

OCIS operates seven engines. Sources S-65 through S-68, S-164, S-166 and S-167 were permitted as loss-of-exemption I.C. Engines because they were previously exempt from permitting but were later required to obtain a Permit to Operate due to changes in the District's regulations. OCIS' engines are subject to permit conditions 22820 and 22851, which allow most of the engines to be operated for up to 20 hours per year and the fire pump engine to be operated up to 34 hours per year for reliability-related testing purposes.

The maximum diesel fuel consumption rates for the above engines are as follows:

- S-65 through S-68: 15 gallons/hour/engine
- S-164: 45 gallons/hour; S-166: 6 gallons/hour
- S-167: 12 gallons/hour.

Assuming the above engines consume ultralow sulfur diesel (15 ppm sulfur) and operate for 20 hours/year for reliability-related testing purposes, the combined annual SO_2 emissions from S-65 through S-68, S-164, S-166 and S-167 is equal to 0.56 lb/year or 0.0003 TPY.

For example, the annual SO2 emissions from S-65 were estimated as follows:

= (0.000015 lb S/lb fuel) x (7.31 lb fuel/gal fuel) x (15 gal fuel/hr) x (64 lb SO2/32 lb S)
x (20 hr/yr)
= 0.07 lb/year or 0.00004 TPY

The fire pump engine would emit about 0.12 lb SO2/year.

Due to the low emission rates, the APCO has not required OCIS to conduct ground level monitoring to demonstrate compliance with the ground level SO2 concentration requirements of Regulation 9-1-301.

Compliance with Regulation 9-1-302:

"M" & "O" Line Furnaces, Forming Sections, Curing Sections and Cooling Sections:
In order to ensure compliance with the 300 ppm limit in Regulation 9-1-302, part 9 of permit condition 16834 requires OCIS to perform a District approved source test at S-1 and S-19 once per permit term. S-1 and S-19 were source tested in November 2007. The SO2 concentrations recorded at S-1 and S-19 during the November 2007 source tests were 1.98 ppm and 1.68 ppm, respectively. OCIS source tested S-20, S-21, the smoke stripper, and S-22 in April-May 2011 timeframe after it began using the starch-based binder. The SO2 concentrations recorded at S-20, S-21, the smoke stripper, and S-22 during the April-May 2011 source test were 0.159 ppm, 0.503 ppm, 0.0295 ppm, and 0.0307 ppm, respectively. The M-line has been inactive for quite some time. As a result, OCIS has not performed any District approved source tests at S-2, S-3, and S-4 when using the starch-based binder. However, because both the M & O lines are almost identical it is reasonable to expect SO2 concentrations from S-2, S-3, and S-4 to be similar (or at least be comparable) to S-20, S-21, and S-22 when the M-line is activated. Because the SO2 concentrations from S-1 through S-4 and S-19 through S-22 are well below the 300 ppm limit, the District concludes that periodic SO2 monitoring to demonstrate compliance with Regulation 9-1-302 is not necessary for the above sources.

Compliance with Regulation 9-1-304:

Emergency Standby Diesel Generators (Engines):
Per CAPCOA/ARB/EPA Agreement, certification by the fuel supplier for each fuel delivery of diesel delivered to OCIS' seven engines (S-65 through S-68, S-164, S-166 and S-167) would assure compliance with Section 304. The fuel supplier would certify each purchase lot, and the certification records would be cross-referenced to a given purchase lot number. Because diesel sold in California is ultralow sulfur diesel (15 ppm sulfur; 0.0015% by wt.) i.e., has sulfur content at/below 0.05 % by weight, the vendor fuel oil certification would suffice.

The Agreement date is 2001. Today only ultra-low sulfur diesel is available in California. Therefore, the District is no longer requiring facilities to obtain certification of fuel sulfur for diesel.

Compliance with daily and annual SO2 limits in Condition 24873:
Daily and annual SO2 limits were imposed on Sources S-2, S-3, S-4, S-20, S-21, and S-22 by Applications 21631 and 23518. The facility will demonstrate compliance with these limits by performing annual source tests to establish emission factors and using the emission factors together with daily records of operation to estimate daily and annual emissions.

PM Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S-1, S-19, Furnaces S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Regulation 6-1-301	Ringelmann 1.0 For less than 3 minutes in an hour	Daily visual monitoring
S-56 Batch Materials Silo & Unloading System S-57 Batch Mixing S-61, S-62 Packing Dust Collection Systems S-69, S-70 Asphalt Applicators S-86, S-87 Transporter Bins & Silos S-90 Bad Batch Bin	BAAQMD Regulation 6-1-301	Ringelmann 1.0 For less than 3 minutes in an hour	Weekly visual monitoring
S-26 Sandblasting room	BAAQMD Regulation 6-1-301	Ringelmann 1.0 For less than 3 minutes in an hour	Monthly visual monitoring
S-65, S-66, S-67, S-68, S-164, S-166, S-167 Emergency Standby Diesel Generators	BAAQMD Regulation 6-1-303.1	Ringelmann 2.0 For less than 3 minutes in an hour	None
S-1, S-19, Furnaces	BAAQMD Regulation 6-1-310	0.15 gr/dscf	Source test once every five years
S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Regulation 6-1-310	0.15 gr/dscf	Annual source test
S-26 Sandblasting room	BAAQMD Regulation 6-1-310	0.15 gr/dscf	Monthly pressure drop monitoring
S-57 Batch Mixing	BAAQMD Regulation 6-1-310	0.15 gr/dscf	Weekly pressure drop monitoring

PM Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S-56 Batch Materials Silo & Unloading System S-61, S-62 Packing Dust Collection Systems S-65, S-66, S-67, S-68, S-164, S-166, S-167 Emergency Standby Diesel Generators S-69, S-70 Asphalt Applicators S-86, S-87 Transporter Bins & Silos S-90 Bad Batch Bin	BAAQMD Regulation 6-1-310	0.15 gr/dscf	None
S-1, S-19, Furnaces	BAAQMD Regulation 6-1-311	$4.10P^{0.67}$ lb/hr, where P is process weight, ton/hr	None
S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Regulation 6-1-311	$4.10P^{0.67}$ lb/hr, where P is process weight, ton/hr	Annual source test
S-26 Sandblasting room	BAAQMD Regulation 6-1-311	$4.10P^{0.67}$ lb/hr, where P is process weight, ton/hr	Monthly pressure drop monitoring
S-57 Batch Mixing	BAAQMD Regulation 6-1-311	$4.10P^{0.67}$ lb/hr, where P is process weight, ton/hr	Weekly pressure drop monitoring
S-56 Batch Materials Silo & Unloading System S-61, S-62 Packing Dust Collection Systems S-65, S-66, S-67, S-68, S-164, S-166, S-167 Emergency Standby Diesel Generators S-69, S-70 Asphalt Applicators S-86, S-87 Transporter Bins & Silos S-90 Bad Batch Bin	BAAQMD Regulation 6-1-311	$4.10P^{0.67}$ lb/hr, where P is process weight, ton/hr	None

PM Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Condition 24873	Various PM10 daily and annual emission limits S2: 515.59 lb/day; 84.89 tpy S3: 22.48 lb/day; 3.70 tpy S4: 77.43 lb/day; 12.75 tpy S20: 464.84 lb/day, 82.25 tpy S21: 160.11 lb/day; 28.33 tpy S22: 40.86 lb/day; 7.23 tpy	Daily calculations and annual source tests

PM Discussion:

Compliance with Regulation 6-1-303:

Permit condition 22820 limits the annual operation OCIS' seven emergency standby diesel engines (S-65 through S-68, S-164, S-166 and S-167) to 20 hours per year for reliability-related testing purposes. As such the Ringelmann 2.0 limit in Reg. 6-1-303.1, which is equivalent to 40% opacity, is a high limit. Because S-65 through S-68, S-164, S-166 and S-167 would only be operated during emergencies which cannot be predicted in advance and/or for 20 hours per year or less for reliability-related testing purposes, the District does not find it necessary to impose periodic monitoring at the above sources to demonstrate compliance with Reg. 6-1-303.1. Also, per the June 24, 1999 CAPCOA/ARB/EPA Region 9 Agreement on recommended periodic monitoring for Title V, no monitoring for opacity is necessary for diesel-fired standby emergency reciprocating engines.

Compliance with Regulation 6-1-310 and/or 6-1-311:

Sandblasting Room:

Particulate emissions resulting from sandblasting of fouled equipment conducted at S-26 is abated by baghouse A-149 with an exhaust flow rate capacity of 15,000 CFM. Under Application 16821, which OCIS had submitted prior to replacing baghouse A-29 with A-149, the District permitted A-149 with a maximum outlet grain loading of 0.015 gr/dscf. Because the above outlet grain loading is well below the Regulation 6-1-310 limit of 0.15 gr/dscf and given that A-149 is designed to operate below 0.015 gr/dscf, the District does not find it necessary to impose periodic monitoring at S-26 to demonstrate compliance with Reg. 6-1-310.

Post-control emissions that would result from the above outlet grain-loading rate are equal to:

= 0.015 gr/ ft^3 x 15,000 ft^3/min x lb/7000 gr x 60 min/hr

= 1.93 lbs/hour

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = 4.10 $P^{0.67}$, where P is the process weight rate in tons/hr. Per information in Table II-A it can be seen that S-26 can process up to 6 tons/hour of fouled equipment. Therefore, the value of "P" is 6 tons/hour. Substituting the "P" value into the above equation, the allowable emission rate E for S-26 i.e., E = 4.10 x $6^{0.67}$ = 13.62 lbs/hour.

It can be seen from above that the hourly post-control emissions of 1.93 lb/hour estimated using the outlet grain-loading rate of 0.015 gr/ ft^3, is well below the allowable emission rate of 13.62 lb/hour. Therefore, the District concludes that periodic PM monitoring to demonstrate compliance with Regulation 6-1-311 at S-26 is not necessary.

Lastly, the monthly visible emissions checks that are required to be performed for the purpose of complying with Regulation 6-1-301 will ensure that S-26 and A-149 are operating as designed.

Batch Materials Silo & Unloading System:

Raw batch transfer operations are conducted at S-56. For lack of an emission factor for PM10 in US EPA AP-42, Chapter 11.13 "Glass Fiber Manufacturing", September 1985, the PM emissions from S-56 are estimated using OCIS' emission calculation methodology.

The annual PM emissions are estimated by the following equation[1]:
E = N x P/2000 x k x 0.0032 x U/M x C;
Where,
E – Emissions in TPY; N – Number of transfer points; P – Production in TPY;
k – particle size multiplier (0.74); U – Wind Speed Factor[2] (2.986); M – Moisture Factor[3] (0.04);
C – Control Factor (0.0325)[4]

The transfer points at S-56 are from the railcar or truck to auger, auger to elevator; elevator to distributor, and distributor to batch house bin[5]. Hence, "N" is assumed to be equal to 4. The value of "P" for use in the above equation is assumed to be equal to 120,137.1 TPY (potential). Therefore, the "E" (post-control emissions) from S-56 is calculated via the above equation to be equal to 1.38 TPY.

Assuming an operating rate of 50 ton/hour, S-56 would operate for 2,403 hours per year (120,137.1 ÷ 50). Therefore, the hourly PM emission rate at S-56 is equal to 1.15

[1] Emissions were estimated using the Texas Commission on Environmental Quality (TCEQ), formerly known as the Texas Natural Resource Conservation Commission (TNRCC), "Emission Calculation Instructions for Concrete Batch Plants", TACB, Mechanical Section, June 15, 1993. Please note that the TCEQ does not list the above document on its website anymore.
[2] Based on an average wind speed of 11.6 mph. Based on 1989-1992, San Francisco, CA weather data.
[3] Based on 0.2% moisture in batch material.
[4] Assumes an overall control efficiency of 96.75%.
[5] Based on information included by OCIS in the April 2008 MFR Permit Renewal Application.

lb/hour (1.38 x 2,000 ÷ 2,403). S-56 is abated by A-44 which has an estimated air flow rate of 10,000 SCFM. Therefore, the outlet grain loading rate is equal to 0.0134 gr/ft3 (1.15 x 7,000 ÷ 10,000 x 60).

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = 4.10 $P^{0.67}$, where P is the process weight rate in tons/hr. S-56 can process up to 50 tons/hour. Therefore, the value of "P" is 50 tons/hour. Substituting the "P" value into the above equation, the allowable emission rate E for S-56 i.e., E = 4.10 x $50^{0.67}$ = 56.38 lbs/hour.

It can be seen from above that the hourly post-control emissions of 1.15 lb/hour is well below the allowable emission rate of 56.38 lb/hour. In light of the above, the District concludes that periodic PM monitoring at S-56 to demonstrate compliance with Regulation 6-1-310 and 6-1-311 limits is not necessary.

Batch Mixer, Batch Transporter & Silo, and Bad Batch Bin:

S-57, S-86, S-87 and S-90 are associated with preparing the mixed glass batch, transporting this mixed batch from the preparation process to running bins that are located on the roof of the plant and charging it into the "M" & "O" line furnace charger feed hoppers.

Processes that are part of S-57 - "Batch Mixing", include a scale system that weighs individual glass batch ingredients, a mixer that blends all of the weighed ingredients, a belt conveyor that transports the mixed batch into a pneumatic conveyor and a minor ingredient charging station. The above systems that are part of S-57 generate dust that is ventilated to a common dust collector A-48. This dust collector also services a dust ventilation system that is fitted to the furnace batch charger feed hoppers that are filled from S-86 and S-87, Batch Transporter Bins & Silos.

For lack of an emission factor for PM10 in US EPA AP-42, Chapter 11.13 "Glass Fiber Manufacturing", September 1985, the PM emissions from S-57 are estimated using OCIS' emission calculation methodology.

The annual PM emissions are estimated by the following equation[6]:
E = N x P/2000 x k x 0.0032 x U/M x C;
Where,
E – Emissions in TPY; N – Number of transfer points; P – Production in TPY;
k – particle size multiplier (0.74); U – Wind Speed Factor[7] (0.304); M – Moisture Factor[8] (0.04);
C – Control Factor (0.1294)[9]

[6] Emissions were estimated using the Texas Commission on Environmental Quality (TCEQ), formerly known as the Texas Natural Resource Conservation Commission (TNRCC), "Emission Calculation Instructions for Concrete Batch Plants", TACB, Mechanical Section, June 15, 1993. Please note that the TCEQ does not list the above document on its website anymore.
[7] Based on an estimated wind speed of 2 mph within the equipment.
[8] Based on 0.2% moisture in batch material.
[9] Assumes an overall control efficiency of 87.06%.

The transfer points at S-57 are from the bin augers to weigh bin; weigh bin to mixer; mixer to conveyor; conveyor to transporter plus 0.1 for the minor ingredient debagging stations)[10]. Hence, "N" is assumed to be equal to 5.1. The value of "P" for use in the above equation is assumed to be equal to 120,137.1 TPY (potential). Therefore, the "E" (post-control emissions) from S-57 is calculated via the above equation to be equal to 0.71 TPY.

Assuming 8,760 hours per year of operation, the hourly PM emission rate at S-57 is equal to 0.16 lb/hour (0.71 x 2,000 ÷ 8,760). S-57 is abated by A-48 which has an estimated air flow rate of 10,000 SCFM. Therefore, the outlet grain loading rate is equal to 0.002 gr/ft3 (0.16 x 7,000 ÷ 10,000 x 60). Also, part 4 of permit condition 12144 for S-57 limits the outlet grain loading rate of A-48 to not exceed 0.015 gr/ft3.

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = $4.10\ P^{0.67}$, where P is the process weight rate in tons/hr. S-57 can process up to 13.71 tons/hour (120,137.1 ÷ 8,760). Therefore, the value of "P" is 13.71 tons/hour. Substituting the "P" value into the above equation, the allowable emission rate E for S-57 i.e., $E = 4.10 \times 13.71^{0.67} = 23.69$ lbs/hour.

It can be seen from above that the hourly post-control emissions of 0.16 lb/hour is well below the allowable emission rate of 23.69 lb/hour. In light of the above, the District concludes that periodic PM monitoring at S-57 to demonstrate compliance with Regulation 6-1-310 and 6-1-311 limits is not necessary.

PM emissions from mixed batch transfer bins S-86 & S-87 and the bad batch bin S-90 consist of glass batch ingredients. Mixed glass batch from S-56 and S-57 is emptied into a batch transporter vessel. The vessel is pressurized with compressed air after it is loaded with a 1.75 ton charge of mixed glass batch. This batch charge is transferred from the transporter vessel via the slow depressurization of the transporter tank to working bins S-86 and/or S-87 above the glass furnaces, or to S-90. This dense phase pneumatic transfer operation involves a 60 second long transfer stage, a 5 second long purge stage, and a 5 second long depressurization stage. The air flow rate during each stage is equal to 350 SCFM, 500 SCFM, and 1,200 SCFM, respectively.
Therefore, the volume of air moved during each batch cycle is equal to 491.10 ft3/batch cycle (350 x 1 + 500 x 0.083 + 1,200 x 0.083).

The M & O line furnaces are permitted to process 6 tons of glass per hour. Assuming 8,760 hours per year of operation in concert with a glass batch yield of 87.5%, S-86 and S-87 could each potentially process up to 60,069 TPY (6 x 8,760 ÷ 0.875), and S-90 could potentially process up to 120,138 TPY (60,069 x 2) of mixed glass batch. Since each batch cycle consists of 1.75 ton mixed glass batch charge, S-86 & S-87 could each potentially go through 34,325 batch cycles per year, and S-90 could potentially go through 68,650 batch cycles per year.

[10] Based on information included by OCIS in the April 2008 MFR Permit Renewal Application.

The air flow associated with the batch cycles is filtered by dust collectors A-34 (abating S-86), A-35 (abating S-87), and A-38 (abating S-90). Parts 8 and 12 of permit condition 12144 limit the outlet grain loading rate of A-34 and A-35 to not exceed 0.015 gr/ft3, and the outlet grain loading rate of A-38 is assumed to be 0.15 gr/ft3.

The PM emissions from S-86, S-87, and S-90 are estimated as follows:
For S-86 & S-87 (per source):
(491.10 ft3/batch cycle) x (34,325 batch cycles/year) x (0.015 gr/ft3) ÷ (7,000 gr/lb) x (2,000 lb/ton) = 0.018 TPY

For S-90:
(491.10 ft3/batch cycle) x (68,650 batch cycles/year) x (0.15 gr/ft3) ÷ (7,000 gr/lb) x (2,000 lb/ton) = 0.361 TPY

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = $4.10\ P^{0.67}$, where P is the process weight rate in tons/hr. S-86 & S-87 can each process up to 6.86 tons/hour (60,069 ÷ 8,760). Therefore, the value of "P" is 6.86 tons/hour. Substituting the above "P" value into the equation, the allowable emission rate E for S-86 & S-87 is equal to 14.90 lb/hour/source i.e., $E = 4.10 \times 6.86^{0.67} = 14.90$.

S-90 can process up to 13.71 tons/hour (120,138 ÷ 8,760). Therefore, the value of "P" is 13.71 tons/hour. Substituting the above "P" value into the equation, the allowable emission rate E for S-90 is equal to 23.69 lb/hour i.e., $E = 4.10 \times 13.71^{0.67} = 23.69$.

Assuming 8,760 hours/year of operation, the hourly post-control emissions from S-86 & S-87 are 0.004 lb/hour/source (0.018 x 2,000 ÷ 8,760), and S-90 are 0.082 lb/hour. It can be seen from above that the hourly post-control emissions from S-86 & S-87 and S-90 are well below the allowable emission rates of 14.90 lb/hour and 23.69 lb/hour, respectively. Therefore, the District concludes that periodic PM monitoring at S-86, S-87, & S-90 to demonstrate compliance with Regulation 6-1-310 and 6-1-311 limits is not necessary.

"M" & "O" Line Packing Dust Collection System:

S-61 and S-62 are located downstream of the M & O production lines and serve as collection points for the cured binder and glass fiber dust that is generated by slitting, cutting, chopping, and packaging fiberglass insulation before it is shipped offsite. Both sources are abated by a dedicated 30,000 CFM fabric filter (also referred to as penclones), which are collectively referred to as A-40 in the proposed permit. OCIS developed an outlet grain loading rate of 0.001 gr/ft3 for A-40 based on in-house source tests they performed on dust collection and packaging penclone systems. The post-control PM emissions from S-61 & S-62 are estimated as follows:
= (0.001 gr/ft3) x (30,000 ft3/min) x (60 min/hr) x (8,760 hr/yr) ÷ (7,000 gr/lb) x (2,000 lb/ton)
= 1.13 ton/year (0.26 lb/hr)

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = 4.10 $P^{0.67}$, where P is the process weight rate in tons/hr. S-61 & S-62 can each process up to 6 tons/hour (permitted limit of upstream sources). Therefore, the value of "P" is 6 tons/hour. Substituting the above "P" value into the equation, the allowable emission rate E for S-61 & S-62 is equal to 13.62 lb/hour/source i.e., E = 4.10 x $6^{0.67}$ = 13.62.

It can be seen from above that the hourly post-control emissions of 0.26 lb/hr from S-61 & S-62 are well below the allowable emission rates of 13.62 lb/hr. Therefore, the District concludes that periodic PM monitoring at S-61 & S-62 to demonstrate compliance with Regulation 6-1-310 and 6-1-311 limits is not necessary.

Emergency Standby Diesel Generators (Engines):

OCIS' seven engines S-65 through S-68, S-164, S-166 and S-167 are rated at 220 hp, 275 hp, 275 hp, 275 hp, 900 hp, 80 hp and 162 hp, respectively. With the exception of S-164, a PM emission factor of 0.0022 lb/hp-hr provided in US EPA AP-42, Table 3.3-1 "Emission Factors For Uncontrolled Gasoline and Diesel Industrial Engines", October 1996 was used to estimate PM emissions. Because S-164 is rated at greater than 600 HP, PM emissions from the engine was estimated using a PM emission factor of 0.0007 lb/hp-hr provided in US EPA AP-42, Table 3.4-1 "Gaseous Emission Factors For Large Stationary Diesel And All Stationary Dual-Fuel Engines", October 1996.

Regulation 6-1-310 limits Filterable PM (PM) emissions to 0.15 gr/dscf. Because OCIS' engines were permitted as Loss of Exemption engines, they have not been source tested. In the absence of source test results and to enable a reasonable comparison, the standard emission rate prescribed in AP-42 for OCIS' engines can be compared to Regulation 6-1-310 limit if they are both converted in terms of a common unit i.e., express the PM emission rate in terms of "lb/MM BTU".

The F_d-Factor for diesel is assumed to be similar to crude, residual, or distillate. The "F" factor is the ratio of the gas volume of the products of combustion to the heat content of the fuel. The Fd provided in 40 CFR Part 60, Appendix A, Method 19 for Crude, Residual, or Residual Oil is 9,190 dscf/MM BTU.

For the purposes of this discussion, the Reg. 6-1-310 limit is converted from "gr/ft3" to "lb/MMBTU" as follows:
= (9,190 dscf/MMBTU) x (0.15 gr/dscf) ÷ (7000 gr/lb)
= 0.197 lb/MMBTU

For the purposes of comparing if PM emission rates from S-65 through S-68, S-164, S-166 and S-167 would exceed the Reg. 6-1-310 emission rate of 0.197 lb/MMBTU, emissions from OCIS' engines are estimated as follows:

Diesel consumption rate of each engine	= 40 gallons/hour
Heating value of diesel	= 141,000 BTU/gallon
Firing rate	= 5.64 MMBTU/hour → (A)

PM emission rate from S-65 = (0.0022 lb/hp-hr) x (220 hp) = 0.484 lb PM/hour → (B)
PM emission rate from S-66 = (0.0022 lb/hp-hr) x (275 hp) = 0.605 lb PM/hour → (C)
PM emission rate from S-67 = (0.0022 lb/hp-hr) x (275 hp) = 0.605 lb PM/hour → (D)
PM emission rate from S-68 = (0.0022 lb/hp-hr) x (275 hp) = 0.605 lb PM/hour → (E)
PM emission rate from S-164 = (0.0007 lb/hp-hr) x (900 hp) = 0.63 lb PM/hour → (F)
PM emission rate from S-166 = (0.0022 lb/hp-hr) x (80 hp) = 0.176 lb PM/hour → (G)
PM emission rate from S-167 = (0.0022 lb/hp-hr) x (162 hp) = 0.356 lb PM/hour → (H)

It can be seen above that S-164 has the highest PM emission rate. If S-164's PM emission rate in terms of (lb/MMBTU) is less than the Reg. 6-1-310 limit of 0.197 lb/MMBTU, it would be reasonable to conclude that OCIS' diesel engines comply with the above limit. The PM emission rate from S-164 is equal to 0.112 lb/MMBTU i.e., (F) ÷ (A). Because the emission rate of S-164 of 0.112 lb/MMBTU is less than the Reg. 6-1-310 emission rate limit of 0.197 lb/MMBTU, the District concludes that periodic PM monitoring for OCIS' diesel engines to demonstrate compliance with Reg. 6-1-310 is not necessary.

Glass melting furnaces:

The maximum throughput rate at the M & O line furnaces S-1 and S-19 is limited to 6 tons/hour/furnace. MACT NNN limited PM emissions from the furnaces to 0.5 lb/ton/furnace (maximum PM emissions 3 lb/hour/furnace). Because MACT NNN has been deleted from the proposed permit, henceforth PM emissions from the furnaces will be limited by part 8 of permit condition 16834 (0.5 lb/ton/furnace) and Regulation 6-1-311. Reg. 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = $4.10\ P^{0.67}$, where P is the process weight rate of in tons/hr. Substituting "P = 6" in the above equation yields an allowable emission rate "E" of 13.62 lb/hour. It can be seen from above that the permitted PM emission rate of 3 lb/hour/furnace is below "E".

S-1 and S-19 were source tested in the November 2007 timeframe. The source tests determined the average PM outlet grain loading rates at S-1 and S-19 to be 0.006 gr/dscf and 0.008 gr/dscf, respectively. The PM emission rates (in lb/hour) measured when using the phenol-formaldehyde based binder at S-2 and S-20 were 0.819 and 1.003, respectively. Assuming a glass pull rate of 6 tons per hour at each of the above glass-melting furnaces, the PM emission rate (in lb/ton of glass pulled) measured during the source tests were 0.137 and 0.167, respectively. Part 8 of permit condition 16834 in the proposed permit requires OCIS to conduct source tests at S-1 and S-19 once every five years when using the starch-based binder. The source tests are intended to ensure that the PM emission rate is at/below 0.5 lb/ton of glass pulled/ glass-melting furnace and also demonstrate compliance with Regulations 6-1-310 and 6-1-311.

In light of the above, the District concludes that periodic PM monitoring at S-1 & S-19 to demonstrate compliance with Regulation 6-1-310 and 6-1-311 limits is not necessary.

Asphalt Applicators:

The M & O line asphalt applicators S-69 and S-70 are located downstream of the M & O production lines. PM from S-69 & S-70 is in the form of liquid aerosols from the asphalt coater. Fiberbed filters A-150 (5,000 SCFM) and A-70 (4,000 SCFM) abate S-69 and S-70, respectively. OCIS developed a PM emission factor of 0.14 lb/hour for facing applications (similar to S-69 & S-70) that involve the use of asphalt based on in-house source tests. The outlet grain loading rate for A-150 and A-70 are calculated as follows:

For A-150:
= (0.14 lb/hour) x (7,000 gr/lb) ÷ (60 min/hr) x (5,000 ft3/min)
= 0.0033 gr/ft3

For A-70:
= (0.14 lb/hour) x (7,000 gr/lb) ÷ (60 min/hr) x (4,000 ft3/min)
= 0.0041 gr/ft3

It can be seen from above that the outlet grain loading rates for A-150 and A-70 are well below the outlet grain loading limit of 0.15 gr/ft3 in Reg. 6-1-310.

Assuming 8,760 hours per year of operation, the PM emissions from S-69 & S-70 are calculated as follows:
= (0.14 lb/hour) x (8,760 hr/yr) ÷ (2,000 lb/ton)
= 0.6132 ton/yr/source

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = 4.10 $P^{0.67}$, where P is the process weight rate in tons/hr. S-69 & S-70 can each process up to 6 tons/hour (permitted limit of upstream sources). Therefore, the value of "P" is 6 tons/hour. Substituting the above "P" value into the equation, the allowable emission rate E for S-61 & S-62 is equal to 13.62 lb/hour/source i.e., E = 4.10 x $6^{0.67}$ = 13.62.

It can be seen from above that the hourly post-control emissions of 0.14 lb/hour/source is well below the allowable emission rate of 13.62 lb/hour/source. The District concludes that periodic PM monitoring at S-69 & S-70 to demonstrate compliance with Regulation 6-1-310 and 6-1-311 limits is not necessary.

Compliance with daily and annual PM10 limits in Condition 24873:

Daily and annual PM10 limits were imposed on Sources S-2, S-3, S-4, S-20, S-21, and S-22 by Applications 21631 and 23518. The facility will demonstrate compliance with these limits by performing annual source tests to establish emission factors and using the emission factors together with daily records of operation to estimate daily and annual emissions.

CO Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Condition 24873	Various CO daily and annual emission limits S2: 95.42 lb/day; 15.71 tpy S3: 5.61 lb/day; 0.69 tpy S4: 6.20 lb/day; 0.77 tpy S20: 211.51 lb/day, 37.44 tpy S21: 5.81 lb/day; 0.90 tpy S22: 6.36 lb/day; 0.98 tpy	Daily calculations and annual source tests

Compliance with daily and annual CO limits in Condition 24873:
Daily and annual CO limits were imposed on Sources S-2, S-3, S-4, S-20, S-21, and S-22 by Applications 21631 and 23518. The facility will demonstrate compliance with these limits by performing annual source tests to establish emission factors and using the emission factors together with daily records of operation to estimate daily and annual emissions.

NOx Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Condition 24873	Various NOx daily and annual emission limits S2: 30.45 lb/day; 3.76 tpy S3: 248.44 lb/day; 30.68 tpy S4: 4.42 lb/day; 0.55 tpy S20: 21.22 lb/day, 3.28 tpy S21: 277.64 lb/day; 42.93 tpy S22: 5.33 lb/day; 0.82 tpy	Daily calculations and annual source tests

Compliance with daily and annual NOX limits in Condition 24873:
Daily and annual NOx limits were imposed on Sources S-2, S-3, S-4, S-20, S-21, and S-22 by Applications 21631 and 23518. The facility will demonstrate compliance with these limits by performing annual source tests to establish emission factors and using the emission factors together with daily records of operation to estimate daily and annual emissions.

POC Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S-2, S-20, Forming S-3, S21, Curing S-4, S-22, Cooling	BAAQMD Condition 24873	Various POC daily and annual emission limits S2: 94.40 lb/day; 13.22 tpy S3: 5.33 lb/day; 0.75 tpy S4: 18.36 lb/day; 2.55 tpy S20: 138.08 lb/day, 24.43 tpy S21: 2.28 lb/day; 0.40 tpy S22: 10.13 lb/day; 1.79 tpy	Daily calculations and annual source tests

Compliance with daily and annual POC limits in Condition 24873:
Daily and annual POC limits were imposed on Sources S-2, S-3, S-4, S-20, S-21, and S-22 by Applications 21631 and 23518. The facility will demonstrate compliance with these limits by performing annual source tests to establish emission factors and using the emission factors together with daily records of operation to estimate daily and annual emissions.

Lead Sources

S# & Description	Emission Limit Citation	Emission Limit	Monitoring
S -1 – "M" Furnace S -19 – "O" Furnace	BAAQMD Regulation 11-1-301	15 lb/day	Source test every five years
S -1 – "M" Furnace S -19 – "O" Furnace	BAAQMD Regulation 11-1-302	Ground Level Concentration not to exceed 1.0 ug/cubic meter, 24 hr. avg.	None

Lead Discussion:
Lead emissions can be expected from the "M" and "O" RS line furnaces, S-1 and S-19, respectively. OCIS is required per permit condition 16834 to perform a District approved source test once per permit term to demonstrate compliance with Regulation 11, Rule 1, Section 301.
S-1 and S-19 were source tested in November 2007. The hourly emission rate of lead at S-1 and S-19 was determined to be 0.00012 lb/hour (0.003 lb/day) and 0.000088 lb/hour (0.002 lb/day), respectively. It can be seen from above that the daily emissions of lead from S-1 and S-19 are well below the 15 lb/day limit in Section 11-1-301.

Because the emissions are so low and the margin of compliance with Section 11-1-301 is so high, the District has determined that no additional monitoring is warranted to ensure compliance with Section 11-1-302.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not "applicable requirements" as defined by Regulation 2-6-202.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

Changes to permit:

- Added test methods pertaining to BAAQMD Regulations: 6-1-301, 310, and 311; 8-4-302.3
- Deleted 40 CFR 63.1382 (a)(1) and (a)(2)(i)
- Added EPA Method 5E to determine Total Organic Carbon.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific

federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's "White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program." The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has the first type of permit shield.

Table IXA-A: Sources S-1 and S-19, Furnaces, are shielded from BAAQMD Regulation 9, Rule 12, Nitrogen Oxides From Glass Melting Furnaces, and 40 CFR Part 60, Subpart CC, Standards of Performance for Glass Manufacturing Plants, because they do not apply to electrically heated glass melting furnaces.

Table IXA-B: Sources S-2 and S-20, Forming, and S-3, and S-21, Curing, and S-4 and S-22, Cooling, are shielded from 40 CFR Part 60, Subpart PPP, Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants, because the sources were built before February 7, 1984, and because they have not been modified or reconstructed. See discussion under "Complex Applicability Determinations" in Section C.IV of this statement of basis. (Note that the shield from NSPS Subpart PPP for S-3 and S-21 has been moved from Table IXA-C to IXA-B.)

Table IXA-C: Sources S-3 and S-21, Curing, are shielded from BAAQMD Regulation 9, Rule 7, Nitrogen Oxides and Carbon Monoxide From Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters because it does not apply to ovens used for drying and heat treating. (Note that the shield from NSPS Subpart PPP for S-3 and S-21 has been moved from Table IXA-C to IXA-B.)

Table IXA-D: Sources S-33, S-149, and S-150, Tanks, are shielded from BAAQMD Regulation 5, Rule 5, because they contain liquids with a vapor pressure that is less than 0.5 psia. Sources S-33, S-149, and S-150 are shielded from 40 CFR Part 60, Subpart Kb, Standards of Performance of Volatile Organic Liquid Storage Vessels (Including Petroleum Storage Vessels), because they do not contain volatile organic liquids. The liquid storage capacity of tank S-160 is less than 40 m3 and is therefore exempt from complying with the rule.

One 375 gallon vertical closed top tank (S-159), which was used for storing pump seal cooling water has been removed from the plant. Therefore, references to S-159 under Table IXA-D were deleted in the proposed renewal permit.

Table IXA-G: Sources S-69 and S-70, Asphalt Applicators, are shielded from BAAQMD Regulation 8, Rule 51, Adhesive and Sealant Products, because adhesive contains less than 20 grams VOC/liter.

Table IXA-H: Sources S-157 and S-158, Flexographic Printers, are shielded from BAAQMD Regulation 8, Rule 12, Paper, Fabric and Film Coating, because they are subject to BAAQMD Regulation 8, Rule 20, Graphic Arts Printing and Coating, which exempts them from BAAQMD Regulation 8, Rule 12.

Changes to permit:

- Tables IXA-E (for S-46), IXA-F (for S-50 & S-51), IXA-J (for S-161 & S-162):
  S-46, S-50, S-51, S-161, and S-162 longer operate at OCIS. Therefore, the above tables were deleted in the proposed permit.

- Table IXA-I (for S-160):
  S-160 is exempt from Regulation 8, Rule 5 via Reg. 8-5-117 because the true vapor pressure of its tank contents is less than 0.5 psia. Table IXA-I is a redundant table because S-160 is shielded from the above rule in Table IXA-D. Therefore, Table IXA-I has been deleted from the proposed permit.

X. Revision History

Changes to permit:

- Inserted a reference to Title V renewal permit Application 17948 which is discussed in this Statement of Basis.

XI. Glossary

Changes to permit:

The following term was added

- RICE – Reciprocating Internal Combustion Engine

XII. Applicable State Implementation Plan (SIP)

The section has been deleted. The SIP regulations are now found on EPA Region 9's website. The list has been to the introduction of Sections III and IV of the permit.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

Please refer to Appendix A to review the BAAQMD's Compliance Report for this facility.

F. Differences between the Application and the Proposed Permit:

OCIS received its initial Title V permit under Application 25819 on November 25, 2003. The District made a minor revision to the initial Title V permit under Application 10469 and re-issued OCIS the Title V permit on January 30, 2007. OCIS submitted its application to renew the Title V permit on April 30, 2008.

Effective March 25, 2011, OCIS started using a starch-based binder in lieu of the phenol-formaldehyde based binder at each of its "M" and "O" line forming sections (S-2 and S-20). Source tests conducted by OCIS at the "O" line forming, curing, and cooling sections in the April-May 2011 timeframe when using the starch-based binder found that the emissions of acetaldehyde, ammonia, formaldehyde, methanol, and phenol from the "O" line forming section (S-20), the curing section (S-21), and the cooling section (S-22) significantly reduced when using the starch-based binder. When compared to their corresponding baseline emission levels for the above toxic air contaminants that were established when using the phenol-formaldehyde based binder, the use of the starch-based binder resulted in over 96% reduction in acetaldehyde (from 0.26 TPY to 0.01 TPY), over 99% reduction in ammonia (from 44.59 TPY to 0.06 TPY), over 95% reduction in formaldehyde (from 6.90 TPY to 0.30 TPY), over 99% reduction in methanol (from 23.48 TPY to 0.07 TPY), and a 100% reduction in phenol (from 8.72 TPY to 0 TPY). Since OCIS's renewal application preceded the binder change, the renewal application does not address the binder change. The binder change is the subject of subsequent "significant revision" applications, Nos. 21632 and 23519, however. The District is proposing to issue to incorporate the significant revisions into the proposed renewal action.

In addition to addressing the applicability of District and Federal rules to sources operating at this facility, this document also discusses Applicability of 40 CFR 64, Compliance Assurance Monitoring (CAM)

APPENDIX A

BAAQMD COMPLIANCE REPORT

COMPLIANCE & ENFORCEMENT DIVISION

Inter-Office Memorandum

August 13, 2012

TO: JIM KARAS – ACTING DIRECTOR OF ENGINEERING

FROM: BARBARA COLER – ACTING DIRECTOR OF COMPLIANCE AND ENFORCEMENT

SUBJECT: REVIEW OF COMPLIANCE RECORD OF:

OWENS CORNING;
(SITE # A0041)

Background

This review was initiated as part of the District evaluation of an application by Owens Corning for a Title V Permit Renewal. It is standard practice of the Compliance and Enforcement Division to undertake a compliance record review in advance of a renewal of a Title V Permit. The purpose of this review is to assure that any non-compliance problems identified during the prior five-year permit term have been adequately addressed, or, if non-compliance persists, that a schedule of compliance is properly incorporated into the Title V permit compliance schedule. In addition, the review checks for patterns of recurring violation that may be addressed by additional permit terms. Finally, the review is intended to recommend, if necessary, any additional permit conditions and limitations to improve compliance.

Owens Corning manufactures fiberglass products especially for building insulation material.

Compliance records were reviewed for the time period from November 25, 2003 through August 13, 2012. The results of this review are summarized as follows.

1. Violation History

Staff reviewed Owens Corning Annual Compliance Certifications and found no ongoing non-compliance and no recurring pattern of violations.

Staff also reviewed the District compliance records for the review period. During this period Owens Corning activities known to the District include:

REVIEW OF COMPLIANCE RECORD OF:
Owens Corning – SITE #A0041
Date: 8/13/12
Page 2 of 3

NOV#	Regulation	Date Occur	# of Days	Comments	Disposition
A47910A	2-1-307	9/1/04	1	Permit Condition (pc) #16834-11	Resolved Legal 8/15/06
A47916A	1-523.1	10/14/05	1	Parameter monitoring	Resolved Legal 8/21/06
A47916B	1-523.3	10/14/05	1	Record keeping	Resolved Legal 8/21/06
A11800A	2-6-307	8/31/07	1	p/c #20565	Resolved Legal 12/7/11
A11798A	6-311	11/1/07	1	Total Suspended Particulate Matter (TSP)>13.4 lbs./hr.	Cancel
A26678A	6-1-311	11/1/07	1	TSP > 21.1 lbs./hr.	Resolved Legal 12/7/11
A11799A	6-1-311	11/7/07	1	TSP > 13.5 lbs./hr.	Cancel
A26676A	2-6-307	4/2/08	1	Pressure drop > 3 "	Resolved Legal 12/7/11
A26677A	2-6-307	7/3/08	1	No abatement by A-100	Resolved Legal 12/7/11
A51376A	2-6-307	12/9/09	1	Failed source test	Resolved Legal 12/7/11

2. Complaint History

The District received nine air pollution complaints alleging Owens Corning as the source during the review period. The complaints alleged smoke, dust, or odors from the facility. The complaints were investigated by District staff and two were confirmed to Owens Corning. The complaints did not result in a violation.

3. Reportable Compliance Activity

Reportable Compliance Activity (RCA), also known as "Episode" reporting, is the reporting of compliance activities involving a facility as outlined in District Regulations and State Law. Reporting covers breakdown requests, indicated monitor excesses, pressure relief device releases, inoperative monitor reports and flare monitoring.

Within the review period, the District received 3 notifications for RCA's. There were no NOV's were issued as a result of these RCA's.

H:\Enforcement\Title V Cert\Owens Corning _A0041_TitleV_5year renewal2012_rev Aug 13 2012.doc

Episode	Date Occur	# of Days	Comments	Disposition
04P05	7/25/05	1	Control software failed	Relief granted
04T11	3/4/06	1	Incinerator below temperature	Relief granted
05J29	10/1/08	1	Particulate emissions	No Action

4. Enforcement Agreements, Variances, or Abatement Orders

Owens Corning entered into one Compliance and Enforcement Agreement with the District on June 30, 2011, extending to May 8, 2012. This Agreement provided time for Owens Corning to request and acquire an amendment to Authority to Construct # 21631; namely, asking the District for increases in allowable carbon monoxide and PM_{10} limits for permitted sources 20 and 22.

Conclusion

Following its review of all available facility and District compliance records from November 25, 2003 through August 13, 2012, the District's Compliance and Enforcement Division has determined that Owens Corning was in intermittent compliance from the initial permit period through the present. Owens Corning has demonstrated no evidence of ongoing noncompliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule for this facility.

Based on this review and analysis of all the violations for the review period, the District has concluded that no schedule of compliance or change in permit terms is necessary beyond what is already contained in the facility's current Title V permit.

APPENDIX B

ENGINEERING EVALUATION REPORTS

ENGINEERING EVALUATION
Owens Corning, Plant: 41
Application: 9136

BACKGROUND

Owens Corning (OC) was issued a Major Facility Review Permit in November 2003. The company submitted Application 9136 in February 2004 to obtain a Permit to Operate (PO) for the following operation:

S-169 Polypropylene Fiber Application - Test Trials

The above operation, which is temporary in nature, is a continuation of OC's evaluation of an insulation encapsulation system referred to as "Phoenix II" and will consist of test trials that will be conducted from May 2004 through July 2004 at a location downstream of the "M" Rotary Spin Line Oven. Specifically, "Phoenix II" will consist of several trial runs where Polypropylene (PP) fibers will be formed and applied to a moving pack of glass fiber insulation and/or alternatively, a PP film will be adhered to the bottom side of the pack.

During the test trials, the PP resin will be melted in an electrically heated extruder and will be supplied to a number of die heads that will form fiber veils. The fiber veils will be sprayed on onto a moving pack of fiber insulation exiting the "M" Line curing oven. Water in conjunction with compressed hot air jets will assist in the attenuation and distribution of the fiber veils exiting the extruder.

The District had previously exempted a similar test trial under Application 7242 in May 2003 under the provisions of Regulation 2-1-103.

EMISSIONS CALCULATION

In the absence of an emission point, it is safe to conclude that all the emissions emanating from the test trials are fugitives. For lack of a better emission factor/process emissions estimate, the District had previously estimated the fugitive emissions from the test trials permitted under App. 7242 using an US EPA AP-42 estimate[1]. The emissions under this application are estimated using emission factors furnished from a study organized by the Society of the Plastics Industry, Inc. (SPI), the results of which were presented in the Journal of the Air and Waste Management Association (Volume 49, January 1999, pages 49 to 56).

The highest POC and PM emission rates estimated at an average melt temperature of 490°F in the SPI study for reactor grade homopolymer – material similar to the one which will be used in the test trials, was 33.4 lbs POC per million pounds of resin and 17.3 pounds PM per million pounds of resin, respectively. The above POC and PM emission rates translate to 0.07 lbs POC/ton and 0.03 lbs PM/ton, respectively. OC plans to use 47,000 pounds of the resin per lane of insulation during the course of the test trials. No more than 220 pounds of resin will be used in an hour and the daily resin usage will not exceed 5,280 pounds.

[1] Table 6.9-2 "Emission Factors for Synthetic Fiber Manufacturing" – Polyolefin, melt spun, September 1990.

Table 1 summarizes the emission factors that will be used to estimate the fugitive emissions from the test trials[2].

Table 1

Air Contaminant	Emission Factor[3] (lbs/ton of resin/ lane of insulation)	Hourly Emissions (lbs/hr)	Daily Emissions (lbs/day)	Annual Emissions (lbs/yr)	District's TAC Trigger Levels[4] (lbs/yr)	Exceeds District's TAC Trigger Level?
POC	0.9941	0.11	2.62	23.36		
PM	0.7663	0.08	2.02	18.00		
Formaldehyde	0.0051	0.0006	0.01	0.12	33	No
Acrolein	0.0003	0.00003	0.0008	0.007	3.9	No
Acetaldehyde	0.0027	0.0003	0.007	0.06	72	No
MEK	0.0021	0.0002	0.006	0.05	150,000	No
All HAPs	0.0107	0.001	0.03	0.25	N/A	N/A

As previously discussed in the "Background" section, a PP film will be adhered to the bottom of the insulation pack exiting the curing oven in lieu of the fiber veil. This is made possible by the application of a hot melt adhesive. The glue manufacturer estimated a POC emission rate of 0.0032 pounds of POC per pound of glue. OC estimates to use no more than 3 grams of glue per lineal foot for a 250 feet per minute insulation line. This translates to an emission rate of 0.32 lbs POC per hour per lane[5]. OC indicated that the mat is 15" wide by 5" thick. Covering one side of the mat with glue and applying the PP film will therefore reduce the non-glue application related POC emissions by 37.5%[6].

Therefore, the POC hourly emission rate when glue is applied in lieu of the fiber veil is: (0.11)(100% - 37.5%) + 0.32 = 0.39 lbs POC/hr.

The daily and annual POC emissions using the above hourly emission rate is 9.36 lbs/day and 83.32 lbs/yr, respectively.

It can be seen from Table 1 above and the preceding paragraphs that the POC and PM associated with S-169 are each less than 10 pounds per highest day and the total emissions of the individual pollutants is less than 150

[2] Extrusion temperature i.e. 450°F in the test trials lower than extrusion temperature i.e. 490 °F in SPI study. In addition, the maximum fiber surface area that will be extruded in the test trials is over 50 times than that of the SPI study. In light of the above, the emission factors in Table 1 – for the Phoenix II trials, have been extrapolated from the results of the SPI study.

[3] Emission factor extrapolated from SPI study by OC in light of the lower extrusion temperature and the larger surface area.

[4] Table 2-1-316

[5] (0.0032 lbs POC/lb of glue) x (3 grams glue/feet of insulation) x (250 feet of insulation/minute) x (60 minutes/hr) x (1 lb/454 grams)

[6] Perimeter of the rectangular pack = 15" * 2 + 5" * 2 = 40"; Covering one side of the mat with glue i.e. 15", amounts to 37.5% (15/40* 100).

pounds per year. Therefore, the project is exempt from requiring a PO per Regulation 2-1-103.3.

TOXIC RISK SCREEN ANALYSIS

It can be seen from Table 1 above that the TAC emissions from S-169 is below the Table 2-1-316 TAC trigger levels. Therefore, a Toxic RSA is not warranted.

CUMULATIVE INCREASE

N/A – Exempt Project

BACT and Offsets

N/A – Exempt Project

STATEMENT OF COMPLIANCE

S-169 is exempt from permitting per Regulation 2-1-103.3 and is expected to comply with the requirements of Regulation 8-2-301 i.e. POC emissions less than 6.8 kg. (15 lbs.) per day and concentration of less than 300 PPM total carbon on a dry basis.

This application is considered to be ministerial under the District's proposed CEQA guidelines (Regulation 2-1-311) and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 11.12 “Polyester Resin Operations”.

NSR, PSD, NSPS and NESHAPS are not to this project.

PERMIT CONDITIONS

None

RECOMMENDATION

Issue OC a Letter of Exemption for the following operation:

S-169 Polypropylene Fiber Application - Test Trials;
Maximum Resin Throughput: 5,280 lbs/day; 23.5 TPY

_____

K. R. Bhagavan
Air Quality Engineer II
Engineering Division

ENGINEERING EVALUATION
Owens Corning, Plant: 41
Application: 12522

BACKGROUND

Owens Corning (OC) was issued a Major Facility Review (Title V) Permit in November 2003. As required under Section I.A. of their Title V permit, OC notified the District under the above referenced application of an operational change that concerns the intended use of a new type of kraft paper facing material at the “M” and “O” line asphalt applicators – sources S-69 and S-70, respectively. Specifically, OC plans to use a kraft paper that has been impregnated with a fungicide/moldacide material, since the facing material that is currently used at sources S-69 and S-70 does not contain the above compounds.
Section 305 of BAAQMD Regulation 2, Rule 6 addresses “Operational Flexibility” and permits facilities such as OC to "make a change to the facility or operation without requiring a major facility review permit revision in accordance with the procedures and restrictions set forth in Section 2-6-417 if the change is not a modification pursuant to Title I of the Clean Air Act (CAA) and does not exceed any emissions allowable under federally enforceable provisions of the permit". OC’s proposal to use the kraft paper that has been impregnated with a fungicide/moldacide material at sources S-69 and S-70 is not a CAA Title I modification and the small amount of additional VOC emissions which will emanate from the new facing material will not create an exceedance of any emissions allowable.

The kraft paper that OC plans to use is impregnated with a *Microban* antimicrobial compound whose active ingredients/poisons comprise as much as 35% of the as-received material. The moldacide treatment will consist of applying an aqueous solution of three *Microban* materials consisting of two antimicrobials (PZ2 & TZ1) and one dispersant (QT1) by an off-site contractor to untreated rolls of kraft facing paper. Please refer to the MSDS’s for the above materials that are attached with this evaluation. The impregnation of the above chemicals to untreated rolls of kraft paper will include drying the moldacide treated paper rolls in an oven at 325ºF to 350ºF. The net effect of the above will result in almost all of the water and most/all of the lower boiling point constituents in the above compounds to be driven off the moldacide treated kraft paper before it is delivered to OC and used at sources S-69 and S-70. The moldacide treated kraft paper rolls will be stored at OC’s warehouse and will be transferred for use to the lower level “pit” areas located at sources S-69 and S-70. The paper does not need to be stored in a conditioned area since it does not contain anything that can volatilize at the temperatures that are normal for the warehouse and/or the paper pits.

Since most compounds with low boiling points and/or high vapor pressures are driven away during the drying operation, OC estimates that these compounds will not be present on the moldacide treated kraft facing paper to any great degree when it is exposed to the hot asphalt at sources S-69 and S-70. As a result, some of the dispersant and virtually all of the active ingredients will remain on the facing paper, which according to *Microban* are stable up to 350ºF. Furthermore, the kraft facing paper containing the above materials will be exposed to the 400ºF asphalt at sources S-

69 and S-70 for only those few seconds between the time that the paper contacts the coating roll to when the coated facing is pressed against the pack containing the finished wool fiberglass product. Since the moldacide treated paper applied in the above step does not contain anything that can volatilize at the temperatures that are normal for the OC's warehouse, there is no offgasing from the final product when it is stored in bulk at OC's warehouse.

Given these facts, OC expects negligible air emissions will result from the use of the new kraft paper. OC conservatively assumed that no more than 85% of the antimicrobial material would have any appreciable degree of volatility, of which only 0.1% of the weight of the material would become an air emission given the very short amount of time the moldacide treated kraft paper contacts the hot asphalt at sources S-69 and S-70.

EMISSIONS CALCULATION

The calculations assume the following:

- No more than 5,500 tons of fungicide treated paper will be used at asphalt applicators
  S-69 & S-70 (combined)
- The maximum fungicide content on the paper will be at most 250 ppm
- No more than 85% by wt. of the antimicrobial material will have any volatility
- Less than 0.1% of the antimicrobial material will vaporize on contacting the hot asphalt

Therefore, the VOC emissions (assuming no TACs[7]) is equal to
= (5500 tons fungicide treated paper/yr) x (250 tons antimicrobial material/ 1 million tons of fungicide treated paper)
= (1.375 tons antimicrobial material/yr) x (0.85 tons VOC/ton of antimicrobial material)
= 1.169 tons VOC/yr x 0.1% vaporizes as VOC = 0.00116 tons VOC/yr ~ 2.34 lbs/yr

TOXIC RISK SCREEN ANALYSIS

The MSDS's for the two antimicrobials (PZ2 & TZ1) indicate the presence of the following ingredients:

- PZ2 → 23.6% of Propiconazole (CAS #: 60207-90-1); and
- TZ1 → 93% of Tebuconazole (CAS #: 107534-96-3)

The MSDS for the dispersant (QT1) indicates that 100% of it is made up of a proprietary ingredient that exists in powder form.

The ingredients in TZ1 and QT1 do not contain chemicals that are part of the SARA 313 Toxic Chemicals List. In contrast, "propiconazole" which is present in PZ2 appears on the SARA 313 Toxic Chemicals List. However, per Daphne Chong – the District's Toxicologist, Table 2-5-1 does not contain acute and/or chronic trigger levels for the above compounds, and nor do the above compounds pose any toxic risk. Therefore, a Toxic RSA is not warranted.

[7] TAC – Toxic Air Contaminant

CUMULATIVE INCREASE

OC is an existing facility and Table 1 summarizes the cumulative increase in emissions at Plant 41 that will result from the use of the new kraft paper at sources S-69 and S-70.

Table 1

Pollutant	Increase in Emissions At Plant Since April 5, 1991 [8] (TPY)	Increase in Emissions Associated With This Application (TPY)	Total Emissions (Post 4/5/91 + Increase) (TPY)
POC	0[9]	0.00116	0.00116

BACT

Per Regulation 2, Rule 2, Section 301, BACT is only triggered if emissions from a new source or an increase in emissions from a modified source has the potential to emit 10 lbs or more per highest day of emissions (POC in this case). The increase in emissions at OC that result from the use of the new kraft paper at existing sources S-69 and S-70 qualifies as a modification. However, it needs to be ascertained whether the above sources have the potential to emit 10 lbs or more per highest day of POC emissions.

Per information contained in the District's database and previous engineering evaluations relating to sources S-69 and S-70, it appears the District has historically quantified only particulate matter (PM_{10}) from the above sources. Based on independent source tests performed by OC on a roofing line asphalt saturator - a source very similar to sources S-69 and S-70, OC derived a POC emission factor of 1.41 lbs/hr/source (~ 33.84 lbs/day/source)[10]. Therefore, the increase in emissions resulting from the use of the new kraft paper triggers BACT. As previously discussed under the "Emission Calculation" section, the use of the new kraft paper at the above sources will result in an additional increase of 0.00641 lbs of POC per day (combined)[11]. Therefore, the "post-project" POC emission rate at sources S-69 and S-70 is 33.84 lbs/day/source[12].

The uncontrolled POC loading that must be used in this analysis is equal to those that are emitted by the hot asphalt (1.41 lbs/hour = 6.17580 tons/year) plus those that are emitted by the heated chemicals that are a part of a new moldacide compounds (2.3 lbs/year = 0.00115 tons/year). Parameters that are pertinent for each source to the BACT analysis are as follows:

- Exhaust gas airflow = 2,800 scfm @ 100ºF
- Uncontrolled POCs = 6.17695 tons/year
- Electric Power Costs = $0.0578/kwhr

[8] In PSDP do the following steps to get data on the aggregate sum of all increases as defined in Reg. 2-2-212 after April 5, 1991: option 1 → type of pollutant.
[3] OC has provided ERCs to offset all increases of POC emissions at Plant 41 since April 5, 1991.
[10] (1.41 lbs/hr/source) x (24 hr/day) = 33.84 lbs/day/source
[11] (2.34 lbs/yr) / (365 days/yr) = 0.00641 lbs/day (combined) or 0.003205 lbs/day/source
[12] 33.84 lbs/day/source + 0.003205 lbs/day/source = 33.843205 ~ 33.84 lbs/day/source

- Natural Gas Costs = $6.84/1,000 cu.ft.
- Maintenance & Operating Labor Costs = $30.00/hour

The District's BACT/TBACT Workbook does not contain any recommendations to abate sources such as S-69 and S-70. None of the facilities owned and operated by OC within the US abate POC emissions from their asphalt applicators, nor is OC aware of its competitors that have installed VOC abatement equipment at their asphalt applicators. Therefore, there is no established "achieved in practice" POC control technology that can be used as guidance for this BACT analysis. It is therefore necessary to identify potential technologies, eliminate those that are not technically feasible and then perform a "technologically feasible/cost-effective" BACT determination for those that remain.

Sources S-69 and S-70 are already equipped with coalescing type filters A-150 and A-70, respectively, which remove most of the uncontrolled particulate matter and asphalt fume aerosol particulate that is in their ventilation exhaust airstreams. However, since the above filters are not 100% effective the air stream that would discharge into any POC control device would still contain an amount of solid particles and sticky aerosol that would coat, and quickly render inoperable, any system that employed any form of packing, media bed, heat transfer surface or catalyst grid that is in a low temperature environment. This fact alone renders the following technologies technically infeasible;

- Condensation
- Adsorption with Activated Carbon or Molecular Sieves
- Bio-filtration or Biodegradation
- Absorption utilizing a Packed Bed Wet Scrubber (also not technically feasible due to the fact that not all of the POC species are water soluble)

The remaining available control technologies all involve some form of thermal destruction of the POCs into water vapor and carbon dioxide. These include:

- Flare
- Oxidation/Incineration (with and without a catalyst) with Recuperative Heat Recovery
- Oxidation/Incineration (with and without a catalyst) with Regenerative Heat Recovery
- Oxidation/Incineration (with and without a catalyst) with No Heat Recovery

For a flare to be successful, the heat content of the fume stream must be at least ~300 Btu/cu.ft and the airstreams in question have a heat content of only ~0.17 Btu/cu.ft. The fume stream alone cannot then sustain a flare flame without an amount of thermal energy equivalent to that required in a thermal incinerator with no form of heat recovery. To achieve any significant degree of thermal destruction, it is estimated that a 1,500ºF temperature is required. With a 100ºF inlet temperature, the required temperature increase for the exhaust air stream is 1,400ºF and the resulting <u>energy costs with no heat recovery</u> is equal to:

= (2800 ft^3/min) x (60 min/hr) x (lb-mole/387 ft^3) x (7.51 BTU/lb-mole.ºF)[13] x (1400ºF) x (ft^3 n.g./1000 BTU) x ($ 6.84/1000 ft^3 n.g.) x (8760 hr/yr)

[13] Mean specific heat of air at 1500ºF

= $ 273,481/year

The above annual fuel cost divided by the uncontrolled POC emission rate of 6.17695 TPY for each source gives an annual BACT cost (fuel only) for a flare or simple incinerator that is equal to $44,274[14] per ton of POC if 100% POC destruction is presumed. This would be the energy cost of a Flare system or a Non-Catalytic Oxidation system that didn't employ any form of heat recovery. If annualized capital costs and other annual operating costs (electric power, parts, maintenance, etc.) for these systems were to be calculated then this value would increase further.
Since the above cost is well above the recommended cost-effectiveness threshold ($ 17,500/ton) in the District's BACT/TBACT Workbook it is safe to conclude that neither a Flare nor any form Oxidation system without heat recovery is cost effective. Both of these systems are therefore eliminated from further consideration. Also, there is no catalyst system that has been proven in this application that can withstand particulate blinding and/or poisoning by the sulfur compounds that are present in the asphalt that is used in the sources so catalytic incinerators in general should be eliminated from further analysis on the basis of unproven technical feasibility. This leaves Recuperative and Regenerative Oxidation without Catalysts as the only remaining candidate technologies.

The following is an economic analysis as it relates to the above two control technology options. Operating costs are shown along with the use of a capital recovery factor (CRF), which accounts for the time value of money, which must be used as a multiplier to convert the capital cost required to purchase and install a system into an annualized cost. Owens Corning uses an 11% interest rate in all of its project's analysis work and it is reasonable to assume a 20-year life for any oxidation/incineration system. The CRF for this analysis is then equal to 0.1256[15].

Recuperative Incineration (70% Heat Recovery)

Natural Gas = (1-0.70) x $273,481/year = $82,044/year

Electric Power for Fan Motor, Lighting, controls, etc. (Fan Motor x 1.05)[16]
= (2,800 CFM) x (7"wc) x (8,760 hr/yr) x (0.746 conversion from HP to kW) x ($0.0578/kwhr) x (1.62 gas density correction)[17] x (1.05)
= $2,830/year

Operating & Maintenance Labor (assume a total of 4 hours/week)
= (4 hours/week) x (52 weeks/year) x ($30.00/hr) = $6,240/year

Maintenance Materials & Parts (estimated value of fan & burner parts, gaskets, repair refractory, heat exchanger parts, etc.)
= $15,000/year

[14] ($ 273,481 /6.17695 TPY) = $ 44,274 /ton/yr
[15] CRF = I (1 + I)^n/(1+I)^n-1; where I = 11% and n = 20 years
[16] (6356 conversion factor) x (0.7 fan/motor efficiency)
[17] (Airflow in ACFM x static pressure / 6356); at ~ > 400ºF

Annualized Installed Cost (per U.S. EPA Air Pollution Control Cost Manual, 6th Edition) = $21,342 x (2,800 exp 0.25) x (1.9 factor to install) x (1.14 factor to convert 1999 dollars to 2005 dollars) x (0.1256) = $42,235/year

Total BACT Cost (assuming 98% destruction efficiency)
= ($82,044 + $2,830 + $6,240 + $15,000 + $42,235) / (0.98)(6.17695)
= **$24,507/ton of POC destroyed**

Regenerative Incineration (95% Heat Recovery)

Natural Gas = (1-0.95) x $273,481/year = $13,674/year

Electric Power for Fan Motor, Lighting, controls, etc. (Fan Motor x 1.05)[18]
= (2,800 cfm) x (12"wc) x (8,760 hr/yr) x (0.746 conversion from HP to kw) x ($0.0578/kwhr) x (1.15 gas density correction)[19] x (1.05)
= $3,444/year

Operating & Maintenance Labor (assume a total of 5 hours/week)
= (5 hours/week) x (52 weeks/year) x ($30.00/hr) = $7,800/year

Maintenance Materials & Parts (estimated value of fan, valve & burner parts, gaskets, repair refractory, heat recovery media, etc.)
= $35,000/year

Annualized Installed Cost (per U.S. EPA Air Pollution Control Cost Manual, 6th Edition which indicates that a regenerative unit is 1.9x the cost of an equal capacity recuperative unit)
= $42,235 x 1.9 = $80,247/year

Total BACT Cost (assuming 98% destruction efficiency)
= ($13,674 + $3,444 + $7,800 + $35,000 + $80,247) / (0.98)(6.17695)
= **$23,155/ton of POC destroyed**

It can be seen from the above discussion that neither the Recuperative nor the Regenerative Oxidation Systems without Catalysts are cost-effective in abating the increase in POC emissions at sources S-69 and S-70.

OFFSETS

OC is an existing facility. Table 2 summarizes the increase in emissions that will result from the use of the new kraft paper at sources S-69 and S-70..

[18] (6356 conversion factor) x (0.7 fan/motor efficiency)
[19] (Airflow in ACFM x static pressure / 6356); at ~ < 400ºF

Table 2

Pollutant	Current Emissions at the Plant [20] (TPY)	Increase in Emissions Associated With This Application (TPY)	Total Emissions (Existing + Increase) (TPY)	Offset Trigger (TPY)
POC	14.22	0.00116	14.22116	> 10; < 35

It can be seen from Table 2 above that offsets are warranted, since the revised POC emissions at the plant is above the POC offset trigger level. Total POC emissions are in excess of 10 tons per year but less than 35 tons per year. The POC emissions increase will be offset by credits from the District's Small Facility Bank.

STATEMENT OF COMPLIANCE

Sources S-69 and S-70 are subject to the requirements of Regulation 8-2-301 i.e. POC emissions less than 6.8 kg. (15 lbs.) per day and concentration of less than 300 PPM total carbon on a dry basis. In accordance with part 5 of permit condition 12672, OC is required to demonstrate compliance with the above standard once per permit term by conducting a District approved source test.

This application is considered to be ministerial under the District's proposed CEQA guidelines (Regulation 2-1-311) and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 11.9 "Miscellaneous Organic Operations".

PSD, NSPS and NESHAPS are not applicable to this project.

PERMIT CONDITIONS

The operation of sources S-69 and S-70 is governed by permit condition 12672. Since the use of the moldacide treated kraft paper will result in an insignificant increase (~ 2.34 lbs/yr) in POC emissions from the above sources, no additional conditions have been imposed.

RECOMMENDATION

Waive the Authority to Construct, and issue OC a PO that will allow the company to use moldacide treated kraft facing paper at the following sources:

S-69 "M" Line Asphalt Applicator; 7.5 tons/hr
and
S-70 "O" Line Asphalt Applicator; 7.5 tons/hr

_____

K. R. Bhagavan
Air Quality Engineer II
Engineering Division

[20] Db → q2 →p → all

ENGINEERING EVALUATION
Owens Corning, Plant: 41
Application: 16775

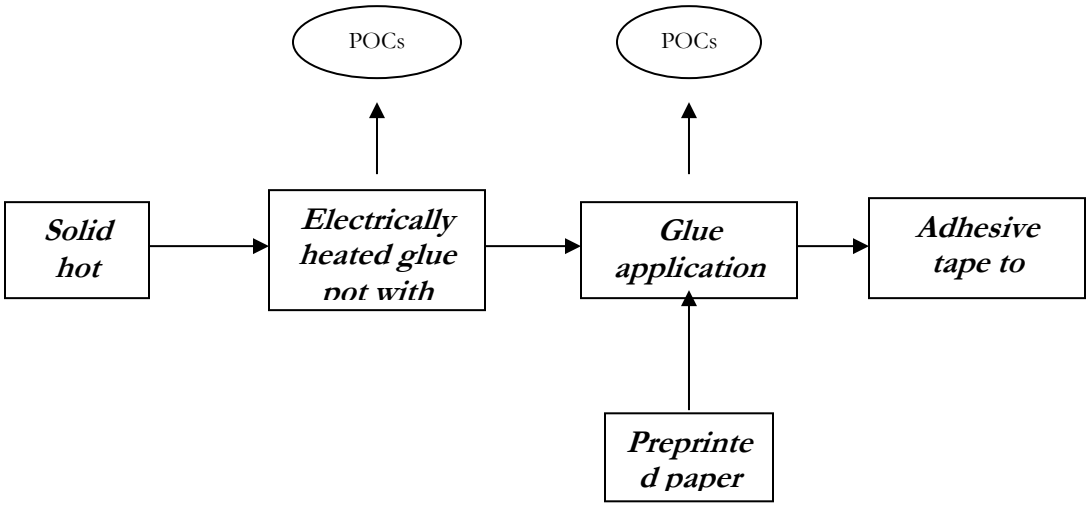
BACKGROUND

Owens Corning (OC) has submitted this application under the Accelerated Permitting Program (APP) to obtain a Permit to Operate (PO) for the following *new* operations:

S-170 Retail Roll Overwrap Tape Glue System for the "M" line
Nordson Hot Melt Glue System; Hot Melt Glue; 65 TPY

S-171 Retail Roll Overwrap Tape Glue System for the "O" line
Nordson Hot Melt Glue System; Hot Melt Glue; 65 TPY

The operations at S-170 & S-171, which are summarized in following block diagram, consist of melting and applying hot melt glue to a preprinted paper tape that is used to wrap and secure individual rolls of insulation.



EMISSIONS CALCULATION

OC operates two manufacturing lines at their Santa Clara facility namely the "M" and the "O" lines. Each of the above two manufacturing lines consist of glass batch melting, glass fiber & pack forming, curing, and cooling section sources. Sources S-170 and S-171 will be located far downstream of the "M" and "O" line cooling sections i.e. S-4 and S-22.

The glue melting and glue application operations at S-170 and S-171 will result in fugitive emissions of Precursor Organic Compounds (POCs) because S-170 and S-171 will not have a dedicated/combined exhaust stack. Fugitive POC emissions will be emitted from the top of the glue melting pot, which is normally in the closed position, and from the stream of the hot glue that is laid on the preprinted paper tape at the glue application station. The glue pot at S-170 and S-171 manufactured by Nordson Hot Melt Glue System features sealed glue-melting chambers, and the glue is melted from the

bottom up. It is expected that both these features will limit fugitive POC emissions from S-170 and S-171. However, for the purposes of the emission calculations that follow it is assumed that the glue melting chambers in the glue pot at the above sources are open with an exposed surface of molten adhesive. In addition, though OC may only operate either S-170 or S-171 at any given time, for the purposes of the emission calculations it is assumed that both sources will operate concurrently.

The MSDS for the glue that will be used at S-170 and S-171 states it contains the following:

- 10% to 30% waxes/polymers
- 1% Vinyl Acetate (VA)

In addition to the above, per conversations between OC and the glue manufacturer, the glue could also contain the following:

- 40% to 50% resin polymers
- 30% to 40% Ethylene Vinyl Acetate (EVA)

For the purposes of the emission calculations that follow, it is assumed that the glue contains all of the above chemicals. It should be noted that the resin polymers are too thermally stable to evolve any POCs; the waxes/polymers can be expected to emit 0.01% of their weight in POCs consisting of low molecular weight alkanes; and testing performed by OC has shown EVA to potentially evolve 0.013% of its weight as POCs which are presumed to be primarily VA.

The maximum amount of glue that will be consumed at S-170 and S-171 is 14.85 lbs/hr/source. The daily uncontrolled POC emissions from each of the above sources is calculated as follows:

<u>From waxes/polymers</u>
= 14.85 lbs_{glue}/hr **x** 0.30 $lbs_{wax/polymer}$/lb_{glue} **x** 0.0001 lbs_{POC}/ $lbs_{wax/polymer}$ **x** 24 hr/day
= 0.011 lbs_{POC}/day

<u>From EVA</u>
= 14.85 lbs_{glue}/hr **x** 0.40 $_{EVA}$/lb_{glue} **x** 0.00013 lbs_{VA}/ lbs_{EVA} **x** 24 hr/day
= 0.019 lbs_{VA}/day

<u>From VA</u>
= 14.85 lbs_{glue}/hr **x** 0.01 $_{VA}$/lb_{glue} **x** 24 hr/day
= 3.564 lbs_{VA}/day

Maximum uncontrolled POC emissions from <u>each</u> source
= 0.011 + 0.019 + 3.564
= 3.594 lbs_{POC}/day; 0.66 TPY

Total uncontrolled POC emissions from <u>both sources</u> combined
= 2 x 3.594 lbs_{POC}/day
= 7.188 lbs_{POC}/day; 1.31 TPY

To ensure that the sources do not exceed the 10 lb/day BACT trigger due to changing conditions, a limit of 10 lb/day will be added to the permit conditions.

TOXIC RISK SCREEN ANALYSIS

Table 2-5-1 in the District's Regulation 2, Rule 5 "New Source Review of Toxic Air Contaminants" has established a Chronic TAC Trigger Level (TTL) of 7,700 lbs/yr for VA. It can be seen from the "Emission Calculation" section above that the maximum daily VA emissions from sources S-170 and S-171 is 3.583 lbs_{VA}/day/source i.e. 0.019 + 3.564. The annual VA emission from sources S-170 and S-171 is equal to 1,308 lbs_{VA}/yr/source i.e. 3.583 x 365. Since the above annual VA emissions from sources S-170 and S-171 are below the District's Chronic TTL for VA, a Toxic Health Risk Screening Analysis is not warranted.

CUMULATIVE INCREASE & OFFSETS

OC is an existing facility. Table 1 summarizes the cumulative increase in criteria pollutant emissions that currently exist at Plant 41.

Table 1
Cumulative Increase

Pollutant	Increase in plant emissions prior to April 5, 1991 [1] (TPY)	Increase in plant emissions since April 5, 1991 [2] (TPY)	Increase in plant emissions associated with this application (TPY)	Cumulative increase in emissions (Post 4/5/91 + Current application increase)[3] (TPY)
NOx	0	0.657	0	0.657
POC	0.288	0	1.31	1.31
NPOC	0	0	0	0
CO	0	0.131	0	0.131
PM	0	0	0	0
PM10	0	1.333	0	1.333
SO2	0	0.397	0	0.397

[1] In PSDP do the following to obtain emissions data at the plant prior to April 5, 1991: option 3 → option 1 → option 2.

[2] In PSDP do the following steps to get data on the aggregate sum of all increases as defined in Reg. 2-2-212 after April 5, 1991: option 3 → option 1 → type of pollutant (options 3 through 8).

[3] Per 2-2-212, the cumulative increase in emissions considers only the permitted emission increases Post-4/5/91. The Pre-4/5/91 permitted emission increases are considered when determining whether Offsets are warranted.

Table 2 Offsets					
Pollutant	**"Pre-Project" Permitted plant emissions (TPY) Pre-April 5, 1991[4] + Post-April 5, 1991**	**Actual plant emissions[5] (TPY)**	**Increase in plant emissions associated with this application (TPY)**	**"Post-Project" Permitted plant emissions ("Pre-Project" Permitted Emissions + Increase in plant emissions associated with this application) (TPY)**	**Regulation 2-2-302 and 2-2-303 Offset Triggers (TPY)**
NOx	0.657	41.73	0	0.657	> 10
POC	0.288	17.02	1.31	1.598	> 10
NPOC	0	0	0	0	NA
CO	0.131	9.58	0	0.131	NA
PM	0	0	0	0	NA
PM10	1.333	188.29	0	1.333	> 1
SO2	0.397	2.11	0	0.397	> 1

POC is the pollutant of interest for the purposes of this application. The requirement to offset emissions from a new/modified source and any pre-existing cumulative increase at a 1.15 : 1 ratio is triggered when the Actual plant emissions and the "Post-Project" Permitted plant emissions are greater than 35 TPY. In addition, the requirement to offset emissions from a new/modified source and any pre-existing cumulative increase at a 1 : 1 ratio is triggered when the Actual plant emissions and the "Post-Project" Permitted plant emissions are greater than 10 TPY but less than 35 TPY. In light of the above and per information summarized in Table 2, OC will have to offset 1.598 TPY (0.288 + 1.31) of POC emissions. OC currently owns 5.834 tons of POC Emission Reduction Credits (ERCs) in Certificate #'s 563 (1.245 tons) and 1049 (4.753 tons) that were issued by the District on 11/10/97 and 8/9/07, respectively. OC will have to surrender both of the above certificates to the District, and will get receive Certificate # 1049 back for 4.40 tons with a new issuance date.

Please note that per Section 414 in Regulation 2 "Permits", Rule 4 "Emissions Banking" had OC not held ERC Certificates, they would have been eligible for credits from the District's Small Facility Banking Account. Since OC holds banked emission reduction credits, those credits must be used as a source of offsets prior to the APCO approving offsets from the small facility banking account (this includes bankable emission reduction credits held by other District facilities owned by the applicant). In light of the above, OC must use any banked credits it owns first.

BACT

Per Regulation 2, Rule 2, Section 301, BACT is only triggered if emissions from a new source or an increase in emissions from a modified source has the potential to emit 10 lbs or more per highest day of emissions. As previously discussed in the "Emission Calculation" section above, the installation and subsequent operation of S-170 and S-171 will result in 3.59 lbs_{POC}/day/source, which is below the 10 lbs/highest day BACT trigger level. Therefore, BACT is not triggered.

[4] If permitted increases attributable to sources that were permitted prior to April 5, 1991 have been archived, exclude their emissions when considering whether Offsets are warranted.

[5] Db → q2 →p → all

STATEMENT OF COMPLIANCE

Sources S-170 and S-171 are potentially subject to the requirements of Regulation 8 "Organic Compound", Rule 51 "Adhesive and Sealant Products". However, the following calc will demonstrate that the adhesive (~glue), which will be used at the above sources, qualifies for the "Low VOC Adhesive or Sealant Products" exemption in Section 115 of the above rule which exempts adhesives or sealants with a VOC content less than 20 grams per liter of VOC.

The MSDS for the glue (which is a solid), states its specific gravity is 0.98 g/cc. The glue when melted at S-170 and S-171 will have a specific gravity less than 0.98 g/cc in its molten liquid state. However, a specific gravity of 0.98 g/cc is assumed in the calc that follow. As previously discussed in the "Emissions Calculation" section above, the MSDS for the glue states it contains 1% Vinyl Acetate (VA) by wt. However, it is conservatively assumed in the calc that follow that the glue contains 1.0082% VOC by wt. i.e. 1% VA + 30% of the glue which is wax/paraffin which loses 0.01% of its weight as VOCs + 40% of the glue which is Ethyl Vinyl Acetate (EVA) which loses 0.013% of its weight as VA.

In light of the above information, the VOC content of the glue is determined as follows:
= (0.98 grams glue/cc glue) x (0.010082 grams VOC/gram glue) x (1,000 cc glue/Liter of glue)
= 9.88036 grams VOC/Liter of glue (~ 0.0824 lbs VOC/Gallon of glue)[6]

It can be seen from the above calc that the VOC content of the glue that will be used at sources S-170 and S-171 is less than 20 grams/Liter. Therefore, per Section 115 the operations at the above sources are exempt from Regulation 8, Rule 51.

Per Section 101 in Regulation 8, Rule 51, the sources S-170 and S-171 are subject to the provisions of Regulation 8 "Organic Compound", Rule 4 "General Solvent and Surface Coating Operations". Section 207 in the above rule defines surface coating as "Any paint, lacquer, varnish, ink, adhesive or similar material." OC will be required to comply with the "Solvents and Surface Coating Requirements" contained in Section 302 of the above rule. Section 302 requires the owner/operator of a source(s) to comply with one or more of the requirements outlined in Sections 302.1 through 302.3. As proposed, the operations at sources S-170 and S-171 comply with Sections 302.1 and 302.3. Specifically, the VOC emissions from each of the above sources will be less than 5 tons in any calendar year (0.66 tons/year/source), and the VOC content of the coating (~glue/adhesive) as applied is less than 3.5 lbs/gallon (~ 0.0837 lbs/gallon). Organic solvents may be used for surface preparation/cleanup at S-170 and S-171. Therefore, the above sources are subject to the requirements in Sections 312 and 313 of Regulation 8, Rule 4.

The California Environmental Quality Act (CEQA):

Per Section 2-1-311 of the District Rules and Regulations, a permit application for a proposed new or modified source will be classified as ministerial and will accordingly be exempt from the CEQA requirement of Section 2-1-310 if the District's engineering evaluation and basis for approval of the permit application for the project is limited to the

[6] VOC content (lbs/gallon) = (9.88036 g/L) / (119.8) = 0.0824 lbs/gallon

criteria set forth in Section 2-1-428 and to the procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook. The method for determining whether a given permit application will be classified as ministerial is set forth in Section 2-1-427.

Per Section 2-1-427, if the District determines that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook, the District's evaluation of the permit application is classified as ministerial and the engineering evaluation of the permit application by the District will be limited to the use of said specific procedures, fixed standards and objective measurements. For such projects, the District will merely apply the law to the facts as presented in the permit application, and the District's decision regarding whether to issue the permit will be based only on the criteria set forth in Section 2-1-428 and in the District's Permit Handbook and BACT/TBACT Workbook.

For this permit application, the District determined that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook Chapter 5.1 “Spray Booths and Spray Guns”. Since the District classified this permit application as ministerial pursuant to Section 2-1-427, and as a result of its evaluation of the permit application, the District determined that all of the criteria for approval of ministerial permit applications pursuant to Section 2-1-428 were met, the issuance by the District of an Authority to Construct and Permit to Operate for the proposed project is a mandatory ministerial duty and is accordingly exempt from the CEQA requirement of Section 2-1-310.

In addition to the ministerial exemption determination above, the District has also determined this application is exempt from CEQA review per Regulation 2-1-312.11 - the CEQA "Common Sense Exemption". Per Section 2-1-312.11, permit applications for a new or modified source or sources or for process changes, which will satisfy the "No Net Emission Increase" provisions of District Regulation 2, Rule 2 and for which there is no possibility that the project may have any significant environmental effect in connection with any environmental media or resources other than air quality, are exempt from the CEQA review. The reason for this exemption should be apparent on its face: if a facility is given legal permission to emit more air pollutants from certain points while at the same time being disallowed permission for an equivalent amount of the same type of emissions from other points at the facility, then there is deemed to be no net effect on the air environment, and therefore no possibility of a significant effect under CEQA, provided no-air impacts are also examined and deemed to be of no possible significant consequence.

Also, per the CEQA Guidelines in Title 14, California Code of Regulations, Chapter 3, Article 5, Section 15061(b)(3), a project is exempt from CEQA if the activity is covered by the general rule that CEQA applies only to projects, which have the potential for causing a significant effect on the environment. This is commonly known as the "Common Sense Exemption". Where it can be seen with certainty that there is no

possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The "no net increase" exemption of 2-1-312.11 is essentially a specific, codified, instance of the Common Sense Exemption.

As previously discussed in the "Cumulative Increase & Offsets" section above, OC will fully offset the 1.31 tons increase in POC emissions associated with the installation and subsequent operation of sources S-170 and S-171 by surrendering ERC Certificate #'s 563 and 1049 to the District. In light of the above, the District has determined that the project to install and operate S-170 and S-171 satisfies the "No Net Emission Increase" provisions of District Regulation 2 "Permits", Rule 2 "New Source Review", and concludes that this application is exempt from CEQA review per Regulation 2-1-312.11.2.

PSD, NSPS and NESHAPS are not applicable to this project.

PERMIT CONDITIONS

(PC 23812)

1. The owner/operator shall ensure that the total quantity of hot melt glue used at sources S-170 and S-171 in any consecutive twelve month period does not exceed 65 tons per year per source
   (Basis: Cumulative Increase, Offsets)

2. The owner/operator shall ensure that the Precursor Organic Compound (POC) emissions from S-170 and S-171 in any consecutive twelve month period does not exceed 1,320 pounds per year per source.
   (Basis: Cumulative Increase, Offsets)

3. The owner/operator shall ensure that the POC emissions from S-170 and S-171 does not exceed 10 pounds per highest day per source.
   (Basis: Regulation 2-1-106.1)

4. The owner/operator may use hot melt glue or other types of glue materials at S-170 and S-171 in excess of the throughput limit specified in part 1 of this permit condition, provided the owner/operator can demonstrate that all of the following are satisfied:

   a. Total POC emissions from S-170 and S-171 do not exceed 1.32 tons (2,640 pounds) in any consecutive twelve month period; and

   b. The use of the glue materials does not result in Toxic Air Contaminant (TAC) emissions above District established Acute and/or Chronic TAC Trigger Levels outlined in Table 2-5-1 in Regulation 2, Rule 5 for a given TAC, or a group of TAC's.

   (Basis: Cumulative Increase, Offsets, Toxics)

5. The owner/operator of S-170 and S-171 shall not use solvents or apply surface coatings unless one or more of the following requirements are satisfied:

a. The owner/operator shall not emit more than 4,533 kg (5 tons) of volatile organic compounds (VOC) from any source during any calendar year; or

b. The owner/operator shall ensure emissions are controlled by an approved emission control system with an overall abatement efficiency of 85% on a mass basis. If reduction is achieved by incineration, at least 90% by weight of the organic compound emissions shall be oxidized to carbon dioxide; or

c. The owner/operator shall use coatings with a VOC content less than or equal to 420 grams per liter (3.5 lb/gal) of coating as applied.

In addition to the above, the owner/operator shall not use solvents with a VOC content that exceeds 50 g/l (0.42 lbs/gal), as applied, for surface preparation in any operation subject to Regulation 8, Rule 4 unless emissions to the atmosphere are controlled to an equivalent level by an approved emission control system with an overall abatement efficiency of at least 85 percent.
(Basis: Regulation 8-4-302, Regulation 8-4-313)

6. In order to determine compliance with the above conditions, the owner/operator of S-170 and S-171 shall maintain the following records in a District approved log:
a. A current list of hot melt glues and solvents, in use that provide all of the data necessary to evaluate compliance, such as but not limited to the VOC content of the hot melt glue, the hot melt glue density and the VOC content of solvent.
b. Record on an annual basis the quantity of hot melt glue applied.
c. If applicable, record the air pollution abatement equipment key system operating parameters on a daily basis.
d. Record, on a monthly basis, the hot melt glue usage and solvents used for surface preparation and clean up.

The owner/operator shall retain all records on-site for at least five years from the date of entry and the records shall be made available for inspection by District staff upon request. The above record keeping requirements shall not replace the record keeping requirements contained in any applicable District regulations.
(Basis: Regulation 2-1-403, Regulation 8-4-501)

RECOMMENDATION
Waive the AC, and issue OC a PO for the following equipment:

S-170 Retail Roll Overwrap Tape Glue System for the “M” line
Nordson Hot Melt Glue System; Hot Melt Glue; 65 TPY

S-171 Retail Roll Overwrap Tape Glue System for the “O” line
Nordson Hot Melt Glue System; Hot Melt Glue; 65 TPY

ENGINEERING EVALUATION
Owens Corning, Plant: 41
Application: 17074

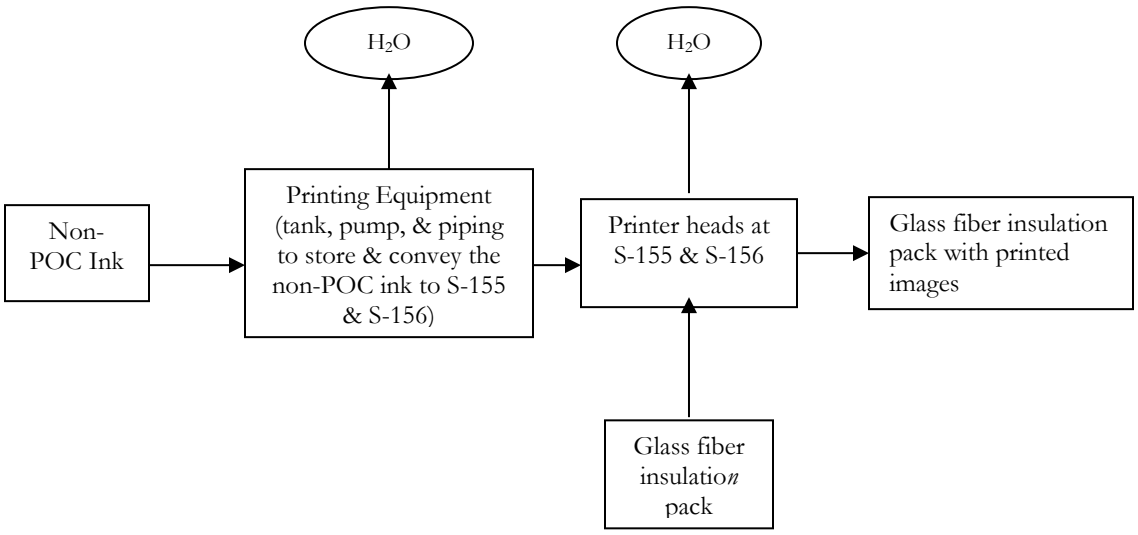
BACKGROUND

Owens Corning (OC) has submitted this application under the Accelerated Permitting Program (APP) to obtain a Temporary Permit to Operate (TPO) to allow the use of a non-Precursor Organic Compound (POC) ink at the following *existing* sources:

S-155 "M" Line Ink Jet Printing System

S-156 "O" Line Ink Jet Printing System

Assuming the District grants OC a TPO, the following block diagram summarizes the operations at S-155 & S-156 that would consist of using a water-based ink to print images on a moving pack of glass fiber insulations.



EMISSIONS CALCULATION

OC operates two manufacturing lines at their Santa Clara facility namely the "M" and the "O" lines. Each of the above two manufacturing lines consist of glass batch melting, glass fiber & pack forming, curing, and cooling section sources. Sources S-155 and S-156 will be located far downstream[1] of the "M" and "O" line cooling sections i.e. S-4 and S-22.

As it currently exists, the use of POC containing Ink Jet Printer (IJP) inks at S-155 & S-156 result in fugitive POC emissions because neither of the above sources has a dedicated exhaust stack. Fugitive POC emissions at the above sources are typically emitted from the top of the ink storage tanks, which is normally in the closed position, and from the ink that is sprayed from the printing heads. For the purposes of the non-POC IJP ink trial, which is the subject of this evaluation, OC will utilize the existing

[1] The ink jet printers (S-155 & S-156) are downstream of the asphalt applicators (S-69 and S-70).

printing heads at S-155 & S-156 and a tote ink storage vessel. Since the inks used in the trial contain no POCs, there will zero fugitive POC emissions. Therefore, the use of the non-POC IJP inks at S-155 & S-156 is exempt from requiring a permit per Regulation 2-1-103 "Exemption, Source not Subject to any District Rule" which states the following:

"***2-1-103 Exemption, Source not Subject to any District Rule:*** *Any source that is not already exempt from the requirements of Section 2-1-301 and 302 as set forth in Sections 2-1-105 to 2-1-128, is exempt from Section 2-1-301 and 302 if the source meets all of the following criteria:*

103.1 The source is not in a source category subject to any of the provisions of Regulation 6(1), Regulation 8(2) excluding Rules 1 through 4, Regulations 9 through 12; and

103.2 The source is not subject to any of the provisions of Sections 2-1-316 through 319; and

103.3 Actual emissions of precursor organic compounds (POC), non-precursor organic compounds (NPOC), nitrogen oxides (NOx), sulfur dioxide (SO2), PM10 and carbon monoxide (CO) from the source are each less than 10 pounds per highest day. A source also satisfies this criterion if actual emissions of each pollutant are greater than 10 lb/highest day, but total emissions are less than 150 pounds per year, per pollutant.

Note 1: Typically, any source may be subject to Regulation 6, Particulate Matter and Visible Emissions. For the purposes of this section, Regulation 6 applicability shall be limited to the following types of sources that emit PM10: combustion source; material handling/processing; sand, gravel or rock processing; cement, concrete and asphaltic concrete production; tub grinder; or similar PM10-emitting source, as deemed by the APCO.

Note 2: If an exemption in a Regulation 8 Rule indicates that the source is subject to Regulation 8, Rules 1 through 4, then the source must comply with all applicable provisions of Regulation 8, Rules 1 through 4, to qualify for this exemption.

103.4 The source is not an ozone generator (a piece of equipment designed to generate ozone) emitting 1 lb/day or more of ozone.

(Adopted 6/7/95; Amended 5/17/00; 12/21/04)"

Since the use of the non-POC IJP inks at S-155 & S-156 meet all the criteria set forth in Sections 103.1 through 103.4 of Regulation 2 "Permits", Rule 1 "General Requirements", and given the fact that OC's existing Title V permit[2] requires that the above sources comply with Regulation 8 "Organic Compounds", Rule 4 "General Solvent and Surface Coating Operations", it is safe to conclude that OC does not require a TPO to use the non-POC IJP inks.

TOXIC RISK SCREEN ANALYSIS

The Material Safety Data Sheet (MSDS) for the non-POC IJP ink manufactured by Squid Ink Manufacturing Inc. does not contain any references to, nor does it list any hazardous ingredients that can be found in Table 2-5-1 in the District's Regulation 2, Rule 5 "New Source Review of Toxic Air Contaminants". Therefore, it is safe to state

[2] Table IV-S in OC's Title V permit contains the Reg. 8-4 applicable requirements.

that the use of the non-POC IJP inks at S-155 & S-156 will not result in Toxic Air Contaminant (TAC) emissions. Hence a Toxic Health Risk Screening Analysis is not warranted.

CUMULATIVE INCREASE & OFFSETS

N/A – Exempt Project

BACT

N/A – Exempt Project

STATEMENT OF COMPLIANCE

The use of non-POC IJP inks at S-155 and S-156 is exempt from permitting per Regulation 2-1-103. When using POC IJP inks, the above sources are potentially subject to the requirements of Regulation 8 “Organic Compound”, Rule 20 “Graphic Arts Printing and Coating Operations” which limits the emission of volatile organic compounds from graphic arts operations and graphic arts lines. Ink jet printers, such as S-155 & S-156, are not defined as sources that are part of graphic arts operations and/or graphic arts lines in Regulation 8, Rule 20. Therefore, the above sources (by default) are subject to Regulation 8 “Organic Compounds”, Rule 4 “General Solvent and Surface Coating Operations”. “Table IV-S” in OC’s existing Title V permit lists Sections 302, 302.3, 312, and 501 of Regulation 8, Rule 4 as the applicable requirements that S-155 and S-156 are subject to.

Though the CEQA requirements do not pertain to exempt operations (such as the use of non-POC IJP inks at S-155 & S-156), it is discussed below for information purposes only.

The California Environmental Quality Act (CEQA):

Per Section 2-1-311 of the District Rules and Regulations, a permit application for a proposed new or modified source will be classified as ministerial and will accordingly be exempt from the CEQA requirement of Section 2-1-310 if the District's engineering evaluation and basis for approval of the permit application for the project is limited to the criteria set forth in Section 2-1-428 and to the procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook. The method for determining whether a given permit application will be classified as ministerial is set forth in Section 2-1-427.

Per Section 2-1-427, if the District determines that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook, the District's evaluation of the permit application is classified as ministerial and the engineering evaluation of the permit application by the District will be limited to the use of said specific procedures, fixed standards and objective measurements. For such projects, the District will merely apply the law to the facts as presented in the permit application, and the District's decision regarding whether to issue the permit will be based only on the criteria set forth in Section 2-1-428 and in the District's Permit Handbook and BACT/TBACT Workbook.

For this permit application, the District determined that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth under “Misc. Solvent & Surface Coating Operations” in the District's Permit Handbook Chapter 5.1 “Spray Booths and Spray Guns”. Since the District classified this permit application as ministerial pursuant to Section 2-1-427, and as a result of its evaluation of the permit application, the District determined that all of the criteria for approval of ministerial permit applications pursuant to Section 2-1-428 were met, the issuance by the District of an Authority to Construct and Permit to Operate (Letter of Exemption in this case) for the proposed project is a mandatory ministerial duty and is accordingly exempt from the CEQA requirement of Section 2-1-310.
In addition to the ministerial exemption determination above, the District has also determined this application is exempt from CEQA review per Regulation 2-1-312.11 - the CEQA "Common Sense Exemption". Per Section 2-1-312.11, permit applications for a new or modified source or sources or for process changes, which will satisfy the "No Net Emission Increase" provisions of District Regulation 2, Rule 2 and for which there is no possibility that the project may have any significant environmental effect in connection with any environmental media or resources other than air quality, are exempt from the CEQA review. The reason for this exemption should be apparent on its face: if a facility is given legal permission to emit more air pollutants from certain points while at the same time being disallowed permission for an equivalent amount of the same type of emissions from other points at the facility, then there is deemed to be no net effect on the air environment, and therefore no possibility of a significant effect under CEQA, provided no-air impacts are also examined and deemed to be of no possible significant consequence.

Also, per the CEQA Guidelines in Title 14, California Code of Regulations, Chapter 3, Article 5, Section 15061(b)(3), a project is exempt from CEQA if the activity is covered by the general rule that CEQA applies only to projects, which have the potential for causing a significant effect on the environment. This is commonly known as the "Common Sense Exemption". Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The “no net increase” exemption of 2-1-312.11 is essentially a specific, codified, instance of the Common Sense Exemption.

In light of the above, the District has determined that the project to use non-POC IJP inks at S-155 and S-156 satisfies the "No Net Emission Increase" provisions of District Regulation 2 “Permits”, Rule 2 “New Source Review”, and concludes that this application is exempt from CEQA review per Regulation 2-1-312.11.1.

PSD, NSPS and NESHAPS are not applicable to this project.

PERMIT CONDITIONS

N/A – Exempt Project

Permit condition 14391 in OC's Title V permit currently governs the operation of S-155 and S-156 when using POC IJP inks. Since OC will only use the non-POC IJP inks at the above sources on a trial basis, and will most definitely comply with permit condition 14391 when using POC IJP inks, no changes to the above permit condition are warranted at this time.

RECOMMENDATION

Issue OC a Letter of Exemption to use non-POC IJP inks at the following sources:

S-155 "M" Line Ink Jet Printing System

S-156 "O" Line Ink Jet Printing System

_____

ENGINEERING EVALUATION
Owens Corning, Plant: 41
Application: 19322

BACKGROUND

Owens Corning (OC) has submitted this application to obtain a Temporary Permit to Operate (TPO) to install four new oven zone burners at the following *existing* source:

S-3 "M" line Curing Oven
Four natural gas fired oven zone burners; 2.6 MMBTU/hr/oven zone burner

Source S-3 is equipped with four oven zones with one burner per zone for a total of four oven zone burners. Under this application, OC has proposed to replace the four existing oven zone burners with four new oven zone burners (trial burners). The capacity of the trial burners is approximately the same as their existing counterparts. Within the normal variability that is inherent in the design of any natural gas burner, there is no difference in the installed thermal capacity of the trail burners versus their existing counterparts.

OC operates two rotary spin wool fiberglass manufacturing lines consisting of the forming, curing & cooling sections. The process of converting the molten glass into wool fiberglass is carried out in two identical but separate rotary spin wool fiberglass manufacturing lines called the "M" and "O" lines. Source S-3 is part of the "M" rotary spin wool fiberglass manufacturing line and is downstream of S-1 (the glass melting furnace) & S-2 (the forming section) and upstream of S-4 (the cooling section).

Molten glass from S-1 is converted to glass fibers at S-2 by using the rotary spin process. At S-2, centrifugal force causes the fibers to flow through small holes in the wall of a rapidly rotating cylinder to create fibers that are broken into short lengths by an air stream. A chemical binder is simultaneously sprayed on the fibers as they are created. The binder is a thermosetting resin that holds the glass fibers together. After the glass fibers are created and sprayed with the binder solution, they are collected by gravity and suction air on perforated conveyor belts in the form of a mat. The conveyors carry the newly formed mats through a large oven in S-3 to cure the thermosetting binder and then through S-4 where ambient air is drawn down through the mats. The cooled mats remain on the conveyors for trimming of the uneven edges. Then, if product specifications require it, a backing is applied with an adhesive, usually laminating asphalt, to form a vapor barrier. The mats are then cut into batts or rolls of the desired dimensions and packaged for shipping.

EMISSIONS CALCULATION

As it currently exists, the combined natural gas consumption of the existing oven zone burners at S-3 is approximately 4,800 cubic feet per hour, and the curing oven operates for 8,337 hours per year. The trial burners are guaranteed by their manufacturer to consume 10% less natural gas than their existing counterparts. Therefore, the natural

gas consumption for the trial burners is expected to be approximately 4,320 cubic feet per hour. Table 1 below summarizes the criteria pollutant emissions from the trial burners.

Table 1:
Criteria pollutant emissions from trial burners

Pollutant	Emission factor	Units	Emission factor excerpted from	Emissions			Offsets at 1.15:1 (Tons)
				(Lbs/day)	90-days (Lbs)	90-days (Tons)	
NOx	100	lb/MMSCF	US EPA AP-42 Table 1.4-2	10.37	933	0.47	0.54
CO	84			8.71	392	0.20	NA
Filterable PM (PM10)	7.6			0.79	35	0.02	0.02
SO2	0.6			0.06	3	0.001	NA
VOC	11			1.14	51	0.03	0.03

Note:
1. Combined natural gas consumption of trial burners = 4,320 scf/hr (0.00432 MMSCF/hr)
2. Hours of operation 24 hrs/day
3. Offsets required per Regulation 2-1-302.3.3

Table 2 below summarizes the decrease in criteria pollutant emissions that is expected to result from installing the trial burners.

Table 2:
Potential decrease in criteria pollutant emissions from trial burners

Pollutant	Emission factor	Units	Emission factor excerpted from	Emissions Reductions			
				(Lbs/day)	90-days (Lbs)	90-days (Tons)	TPY
NOX	100	lb/MMSCF	US EPA AP-42 Table 1.4-2	1.15	103.68	0.05184	0.2001
CO	84			0.97	87.09	0.04355	0.1681
Filterable PM (PM10)	7.6			0.09	7.88	0.00394	0.0152
SO_2	0.6			0.01	0.62	0.00031	0.0012
VOC	11			0.13	11.40	0.00570	0.0220

Note:
1. Combined decrease in natural gas consumption = 480 scf/hr (0.00048 MMSCF/hr)
2. Hours of operation 24 hrs/day; 8,337 hours/yr

TOXIC RISK SCREEN ANALYSIS

Quantifying the Toxic Air Contaminant (TAC) emissions from the trial burners is not required because Regulation 2-1-302.3.1 does not require them to comply with Regulation 2, Rule 5 "Permits – New Source Review of Toxic Air Contaminants". TAC emissions summarized in Table 3 below are for information purposes only. It can be seen from Table 3 that the TAC emissions of concern (benzene, formaldehyde, and toluene) are below their respective Acute and Chronic TAC trigger levels in Table 2-5-1 in Regulation 2, Rule 5. Therefore, a Toxic Health Risk Screening Analysis (HRSA) is not warranted.

Table 3:
TAC emissions from trial burners

TAC	Emission factor			Emissions			Reg. 2, Rule 5 TAC Trigger Level		Exceeds Reg. 2, Rule 5 TTL? (Yes, No, NA)	
	(lbs/Mscf)	(lbs/MMscf)	(lbs/MMBTU)	(lbs/hr)	90-days (Lbs)	90-days (Tons)	lb/hr	lb/yr	Hourly	Annual
Benzene	2.10E-06	0.0021	2.06E-06	9.07E-06	1.96E-02	9.80E-06	2.9	6.4	No	No
Formaldehyde	7.50E-05	0.075	7.35E-05	3.24E-04	7.00E-01	3.50E-04	0.21	30	No	No
Toluene	3.40E-06	0.0034	3.33E-06	1.47E-05	3.17E-02	1.59E-05	82	12000	No	No

Note:

1. TAC EF's excerpted from a memo included in an e-mail dated August 19, 2005 from Jane Lundquist to Brian Bateman.
2. Heating value of natural gas 1,020 BTU/scf
3. Combined natural gas consumption 4.4064 MMBTU/hr
4. Hours of operation during over 90-days 2,160

CUMULATIVE INCREASE:

It can be seen from Table 2 above, that the installation and subsequent operation of the trial burners would result in a decrease in criteria pollutant emissions from existing levels. Because the capacity of the trial burners is approximately the same as their existing counterparts and assuming a worst-case scenario (i.e. no fuel savings), emissions from the trial burners would not be nor more than emissions from their existing counterparts. Simply stated there would be a "no-net increase" in criteria pollutant emissions. Therefore, it is safe to state that the installation and subsequent operation of the trial burners would not result in a cumulative increase in emissions at OC.

OFFSETS

OC is an existing facility. For permit applications requiring a conventional Permit to Operate (~non-TPO permits), the requirement to offset NOx and POC emission increases from a new/modified source and any pre-existing cumulative increase at a 1.15 : 1 ratio is triggered when the Actual plant emissions and the "Post-Project"

Permitted plant emissions are greater than 35 TPY. Likewise, the requirement to offset SO_2 and PM_{10} emissions from a new/modified source and any pre-existing cumulative increase at a 1:1 ratio is triggered when the Actual plant emissions and the "Post-Project" Permitted plant emissions are greater than 1 TPY. In addition, per Regulation 2-2-303 an increase in SO_2 and PM_{10} emissions from a new or modified source at a Major Facility (such as OC) needs to be offset only if the cumulative increase in emissions for the above pollutant minus any contemporaneous emission reduction credits provided by a facility for that pollutant since April 5, 1991 exceeds 1 TPY. There is no CO offset requirement. Table 4 below summarizes emissions at OC to determine if offsets are warranted for NOx, POC, SO_2 and PM_{10} emissions.

Table 4
Offsets

Pollutant	"Pre-Project" Permitted plant emissions (TPY)	Actual plant emissions [1] (TPY)	Increase in plant emissions associated with this application (TPY)	"Post-Project" Permitted plant emissions (TPY)	Regulation 2-2-302 and 2-2-303 Offset Triggers (TPY)
NOx	0.657	37.68	0	0.657	> 35
POC	0.288	17.10	0	0.288	> 35
CO	0.131	8.67	0	0.131	NA
PM10	1.333	168.08	0	1.333	> 1
SO2	0.397	1.86	0	0.397	> 1

It can be seen from Table 4 above that offsets are potentially warranted for PM10. Since OC has applied to obtain a TPO to install trial burners at S-3, Regulation 2-1-302.3.3 requires that the company provide offsets, at a ratio of 1.15 to 1, for all increased emissions of NOx, POC, and PM10 resulting from the use of the temporary permit. In other words, the District would have required OC to provide offsets for NOx and POC emissions from S-3 even if their Actual plant emissions and the "Post-Project" Permitted plant emissions were below 10 TPY. Assuming the trial burners were less fuel efficient than their existing counterparts, the District would have required OC to offset 0.54 tons of NOx, 0.02 tons of PM_{10}, and 0.03 tons of VOC. Please refer to the last column in Table 1.

As previously discussed in the "Background" section above, the trial burners are expected to consume 10% less fuel than their existing counterparts i.e. 4,320 scf/hr versus 4,800 scf/hr. In light of the above and for the 90-days that S-3 will operate with the trial burners OC can avail of the contemporaneous reductions in NOx, PM_{10}, and VOC emissions to offset the corresponding increases of the above pollutants stemming from the operation of the existing burners (i.e. less fuel efficient). Please refer to Table 2.

BACT

[1] Actual emissions estimated based on last permit renewal Db → q2 →p → all

Per Regulation 2, Rule 2, Section 301, BACT is only triggered if emissions from a new source or an increase in emissions from a modified source has the potential to emit 10 lbs or more per highest day of emissions. Because the installation and subsequent operation of the trial burners will not result in a "net increase" in criteria pollutant emissions beyond existing levels as shown in Table 2, BACT is not triggered.

STATEMENT OF COMPLIANCE

OC is a major facility per Section 218 of Regulation 2 "Permits", Rule 6 "Major Facility Review", because it has the "potential to emit" more than 100 tons per year of one or more regulated air pollutants, more than 10 tons per year of one or more hazardous air pollutants and more than 25 tons per year of a combination of hazardous pollutants. As a result, sources such as S-3, which is the subject of this application, are subject to the applicable requirements summarized in their Title V operating permit. Per information contained in Table IV-C in OC's Title V permit that was issued by the District in 2003, S-3 is subject to Regulation 6 "Particulate Matter", Rule 1 "General Requirements", Regulation 7 "Odorous Substances", Regulation 9 "Inorganic Gaseous Pollutants", Rule 1 "Sulfur Dioxide", and40 CFR Part 63, Subpart NNN, National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing (MACT NNN).

Source S-3 is not subject to New Source Performance Standards 40 CFR Part 60, Subpart PPP "Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants" because the rotary spin wool manufacturing lines (forming, curing and cooling sections) were constructed before February 7, 1984. Likewise, S-3 is not subject to any National Emission Standard for Hazardous Air Pollutants requirements contained in 40 CFR Part 61, because it does not meet the applicability requirements for any standard.

Source S-3 is subject to MACT NNN because the above rule applies to each new and existing rotary spin wool fiberglass manufacturing line producing a bonded wool fiberglass building insulation product. In addition to being subject to the General Provisions contained in 40 CFR Part 63, Subpart A, S-3 is also subject to the source specific MACT NNN applicable requirements outlined in Table IV-C.

Neither the "M" (which S-3 is part of) and/or "O" lines at OC are not subject to Regulation 8 "Organic Compounds", for the following reasons:
Regulation 8-1-110.3 states:
"**8-1-110 Exemptions:** The following shall be exempted from the provisions of this regulation:
110.3 Any operation or group of operations which are related to each other by being a part of a continuous process, or a series of such operations on the same process material, which are subject to Regulation 8, Rule 2 or Rule 4, and for which emissions of organic compounds are reduced at least 85% on a mass basis. Where such reduction is achieved by incineration, at least 90% of the organic carbon shall be oxidized to carbon dioxide."

The forming (S-2, S-20), curing (S-3, S-21) and cooling (S-4, S-22) sections at OC are related to each other by being part of a continuous process and the resulting organic

compound emissions from the “M” & “O” line curing oven exhaust are abated by incinerators A-5 & A-6 (for S-3) and A-25 (for S-21) with a destruction efficiency greater than 90%.
Therefore, the “M” & “O” lines are exempt from complying with the provisions of Regulation 8.

The curing section ovens (S-3 and S-21) are not subject to Regulation 9 “Inorganic Gaseous Pollutants”, Rule 7 “Nitrogen Oxides And Carbon Monoxide From Industrial, Institutional, And Commercial Boilers, Steam Generators, And Process Heaters”, for the following reasons:
Regulation 9-7-110.6 states:
“**9-7-110 Exemptions:** The requirements of this rule shall not apply to the following:
110.6 Kilns, ovens, and furnaces used for drying, baking, heat treating, cooking, calcining, or vitrifying.”

Since S-3 and S-21 are used to dry and cure the thermosetting resin sprayed on the glass fibers in the forming sections, they qualify for the above exemption.

The installation of the trial burners in place of their existing counterparts will not impede OC’s compliance with applicable requirements that are part of their Title V permit. If any, the trial burners will consume less fuel and will emit less emission than their existing counterparts.

The California Environmental Quality Act (CEQA):

Per Section 2-1-311 of the District Rules and Regulations, a permit application for a proposed new or modified source will be classified as ministerial and will accordingly be exempt from the CEQA requirement of Section 2-1-310 if the District's engineering evaluation and basis for approval of the permit application for the project is limited to the criteria set forth in Section 2-1-428 and to the procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook. The method for determining whether a given permit application will be classified as ministerial is set forth in Section 2-1-427.

Per Section 2-1-427, if the District determines that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook, the District's evaluation of the permit application is classified as ministerial and the engineering evaluation of the permit application by the District will be limited to the use of said specific procedures, fixed standards and objective measurements. For such projects, the District will merely apply the law to the facts as presented in the permit application, and the District's decision regarding whether to issue the permit will be based only on the criteria set forth in Section 2-1-428 and in the District's Permit Handbook and BACT/TBACT Workbook.

For this permit application, the District determined that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective

measurements set forth in the District's Permit Handbook Chapter 2.1 “Boilers, Steam Generators & Process Heaters”. Since the District classified this permit application as ministerial pursuant to Section 2-1-427, and as a result of its evaluation of the permit application, the District determined that all of the criteria for approval of ministerial permit applications pursuant to Section 2-1-428 were met, the issuance by the District of an Authority to Construct and Permit to Operate for the proposed project is a mandatory ministerial duty and is accordingly exempt from the CEQA requirement of Section 2-1-310.

In addition to the ministerial exemption determination above, the District has also determined this application is exempt from CEQA review per Regulation 2-1-312.11 - the CEQA "Common Sense Exemption". Per Section 2-1-312.11, permit applications for a new or modified source or sources or for process changes, which will satisfy the "No Net Emission Increase" provisions of District Regulation 2, Rule 2 and for which there is no possibility that the project may have any significant environmental effect in connection with any environmental media or resources other than air quality, are exempt from the CEQA review. The reason for this exemption should be apparent on its face: if a facility is given legal permission to emit more air pollutants from certain points while at the same time being disallowed permission for an equivalent amount of the same type of emissions from other points at the facility, then there is deemed to be no net effect on the air environment, and therefore no possibility of a significant effect under CEQA, provided no-air impacts are also examined and deemed to be of no possible significant consequence.

Also, per the CEQA Guidelines in Title 14, California Code of Regulations, Chapter 3, Article 5, Section 15061(b)(3), a project is exempt from CEQA if the activity is covered by the general rule that CEQA applies only to projects, which have the potential for causing a significant effect on the environment. This is commonly known as the "Common Sense Exemption". Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The “no net increase” exemption of 2-1-312.11 is essentially a specific, codified, instance of the Common Sense Exemption.

As previously discussed in the “Cumulative Increase” section above, the installation and subsequent operation of the trial burners will not result in a net increase in emissions at OC. Therefore, the District has determined that the project to install and operate the trial burners satisfies the "No Net Emission Increase" provisions of District Regulation 2 “Permits”, Rule 2 “New Source Review”, and concludes that this application is exempt from CEQA review per Regulation 2-1-312.11.2.

PSD, NSPS and NESHAPS are not applicable to this project.

PERMIT CONDITIONS

(PC 24308)

1. The owner/operator of S-3 shall ensure that the four trial oven zone burners exclusively combusts natural gas fuel. (Basis: Cumulative Increase)

2. The owner/operator shall ensure that no more than 95,178 therms of natural gas fuel is consumed by the four trial oven zone burners at S-3. (Basis: Cumulative Increase)

3. To determine compliance with part 2 of this permit condition, the owner/operator shall equip S-3 with a non- resettable totalizing meter that measures the hours of operation and fuel usage in million SCF or Therms. Records (hours of operation and fuel usage) shall be summarized on a weekly basis. (Basis: Cumulative Increase, Regulation 2-1-403)

4. The owner/operator of S-30 shall ensure that all the records required by this permit condition are maintained on-site and are made available for inspection to BAAQMD staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District regulations. (Basis: Cumulative Increase, Regulation 2-1-403)

5. This Temporary Permit to Operate # 19322 to operate the trial burners at S-3 is effective for only 3-months from the date of they were installed. Under no circumstance, shall the owner/operator operate the trial burners beyond April 6, 2009. (Basis: Regulation 2-1-302.3.2)

RECOMMENDATION

Issue OC a Temporary Permit to Operate to install four trial burners at the following equipment:

S-3 “M” line Curing Oven
Four natural gas fired oven zone burners; 2.6 MMBTU/hr/oven zone burner

_____
K. R. Bhagavan

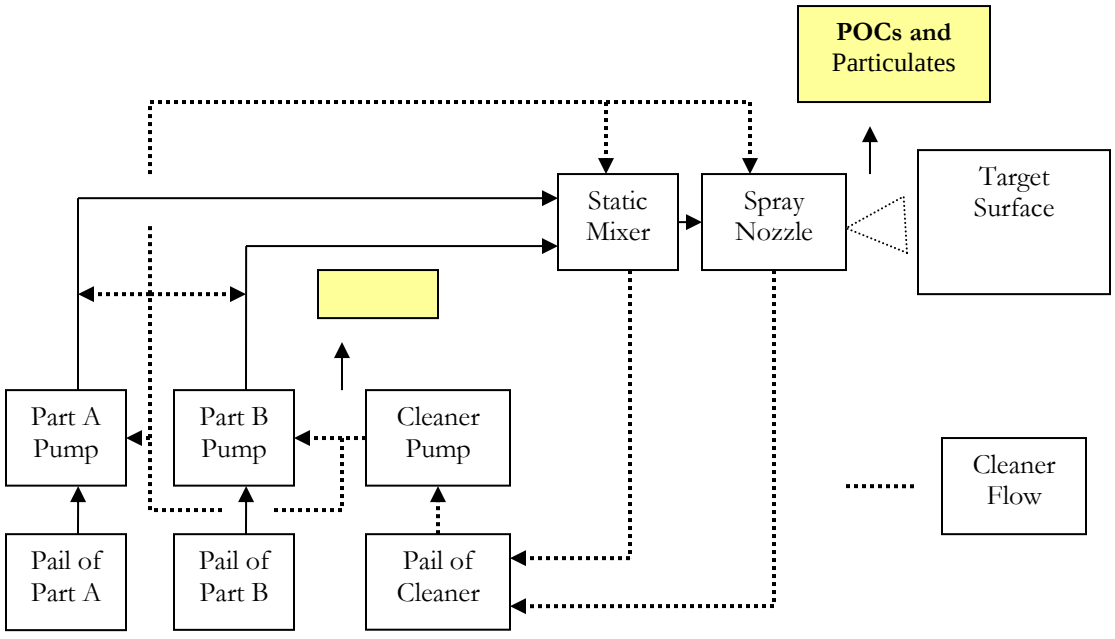
ENGINEERING EVALUATION
Owens Corning, Plant: 41
Application: 20620

BACKGROUND

Owens Corning (OC) has submitted this application under the Accelerated Permitting Program (APP) to obtain a Permit to Operate (PO) for the following *new* operation:

S-172 Energy Complete® Foam Sealant Spray System

Operations at S-172 will be conducted within the confines of a training center at OC that consists of a shed-like structure that has a roof and three walls. The training is intended to provide hands-on experience for contractors and technicians to gain practical experience in the use, service and cleaning of equipment used for applying OC's Energy Complete® sealant. The process at S-172, summarized in following block diagram, will consist of pumping reactant materials Part A and Part B through a mixer head and out a spray nozzle towards a target area such as a joint or seam made by two construction materials such as exterior sheathing nailed to a 2" x 4" stud wall. The Part A and Part B materials would then react to form an expanded acrylic latex foam sealant. On completion of the spraying operations at S-172, the application equipment, pumps, hoses, mixer, and nozzle will be flushed and cleaned with dipropylene glycol monobutyl ether that will be recycled and reused until it becomes too fouled for further use.



Precursor Organic Compounds (POCs) are evolved as fugitive emissions from the spraying of the Part A & Part B reactants and from the cleaning operation using

dipropylene glycol monobutyl ether. Likewise, fugitive particulate matter (PM) emissions are created from overspray of the reacting Part A/Part B mixture and rebound of this mixture from the target surfaces. All emissions (POC and PM) are fugitive in nature because S-172 does not have a defined exhaust stack. The emission points are at the sources, which are in close proximity to each other, and consist of open pails of Part A & Part B materials and dipropylene glycol monobutyl ether cleaner, the spray gun nozzle & its emitted mixture stream, and the spray's target surfaces.

EMISSIONS CALCULATION

The pumps conveying the Part A and Part B materials to the mixer head at S-172 are each rated at 100 lbs/hr/pump, and the above materials are mixed at a ratio of 4.5:1 at the mixer.

Typical material usage:

OC will use about four gallons/day (~33 pounds/day) of Part A, one gallon/day (~11 pounds/day) of Part B and 0.1 gallons/day (~1 pound/day) of dipropylene glycol monobutyl ether cleaner. The training that utilizes the use of the above materials will be conducted one day per week for fifteen weeks per year, and each training session would be conducted over a four hour period i.e. 60 hours/year and 15 days/year.

Worst-case material usage:

Though unlikely, the worst-case calc assumes S-172 will be operated for 100 days/yr. As a result, S-172 would use 3,300 pounds/yr of Part A, 1,100 pounds/yr of Part B, and 100 pounds (~13 gallons/yr) of dipropylene glycol monobutyl ether cleaner.

Worst-Case POC Emissions

As previously discussed, pollutant emissions from S-172 consist of POCs liberated from the Part A / Part B mixture and from the dipropylene glycol monobutyl ether cleaner, and PM emissions that evolves from the sprayed and reacting Part A / Part B mixture.

The POC emission rate from the dipropylene glycol monobutyl ether cleaner is calculated based on Fick's Law or

$$N = \frac{(A)(D_m)[\ln(1-y)]}{B \quad [\ (1-y_i)]}$$

where N = the diffusion rate in moles per hour of the dipropylene glycol monobutyl ether

D_m = the molar diffusivity of dipropylene glycol monobutyl ether which is conservatively estimated to be equal to that of ethyl ether's which is 0.00084 moles/ft.hr. Dipropylene glycol monobutyl ether (MW = 190.3, TVP = 0.06 mmHg @ 68 ^{o}F) is a larger, less volatile molecule than ethyl ether (MW = 74.1, TVP = 440 mmHg @ 68 ^{o}F) so using the diffusivity of ethyl ether will result in

a conservative, over stated POC emission rate.

B = the distance over which the concentration gradient between y and y_i is determined which is conservatively estimated at 4 inches or 0.33 feet minimum.

Higher, more common values of B will decrease the cleaner's POC emissions.

A = the exposed surface area of liquid cleaner which is estimated to be equal to that of three open top five gallon pails or 5.3 square feet

y = the concentration of dipropylene glycol monobutyl ether in the ambient air 4 inches above its liquid surface which is conservatively estimated to be 0%

y_i = the concentration of dipropylene glycol monobutyl ether at its liquid/air interface which is estimated from its pure vapor pressure at 68^oF (0.06 mmHg) and the ideal gas law at 0.06/760 = 0.000079

In light of the above, the POC emissions resulting from the proposed use of dipropylene glycol monobutyl ether cleaner are equal to:

$$\frac{5.3\ ft^2}{0.33\ ft} \times \frac{0.00084\ moles}{feet - hour} \times [\ln(1.0-0)/(1.0-0.000079)] \times 190.3\frac{lbs}{mole} \times 4\frac{hr}{day} = 0.0008\ lbs/day$$

POC emissions associated from using the mixture of Part A and Part B materials were estimated from in-house tests performed by OC's contractor. These tests, which indicate higher-than-expected POC generation rates because they were performed at temperatures that were higher than the actual Part A / Part B mixture temperatures, yielded the results (~emission rate of each volatile) shown in the second column of Table 1.

Table 1:

POC	Lbs POC / Lbs Mixture
Acetone	0.0000100
2 methyl 2 propanol	0.0000285
Benzene	0.0000010
1-butanol	0.0000305
Toluene	0.0000235
Butyl acetate	0.0000500
1,1 oxybutane	0.0000115
Butylpropanoate	0.0000040
Butylbutanoate	0.0000010

The duration of the training sessions under both the "typical" and "worst-case" scenarios will remain the same i.e. 4 hours/day. However, the annual emissions estimated in Table 2 under the above two scenarios assume S-172 will be operated for 15 days/yr (under the typical scenario) and for 100 days/yr (under the worst-case scenario).

Table 2:				
POC	Typical emissions		Worst-case emissions	
	Lbs/day	Lbs/year	Lbs/day	Lbs/year
Acetone	4.4E-04	0.007	4.4E-04	0.044
2 methyl 2 propanol	1.3E-03	0.019	1.3E-03	0.125
Benzene	4.4E-05	0.001	4.4E-05	0.004
1-butanol	1.3E-03	0.020	1.3E-03	0.134
Toluene	1.0E-03	0.016	1.0E-03	0.103
Butyl acetate	2.2E-03	0.033	2.2E-03	0.220
1,1 oxybutane	5.1E-04	0.008	5.1E-04	0.051
Butylpropanoate	1.8E-04	0.003	1.8E-04	0.018
Butylbutanoate	4.4E-05	0.001	4.4E-05	0.004
Total	**0.0070**	**0.106**	**0.0070**	**0.70**

In light of information summarized in Table 2 above and the POC emissions resulting from the use of the dipropylene glycol monobutyl ether cleaner (~0.0008 lbs/day), the "typical" and "worst-case" POC emissions from S-172 are 0.12 lbs/yr[1] and 0.78 lbs/yr[2], respectively.

Worst-Case PM Emissions

The process that is used to spray the Energy Complete® Foam Sealant mixture at S-172 generates a high velocity stream of a liquid mixture that is ejected from a spray nozzle onto a target area. Liquid aerosol particles evolve from the spray as it travels from the nozzle to the target area and additional particles are generated when a portion of the spray strikes the target and rebounds into the air. Neither US EPA AP-42 nor available industry literature provides any guidance that is directly applicable to the calculation of a PM emission rate. However, there is some data available that can be used to produce a credible estimate.

Table 4-2 on page 4-5 of an US EPA document entitled "Emission Factor Documentation for AP-42 Section 13.2.6 Abrasive Blasting - Final Report" dated September 1997 lists a time weighted PM average concentration of 257.61 mg/m^3 (~0.112 grains/ft^3)[3] for a sample location 5 feet downwind of an outdoor blasting operation of steel panels coated with lead based paint. Table 13.2.6-1 in US AP-42 Chapter 13.2.6 "Abrasive Blasting" lists several emission factors associated with sand blasting of mild steel panels at varying wind speeds. The highest PM emission factor in the above table of 91 lb/1,000 lb abrasive is associated with a wind speed of 15 mph. Assuming the abrasive is representative of the Energy Complete® Foam Sealant mixture and dividing the highest PM emission factor by the time weighted PM average concentration yields an emission factor as shown below:

$$\frac{91 \text{ lbs PM}}{1{,}000 \text{ lbs mixture}} \times \frac{\text{cubic feet of air}}{0.112 \text{ grains PM}} = 0.813 \frac{\text{lbs PM-ft}^3 \text{ air}}{\text{lbs mixture-grains PM}}$$

[1] Combined typical POC emissions = 0.0008 + 0.007 = 0.0078 lbs/day x 15 days/yr = 0.12 lbs/yr
[2] Combined worst-case POC emissions = 0.0008 + 0.007 = 0.0078 lbs/day x 100 days/yr = 0.78 lbs/yr
[3] 0.112 grains/ft^3 = 257.61 mg/m^3 x 1 grain/65 mg x 1 m^3/35.315 ft^3

Based on measurements taken by OC when foam spraying operations similar to those proposed at S-172 were in progress, the highest of indoor ambient air PM concentrations recorded was 0.00041 grains/ft^3. Using the above PM concentration value in concert with the emission factor derived in the preceding step yields a PM emission rate (lbs of PM emitted per lb of mixture sprayed) as shown below:

$$\frac{0.813 \text{ lbs PM-ft}^3\text{air}}{\text{lbs mixture-gr. PM}} \times \frac{0.00041 \text{ gr. PM}}{\text{ft}^3\text{air}} = \frac{0.00033 \text{ lbs PM}}{\text{lbs mixture}}$$

Since the quantity of materials used (~44 pounds/day) and the duration of the training sessions (~4 hours/day) would remain the same on a daily basis under both the "typical" and "worst-case" scenarios, the daily PM emissions associated with the use of the Part A / Part B Energy Complete® Foam Sealant mixture under the above scenarios is 0.015 lbs/day.
Because S-172 will be operated for 15 days/yr (under the typical scenario) and for 100 days/yr (under the worst-case scenario), the annual PM emissions are 0.23 lbs/yr (under the typical scenario) and 1.50 lbs/yr (under the worst-case scenario), respectively.

The above PM estimate is conservative because unlike unconfined abrasive blasting (source of emission factors used) the operations at S-172 will take place in a shed-like structure that has a roof and three walls, which would minimally be subject to wind. The net effect of the above would result in reduced particle momentum and reduced rebound particulate generating potential. Also, unlike abrasives used in abrasive blasting, the Part A / Part B Energy Complete® Foam Sealant mixture when sprayed would travel at a lower velocity carrying a material of a lesser density.

TOXIC RISK SCREEN ANALYSIS

Of the POCs summarized in Table's 1 and 2 above, Table 2-5-1 in the District's Regulation 2, Rule 5 "New Source Review of Toxic Air Contaminants" has established Toxic Air Contaminant (TAC) trigger levels for benzene and toluene. The Acute and Chronic TAC Trigger Levels (TTL) for benzene in the above table are 2.9 lbs/hr and 6.4 lbs/year, respectively. Likewise, the acute and chronic TAC TTL for toluene in the above table are 82 lbs/hr and 12,000 lbs/yr, respectively. Assuming S-172 operates for 4 hours per day (under both the typical and worst-case scenarios), it can be seen from Table 2 that the hourly emissions of benzene and toluene are 0.000011 lbs/hr and 0.00025 lbs/hr, respectively. Likewise, it can also be seen from Table 2 above that the worst-case annual emissions of benzene and toluene from S-172 are 0.004 lbs/yr and 0.103 lbs/yr, respectively. Since the above hourly and annual TAC emissions for the above compounds are below their corresponding Acute and Chronic TAC TTL, a Toxic Health Risk Screening Analysis is not warranted.

CUMULATIVE INCREASE

Assuming the worst-case scenario, the installation and subsequent operation of S-172 will result in a cumulative increase of 0.0004 TPY (0.78 lbs/yr) of POC emissions and 0.0008 TPY (1.50 lbs/yr) of PM_{10} emissions.

OFFSETS

POC and PM_{10} are the pollutants of interest for the purposes of determining whether offsets are warranted for this application. The requirement to offset POC emission increases from a new/modified source and any pre-existing cumulative increase at a 1.15 :1 ratio is triggered when the Actual plant emissions and the "Post-Project" Permitted plant emissions are greater than 35 TPY. In addition, the requirement to offset emissions from a new/modified source and any pre-existing cumulative increase at a 1 : 1 ratio is triggered when the Actual plant emissions and the "Post-Project" Permitted plant emissions are greater than 10 TPY but less than 35 TPY. OC had previously offset 1.598 tons of POC emissions under Application 16775 by surrendering Emission Reduction Credits (ERCs) #563 (for 1.245 tons) and #1049 (for 4.753 tons). The 1.598 tons was inclusive of 0.288 tons of pre-1991 emission increase. Though the pre-1991 POC emission increase was offset under the above application, it continues to show up in the District's database. This evaluation report assumes the District's database needs to be updated to indicate that the pre-1991 POC emission is zero (~fully offset).

Ideally, offsets would have been warranted at a 1 :1 ratio for any increase in POC emissions at OC because the Actual plant POC emissions (~17.10 tons) is greater than 10 TPY but less than 35 TPY. Because the proposed increase of 0.0004 tons of POC emissions associated with the installation and subsequent operation of S-172 is too small of an increase (~insignificant), ERC #1083 that OC surrendered with this application will be returned back to them as is.

Please note that per Section 414 in Regulation 2 "Permits", Rule 4 "Emissions Banking" and assuming the increase in POC emissions was significant, had OC not held ERC Certificates, they would have been eligible for credits from the District's Small Facility Banking Account. Since OC holds banked emission reduction credits, those credits must be used as a source of offsets prior to the APCO approving offsets from the small facility banking account (this includes bankable emission reduction credits held by other District facilities owned by the applicant). In light of the above, OC must use any banked credits it owns first for projects that warrant offsets.

Per Regulation 2-2-303 an increase in SO_2 and PM_{10} emissions from a new or modified source at a Major Facility (such as OC) needs to be offset only if the cumulative increase in emissions for the above pollutants minus any contemporaneous emission reduction credits provided by a facility for that pollutants since April 5, 1991 exceeds 1 TPY. As it currently exists, there are no pre-1991 PM_{10} emission increases at OC. However, OC did not offset a post-1991 PM_{10} increase of 1.333 tons that was part of Application 11107[4]. Since the sources (S-151 through S-154) that were part of the above application no longer operate at OC and were archived in the District's database in June 2001, this evaluation report assumes the post-1991 PM_{10} emission is zero. In light of the above and because the cumulative increase of 0.0008 tons of PM_{10}

[4] Application 11107 – AC granted March 16, 1994 and PO granted October 10, 1996.

emissions is below the 1 TPY offset trigger, OC will not be required to offset the increase in PM_{10} emissions associated with the proposed installation and subsequent operation of S-172.

In light of the above and for the purposes of this application it is assumed that the cumulative increase in POC and PM_{10} emissions is zero. Please refer to Table 3.

Table 3					
Pollutant	***"Pre-Project" Permitted plant emissions (TPY)***	**Actual plant emissions[5] (TPY)**	***Increase in plant emissions associated with this application* (TPY)**	**"Post-Project" Permitted plant emissions (TPY)**	**Regulation 2-2-302 and 2-2-303 Offset Triggers (TPY)**
POC	***0***	***17.10***	***0.00***	***0.00***	***> 35***
PM_{10}	***0***	***168.08***	***0.00***	***0.00***	***> 1***

BACT

Per Regulation 2, Rule 2, Section 301, BACT is only triggered if emissions from a new source or an increase in emissions from a modified source has the potential to emit 10 lbs or more per highest day of emissions. Assuming the "worst-case" scenario, the installation and subsequent operation of S-172 will result in 0.0078 lbs/day of POC emissions and 0.015 lbs of PM_{10} emissions. Therefore, BACT is not triggered because the highest daily emissions for POC and PM_{10} are below the 10 lbs/day BACT trigger level.

STATEMENT OF COMPLIANCE

Source S-172 is potentially subject to the requirements of Regulation 8 "Organic Compound", Rule 51 "Adhesive and Sealant Products". However, the following calc will demonstrate that the Energy Complete® Foam sealant, which will be used at the above source, qualifies for the "Low VOC Adhesive or Sealant Products" exemption in Section 115 of the above rule which exempts adhesives or sealants with a VOC content less than 20 grams per liter of VOC.

The product densities of the Part A and Part B Energy Complete® Foam Sealant mixture are 8.25 lbs/gal and 11 lbs/gal, respectively. Assuming the worst-case scenario, the total quantity of Part A and Part B that will be used at S-172 would be 44 lbs/day i.e. 33 pounds (~4 gallons) of Part A and 11 pounds (~1 gallon) of Part B. The worst-case POC emissions resulting from the use of the above products at S-172 is 0.007 lbs/day. Therefore, the VOC content of the sealant is 0.0014 lbs/gallon i.e. 0.007/4+1. The above VOC content of the sealant translates to 0.17 grams per liter of VOC.[6]

It can be seen from the above calc that the VOC content of the sealant that will be used at source

[5] Db → q2 →p → all

[6] VOC content (g/L) = (0.0014 lb/gal) x (119.95) = 0.17 lbs/gallon

S-172 is less than 20 grams/Liter. Therefore, per Section 115 the operations at the above sources are exempt from Regulation 8, Rule 51.

Per Section 101 in Regulation 8, Rule 51, S-172 is subject to the provisions of Regulation 8 "Organic Compound", Rule 4 "General Solvent and Surface Coating Operations". Section 207 in the above rule defines surface coating as "Any paint, lacquer, varnish, ink, adhesive or similar material." OC will be required to comply with the "Solvents and Surface Coating Requirements" contained in Section 302 of the above rule. Section 302 requires the owner/operator of a source(s) to comply with one or more of the requirements outlined in Sections 302.1 through 302.3. As proposed, the operations at S-172 will comply with Section 302.1 because the VOC emissions from the above source will be less than 5 tons in any calendar year (0.0004 tons/year).

Organic solvents, such as dipropylene glycol monobutyl ether, may be used for cleanup at
S-172 provided the cleaner complies with the product limit of 50 g/L (0.42 lb/gal) in Section 312.2, or a gun washer that complies with Regulation 8, Rule 16, is used or the "solvent is pressurized though spray equipment with atomizing air off or dispensed from a small non-atomizing container, and collected and stored in a closed container until recycled or properly disposed of offsite."

If the applicant dilutes the solvent, a 5% by wt. aqueous solution of dipropylene glycol monobutyl ether (DGME) cleaner would comply with the above VOC limit as discussed below.

Assume that the aqueous solution is made up of 5% by wt. DGME and 95% by wt. water. Therefore, 100 lbs of solution (mixture of DGME and water) would contain 5 lbs of DGME and
95 lbs of water. Assuming the volumes remain constant when DGME and water are mixed (which is true at standard conditions), the individual volumes of the above liquids in the final mixture can be derived by dividing by their respective product densities:
(5 lbs DGME)/(7.64 lbs DGME/gal DGME) = 0.65 gal DGME; and
(95 lbs H_2O)/(8.34 lbs H_2O/gal H_2O) = 11.39 gal H_2O
Total solvent mixture = 0.65 + 11.39 = 12.04 gal solution

Therefore, the VOC content of the aqueous DGME solution is equal to
= (5 lbs DGME)/(12.04 gal solution)
= 0.42 lbs VOC/gal
Routine inspections conducted by the District's enforcement staff would confirm compliance of the aqueous DGME solution used at S-172 with the requirements in Section 312 of Regulation 8,
Rule 4.

The applicant may also use a gun washer and/or send solvent through the lines with atomizing air off and collect and store the solvent in a closed container. This is the mode of operation described by the applicant. The permit conditions will allow all of these methods of compliance.

The applicant has not stated that solvent will be used for surface preparation. However, solvent diluted as shown above would also comply with the surface preparation standard in Section 313 of Regulation 8, Rule 4.

The California Environmental Quality Act (CEQA):

Per Section 2-1-311 of the District Rules and Regulations, a permit application for a proposed new or modified source will be classified as ministerial and will accordingly be exempt from the CEQA requirement of Section 2-1-310 if the District's engineering evaluation and basis for approval of the permit application for the project is limited to the criteria set forth in Section 2-1-428 and to the procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook. The method for determining whether a given permit application will be classified as ministerial is set forth in Section 2-1-427.

Per Section 2-1-427, if the District determines that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook, the District's evaluation of the permit application is classified as ministerial and the engineering evaluation of the permit application by the District will be limited to the use of said specific procedures, fixed standards and objective measurements. For such projects, the District will merely apply the law to the facts as presented in the permit application, and the District's decision regarding whether to issue the permit will be based only on the criteria set forth in Section 2-1-428 and in the District's Permit Handbook and BACT/TBACT Workbook.

For this permit application, the District determined that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook Chapter 5.1 “Spray Booths and Spray Guns”. Since the District classified this permit application as ministerial pursuant to Section 2-1-427, and as a result of its evaluation of the permit application, the District determined that all of the criteria for approval of ministerial permit applications pursuant to Section 2-1-428 were met, the issuance by the District of an Authority to Construct and Permit to Operate for the proposed project is a mandatory ministerial duty and is accordingly exempt from the CEQA requirement of Section 2-1-310.

PSD, NSPS and NESHAPS are not applicable to this project.

PERMIT CONDITIONS

(PC 24404)

1. The owner/operator shall ensure that the total quantity of Part A / Part B Energy Complete® Foam Sealant mixture and dipropylene glycol monobutyl ether cleaner used at source S-172 in any consecutive twelve month period does not exceed 2.20 tons per year and 13 gallons per year, respectively.
   (Basis: Regulation 2-1-403)

2. The owner/operator shall ensure that emissions of POC and PM10 from S-172 do not exceed 10 pounds per highest day per pollutant. (Basis: Regulation 2-1-106.1)

3. The owner/operator may use sealants other than the Energy Complete® Foam Sealant and/or solvents other than the dipropylene glycol monobutyl ether cleaner at S-172 in excess of the throughput limit specified in part 1 of this permit condition, provided the owner/operator can demonstrate that all of the following are satisfied:

   a. Total POC emissions from S-172 does not exceed 0.0004 tons (0.78 pounds) in any consecutive twelve month period; and

   b. The use of the sealants/cleaners does not result in Toxic Air Contaminant (TAC) emissions above District established Chronic TAC Trigger Levels outlined in Table 2-5-1 in Regulation 2, Rule 5 for a given TAC, or a group of TAC's.
   (Basis: Regulation 2-1-403, Toxics)

4. The owner/operator of S-172 shall not use solvents or apply surface coatings unless one or more of the following requirements are satisfied:

   a. The owner/operator shall not emit more than 4,533 kg (5 tons) of volatile organic compounds (VOC) from any source during any calendar year; or

   b. The owner/operator shall ensure emissions are controlled by an approved emission control system with an overall abatement efficiency of 85% on a mass basis. If reduction is achieved by incineration, at least 90% by weight of the organic compound emissions shall be oxidized to carbon dioxide; or

   c. The owner/operator shall use coatings with a VOC content less than or equal to 420 grams per liter (3.5 lb/gal) of coating as applied.

   (Basis: Regulation 8-4-302)

5. Unless emissions to the atmosphere are controlled by an approved emission control system with an overall abatement efficiency of at least 85%, the owner/operator shall not use organic solvents for surface preparation and cleanup, and/or mix, use, or dispose of the organic solvents unless:
   a. Closed containers are used for the storage or disposal of cloth or paper used for solvent surface preparation and cleanup.
   b. For cleanup, comply with one of the following
      the VOC content of the solvent is 50 g/l (0.42 lb/gal) or less or;
      i. solvent is pressurized though spray equipment with atomizing air off or dispensed from a small non-atomizing container, and collected and stored in a closed container until recycled or properly disposed of offsite, or
      ii. a spray gun washer subject to and in compliance with the requirements of Regulation 8, Rule 16 is used.

c. Solvent used for surface preparation must have a the VOC content of the solvent is 50 g/l (0.42 lb/gal) or less.
d. Containers containing solvents or coatings are closed when not in use. (Basis: Regulation 8-4-313)

6. In order to determine compliance with the above conditions, the owner/operator of S-172 shall maintain the following records in a District approved log:
   a. A current list of sealants and solvents in use that provide all of the data necessary to evaluate compliance, such as but not limited to the VOC content and density of the sealant and the VOC content of solvent.
   b. Record on an annual basis the quantity of sealant applied used.
   c. If applicable, record the air pollution abatement equipment key system operating parameters on a daily basis.
   d. Record, on a monthly basis, the solvents used for surface preparation and clean up.

   The owner/operator shall retain all records on-site for at least five years from the date of entry and the records shall be made available for inspection by District staff upon request. The above record keeping requirements shall not replace the record keeping requirements contained in any applicable District regulations. (Basis: Regulation 2-1-403, Regulation 8-4-501)

RECOMMENDATION

Waive the AC, and issue OC a PO for the following equipment:

S-172 Energy Complete® Foam Sealant Spray System

_____
K. R. Bhagavan

ENGINEERING EVALUATION (Amended July 14th, 2011)
Owens Corning Insulating Systems, LLC, Plant: 41
Application: 21631

BACKGROUND

Owens Corning Insulating Systems, LLC (OCIS) manufactures wool fiberglass at its two Rotary Spin (RS) manufacturing lines in Santa Clara – "M" and "O". A cold top electric furnace is located upstream of each RS line, and each RS line consists of three sections: forming, curing, and cooling. Sources that make up the "M" line are S-1 (the furnace), S-2 (the forming section), S-3 (the curing section), and S-4 (the cooling section). Likewise, the "O" line consists of S-19 (the furnace), S-20 (the forming section), S-21 (the curing section), and S-22 (the cooling section).

OCIS currently uses a phenol-formaldehyde based binder system at each of its two forming sections (S-2 and S-20). Under this permit application (# 21631), OCIS has requested an Authority to Construct (AC) that would permit the use of a starch-based binder as a replacement to the existing phenol-formaldehyde based binder at S-2 and S-20. When permitted, the use of the starch-based binder is expected to affect the following existing sources ("affected sources"):

S-2: "M" Forming – Rotary Spin, Firing Natural Gas; 13 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Emissions from S-2 are not abated

S-3: "M" Curing Oven, Firing Natural Gas; 18.4 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Abated by charge and discharge incinerators A-5 and A-6, respectively and air action cyclone scrubber (A-101) and high performance air filter (A-102).

S-4: "M" Cooling,
Bare molten glass: 6 tons/hr; 144 TPD
Abated by high efficiency air filtration system A-7

S-20: "O" Forming – Rotary Spin, Firing Natural Gas; 17 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Emissions from S-20 are not abated

S-21: "O" Curing Oven, Firing Natural Gas; 16 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Abated by oven incinerator A-25, air action cyclone scrubber (A-99) and high performance air filter (A-100).

S-22: "O" Cooling,
Bare molten glass: 6 tons/hr; 144 TPD
Abated by scrubber A-26.

The use of the starch-based binder will also require installation of new tanks for storing the starch-based binder related materials, mixing and circulating binder, and storing and circulating water that washes equipment and provides reclaimable binder solids. The new tanks were previously reviewed and deemed exempt from requiring a permit under Application 21947, and are not discussed any further in this document. Instead, the scope of this evaluation report (# 21631) is limited to evaluating emissions from S-2 through S-4, and S-20 through S-22, to determine whether the change to the binder will be an alteration or modification of the affected sources.

EMISSIONS CALCULATIONS

Prior to issuing an Authority to Construct for the proposed project, the District must examine pre- and post-project emissions to determine whether the project would trigger requirements under District Regulation 2-2, such as Prevention of Significant Deterioration (PSD); Best Available Control Technology (BACT); Best Available Control Technology for toxic air contaminants (TBACT); and emissions offsets. The triggers of the various rules differ, but in all cases the critical determination is whether the proposed project results in an increase in emissions.

For example, under Regulation 2-2-302, BACT must be applied to emissions of precursor organic compounds (POC), non-precursor organic compounds (NPOC), nitrogen oxides (NO_x), sulfur dioxide (SO2), particulate matter (PM10) or carbon monoxide (CO) from a modified source if the modification: (1) results in an increase in emissions from the modified source; and (2) the source has the potential to emit 10.0 pounds or more per highest day of the pollutant. BACT shall be applied for any of the above pollutants that meets both criteria.

Examining post-project emissions is also necessary to determine whether the health risks posed by the proposed project would comply with the project risk limits outlined in Reg. 2-5-302.

The below sections first discuss how the District calculated pre- and post-project emissions. The results of those calculations are presented in the tables. Subsequent sections then discuss whether any requirements under District Regulation 2-2 were triggered.

For this proposed project, the pollutants of interest under Regulation 2-2, and for which the District calculated pre- and post-project emissions, were the following: NO_x; SO2; PM (filterable, condensable, and total); CO; POCs, Phenol; Formaldehyde; Methanol; Ammonia; Ethanol; and Acetaldehyde.

Pre-Project (Baseline Actual) Emissions

In calculating pre-project baseline actual emissions, the District drew from the following sources of data: (1) Source test data from various source tests that were conducted by OCIS between 2007 and 2010, and which were approved by the District's source test division; and (2) Actual production and operating data from 2004-06 or 2007-09 that was submitted by OCIS for the facility.

With respect to the source test data, OCIS conducted source tests on the "M" and "O" lines in the October 2007 through February 2009 timeframe to demonstrate compliance with the PM and formaldehyde standards in MACT NNN. Therefore, the District's Source Test Section (STS) memoranda pertaining to those tests do not contain any information on CO emissions. By contrast, OCIS conducted source tests in December 2009 and February 2010 on the "O" line sources specifically to establish a pre-project baseline. Therefore, CO (among other criteria and toxic air contaminants) was also quantified during the December 2009 test.

1. *NO_x and SO_2*

Regulations 2-2-604 and 605 provide the general procedure for calculating pre-project baseline emissions from modified sources. The District is to use the actual emission rate and throughput data from the baseline period consisting of the 3 year period immediately preceding the date that the application is complete. Here, the baseline period was 2007-09.

OCIS conducted a source test on December 8 and 9, 2009, at S-20, S-21, and S-22 of the "O" line to estimate the hourly, daily, and annual emission rates of nitrogen oxides (NO_x) and sulfur dioxide (SO_2) (as well as other pollutants, which are discussed separately below). The District Source Test Section reviewed and approved the results of these tests, under OS-3179 through 3182. To calculate pre-project baseline emissions of NO_x and SO_2 from the "O" line sources S-20, S-21, and S-22, the District then used emission factors (in lbs/ton of glass pulled) derived from the above source tests in concert with actual production data (such as the glass pull rate in tons/year) and actual operating data (days/year and hours/year) gathered by OCIS over the baseline period 2007-09.

Tables 2 through 6 of the Attachment summarize the results of the District's baseline emission calculations.

During the tests, the concentrations of NO_x and SO_2 measured below the detection limit of 2 ppm at each of the four zones at the "O" line forming section (S-20). Because the concentrations were below the detection limit, NO_x and SO_2 emissions were not quantified during the test. However, OCIS states that actual emissions, though de minimus, are not in fact zero. To establish a reasonable baseline, rather than assume that emissions were zero, the District assumed emissions at the detection limit (2 ppm). Then, using a total ~~an average~~ stack flow rate of ~~21,698~~86,793 dscfm that was measured during the test, *NOx and SO2 emission rates* were calculated as follows:

= (2*~~21,698~~86,793*60*46)/(1,000,000*386.9) = ~~0.3096~~1.2383 lbs of NO_x/hr and
= (2*~~21,698~~86,793*60*64)/(1,000,000*386.9) = ~~0.4307~~1.7228 lbs of SO_2/hr

Where:
2 = concentration in ppm (assumed)
~~21,698~~86,793 = combined ~~average~~ stack flow rate in dscfm exhausting from Zones A, B, C, & D at the "O" line forming section.

60 = minutes/hr
46 = Molecular weight of NO2
64 = Molecular weight of SO2
386.9 = standard cubic feet of gas in one mole of gas

The *glass pull (g.p.) rate* during the December 2009 tests was = 5.955 tons/hr. Therefore, the NO_x and SO_2 emission factors (EFs) in a pounds per ton of glass pulled basis are ~~0.0520~~0.2079 lbs of NOx/ton of g.p. and ~~0.0723~~0.2893 lbs of SO2/ton of g.p., respectively.

Annual NOx emissions were derived by multiplying the above NOx EF by the average glass pulled during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) at the O-line as follows:
= (0.~~0520~~ 2079 lbs of NOx/ton of g.p.) x (41,166 TPY) = ~~2,140.63~~8,560.23 lbs of NOx/yr (~~1.07~~4.28 TPY)

Daily NOx emissions were obtained by dividing the annual NOx emissions derived from the above step by the average number of days per year the O-line operated during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) as follows:
= (~~2,140.63~~8,560.23 lbs of NOx/yr) ÷ (309 days/yr) = ~~6.92~~27.68 lbs of NOx/day

Annual SO2 emissions were derived by multiplying the above SO2 EF by the average glass pulled during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) at the O-line as follows:
= (~~0.0723~~ 0.2893 lbs of SO2/ton of g.p.) x (41,166 TPY) = ~~2,977.47~~11,909.89 lbs of SO2/yr (~~1.49~~5.95 TPY)

Daily SO2 emissions was obtained by dividing the annual SO2 emissions derived from the above step by the actual average number of days per year the O-line operated during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) as follows:
= (~~2,977.47~~11,909.89 lbs of ~~NOx~~SO2/yr) ÷ (309 days/yr) = ~~9.63~~38.51 lbs of SO2/day

With respect to the smaller "M" line, rather than require a separate source test, the District accepted the test results for "O" as representative of "M" emissions. The District then normalized the "O" source test results to the "M" line by comparing OCIS's original estimates for emissions from the two lines. For example, the 30.68 TPY of NOx emissions for the "M" line curing section (S-3) summarized in Table 28 of the Attachment was calculated as follows:

District's baseline estimate for the "O" line based on the December 2009 source tests and 2007-09 actual production and operational data, as discussed above = 42.93 TPY (see Table 29)

OCIS's baseline estimate for the "M" line based on process knowledge = 29.45 TPY (see Table 30)

OCIS's baseline estimate for the "O" line based on process knowledge = 41.22 TPY (see Table 31)

Therefore, by solving for the unknown, the District's baseline estimate for the "M" line is
= (29.45 x 42.93) ÷ (41.22) = 30.68 TPY.

2. Particulate Matter, CO and POCs

As discussed above, Regulation 2-2-604 and 605 provide the general procedure for calculating pre-project emissions from a modified source. However, the "M" and "O" line sources (S-2 through S-4 and S-20 through S-22), are "grandfathered sources" that have never before been issued a District AC and do not currently have any conditions limiting daily or annual emissions. For grandfathered sources, Regulation 2-1-234.3 provides a formula to determine whether the affected source is "modified" at all. For such a source, there is no modification if post-project emissions do not exceed the lower of: (1) the highest of the following: (a) the highest attainable design capacity; (b) the capacity listed in the District permit to operate; and (c) the highest documented actual levels attained by the source prior to March 1, 2000; and (2) the capacity of the source, as limited by the capacity of any upstream or downstream process that acts as a bottleneck.

For PM, CO and POCs, OCIS requested calculating pre-project emissions using actual production and operating data from the years 2004-06 ("alternative baseline"; the 2004-06 data are summarized in Table 1.b. of the Attachment). For the following reasons, the District concluded that pre-project baseline emissions calculated using the proposed 2004-06 data were equal to or less than (i.e., at least as or more conservative than) emissions calculated under Regulation 2-1-234.3. Thus, the District has granted the request and has calculated pre-project emissions for PM, CO and POCs using the 2004-06 data, as described in more detail below.

With respect to the first part of section 234.3's two-part test, the highest of the three values enumerated in section 234 is the "highest attainable design capacity" (section 234.3.1). OCIS has not submitted any data showing a higher capacity attained at sources S-2 through 4 and S-20 through 22 than the capacity attained from 2004-06, so the District has assumed that the 2004-06 data represents these sources' highest attainable design capacity. The second factor (section 234.3.2) does not apply because the capacities of these sources are not currently limited by any District permit. With respect to actual documented levels attained by the sources prior to March 1, 2000, emissions calculated using the 2004-06 data for PM were lower than the actual documented emissions prior to March 1, 2000. For CO and POCs, the District did not have sufficient data to calculate pre-2000 emissions for comparison to the 2004-06 values. In sum, the District has assumed that the highest of the three values enumerated in section 234 is the highest attainable design capacity estimated using the 2004-06 data.

Further, with respect to the second part of section 234.3's two-part test, the switch to the starch-based binder is not expected to debottleneck the "M" or "O" lines. To the extent the existing sources can be described as being bottlenecked, such bottlenecking is the result of OCIS's permitted throughput limit for the amount of bare molten glass that can be processed at the upstream furnaces S-1 and S-19. No other upstream or downstream process bottlenecks S-2 through S-4 or S-20 through 22. OCIS's permitted throughput limit is 6 tons per hour of bare molten glass per furnace (144 TPD per furnace), and this limit will not be increased as a result of the binder change. Thus, for the sources S-2 through 4, and S-20 through 22, the "bottlenecked" capacity is not lower than the actual attained capacity that was determined under the first part of the section 234.1 test.

a. PM

With respect to PM emissions from the "M" line sources S-2, S-3 and S-4, OCIS submitted source test data from tests conducted in October 2008 and February 2009 that STS reviewed and approved under OS-2628 (re-test for OS-2183), and OS-2184 through 2187. To calculate pre-project baseline emissions of PM from the "M" line (S-2, S-3 and S-4) under 2-1-234, the District then used emission factors (in lbs/ton of glass pulled) derived from the above source tests in concert with actual production and operating data gathered by OCIS over the alternative baseline period 2004-06.

With respect to PM emissions from the "O" line sources S-20, S-21, and S-22, OCIS submitted source test data from tests conducted in October 2007. OCIS also submitted PM data from the December 2009 source tests that had also tested for NO_x and SO_2 as described above. When the District's STS staff reviewed the results from the December 2009 source tests, however, they found that the as-tested PM emission rate from S-20 (reviewed under OS-3179) exceeded the allowable PM emission rate in Regulation 6-1-311. In response, OCIS re-tested S-20 for PM on February 17 and 18, 2010. STS staff reviewed the test results under OS-3348 & 3349 and determined that the as-tested PM emission rate of 12.775 lbs/hr from S-20, reviewed under OS-3348, was below the allowable PM emission rate of 19.80 lbs/hr, and that the as-tested PM emission rate of 14.783 lbs/hr from S-20, reviewed under OS-3349, was also below the allowable PM emission rate of 22.0 lbs/hr. Therefore, STS staff found emissions from the February 2010 re-test for PM at S-20 to be in compliance with Regulation 6-1-311. To calculate pre-project baseline emissions of PM from the "O" line (S-20, S-21 and S-22), the District then used emission factors derived from the October 2007 source test and February 2010 re-test in concert with actual production and operating data gathered by OCIS over the baseline period 2004-06.

The results of the District's calculations for PM are presented in Tables 7 through 14 of the Attachment.

To arrive at Total PM emissions, the District factored in both filterable and condensable PM. To take one example, the Total PM emissions of 89.20 TPY from S-2 in 2004 (summarized in Table 14 of the Attachment) were calculated as follows:

Filterable PM emission rate (average of 20.806 & 17.963) = 19.38 lb/hr
→ Refer to Tables 7, 8, and 11

Glass pull rate (average of 5.852 & 5.655) = 5.75 ton of g.p./hr → Refer to Tables 7 and 8

Filterable PM EF = 19.38 lb/hr ÷ 5.75 ton of g.p./hr = 3.369 lb/ton of g.p. → Refer to Table 11

Filterable PM emissions = 3.369 lb/ton of g.p. x 44,992 tons of g.p./yr (from Table 1.b.)
= 75.79 TPY → Refer to Table 28

Because the District's STS staff neither reviewed nor approved any of the condensable PM emissions information that was collected by OCIS via source tests OCIS conducted in the October 2007 through February 2009 timeframe, condensable PM emissions for the M and O lines for the above time period was quantified based on a percent ratio of condensable PM to filterable PM using the December 2009 and February 2010 source test data as a starting point. For example, the emission rate of condensable PM at S-2 during the February 2010 test was 12% of the filterable PM emission rate, i.e., (1.6535 ÷ 13.779) x 100%. The condensable PM emission rate of 2.50 lbs/hr from S-2 in October 2008, summarized in Table 7, was derived by multiplying the percent ratio of 12% by the filterable PM emission rate of 20.806 lbs/hr from the October 2008 test, which was reviewed and approved by the District's STS staff.

Condensable PM emission rate (average of 2.50 & 2.16) = 2.33 lb/hr
→ Refer to Tables 7, 8, and 11

Glass pull rate (average of 5.852 & 5.655) = 5.75 ton of g.p./hr → Refer to Tables 7 and 8

Condensable PM EF = 2.33 lb/hr ÷ 5.75 ton of g.p./hr = 0.404 lb/ton of g.p. → Refer to Table 11

Condensable PM emissions = 0.404 lb/ton of g.p. x 44,992 tons of g.p./yr (from Table 1.b.) = 9.10 TPY → Refer to Table 28

Total PM emissions = 75.79 + 9.10 = 84.89 TPY → Refer to Table 28

b. CO

With respect to CO emissions from "O", OCIS submitted data from the December 2009 source tests that had also tested for NO_x and SO_2 (and PM & POCs) as described above. To calculate pre-project baseline emissions of CO from the "O" line, the District used emission factors derived from those tests in concert with actual production and operating data gathered by OCIS over the baseline period 2004-06.

As with NO_x, SO_2, and PM, rather than require a separate source test for CO emissions from the "M" line, the District accepted the test results for "O" as also representative of "M" emissions, and then normalized the "O" source test results to the "M" line. Thus, for example, the CO emissions of 16.51 TPY from S-2 in 2004 (summarized in Table 16 of the Attachment) was calculated as follows:

CO emission rate from S-20 recorded during December 2009 test = 4.9 lb/hr

Glass pull rate recorded during December 2009 test = 5.955 ton of g.p./hr
CO EF = 4.9 lb/hr ÷ 5.955 ton of g.p./hr = 0.82 lb/ton of g.p. → Refer to Table 15

CO EF's for S-2 and S-20 OCIS provided with permit application
= 1.36 lb/ton of g.p (for S-2) and 1.60 lb/ton of g.p. (for S-20) → Refer to Table 15

Solving for the unknown, i.e., CO EF for S-2 = (1.36 x 0.82) ÷ 1.60 = 0.70 lb/ton of g.p.

CO emissions from S-2 = 0.70 lb/ton of g.p. x 47,279 tons of g.p./yr (from Table 1.b.) = 16.51 TPY → Refer to Table 16

c. *POCs*[1]

With respect to POC emissions from "O", OCIS submitted data from the December 2009 source tests that had also tested for NO_x, SO_2, PM & CO as described above. To calculate pre-project baseline emissions of POC from the "O" line, the District used emission factors derived from those tests in concert with actual production and operating data gathered by OCIS over the baseline period 2004-06. For example, the baseline POC emissions of 13.22 TPY from S-2 (summarized in Table 1) was calculated as follows:

POC emission rate from S-20 recorded during December 2009 test =5.72 lb/hr

Glass pull rate recorded during December 2009 test = 5.955 ton of g.p./hr
POC EF = 5.72 lb/hr ÷ 5.955 ton of g.p./hr = 0.96 lb/ton of g.p. → Refer to Table 17

The baseline POC emissions were derived by multiplying the above POC EF by the average glass pulled during the 2004-06 baseline period (refer to Table 1.b. of the Attachment) at the O-line as follows:
= (0.96 lbs of POC/ton of g.p.) x (50,893 TPY) = 48,857.28 lbs of POC/yr (24.43 TPY)

[1] The District recognizes that the VOCs determined via Method 5E during the December 2009 test are only a subset of non-methane hydrocarbons (NMHC) and that there could be other organics (such as alkanes) present in the exhaust stream. Method 5E's inability to detect hydrocarbons not trapped in its sampling train is a limitation of the test method. In light of the above and for the purposes of emission calculations summarized in this document it is assumed that VOCs determined via Method 5E are POCs.

Daily POC emissions was obtained by dividing the annual POC emissions derived from the above step by the average number of days the O-line operated during the 2004-06 baseline period (refer to Table 1.b. of the Attachment) as follows:
= (48,857.28 lbs of POC/yr) ÷ (354 days/yr) = 138.08 lbs of POC/day

With respect to the smaller "M" line, rather than require a separate source test, the District accepted the test results for "O" as also representative of "M" emissions. The District then normalized the "O" source test results to the "M" line by comparing OCIS's original estimates for emissions from the two lines. For example, the 13.22 TPY of POC emissions for the "M" line forming section (S-2) summarized in Table 28 of the Attachment was calculated as follows:

> District's baseline estimate for the "O" line based on the December 2009 source tests and 2004-06 actual production and operational data, as discussed above = 24.43 TPY (see Tables 2 & 29)
>
> OCIS's baseline estimate for the "M" line based on process knowledge = 17.38 TPY (see Table 30)
>
> OCIS's baseline estimate for the "O" line based on process knowledge = 32.12 TPY (see Table 31)
>
> Therefore, by solving for the unknown, the District's baseline estimate for the "M" line is
> = (17.38 x 24.43) ÷ (32.12) = 13.22 TPY. → Refer to Tables 1 & 28.

The POC limits summarized in Tables 1 & 2 below and also contained in permit condition 24873 are a reflection of the weight of the VOC carbon content in the exhaust stack flows sampled during the December 2009 test, which utilized "Method 5E total organic emissions as C1" (Method 5E). The post-project organic emissions will also be based on Method 5E. Any net change in POC emissions associated with the use of the new binder will be based on the inventory determined by using Method 5E.

3. Phenol, Formaldehyde, and Methanol

S-1 through S-4 and sources S-19 through S-22 are currently subject to 40 CFR Part 63, Subpart NNN, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Wool Fiberglass Manufacturing (MACT NNN) when using the phenol-formaldehyde binder. Aside from addressing emissions of metal hazardous air pollutants (HAPs), such as arsenic, chromium, and lead, this MACT rule also regulates three organic HAPs – phenol, formaldehyde, and methanol. Since the metal HAPs are emitted from the furnaces (S-1 & S-19), which are upstream of the forming (S-2 & S-20), curing (S-3 & S-21), and cooling (S-4 & S-22) sections and the proposed change in binder formulation is not expected to have an impact on furnace emissions, the December 2009 source test also evaluated the following organic HAP emissions from S-20 through S-22: phenol, formaldehyde, and methanol.

The District calculated emissions as follows. Taking phenol emissions from S-2 (of 5.17 TPY) and S-20 (of 7.81 TPY) summarized in Tables 19 & 28 and 20 & 29 of the Attachment as one example:

Phenol emission rate from S-20 recorded during December 2009 test = 2.26 lb/hr

Glass pull rate recorded during December 2009 test = 5.955 ton of g.p./hr
Phenol EF = 2.26 lb/hr ÷ 5.955 ton of g.p./hr = 0.38 lb/ton of g.p. → Refer to Table 18

Phenol emissions from S-20 = 0.38 lb/ton of g.p. x 41,166 tons of g.p./yr (from Table 1.a.) = 7.81 TPY → Refer to Table 20 and 29.

Phenol emissions for S-2 and S-20 OCIS provided with permit application = 4.60 TPY (for S-2) and 6.96 TPY (for S-20) → Refer to Tables 30 and 31

Solving for the unknown, i.e., Phenol emissions from S-2 = (4.60 x 7.81) ÷ 6.96 = 5.17 TPY → Refer to Tables 19 and 28

4. Ethanol, Acetaldehyde

Ethanol and Acetaldehyde were among the pollutants measured during OCIS's source test on December 8 and 9, 2009, at S-20, S-21, and S-22 of the "O" line. The District Source Test Section reviewed and approved the results of these tests under OS-3179 through 3182. To calculate pre-project baseline emissions of ethanol and acetaldehyde from the "O" line sources S-20, S-21, and S-22, the District then used emission factors (in lbs/ton of glass pulled) derived from the above source tests in concert with actual production data (such as the glass pull rate in tons/year) and operating data (days/year and hours/year) gathered by OCIS over the baseline period 2007-09.

Table 23 through 23.d. of the Attachment summarize the results of the District's baseline emission calculations. As with NO_x and SO_2, during the December 2009 test, the concentrations of ethanol and acetaldehyde measured at each of the four zones at the "O" line forming section (S-20) were less than the detection limit (0.1 ppm). Because the concentrations were below the detection limit, ethanol and acetaldehyde emissions were not quantified during the test. However, OCIS states that actual emissions, though de minimus, are not in fact zero. To establish a reasonable baseline, rather than assume that emissions were zero, the District assumed emissions at the detection limit (0.1 ppm). Then, using the combined ~~an average~~ stack flow rate of 86,793 ~~21,698~~ dscfm exhausting from Zones A, B, C, & D at the "O" line forming section measured during the test, *ethanol and acetaldehyde emission rates* (summarized in Table 23) were calculated as follows:

= (0.1*~~21,698~~86,793*60*46.07)/(1,000,000*386.9) = ~~0.0155~~0.0620 lbs of ethanol/hr and
= (0.1*~~21,698~~86,793*60*44.05)/(1,000,000*386.9) = ~~0.0148~~0.0593 lbs of acetaldehyde/hr

Where:
0.1 = concentration in ppm
60 = minutes/hr
46.07 = Molecular weight of ethanol
44.05 = Molecular weight of acetaldehyde
386.9 = standard cubic feet of gas in one mole of gas

The *glass pull rate* during the December 2009 test was = 5.955 tons/hr. Therefore, the ethanol and acetaldehyde EFs on a pounds per ton of glass pulled basis are ~~0.0026~~0.0104 lbs of ethanol/ton of g.p. and ~~0.0025~~ 0.0100lbs of acetaldehyde/ton of g.p., respectively.

Annual ethanol emissions were derived by multiplying the ethanol EF by the average glass pulled during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) at the O-line as follows:
= (~~0.0026~~0.0104 lbs of ethanol/ton of g.p.) x (41,166 TPY) = ~~107.17~~428.66 lbs of ethanol/yr (~~0.05~~ 0.21 TPY)

Daily ethanol emissions was obtained by dividing the annual ethanol emissions derived from the above step by the average number of days per year the O-line operated during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) as follows:
= (~~107.17~~428.66 lbs of ethanol/yr) ÷ (309 days/yr) = ~~0.35~~1.39 lbs of ethanol/day

Annual acetaldehyde emissions were derived by multiplying the acetaldehyde EF by the average glass pulled during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) at the O-line as follows:
= (~~0.0025~~0.0100 lbs of acetaldehyde/ton of g.p.) x (41,166 TPY) = ~~102.47~~409.87 lbs of acetaldehyde/yr (~~0.05~~0.21 TPY)

Daily acetaldehyde emissions was obtained by dividing the annual acetaldehyde emissions derived from the above step by the average number of days per year the O-line operated during the 2007-09 baseline period (refer to Table 1.a. of the Attachment) as follows:
= (~~102.47~~409.87 lbs of acetaldehyde/yr) ÷ (309 days/yr) = ~~0.33~~1.33 lbs of acetaldehyde/day

With respect to the smaller “M” line, rather than require a separate source test, the District accepted the test results for “O” as also representative of “M” emissions. The District then normalized the “O” source test results to the “M” line by comparing OCIS’s original estimates for emissions from the two lines. For example, the 0.07 TPY of acetaldehyde emissions for the “M” line curing section (S-3) summarized in Table 28 of the Attachment was calculated as follows:

District’s baseline estimate for the “O” line based on the December 2009 source tests and 2007-09 actual production and operational data, as discussed above = 0.03 TPY (see Tables 23.a. and 28)

OCIS's baseline estimate for the "M" line based on process knowledge = 0.04 TPY (see Table 30)

OCIS's baseline estimate for the "O" line based on process knowledge = 0.02 TPY (see Table 31)

Therefore, by solving for the unknown, the District's baseline estimate for the "M" line is
= (0.04 x 0.03) ÷ (0.02) = 0.07 TPY.

5. Ammonia

Ingredients such as lignin, urea, and ammonium sulphate used to formulate the phenol-formaldehyde binder all contribute to the formation of ammonia, so the December 2009 source test also quantified ammonia emissions from the "O" Line.

Because OCIS did not quantify "M" line ammonia emissions with their permit application, the District derived "M" line ammonia emissions by multiplying the ratio of the average hourly glass pull rates gathered over the baseline period (2007-09) at the "M" and "O" lines by the ammonia emissions quantified at the "O" line during the December 2009 source test.

For example, the 24.59 TPY of ammonia emissions summarized in Table 26 for the "M" line forming section was estimated by the District as follows:

Ammonia emission rate from S-20 recorded during December 2009 test =7.34 lb/hr

Glass pull rate recorded during December 2009 test = 5.955 ton of g.p./hr
Ammonia EF = 7.34 lb/hr ÷ 5.955 ton of g.p./hr = 1.233 lb/ton of g.p. → Refer to Table 24

Ammonia emissions from S-20 = 1.233 lb/ton of g.p. x 41,166 tons of g.p./yr (from Table 1.a.)
= 25.37 TPY → Refer to Table 27 and 29.

Average glass pull rates at the M and O lines in 2007-09
= 5.39 tons/hr (for M-line) and 5.56 tons/hr (for O-line) → Refer to Table 25

Ammonia emissions for S-2
= (5.39 ÷ 5.56) x 25.37 = 24.59 TPY → Refer to Tables 26 and 28

6. Summary of Pre-Project Emissions Baseline

Tables 1 and 2 below summarize the pre-project emissions baseline for the "M" and "O" lines, respectively, as calculated by the District for all pollutants discussed above.

Table 1:
Baseline Emissions for the M-Line

Pollutant	Forming Section S-2		Curing Section S-3		Cooling Section S-4	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	460.35	75.79	2.78	0.46	54.65	9.00
PM (C)	55.24	9.10	19.69	3.24	22.77	3.75
PM (F+C)	515.59	84.89	22.48	3.70	77.43	12.75
NOx	30.45 ~~7.61~~	3.76 ~~0.94~~	248.44	30.68	4.42	0.55
SO2	37.17 ~~9.29~~	4.59 ~~1.15~~	5.61	0.69	6.20	0.77
POC	94.40	13.22	5.33	0.75	18.36	2.55
CO	95.42	15.71	345.02	56.81	9.18	1.51
Phenol	42.13	5.17	2.84	0.35	2.05	0.25
Formaldehyde	18.19	2.23	0.34	0.04	4.27	0.52
Methanol	120.89	14.74	0.13	0.02	7.89	0.96
Ammonia	159.05	24.59	105.31	16.28	20.80	3.22
Ethanol	1.16 ~~0.29~~	0.14 ~~0.04~~	0.21	0.03	0.17	0.02
Acetaldehyde	1.33 ~~0.33~~	0.20 ~~0.05~~	0.57	0.07	0.73	0.09

Table 2:
Baseline Emissions for the O-Line

Pollutant	Forming Section S-20		Curing Section S-21		Cooling Section S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	415.03	73.44	19.83	3.51	18.74	3.32
PM (C)	49.80	8.81	140.27	24.82	7.81	1.38
PM (F+C)	464.84	82.25	160.11	28.33	26.54	4.70
NOx	27.68 ~~6.92~~	4.28 ~~1.07~~	277.64	42.93	5.33	0.82
SO2	38.51 ~~9.63~~	5.95 ~~1.49~~	5.81	0.90	6.36	0.98
POC	138.08	24.43	2.28	0.40	10.13	1.79
CO	117.92	20.87	451.58	79.91	12.07	2.14
Phenol	50.52	7.81	3.40	0.53	2.46	0.38
Formaldehyde	42.92	6.64	0.13	0.02	1.54	0.24
Methanol	142.39	22.02	0.16	0.02	9.30	1.44
Ammonia	164.08	25.37	108.64	16.80	21.46	3.32
Ethanol	1.39 ~~0.35~~	0.21 ~~0.05~~	0.21	0.03	0.23	0.04
Acetaldehyde	1.33 ~~0.33~~	0.20 ~~0.05~~	0.20	0.03	0.22	0.03

Post-Project Emissions Estimates

Since actual post-project emissions data cannot be collected until after the proposed project is implemented, for the purposes of this pre-project evaluation the District relied on source test data submitted by OCIS for its out-of-state facility in Eloy, Arizona that has already switched to the proposed starch-based binder. Supporting calculations provided by OCIS with its permit application accounted for scalability issues between the sources at the Eloy and Santa Clara facilities.

Tables 3 and 4 below summarize OCIS's post-project emission estimates for the "M" and "O" lines in Santa Clara. The tables include emission estimates for acrolein, a POC and toxic air contaminant (TAC). Although OCIS's pre-project source tests did not measure acrolein emissions, and the District has assumed that current emissions are zero, OCIS's data from the Eloy facility indicate that acrolein may be present in the curing section emissions at both the "M" and "O" lines when the new binder is used.

Table 3:
OCIS's estimated Post-Project emissions for the M-line

Pollutant	Forming Section S-2		Curing Section S-3		Cooling Section S-4	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	460.35	75.79	2.78	0.46	54.65	9.00
PM (C)	55.24	9.10	19.69	3.24	22.77	3.75
PM (F+C)	515.59	84.89	22.48	3.70	77.43	12.75
NOx	7.61	0.94	248.44	30.68	4.42	0.55
SO2	9.29	1.15	5.61	0.69	6.20	0.77
CO	95.42	15.71	345.02	56.81	9.18	1.51
Ammonia	159.05	24.59	105.31	16.28	20.80	3.22
POC	103.12	18.82	1.77	0.32	22.20	4.05
Phenol	0.00	0.00	0.00	0.00	0.00	0.00
Formaldehyde	2.41	0.44	0.14	0.03	0.52	0.09
Methanol	3.52	0.64	0.02	0.0040	0.60	0.11
Ethanol	41.05	7.49	0.0027	0.0005	0.00	0.00
Acetaldehyde	1.12	0.20	0.04	0.01	0.17	0.03
Acrolein	0.00	0.00	0.01	0.0015	0.00	0.00

Table 4:
OCIS's estimated Post-Project emissions for the O-line

Pollutant	Forming Section S-20		Curing Section S-21		Cooling Section S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	415.03	73.44	19.83	3.51	18.74	3.32
PM (C)	49.80	8.81	140.27	24.82	7.81	1.38
PM (F+C)	464.84	82.25	160.11	28.33	26.54	4.70
NOx	6.92	1.07	277.64	42.93	5.33	0.82
SO2	9.63	1.49	5.81	0.90	6.36	0.98
CO	117.92	20.87	451.58	79.91	12.07	2.14
Ammonia	164.08	25.37	108.64	16.80	21.46	3.32

Table 4: OCIS's estimated Post-Project emissions for the O-line						
Pollutant	Forming Section S-20		Curing Section S-21		Cooling Section S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
POC	124.81	22.78	2.15	0.39	25.11	4.58
Phenol	0.00	0.00	0.00	0.00	0.00	0.00
Formaldehyde	2.93	0.53	0.16	0.03	0.63	0.11
Methanol	4.29	0.78	0.03	0.0050	0.73	0.13
Ethanol	50.01	9.13	0.0055	0.0010	0.00	0.00
Acetaldehyde	1.36	0.25	0.05	0.01	0.21	0.04
Acrolein	0.00	0.00	0.01	0.0015	0.00	0.00

Comparing Pre- and Post-Project Emissions

Tables 5 and 6 below summarize the net change in emissions that is expected to occur according when using the new binder, i.e., post-project OCIS estimates versus pre-project District estimates.

In its application, OCIS states that it anticipates that emissions of the following pollutants will decrease or stay the same at Santa Clara after the switch to the new binder:

- *NO_x emissions will decrease.* The new binder does not contain the nitrogen-bearing compounds (ammonium sulfate and urea) that are in the current binder. In their place are compounds that do not contain any nitrogen. Removal of the nitrogen-bearing compounds also eliminates the formation of ammonia and NO_x in the curing oven incinerators from binder ingredients.

- *SO_2 emissions will decrease.* The new binder does not contain the sulfur bearing ammonium sulfate that is in the current binder and further does not contain any new chemical that contains sulfur in any amount greater than trace contaminant levels.

- *PM (F, C, F+C) and CO emissions should not be impacted.*

- *Ammonia emissions should decrease.*

As a result, for purposes of this evaluation, the District has assumed that there will be a no net increase from pre-project baseline emissions of NO_x, SO_2, PM (F, C, F+C), CO, and ammonia. In other words, the change to the new binder has been assumed to result in post-project emissions at or below the pre-project baseline emissions levels for these pollutants. To ensure that this will actually be the case, the District has incorporated the baseline emissions levels for these pollutants (as set forth in Tables 1 and 2) into enforceable permit conditions, which are reproduced at the end of this evaluation report. If OCIS's actual post-project emission rate (per ton of glass pulled) for any of these pollutants is higher than the pre-project emission rate, OCIS would

have to curtail production to comply with the permitted limits (or apply for a change to its permit).

With respect to the remaining pollutants that currently are emitted from the "M" and "O" lines—POC, phenol, formaldehyde, methanol, ethanol and acetaldehyde—the District's calculations, based on OCIS's production and operating data for Santa Clara and emissions data from Eloy, Arizona, suggest that use of the starch-based binder on the "M" line will result in:

- A net increase in the POC emission rate per ton of glass pulled from the forming and cooling sections;
- A net increase in ethanol from the forming section; and
- ~~A net increase in acetaldehyde from the forming section.~~

Likewise, the proposed use of the new binder on the "O" line is expected to result in:

- A net increase in the POC emission rate per ton of glass pulled from the cooling section;
- A net increase in ethanol from the forming section;
- A net increase in acetaldehyde from the forming and cooling sections; and
- A net increase in formaldehyde from the curing section.

Moreover, the data submitted by OCIS from its Eloy facility indicate that acrolein emissions, though currently assumed to be zero, will be emitted from the curing sections of "M" and "O" when the starch-based binder is used.

Table 5:
Net Change in Emissions at the M-line

Pollutant	Scenario	Forming Section S-2		Scenario	Curing Section S-3		Scenario	Cooling Section S-4	
		lbs/day	TPY		lbs/day	TPY		lbs/day	TPY
PM (F)	Post-Project	460.35	75.79	Post-Project	2.78	0.46	Post-Project	54.65	9.00
	Pre-Project	460.35	75.79	Pre-Project	2.78	0.46	Pre-Project	54.65	9.00
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
PM (C)	Post-Project	55.24	9.10	Post-Project	19.69	3.24	Post-Project	22.77	3.75
	Pre-Project	55.24	9.10	Pre-Project	19.69	3.24	Pre-Project	22.77	3.75
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
PM (F+C)	Post-Project	515.59	84.89	Post-Project	22.48	3.70	Post-Project	77.43	12.75
	Pre-Project	515.59	84.89	Pre-Project	22.48	3.70	Pre-Project	77.43	12.75
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00

Table 5:
Net Change in Emissions at the M-line

Pollutant	Scenario	Forming Section S-2		Scenario	Curing Section S-3		Scenario	Cooling Section S-4	
		lbs/day	TPY		lbs/day	TPY		lbs/day	TPY
NOx	Post-Project	~~7.61~~ 30.45	~~0.94~~ 3.76	Post-Project	248.44	30.68	Post-Project	4.42	0.55
	Pre-Project	~~7.61~~ 30.45	~~0.94~~ 3.76	Pre-Project	248.44	30.68	Pre-Project	4.42	0.55
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
SO2	Post-Project	~~9.29~~ 37.17	~~1.15~~ 4.59	Post-Project	5.61	0.69	Post-Project	6.20	0.77
	Pre-Project	~~9.29~~ 37.17	~~1.15~~ 4.59	Pre-Project	5.61	0.69	Pre-Project	6.20	0.77
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
CO	Post-Project	95.42	15.71	Post-Project	345.02	56.81	Post-Project	9.18	1.51
	Pre-Project	95.42	15.71	Pre-Project	345.02	56.81	Pre-Project	9.18	1.51
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
POC	Post-Project	103.12	18.82	Post-Project	1.77	0.32	Post-Project	22.20	4.05
	Pre-Project	94.40	13.22	Pre-Project	5.33	0.75	Pre-Project	18.36	2.55
	Net Change	8.72	5.60	Net Change	-3.56	-0.43	Net Change	3.84	1.50
Phenol	Post-Project	0.00	0.00	Post-Project	0.00	0.00	Post-Project	0.00	0.00
	Pre-Project	42.13	5.17	Pre-Project	2.84	0.35	Pre-Project	2.05	0.25
	Net Change	-42.13	-5.17	Net Change	-2.84	-0.35	Net Change	-2.05	-0.25
Formaldehyde	Post-Project	2.41	0.44	Post-Project	0.14	0.03	Post-Project	0.52	0.09
	Pre-Project	18.19	2.23	Pre-Project	0.34	0.04	Pre-Project	4.27	0.52
	Net Change	-15.78	-1.79	Net Change	-0.20	-0.02	Net Change	-3.75	-0.43
Methanol	Post-Project	3.52	0.64	Post-Project	0.02	0.0040	Post-Project	0.60	0.11
	Pre-Project	120.89	14.74	Pre-Project	0.13	0.0161	Pre-Project	7.89	0.96
	Net Change	-117.37	-14.10	Net Change	-0.1108	-0.0121	Net Change	-7.29	-0.85

Table 5:
Net Change in Emissions at the M-line

Pollutant	Scenario	Forming Section S-2		Scenario	Curing Section S-3		Scenario	Cooling Section S-4	
		lbs/day	TPY		lbs/day	TPY		lbs/day	TPY
Ethanol	Post-Project	41.05	7.49	Post-Project	0.0027	0.0005	Post-Project	0.00	0.00
	Pre-Project	~~0.29~~ 1.16	~~0.04~~ 0.14	Pre-Project	0.2091	0.0323	Pre-Project	0.17	0.02
	Net Change	~~40.76~~ 39.89	~~7.46~~ 7.35	Net Change	-0.2063	-0.0318	Net Change	-0.17	-0.02
Acetaldehyde	Post-Project	1.12	0.20	Post-Project	0.04	0.01	Post-Project	0.17	0.03
	Pre-Project	~~0.33~~ 1.33	~~0.05~~ 0.20	Pre-Project	0.57	0.07	Pre-Project	0.73	0.09
	Net Change	~~0.78~~ -0.21	~~0.15~~ 0	Net Change	-0.5305	-0.0629	Net Change	-0.55	-0.06
Acrolein	Post-Project	0.00	0.00	Post-Project	0.01	0.0015	Post-Project	0.00	0.00
	Pre-Project	0.00	0.00	Pre-Project	0.00	0.00	Pre-Project	0.00	0.00
	Net Change	0.00	0.00	Net Change	0.01	0.0015	Net Change	0.00	0.00

Table 6:
Net Change in Emissions at the O-line

Pollutant	Scenario	Forming Section S-20		Scenario	Curing Section S-21		Scenario	Cooling Section S-22	
		lbs/day	TPY		lbs/day	TPY		lbs/day	TPY
PM (F)	Post-Project	415.03	73.44	Post-Project	19.83	3.51	Post-Project	18.74	3.32
	Pre-Project	415.03	73.44	Pre-Project	19.83	3.51	Pre-Project	18.74	3.32
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
PM (C)	Post-Project	49.80	8.81	Post-Project	140.27	24.82	Post-Project	7.81	1.38
	Pre-Project	49.80	8.81	Pre-Project	140.27	24.82	Pre-Project	7.81	1.38
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
PM (F+C)	Post-Project	464.84	82.25	Post-Project	160.11	28.33	Post-Project	26.54	4.70
	Pre-Project	464.84	82.25	Pre-Project	160.11	28.33	Pre-Project	26.54	4.70
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00

Table 6:
Net Change in Emissions at the O-line

Pollutant	Scenario	Forming Section S-20		Scenario	Curing Section S-21		Scenario	Cooling Section S-22	
		lbs/day	TPY		lbs/day	TPY		lbs/day	TPY
NOx	Post-Project	~~6.92~~ 27.68	~~1.07~~ 4.28	Post-Project	277.64	42.93	Post-Project	5.33	0.82
	Pre-Project	~~6.92~~ 27.68	~~1.07~~ 4.28	Pre-Project	277.64	42.93	Pre-Project	5.33	0.82
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
SO2	Post-Project	~~9.63~~ 38.51	~~1.49~~ 5.95	Post-Project	5.81	0.90	Post-Project	6.36	0.98
	Pre-Project	~~9.63~~ 38.51	~~1.49~~ 5.95	Pre-Project	5.81	0.90	Pre-Project	6.36	0.98
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
CO	Post-Project	117.92	20.87	Post-Project	451.58	79.91	Post-Project	12.07	2.14
	Pre-Project	117.92	20.87	Pre-Project	451.58	79.91	Pre-Project	12.07	2.14
	Net Change	0.00	0.00	Net Change	0.00	0.00	Net Change	0.00	0.00
POC	Post-Project	124.81	22.78	Post-Project	2.15	0.39	Post-Project	25.11	4.58
	Pre-Project	138.08	24.43	Pre-Project	2.28	0.40	Pre-Project	10.13	1.79
	Net Change	-13.27	-1.65	Net Change	-0.13	-0.01	Net Change	14.98	2.79
Phenol	Post-Project	0.00	0.00	Post-Project	0.00	0.00	Post-Project	0.00	0.00
	Pre-Project	50.52	7.81	Pre-Project	3.40	0.53	Pre-Project	2.46	0.38
	Net Change	-50.52	-7.81	Net Change	-3.40	-0.53	Net Change	-2.46	-0.38
Formaldehyde	Post-Project	2.93	0.53	Post-Project	0.16	0.03	Post-Project	0.63	0.11
	Pre-Project	42.92	6.64	Pre-Project	0.13	0.02	Pre-Project	1.54	0.24
	Net Change	-39.99	-6.10	Net Change	0.03	0.01	Net Change	-0.92	-0.12
Methanol	Post-Project	4.29	0.78	Post-Project	0.03	0.0050	Post-Project	0.73	0.13
	Pre-Project	142.39	22.02	Pre-Project	0.16	0.0242	Pre-Project	9.30	1.44
	Net Change	-138.10	-21.23	Net Change	-0.1291	-0.0192	Net Change	-8.57	-1.30

Table 6: Net Change in Emissions at the O-line									
Pollutant	Scenario	Forming Section S-20		Scenario	Curing Section S-21		Scenario	Cooling Section S-22	
		lbs/day	TPY		lbs/day	TPY		lbs/day	TPY
Ethanol	Post-Project	50.01	9.13	Post-Project	0.0055	0.0010	Post-Project	0.00	0.00
	Pre-Project	~~0.35~~ 1.39	~~0.05~~ 0.21	Pre-Project	0.21	0.03	Pre-Project	0.23	0.04
	Net Change	~~49.66~~ 48.62	~~9.07~~ 8.92	Net Change	-0.2036	-0.0313	Net Change	-0.23	-0.04
Acetaldehyde	Post-Project	1.36	0.25	Post-Project	0.05	0.01	Post-Project	0.21	0.04
	Pre-Project	~~0.33~~ 1.33	~~0.05~~ 0.20	Pre-Project	0.20	0.03	Pre-Project	0.22	0.03
	Net Change	~~1.03~~ 0.03	~~0.20~~ 0.05	Net Change	-0.1451	-0.0209	Net Change	-0.01	0.004
Acrolein	Post-Project	0.00	0.00	Post-Project	0.01	0.0015	Post-Project	0.00	0.00
	Pre-Project	0.00	0.00	Pre-Project	0.00	0.00	Pre-Project	0.00	0.00
	Net Change	0.00	0.00	Net Change	0.01	0.0015	Net Change	0.00	0.00

The projected net increases in emissions of pollutants triggered the analyses described below.

TACS: TOXIC RISK SCREEN ANALYSIS & TBACT

For the purposes of Regulation 2, Rule 5, a project may change the emissions of toxic air contaminants as long as long as the project complies with Sections 2-5-301 and 2-5-302.

Under 2-5-301, the facility must apply TBACT to any modified source of TACs where the source risk is a cancer risk greater than 1.0 in one million and/or a chronic hazard index greater than 0.20. Under Regulation 2-5-302, no AC may be issued for any modified source of TACs if the project risk exceeds any of the following project risk limits: (1) a cancer risk of 10.0 in one million; (2) a chronic hazard index of 1.0; or (3) an acute hazard index of 1.0.

The District performed a Health Risk Screening Analysis (HRSA) for the proposed project because the expected hourly emissions of formaldehyde from S-20 exceeded its corresponding acute trigger level in Table 2-5-1. Please refer to Table 33 of the Attachment. Also, the annual expected emissions of acetaldehyde from S-2, S-4, S-20, and S-22, and formaldehyde from S-2, S-3, S-4, S-20, S-21, and S-22 exceeded the

corresponding chronic trigger levels in Table 2-5-1. Please refer to Tables 34 and 35 of the Attachment.[2]

The HRSA performed by the District's Toxic Evaluation Section staff estimated the maximum cancer risk from post-project operation of these sources to be 0.3 in a million, the chronic hazard index to be 0.006, and the acute hazard index to be 0.029. Staff concluded that, in accordance with Regulation 2-5-302, the above project risks were acceptable.

These risks also do not trigger the TBACT requirement in Section 2-5-301 for any source. Therefore, TBACT has not been determined.

When OCIS conducts the source tests after changing to the starch-based binder, the District will determine whether the resulting emissions of each source continue to have a cancer risk that is less than 1.0 in a million and a chronic hazard index that is less than 0.20, and whether the emissions of the project have a cancer risk that is less than 10.0 in a million, a chronic hazard index that is less than 1.0, and an acute hazard index less than 1.0.

The requirements of Regulation 2, Rule 5 are not federally enforceable.

CUMULATIVE INCREASE AND OFFSETS

As discussed above, permit conditions will require OCIS to operate within pre-project baseline emission levels for NO_x, SO_2, PM (F, C, F+C), CO, and ammonia (summarized in Tables 1 and 2).to ensure that the change to the starch-based binder will not result in a "net increase" in emissions of these pollutants.

According to the District's calculations, however, use of the new binder would be expected to result in a "net increase" in POC[3] emissions if OCIS maintains post-production levels at pre-production levels. Please refer to Table 7 below.

Table 7:
Estimate of Potential POC Increase

Source ID	***POC emissions (in TPY) estimated by***	
	District	***OCIS***
S-2	5.60	1.44
S-4	1.50	0.78
S-22	2.79	2.28
Total	9.89	4.50

[2] In determining whether an HRSA was needed for this project, the District based its calculations on the total estimated post-project TAC emissions, as opposed to considering only the expected "net increase" in TAC emissions.

[3] Though Tables 5 and 6 in this report indicate that there will be a net increase in emissions of formaldehyde, ethanol, acetaldehyde, and acrolein from certain sources, it is assumed that the above pollutants are sub-species of POC and do not need to be addressed individually. Also, the District tracks cumulative increases in emissions at the POC level (in this case) and not at the sub-species level.

OCIS has agreed to accept permit conditions limiting its post-project POC emissions to pre-project levels. Therefore, the project will not result in any cumulative increase of POCs and no offsets will be required under Regulations 2-2-302 & 303.

If OCIS wishes to increase emissions in the future, it must submit a new application.

BACT

Because OCIS will be held to pre-project emissions levels of the BACT pollutants NOx, SO2, CO, PM10, and POC, there will be no increase in emissions of these pollutants and BACT under Regulation 2-2-301 is not triggered.

If OCIS wishes to increase emissions in the future, it must submit a new application.

PSD

Because OCIS will be held to pre-project emissions levels of the prevention of significant deterioration (PSD) pollutants NOx, SO2, CO, PM10, and POC, there will be no increase in emissions of these pollutants and District PSD requirements do not apply.

If OCIS wishes to increase emissions in the future, it must submit a new application.

STATEMENT OF COMPLIANCE

The “M” and “O” Line Rotary Spin (RS) Forming sections (Sources S-2 and S-20), the “M” and “O” Line Curing sections (Sources S-3 and S-21), the “M” and “O” Line Cooling Sections (Sources S-4 and S-22) are not subject to the Standard of Performance for New Stationary Sources (NSPS) requirements contained in 40 CFR Part 60. Specifically, the above sources are exempt from NSPS Subpart PPP “Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants” because the rotary spin wool manufacturing lines (forming, curing and cooling sections) were constructed before February 7, 1984.

OCIS is also not subject to any National Emission Standard for Hazardous Air Pollutants (NESHAP) requirements contained in 40 CFR Part 61, because it does not meet the applicability requirements for any of those standards.

Currently, S-1 through S-4 and sources S-19 through S-22 are subject to 40 CFR Part 63, Subpart NNN, National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing (MACT NNN) when using the phenol-formaldehyde binder. Under section 63.1381, MACT NNN, in relevant part, applies to new and existing glass melting furnaces at “wool fiberglass manufacturing facilities” and each new and existing rotary spin wool fiberglass manufacturing line producing a “bonded” wool fiberglass building insulation product. OCIS’s proposed use of the starch-based binder may mean that the product is no longer “bonded” and that the facility is no longer a “wool fiberglass

manufacturing facility" as defined in the federal regulation, such that MACT NNN no longer applies. Even if that is the case, however, the MACT requirements could not be deleted from OCIS's Major Facility Review (Title V) permit without a significant revision, which includes public notice. The District will consider whether the MACT NNN requirements should remain applicable requirements in OCIS's Title V permit under Application # 21632, the Title V counterpart to this NSR application (# 21631).

The forming (S-2 & S-20), curing (S-3 & S-21), and cooling (S-4 & S-22) sections on the "M" and "O" RS lines are currently governed by permit conditions 20565 (for S-2, S-3, S-20, and S-21) and 20566 (for S-4 and S-22) that were authored under Application 25819 when OCIS's initial Title V was issued. Part 5 of permit condition (PC) # 20565 and part 4 of PC 20566 require that OCIS demonstrate compliance with the Ringelmann No. 1 limit in Section 301 of Regulation 6 "Particulate Matter", Rule 1 "General Requirements" by performing a daily visible emissions check at either the affected sources and/or at the outlet of the devices that abate their emissions. Going forward and when using the starch-based binder, part 15 of PC 24873 will require OCIS to perform a daily visible emissions check at S-2, S-3, S-4, S-20, S-21, and S-22 and/or at the outlet of the abatement devices that abate their emissions once per day to demonstrate compliance with the Ringelmann No. 1 limit in Regulation 6-1-301. The District's enforcement staff will verify compliance of the above sources with Regulation 6-1-301 during their routine plant inspection.

Part 6 of PC 20565 and part 5 of PC 20566 require that OCIS conduct a source test once every five years to demonstrate compliance with Reg. 6-1-310 and 6-1-311. Going forward and when using the starch-based binder, part 78 of permit condition 24873 will require OCIS to perform an annual source test every year to demonstrate compliance with Reg. 6-1-310 and 6-1-311. Reg. 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. This is a "grain loading" standard. A review of the two most recent source test memoranda for tests conducted in December 2009 (OS-3180 to 3182) and February 2010 (OS-3348 to 3349) showed that the outlet grain loading rates recorded (in terms of gr/dscf) at S-20, S-21, and S-22 were far below the Regulation 6-1-310 limit, at 0.016[4], 0.0044[5], and 0.0075, respectively. Likewise, a review of source test memoranda showed that the outlet grain loading rate (in gr/dscf) was 0.0244[6] at S-2 in October 2008 (OS-2628); 0.0002[7] at S-3 in October 2007 (OS-2184, 2185); and 0.0070[8] at S-4 in October 2007 (OS-2186, 2187). As discussed above, permit conditions will hold OCIS to pre-project baseline FP levels after switching to the new binder. Therefore, it is reasonable to expect that the forming (S-2 & S-20), curing (S-3 & S-21), and cooling (S-4 & S-22) sections on the "M" and "O" lines would comply with Regulation 6-1-310 when using the new binder.

[4] 0.016 gr/dscf = average of 0.0143 (OS-3348) and 0.0175 (OS-3349)
[5] 0.0044 gr/dscf = average of 0.0048 (OS-3180) and 0.0040 (OS-3181)
[6] 0.0244 gr/dscf = average of 0.0299 (OS-2628) and 0.0259 (OS-2764)
[7] 0.0002 gr/dscf = average of 0.0000 (OS-2184) and 0.0004 (OS-2185)
[8] 0.0070 gr/dscf = average of 0.0012 (OS-2186) and 0.0127 (OS-2187) → inclusive of smoke stripper abating S-3

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = 4.10 $P^{0.67}$, where P is the process weight rate of in lbs/hr.

The most recent source tests at S-2, S-3, and S-4 were conducted in February 2009 (for S-2)[9] and in October 2007 (for S-3 and S-4)[10]. The "P" recorded during the two tests were 11.70 tons/hr in February 2009 and 5.86 tons/hr in October 2007. Substituting the "P" values into the above equation, the allowable emission rate E for S-2, S-3 and S-4 were 21.30 lb/hr, 13.41 lb/hr, and 13.41 lb/hr, respectively. For example, the 21.30 lb/hr of allowable filterable particulate emissions from S-2 was determined as follows:
$E = 4.10 \times 11.70^{0.67} = 21.30$ lb/hr

Meanwhile, OCIS's actual filterable particulate emissions rate, recorded during the February 2009 and October 2007 tests at S-2, S-3, and S-4 were 17.963 lb/hr (below 21.30 lb/hr), 0.119 lb/hr (below 13.41 lb/hr), and 2.336 lb/hr (below 13.41 lb/hr), respectively. It can be seen from above, that the actual filterable particulate emissions at S-2, S-3, and S-4 was lower than the allowable filterable particulate emissions.

The most recent source tests at S-20, S-21, and S-22 were conducted in February 2010 (for S-20)[11] and in December 2009 (for S-21[12] and S-22[13]). The "P" recorded during the two tests were 11.36 tons/hr and 12.371 tons/hr, respectively. Performing the same calculations as above, OCIS's actual filterable particulate emissions rates at S-20, S-21, and S-22, as compared to their allowable emissions rates (E), were: 15.433 lb/hr (below 20.88 lb/hr), 0.5540 lb/hr (below 22.12 lb/hr), and 0.8427 lb/hr (below 22.12 lb/hr), respectively.

Again, since permit conditions will hold OCIS to pre-project baseline filterable particulate levels after switching to the new binder, it is reasonable to expect that the filterable particulate emissions from the "M" and "O" line forming, curing, and cooling sections will comply with Reg. 6-1-311.

Section 301 under Regulation 8 "Organic Compounds", Rule 2 "Miscellaneous Operations" states the following:

> A person shall not discharge into the atmosphere from any miscellaneous operation an emission containing more than 6.8 kg. (15 lbs.) per day and containing a concentration of more than 300 PPM total carbon on a dry basis.

A violation of Regulation 8-2-301 requires that both POC emissions are greater than 15 lb/day and the POC concentration is in excess of 300 PPM total carbon on a dry basis. As discussed previously, OCIS conducted source tests on the "M" and "O" lines in the October 2007 through February 2009 timeframe to demonstrate compliance with the

[9] OS-2764
[10] OS-2184 through 2187
[11] OS-3348 and 3349
[12] OS-3180 (w/o smoke stripper)
[13] OS-3181 & 3182 (w/ smoke stripper)

PM and formaldehyde standards in MACT NNN. Therefore, the STS memoranda pertaining to those tests do not contain any information on POC emissions. By contrast, OCIS conducted source tests in December 2009 and February 2010 on the "O" line sources specifically to establish a pre-project baseline. Therefore, POC (among other criteria and TACs) was quantified during the December 2009 test. The POC emissions (total organic emissions measured as C1) from the "O" line forming, curing, and cooling sections measured via the Method 5E test method were 5.71 lb/hr (36 ppm) at S-20, 0.0943 lb/hr (3.84 ppm) at S-21, and 0.4196 lb/hr (33.31 ppm) for S-22, respectively, based on the gas flows for each section. The above hourly POC emission rates, assuming 24-hours/day of operation, translates to 137.04 lb/day (for S-20), 2.26 lb/day (for S-21) and 10.07 lb/day, respectively. Though the daily POC emissions from S-20 is above the 15 lb/day standard, the Method 5 TOC concentration reported as C1 and recorded during the December 2009 test for S-20 was below 300 ppm i.e., 36 ppm. Thus, the December 2009 test results met the standard in Regulation 8-2-301 for all of the sources tested.

Since permit conditions will hold OCIS to pre-project baseline POC levels after switching to the new binder, it is reasonable to expect that the POC emissions from the "O" line forming, curing, and cooling sections will comply with Regulation 8-2-301. Further, because part 78 of permit condition 24873 will require OCIS to perform an initial source test within 60 days of switching to the new starch-based binder, compliance of the "M" line sources S-2, S-3, and S-4 with Regulation 8-2-301 will be determined within the coming months.

Per Section 501 of Regulation 9, Rule 1, area monitoring to demonstrate compliance with the ground level SO_2 concentration requirements of Regulation 9-1-301 is at the APCO's discretion. As mentioned above, the SO_2 concentrations recorded at S-20, S-21, and S-22 during the December 2009 source test were less than the detection limit of 2 ppm. Since permit conditions will continue to hold both the "M" and "O" lines to de minimus (2 ppm) SO_2 levels after switching to the new binder, it is reasonable to expect that the forming, curing, and cooling sections will not emit such large quantities of SO_2 emissions that the APCO will require OCIS to conduct ground level monitoring.

The "M" and "O" line forming, curing, and cooling sections are not subject to the various rules of Regulation 9 "Inorganic Gaseous Pollutants," discussed below, for the following reasons:

Forming: The natural gas fired fiberizers that are used in the "M" and "O" line forming sections (S-2 and S-20) are not subject to Regulation 9 because there is no District rule and/or emission limit in the regulation that controls this category of sources.

Curing: The curing section ovens (S-3 and S-21) are not subject to Regulation 9, Rule 7 – "Inorganic Gaseous Pollutants - Nitrogen Oxides And Carbon Monoxide From Industrial, Institutional, And Commercial Boilers, Steam Generators, And Process Heaters", because they fall under the exemption provided in Regulation 9-7-110.6. That section states that "[t]he requirements of [Regulation 9, Rule 7] shall not apply to . . . Kilns, ovens, and furnaces used for drying, baking, heat treating, cooking, calcining, or

vitrifying," and the "M" and "O" line curing section ovens will be used to dry and cure thermosetting resins sprayed on the glass fibers in the forming sections.

Cooling: There are no combustion emissions associated with the "M" and "O" cooling sections. Therefore, S-4 and S-22 are not subject to Regulation 9.

THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Per Section 2-1-311 of the District Rules and Regulations, a permit application for a proposed new or modified source will be classified as ministerial and will accordingly be exempt from the CEQA requirement of Section 2-1-310 if the District's engineering evaluation and basis for approval of the permit application for the project is limited to the criteria set forth in Section 2-1-428 and to the procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook. The method for determining whether a given permit application will be classified as ministerial is set forth in Section 2-1-427.

Per Section 2-1-427, if the District determines that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook, the District's evaluation of the permit application is classified as ministerial and the engineering evaluation of the permit application by the District will be limited to the use of said specific procedures, fixed standards and objective measurements. For such projects, the District will merely apply the law to the facts as presented in the permit application, and the District's decision regarding whether to issue the permit will be based only on the criteria set forth in Section 2-1-428 and in the District's Permit Handbook and BACT/TBACT Workbook.

As it currently exists, the District's Permit Handbook does not contain a chapter that addresses facilities such as OCIS. Therefore, this permit evaluation cannot be classified as ministerial. However, the CEQA categorical exemption provided in Regulation 2-1-312.11 and the CEQA "Common Sense Exemption" apply.

CEQA Categorical Exemptions and CEQA "Common Sense Exemption"

Though the District concludes that the proposed alterations/modifications to S-2 through S-4 and sources S-20 through S-22 are not ministerial, certain other exemptions from CEQA apply (see CEQA Guidelines § 15300.1). Section 2-1-312 of the District Rules and Regulations sets forth specific types of projects, which have been determined by the District to be categorically exempt from CEQA.

Per Section 2-1-312.11, in addition to ministerial projects, permit applications for a new or modified source or sources or for process changes, which will satisfy the "No Net Emission Increase" provisions of District Regulation 2, Rule 2 and for which there is no possibility that the project may have any significant environmental effect in connection with any environmental media or resources other than air quality, are exempt from CEQA review. The reason for this exemption should be apparent on its face: if a facility is given legal permission to emit more air pollutants from certain points while at the same time being disallowed permission for an equivalent amount of the same type of

emissions from other points at the facility, then there is deemed to be no net effect on the air environment, and therefore no possibility of a significant effect under CEQA, provided no-air impacts are also examined and deemed to be of no possible significant consequence.

Also, per the CEQA Guidelines in Title 14, California Code of Regulations, Chapter 3, Article 5, Section 15061(b)(3), a project is exempt from CEQA if the activity is covered by the general rule that CEQA applies only to projects that have the potential for causing a significant effect on the environment. This is commonly known as the "Common Sense Exemption". Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The “no net increase” exemption of 2-1-312.11 is essentially a specific, codified, instance of the Common Sense Exemption.

The District has determined that this project will satisfy the "No Net Emission Increase" provisions of District Regulation 2, Rule 2. As previously discussed in this evaluation report, post-project criteria pollutant emissions from the above sources will be held, per OCIS’s permit (see permit conditions set out in full below), to the pre-project emissions baseline. As a result, there will be no net increase in criteria pollutant emissions at OCIS.

For toxic air contaminants, phenol, methanol, and ammonia emissions are expected to decrease as a result of the binder change. Formaldehyde, ethanol acetaldehyde, and acrolein emissions potentially may increase, but these expected increases comply with the “No Net Emission Increase” provision in Regulation 2-1-312.11.4, because post-project emissions are not projected to result in a cancer risk (as defined in Regulation 2-5-206) of greater than 1.0 in a million (10-6) or a chronic hazard index (as defined in Regulation 2-5-208) of greater than 0.20.

Further, the District has not identified any other potential significant environmental effect from this project. Therefore, the "No Net Emission Increase" provisions of District Regulation 2, Rule 1 are satisfied.

TITLE V

District NSR applications are incorporated into Title V permits as administrative amendments, minor revisions, or significant revisions. Administrative amendments are non-substantive amendments. Significant revisions are defined in District Regulation 2-6-226, as shown below. All revisions that are not administrative amendments or significant revisions are minor revisions, per Regulation 2-6-215.

> 2-6-226 Significant Permit Revision: Any revision to a federally enforceable condition contained in a major facility review permit that can be defined as follows:
> 226.1 The incorporation of a change considered a major modification under 40 CFR Parts 51 (NSR) or 52 (PSD);

226.2 The incorporation of a change considered a modification under 40 CFR Parts 60 (NSPS), 61 (NESHAPS), or Section 112 of the Clean Air Act (HAP);
226.3 Any significant change or relaxation of any applicable monitoring, reporting or recordkeeping condition;
226.4 The establishment of or change to a permit term or condition allowing a facility to avoid an applicable requirement, including:
  4.1 a federally enforceable emission limit assumed in order to avoid classification as a modification under any provision of Title I of the federal Clean Air Act, or
  4.2 an alternative hazardous air pollutant emission limit pursuant to Section 112(i)(5) of the Clean Air Act;
226.5 The establishment of or change to a case-by-case determination of any emission limit or other standard;
226.6 The establishment of or change to a facility-specific determination for ambient impacts, visibility analysis, or increment analysis on portable sources; or
226.7 The incorporation of any requirement promulgated by the U. S. EPA under the authority of the Clean Air Act provided that three or more years remain on the permit term.

This project will require a significant revision to OCIS's Title V permit under Regulation 2-6-226.4 because it involves the establishment of permit terms and conditions that allowed the facility to avoid compliance with applicable requirements such as BACT, offsets, and PSD (and perhaps MACT NNN, as discussed above).

OCIS has complied with Regulation 2-6-404.3 of the District's Title V rules by submitting an application for a significant permit revision prior to commencing use of the starch-based binder.

When the Title V permit is revised, the District will consider whether OCIS will be subject to CAM pursuant to any new federally enforceable emission limits.

PERMIT CONDITIONS

Permit condition 24873 for:
S-2 - "M" Line Forming Section and S-20 - "O" Line Forming Section
S-3 - "M" Line Curing Oven Section and S-21 - "O" Line Curing Oven Section
S-4 – "M" Line Cooling Section and S-22 – "O" Line Cooling Section

Note: Any condition that is preceded by an asterisk is not federally enforceable.

1. The owner/operator shall ensure that the total bare molten glass pulled at S-2, S-3, S-4, S-20, S-21, and S-22 does not exceed 6 tons per hour per source and 144 tons per day per source. (Basis: Regulation 2-1-234)

2. The owner/operator shall maintain daily records of the amount of glass pulled at S-2, S-3, S-4, S-20, S-21, and S-22. The owner/operator shall retain the records on site for five years from the date of entry, and shall make the records available to District staff for inspection upon request. (Basis: Regulation 2-6-501)

3. With the exception of the "M" Line Forming (S-2) section which is currently unabated, the owner/operator shall ensure that the "M" Line Curing Oven (S-3) section emissions are abated by the properly installed, properly operated, and properly maintained "M" Charge Incinerator (A-5) and "M" Discharge Incinerator (A-6) at all times that S-3 operates. The owner/operator shall ensure emissions from the "M" Line Smoke Stripper, which is downstream of S-3 and upstream of "M" Line Cooling section (S-4), is abated by the properly installed, properly operated, and properly maintained Air Action Cyclone Scrubber (A-101) in series with a High Performance Air Filter (A-102) at all times that S-3 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-101 ranges between 1" wc to 20" wc, and A-102 ranges between 5" wc to 40" wc, respectively, and that the pressure drop across A-101 and A-102 is monitored and recorded once per shift. (Basis: Cumulative Increase)

4. The owner/operator shall ensure that the "M" Line Cooling (S-4) section emissions are abated by the properly installed, properly operated, and properly maintained High Efficiency Air Filter (A-7) at all times that S-4 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-7 ranges between 0.1" wc to 3" wc, and that the pressure drop across A-7 is monitored and recorded once per day.
(Basis: Cumulative Increase)

5. In order to ensure the abatement devices at S-3 and S-4 are properly installed, properly operated, and properly maintained, the owner/operator shall inspect and record in a District-approved log the condition of A-5 and A-6 on an annual basis, and the condition of A-7, A-101, A-102 shall be inspected and recorded in a District-approved log once per month. While conducting such inspections, the owner/operator shall record all types of defects detected at A-5, A-6, A-7, A-101, and A-102 , the date and time when each defect was detected, and the date and time when each defect was rectified in a District-approved repair log. The owner/operator shall maintain records of the inspection logs and repair logs on-site for five years from the date of last entry and shall make them available for inspection by District staff upon request. (Basis: Regulation 2-6-501, Regulation 6-1-301)

6. With the exception of the "O" Line Forming (S-20) section which is currently unabated, the owner/operator shall ensure that the "O" Line Curing Oven (S-21) section emissions are abated by the properly installed, properly operated,

and properly maintained "O" Oven Incinerator (A-25) during all times that S-21 operates. The owner/operator shall ensure emissions from the "O" Line Smoke Stripper, which is downstream of S-21 and upstream of "O" Line Cooling section (S-22), is abated by the properly installed, properly operated, and properly maintained Air Action Cyclone Scrubber (A-99) in series with a High Performance Air Filter (A-100) at all times that S-21 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-99 ranges between 1" wc to 20" wc, and A-100 ranges between 5" wc to 40" wc, respectively, and that the pressure drop across A-99 and A-100 is monitored and recorded once per shift. (Basis: Cumulative Increase)

7. The owner/operator shall ensure that the "O" Cooling Line (S-22) section emissions are abated by the properly installed, properly operated, and properly maintained "O" Cooling Scrubber (A-26) at all times that S-22 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-26 ranges between 1" wc to 10" wc, and that the pressure drop across A-26 is monitored and recorded once per day. The owner/operator shall ensure that the water flow rate measured by a District-approved water flow meter or other District-approved device to measure the water flow rate across A-26 ranges between 50 gpm to 250 gpm, and that the water flow rate across A-26 is monitored and recorded once per day,. (Basis: Cumulative Increase)

8. In order to ensure the abatement devices at S-21 and S-22 are properly installed, properly operated, and properly maintained, the owner/operator shall inspect and record in a District-approved log the condition of A-25 on an annual basis, the condition of A-26 on a semi-annual basis, and the condition of A-99 and A-100 shall be inspected and recorded in a District-approved log once per month. While conducting such inspections, the owner/operator shall record all types of defects detected at A-25, A-26, A-99, and A-100, the date and time when each defect was detected, and the date and time when each defect was rectified in a District-approved repair log. The owner/operator shall maintain records of the inspection logs and repair logs on-site for five years from the date of last entry and shall make them available for inspection by District staff upon request.
(Basis: Regulation 2-6-501, Regulation 6-301)

9. The owner/operator shall control the rotary spin manufacturing "M" line and "O" line curing section emissions by thermal incineration with the following parameters.
   a. Maintain a minimum destruction temperature of 1340^{o}F unless the owner/operator can demonstrate to the satisfaction of the APCO that requirements in this permit condition can be met with A-5, A-6, and A-25 operating at a lower temperature.

b. The destruction temperature at "M" Charge Incinerator (A-5), "M" Discharge Incinerator (A-6) and "O" Oven Incinerator (A-25) shall be recorded using chart or digital recorders.
(Basis: Regulation 2-6-503)

ALLOWABLE TEMPERATURE EXCURSION(S)

10. The temperature limit in part 9.a of this condition shall not apply during an "Allowable Temperature Excursion", provided that the temperature controller setpoint complies with the temperature limit. An Allowable Temperature Excursion is one of the following:
    a. A temperature excursion not exceeding 20 degrees F; or
    b. A temperature excursion for a period or periods which when combined are less than or equal to 15 minutes in any hour; or
    c. A temperature excursion for a period or periods which when combined are more than 15 minutes in any hour, provided that all three of the following criteria are met.

        i. the excursion does not exceed 50 degrees F;
        ii. the duration of the excursion does not exceed 24 hours; and
        iii. the total number of such excursions does not exceed 12 per calendar year (or any consecutive 12 month period).

    Two or more excursions greater than 15 minutes in duration occurring during the same 24 hour period shall be counted as one excursion toward the 12 excursion limit.
    (Basis: Regulation 2-6-503)

11. For each Allowable Temperature Excursion that exceeds 20 degrees F. and 15 minutes in duration, the owner/operator shall keep sufficient records to demonstrate that they meet the qualifying criteria described above. Records shall be retained for a minimum of five years from the date of entry, and shall be made available to the District upon request. Records shall include at least the following information:

    a. Temperature controller setpoint;
    b. Starting date and time, and duration of each Allowable Temperature Excursion;
    c. Measured temperature during each Allowable Temperature Excursion;
    d. Number of Allowable Temperature Excursions per month, and total number for the current calendar year; and
    e. All strip charts or other temperature records.
    (Basis: Regulation 2-6-503)

12. For the purposes of parts 10 and 11 of this condition, a temperature excursion refers only to temperatures below the limit. (Basis: Regulation 2-6-503)

13. Effective March 20, 2011, the owner/operator shall ensure that no phenol-

formaldehyde based binder is used in wool fiberglass manufacturing operations at sources S-2, S-3, S-4, S-20, S-21, and S-22. (Regulation 2-1-403)

14. The owner/operator shall ensure that the use of the starch-based binder (replacement to the phenol-formaldehyde based binder) at S-2, S-3, S-4, S-20, S-21, and S-22 does not result in visible particulate matter emissions, cause objectionable odors, or result in fallout on adjacent property in such quantities as to cause a public nuisance per Regulation 1-301. In the event the use of the starch-based binder results in a public nuisance violation, the owner/operator shall stop using the starch-based binder until such time the cause of the public nuisance violation is addressed, or the District's Hearing Board grants the owner/operator a variance.
(Basis: Regulation 1-301)

15. In order to ensure that sources S-2, S-3, S-4, S-20, S-21, and S-22 comply with the Ringelmann No. 1 limit in Regulation 6-1-301, the owner/operator shall perform a daily visible emissions check at the above sources and/or at the outlet of the abatement devices that abate their emissions once per day. (Basis: Regulation 2-6-501, Regulation 6-1-301)

16. The owner/operator of S-2, S-3, S-4, S-20, S-21, and S-22 shall ensure that none of the above sources discharge into the atmosphere an emission containing more than 6.8 kg. (15 lbs.) per day and containing a concentration of more than 300 PPM total carbon on a dry basis. (Regulation 8-2-301)

17. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-2, "M" Line Rotary Spin Forming Line, do not exceed 515.59 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

18. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-2, "M" Line Rotary Spin Forming Line, do not exceed 84.89 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

19. The owner/operator shall ensure that the POC emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 94.40 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

20. The owner/operator shall ensure that the POC emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 13.22 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

21. The owner/operator shall ensure that the CO emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 95.42 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

22. The owner/operator shall ensure that the CO emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 15.71 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

23. The owner/operator shall ensure that the NOX emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed ~~7.61~~30.45 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

24. The owner/operator shall ensure that the NOX emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed ~~0.94~~3.76 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

25. The owner/operator shall ensure that the SO2 emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed ~~9.29~~37.17 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

26. The owner/operator shall ensure that the SO2 emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed ~~1.15~~4.59 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

27. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 22.48 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

28. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-3 (sum-total of abated emissions emanating from A-5 and A-6), "M" Line Curing Oven, do not exceed 3.70 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

29. The owner/operator shall ensure that the POC emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 5.33 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

30. The owner/operator shall ensure that the POC emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 0.75 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

31. The owner/operator shall ensure that the CO emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 345.02 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

32. The owner/operator shall ensure that the CO emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 56.81 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

33. The owner/operator shall ensure that the NOx emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 248.44 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

34. The owner/operator shall ensure that the NOx emissions at S-3, "M" Line Curing Oven (sum-total of abated emissions emitted from A-5 and A-6), do not exceed 30.68 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

35. The owner/operator shall ensure that the SO2 emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 5.61 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

36. The owner/operator shall ensure that the SO2 emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 0.69 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

37. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 77.43 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

38. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 12.75 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

39. The owner/operator shall ensure that the POC emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 18.36 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

40. The owner/operator shall ensure that the POC emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 2.55 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

41. The owner/operator shall ensure that the CO emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 9.18 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

42. The owner/operator shall ensure that the CO emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 1.51 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

43. The owner/operator shall ensure that the NOx emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 4.42 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

44. The owner/operator shall ensure that the NOx emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 0.55 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

45. The owner/operator shall ensure that the SO2 emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 6.20 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

46. The owner/operator shall ensure that the SO2 emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 0.77 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

47. The owner/operator shall ensure that the PM10 emissions, including filterable

and condensable PM, at S-20, "O" Line Rotary Spin Forming Line, do not exceed 464.84 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

48. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-20, "O" Line Rotary Spin Forming Line, do not exceed 82.25 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

49. The owner/operator shall ensure that the POC emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 138.08 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

50. The owner/operator shall ensure that the POC emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 24.43 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

51. The owner/operator shall ensure that the CO emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 117.92 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

52. The owner/operator shall ensure that the CO emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 20.87 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

53. The owner/operator shall ensure that the NOx emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed ~~6.92~~27.68 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

54. The owner/operator shall ensure that the NOx emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed ~~1.07~~4.28 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

55. The owner/operator shall ensure that the SO2 emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed ~~9.63~~38.51 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

56. The owner/operator shall ensure that the SO2 emissions at S-20, "O" Line

Rotary Spin Forming Line, do not exceed ~~1.49~~5.95 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

57. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-21 (abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 160.11 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

58. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-21 (abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 28.33 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

59. The owner/operator shall ensure that the POC emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 2.28 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

60. The owner/operator shall ensure that the POC emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 0.40 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

61. The owner/operator shall ensure that the CO emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 451.58 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

62. The owner/operator shall ensure that the CO emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 79.91 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

63. The owner/operator shall ensure that the NOx emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 277.64 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

64. The owner/operator shall ensure that the NOx emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 42.93 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

65. The owner/operator shall ensure that the SO2 emissions at S-21(abated

emissions emitted from A-25), "O" Line Curing Oven, do not exceed 5.81 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

66. The owner/operator shall ensure that the SO2 emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 0.90 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

67. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 26.54 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

68. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 4.70 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

69. The owner/operator shall ensure that the POC emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 10.13 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

70. The owner/operator shall ensure that the POC emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 1.79 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

71. The owner/operator shall ensure that the CO emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 12.07 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

72. The owner/operator shall ensure that the CO emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 2.14 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

73. The owner/operator shall ensure that the NOx emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 5.33 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

74. The owner/operator shall ensure that the NOx emissions at S-22 (sum-total of

abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 0.82 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

75. The owner/operator shall ensure that the SO2 emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 6.36 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

76. The owner/operator shall ensure that the SO2 emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 0.98 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

77. Within 45 days of switching from the phenol-formaldehyde based binder to the starch-based binder pursuant to Application 21631, the owner/operator shall submit a source test protocol for approval to the District's Source Test Section. The owner/operator shall describe the test methods that will be used to determine the NOx, SO2, CO, POC, PM10, and toxic air contaminant emissions associated with the use of the starch-based binder. The owner/operator shall describe the expected throughputs to the equipment during the source tests.
(Basis: Regulation 2-1-301)

78. Within 60 days of switching from the phenol-formaldehyde binder to the starch-based binder pursuant to Application 21631, the owner/operator shall conduct initial source tests at sources S-2, S-3, S-4, S-20, S-21, and S-22, and once a year thereafter to determine the emissions of the following pollutants:

    c. NOx
    d. CO
    e. POC
    f. PM10 (filterable)
    g. PM10 (condensable)
    h. SO2
    i. *Phenol
    j. *Formaldehyde
    k. *Methanol
    l. *Ammonia
    m. *Acetaldehyde

*In addition to determining emissions of the TACs cited above, the initial source test at sources S-2, S-3, S-4, S-20, S-21, and S-22 shall also determine the Dioxins and Furans (D/F) emissions when using the starch-based binder. Results from the Health Risk Screening Analysis (HRSA), which is discussed in part 81 of

this permit condition, will determine the frequency of periodic testing for D/F emissions at sources S-2, S-3, S-4, S-20, S-21, and S-22.

In addition to quantifying the emissions of the criteria pollutants and TACs cited above, the owner/operator shall source test sources S-2, S-3, S-4, S-20, S-21, and S-22 to demonstrate compliance with the Regulation 6-1-310 particulate weight limit (of 0.15 grains per dscf per exhaust gas volume) and the Regulation 6-1-311 TSP limit once every year. For the purposes of demonstrating compliance with District Regulation 6-1-311, recycled trim shall be excluded from the allowable process weight rate "P" when determining the allowable rate of emissions "E" permitted under Table 1 of the above section in the rule. The owner/operator shall source test sources S-2, S-3, S-4, S-20, S-21, and S-22 to demonstrate compliance with the Regulation 8-2-301 once every year.
The owner/operator shall ensure that all source tests required by this permit condition are conducted while operating sources S-2, S-3, S-4, S-20, S-21, and S-22 at maximum capacity when they are producing a saleable product. ((Basis: Regulation 2-1-301, Regulation 2-6-409.2)

79. Within 120 days of switching from the phenol-formaldehyde binder to the starch-based binder pursuant to Application 21631, the owner/operator shall submit to the District's Source Test Section the results of the source tests that were conducted in accordance with part 78 of this condition. The results of these source tests shall be kept on site for at least five years from the date of the test and shall be made available to District staff upon request. The owner/operator shall notify the Manager of the District's Source Test Section at least thirty (30) days prior to the test, to provide the District staff the option of observing the testing. Within 60 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. Records of the source test results and any related correspondence with the District's Source Test Section shall be retained on-site by the owner/operator for a minimum of 5 years from the date of the document. The results of the source test shall be made available to the District within 60 days of the source test and kept for a minimum of 5 years from the date of the report.
(Basis: Regulation 2-1-301, Regulation 2-6-503)

80. For a given pollutant, the frequency of source testing required under part 78 of this permit condition shall be reduced from annually to once every five years if three consecutive annual source tests document that emissions of the pollutant are less than 50 percent of the standard. The frequency of source testing shall revert back to annually, if a source test documents that emissions of the pollutant are 50 percent of the standard or more. The source testing frequency can again be reduced if another three consecutive annual source tests document that emissions of the pollutant are less than 50 percent of the standard. (Basis: Regulation 2-6-409.2)

81. *a. After approval of the source test results by the District Source Test

Section, the District's Toxics Evaluation Section staff shall perform a Health Risk Screening Analysis (HRSA) to determine whether the project risk, as defined by BAAQMD Regulation 2-5-217, from sources S-2, S-3, S-4, S-20, S-21, and S-22, exceeds a cancer risk of 1.0 in one million or a chronic hazard index of 0.2 or an acute hazard index of 1.0. In the event the HRSA determines that the projected annual or hourly risk exceeds a cancer risk of 1.0 in one million or a chronic hazard index of 0.2, the District shall impose operational restrictions on the amount of time the owner/operator can operate S-2, S-3, S-4, S-20, S-21, and S-22 on a daily and annual basis. The operational restrictions shall remain in place until such time that the owner/operator either reduces the production capacity at S-2, S-3, S-4, S-20, S-21, and S-22, or applies TBACT consistent with the requirements in BAAQMD Regulation 2-5-301. Compliance shall be determined using the procedures in part 83 of this condition.

*b. In the case that the projected annual or hourly risk exceeds a cancer risk of 10.0 in one million or a chronic hazard index of 1.0 or an acute hazard index of 1.0, the owner/operator shall comply with the TBACT requirement in BAAQMD Regulation 2-5-301 and shall curtail operations to remain below these levels. Compliance shall be determined using the procedures in part 83 of this condition.

*c. The District may impose limits on toxic air contaminants based on the results of the source tests.
(Basis: Regulation 2-5-217, Regulation 2-5-301)

82. After approval by the District Source Test Section of the source test results, the owner/operator shall use the source test results that were gathered when using the starch-based binder to determine emission factors for each criteria pollutant and TAC that was tested on a lb/ton of glass pulled basis. (Basis: Regulation 2-1-403, Regulation 2-5)

83. The owner/operator shall use the emission factors developed in accordance with part 82 to determine compliance with the daily and annual limits outlined in parts 17 through 76 of this permit condition. The owner/operator shall multiply the emission factors for each pollutant by the daily throughputs of glass pulled at S-2, S-3, S-4, S-20, S-21, and S-22 to determine compliance with the daily limits. Within 30 days of the end of each calendar month, the owner/operator shall sum the totals for each calendar day in the calendar month to determine the monthly emissions. Within 30 days of the end of each calendar month, the owner/operator shall sum the monthly totals for the last consecutive 12-month period to determine compliance with the annual limits. The owner/operator shall report to the BAAQMD and the EPA any non-compliance in accordance with Standard Condition I.F of the Major Facility Review permit, and shall immediately reduce production at S-2, S-3, S-4, S-20, S-21, and S-22 until such time that the necessary remedial steps to come

back into compliance have been reviewed by the District and implemented by the owner/operator.
(Basis: Regulation 2-1-403, Regulation 2-5)

RECOMMENDATION

Issue OCIS an AC that would permit the use of a starch-based binder as a replacement to the existing phenol-formaldehyde based binder at the following sources:

S-2: "M" Forming – Rotary Spin, Firing Natural Gas; 13 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Emissions from S-2 are not abated

S-3: "M" Curing Oven, Firing Natural Gas; 18.4 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Abated by charge and discharge incinerators A-5 and A-6, respectively and air action cyclone scrubber (A-101) and high performance air filter (A-102).

S-4: "M" Cooling,
Bare molten glass: 6 tons/hr; 144 TPD
Abated by high efficiency air filtration system A-7

S-20: "O" Forming – Rotary Spin, Firing Natural Gas;
17 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Emissions from S-20 are not abated

S-21: "O" Curing Oven, Firing Natural Gas; 16 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Abated by oven incinerator A-25, air action cyclone scrubber (A-99) and high performance air filter (A-100).

S-22: "O" Cooling,
Bare molten glass: 6 tons/hr; 144 TPD
Abated by scrubber A-26.

_____
K. R. Bhagavan

Attachment:

(Amended July 14th, 2011)

Table 1.a.: 2007 to 2009 M & O Line Production Data						
Year	M-Line			O-Line		
	Run time (hours)	Days/yr	Glass pull (tons)	Run time (hours)	Days/yr	Glass pull (tons)
2007	7,538	314	38,896	7,867	328	40,873
2008	6,327	264	34,598	6,898	287	39,897
2009	3,915	163	21,673	7,501	313	42,729
Average	5,927	247	31,722	7,422	309	41,166

Table 1.b.: 2004 to 2006 M & O Line Production Data						
Year	M-Line			O-Line		
	Run time (hours)	Days/yr	Glass pull (tons)	Run time (hours)	Days/yr	Glass pull (tons)
2004	8,593	358	47,279	8,539	356	50,400
2005	6,888	287	39,219	8,463	353	51,096
2006	8,240	343	48,479	8,480	353	51,184
Average	7,907	329	44,992	8,494	354	50,893

Table 2: NOx and SO2 emissions from the forming section								
O-Forming	Zone A	Zone B	Zone C	Zone D	Total	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	19,180	21,216	23,079	23,318	86,793			
NOx concentration	<2	<2	<2	<2	<2			
NOx emission rate (lb/hr)	0.2736	0.3027	0.3293	0.3327	1.2383			
NOx e/f (lb/ton of g.p.)	0.2079							
NOx emissions						27.68	8,560.23	4.28
SO2 concentration	<2	<2	<2	<2	<2			
SO2 emission rate (lb/hr)	0.3807	0.4211	0.4581	0.4629	1.7228			
SO2 e/f (lb/ton of g.p.)	0.2893							
SO2 emissions						38.51	11,909.89	5.95

Table 3: NOx and SO2 emissions from the curing section				
O-Curing (A-25)	Average	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	13,091			
NOx concentration	133			
NOx emission rate (lb/hr)	12.4204			
NOx e/f (lb/ton of g.p.)	2.0857			
NOx emissions		277.64	85,860.86	42.93
SO2 concentration	<2			
SO2 emission rate (lb/hr)	0.2599			
SO2 e/f (lb/ton of g.p.)	0.0436			
SO2 emissions		5.81	1,796.37	0.90

Table 4 NOx and SO2 emissions from the curing section (smoke stripper)				
O-Curing (A-99 & A-100)	Average	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	2,384			
NOx concentration	4			
NOx emission rate (lb/hr)	0.0680			
NOx e/f (lb/ton of g.p.)	0.0114			
NOx emissions		1.52	470.26	0.24
SO2 concentration	<2			
SO2 emission rate (lb/hr)	0.0473			
SO2 e/f (lb/ton of g.p.)	0.0079			
SO2 emissions		1.06	327.14	0.16

Table 5 NOx and SO2 emissions from the cooling section (w/o smoke stripper)				
O-Cooling (A-26)	Average	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	11,956			
NOx concentration	<2			
NOx emission rate (lb/hr)	0.1706			
NOx e/f (lb/ton of g.p.)	0.0286			
NOx emissions		3.81	1,179.20	0.59
SO2 concentration	<2			
SO2 emission rate (lb/hr)	0.2373			
SO2 e/f (lb/ton of g.p.)	0.0399			
SO2 emissions		5.31	1,640.62	0.82

Table 6 Combined NOx and SO2 emissions from the cooling section (Table 4 + 5)			
Cooling Total	lbs/day	lbs/yr	TPY
Nox	5.33	1,649.46	0.82
SO2	6.36	1,967.76	0.98

Table 7								
October 2007 through February 2009 source test data for M & O lines								
Source #	T5 compliance test date	PM (F) - lbs/hr	PM (C) - lbs/hr	Total PM (F+C) - lbs/hr	Glass pull rate (TPH)	Emission rate		
						PM (F) - lb/ton	PM (C) - lb/ton	Total PM - lb/ton
2	10/28/2008	20.806	2.50	23.303	5.852	3.5554	0.4266	3.9820
3	10/30/2007	0.119	0.84	0.961	5.840	0.0204	0.1441	0.1645
3 - SS	10/30/2007	0.019	0.01	0.029		0.0033	0.0016	0.0049
4	10/30/2007	2.317	0.95	3.262		0.3967	0.1618	0.5586
Cooling total - M	[redacted]	2.336	0.97	3.309		0.4000	0.1667	0.5667
Total - M		23.261	4.292997	27.554	5.846	3.9790	0.7343	4.7133
20	11/5/2007	18.956	2.27	21.231	5.926	3.1988	0.3839	3.5826
21	11/7/2007	1.09	7.71	8.799	5.941	0.1835	1.2976	1.4811
21 - SS	11/7/2007	0.024	0.01	0.036		0.0040	0.0020	0.0061
22	11/7/2007	0.686	0.28	0.966		0.1155	0.0471	0.1626
Cooling total - O	[redacted]	0.71	0.30	1.006		0.1195	0.0498	0.1693
Total - O		20.756	10.27584	31.03184	5.934	3.4981	1.7318	5.2299

Table 8								
February 2009 source test data for M-line								
Source #	T5 compliance test date	PM (F) - lbs/hr	PM (C) - lbs/hr	Total PM (F+C) - lbs/hr	Glass pull rate (TPH)	Emission rate		
						PM (F) - lb/ton	PM (C) - lb/ton	Total PM - lb/ton
2	2/18/2009	17.963	2.16	20.119	5.655	3.1766	0.3812	3.5578

Table 9								
December 2009 and February 2010 source test data for O-line								
Source #	Test date	PM (F) - lbs/hr	PM (C) - lbs/hr	Total PM (F+C) - lbs/hr	Glass pull rate (TPH)	Emission rate		
						PM (F) - lb/ton	PM (C) - lb/ton	Total PM - lb/ton
20	2/17/10 to 2/18/10	13.779	1.6535	15.433	5.355	2.5733	0.3088	2.8822
21	12/8/09 to 12/9/09	0.55	3.89	4.440	5.955	0.0924	0.6532	0.7456
21 - SS		0.08	0.04	0.120		0.0134	0.0067	0.0202
22		0.76	0.31	1.070		0.1276	0.0521	0.1797
Cooling total - O	[redacted]	0.84	0.35	1.190		0.1411	0.0588	0.1998
Total - O		15.169	5.8935	21.0625	5.655	2.6825	1.0422	3.7247

Table 10						
Material	Dec. 2009 test		Feb. 2010 test		Average	
	Process wt. (lbs/hr)	Process wt. (TPH)	Process wt. (lbs/hr)	Process wt. (TPH)	Process wt. (lbs/hr)	Process wt. (TPH)
Glass	11,910	5.955	10,709	5.355	11,310	5.655

Table 11							
Average e/f: M-line (Tables 7 & 8); O-line (Tables 7 & 9)							
Source #	PM (F) - lbs/hr	PM (C) - lbs/hr	Total PM (F+C) - lbs/hr	Glass pull rate (TPH)	Emission rate		
					PM (F) - lb/ton	PM (C) - lb/ton	Total PM - lb/ton
2	19.38	2.33	21.71	5.75	3.369	0.404	3.774
3	0.12	0.84	0.96	5.84	0.020	0.144	0.164
3 - SS	0.02	0.01	0.03		0.003	0.002	0.005
4	2.32	0.95	3.26		0.397	0.162	0.559
Cooling total - M	2.34	0.97	3.31		0.400	0.167	0.567
Total	21.84	4.12	25.96	5.80	3.77	0.71	4.48
20	16.37	1.96	18.33	5.64	2.886	0.346	3.232
21	0.82	5.80	6.62	5.95	0.138	0.975	1.113
21 - SS	0.05	0.03	0.08		0.009	0.004	0.013
22	0.72	0.29	1.02		0.122	0.050	0.171
Cooling total - O	0.78	0.32	1.10		0.130	0.054	0.185
Total - O	17.96	8.08	26.05	5.79	3.10	1.40	4.50

Table 12								
Filterable PM Emissions								
Source #	2004		2005		2006		Average	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
2	444.90	79.65	460.41	66.07	475.74	81.67	460.35	75.79
3	2.69	0.48	2.78	0.40	2.88	0.49	2.78	0.46
3 - SS	0.43	0.08	0.44	0.06	0.46	0.08	0.44	0.07
4	52.39	9.38	54.22	7.78	56.02	9.62	54.21	8.93
Cooling total - M	52.82	9.46	54.66	7.84	56.48	9.70	54.65	9.00
Total - M	500.41	89.58	517.86	74.31	535.10	91.86	517.79	85.25
20	408.83	72.73	418.20	73.73	418.08	73.86	415.03	73.44
21	19.54	3.48	19.98	3.52	19.98	3.53	19.83	3.51
21 - SS	1.24	0.22	1.27	0.22	1.27	0.22	1.26	0.22
22	17.22	3.06	17.61	3.11	17.61	3.11	17.48	3.09
Cooling total - O	18.46	3.28	18.88	3.33	18.87	3.33	18.74	3.32
Total - O	446.82	79.49	457.06	80.59	456.93	80.72	453.60	80.27

Table 13								
Condensable PM Emissions								
Source #	2004		2005		2006		Average	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
2	53.39	9.56	55.25	7.93	57.09	9.80	55.24	9.10
3	19.03	3.41	19.69	2.83	20.35	3.49	19.69	3.24
3 - SS	0.21	0.04	0.22	0.03	0.23	0.04	0.22	0.04
4	21.37	3.83	22.11	3.17	22.85	3.92	22.11	3.64
Cooling total - M	22.01	3.94	22.78	3.27	23.53	4.04	22.77	3.75
Total - M	94.00	16.83	97.28	13.96	100.52	17.26	97.27	16.01
20	49.06	8.73	50.18	8.85	50.17	8.86	49.80	8.81
21	138.18	24.58	141.34	24.92	141.30	24.96	140.27	24.82
21 - SS	0.62	0.11	0.63	0.11	0.63	0.11	0.63	0.11
22	7.02	1.25	7.18	1.27	7.18	1.27	7.13	1.26
Cooling total - O	7.69	1.37	7.87	1.39	7.86	1.39	7.81	1.38

Total - O	194.88	34.67	199.34	35.15	199.29	35.21	197.84	35.01

Table 14								
Total PM Emissions								
Source #	2004		2005		2006		Average	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
2	498.29	89.20	515.66	74.00	532.83	91.47	515.59	84.89
3	21.72	3.89	22.48	3.23	23.23	3.99	22.48	3.70
3 - SS	0.64	0.12	0.67	0.10	0.69	0.12	0.67	0.11
4	73.76	13.20	76.33	10.95	78.87	13.54	76.32	12.57
Cooling total - M	74.83	13.40	77.44	11.11	80.01	13.74	77.43	12.75
Total - M	594.42	106.41	615.14	88.27	635.62	109.11	615.06	101.27
20	457.89	81.46	468.38	82.58	468.25	82.72	464.84	82.25
21	157.71	28.06	161.33	28.44	161.28	28.49	160.11	28.33
21 - SS	1.86	0.33	1.90	0.33	1.90	0.34	1.88	0.33
22	24.24	4.31	24.80	4.37	24.79	4.38	24.61	4.35
Cooling total - O	26.15	4.65	26.74	4.72	26.74	4.72	26.54	4.70
Total - O	641.70	114.16	656.40	115.73	656.21	115.93	651.44	115.27

Table 15						
CO E/f info	S-2	S-20	S-3	S-21	S-4	S-22
CO e/f (lb/ton of g.p.) derived by BAAQMD using 2009 test	0.70	0.82	2.53	3.14	0.07	0.08
CO e/f (lb/ton of g.p.) provided by OCIS w/ application	1.36	1.60	2.68	3.33	0.07	0.09

Note:

1. CO emission rate (in lb/hr) for S-20, S-21, & S-22 was estimated under OS-3179 through 3182 to be 4.9, 18.7, 0.5 (0.3 + 0.2).
2. CO e/f (in lb/ton) for S-20 through S-22 derived using a glass pull rate of 11,910 lbs/hr (5.955 TPH) recorded during 2009 test.
3. CO e/f for S-2 derived based on 2009 test data performed at O-line and normalized using e/f's for M & O lines OCIS submitted with application.

Table 16								
CO Emissions								
Source #	2004		2005		2006		Average	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
2	92.22	16.51	95.44	13.69	98.61	16.93	95.42	15.71
3	333.45	59.69	345.07	49.52	356.56	61.21	345.02	56.81
4	8.87	1.59	9.18	1.32	9.48	1.63	9.18	1.51
Total - M	425.67	76.20	440.50	63.21	455.17	78.14	440.45	72.52
20	116.16	20.66	118.82	20.95	118.79	20.99	117.92	20.87
21	444.83	79.13	455.02	80.23	454.89	80.36	451.58	79.91
22	11.89	2.12	12.17	2.15	12.16	2.15	12.07	2.14
Total - O	572.88	101.91	586.01	103.32	585.84	103.50	581.58	102.91

Table 17			
December 2009 test results	S-20	S-21	S-22
	lb/hr	lb/hr	lb/hr
Unspeciated VOC as C1	0.83	0.089	0.152
Phenol as C1	1.73	**0.000**	0.084
Formaldehyde as C1	0.77	0.002	0.028
Methanol as C1	2.39	0.003	0.156
VOC (Total)[1]	5.72	0.09	0.42
~~VOC~~ POC (e/f) - lb/ton of g.p.	0.96	0.02	0.07
~~VOC~~ POC lbs/day	138.08	2.28	10.13
~~VOC~~ POC lbs/yr	48,867.50	805.92	3,586.04
~~VOC~~ POC TPY	24.43	0.40	1.79

Note:
For example, the unspeciated VOC as C1 = TOC as C1 (sum-total of emissions measured at zones A through D at S-2 during Dec'09 test using results summarized in OS-3179) minus phenol, formaldehyde, & methanol as C1 i.e., 5.71-1.73-0.77-2.39.

Table 18						
E/f's for phenol, formaldehyde, and methanol derived from December 2009 test at O-line (OS-3179 through 3182)						
TAC	S-20		S-21		S-22	
	lbs/hr	lb/ton	lbs/hr	lb/ton	lbs/hr	lb/ton
Phenol	2.26	0.38	0.1519	0.0255	0.11	0.03
Formaldehyde	1.92	0.322	0.006	0.001	0.069	0.012
Methanol	6.37	1.07	0.007	0.0012	0.416	0.07

Note:
1. The e/f in lb/ton were derived assuming a glass pull rate of 5.955 TPH.
2. The concentration of phenol, measured as C1, at A-25 which abates S-21 was <0.8 ppm. Because the concentration of phenol was below the detection limit, phenol emissions were not quantified. Rather than assume "zero", phenol emissions were estimated assuming a stack flow rate of 13,012 dscfm as follows:
= (0.8*13,012*60*94.11)/(1,000,000*386.9) = 0.1519 lb/hr

Table 19						
"Pre-Project" M-line phenol, formaldehyde, and methanol emissions estimated by BAAQMD						
TAC	S-2		S-3		S-4	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
Phenol	42.13	5.17	2.84	0.35	2.05	0.25
Formaldehyde	18.19	2.23	0.34	0.04	4.27	0.52
Methanol	120.89	14.74	0.13	0.02	7.89	0.96

Table 20						
"Pre-Project" O-line phenol, formaldehyde, and methanol emissions estimated by BAAQMD						
TAC	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
Phenol	50.52	7.81	3.40	0.53	2.46	0.38
Formaldehyde	42.92	6.64	0.13	0.02	1.54	0.24
Methanol	142.39	22.02	0.16	0.02	9.30	1.44

[1] The District recognizes that the VOCs determined via Method 5E during the December 2009 test are only a subset of non-methane hydrocarbons (NMHC) and that there could be other organics (such as alkanes) present in the exhaust stream. Method 5E's inability to detect hydrocarbons not trapped in its sampling train is a limitation of the test method. In light of the above and for the purposes of emission calculations summarized in this document it is assumed that VOCs determined via Method 5E are POCs.

Table 21						
"Pre-Project" M-line phenol, formaldehyde, and methanol emissions estimated by OCIS						
TAC	S-2		S-3		S-4	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
Phenol	37.64	4.60	0.14	0.02	2.35	0.29
Formaldehyde	16.84	2.05	0.32	0.04	4.11	0.50
Methanol	70.12	8.64	0.22	0.03	1.24	0.15

Table 22						
"Pre-Project" O-line phenol, formaldehyde, and methanol emissions estimated by OCIS						
TAC	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
Phenol	45.13	6.96	0.17	0.03	2.82	0.44
Formaldehyde	39.74	6.13	0.13	0.02	1.49	0.23
Methanol	82.59	12.91	0.26	0.04	1.46	0.23

Table 23 Ethanol and acetaldehyde emissions from the forming section								
O-Forming	Zone A	Zone B	Zone C	Zone D	Total	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	19,180	21,216	23,079	23,318	86,793			
Ethanol concentration	<0.1	<0.1	<0.1	<0.1	<0.1			
Ethanol emission rate (lb/hr)	0.0137	0.0152	0.0165	0.0167	0.0620			
Ethanol e/f (lb/ton of g.p.)	0.0104							
Ethanol emissions						1.39	428.66	0.21
Acetaldehyde concentration	<0.1	<0.1	<0.1	<0.1	<0.1			
Acetaldehyde emission rate (lb/hr)	0.0131	0.0145	0.0158	0.0159	0.0593			
Acetaldehyde e/f (lb/ton of g.p.)	0.0100							
Acetaldehyde emissions						1.33	409.87	0.20

Note:
1. The e/f in lb/ton were derived assuming a glass pull rate of 5.955 TPH.
2. For example, the concentration of acetaldehyde, measured as C1, at S-2 was <0.1 ppm. Because the concentration of acetaldehyde was below the detection limit, acetaldehyde emissions were not quantified. Rather than assume "zero", acetaldehyde emissions were estimated assuming a combined stack flow rate of 86,793 dscfm exhausting from Zones A, B, C, & D at the "O" line forming section as follows: = (0.1*86,793*60*44.05)/(1,000,000*386.9) = 0.0593 lb/hr

Table 23.a. Ethanol and acetaldehyde emissions from the curing section				
O-Curing (A-25)	Average	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	13,091			
Ethanol concentration	<0.1			
Ethanol emission rate (lb/hr)	0.0094			
Ethanol e/f (lb/ton of g.p.)	0.0016			
Ethanol emissions		0.21	64.66	0.03
Acetaldehyde concentration	<0.1			
Acetaldehyde emission rate (lb/hr)	0.0089			
Acetaldehyde e/f (lb/ton of g.p.)	0.0015			
Acetaldehyde emissions		0.20	61.82	0.03

Table 23.b. Ethanol and acetaldehyde emissions from the curing section (smoke stripper)				
O-Curing (A-99 & A-100)	Average	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	2,384			
Ethanol concentration	<0.1			
Ethanol emission rate (lb/hr)	0.0017			
Ethanol e/f (lb/ton of g.p.)	0.0003			
Ethanol emissions		0.04	11.77	0.01
Acetaldehyde concentration	<0.1			
Acetaldehyde emission rate (lb/hr)	0.0016			
Acetaldehyde e/f (lb/ton of g.p.)	0.000273			
Acetaldehyde emissions		0.04	11.26	0.01

Table 23.c. Ethanol and acetaldehyde emissions from the cooling section (w/o smoke stripper)				
O-Cooling (A-26)	Average	lbs/day	lbs/yr	TPY
Stack flow (DSCFM)	11,956			
Ethanol concentration	<0.1			
Ethanol emission rate (lb/hr)	0.0085			
Ethanol e/f (lb/ton of g.p.)	0.0014			
Ethanol emissions		0.19	59.05	0.03
Acetaldehyde concentration	<0.1			
Acetaldehyde emission rate (lb/hr)	0.0082			
Acetaldehyde e/f (lb/ton of g.p.)	0.0014			
Acetaldehyde emissions		0.18	56.46	0.03

Table 23.d. Combined ethanol and acetaldehyde emissions from the cooling section (Table 23.b. + 23.c.)			
Cooling Total	lbs/day	lbs/yr	TPY
Ethanol	0.23	70.82	0.04
Acetaldehyde	0.22	67.72	0.03

Table 24						
E/f's for ammonia derived from December 2009 test at O-line (OS-3179 through 3182)						
TAC	S-20		S-21		S-22	
	lbs/hr	lb/ton	lbs/hr	lb/ton	lbs/hr	lb/ton
Ammonia	7.34	1.233	4.86	0.82	0.96	0.1612

Note:
1. The e/f in lb/ton were derived assuming a glass pull rate of 5.955 TPH.

Table 25 Glass pull rates (in TPH) at the M & O line in 2007-2009		
Year	M-Line	O-Line
2007	5.16	5.20
2008	5.47	5.78
2009	5.54	5.70
Average	5.39	5.56

Note:
1. For example, the average glass pull rate of 5.47 TPH for the M-line in 2008 was derived by dividing the average quantity of glass pulled by the run time i.e., 34,598 ÷ 6,327 = 5.47 TPH. Refer to Table 1.a. for M & O line production data in 2007-09.

Table 26						
M-line ammonia emissions						
TAC	S-2		S-3		S-4	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
Ammonia	159.05	24.59	105.31	16.28	20.80	3.22

Note:
1. M-line ammonia emissions were derived by multiplying the ratio of the average glass pull rates at the M & O lines in 2007-09 by the ammonia emissions that were quantified for the O-line during the December 2009 source test. For example, the daily and annual ammonia emissions for S-2 were derived by multiplying the ratio of 5.39:5.56 to the O-line daily and annual emissions i.e., (5.39 ÷ 5.56) x 164.08 PPD = 159.05 lbs/day and (5.39 ÷ 5.56) x 25.37 TPY = 24.59 TPY.

Table 27						
O-line ammonia emissions derived from December 2009 test at O-line (OS-3179 through 3182)						
TAC	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
Ammonia	164.08	25.37	108.64	16.80	21.46	3.32

Table 28: Baseline Emissions for M-Line						
Pollutant	**S-2**		**S-3**		**S-4**	
	lbs/day	**TPY**	**lbs/day**	**TPY**	**lbs/day**	**TPY**
PM (F)	460.35	75.79	2.78	0.46	54.65	9.00
PM (C)	55.24	9.10	19.69	3.24	22.77	3.75
PM (F+C)	515.59	84.89	22.48	3.70	77.43	12.75
NOx	30.45	3.76	248.44	30.68	4.42	0.55
SO2	37.17	4.59	5.61	0.69	6.20	0.77
~~VOC~~POC	94.40	13.22	5.33	0.75	18.36	2.55
CO	95.42	15.71	345.02	56.81	9.18	1.51
Phenol	42.13	5.17	2.84	0.35	2.05	0.25
Formaldehyde	18.19	2.23	0.34	0.04	4.27	0.52
Methanol	120.89	14.74	0.13	0.02	7.89	0.96
Ammonia	159.05	24.59	105.31	16.28	20.80	3.22
Ethanol	1.16	0.14	0.21	0.03	0.17	0.02
Acetaldehyde	1.33	0.20	0.57	0.07	0.73	0.09

Table 29: Baseline Emissions for O-Line						
Pollutant	**S-20**		**S-21**		**S-22**	
	lbs/day	**TPY**	**lbs/day**	**TPY**	**lbs/day**	**TPY**
PM (F)	415.03	73.44	19.83	3.51	18.74	3.32
PM (C)	49.80	8.81	140.27	24.82	7.81	1.38
PM (F+C)	464.84	82.25	160.11	28.33	26.54	4.70
NOx	27.68	4.28	277.64	42.93	5.33	0.82
SO2	38.51	5.95	5.81	0.90	6.36	0.98
~~VOC~~POC	138.08	24.43	2.28	0.40	10.13	1.79
CO	117.92	20.87	451.58	79.91	12.07	2.14
Phenol	50.52	7.81	3.40	0.53	2.46	0.38
Formaldehyde	42.92	6.64	0.13	0.02	1.54	0.24
Methanol	142.39	22.02	0.16	0.02	9.30	1.44
Ammonia	164.08	25.37	108.64	16.80	21.46	3.32
Ethanol	1.39	0.21	0.21	0.03	0.23	0.04
Acetaldehyde	1.33	0.20	0.20	0.03	0.22	0.03

Table 30: Baseline Emissions for M-Line estimated by OCIS						
Pollutant	Forming Section		Curing Section		Cooling Section	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
NOx	13.35	1.55	241.51	29.45	1.39	0.17
~~VOC~~POC	141.66	17.38	9.35	1.14	26.79	3.27
CO	179.33	21.59	337.63	42.52	8.6	1.08
Phenol	37.64	4.6	0.14	0.02	2.35	0.29
Formaldehyde	16.84	2.05	0.32	0.04	4.11	0.5
Methanol	70.12	8.64	0.22	0.03	1.24	0.15
Ammonia	159.39	24.59	109.23	16.85	17.16	2.65
Ethanol	0.44	0.05	0	0	0.03	0
Acetaldehyde	0	0	0.31	0.04	0.36	0.05

Table 31: Baseline Emissions for O-Line estimated by OCIS						
Pollutant	Forming Section		Curing Section		Cooling Section	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
NOx	11.42	1.76	267.46	41.22	1.67	0.26
~~VOC~~POC	207.2	32.12	3.99	0.62	14.79	2.3
CO	214.08	32.89	444.77	68.62	11.33	1.75
Phenol	45.13	6.96	0.17	0.03	2.82	0.44
Formaldehyde	39.74	6.13	0.13	0.02	1.49	0.23
Methanol	82.59	12.91	0.26	0.04	1.46	0.23
Ammonia	164.43	25.37	112.68	17.39	17.7	2.73
Ethanol	0.53	0.08	0	0	0.03	0.01
Acetaldehyde	0	0	0.11	0.02	0.11	0.02

Table 32:
M-Line (Hourly "Post-Project" Emissions in lbs/hr)

TAC	Acute TAC trigger level (lbs/hr)	Forming Section (S-2)			Curing Section (S-3)			Cooling Section (S-4)		
		OCIS (original)[2]	OCIS (revised)[3]	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?
Acetaldehyde	1	0.041	0.047	No	0.002	0.002	No	0.006	0.007	No
Acrolein	0.0055	0.000	0.000	No	0.0003	0.0003	No	0	0	No
Formaldehyde	0.12	0.088	0.100	No	0.005	0.006	No	0.019	0.021	No
Methanol	62	0.129	0.147	No	0.001	0.001	No	0.022	0.025	No
Phenol	13	0.000	0.000	No	0	0	No	0	0	No

Table 33:
O-Line (Hourly "Post-Project" Emissions in lbs/hr)

TAC	Acute TAC trigger level (lbs/hr)	Forming Section (S-20)			Curing Section (S-21)			Cooling Section (S-22)		
		OCIS (original)	OCIS (revised)	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?
Acetaldehyde	1	0.048	0.057	No	0.002	0.002	No	0.007	0.009	No
Acrolein	0.0055	0.000	0.000	No	0.0003	0.0003	No	0	0	No
Formaldehyde	0.12	0.104	0.122	**Yes**	0.006	0.007	No	0.022	0.026	No
Methanol	62	0.152	0.179	No	0.001	0.001	No	0.026	0.031	No
Phenol	13	0.000	0.000	No	0	0	No	0	0	No

[2] (original) – Refers to TAC emission estimates OCIS submitted along with their original permit application on February 26, 2010.
[3] (revised) – Refers to TAC emission estimates OCIS submitted via an e-mail on June 1, 2010.

Table 34:
M-Line (Annual "Post-Project" Emissions in lbs/yr)

TAC	Chronic TAC trigger level (lbs/yr)	Forming Section (S-2)			Curing Section (S-3)			Cooling Section (S-4)		
		OCIS (original)	OCIS (revised)	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?
Acetaldehyde	38	359	407	Yes	14	16	No	55	63	Yes
Acrolein	14	0	0	No	2	3	No	0	0	No
Formaldehyde	18	774	878	Yes	44	50	Yes	166	188	Yes
Methanol	150,000	1,133	1,285	No	7	8	No	193	219	No
Phenol	7,700	0	0	No	0	0	No	0	0	No

Table 35:
O-Line (Annual "Post-Project" Emissions in lbs/yr)

TAC	Chronic TAC trigger level (lbs/yr)	Forming Section (S-20)			Curing Section (S-21)			Cooling Section (S-22)		
		OCIS (original)	OCIS (revised)	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?	OCIS (original)	OCIS (revised)	Exceeds Acute TTL?
Acetaldehyde	38	421	496	Yes	17	20	No	65	76	Yes
Acrolein	14	0	0	No	3	3	No	0	0	No
Formaldehyde	18	907	1,069	Yes	51	60	Yes	194	229	Yes
Methanol	150,000	1,328	1,566	No	8	10	No	227	267	No
Phenol	7,700	0	0	No	0	0	No	0	0	No

ENGINEERING EVALUATION
Owens Corning Insulating Systems, LLC, Plant: 41
Application: 21947

BACKGROUND

Owens Corning Insulating Systems, LLC (OCIS) has embarked on a project to use a starch-based binder system as a replacement for the existing phenol-formaldehyde based binder system. When permitted, use of the starch-based binder would alter/modify existing sources at OCIS, and would result in the installation of new ~~storage~~ tanks for storing the binder related materials, mixing and circulating binder and storing and circulating water that washes equipment and provides reclaimable binder solids. The scope of this evaluation report is limited to the new ~~storage~~ tanks. Emissions from existing sources, which will either be altered/modified, will be discussed under Application 21631.

The new starch-based binder formulation will consist of the following ingredients:

- Starch, such as maltodextrin which will be stored in S-173 & S-174 (new tanks);
- Cross-linkers consisting of a hydroxy acid like citric acid and/or polyacrylic resin which will be stored in S-175 & S-176 (new tanks);
- Accelerator, such as sodium hypophosphite which will be stored in S-185 (new tank);
- Fresh water and/or neutralized water that has been reclaimed from the Hoodwall Wash Water System (HWWS), at the "M" and "O" line forming sections i.e. S-2 and S-20, will be stored in ~~and re-circulated~~ and dispensed from S-183 (that will consist of two new tanks which will re-circulate the reclaimed water in the HWWS at each of the two "M" and "O" line forming sections).
- S-182 (a new tank that will contain hoodwall washing water and filtered water to be used in binder formulations)
- Emulsified process oil lubricant stored in S-53 (existing tank);
- Aqueous silane coupling agent solution stored in an existing tote vessel system;
- Dye/Pigment stored in S-160 (existing tank);

The binder ingredients will be metered into a central binder batch mixing system at S-177 (a new small ingredient weighing vessel and a main mixing tank) that will be used to prepare the binder solution. Once mixed, the binder solution will be pumped to new run tank systems at the "M" and "O" lines consisting of S-178, S-179, S-180 and S-181 (new tanks), respectively. The binder solution stored in S-178, S-179, S-180 and S-181 will then be dispensed to equipment that will spray the binder onto glass fibers in the forming section at the "M" and "O" lines i.e. S-2 and S-20. OCIS has contended that the new storage and process tanks (S-173 through S-185) summarized in Table 1 are exempt from permitting.

Table 1

Source #	Source Description	nk capacity (gallon)	ank Type	ulation 2, Rule 1 exemption
173	Maltodextrin storage tank	25,000	al fixed roof tank (VFRT)	2-1-123.3.9
174	Maltodextrin storage tank	25,000		2-1-123.3.9
175	Citric acid storage tank	15,000		2-1-123.3.9
176	yacrylic resin storage tank	8,000		2-1-123.3.9
177	r mix tank & small ingredient weigh tank	) (Mix) & 18 (weigh)		2-1-123.3.9
178	Binder Circulation Tank #1	1,200		2-1-123.3.9
179	Binder Circulation Tank #2	1,200		2-1-123.3.9
180	Binder Circulation Tank #1	1,200	al open top tank	2-1-123.3.9
181	Binder Circulation Tank #2	1,200		2-1-123.3.9
182	odwall Wash Water System (HWWS) ~~& filtered binder make up~~water tank	1,400		2-1-123.2
183	WWS return water tanks (2 tanks)	0 per tank		

Table 1				
Source #	Source Description	nk capacity (gallon)	ank Type	ulation 2, Rule 1 exemption
184	ium hydroxide storage tank	5,000	VFRT	2-1-123.2
185	n hypophosphite storage tank	6,000	VFRT	2-1-123.2

Sources exempt under Reg. 2-1-123.2:

Regulation 2-1-123.2 states the following:
"**2-1-123 Exemption, Liquid Storage and Loading Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

123.2 Tanks, vessels and pumping equipment used exclusively for the storage or dispensing of any aqueous solution which contains less than 1 percent (wt) organic compounds. Tanks and vessels storing the following materials are not exempt.
2.1 Sulfuric acid with an acid strength of more than 99.0% by weight.
2.2 Phosphoric acid with an acid strength of more than 99.0% by weight.
2.3 Nitric acid with an acid strength of more than 70.0% by weight.
2.4 Hydrochloric acid with an acid strength of more than 30.0% by weight.
2.5 Hydrofluoric acid with an acid strength of more than 30.0% by weight.
2.6 More than one liquid phase, where the top phase contains more than one percent VOC (wt)."

S-182 & S-183 :
OCIS estimates that about 85% to 90% of the binder sprayed at the glass fibers via the binder application nozzle rings at S-2 and S-20 adhere to the fibers, and the remaining 10% to 15% is overspray. The HWWS washes glass fibers and over sprayed binder from the moving sidewalls of the tunnel in which the coated glass fibers are formed into a pack at S-2 and S-20. This wash water is filtered and a portion of it is then sent through a polishing filter that removes any residual suspended solids. This polishing makes the water suitable to be reclaimed for use in the binder preparation system. The HWWS water that is not reclaimed for binder formulation is sent to the existing wash water system that provides water to such things as the insulation manufacturing lines' scrubbers, wetted wall ducts, and duct washing systems. The pH of the water in this existing wash water system is adjusted by adding sodium hydroxide that will be stored in S-184 (new tank) and a portion of this water will be used to make up losses from the HWWS. To recap, the wash water comes into contact with binder, and some of the VOC in the binder dissolves into the wash water. Therefore, the wash water is bound to contain residual amounts of VOC that may be emitted at some point in the water cycle as fugitive VOC emissions. OCIS estimated the VOC emissions from S-182 & S-183 via WATER 9, assuming the wash water would consist of a mixture of ethanol (100 ppm) and water, to be 0.0325 TPY (for the S-182 system) 0.0175 TPY (for S-183)[1]. In light of the above, it is safe to state that S-182 & S-183 will exclusively store and/or dispense aqueous solutions containing less than 1 percent (wt) organic compounds and ~~is~~ are therefore exempt per Reg. 2-1-123.2.

[1] The VOC emissions of 0.0175 TPY estimated vSia WATER 9 was for one 1,600-gallon HWWS return water tank. Rather than install one tank for both RS lines, OCIS has proposed to install one 350-gallon tank for each RS line. In light of the above, it is safe to state that the VOC emissions from the two 350-gallon tanks would be lower than the above estimate.

S-184 & S-185:

Per information included in the MSDS, the aqueous solutions of sodium hydroxide that will be stored in S-184, nor sodium hypophosphite that will be stored in S-185 are expected to contain any VOC. Therefore, S-184 & S-185 are exempt per Reg. 2-1-123.2.

Sources exempt under Reg. 2-1-123.9:

Regulation 2-1-123.9 states the following:
"**2-1-123 Exemption, Liquid Storage and Loading Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

3.9 The storage of organic salts or solids in an aqueous solution or suspension, provided that no liquid hydrocarbon layer forms on top of the aqueous phase."

S-173 & S-174:
The starch - maltodextrin that makes up the starch-based binder will be brought on-site in the form of an aqueous solution and will be stored in S-173 & S-174. Corn syrup is a major component of maltodextrin. Based on the chemical composition of maltodextrin, as provided in the MSDS, and scientific studies, OCIS believes that the maltodextrin solution will not form a liquid hydrocarbon layer on top of the aqueous phase. OCIS estimated the VOC emissions from S-173 & S-174 via TANKS 4.0.9d to be 0.10 TPY/tank. In light of all of the above, S-173 & S-174 are exempt per Reg. 2-1-123.3.9.

S-175:
Citric acid will be brought on-site in a form of an aqueous solution and will be stored in S-175. Based on the chemical composition of citric acid, as provided in the MSDS, and scientific studies, OCIS believes that the citric acid solution will not form a liquid hydrocarbon layer on top of the aqueous phase. OCIS estimated negligible VOC emissions (worst-case 73 lbs/yr) from S-175 via TANKS 4.0.9d. In light of all of the above, S-175 is exempt per Reg. 2-1-123.3.9.

S-176:
Based on R&D tests and scientific studies performed by OCIS and/or its vendors, the aqueous solution of the polyacrylic resin that will be stored in S-176 will not form a liquid hydrocarbon layer on top of the aqueous phase. OCIS estimated negligible VOC emissions (worst-case 47 lbs/yr) from S-176 via TANKS 4.0.9d. In light of all of the above, S-176 is exempt per Reg. 2-1-123.3.9.

S-177:
As previously discussed, the new starch-based binder will be formulated using maltodextrin, citric acid and/or polyacrylic resin, sodium hypophosphite, binder oil, silane, and a dye. Based on R&D tests and scientific studies performed by OCIS and/or its vendors, the aqueous solution of the binder formulation that will be prepared and stored in the S-177 system will not form a liquid hydrocarbon layer on top of the aqueous phase. OCIS estimated the VOC emissions from S-177 via WATER 9, assuming the binder would consist of a mixture of ethanol (100 ppm) and water, to be 0.011 TPY. In light of all of the above, S-177 is exempt per Reg. 2-1-123.3.9.

S-178 through S-181:
The binder that will be stored and circulated via tanks #1 (S-178) & #2 (S-179) at the "M" line forming section (S-2), and via tanks #1 (S-180) & #2 (S-181) at the "O" line forming section (S-20) will contain 10 to 15% by wt. organics. The composition of the binder stored in the above tanks will be similar to that of the binder prepared and stored in S-177. Based on R&D tests and scientific studies performed by OCIS and/or its vendors, the aqueous solution of the binder stored in the above tanks and re-circulated at S-2 and S-20 will not form a liquid hydrocarbon layer on top of the aqueous phase. OCIS estimated the VOC

emissions from S-178 through S-181 via WATER 9, assuming the binder circulated in the above tanks would consist of a mixture of ethanol (110 ppm) and water, to be 0.016 TPY per tank. In light of all of the above, S-178 through S-181 are exempt per Reg. 2-1-123.3.9.

OTHER ACTIONS

The District originally intended to review all sources (exempt and non-exempt) under one permit application (# 21631). However, the District did not want permitting delays associated with processing the altered/modified sources to serve as a bottleneck to issue the exempt sources a formal Letter of Exemption. Therefore, the District divvied the original permit application into two parts. Specifically, sources that are exempt were reviewed under Application 21947. Likewise, sources that will either be altered/modified will be reviewed under Application 21631.

OCIS was previously invoiced for $ 12,072.00 under invoice # 2LA66 for Application 21631. The above invoice amount included permit fees of $ 649.00/source for S-173 through S-183[2] discussed in this application (# 21947). As discussed in this report, the above sources are exempt. As a result, permit fees originally assessed will be reduced by $ 7,139.00 to $ 4,933.00. The District received a payment from OCIS for $ 12,072.00 on April 30, 2010. The District could either refund OCIS $ 7,139.00, or apply the above amount to process Application 21632 – the Title V counterpart of this NSR application. Else, an adjusted invoice for $ 4,933.00 will be sent to OCIS.

RECOMMENDATION

Issue OCIS a Letter of Exemption for the following equipment:

S-173: Maltodextrin storage tank; 25,000 gallon; Vertical Fixed Roof Tank
S-174: Maltodextrin storage tank; 25,000 gallon; Vertical Fixed Roof Tank
S-175: Citric storage tank; 15,000 gallon; Vertical Fixed Roof Tank
S-176: Polyacrylic resin storage tank; 8,000 gallon; Vertical Fixed Roof Tank
S-177: Binder mix tank; 750 gallon with 18-gallon volumetric/weigh tank for minor binder ingredients; Vertical Open Top Tank
S-178: M-Binder Circulation Tank #1; 1,200 gallon; Vertical Open Top Tank
S-179: M-Binder Circulation Tank #2; 1,200 gallon; Vertical Open Top Tank
S-180: O-Binder Circulation Tank #1; 1,200 gallon; Vertical Open Top Tank
S-181: O-Binder Circulation Tank #2; 1,200 gallon; Vertical Open Top Tank
S-182: HWWS filtered water ~~make-up~~ tank; 1,400 gallon; Vertical Open Top Tank
S-183: HWWS return water tanks (2 tanks); 350 gallon/tank; Vertical Open Top Tank
S-184: Sodium hydroxide storage tank; 5,000 gallon; Vertical Fixed Roof Tank
S-185: Sodium hypophosphite storage tank; 6,000 gallon; Vertical Fixed Roof Tank

K. R. Bhagavan

[2] Fees were not assessed for S-184 and S-185. ~~Based on info contained in an e-mail from OCIS dated May 12, 2010 it appears S-183, for which fees were originally assessed, will not be installed.~~

ENGINEERING EVALUATION
Plant 41: Owens Corning Insulating Systems, LLC
Application 23518: Re-establishment of NOx, CO, and PM Baseline Limits

Owens Corning Insulating Systems, LLC (OCIS) has submitted Application 23518 as a follow-up to Application 21631, asking the District to revise certain emissions limits contained in permit condition 24873. As discussed in the District's engineering evaluation for Application 21631, which is attached here as Exhibit 1, the permit limits were intended to reflect OCIS's "baseline" emissions prior to OCIS's switch from a phenol-formaldehyde binder to a starch-based binder. OCIS agreed to abide by the "baseline" emissions after the switch in order to avoid having an increase in emissions, which would have triggered District requirements such as Best Available Control Technology (BACT) and emissions offsets. Source tests conducted after OCIS's switch to the starch-based binder, however, showed apparent increases in CO emissions from source S-20 and PM10 emissions from S-22. OCIS argues in Application 23518 that the "baseline" emissions for CO that were previously calculated by the District did not in fact accurately reflect actual maximum emissions when using the phenol-formaldehyde binder, and that the "baseline" should be adjusted upwards based on additional source test data submitted with Application 23518. By contrast, OCIS concedes that the binder change led to an actual increase in PM10 emissions from S-22, and has submitted a BACT analysis for the District's review. The purpose of this evaluation report is to discuss the CO and PM10 (as well as NOx, as discussed further below) emissions from the affected sources, as measured both before and after the binder change, and OCIS's proposed revisions to the existing permit limits for these pollutants. The evaluation concludes by recommending that certain emission limits for CO, PM10, and NOx be adjusted as shown in the permit condition section.

BACKGROUND

OCIS manufactures wool fiberglass at its two Rotary Spin (RS) manufacturing lines in Santa Clara – "M" and "O". A cold top electric furnace is located upstream of each RS line, and each RS line consists of three sections: forming, curing, and cooling. Sources that make up the "M" line are S-1 (the furnace), S-2 (the forming section), S-3 (the curing section), and S-4 (the cooling section). Likewise, the "O" line consists of S-19 (the furnace), S-20 (the forming section), S-21 (the curing section), and S-22 (the cooling section). The "M" line is currently inactive. Therefore, the scope of this evaluation report is limited to discussing the following existing sources ("affected sources") that make up the "O" line:

S-20: "O" Forming – Rotary Spin, Firing Natural Gas; 17 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Emissions from S-20 are not abated

S-21: "O" Curing Oven, Firing Natural Gas; 16 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Abated by oven incinerator A-25, air action cyclone scrubber (A-99) and high performance air filter (A-100).

S-22: "O" Cooling,
Bare molten glass: 6 tons/hr; 144 TPD
Abated by scrubber A-26.

Prior to March 2011, OCIS used a phenol-formaldehyde binder when manufacturing its fiberglass products at S-20 through S-22. In Application 21631, submitted on February 26, 2010, however, OCIS requested switching to a starch-based binder in place of the phenol-formaldehyde binder. According to OCIS, the change would result in a "greener" product and would yield air quality benefits, namely significantly reduced Toxic Air Contaminant (TAC) emissions.
On February 24, 2011, the District issued OCIS an Authority to Construct (AC) under Application 21631 permitting the use of a starch-based binder. As discussed in the engineering evaluation for Application 21631 (*see* Exhibit 1), to avoid an increase in emissions that would trigger requirements under District Regulation 2-2 and emissions offsets, OCIS agreed to accept as enforceable permit conditions emissions

limits that reflected its "existing" emissions (when using the phenol-formaldehyde binder), as shown by source tests conducted in 2009 and 2010, prior to the binder change. The emissions limits were memorialized in permit condition 24873, which accompanied the AC. Part 78 of permit condition 24873 then required OCIS to conduct further source tests within 60 days of making the binder change, to verify that emissions when using the starch-based binder were in fact within the permitted ("existing baseline") limits.

OCIS began using the starch-based binder on March 25, 2011, and performed the required source tests at S-20 and S-22 from April 28, 2011 through May 5, 2011. The source tests measured emissions of PM10, POC, CO, NOx, and SO2, as well as the TACs phenol, formaldehyde, methanol, ammonia, acetaldehyde, and dioxins/furans.

On June 16, 2011, OCIS informed the District that the initial results from the April-May 2011 source tests showed levels of CO emissions from S-20 and of PM 10 emissions from S-22 that exceeded the limits established in permit condition 24873, parts 51 and 67. On June 30, 2011, OCIS and the District entered into a Compliance and Enforcement Agreement, which allowed OCIS to continue to operate under interim emissions limits for CO from S-20 and PM10 from S-22 that were based on the levels measured during the April-May 2011 source tests, while OCIS worked with the District to resolve the apparent conflict between the "existing baseline" limits measured prior to the binder change and memorialized in permit condition 24873, and the actual emissions measured during the April-May 2011 source tests following the binder change.

On July 5, 2011, OCIS submitted Application 23518, in which it proposed to increase the "existing baseline" limits set forth in permit condition 24873 for CO emissions from S-20 and PM10 emissions from S-22. To support its application, OCIS conducted further source tests on February 14 and 15, 2012.

EMISSIONS CALCULATIONS

Please refer to Exhibit 1 (the District's evaluation report for Application 21631) for more information on how the District established the "existing baseline" emission limits for CO, NOx and PM10 emissions from the O-line forming (S-20) and cooling (S-22) sections.

CO emissions from S-20:

With this permit application (# 23518), OCIS seeks to re-establish the "existing baseline" daily CO emission limit for S-20 due to the fact that prior source tests had not accurately reflected OCIS's maximum actual emissions prior to the binder change. OCIS's position appears correct and is supported by the additional source test data it has submitted from April-May 2011 and February 2012.

The inverse relationship between CO emissions and O2 setting:

The O-line forming section (S-20), which has been in operation since 1966, is equipped with ten natural gas fired fiberizers with a combined maximum heat input rating of 17 MMBTU/hour and a forced draft fan supplying the combustion air. The fiberizers convert the molten glass (melted at the O-line furnace S-19 upstream of S-20) that is metered from a heated bushing in the bottom of the forehearth into a veil of glass fibers. The veil of glass fibers is cooled with contact water, coated with the starch-based binder (phenol-formaldehyde based binder prior to March 25th, 2011) and formed into a pack of glass fibers.

The air/fuel mixture supplied to the fiberizers is first mixed at the "mixing spud" which is upstream of the fiberizers. The percent flue gas oxygen level ("% O2 setting") in the air/fuel mixture supplied to the fiberizers is varied to any one of the following three % O2 settings, depending on the product being manufactured. OCIS's product lines have not changed as a result of the facility's move from a phenol-formaldehyde binder to a starch-based binder.

- 2% (associated with products R-13, R-15, & R-21)
- 2.5% (associated with products R-19, R-25, R-30, & R-38), and
- 3.5% (associated with products R-7, R-11 single, & R-11 bisect).

Varying the % O2 settings is accomplished via an O2 analyzer that is downstream of the mixing spud and upstream of the fiberizers. The O2 analyzer draws a sample of the air/fuel mixture from the mixing spud, combusts it and then determines & displays the amount of oxygen in the sampled combustion gases. The O2 value (of 2%, 2.5%, or 3.5%) displayed by the O2 analyzer is the O2 concentration in the fiberizer combustion products.

The source test results from the April-May 2011 and February 2012 source tests (see Table 1) show that the lowest O2 setting at S-20's fiberizers yields the highest CO emission rate. In other words, CO emissions from the forming section are inversely proportional to the percent oxygen in the flue gas at the fiberizer burners. Because OCIS's product lines have not changed as a result of the binder change, it is reasonable to conclude that OCIS's source tests in 2009, which were conducted when S-20's fiberizers were operating at 3.50% O2 setting, did not reflect the source's highest CO emissions, *i.e.*, the CO emissions that would be expected when the facility produced any of the products that required a 2.00% O2 setting (R-13, R-15 or R-21).

Accordingly, the "existing baseline" limit for CO should be re-established to reflect emissions when the O2 setting is 2.0%.

"Existing baseline," "Interim," and "Revised baseline" limits for CO:
Tables 1 and 2 summarize the CO emissions from S-20, as measured during the source tests conducted by OCIS in 2009, 2011, and 2012. Although the April-May 2011 and February 2012 source tests (Table 1) show that, *actual CO emissions have decreased as a result of the binder change at any given O2 setting* (*see* Table 3), the "existing baseline" emission limits for CO must still be adjusted upwards in the permit because they do not reflect S-20's highest CO emissions prior to the binder change, *i.e.*, when the O2 setting was 2.0%.

The "existing baseline" daily and annual CO emission limits of 117.92 lb/day and 20.87 TPY in parts 51 and 52 of permit condition 24873 were established under Application 21631 when using the phenol-formaldehyde based binder using emission rates derived via source tests conducted in December 2009 when operating S-20's fiberizers at 3.50% O2 setting in concert with 2004-06 baseline operating data summarized in Table 5.

The "interim" daily CO emission baseline limit of 152 lb/day contained in the Compliance and Enforcement Agreement is valid until April 16, 2012 and was established when using the starch-based binder using emission rates derived via source tests conducted in May 2011 when operating S-20's fiberizers at 2.50% O2 setting, in concert with 2004-06 baseline operating data summarized in Table 5.

The "revised baseline" daily and annual CO emission limits of 211.51 lb/day and 37.44 TPY in parts 51 and 52 of permit condition 24873 proposed under Application 23518 are based on emission rates derived via source tests conducted in February 2012 when using the starch-based binder when operating S-20's fiberizers at 2.00% O2 setting in concert with 2004-06 baseline operating data summarized in Table 5. The limits shown in Table 4 were calculated as follows:

"Revised" CO daily and annual emission limits:
CO emission rate determined during the February 2012 source test at 2% O2 setting = 8.815 lb/hr → Refer to Table 1
Operating hours of O-line during the 2004-06 baseline period
= 354 days/year and 8,494 hours/year → Refer to Table 5
Daily emissions = (8.815 x 8,494) ÷ 354 days/year
= 211.51 lb/day → Refer to Table 4
Annual emissions = (8.815 x 8,494) ÷ 2,000 lb/ton
= 37.44 TPY → Refer to Table 4

It should be noted that the "revised" daily CO emission baseline limit of 211.51 lb/day is greater than the "interim" daily CO emission baseline limit of 152 lb/day. The "interim" daily limit of 152 lb/day contained in the Compliance and Enforcement Agreement was based on a CO emission rate of 6.340 lb/hour when

operating S-20's fiberizers at 2.50% O2 setting during the May 2011 source test and assumed 24-hour/day of operation.

By contrast the "revised" daily limit of 211.51 lb/day is based on a CO emission rate of 8.815 lb/hour when operating S-20's fiberizers at 2.00% O2 setting, i.e., the fiberizer % O2 setting that the facility must use when manufacturing products R-13, R-15, & R-21, and that yields the highest CO emissions from S-20, in concert with 2004-06 baseline operating data summarized in Table 5.

Table 1:
CO emissions (in lb/hour) from S-20
when using the starch-based binder

OS #	Test date	% O2 setting	Zone A	Zone B	Zone C	Zone D	Total
4096	2/14/12 to 2/15/12	2	2.546	2.273	2.746	1.250	8.815
3850	5/3/11 to 5/4/11	2.5	1.641	1.807	1.825	1.067	6.340
4096	2/14/12 to 2/15/12	3.5	1.028	0.808	1.067	0.613	3.516
Average							6.224

Table 2:
CO emissions (in lb/hour) from S-20
when using the phenol-formaldehyde based binder

OS #	Test date	% O2 setting	Zone A	Zone B	Zone C	Zone D	Total
3179	12/8/09 to 12/9/09	3.5	1.070	1.310	1.110	1.400	4.890

Table 3:
Change in CO emissions at S-20
from binder change (at 3.5% O2 setting)

Emission rate	Starch-based binder	Phenol-formaldehyde based binder	Net Increase/Decrease
Lb/hour	3.516	4.890	-1.374

Table 4: "Revised" CO emissions baseline for S-20				
Baseline	% O2 setting	Binder type	#/day	TPY
Existing	3.50	Phenol-formaldehyde	117.92[1]	20.87[2]
Revised	2.00	Starch	211.51	37.44
Net change			93.59	16.57
% change			79%	

Table 5: Operational data used to establish the daily and annual NOx and CO baseline emission limits for S-20			
Baseline period	hours/year	days/year	Tons of glass pulled/year
2004-06	8,494	354	50,893
2007-09	7,422	309	41,166

NOx emissions from S-20:

It is well established that NOx and CO emissions are integrally related. Therefore—although OCIS did not address NOx in Application 23518—in addition to monitoring for CO during the February 2012 source tests at S-20, the District also required OCIS to continuously monitor NOx at different % O2 settings i.e., 2% and 3.5%, to allow the District to evaluate whether re-establishing the CO baseline for S-20 would require concurrent changes to the NOx baseline.

The source test results show that the District should adjust downwards the daily and annual NOx emission baseline limits of 21.22 lb/day and 3.28 TPY in parts 53 and 54 of permit condition 24873, based on emission rates derived via the source tests conducted in February 2012 when using the starch-based binder when operating S-20's fiberizers at 2.00% O2 setting, in concert with 2007-09 baseline operating data summarized in Table 5 above.

Tables 6 through 7 summarize the NOx emissions from S-20, as measured during source tests conducted by OCIS in April-May 2011 and February 2012 (after the binder change) and December 2009 (prior to the binder change). The "revised" daily and annual NOx emission limits summarized in Table 9 were calculated as follows:

[1] Existing daily CO baseline limit of 117.92 lb/day for S-20 outlined in part 51 of PC 24873.
[2] Existing annual CO baseline limit of 20.87 TPY for S-20 outlined in part 52 of PC 24873.

"Revised" NOx daily and annual emission limits:
NOx emission rate determined during the February 2012 source test at 2% O2 setting = 0.884 lb/hr → Refer to Table 6
Operating hours of O-line during the 2007-09 baseline period
= 309 days/year and 7,422 hours/year → Refer to Table 5
Annual emissions = 0.884 x 7,422 = 6,561.05 lb/year ÷ 2,000 lb/ton
= 3.28 TPY → Refer to Table 9
Daily emissions = 6,561.05 lb/year ÷ 309 days/year
= 21.22 lb/day → Refer to Table 9

Table 6:
NOx emissions (in lb/hour) from S-20
when using the starch-based binder

OS #	Test date	% O2 setting	Zone A	Zone B	Zone C	Zone D	Total
4096	2/14/12 to 2/15/12	2	0.232	0.247	0.244	0.161	0.884
3850	5/3/11 to 5/4/11	2.5	0.209	0.204	0.197	0.091	0.701
4096	2/14/12 to 2/15/12	3.5	0.237	0.127	0.210	0.083	0.657
Average							0.747

Table 7:
NOx emissions (in lb/hour) from S-20
when using the phenol-formaldehyde based binder

OS #	Test date	% O2 setting	Zone A	Zone B	Zone C	Zone D	Total
3179	12/8/09 to 12/9/09	3.5	0.274	0.303	0.329	0.333	1.239

Table 8:
Change in NOx emissions at S-20
from binder change (at 3.5% O2 setting)

Emission rate	Starch-based binder	Phenol-formaldehyde based binder	Net Increase/Decrease
Lb/hour	0.657	1.239	-0.582

Table 9: "Revised" NOx emissions baseline for S-20				
Baseline	% O2 setting	Binder type	lb/day	TPY
Existing	3.50	Phenol-formaldehyde	27.68[3]	4.28[4]
Revised	2.00	Starch	21.22	3.28
Net change			-6.46	-1.00
% change			-23%	

PM10 emissions from S-22:

OCIS also seeks to increase the daily emissions limit for PM10 (filterable and condensable PM) emissions from the "O" Cooling section (S-22). Emissions from S-22 are the sum-total of the "O" line smoke stripper and the "O" cooling line. Emissions from the "O" line smoke stripper, which is downstream of the O-line curing oven (S-21) and upstream of S-22, are abated by the Air Action Cyclone Scrubber (A-99) in series with a High Performance Air Filter (A-100). S-22's emissions are abated by Scrubber (A-26).

Tables 10 and 11 summarize the PM10 emissions from S-22, as measured during source tests conducted by OCIS in April-May 2011 (after the binder change) and December 2009 (prior to the binder change).

The "existing baseline" daily and annual PM10 (sum-total of abated emissions emitted from A-26, A-99, and A-100) emission limits of 26.54 lb/day and 4.70 TPY in parts 67 and 68 of permit condition 24873, respectively, were established under Application 21631 when using the phenol-formaldehyde based binder using emission rates derived via source tests conducted in December 2009 in concert with 2004-06 baseline operating data summarized in Table 5 above.

The "interim" daily PM10 emission baseline limit of 41 lb/day (rounded up 40.86 lb/day in Table 13 below) established on June 30, 2011 under the Compliance and Enforcement Agreement is valid until April 16, 2012 and was established when using the starch-based binder using emission rates derived via source tests conducted in May 2011 in concert with 2004-06 baseline operating data summarized in Table 5 above..

The "revised baseline" daily and annual PM10 emission limits of 40.86 lb/day and 7.23 TPY summarized in Table 13 are based on emission rates derived via source tests conducted in May 2011 in concert with 2004-06 baseline operating data summarized in Table 5 above and were calculated as follows:

<u>"Revised" PM10 daily and annual emission limits:</u>
PM10 emission rate determined during May 2011 source test = 1.7030 lb/hr → Refer to Table 10
Operating hours of O-line during the 2004-06 baseline period
= 354 days/year and 8,494 hours/year → Refer to Table 5
Daily emissions = (1.7030 x 8,494) ÷ 354 days/year
= 40.86 lb/day → Refer to Table 13
Annual emissions = (1.7030 x 8,494) ÷ 2,000 lb/ton
= 7.23 TPY → Refer to Table 13

It should be noted that the "revised" daily PM10 emission baseline limit of 40.86 lb/day is lower than the "interim" daily PM10 emission baseline limit of 41 lb/day. This is because the "interim" limit proposed by OCIS under the Compliance and Enforcement Agreement rounded up the "revised" limit, i.e., 40.86 lb/day was rounded up to 41 lb/day.

[3] Existing daily NOx baseline limit of 27.68 lb/day for S-20 outlined in part 53 of PC 24873.
[4] Existing annual NOx baseline limit of 4.28 TPY for S-20 outlined in part 54 of PC 24873

.

Table 10: PM10 emissions (in lb/hour) from S-22 when using the starch-based binder			
PM species	April-May 2011 source test results (OS-3852 to 3853)		
	Smoke Stripper	S-22	Smoke Stripper + S-22
PM (F)	0.0530	0.6210	0.6740
PM (organic C)	0.1610	0.6920	0.8530
PM (inorganic C)	0.0430	0.1330	0.1760
PM (C)	0.2040	0.8250	1.0290
Total PM (F+C)	0.2570	1.4460	1.7030

Table 11: PM10 emissions (in lb/hour) from S-22 when using the phenol-formaldehyde based binder			
PM species	December 2009 source test results (OS-3179 to 3182)		
	Smoke Stripper	S-22	Smoke Stripper + S-22
PM (F)	0.0763	0.7039	0.7802
PM (organic C)	0.0026	0.0283	0.0308
PM (inorganic C)	0.0372	0.2577	0.2949
PM (C)	0.0398	0.2860	0.3257
Total PM (F+C)	0.1161	0.9899	1.1059

Table 12: Change in PM10 emissions from binder change			
PM species	Net Increase/Decrease (in lb/hour)		
	Smoke Stripper	S-22	Smoke Stripper + S-22
PM (F)	-0.0233	-0.0829	-0.1062
PM (organic C)	0.1584	0.6637	0.8222
PM (inorganic C)	0.0058	-0.1247	-0.1189
PM (C)	0.1642	0.5390	0.7033

Table 12: Change in PM10 emissions from binder change			
PM species	Net Increase/Decrease (in lb/hour)		
	Smoke Stripper	S-22	Smoke Stripper + S-22
Total PM (F+C)	0.1409	0.4561	0.5971

Table 13: "Revised" PM10 emissions baseline for S-22			
Baseline	Emissions rate		
	lb/hour	lb/day	TPY
Existing	1.11	26.54	4.70
Revised	1.70	40.86	7.23
Net Increase/Decrease	0.60	14.32	2.53
% change	54%		

Toxic Air Contaminants (TACs):

As mentioned above, OCIS has stated that it was motivated to use a starch-based binder as a less toxic, "green" alternative to the phenol-formaldehyde binder. OCIS anticipated that emissions of TACs would be reduced significantly because of the difference in the compositions of the two binders. The source tests conducted in April-May 2011 largely bear this out. As shown in Tables 14 through 17, with the exception of acrolein (which is discussed further below), TAC emissions from the "O" line forming section (S-20), the curing section (S-21), and the cooling section (S-22) were significantly reduced when using the starch-based binder as compared to the phenol-formaldehyde based binder. Specifically, use of the starch-based binder in favor of the phenol-formaldehyde binder resulted in over 96% reduction in acetaldehyde (from 0.26 TPY to 0.01 TPY), over 99% reduction in ammonia (from 44.59 TPY to 0.06 TPY), over 95% reduction in formaldehyde (from 6.90 TPY to 0.30 TPY), over 99% reduction in methanol (from 23.48 TPY to 0.07 TPY), and a 100% reduction in phenol (from 8.72 TPY to 0 TPY).

Acrolein was not measured during the December 2009 Pre-Project source tests. Therefore, a Pre-Project baseline for acrolein was not established under Application 21631. The Post-Project source tests conducted in April-May 2011 found acrolein emissions from S-20 and S-21 to be below detection limits. Because acrolein was detected in one out of three test runs at the smoke stripper (in the other two test runs, acrolein was below detection limits), the District conservatively assumed acrolein emissions from S-22 to be 0.001 lb/hour. Because emissions from the smoke stripper and S-22 are considered together, acrolein emissions are cited under Tables 16 and 17.

Table 14: TAC emissions from the O-line Forming Section (S-20)		
TAC	Pre-Project Baseline established when using the phenol-formaldehyde based binder	Post-Project Source Test Results obtained when using the starch-based binder

	lb/day	TPY	lb/hr	lb/day	TPY
Acetaldehyde	1.33	0.20	0	0	0
Acrolein	None established		0	0	0
Ammonia	164.08	25.37	0.0051	0.12	0.02
Formaldehyde	42.92	6.64	0.045	1.08	0.20
Methanol	142.39	22.02	0	0	0
Phenol	50.52	7.81	0	0	0

Table 15:
TAC emissions from the O-line Curing Section (S-21)

TAC	Pre-Project Baseline established when using the phenol-formaldehyde based binder		Post-Project Source Test Results obtained when using the starch-based binder		
	lb/day	TPY	lb/hr	lb/day	TPY
Acetaldehyde	0.20	0.03	0	0	0
Acrolein	None established		0	0	0
Ammonia	108.64	16.80	0.0059	0.14	0.03
Formaldehyde	0.13	0.02	0.0027	0.06	0.01
Methanol	0.16	0.02	0.008	0.192	0.03504
Phenol	3.40	0.53	0	0	0

Table 16:
TAC emissions from the O-line Cooling Section (S-22)

TAC	Pre-Project Baseline established when using the phenol-formaldehyde based binder		Post-Project Source Test Results obtained when using the starch-based binder		
	lb/day	TPY	lb/hr	lb/day	TPY
Acetaldehyde	0.22	0.03	0.003	0.072	0.01314
Acrolein	None established		0.001	0.024	0.00438
Ammonia	21.46	3.32	0.0017	0.04	0.01
Formaldehyde	1.54	0.24	0.0217	0.52	0.10
Methanol	9.30	1.44	0.007	0.168	0.03066
Phenol	2.46	0.38	0	0	0

Table 17: TAC emissions from S-20, S-21, & S-22						
TAC	Pre-Project Baseline established when using the phenol-formaldehyde based binder		Post-Project Source Test Results obtained when using the starch-based binder		Net change in emissions	
	lb/day	TPY	lb/day	TPY	lb/day	TPY
Acetaldehyde	1.75	0.26	0.07	0.01	-1.68	-0.25
Acrolein	0.00	0.00	0.02	0.0044	0.02	0.0044
Ammonia	294.18	45.49	0.30	0.06	-293.88	-45.43
Formaldehyde	44.59	6.90	1.67	0.30	-42.92	-6.60
Methanol	151.85	23.48	0.36	0.07	-151.49	-23.41
Phenol	56.38	8.72	0.00	0.00	-56.38	-8.72

It can be seen from Table 16 above that the hourly and annual emission rate of acrolein are 0.001 lb/hr and 8.76 lb/yr (0.00438 TPY), respectively. The above emission rates of acrolein from the O-line cooling section are below the Regulation 2, Rule 5 acute and chronic trigger levels of 0.0055 lb/hr and 14 lb/yr, respectively, and do not pose any significant health risk.

Summary of "Existing" and "Revised" Baseline Emissions Levels for All Pollutants:

Table 18 summarizes the "existing baseline" emissions limits for criteria pollutants and TACs that were established under Application 21631 for S-20 through S-22 when using the phenol-formaldehyde based binder and memorialized in permit condition 24873. The shaded boxes indicate the baseline emissions limits that are the subjects of this engineering evaluation.

Table 18: "Existing" Baseline Emissions for the O-Line						
Pollutant	Forming Section		Curing Section		Cooling Section	
	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	415.03	73.44	19.83	3.51	18.74	3.32
PM (C)	49.8	8.81	140.27	24.82	7.81	1.38
PM (F+C)	464.84	82.25	160.11	28.33	26.54	4.7
NOx	27.68	4.28	277.64	42.93	5.33	0.82
SO2	38.51	5.95	5.81	0.9	6.36	0.98
POC	138.08	24.43	2.28	0.4	10.13	1.79
CO	117.92	20.87	451.58	79.91	12.07	2.14
Phenol	50.52	7.81	3.4	0.53	2.46	0.38
Formaldehyde	42.92	6.64	0.13	0.02	1.54	0.24
Methanol	142.39	22.02	0.16	0.02	9.3	1.44
Ammonia	164.08	25.37	108.64	16.8	21.46	3.32
Ethanol	1.39	0.21	0.21	0.03	0.23	0.04
Acetaldehyde	1.33	0.2	0.2	0.03	0.22	0.03

Effective March 20, 2011, OCIS stopped using the phenol-formaldehyde based binder and started using the starch-based binder at S-20 on and after March 25, 2011. In accordance with part 78 of permit condition 24873 that accompanied the AC, OCIS performed source testing at S-20 through S-22 from April 28, 2011 through May 5, 2011 to demonstrate compliance with the daily and annual baseline emission limits for criteria pollutants and TACs summarized in Table 18 above. For all of the pollutants except NOx and CO, Table 19 summarizes the emission rates as determined during the April-May 2011 source tests. The NOx and CO emission rates summarized in Table 19 are based on the additional source tests that OCIS conducted on February 14 and 15, 2012 at S-20.

Table 19: Results from April-May 2011 and February 2012 source tests			
Pollutant	S-20	S-21	S-22
	lb/hour	lb/hour	lb/hour
PM(F)	14.312	0.273	0.674
PM(C)	4.291	1.104	1.029
PM (F+C)	18.603	1.356	1.703
NOx	0.884	3.364	0.035
SO2	0.167	0.015	0.0048
POC	3.591	0.219	0.252
CO	8.815	2.361	0.217
Phenol	0	0	0
Formaldehyde	0.045	0.0027	0.0217

Table 19: Results from April-May 2011 and February 2012 source tests			
Pollutant	**S-20**	**S-21**	**S-22**
	lb/hour	**lb/hour**	**lb/hour**
Methanol	1.33E-05	0.0077	0.007
Ammonia	0.0051	0.0059	0.0017
Ethanol	0.049	0.002	0.003
Acetaldehyde	0	0.00563	0.006

Notes:

1. PM determined via Method 5/202.
2. POC determined via Method 5E/25A.
3. The April-May 2011 source tests were conducted when the flue gas O2 content at S-20's fiberizers was 2.5% when using the starch-based binder.
4. The February 2012 source tests were conducted when the flue gas O2 content at S-20's fiberizers was 2.0% when using the starch-based binder.

Table 20 summarizes the proposed "revised baseline" emissions for criteria pollutants and TACs from S-20 through S-22 when using the starch-based binder.

Table 20: "Revised" Baseline Emissions for the O-Line						
Pollutant	**Forming Section**		**Curing Section**		**Cooling Section**	
	S-20		**S-21**		**S-22**	
	lbs/day	**TPY**	**lbs/day**	**TPY**	**lbs/day**	**TPY**
PM (F)	415.03	73.44	19.83	3.51	16.17	2.86
PM (C)	49.8	8.81	140.27	24.82	24.69	4.37
PM (F+C)	464.84	82.25	160.11	28.33	40.86	7.23
NOx	21.22	3.28	277.64	42.93	5.33	0.82
SO2	38.51	5.95	5.81	0.9	6.36	0.98
POC	138.08	24.43	2.28	0.4	10.13	1.79
CO	211.51	37.44	451.58	79.91	12.07	2.14
Phenol	50.52	7.81	3.4	0.53	2.46	0.38
Formaldehyde	42.92	6.64	0.13	0.02	1.54	0.24
Methanol	142.39	22.02	0.16	0.02	9.3	1.44
Ammonia	164.08	25.37	108.64	16.8	21.46	3.32
Ethanol	1.39	0.21	0.21	0.03	0.23	0.04
Acetaldehyde	1.33	0.2	0.2	0.03	0.22	0.03

Table 21 summarizes the "difference" i.e. the net increase/decrease in emissions that resulted result from the use of the starch-based binder at the O-line sources.

Table 21: "Difference" in Baseline Emissions for the O-Line Revised vs. Existing						
Pollutant	Forming Section		Curing Section		Cooling Section	
	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	0	0	0	0	-2.57	-0.46
PM (C)	0	0	0	0	16.88	2.99
PM (F+C)	0	0	0	0	14.32	2.53
NOx	-6.46	-1	0	0	0	0
SO2	0	0	0	0	0	0
POC	0	0	0	0	0	0
CO	93.59	16.57	0	0	0	0
Phenol	0	0	0	0	0	0
Formaldehyde	0	0	0	0	0	0
Methanol	0	0	0	0	0	0
Ammonia	0	0	0	0	0	0
Ethanol	0	0	0	0	0	0
Acetaldehyde	0	0	0	0	0	0

TACS: TOXIC RISK SCREEN ANALYSIS & TBACT

For the purposes of Regulation 2, Rule 5, a project may change the emissions of toxic air contaminants as long as the project complies with Sections 2-5-301 and 2-5-302.

Under 2-5-301, the facility must apply TBACT to any modified source of TACs where the source risk is a cancer risk greater than 1.0 in one million and/or a chronic hazard index greater than 0.20. Under Regulation 2-5-302, no AC may be issued for any modified source of TACs if the project risk exceeds any of the following project risk limits: (1) a cancer risk of 10.0 in one million; (2) a chronic hazard index of 1.0; or (3) an acute hazard index of 1.0.

As part of Application 21631, the District performed a Health Risk Screening Analysis (HRSA) for the proposed project (use of starch-based binder in favor of phenol-formaldehyde based binder) because the hourly emissions of formaldehyde of 0.122 lb/hour estimated by OCIS from S-20 exceeded its corresponding acute trigger level of 0.12 lb/hour in Table 2-5-1. Please refer to Table 33 of the Attachment. Also, the annual expected emissions of acetaldehyde from S-2 (of 407 lb/year) , S-4 (63 lb/year), S-20 (of 496 lb/year), and S-22 (76 lb/year), and formaldehyde from S-2 (of 878 lb/year), S-3 (50 lb/year), S-4 (of 188 lb/year), S-20 (1,069 lb/year), S-21 (of 60 lb/year), and S-22 (of 229 lb/year) exceeded the corresponding chronic trigger levels in Table 2-5-1. Please refer to Tables 34 and 35 of the Attachment.[5]

The HRSA performed by the District's Toxic Evaluation Section staff under Application 21631 estimated the maximum cancer risk from post-project operation of these sources to be 0.3 in a million, the chronic

[5] In determining whether an HRSA was needed for this project, the District based its calculations on the total estimated post-project TAC emissions, as opposed to considering only the expected "net increase" in TAC emissions.

hazard index to be 0.006, and the acute hazard index to be 0.029. Staff concluded that, in accordance with Regulation 2-5-302, the above project risks were acceptable. In addition to the above, it was determined that the above risks do not trigger the TBACT requirement in Section 2-5-301 for any source. Therefore, TBACT was not determined.
In contrast to the above, the April-May 2011 source tests conducted at the O-line (because M-line is inactive) forming, curing, and cooling sections found that the use of the starch-based binder resulted in a net decrease of TACs. Please refer to Tables 14 through 17.

The April-May 2011 source test results summarized in Tables 22 through 34 below are for TACs such as formaldehyde, methanol, phenol, acrolein, acetaldehyde, ammonia, and dioxins/furans (D/F) that are listed in Table 2-5-1. Emissions of the above TACs from S-20, S-21, S-22 were combined under Table 36 and were compared to their corresponding acute and/or chronic TAC trigger levels summarized in Table 35 to check if a HRSA is warranted.

Table 22: Formaldehyde emission rate (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone A	0.011	0.009	0.011	0.011	
Zone B	0.015	0.015	0.014	0.015	
Zone C	0.009	0.01	0.014	0.011	
Zone D	0.007	0.008	0.009	0.008	0.045

Table 23: Methanol emission rate (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone A	<0.006	0.006	<0.006	<0.006	
Zone B	<0.007	<0.007	<0.007	<0.007	
Zone C	<0.006	0.006	<0.006	<0.006	
Zone D	<0.004	<0.006	<0.005	<0.005	1.33E-05

Table 24: Phenol emission rate (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone A	<0.011	<0.011	<0.011	<0.011	
Zone B	<0.015	<0.014	<0.014	<0.015	
Zone C	<0.012	<0.013	<0.012	<0.012	
Zone D	<0.009	<0.011	<0.010	<0.010	-

Table 25: Acrolein emission rate (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone A	<0.003	<0.003	<0.003	<0.003	
Zone B	<0.004	<0.004	<0.004	<0.004	
Zone C	<0.003	<0.004	<0.003	<0.003	
Zone D	<0.002	<0.003	<0.003	<0.003	-

Table 26: Acetaldehyde emission rate (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone A	<0.0014	<0.0015	<0.0014	<0.0014	
Zone B	<0.0019	<0.0018	<0.0018	<0.0018	

Table 26: Acetaldehyde emission rate (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone C	<0.0015	<0.0016	<0.0015	<0.0015	
Zone D	<0.0011	<0.0014	<0.0012	<0.0012	-

Table 27: Ammonia emission rate (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone A	0.002	0.0009	0.0009	0.001	
Zone B	0.0025	0.0011	0.0024	0.002	
Zone C	<0.0004	0.0012	0.0013	0.001	
Zone D	<0.0003	0.0011	0.001	0.001	0.0051

Table 28: D/F emissions (in lb/hr)					
O-line Forming	**Run 1**	**Run 2**	**Run 3**	**Average**	**Sum**
Zone A	<1.41e-10	<1.33e-10	<1.47e-10	<1.40E-10	
Zone B	<1.49e-10	<1.47e-10	<1.70e-10	<1.55E-10	
Zone C	<1.25e-10	<1.23e-10	<1.57e-10	<1.35E-10	
Zone D	<1.36e-10	<1.31e-10	<1.00e-10	<1.23E-10	5.53E-10

Table 29: O-line curing section (in lb/hr)				
TAC	**Run 1**	**Run 2**	**Run 3**	**Average**
Formaldehyde	0.002	0.0043	0.0017	0.0027
Methanol	0.019	<0.004	<0.004	<0.009
Phenol	<0.008	<0.008	<0.008	<0.008
Acrolein	<0.006	<0.005	<0.006	<0.006
Acetaldehyde	<0.013	<0.003	<0.003	<0.007
Ammonia	0.0084	0.0049	0.0045	0.0059
D/F	<8.63e-11	<9.27e-11	<1.47e-10	<1.09e-10

Table 30: O-line smoke stripper (in lb/hr)				
TAC	**Run 1**	**Run 2**	**Run 3**	**Average**
Formaldehyde	0.0116	0.0159	0.0158	0.0145
Methanol	<0.001	<0.001	<0.001	<0.001
Phenol	<0.001	<0.001	<0.001	<0.001
Acrolein	0.001	<0.001	<0.001	0.001
Acetaldehyde	0.005	0.002	0.002	0.003
Ammonia	0.0003	0.0003	0.0004	0.0003
D/F	<1.34e-11	<1.04e-11	<1.20e-11	<1.19e-11

Table 31: O-line cooling section (w/o SS) (in lb/hr)				
TAC	**Run 1**	**Run 2**	**Run 3**	**Average**
Formaldehyde	0.0072	0.0062	0.008	0.0072
Methanol	0.018	<0.003	<0.003	<0.008
Phenol	<0.006	<0.005	<0.005	<0.005
Acrolein	<0.004	<0.004	<0.004	<0.004
Acetaldehyde	0.002	0.004	0.003	0.003
Ammonia	0.0016	0.0011	0.0016	0.0014
D/F	<4.60e-11	<5.41e-11	<8.87e-11	<6.29e-11

Table 32: O-line forming section total (in lb/hr)	
TAC	**Total**
Formaldehyde	0.045
Methanol	1.33E-05
Phenol	-
Acrolein	-
Acetaldehyde	-
Ammonia	0.0051
D/F	<6e-10

Table 33: O-line curing section total (in lb/hr)	
TAC	**Total**
Formaldehyde	0.0027
Methanol	0.0077
Phenol	-
Acrolein	-
Acetaldehyde	-
Ammonia	0.0059
D/F	<1e-10

Table 34: O-line cooling section total (w/ SS) (in lb/hr)	
TAC	**Total**
Formaldehyde	0.0217
Methanol	0.007
Phenol	-
Acrolein	0.001
Acetaldehyde	0.003
Ammonia	0.0017
D/F	<7e-11

Table 35: Table 2-5-1 trigger levels		
TAC	Acute TTL	Chronic TTL
	lb/hr	lb/year
Acetaldehyde	1	38
Acrolein	0.0055	14
Ammonia	7.1	7,700
Formaldehyde	0.12	18
Methanol	62	150,000
Phenol	13	7,700
D/F	-	3.40E-07

Table 36: Post-Project Source Test Results obtained when using the starch-based binder

TAC	O-line forming section (S-20)		O-line curing section (S-21)		O-line cooling section including smoke stripper (S-22)		Total (S-20 through S-22)		Exceeds Reg. 2-5 TAC TTLs?	
	lb/hr	lb/year	lb/hr	lb/year	lb/hr	lb/year	lb/hr	lb/year	Acute	Chronic
Acetaldehyde	0	0.00	0	0.00	0.003	26.28	0.003	26.28	No	No
Acrolein	0	0.00	0	0.00	0.001	8.76	0.001	8.76	No	No
Ammonia	0.0051	44.68	0.0059	51.68	0.0017	14.89	0.0127	111.25	No	No
Formaldehyde	0.045	394.20	0.0027	23.65	0.0217	190.09	0.0694	607.94	No	Yes
Methanol	0	0.00	0.008	70.08	0.007	61.32	0.015	131.40	No	No
Phenol	0	0.00	0	0.00	0	0.00	0	0.00	No	No
D/F	6.00E-10	5.26E-06	1.00E-10	8.76E-07	7.00E-11	6.13E-07	7.7E-10	6.75E-06	No	Yes

Note:

D/F values in source test report cited in terms of TEQ

D/F values for S-20, S-21, and S-22 reported (in #/hour) as TEQ < 6E-10, < 1E-10, and 7E-11.

It can be seen from Table 36 that a HRSA is warranted because the individual and/or combined emissions of formaldehyde and D/F from S-20, S-21, and S-22 exceeded the chronic trigger level for these TACs. The HRSA performed by the District's Toxics Evaluation Section to evaluate the health risks posed by the starch-based binder found that the project cancer risk decreased by about 34% (to about 0.198 in a million from 0.3 in a million previously estimated under Application 21631), and the chronic hazard index decreased by about 23% (to about 0.00462 from 0.006 previously estimated under Application 21631). The acute hazard index previously estimated under Application 21631 at 0.029 would also be reduced because of the reduction in formaldehyde emissions, and the addition of ammonia was found to have an insignificant impact. For all of the reasons stated above, District staff has concluded that the project risk associated with TAC emissions from S-20, S-21, and S-22 complies with Reg. 2-5-302. Specifically, the TAC emissions from S-20, S-21, and S-22 will continue to have a cancer risk that is less than 1.0 in a million and a chronic hazard index that is less than 0.20, and that the emissions of the project have a cancer risk that is less than 10.0 in a million, a chronic hazard index that is less than 1.0, and an acute hazard index less than 1.0.

CUMULATIVE INCREASE AND OFFSETS

The proposed revisions to the existing daily baseline limit will result in a net increase of 93.59 lb/day (from 117.92 lb/day to 211.51 lb/day) of CO emissions at S-20 and a net increase of 14.32 lb/day (from 26.54 lb/day to 40.86 lb/day) of PM (F+C) emissions at S-22. Likewise, the proposed

revisions to the existing annual baseline limit will result in a net increase of 16.57 TPY (from 20.87 TPY to 37.44 TPY) of CO emissions at S-20 and a net increase of 2.53 TPY (from 4.7 TPY to 7.23 TPY) of PM (F+C) emissions at S-22. Please refer to Tables 18, 20, and 21.

Table 36.a. summarizes emissions from the O-line sources derived using emission rates summarized in Table 19 above.

Table 36.a.: Emissions for the O-Line sources based on results obtained from April-May 2011 and February 2012 source tests						
Pollutant	**Forming Section**		**Curing Section**		**Cooling Section**	
	S-20		**S-21**		**S-22**	
	lbs/day	**TPY**	**lbs/day**	**TPY**	**lbs/day**	**TPY**
PM (F)	343.41	60.78	6.55	1.16	16.17	2.86
PM (C)	102.96	18.22	26.49	4.69	24.69	4.37
PM (F+C)	446.37	79.01	32.54	5.76	40.86	7.23
CO	211.51	37.44	56.65	10.03	5.21	0.92

For example, the daily and annual PM10 and CO emissions for S-20 summarized in Table 36.a. were calculated as follows:
PM10 emission rate determined during May 2011 source test = 18.603 lb/hr → Refer to Table 19
Operating hours of O-line during the 2004-06 baseline period
= 354 days/year and 8,494 hours/year → Refer to Table 5
Daily emissions = (18.603 x 8,494) ÷ 354 days/year
= 446.37 lb/day → Refer to Table 36.a.
Annual emissions = (18.603 x 8,494) ÷ 2,000 lb/ton
= 79.01 TPY → Refer to Table 36.a.

CO emission rate determined during February 2012 source test = 8.815 lb/hr → Refer to Table 1
Operating hours of O-line during the 2004-06 baseline period
= 354 days/year and 8,494 hours/year → Refer to Table 5
Daily emissions = (8.815 x 8,494) ÷ 354 days/year
= 211.51 lb/day → Refer to Table 36.a.
Annual emissions = (8.815 x 8,494) ÷ 2,000 lb/ton
= 37.44 TPY → Refer to Table 36.a.

It should be noted that the February 2012 source tests at S-20 were conducted when operating the fiberizers at 2.00% O2 setting. By contrast, the CO emissions from S-21 and S-22 summarized in Table 36.a. are based on CO emission rates determined during the April-May 2011 source tests when operating S-20's fiberizers at 2.50% O2 setting.

For example, the CO emissions from S-21 was derived as follows:
CO emission rate determined during April-May 2011 source test = 2.361 lb/hr → Refer to Table 19
Operating hours of O-line during the 2004-06 baseline period
= 354 days/year and 8,494 hours/year → Refer to Table 5
Daily emissions = (2.361 x 8,494) ÷ 354 days/year
= 56.65 lb/day → Refer to Table 36.a.
Annual emissions = (2.361 x 8,494) ÷ 2,000 lb/ton
= 10.03 TPY → Refer to Table 36.a.

Table 36.b.: "Existing" Baseline Emissions for the O-Line						
Pollutant	Forming Section		Curing Section		Cooling Section	
	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	415.03	73.44	19.83	3.51	18.74	3.32
PM (C)	49.8	8.81	140.27	24.82	7.81	1.38
PM (F+C)	464.84	82.25	160.11	28.33	26.54	4.7
CO	117.92	20.87	451.58	79.91	12.07	2.14

Table 36.c.: Net change in emissions for the O-line sources "As measured" in 2011 and 2012 vs. "Existing" baseline						
Pollutant	Forming Section		Curing Section		Cooling Section	
	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	-71.62	-12.66	-13.28	-2.35	-2.57	-0.46
PM (C)	53.16	9.41	-113.78	-20.13	16.88	2.99
PM (F+C)	-18.47	-3.24	-127.57	-22.57	14.32	2.53
CO	93.59	16.57	-394.93	-69.88	-6.86	-1.22

For example, the net change in PM(F) emissions from S-20 in Table 36.c. was derived as follows:
"Existing" daily PM(F) emissions established under Application 21631 = 415.03 lb/day → Refer to Table 36.b.
Daily PM(F) emissions for S-20 based on results obtained from April-May 2011 source tests = 343.41 lb/day → Refer to Table 36.a.
Net change in PM(F) at S-20 = 343.41 – 415.03 = -71.62 lb/day → Refer to Table 36.c.

It can be seen from Table 36.c. that the increase in 14.32 lb/day and 2.53 TPY of PM(F+C) emissions from S-22 is fully offset by the 146.04 lb/day and 25.81 TPY decrease in combined PM(F+C) emissions from S-20 and S-21. In other words, the use of the starch-based binder at OCIS resulted in a net decrease of 131.72 lb/day and 23.28 TPY of PM(F+C) emissions from S-20 through S-22 combined. Likewise and per information summarized in Table 36.c. it can be seen that the increase in 93.59 lb/day and 16.57 TPY of CO emissions from S-20 is offset by the 401.79 lb/day and 71.1 TPY decrease in combined CO emissions from S-21 and S-22. In other words, the use of the starch-based binder at OCIS resulted in a net decrease of 308.20 lb/day and -54.53 TPY of CO emissions from S-20 through S-22 combined.

In order to ensure that the proposed changes to the daily and annual PM (F+C) do not result in a cumulative increase in emissions which would require OCIS to surrender offsets, the District proposes to impose a combined daily and annual limit on S-20, S-21, and S-22 that is equal to the sum of the "existing baseline" limits for PM (F+C) from these sources. Specifically, the combined daily and annual limits for PM (F+C) will be set at ~~651.49~~665.81 lb/day and ~~115.28~~117.81 TPY, respectively. The combined limits will ensure that there is no cumulative increase in emissions at OCIS and that offsets are not required for the proposed changes to the daily and annual PM (F+C) limits for S-22.

The District has determined that the proposed revision to the CO daily and annual limits for S-20 from 117.92 lb/day to 211.51 lb/day and from 20.87 TPY to 37.44 TPY is necessary to reflect the maximum pre-alteration CO emissions from the O-line forming section. In other words, though the proposed revisions to the existing CO baseline may at first glance appear to result in a net increase of 93.59 lb/day and 16.57 TPY, the "increase" is merely a correction. Therefore, the actual cumulative increase from S-20 is zero.

Therefore, the project will not result in any cumulative increase of CO and/or PM (F+C) and no offsets will be required under Regulations 2-2-302 & 303.

If OCIS wishes to increase emissions at these sources in the future, it must submit a new application.

BACT

Per Regulation 2-2-302, BACT must be applied to emissions of precursor organic compounds (POC), non-precursor organic compounds (NPOC), nitrogen oxides (NO_x), sulfur dioxide (SO2), particulate matter (PM10) or carbon monoxide (CO) from a modified source if the modification: (1) results in an increase in emissions from the modified source; and (2) the source has the potential to emit 10.0 pounds or more per highest day of the pollutant. BACT shall be applied for any of the above pollutants that meet both criteria. Simply stated, BACT is source- and pollutant-specific. The proposed revisions to OCIS's permit are to increase the "existing baseline" emissions limit for CO from S-20 from 117.92 lb/day to 211.51 lb/day and to increase the permitted emission limit for PM(F+C) emissions from S-22 from 26.54 lb/day to 40.86 lb/day.

The sections below examine whether BACT is triggered for S-20 or S-22 as a result of these proposed permit revisions.

BACT for S-20:

On November 2, 2011, District staff met with OCIS staff at OCIS's Santa Clara facility to better understand the equipment setup and pollutant flows from the forming, curing, and cooling sections. One of the conclusions from the meeting was that the percent flue gas oxygen level ("% O2 setting") in the air/fuel mixture supplied to S-20's fiberizers could significantly affect the resulting CO emissions emitted from the forming section stacks. As previously discussed under the "NOx and CO emissions from S-20" in the "Emissions Calculations" section above, depending on the type of product being manufactured the % O2 settings at S-20 could be 2%, 2.5%, or 3.5%, and OCIS's product lines did not change as a result of the binder change. OCIS conducted the "pre-alteration" source tests in December 2009 when operating S-20's fiberizers at 3.5% O2 setting. Because the highest O2 setting at S-20's fiberizers would yield the lowest CO emission rate, OCIS performed the April-May 2011 and February 2012 source tests when operating S-20's fiberizers at 2.5% O2 setting and 2% O2 setting, respectively.

The District has determined that the February 2012 source tests, which yielded the highest CO emissions from S-20 and whose results are summarized in Table 6 above, more accurately represent the maximum pre-alteration CO emissions from the O-line forming section. It can also be seen from Table 8 above that the hourly CO emission rate when using the starch-based binder in favor of the phenol-formaldehyde based binder when operating S-20's fiberizers at 3.5% O2 setting did not result in an increase in CO emissions (in fact, the binder change led to a decrease in CO emissions at a 3.5% O2 setting). Thus, the change in binder did not "modify" S-20 for purposes of District regulations 2-1 and 2-2. Therefore, BACT is not triggered for S-20.

BACT for S-22:

Unlike with CO, the District has determined that the binder change did result in a net increase in PM10 emissions, causing S-22 to be a "modified source" under District regulations. As shown in Table 12, the increase is due to an increase in condensable PM (filterable PM appears to have decreased as a result of the binder change, but not enough to offset the increase in condensable PM).

The following is a discussion of the District's definition of BACT, the different types of BACT, their interpretation, and the pertinent calculation methodologies involved.

District Regulation 2, Rule 2, Section 206 defines Best Available Control Technology as follows:

> For any new or modified source, except cargo carriers, the more stringent of:
>
> 206.1 The most effective emission control device or technique which has been successfully utilized for the type of equipment comprising such a source; or
>
> 206.2 The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source; or
>
> 206.3 Any emission control device or technique determined to be technologically feasible and cost-effective by the APCO; or
>
> 206.4 The most effective emission control limitation for the type of equipment comprising such a source which the EPA states, prior to or during the public comment period, is contained in an approved implementation plan of any state, unless the applicant demonstrates to the satisfaction of the APCO that such limitations are not achievable. Under no circumstances shall the emission control required be less stringent than the emission control required by any applicable provision of federal, state or District laws, rules or regulations.
>
> The APCO shall publish and periodically update a BACT/TBACT Workbook specifying the requirements for commonly permitted sources. BACT will be determined for a source by using the workbook as a guidance document or, on a case-by-case basis, using the most stringent definition of this Section 2-2-206.

For ease in permit application review, the above definition of BACT can be broken down to two general categories: 1) "technologically feasible and cost-effective" and 2) "achieved in practice." The first category (commonly referred to as "BACT 1") is a more stringent level of BACT control and is technology forcing; it generally refers to advanced control devices or techniques. The control equipment or technology must be commercially available, and demonstrated effective and reliable on a full scale unit and shown to be cost-effective on a dollars per ton of pollutant removed basis. Note that the District's BACT definition, developed under CARB guidelines, does not explicitly require that the control be demonstrated for any specific length of time. However, District staff in reviewing BACT performance data must make the engineering determination that the control would reasonably be expected to perform for a sufficient duration to make the control option cost-effective. Often, control techniques under the technologically feasible/cost-effective category are technology transfers from successful applications on similar types of equipment or emission streams. In that case, the control has been "achieved in practice" (the second BACT category) on a similar source or equipment category, but has not been used for the particular source or equipment in question. A feasibility and cost-effectiveness analysis would then be necessary.

In general, cost effectiveness analysis is done on a source by source basis. However, if a group of sources, each of which triggers a BACT review on its own, emits a common pollutant(s) with similar waste stream characteristics, and the sources are configured in such a manner that they could share a common abatement device, then the control costs can be shared proportionately and the cost-effectiveness determination made accordingly.

The second BACT category, "achieved in practice" or "BACT 2", applies to the most effective emission control device already in use or the most stringent emission limit achieved in the field for the type and capacity of equipment comprising the source under review and operating under similar conditions, e.g., process throughput and material usage, hours of operation, site-specific limitations or opportunities, etc.

For example, the control device performance or emission limit has already been verified by source tests or other appropriate documentation approved by the District or another California air district.

When BACT is triggered for a new/modified source, then a review of the District's BACT 1 determinations to date would serve as a good starting point. Only if proven not technologically feasible and cost effective for the particular application under permit review would the BACT requirement default to BACT 2 for which case a cost analysis is not necessary. In some cases, an intermediate level of control between BACT 1 and BACT 2 may prove to be cost effective and appropriate.

Where the District has not made a BACT determination to date or if a determination needs to be updated or reviewed, potential sources of BACT and TBACT determination information include the CAPCOA/CARB BACT Clearinghouse, the EPA BACT/LAER Clearinghouse, the South Coast Air Quality Management District BACT Guideline, determinations made by other air districts, and published, independently verified equipment performance and operating data. It is important to note that a listing in, for example, the CAPCOA/CARB BACT Clearinghouse does not necessarily mean that that particular determination is BACT or TBACT for the District. In other words, the listing may merely be a candidate BACT or TBACT that the District may consider. Recall that BACT is the most effective emission control or the most stringent emission limitation and for the "achieved in practice" category, does not require a cost-effectiveness justification.

Cost Effectiveness Determination for BACT

For the purpose of calculating emission control cost-effectiveness for BACT, the District uses the "levelized cash flow method", otherwise commonly referred to as the annualized cost method. This method has been approved for use by the California Air Resources Board's Office of Air Quality Planning and Liaison and the U. S. Environmental Protection Agency's Office of Air Planning and Standards.

The cost-effectiveness of an abatement system or strategy is defined as the ratio of the annualized cost of that abatement system over the reduction in annual pollutant emissions achieved by the system for the pollutant in question. Cost-effectiveness can be estimated as follows:

Cost-effectiveness =
(Annualized Cost of Abatement System ($/year)) ÷ (Reduction in Annual Pollutant Emissions (ton/year))

The reduction in annual pollutant emissions is the expected decrease in the source's pollutant emissions from its baseline uncontrolled level, achieved by the installation of the abatement system under review. This annual reduction can be calculated as the difference in emissions with and without the abatement system, using District-approved standard emission factors or source test data and the permitted annual usage or throughput limits expected in the operating permit. Simply put,

Reduction in Annual Pollutant Emissions (ton/year) =
Baseline Uncontrolled Emissions - Control Option Emissions

As noted above, the emissions reductions are calculated using realistic upper boundary operating assumptions (permit limit conditions).

The annualized cost of the abatement system can be estimated from the installed cost of the control and its expected annual operating and maintenance costs.

Annualized cost = Direct Costs + Indirect Costs

Where,
Direct Costs (is the sum of the following): Labor, Raw Materials, Replacement Parts, and Utilities

Indirect Costs (is the sum of the following): Overhead (about 80% of Labor Costs), Property Tax (about 1% of Total Capital Cost), Insurance (about 1% of Total Capital Cost), General & Administrative (about 2% of Total Capital Cost), Capital Recovery (CRF x Total Capital Cost)

Total Capital Cost = Installed Equipment Cost

The capital recovery factor (CRF) recognizes the time value of money and converts the upfront capital cost (the installed equipment cost) to an annualized cost.

The capital recovery factor (CRF) is given by:

$$CRF = \frac{i\,(1+i)^n}{(1+i)^n - 1}$$

Where,
"i" is the interest rate and "n" is the lifetime of abatement system.
For example, if "i" is equal to 6% and "n" is equal to when 10 years, the CRF calculated using the above equation is equal to 0.136.

The cost-effectiveness needs to be determined or reviewed on a case-by-case basis. Inherent physical constraints on the source or at the site can significantly increase the cost of the abatement system under review. Likewise, operational constraints can affect the cost-effectiveness figure by increasing or decreasing the potential annual emissions reduction. However, these operational constraints should be reflected in enforceable conditions in the permit to operate (e.g., throughput or usage limits).

Maximum Cost Guidelines for BACT

As previously stated, for BACT determinations based on the "achieved in practice" category, no cost analysis is necessary. For the "technologically feasible/cost-effective" BACT determinations, the District has adopted guidelines for the maximum cost per ton of air pollutants controlled that would be considered cost-effective. These guideline cost maximums, established in 2002, are consistent with the broad guidelines provided by the California Air Resources Board's Office of Air Quality Planning and Liaison. The Bay Area Air Quality Management District's guideline cost limits are as follows:

Pollutant Maximum Cost ($/ton):
POC, NOx, NPOC = $ 17,500/ton/pollutant; SO2 = $ 18,300; CO = none established; and PM10 = $ 5,300

If the cost-effectiveness number for a specific pollutant is less than the corresponding limit listed above, then the emission control or emission limitation in question would be considered to be cost-effective for the source under review operating under typical representative conditions.

"Proposed" Maximum Cost Guidelines for BACT

Rule writers in the District's Planning, Rules, and Research Division are considering revising the existing maximum BACT cost guidelines because they are out of date. The existing BACT maximums were established in 2002 using a "Process Construction Index" (PCI) value of 395.6. In contrast to the above, the "proposed" BACT maximums are based on the 2012 PCI of 612.9. The "proposed" revisions have not yet been presented to the District's Board of Directors for their consideration and approval. This evaluation report assumes conservatively (in terms of being protective of air quality) that the "proposed" revisions will soon be approved by the District's Board. Because PM10 is the pollutant of interest for the purposes of this discussion, the "proposed" BACT maximum is $ 8,212 i.e., $ 5,300 x (612.9 ÷ 395.6). If a certain technology is found to not be cost effective because it costs greater than $ 8,212 to abate each

ton of PM10, then it is safe to say that the technology will not be cost-effective when compared with the lower existing cost guideline of $ 5,300, either.

As previously discussed in the "Cumulative Increase and Offsets" section of this evaluation, the proposed revisions to the existing daily and annual baseline limits for S-22 will result in a net increase in 14.32 lb/day (from 26.54 lb/day to 40.86 lb/day) and 2.53 TPY (from 4.7 TPY to 7.23 TPY) of PM10 emissions.

In order to determine whether a given abatement system or strategy is cost-effective, it is assumed that the annual reduction in PM10 emissions required is 7.5 TPY i.e., (40.86 lb/day x 365 days/year) ÷ 2,000 lb/ton. In order to be cost-effective, the annualized cost of the abatement system or strategy cannot exceed $ 61,590/year, i.e., 7.5 ton/year x $ 8,212/ton.

OCIS's BACT Analysis:

An available additional control for PM10 emissions from S-22 is a Wet Electrostatic Precipitator, also called a "Wet ESP" or "WESP". OCIS's evaluation of this technology is as follows:

Capital cost summary calculations provided by OCIS for a WESP assuming a flow rate of 25,000 acfm from S-22 are as follows:

Total Purchased Equipment Cost (PEC)	= $ 831,962
Total Direct Costs (TDC)	= $ 1,372,738 (excludes site preparation and buildings)
Total Indirect Costs (TIC)	= $ 465,899
Total Capital Investment (TCI)	= $ 1,838,637 → TDC + TIC

Annual cost summary

Total Direct Costs (DAC)	= $ 66,314/year
Overhead costs	= $ 39,788/year → 60% of DAC → A
Administration, Property Tax, Insurance	= $ 73,545/year → 4% of TCI → B
Capital Recovery (CR)	= $ 173,554/year → CRF x TCI → C
Total Indirect Costs (IAC)	= $ 286,888/year → A + B+ C
Total Annual Cost	= $ 353,202/year → DAC + IAC

Note:
DAC calculation excludes electricity, cooling water, dust disposal, and wastewater treatment, maintenance, and disposal costs.
Maintenance costs under DAC calculated at 1% of PEC i.e., $ 8,320.
ESP plate area to compute labor costs assumes 50,000 ft^2
Capital Recovery Factor (CRF) of ~0.094 under IAC assumes "i" and "n" to be 7% and 20 years, respectively.
Recovery credit = $ 0.

OCIS had originally proposed an annual limit of 10.6 TPY under Application 23518. Assuming the WESP achieves an overall PM10 removal efficiency of 90%, the PM10 reduced by the WESP would be 9.5 TPY. Therefore, the cost-effectiveness of adding the WESP would be $ 37,179/ton which is above the District's worst-case BACT maximum of $ 8,212. Also, the annualized cost of the WESP of $ 353,202/year exceeds the District's annualized cost threshold of $ 61,590/year. For all of the above reasons, OCIS concluded that it would be economically infeasible to install a WESP to abate S-22.

District's BACT Analysis:

1. Assuming emissions from the curing sections en route to the smoke stripper and cooling section are unabated:
   Currently, emissions from the "O" line smoke stripper, which is downstream of the O-line curing oven (S-21) and upstream of S-22, are abated by the Air Action Cyclone Scrubber (A-99) in

series with a High Performance Air Filter (A-100), and S-22's emissions are abated by scrubber (A-26). OCIS contends that the overall PM10 removal efficiency of the above devices is about 75%. If the O-line smoke stripper and cooling section PM10 emissions were unabated, then uncontrolled emissions from the smoke stripper and S-22 would be 24.67 lb/day and 138.82 lb/day, respectively.

The uncontrolled emissions from the smoke stripper and S-22 are calculated as follows:
Controlled Total PM (F+C) = 0.2570 lb/hour and 1.4460 lb/hour → Refer to Table 10
Assuming the overall PM10 removal efficiency of A-99 & A-100 and A-26 is about 75%, the uncontrolled Total PM (F+C) from the smoke stripper and S-22 are equal to:
Smoke stripper = (0.2570 ÷ 0.25) x 24 hour/day = 25 lb/day (5 TPY)
S-22 = (1.4460 ÷ 0.25) x 24 hour/day = 139 lb/day (25 TPY)

Assuming the WESP, discussed in the preceding paragraphs, is installed immediately downstream of the curing section achieves an overall PM10 removal efficiency of 90%, the PM10 reduced by the WESP would be 27 TPY. Therefore, the cost-effectiveness of adding the WESP would be $ 13,082/ton ($ 353,202/year ÷ 27 ton/year), which is above the District's worst-case BACT maximum of $ 8,212. Also, the annualized cost of the WESP of $ 353,202/year would exceed the District's worst-case annualized cost threshold of $ 246,360/year i.e., 30 ton/year x $ 8,212/ton. Thus, a WESP does not appear to be cost-effective at this time.

The following calculations demonstrate that a Wet ESP would be cost-effective only if the uncontrolled emissions from the curing section were at or above 260 lb/day (compared with OCIS's current uncontrolled emissions of 164 lb/day) and assuming the District's Board approved the "proposed" BACT maximum for PM10 of $ 8,212.

Overall PM10 removal efficiency of WESP	= 90%
Pre-control emissions	= 47.45 TPY
Post-control emissions	= 42.71 TPY.
Annualized cost of WESP	= $ 353,202/year
Cost-effectiveness	= $ 353,202/year ÷ 42.71 TPY
	= $ 8,270/ton

2. RACT/BACT/LAER Clearinghouse results:
The search in the RBLC clearinghouse included permits issued/amended since January 1st, 2002. With regards to emission limits pertaining to bonded cooling sections, the following three facilities contained the most relevant search results:

RBLC ID: CA-1141
Date determination last updated: March 13, 2008
Facility Name: Knauf Insulation GMBH
Facility Location: Shasta County, CA
Throughput: 225 TPD
Process name: Wool fiberglass manufacturing line
Abatement:
Forming section abated by wet scrubbers within ducting and Wet ESP;
Curing section abated by Regenerative Thermal Oxidizer, and
Cooling section abated by wet scrubber.
Combined Total PM10 limit for forming, curing, and cooling section:
3.030 lb/ton and 28.400 lb/hour
Averaging period: 3-hour rolling average.

RBLC ID: GA-0125
Date determination last updated: December 23, 2005
Facility Name: Owens Corning Cordele
Facility Location: Crisp, GA
Throughput: None listed

Process name: Bonded line cooling section CG106
Abatement:
Cooling section abated by low pressure drop scrubber.
Total PM10 limit for cooling section:
0.95 lb/ton
Averaging period: 3-hour rolling average.

RBLC ID: WV-0017 (1 of 2)
Date determination last updated: June 21, 2004
Facility Name: Guardian Inwood Fiberglass
Facility Location: Berkeley, WV
Throughput: 4 TPH
Process name: Curing & Cooling of the 2nd production line (resinated & non-resinated)
Abatement:
Curing section abated by Regenerative Thermal Oxidizer, and
Cooling section abated by venturi scrubber.
Combined PM limit for curing, and cooling section[6]:
0.93 lb/ton
Averaging period: 3-hour rolling average.

RBLC ID: WV-0017 (2 of 2)
Date determination last updated: June 21, 2004
Facility Name: Guardian Inwood Fiberglass
Facility Location: Berkeley, WV
Throughput: 4 TPH
Process name: Curing & Cooling of the 1st production line (resinated)
Abatement:
Curing section abated by Regenerative Thermal Oxidizer, and
Cooling section unabated.
Combined PM limit for curing, and cooling section[7]:
0.46 lb/ton
Averaging period: 3-hour rolling average.

The glass pull rate at the O-line forming (S-20), curing (S-21), and cooling (S-22) sections at OCIS are limited by part 1 of permit condition 24873 to 6 tons/hour/source and 144 tons/day/source. The existing PM10 daily baseline limits for S-20 and S-21 are 464.84 lb/day and 160.11 lb/day, respectively. The PM10 daily baseline limit for S-22 will be revised to 40.86 lb/day (from 26.54 lb/day). Therefore, the baseline PM10 emissions expressed in terms of "lb/ton" are: 3.228 lb/ton for S-20, 1.112 lb/ton for S-21, and 0.284 lb/ton for S-22. In other words, the combined emissions from S-20 through S-22 are equal to 4.624 lb/ton, and the combined emissions from S-21 and S-22 are equal to 1.396 lb/ton.

[6] Table 4.1.2.b for EP24 in Permit to Modify # R14-0015K dated September 24, 2009.
[7] Table 4.1.1.b for EP14 in Permit to Modify # R14-0015K dated September 24, 2009.

Table 37: Summary of RBLC results			
Facility Name	**Forming, curing, and cooling**	**Curing and cooling**	**Cooling**
Knauf Insulation GMBH	3.030 lb/ton		
Owens Corning Cordele			0.95 lb/ton
Guardian Inwood (1 of 2)		0.93 lb/ton	
Guardian Inwood (2 of 2)		0.46 lb/ton	

It can be seen from Table 37 above that the combined PM10 emissions of 4.624 lb/ton from the forming, curing, and cooling sections at OCIS are above their corresponding counterpart of 3.030 lb/ton at Knauf, and the combined PM10 emissions of 1.396 lb/ton from the curing and cooling sections are above their corresponding counterparts of 0.93 lb/ton and 0.46 lb/ton at Guardian Inwood. (Put another way, OCIS appears to be emitting more PM10 per ton of glass pulled than these other facilities.) The only instance where the PM10 emissions at OCIS are below their corresponding RBLC counterpart is with regards to the cooling section at Owens Corning Cordele i.e., 0.284 lb/ton vs. 0.95 lb/ton. Per Eric Cornwell in the Stationary Source Air Permitting Program at the Georgia Department of Natural Resources Environmental Protection Division Air Protection Branch, the Owens Corning Cordele plant was never built.

3. Survey of wool fiberglass manufacturing plants within US EPA Region 9's jurisdiction:
Excluding OCIS, there are four wool fiberglass manufacturing plants within Region 9's jurisdiction: Knauf Insulation GMBH in Shasta County, CA, CertainTeed in San Joaquin County, CA, Johns Manville in Glenn County, CA, and Guardian Fiberglass in Kingman, AZ. Following is a discussion of air emissions (as contained in either permits and/or determined via recent source tests) at each of the above facilities:

Knauf Insulation GMBH:
Knauf operates one line that consists of an electric furnace, the forming, the curing, and cooling sections. Emissions from the furnace exhaust via the furnace stack which is abated by a baghouse. Wet scrubbers within the forming section ducting upstream of the induced air fans and a Wet ESP at the end of the ducting abate emissions from the forming section; a Regenerative Thermal Oxidizer abates emissions from the curing section; and a wet scrubber abates the cooling section emissions. The abated emissions from the forming, curing, and cooling sections are collectively exhausted to the atmosphere via the main stack. Knauf produces both un-bonded and bonded products on the same line. The bonded products are manufactured using a non-phenol formaldehyde based binder. The glass pull rate at the line is limited to 225 tons/day. The main stack and furnace stack were source tested on November 30, 2011 and December 1, 2011, respectively. Table 38 summarizes the source test results for emissions from the above stacks and compares them to their respective permitted limits.

Table 38:				
Parameter	Emission rate (lb/hour)			
	Main stack tested	Main stack allowable	Furnace stack tested	Furnace stack allowable
Total Particulate	3.67	21.6	0.17	0.67

Assuming 24-hours a day of operation per day, OCIS's PM10 daily baseline limits of 464.84 lb/day, 160.11 lb/day, and 40.86 lb/day (revised from 26.54 lb/day) for S-20, S-21, and S-22 translate to 19.37 lb/hour, 6.67 lb/hour, 1.70 lb/hour, respectively. It can be seen from above, that the combined "allowable" hourly emissions of 27.74 lb/hour (464.84 + 160.11 + 40.86 ÷ 24) from the forming, curing, and cooling sections at OCIS are about 28% higher than the combined "allowable" hourly emissions of 21.6 lb/hour from their corresponding counterparts at Knauf.

The April-May 2011 source tests found the hourly PM10 emissions from S-20, S-21, and S-22 to be 18.603 lb/hour, 1.356 lb/hour, and 1.703 lb/hour, respectively. It can be seen from Table 38 that the "as tested" combined hourly PM10 emissions of 21.662 lb/hour (18.603 + 1.356 + 1.703) from the O-line forming, curing, and cooling sections are about 6 times higher than the "as tested" hourly emissions of 3.67 lb/hour from their corresponding counterparts at Knauf. More importantly, the "as tested" hourly emissions at Knauf are 83% below their "allowable" limit i.e., 3.67 lb/hour vs. 21.6 lb/hour.

CertainTeed:

CertainTeed makes bonded and un-bonded products and operates one oxy-fuel furnace. The bonded products are manufactured using a non-phenol formaldehyde based binder. The furnace emissions are abated by caustic injection and a Dry ESP and vent to the atmosphere via the "tall" stack. With regards to the bonded line, the forming section is abated by a bank of four wet cyclonic scrubbers (in parallel) and a Wet ESP (south). The curing and cooling sections are collectively abated by a Wet ESP (north). Emissions from the trimming and rollup sections are abated via dedicated baghouses before exhausting their emissions to the atmosphere, and emissions from the facing section are abated by the Wet ESP (north). The abated emissions from the Wet ESPs (north and south) are exhausted to the atmosphere via the "high" stack. The "tall" and "high" stacks were source tested on October 14, 2010. Table 39 summarizes the source test results for emissions from the above stacks and compares them to their respective permitted limits.

Table 39:					
Parameter	Emission rate (lb/hour)				
	North C-11 Wet ESP outlet	South C-11 Wet ESP outlet	High stack allowable	Furnace stack Dry ESP outlet	Tall stack allowable
Filterable PM	0.83	0.29		0.28	
Condensable PM	0.15	0.1		1.11	
Total PM	0.98	0.39	22.8	1.39	8.4

Note:

a. The "individual" permit limits for C-11-North and C-11-South are of 11.8 lb/hour/WESP outlet. However, the combined limit of 22.8 lb/hour referenced in the table is per info cited in the source test report.
b. Though the sum of the C-11-North and C-11-South hourly Total PM is 1.37 lb/hour (0.98 + 0.39), the source test report cites the "combined" hourly Total PM to be 1.42 lb/hour.

Assuming 24-hours of operation, OCIS's PM10 daily baseline limits of 464.84 lb/day, 160.11 lb/day, and 40.86 lb/day (revised from 26.54 lb/day) for S-20, S-21, and S-22 translate to 19.37 lb/hour, 6.67 lb/hour, 1.70 lb/hour, respectively. It can be seen from above, that the combined "allowable" hourly emissions of 27.74 lb/hour (464.84 + 160.11 + 40.86 ÷ 24) from the forming, curing, and cooling sections at OCIS are about 22% higher than the combined "allowable" hourly emissions of 22.8 lb/hour from their corresponding counterparts at CertainTeed.

The April-May 2011 source tests found the hourly PM10 emissions from S-20, S-21, and S-22 to be 18.603 lb/hour, 1.356 lb/hour, and 1.703 lb/hour, respectively. It can be seen from Table 39 that the "as tested" combined hourly PM10 emissions of 21.662 lb/hour (18.603 + 1.356 + 1.703) from the O-line forming, curing, and cooling sections are about 16 times higher than the "as tested" hourly emissions of 1.42 lb/hour from their corresponding counterparts at CertainTeed. More importantly, the "as tested" hourly emissions at CertainTeed are 94% below their "allowable" limit i.e., 1.42 lb/hour vs. 22.8 lb/hour.

Johns Manville:
Johns Manville operates three lines and each line consists of an electric furnace, the forming, the curing, and cooling sections. At each line, the furnace emissions are abated by a dedicated baghouse (3 in all), and emissions from the forming, curing, and cooling sections are collectively abated by a dedicated HEAF (3 in all) before exhausting to the atmosphere. Johns Manville is subject to a plant-wide Total PM10 emission cap (bubble) of 266 TPY (excludes fugitives). Assuming 8,760 hours of operation, the above limit translates to a Total PM10 emission rate of about 60.73 lb/hour. Like Knauf and CertainTeed, Johns Manville manufactures a bonded product using a non-phenol formaldehyde based binder. The types of controls used at Johns Manville appear old and possibly outdated in comparison to controls at Knauf and CertainTeed.

Guardian:
The Guardian plant in Kingman, AZ is classified as a "synthetic minor source" and the PTE for PM is limited to 89.5 TPY[8]. The furnace emissions are abated by a dust collector, and emissions from the forming and collection system are abated by means of water sprays with dropout boxes when manufacturing resinated products. The curing and cooling sections at the resinated production line are collectively abated by a thermal oxidizer, and the cooling section emissions are further abated by water sprays with drop out boxes. PM emissions from the sizing and packaging areas are abated by an air tumbler and the abated emissions are exhausted within the building. The total resinated fiberglass production at the plant is limited to 30,660 TPY (3.5 tons/hour), and the combined PM emissions from the curing and cooling sections at the resinated production line are limited to 11 lb/ton of glass pulled (38.5 lb/hour)[9].

Assuming 24-hours of operation, OCIS's PM10 daily baseline limits of 160.11 lb/day and 40.86 lb/day (revised from 26.54 lb/day) for S-21 and S-22 translate to 6.67 lb/hour and 1.70 lb/hour, respectively. It can be seen from above, that the combined "allowable" hourly emissions of 8.37 lb/hour (160.11 + 40.86 ÷ 24) from the curing, and cooling sections at OCIS are about 78% lower than the combined "allowable" hourly emissions of 38.5 lb/hour from their corresponding counterparts at Guardian. However, it is likely that the combined "allowable" hourly PM emission rate of 38.5 lb/hour is a "maximum" allowable limit to provide Guardian operational flexibility. In the absence of the above accommodation, Guardian would be in violation of its permitted limited of 89.5 TPY as shown below:

= (11 lb PM/ton of GP) x (30,660 ton of GP/year) ÷ (2,000 lb PM/ton of PM)
= 168.63 TPY (over 88% over permitted annual limit).

Per the above calculations, the complying PM emission rate is 5.84 lb PM/ton of GP.

[8] Permit # 51904 issued to Guardian on February 8, 2011 (valid until February 8, 2016).
[9] The calculated annual PM emissions for the resinated line are 168.63 TPY i.e., (30,660 x 11 ÷ 2,000). However, the "potential" PM emissions from both the resinated and non-resinated lines are limited to 89.5 TPY.

The glass pull rate at the O-line curing (S-21) and cooling (S-22) sections at OCIS are limited by part 1 of permit condition 24873 to 6 tons/hour/source and 144 tons/day/source. The existing PM10 daily baseline limits for S-21 and S-22 in terms of "lb/ton of GP" are: 1.112 lb/ton for S-21 and 0.284 lb/ton for S-22. In other words, the combined emissions from S-21 and S-22 are equal to 1.396 lb/ton of GP. The above emission rate is about 76% lower than Guardian's adjusted combined PM emission rate i.e., 1.396 lb/ton GP vs. 5.84 lb PM/ton of GP.

4. Evaluate control technologies that have been proven to reduce condensable PM:
OCIS's April-May 2011 source tests at S-22 showed that the use of the starch-based binder in favor of the phenol-formaldehyde based binder resulted in an overall reduction in filterable PM but caused a greater overall increase in condensable PM. Table 40 summarizes the changes in PM emissions at S-22 that occurred as a result of the binder change.

Table 40:

Parameter	S-22 Emission rate (lb/hour)		
	Existing baseline	Revised baseline	Net increase/decrease
Filterable PM	18.74	16.17	-2.56
Condensable PM	7.81	24.70	16.89
Total PM	26.54	40.86	14.32

It can be seen from Table 40 that the filterable PM decreased by about 14%, the condensable PM increased by about 316%, and the total PM increased by about 54%.

Making an "apples to apples" comparison of different facilities with regards to emission limits is often difficult, and here the problem is complicated by the fact that the control devices at these facilities are also configured differently and some emission limits pertain to a single source while others are for multiple emission sources. However, it should also be noted that the different emission units at all of these facilities are quite similar prior to the control device, especially at the cooling section of the wool fiberglass manufacturing process.

Currently at OCIS's Santa Clara facility, an air action cyclone scrubber in series with a high performance air filter abates PM emissions from the smoke stripper, and a wet scrubber abates the cooling line PM emissions. At issue is whether the above controls at the cooling section are good enough to abate condensable PM or whether further abatement geared toward condensable PM is warranted. For its part, the District has been able to locate a potential vendor called "Tri-Mer Corporation"[10]. The Cloud Chamber Scrubber (CCS) supplied by Tri-Mer Corporation treats PM2.5, fine, submicron, ultrafine, and condensable PM as well as PM10 and more coarse particles. Though CCS systems have not yet been installed at any wool fiberglass manufacturing plants, pilot studies to evaluate the performance of the CCS were conducted in 2005 by Tri-Mer Corporation at one of OCIS's competitors when using the phenol-formaldehyde based binder. Tests conducted independently by Tri-Mer Corporation on the pilot unit showed that the CCS could remove filterable and condensable particulates to concentrations less than 0.002 grains/dscf.

CCS has not been installed at any wool manufacturing facility to date and thus has not been "achieved in practice". Further, based on the limited information available from Tri-Mer, it does not appear to have been proven technologically feasible at this time for wool fiberglass manufacturing. Accordingly, the District concludes that the existing controls at S-22 meet current BACT.

[10] www.tri-mer.com

STATEMENT OF COMPLIANCE

The "O" Line Rotary Spin (RS) Forming, Curing, and Cooling sections (S-20, S-21, and S-22) are not subject to the Standard of Performance for New Stationary Sources (NSPS) requirements contained in 40 CFR Part 60. Specifically, the above sources are exempt from NSPS Subpart PPP "Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants" because the rotary spin wool manufacturing lines (forming, curing and cooling sections) were constructed before February 7, 1984.

OCIS is also not subject to any National Emission Standard for Hazardous Air Pollutants (NESHAP) requirements contained in 40 CFR Part 61, because it does not meet the applicability requirements for any of those standards.

Though OCIS has been using the starch-based binder since March 25, 2011 at S-20, OCIS's Title V permit currently references and subjects S-20 through S-22 to 40 CFR Part 63, Subpart NNN, National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing (MACT NNN). MACT NNN was found to be applicable to the above sources when OCIS was issued its initial Title V permit in 2003 when the phenol-formaldehyde binder was being used at S-20. Under section 63.1381, MACT NNN, in relevant part, applies to new and existing glass melting furnaces at "wool fiberglass manufacturing facilities" and each new and existing rotary spin wool fiberglass manufacturing line producing a "bonded" wool fiberglass building insulation product. OCIS's current use of the starch-based binder may mean that the product is no longer "bonded" and that the facility is no longer a "wool fiberglass manufacturing facility" as defined in the federal regulation, such that MACT NNN no longer applies. Even if that is the case, however, the MACT requirements could not be deleted from OCIS's Major Facility Review (Title V) permit without a significant revision, which includes public notice. The District will consider whether the MACT NNN requirements should remain applicable requirements in OCIS's Title V permit under Application # 21632, the Title V counterpart to this NSR application (# 21631) and/or in OCIS' Title V permit renewal application # 17948.

In order to demonstrate compliance with Regulation 6 "Particulate Matter", Rule 1 "General Requirements", OCIS is required by permit condition 24873 to do the following for the O-line forming (S-20), curing (S-21), and cooling (S-22) sections:

- ***Part 15: Perform a daily visible emissions check at the above sources and/or at the outlet of the abatement devices that abate their emissions once per day.***
- ***Part 78: Perform an annual source test every year to demonstrate compliance with the Regulation 6-1-310 particulate weight limit (of 0.15 grains per dscf per exhaust gas volume) and the Regulation 6-1-311 TSP limit.***

The District's enforcement staff will verify compliance of the above sources with Regulation 6-1-301 during their routine plant inspection.

Reg. 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. This is a "grain loading" standard. A review of the April-May 2011 source test reports (OS-3850 to 3853)[11] showed that the outlet grain loading rates recorded (in terms of gr/dscf) at S-20, S-21, the smoke stripper, and S-22 were well below the Regulation 6-1-310 limit, at 0.0157, 0.0027, 0.0027, and 0.0055, respectively. Therefore, it is reasonable to expect that S-20, S-21, and S-22 will continue to comply with Regulation 6-1-310.

Regulation 6-1-311 limits the emission rate of particulates from "general operations." The allowable emission rate (E, in lbs/hr) = $4.10\ P^{0.67}$, where P is the process weight rate of in lbs/hr.
The "P" recorded during the April-May 2011 tests was 12 tons/hour. Substituting the "P" value into the above equation, the allowable emission rate E for S-20, S-21, and S-22 is 21.67 lb/hour i.e., $E = 4.10 \times 12^{0.67} = 21.67$ lb/hour

The actual filterable particulate emissions rate, recorded during the April-May 2011 tests at S-20, S-21, and S-22 (including the smoke stripper) were 14.3 lb/hour, 0.273 lb/hour, and 0.6740 lb/hour,

[11] Particulates estimated via Method 5/202. TOC as C1 estimated via Method 5/25A.

respectively. It can be seen from above, that the actual filterable particulate emissions at S-20, S-21, and S-22 were lower than the allowable filterable particulate emissions. It is reasonable to expect that S-20, S-21, and S-22 will continue to comply with Regulation 6-1-311.

Section 301 under Regulation 8 "Organic Compounds", Rule 2 "Miscellaneous Operations" states the following:

> A person shall not discharge into the atmosphere from any miscellaneous operation an emission containing more than 6.8 kg. (15 lbs.) per day and containing a concentration of more than 300 PPM total carbon on a dry basis.

A violation of Regulation 8-2-301 requires that both POC emissions are greater than 15 lb/day and the POC concentration is in excess of 300 PPM total carbon on a dry basis. The April-May 2011 source tests determined the TOC as C1 at S-20, S-21, the smoke stripper, and S-22 to be 17.3 ppm, 3.36 ppm, 10.7 ppm, and 3.32 ppm, respectively. The TOC as C1 emissions calculated on per day basis were 84 lb/day, 1.74 lb/day, 1.13 lb/day, and 2.10 lb/day, respectively. It is reasonable to expect that S-20, S-21, and S-22 will continue to comply with Regulation 8-2-301.

Per Section 501 of Regulation 9, Rule 1, area monitoring to demonstrate compliance with the ground level SO_2 concentration requirements of Regulation 9-1-301 is at the APCO's discretion. The SO_2 concentrations recorded at S-20, S-21, the smoke stripper, and S-22 during the April-May 2011 source test were 0.159 ppm (0.167 lb/hour), 0.503 ppm (0.015 lb/hour), 0.0295 ppm (0.0008 lb/hour), and 0.0307 ppm (0.004 lb/hour), respectively. At such low emission rates, it is reasonable to expect that the APCO will not require OCIS to conduct ground level monitoring.

The "O" line forming, curing, and cooling sections are not subject to the various rules of Regulation 9 "Inorganic Gaseous Pollutants," discussed below, for the following reasons:

Forming: The natural gas fired fiberizers that are used in the "O" line forming section (S-20) are not subject to Regulation 9 because there is no District rule and/or emission limit in the regulation that controls this category of sources.

Curing: The "O" line curing section oven (S-21) is not subject to Regulation 9, Rule 7 – "Inorganic Gaseous Pollutants - Nitrogen Oxides And Carbon Monoxide From Industrial, Institutional, And Commercial Boilers, Steam Generators, And Process Heaters", because it falls under the exemption provided in Regulation 9-7-110.6. That section states that "[t]he requirements of [Regulation 9, Rule 7] shall not apply to . . . Kilns, ovens, and furnaces used for drying, baking, heat treating, cooking, calcining, or vitrifying," and the "O" line curing section oven will be used to dry and cure thermosetting resins sprayed on the glass fibers in the "O" line forming section.

Cooling: There is no combustion emissions associated with the "O" cooling section. Therefore, S-22 is not subject to Regulation 9.

THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

District Regulation 2, Rule 1, Section 310 requires all proposed new and modified sources that are subject to District permit requirements to be reviewed in accordance with the California Environmental Quality Act (CEQA) requirements, except for ministerial projects or projects exempt from CEQA under District Rule 2-1-312. The District has determined that this project is exempt from CEQA under District Rule 2-1-312.

CEQA Categorical Exemptions and CEQA "Common Sense Exemption"

Section 2-1-312 of the District Rules and Regulations sets forth specific types of projects that the District, has determined to be categorically exempt from CEQA.

Per Section 2-1-312.11, permit applications for a new or modified source or sources or for process changes will be exempt from CEQA review if they satisfy the "No Net Emission Increase" provisions of District Regulation 2, Rule 2 and if there is no possibility that the project may have any significant

environmental effect in connection with any environmental media or resources other than air quality. The reason for this exemption should be apparent on its face: if a facility is permitted to emit more air pollutants from certain points while at the same time being disallowed permission for an equivalent amount of the same type of emissions from other points at the facility, then there is deemed to be no net effect on the air environment, and therefore no possibility of a significant effect under CEQA, provided other (non-air) impacts are also examined and deemed to be of no possible significant consequence.

Also, per the CEQA Guidelines in Title 14, California Code of Regulations, Chapter 3, Article 5, Section 15061(b)(3), a project is exempt from CEQA if the activity has no potential for causing a direct or indirect physical change in the environment. This is commonly known as the "Common Sense Exemption". The "no net increase" exemption of 2-1-312.11 is essentially a specific, codified, instance of the Common Sense Exemption.

The proposed revision to S-22's daily and annual Total PM (F+C) limits would increase the "existing baseline" limit for this source by 14.32 lb/day and 2.53 TPY, respectively. As previously discussed under the "Cumulative Increase and Offsets" section, the District is also imposing a daily and an annual combined Total PM (F+C) limit on S-20, S-21 and S-22 that is equal to the sum of the "existing baseline" limits for total PM emissions from these sources. The combined daily and annual limits ensure that this project will result in "no net increase" and has no potential for causing a direct or indirect physical change in the environment, despite the adjustment of the daily limit for S-22. Thus, the "no net increase" and Common Sense Exemptions to CEQA apply.

(It should also be noted that the Total PM (F+C) emissions from S-20, S-21, and S-22 measured during the April-May 2011 source tests were 79.01 TPY, 5.76 TPY, and 7.23 TPY, respectively. Please refer to Table 41. Meanwhile, the "existing" baseline Total PM limits for the above sources are 82.25 TPY, 28.33 TPY, and 4.7 TPY. Please refer to Table 42. As shown in Table 43, this means that the use of the starch-based binder resulted in a net decrease of over 23 TPY in actual PM emissions from S-20, S-21, and S-22 i.e., (79.01–82.25) + (5.76-28.33) +(7.23-4.7) = -23.28 TPY, regardless of the emissions limits contained in the permit conditions.)

Table 41:
April-May 2011 Source Test Results for the O-Line

Pollutant	Forming Section		Curing Section		Cooling Section	
	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F)	343.41	60.78	6.55	1.16	16.17	2.86
PM (C)	102.96	18.22	26.49	4.69	24.69	4.37
PM (F+C)	446.37	79.01	32.54	5.76	40.86	7.23

Table 42:						
Existing Baseline Emissions for the O-Line						
Pollutant	**Forming Section**		**Curing Section**		**Cooling Section**	
	S-20		**S-21**		**S-22**	
	lbs/day	**TPY**	**lbs/day**	**TPY**	**lbs/day**	**TPY**
PM (F)	415.03	73.44	19.83	3.51	18.74	3.32
PM (C)	49.8	8.81	140.27	24.82	7.81	1.38
PM (F+C)	464.84	82.25	160.11	28.33	26.54	4.7

Table 43:						
Net Increase/Decrease in Emissions for the O-Line						
Pollutant	**Forming Section**		**Curing Section**		**Cooling Section**	
	S-20		**S-21**		**S-22**	
	lbs/day	**TPY**	**lbs/day**	**TPY**	**lbs/day**	**TPY**
PM (F)	-71.62	-12.66	-13.28	-2.35	-2.57	-0.46
PM (C)	53.16	9.41	-113.78	-20.13	16.88	2.99
PM (F+C)	-18.47	-3.24	-127.57	-22.57	14.32	2.53

With respect to CO, the District's proposal is to correct the "existing baseline" to reflect OCIS's actual emissions from S-20 prior to the binder change, as opposed to allowing increased emissions from this source after the binder change. The correction results in no increase in emissions. As for NOx, the District's proposal is to reduce the existing baseline limit. And finally, with respect to TACs, the binder change has resulted in significant reductions in TACs as shown in Tables 14 through 17. For all of these pollutants, then, the District has determined that this project satisfies the "No Net Emission Increase" provisions of District Regulation 2-1-312.11.4. Further, the District has not identified any other potential significant environmental effect from this project. Therefore, the "No Net Emission Increase" provisions of District Regulation 2, Rule 1 are satisfied.

In sum, the daily and annual NOx limits for S-20, the daily and annual CO limits for S-20, and the daily and annual PM limits for S-22, in permit condition 24873 will be revised per information summarized in Table 44. In addition, the District will also impose a combined daily and annual PM limit that applies to S-20, S-21 and S-22, and which is equal to the sum of the "existing baseline" daily limits for these sources (*see* proposed Part 84 of permit condition 24873).

Table 44:						
"Revised" Baseline Emissions for the O-Line						
Pollutant	**Forming Section**		**Curing Section**		**Cooling Section**	
	S-20		**S-21**		**S-22**	
	lbs/day	**TPY**	**lbs/day**	**TPY**	**lbs/day**	**TPY**
PM (F)	415.03	73.44	19.83	3.51	16.17	2.86
PM (C)	49.8	8.81	140.27	24.82	24.69	4.37

Table 44: "Revised" Baseline Emissions for the O-Line						
Pollutant	Forming Section		Curing Section		Cooling Section	
	S-20		S-21		S-22	
	lbs/day	TPY	lbs/day	TPY	lbs/day	TPY
PM (F+C)	464.84	82.25	160.11	28.33	40.86	7.23
NOx	21.22	3.28	277.64	42.93	5.33	0.82
SO2	38.51	5.95	5.81	0.9	6.36	0.98
POC	138.08	24.43	2.28	0.4	10.13	1.79
CO	211.51	37.44	451.58	79.91	12.07	2.14
Phenol	50.52	7.81	3.4	0.53	2.46	0.38
Formaldehyde	42.92	6.64	0.13	0.02	1.54	0.24
Methanol	142.39	22.02	0.16	0.02	9.3	1.44
Ammonia	164.08	25.37	108.64	16.8	21.46	3.32
Ethanol	1.39	0.21	0.21	0.03	0.23	0.04
Acetaldehyde	1.33	0.2	0.2	0.03	0.22	0.03

TITLE V

District NSR applications are incorporated into Title V permits as administrative amendments, minor revisions, or significant revisions. Administrative amendments are non-substantive amendments. Significant revisions are defined in District Regulation 2-6-226, as shown below. All revisions that are not administrative amendments or significant revisions are minor revisions, per Regulation 2-6-215.

2-6-226 Significant Permit Revision: Any revision to a federally enforceable condition contained in a major facility review permit that can be defined as follows:

226.1 The incorporation of a change considered a major modification under 40 CFR Parts 51 (NSR) or 52 (PSD);

226.2 The incorporation of a change considered a modification under 40 CFR Parts 60 (NSPS), 61 (NESHAPS), or Section 112 of the Clean Air Act (HAP);

226.3 Any significant change or relaxation of any applicable monitoring, reporting or recordkeeping condition;

226.4 The establishment of or change to a permit term or condition allowing a facility to avoid an applicable requirement, including:

- 4.1 a federally enforceable emission limit assumed in order to avoid classification as a modification under any provision of Title I of the federal Clean Air Act, or
- 4.2 an alternative hazardous air pollutant emission limit pursuant to Section 112(i)(5) of the Clean Air Act;

226.5 The establishment of or change to a case-by-case determination of any emission limit or other standard;

226.6 The establishment of or change to a facility-specific determination for ambient impacts, visibility analysis, or increment analysis on portable sources; or

226.7 The incorporation of any requirement promulgated by the U. S. EPA under the authority of the Clean Air Act provided that three or more years remain on the permit term.

This project will require a significant revision to OCIS's Title V permit under Regulation 2-6-226.5 because it involves the establishment of or change to a case-by-case determination of any emission limit or other standard permit terms. Specifically, the District has determined that the proposed revision to the CO daily and annual limits for S-20 from 117.92 lb/day to 211.51 lb/day and from 20.87 TPY to 37.44 TPY is necessary to reflect the maximum pre-alteration CO emissions from the O-line forming section. In other words, though the proposed revisions to the existing CO baseline may at first glance appear to result in a net increase of 93.59 lb/day and 16.57 TPY, the District considers the "increase" to be a correction and S-20 to be an "altered", not "modified", source. In contrast, the proposed revision to the Total PM daily and annual limits from 26.54 lb/day to 40.86 lb/day and from 4.7 TPY to 7.23 TPY will be treated as a modification because the District has determined that the net increase in 14.32 lb/day and 2.53 TPY of Total PM resulted from the use of the starch-based binder. Therefore, the proposed revision to part 67 of permit condition 24873 will be treated as a significant revision to OCIS's Title V permit.

PERMIT CONDITIONS

Summary of changes shown in ~~strikeout~~/underline format:

- Part 51:
  Revised daily CO emissions baseline limit for S-20 from 117.92 lb/day to 211.51 lb/day.
- Part 52:
  Revised annual CO emissions baseline limit for S-20 from 20.87 TPY to 37.44 TPY.
- Part 53:
  Revised daily NOx emissions baseline limit for S-20 from 27.68 lb/day to 21.22 lb/day.
- Part 54:
  Revised annual NOx emissions baseline limit for S-20 from 4.28 TPY to 3.28 TPY.
- Part 67:
  Revised daily PM10 emissions baseline limit for S-22 from 26.54 lb/day to 40.86 lb/day.
- Part 68:
  Revised annual PM 10 emissions baseline limit for S-22 from 4.70 TPY to 7.23 TPY.
- Part 77:
  Deleted reference to phenol-formaldehyde based binder.
- Part 78:
  Deleted initial source test reference, and testing for D/F.
  Added amendments pertaining to time interval between source tests.
- Part 79:
  Deleted reference to phenol-formaldehyde based binder.
- Part 80:
  Added frequency of source testing requirements for TACs.
- Part 84:
  Consistent with information summarized in Table 42, added combined daily and annual PM10 emissions limits of ~~651.49~~665.81 lb/day and ~~115.28~~117.81 TPY for S-20, S-21, and S-22.

Permit condition 24873 for:
S-2 - "M" Line Forming Section and S-20 - "O" Line Forming Section
S-3 - "M" Line Curing Oven Section and S-21 - "O" Line Curing Oven Section
S-4 – "M" Line Cooling Section and S-22 – "O" Line Cooling Section

Note: Any condition that is preceded by an asterisk is not federally enforceable.

2. The owner/operator shall ensure that the total bare molten glass pulled at S-2, S-3, S-4, S-20, S-21, and S-22 does not exceed 6 tons per hour per source and 144 tons per day per source. (Basis: Regulation 2-1-234)

3. The owner/operator shall maintain daily records of the amount of glass pulled at S-2, S-3, S-4, S-20, S-21, and S-22. The owner/operator shall retain the records on site for five years from the date of entry, and shall make the records available to District staff for inspection

upon request. (Basis: Regulation 2-6-501)

4. With the exception of the "M" Line Forming (S-2) section which is currently unabated, the owner/operator shall ensure that the "M" Line Curing Oven (S-3) section emissions are abated by the properly installed, properly operated, and properly maintained "M" Charge Incinerator (A-5) and "M" Discharge Incinerator (A-6) at all times that S-3 operates. The owner/operator shall ensure emissions from the "M" Line Smoke Stripper, which is downstream of S-3 and upstream of "M" Line Cooling section (S-4), is abated by the properly installed, properly operated, and properly maintained Air Action Cyclone Scrubber (A-101) in series with a High Performance Air Filter (A-102) at all times that S-3 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-101 ranges between 1" wc to 20" wc, and A-102 ranges between 5" wc to 40" wc, respectively, and that the pressure drop across A-101 and A-102 is monitored and recorded once per shift. (Basis: Cumulative Increase)

5. The owner/operator shall ensure that the "M" Line Cooling (S-4) section emissions are abated by the properly installed, properly operated, and properly maintained High Efficiency Air Filter (A-7) at all times that S-4 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-7 ranges between 0.1" wc to 3" wc, and that the pressure drop across A-7 is monitored and recorded once per day.
(Basis: Cumulative Increase)

6. In order to ensure the abatement devices at S-3 and S-4 are properly installed, properly operated, and properly maintained, the owner/operator shall inspect and record in a District-approved log the condition of A-5 and A-6 on an annual basis, and the condition of A-7, A-101, A-102 shall be inspected and recorded in a District-approved log once per month. While conducting such inspections, the owner/operator shall record all types of defects detected at A-5, A-6, A-7, A-101, and A-102 , the date and time when each defect was detected, and the date and time when each defect was rectified in a District-approved repair log. The owner/operator shall maintain records of the inspection logs and repair logs on-site for five years from the date of last entry and shall make them available for inspection by District staff upon request. (Basis: Regulation 2-6-501, Regulation 6-1-301)

7. With the exception of the "O" Line Forming (S-20) section which is currently unabated, the owner/operator shall ensure that the "O" Line Curing Oven (S-21) section emissions are abated by the properly installed, properly operated, and properly maintained "O" Oven Incinerator (A-25) during all times that S-21 operates. The owner/operator shall ensure emissions from the "O" Line Smoke Stripper, which is downstream of S-21 and upstream of "O" Line Cooling section (S-22), is abated by the properly installed, properly operated, and properly maintained Air Action Cyclone Scrubber (A-99) in series with a High Performance Air Filter (A-100) at all times that S-21 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-99 ranges between 1" wc to 20" wc, and A-100 ranges between 5" wc to 40" wc, respectively, and that the pressure drop across A-99 and A-100 is monitored and recorded once per shift. (Basis: Cumulative Increase)

8. The owner/operator shall ensure that the "O" Cooling Line (S-22) section emissions are abated by the properly installed, properly operated, and properly maintained "O" Cooling Scrubber (A-26) at all times that S-22 operates. The owner/operator shall ensure that the pressure drop measured by a District-approved manometer or other District-approved device that measures the pressure drop across A-26 ranges between 1" wc to 10" wc, and that the pressure drop across A-26 is monitored and recorded once per day. The owner/operator shall ensure that the water flow rate measured by a District-approved water flow meter or other District-approved device to measure the water flow rate across A-26 ranges between 50 gpm to 250 gpm, and that the water flow rate across A-26 is monitored and recorded once per day,. (Basis: Cumulative Increase)

9. In order to ensure the abatement devices at S-21 and S-22 are properly installed, properly operated, and properly maintained, the owner/operator shall inspect and record in a District-approved log the condition of A-25 on an annual basis, the condition of A-26 on a semi-annual basis, and the condition of A-99 and A-100 shall be inspected and recorded in a District-approved log once per month. While conducting such inspections, the owner/operator shall record all types of defects detected at A-25, A-26, A-99, and A-100, the date and time when each defect was detected, and the date and time when each defect was rectified in a District-approved repair log. The owner/operator shall maintain records of the inspection logs and repair logs on-site for five years from the date of last entry and shall make them available for inspection by District staff upon request.
(Basis: Regulation 2-6-501, Regulation 6-301)

10. The owner/operator shall control the rotary spin manufacturing "M" line and "O" line curing section emissions by thermal incineration with the following parameters.
    a. Maintain a minimum destruction temperature of 1340^{o}F unless the owner/operator can demonstrate to the satisfaction of the APCO that requirements in this permit condition can be met with A-5, A-6, and A-25 operating at a lower temperature.
    b. The destruction temperature at "M" Charge Incinerator (A-5), "M" Discharge Incinerator (A-6) and "O" Oven Incinerator (A-25) shall be recorded using chart or digital recorders. (Basis: Regulation 2-6-503)

ALLOWABLE TEMPERATURE EXCURSION(S)

11. The temperature limit in part 9.a of this condition shall not apply during an "Allowable Temperature Excursion", provided that the temperature controller setpoint complies with the temperature limit. An Allowable Temperature Excursion is one of the following:
    a. A temperature excursion not exceeding 20 degrees F; or
    b. A temperature excursion for a period or periods which when combined are less than or equal to 15 minutes in any hour; or
    c. A temperature excursion for a period or periods which when combined are more than 15 minutes in any hour, provided that all three of the following criteria are met.

        i. the excursion does not exceed 50 degrees F;
        ii. the duration of the excursion does not exceed 24 hours; and
        iii. the total number of such excursions does not exceed 12 per calendar year (or any consecutive 12 month period).

    Two or more excursions greater than 15 minutes in duration occurring during the same 24 hour period shall be counted as one excursion toward the 12 excursion limit.
    (Basis: Regulation 2-6-503)

12. For each Allowable Temperature Excursion that exceeds 20 degrees F. and 15 minutes in duration, the owner/operator shall keep sufficient records to demonstrate that they meet the qualifying criteria described above. Records shall be retained for a minimum of five years from the date of entry, and shall be made available to the District upon request. Records shall include at least the following information:

    a. Temperature controller setpoint;
    b. Starting date and time, and duration of each Allowable Temperature Excursion;
    c. Measured temperature during each Allowable Temperature Excursion;
    d. Number of Allowable Temperature Excursions per month, and total number for the current calendar year; and
    e. All strip charts or other temperature records.
    (Basis: Regulation 2-6-503)

13. For the purposes of parts 10 and 11 of this condition, a temperature excursion refers only to

temperatures below the limit. (Basis: Regulation 2-6-503)

14. Effective March 20, 2011, the owner/operator shall ensure that no phenol-formaldehyde based binder is used in wool fiberglass manufacturing operations at sources S-2, S-3, S-4, S-20, S-21, and S-22. (Regulation 2-1-403)

15. The owner/operator shall ensure that the use of the starch-based binder (replacement to the phenol-formaldehyde based binder) at S-2, S-3, S-4, S-20, S-21, and S-22 does not result in visible particulate matter emissions, cause objectionable odors, or result in fallout on adjacent property in such quantities as to cause a public nuisance per Regulation 1-301. In the event the use of the starch-based binder results in a public nuisance violation, the owner/operator shall stop using the starch-based binder until such time the cause of the public nuisance violation is addressed, or the District's Hearing Board grants the owner/operator a variance.
(Basis: Regulation 1-301)

16. In order to ensure that sources S-2, S-3, S-4, S-20, S-21, and S-22 comply with the Ringelmann No. 1 limit in Regulation 6-1-301, the owner/operator shall perform a daily visible emissions check at the above sources and/or at the outlet of the abatement devices that abate their emissions once per day.
(Basis: Regulation 2-6-501, Regulation 6-1-301)

17. The owner/operator of S-2, S-3, S-4, S-20, S-21, and S-22 shall ensure that none of the above sources discharge into the atmosphere an emission containing more than 6.8 kg. (15 lbs.) per day and containing a concentration of more than 300 PPM total carbon on a dry basis.
(Regulation 8-2-301)

18. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-2, "M" Line Rotary Spin Forming Line, do not exceed 515.59 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

19. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-2, "M" Line Rotary Spin Forming Line, do not exceed 84.89 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

20. The owner/operator shall ensure that the POC emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 94.40 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

21. The owner/operator shall ensure that the POC emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 13.22 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

22. The owner/operator shall ensure that the CO emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 95.42 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

23. The owner/operator shall ensure that the CO emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 15.71 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

24. The owner/operator shall ensure that the NOX emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 30.45 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

25. The owner/operator shall ensure that the NOX emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 3.76 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

26. The owner/operator shall ensure that the SO2 emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 37.17 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

27. The owner/operator shall ensure that the SO2 emissions at S-2, "M" Line Rotary Spin Forming Line, do not exceed 4.59 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

28. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 22.48 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

29. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-3 (sum-total of abated emissions emanating from A-5 and A-6), "M" Line Curing Oven, do not exceed 3.70 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

30. The owner/operator shall ensure that the POC emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 5.33 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

31. The owner/operator shall ensure that the POC emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 0.75 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

32. The owner/operator shall ensure that the CO emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 345.02 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

33. The owner/operator shall ensure that the CO emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 56.81 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

34. The owner/operator shall ensure that the NOx emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 248.44 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

35. The owner/operator shall ensure that the NOx emissions at S-3, "M" Line Curing Oven (sum-total of abated emissions emitted from A-5 and A-6), do not exceed 30.68 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

36. The owner/operator shall ensure that the SO2 emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 5.61 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

37. The owner/operator shall ensure that the SO2 emissions at S-3 (sum-total of abated emissions emitted from A-5 and A-6), "M" Line Curing Oven, do not exceed 0.69 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

38. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 77.43 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

39. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 12.75 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

40. The owner/operator shall ensure that the POC emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 18.36 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

41. The owner/operator shall ensure that the POC emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 2.55 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

42. The owner/operator shall ensure that the CO emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 9.18 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

43. The owner/operator shall ensure that the CO emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 1.51 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

44. The owner/operator shall ensure that the NOx emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 4.42 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

45. The owner/operator shall ensure that the NOx emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 0.55 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

46. The owner/operator shall ensure that the SO2 emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 6.20 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

47. The owner/operator shall ensure that the SO2 emissions at S-4 (sum-total of abated emissions emitted from A-7, A-101, and A-102), "M" Cooling, do not exceed 0.77 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

48. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-20, "O" Line Rotary Spin Forming Line, do not exceed 464.84 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.

(Basis: Regulation 2-1-234)

49. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-20, "O" Line Rotary Spin Forming Line, do not exceed 82.25 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

50. The owner/operator shall ensure that the POC emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 138.08 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

51. The owner/operator shall ensure that the POC emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 24.43 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

52. The owner/operator shall ensure that the CO emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 211.51 ~~117.92~~ lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

53. The owner/operator shall ensure that the CO emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed ~~20.87~~37.44 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

54. The owner/operator shall ensure that the NOx emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 21.22 ~~27.68~~ lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

55. The owner/operator shall ensure that the NOx emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed ~~4.28~~3.28 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

56. The owner/operator shall ensure that the SO2 emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 38.51 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

57. The owner/operator shall ensure that the SO2 emissions at S-20, "O" Line Rotary Spin Forming Line, do not exceed 5.95 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

58. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-21 (abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed160.11 lb/day. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

59. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-21 (abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 28.33 tons per year. Compliance shall be determined using the procedures in part 83 of this condition.
(Basis: Regulation 2-1-234)

60. The owner/operator shall ensure that the POC emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 2.28 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

61. The owner/operator shall ensure that the POC emissions at S-21(abated emissions emitted from

A-25), "O" Line Curing Oven, do not exceed 0.40 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

62. The owner/operator shall ensure that the CO emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 451.58 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

63. The owner/operator shall ensure that the CO emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 79.91 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

64. The owner/operator shall ensure that the NOx emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 277.64 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

65. The owner/operator shall ensure that the NOx emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 42.93 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

66. The owner/operator shall ensure that the SO2 emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 5.81 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

67. The owner/operator shall ensure that the SO2 emissions at S-21(abated emissions emitted from A-25), "O" Line Curing Oven, do not exceed 0.90 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

68. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed ~~26.54~~40.86 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

69. The owner/operator shall ensure that the PM10 emissions, including filterable and condensable PM, at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed ~~4.70~~7.23 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

70. The owner/operator shall ensure that the POC emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 10.13 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

71. The owner/operator shall ensure that the POC emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 1.79 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

72. The owner/operator shall ensure that the CO emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 12.07 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

73. The owner/operator shall ensure that the CO emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 2.14 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

74. The owner/operator shall ensure that the NOx emissions at S-22 (sum-total of abated emissions

emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 5.33 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

75. The owner/operator shall ensure that the NOx emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 0.82 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

76. The owner/operator shall ensure that the SO2 emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 6.36 lb/day. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

77. The owner/operator shall ensure that the SO2 emissions at S-22 (sum-total of abated emissions emitted from A-26, A-99, and A-100), "O" Cooling, do not exceed 0.98 tons per year. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-234)

78. Prior to conducting source tests required by this permit condition the owner/operator shall submit a source test protocol for approval to the District's Source Test Section. ~~Within 45 days of switching from the phenol-formaldehyde based binder to the starch-based binder pursuant to Application 21631, the owner/operator shall submit a source test protocol for approval to the District's Source Test Section.~~ The owner/operator shall describe the test methods that will be used to determine the NOx, SO2, CO, POC, PM10, and toxic air contaminant emissions associated with the use of the starch-based binder. The owner/operator shall describe the expected throughputs to the equipment during the source tests. (Basis: Regulation 2-1-301)

79. The owner/operator shall conduct source tests at sources S-2, S-3, S-4, S-20, S-21, and S-22, once a year to determine the emissions of the following pollutants:

~~79. Within 60 days of switching from the phenol-formaldehyde binder to the starch-based binder pursuant to Application 21631, the owner/operator shall conduct initial source tests at sources S-2, S-3, S-4, S-20, S-21, and S-22, and once a year thereafter to determine the emissions of the following pollutants:~~

a. NOx
b. CO
c. POC
d. PM10 (filterable)
e. PM10 (condensable)
f. SO2
g. *Phenol
h. *Formaldehyde
i. *Methanol
j. *Ammonia
k. *Acetaldehyde

*In addition to quantifying the emissions of the criteria pollutants and TACs cited above, the owner/operator shall source test sources S-2, S-3, S-4, S-20, S-21, and S-22 to demonstrate compliance with the Regulation 6-1-310 particulate weight limit (of 0.15 grains per dscf per exhaust gas volume) and the Regulation 6-1-311 TSP limit once every year. For the purposes of demonstrating compliance with District Regulation 6-1-311, recycled trim shall be excluded from the allowable process weight rate "P" when determining the allowable rate of emissions "E" permitted under Table 1 of the above section in the rule. The owner/operator shall source test sources S-2, S-3, S-4, S-20, S-21, and S-22 to demonstrate compliance with the Regulation 8-2-301 once every year.
The owner/operator shall ensure that all source tests required by this permit condition are conducted while operating sources S-2, S-3, S-4, S-20, S-21, and S-22 at maximum capacity when they are producing a saleable product.

The requirement for testing "once every year" as used herein requires that the testing must

commence annually during the period of time two weeks before or two weeks after the date on which the initial compliance testing was completed (the initial annual test date). If operating conditions at the Plant in subsequent years prevent the annual testing from being commenced during that window of time, the owner/operator shall notify the District and provide an explanation of the circumstances at the facility preventing the conduct of the annual testing. The District and the owner/operator will then agree upon an alternative time to commence the annual testing. Thereafter the agreed upon test date will become the new annual test date for setting the window for annual testing in future years until such time as circumstances require another adjustment to the annual test date.
(Basis: Regulation 2-1-223.7, 2-1-301, Regulation 2-6-409.2)
~~In addition to determining emissions of the TACs cited above, the initial source test at sources S-2, S-3, S-4, S-20, S-21, and S-22 shall also determine the Dioxins and Furans (D/F) emissions when using the starch-based binder. Results from the Health Risk Screening Analysis (HRSA), which is discussed in part 81 of this permit condition, will determine the frequency of periodic testing for D/F emissions at sources S-2, S-3, S-4, S-20, S-21, and S-22.~~

~~In addition to quantifying the emissions of the criteria pollutants and TACs cited above, the owner/operator shall source test sources S-2, S-3, S-4, S-20, S-21, and S-22 to demonstrate compliance with the Regulation 6-1-310 particulate weight limit (of 0.15 grains per dscf per exhaust gas volume) and the Regulation 6-1-311 TSP limit once every year. For the purposes of demonstrating compliance with District Regulation 6-1-311, recycled trim shall be excluded from the allowable process weight rate "P" when determining the allowable rate of emissions "E" permitted under Table 1 of the above section in the rule. The owner/operator shall source test sources S-2, S-3, S-4, S-20, S-21, and S-22 to demonstrate compliance with the Regulation 8-2-301 once every year.~~
~~The owner/operator shall ensure that all source tests required by this permit condition are conducted while operating sources S-2, S-3, S-4, S-20, S-21, and S-22 at maximum capacity when they are producing a saleable product. ((Basis: Regulation 2-1-301, Regulation 2-6-409.2)~~

80. The owner/operator shall submit to the District's Source Test Section the results of the source tests that were conducted in accordance with part 78 of this condition. The results of these source tests shall be kept on site for at least five years from the date of the test and shall be made available to District staff upon request. The owner/operator shall notify the Manager of the District's Source Test Section at least thirty (30) days prior to the test, to provide the District staff the option of observing the testing. Within 60 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. Records of the source test results and any related correspondence with the District's Source Test Section shall be retained on-site by the owner/operator for a minimum of 5 years from the date of the document. The results of the source test shall be made available to the District within 60 days of the source test and kept for a minimum of 5 years from the date of the report.
~~Within 120 days of switching from the phenol-formaldehyde binder to the starch-based binder pursuant to Application 21631, the owner/operator shall submit to the District's Source Test Section the results of the source tests that were conducted in accordance with part 78 of this condition. The results of these source tests shall be kept on site for at least five years from the date of the test and shall be made available to District staff upon request. The owner/operator shall notify the Manager of the District's Source Test Section at least thirty (30) days prior to the test, to provide the District staff the option of observing the testing. Within 60 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. Records of the source test results and any related correspondence with the District's Source Test Section shall be retained on-site by the owner/operator for a minimum of 5 years from the date of the document. The results of the source test shall be made available to the District within 60 days of the source test and kept for a minimum of 5 years from the date of the report.~~
(Basis: Regulation 2-1-301, Regulation 2-6-503)

81. For a given criteria pollutant, the frequency of source testing required under part 78 of this permit condition shall be reduced from annually to once every five years if three consecutive annual source tests document that emissions of the pollutant are less than 50 percent of the standard. The frequency of source testing shall revert back to annually if any source test documents that emissions of the pollutant are 50 percent of the standard or more. The source testing frequency can again be reduced to once every five years if another three consecutive annual source tests document that emissions of the pollutant are less than 50 percent of the standard.

For TACs, the frequency of source testing required under part 78 of this permit condition shall be reduced from annually to once every five years if HRSAs performed by the District's Toxics Evaluation Section staff in accordance with part 81 of this permit condition using three consecutive annual source tests document that the TAC emissions from S-20 through S-22 would result in a cancer risk that is less than 1.0 in a million and a chronic hazard index that is less than 0.20. The frequency of source testing for TACs shall revert back to annually if any source test documents the project risk associated with TAC emissions exceeded any of the project risk limits in Regulation 2-5-302. The source testing frequency for TACs can again be reduced to once every five years if another three consecutive annual source tests document that TAC emissions comply with all the project risk limits in Regulation 2-5-302.
(Basis: Regulation 2-6-409.2)

~~81. For a given criteria pollutant, the frequency of source testing required under part 78 of this permit condition shall be reduced from annually to once every five years if three consecutive annual source tests document that emissions of the pollutant are less than 50 percent of the standard. The frequency of source testing shall revert back to annually, if a source test documents that emissions of the pollutant are 50 percent of the standard or more. The source testing frequency can again be reduced if another three consecutive annual source tests document that emissions of the pollutant are less than 50 percent of the standard. (Basis: Regulation 2-6-409.2)~~

82. *a. After approval of the source test results by the District Source Test Section, the District's Toxics Evaluation Section staff shall perform a Health Risk Screening Analysis (HRSA) to determine whether the project risk, as defined by BAAQMD Regulation 2-5-217, from sources S-2, S-3, S-4, S-20, S-21, and S-22, exceeds a cancer risk of 1.0 in one million or a chronic hazard index of 0.2 or an acute hazard index of 1.0. In the event the HRSA determines that the projected annual or hourly risk exceeds a cancer risk of 1.0 in one million or a chronic hazard index of 0.2, the District shall impose operational restrictions on the amount of time the owner/operator can operate S-2, S-3, S-4, S-20, S-21, and S-22 on a daily and annual basis. The operational restrictions shall remain in place until such time that the owner/operator either reduces the production capacity at S-2, S-3, S-4, S-20, S-21, and S-22, or applies TBACT consistent with the requirements in BAAQMD Regulation 2-5-301. Compliance shall be determined using the procedures in part 83 of this condition.

*b. In the case that the projected annual or hourly risk exceeds a cancer risk of 10.0 in one million or a chronic hazard index of 1.0 or an acute hazard index of 1.0, the owner/operator shall comply with the TBACT requirement in BAAQMD Regulation 2-5-301 and shall curtail operations to remain below these levels. Compliance shall be determined using the procedures in part 83 of this condition.

*c. The District may impose limits on toxic air contaminants based on the results of the source tests.

(Basis: Regulation 2-5-217, Regulation 2-5-301)

83. After approval by the District Source Test Section of the source test results, the owner/operator shall use the source test results that were gathered when using the starch-based binder to determine emission factors for each criteria pollutant and TAC that was tested on a lb/ton of glass pulled basis. (Basis: Regulation 2-1-403, Regulation 2-5)

84. The owner/operator shall use the emission factors developed in accordance with part 82 to determine compliance with the daily and annual limits outlined in parts 17 through 76 of this permit condition. The owner/operator shall multiply the emission factors for each pollutant by the daily throughputs of glass pulled at S-2, S-3, S-4, S-20, S-21, and S-22 to determine compliance with the daily limits. Within 30 days of the end of each calendar month, the owner/operator shall sum the totals for each calendar day in the calendar month to determine the monthly emissions. Within 30 days of the end of each calendar month, the owner/operator shall sum the monthly totals for the last consecutive 12-month period to determine compliance with the annual limits. The owner/operator shall report to the BAAQMD and the EPA any non-compliance in accordance with Standard Condition I.F of the Major Facility Review permit, and shall immediately reduce production at S-2, S-3, S-4, S-20, S-21, and S-22 until such time that the necessary remedial steps to come back into compliance have been reviewed by the District and implemented by the owner/operator.
(Basis: Regulation 2-1-403, Regulation 2-5)

85. The owner/operator shall ensure that the sum-total of PM10 emissions, including filterable and condensable PM, at S-20, S-21, and S-22 do not exceed 665.81 lb/day and 117.81 TPY. Compliance shall be determined using the procedures in part 83 of this condition. (Basis: Regulation 2-1-312.11)

RECOMMENDATION

Waive the AC and issue OCIS a PO for the following "altered" source:

S-20: "O" Forming – Rotary Spin, Firing Natural Gas; 17 MMBTU/hr;
Bare molten glass: 6 tons/hr; 144 TPD
Emissions from S-20 are not abated

Waive the AC and issue OCIS a PO for the following "modified" source:

S-22: "O" Cooling,
Bare molten glass: 6 tons/hr; 144 TPD
Abated by scrubber A-26.

_____
K. R. Bhagavan

APPENDIX C

MACT NNN ADI

Control Number: M040014

Category: MACT
Region: OECA
Date: 08/01/2002
Title: Binder Switch from Formaldehyde to Acrylic
Recipient: Karl Mangels
Author: MIchael Alushin
Comments:

Subparts: Part 63 NNN Wool Fiberglass Manufacturing
References: 63.1380
63.1381

Abstract:

Q: Is a facility that switches from a formaldehyde binder to an acrylic binder still subject to 40 CFR, part 63, subpart NNN?

A: No, the facility no longer meets the definition of a "wool fiberglass manufacturing facility" as defined in section 63.1381, and therefore is no longer subject to the standard.

Letter:

DATED: AUGUST 1, 2002; SIGNED: MAMIE R. MILLER / for

MEMORANDUM

SUBJECT: National Emission Standard for Hazardous Air Pollutants Applicability Determination for the Johns Manville Penbryn Plant in Winslow County, New Jersey

FROM: Michael S. Alushin, Director s / MAMIE R. MILLER /for Compliance Assessment and Media Program Division Office of Compliance

TO: Karl Mangels
Air Compliance Branch
US EPA Region II

This memorandum is in response to the July 9, 2002, letter from the New Jersey Department of Environmental Quality (NJDEP) requesting a determination from the United States Environmental Protection Agency (EPA) regarding the applicability of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Wool Fiberglass Manufacturing (40 CFR Part 63, Subpart NNN) to the Johns Manville (JM) Penbryn Plant in Winslow County, New Jersey. Based on dialogue with the facility and NJDEP, and in

consultation with EPA's Office of Air Quality Planning and Standards, the following is our applicability determination regarding the NESHAP for Wool Fiberglass Manufacturing as it applies to the JM Penbryn Plant.

The JM Penbryn Plant recently completed a project to switch from the traditional phenol-formaldehyde binder to an acrylic binder. As a result of the switch, JM is claiming that the glass-melting furnace and the rotary spin wool fiberglass manufacturing line no longer meet the definition of an affected source under the NESHAP for Wool Fiberglass Manufacturing (40 CFR Part 63, Subpart NNN).

The NESHAP for Wool Fiberglass Manufacturing lists three affected sources subject to the standards of Subpart NNN: 1) Each new and existing glass-melting furnace located at a wool fiberglass manufacturing facility; 2) Each new and existing rotary spin wool fiberglass manufacturing line producing a bonded wool fiberglass building insulation product; and 3) Each new and existing flame attenuation wool fiberglass manufacturing line producing a bonded heavy density product. 40 CFR Section 63.1380. Prior to the switch to an acrylic binder, the JM Penbryn plant operated both a glass-melting furnace and
a rotary spin wool fiberglass manufacturing line subject to Subpart NNN. There is no flame attenuation wool fiberglass manufacturing line located at the JM facility.

The facility is claiming that due to the switch to an acrylic binder from a phenol-formaldehyde binder, it no longer produces a bonded product. If the facility does not produce a bonded product, then it does not meet the definition of building insulation. If the facility is not producing building insulation, then it does not meet the definition of a rotary spin manufacturing line. Finally, if there is no rotary spin manufacturing line or flame attenuation manufacturing line located at the facility, then the facility does not meet the definition of a wool fiberglass manufacturing facility. Based on the definitions provided in Section 63.1381, EPA agrees that if the JM Penbryn Plant is no longer using a phenol-formaldehyde binder, the facility no longer meets the definition of a wool fiberglass manufacturing facility in Subpart NNN.

Furthermore, JM is claiming that if the facility is no longer defined as a wool fiberglass manufacturing facility, as a result of the switch to an acrylic binder, then the glass-melting furnace located at the facility is no longer subject to Subpart NNN. The NESHAP for Wool Fiberglass Manufacturing states that the standards for this subpart apply to "Each new and existing glass-melting furnace located at a wool fiberglass manufacturing facility." EPA agrees that as a result of the switch to a

nonphenol-formaldehyde binder, the glass-melting furnace is no longer subject to Subpart NNN since it is no longer located at a wool fiberglass manufacturing facility.

Thus, based on the information provided by JM, including data demonstrating that the switch to the acrylic binder eliminates all binder-related emissions of formaldehyde, phenol, and methanol, the principal hazardous air pollutants (HAPs) regulated in Subpart NNN, EPA finds that the JM Penbryn Plant in Winslow County, New Jersey, no longer meets the definition of an affected facility in 40 CFR Section 63.1380 and is no longer subject to Subpart NNN. However, if at any point in the future the facility decides to use a phenol-formaldehyde binder, the facility will be immediately subject to the standards at 40 CFR Section 63.1380. Furthermore, if at any point in the future the facility uses a phenol-formaldehyde binder, the facility must notify the NJDEP. Relief from this standard does not exempt the facility from other EPA standards to which the facility may be subject.

cc: Mamie R. Miller, Chief, Air, Hazardous Waste and Toxics Branch (AHWTB) Scott Throwe, AHWTB Gregory Fried, AHWTB Jeff Telander, OAQPS Umesh Dholakia, EPA Region II

==========

APPENDIX D

OCIS CAM Technical Memo

INNOVATIONS FOR LIVING™

OWENS CORNING
INSULATING SYSTEMS, LLC
Santa Clara Facility
960 Central Expressway
Santa Clara, CA 95050

1.800.GET.PINK™
www.owenscorning.com

April 20, 2011

Attn: Ms. Brenda Cabral
Bay Area Air Quality Management District
939 Ellis St. San Francisco, California 94109

RE: Non Applicability of Compliance Assurance Monitoring (CAM) Regulation
Title V Application #21632 (Counterpart to NSRA#21631)
Owens Corning Santa Clara (BAAQMD Facility #A0041)

Dear Ms. Cabral:

Owens Corning Insulating Systems, LLC (OCIS) operates a wool fiberglass insulation products manufacturing facility in Santa Clara, California (Santa Clara Facility). The Santa Clara Facility is authorized to operate under the Bay Area Air Quality Management District (BAAQMD) Title V Major Facility Review (MFR) Permit (Facility #A0041).

On February 24, 2011, BAAQMD issued an Authority To Construct (ATC) for Permit Application No. 21631 to the Santa Clara Facility. This particular ATC requires a significant revision to the facility's Title V permit and currently the BAAQMD is preparing a statement of basis for that significant revision. During a phone call on April 15, 2011, the BAAQMD (Ms. Brenda Cabral) requested OCIS (Mr. Frank Kristie) and Trinity Consultants (Mr. Rahul Pendse) to provide a technical memorandum explaining the non applicability of Title 40 of the Code of Federal Regulations (40 CFR) Part 64 - *Compliance Assurance Monitoring* (CAM) regulation for particulate matter with an aerodynamic diameter or 10 microns or less (PM_{10}) and precursor organic compounds (POC) for the M and O line Curing (S-3 and S-21) and Cooling (S-4 and S-22) Sections at the Santa Clara Facility. This technical memorandum is prepared in response to that BAAQMD request.

Under the CAM Regulation, facilities are required to prepare and submit monitoring plans for certain emission units with the Title V revision application. The CAM monitoring plans are intended to provide an on-going and reasonable assurance of compliance with emission limits. Under the general applicability criteria, this regulation only applies to emission units that meet all of the following criteria, per 40 CFR §64.2(a):

1. *The unit is subject to an emission limitation or standard for the applicable regulated air pollutant, other than an emission limitation or standard that is exempt per 40 CFR 64.2(b)(1);*
2. *The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
3. *The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100% of the amount, in tons per year, required for a source to be classified as a major source.*

Ms. Brenda Cabral, BAAQMD – Page 2
April 20, 2011

At the Santa Clara Facility, the formed packs of glass fibers produced in the Forming Sections (S-2 and S-20) are conveyed through the gas fired ovens (S-3 and S-21) in which the binder water is evaporated, and the remaining binder solids are thermally cured. POC from the gas fired ovens (S-3 and S-21) are controlled by direct flame afterburners (incinerators) designated as A-5 and A-6 on S-3 and A-25 on S-21.

After the dried and cured glass fiber packs exit the curing oven chambers, the packs immediately enter what is called a smoke stripper section where a high velocity air stream is passed through the hot fiber packs. After the smoke strippers the packs pass through cooling sections where a larger volume of air is passed through them in order to cool the packs and drive out any remaining smoke and fumes. This cooling process air is directed to two control devices: a moving belt dry filter (HEAF unit), A-7 attached to M line Cooling Section (S-4), and a wet scrubber, A-26 attached to O line Cooling Section (S-22), both of which control PM_{10} emissions. PM_{10} emissions from the smoke strippers are controlled by simple cyclones designated as A-101 on S-4 and A-99 on S-22 followed in series by coalescing filters with mist eliminators designated as A-102 on S-4 and A-100 on S-22. Note that the A-99, A-100, A-101, and A-102 abatement devices control the particulates from Smoke Strippers which were originally permitted as parts of the Curing Sections, but are more correctly associated with the Cooling Sections. The detailed drawing showing the emission sources and abatement device layout is provided in the Attachment A.

Since both the curing sections (S-3 and S-21) do not have an abatement device to control PM_{10} emissions, CAM for PM_{10} is not applicable since the requirement specified in 40 CFR §64.2(a)(2) is not satisfied. Also, as shown in Attachment B, the curing sections' pre-control Potential To Emit (PTE) of POC is less than the major source threshold. Therefore, CAM for POC is not applicable since the requirement specified in 40 CFR §64.2(a)(3) is not satisfied.

Since both the cooling sections (S-4 and S-22) do not have an abatement device to control POC emissions, CAM for POC is not applicable since the requirement specified in 40 CFR §64.2(a)(2) is not satisfied. Also, as shown in Attachment B, the cooling sections' pre-control PTE of PM_{10} is less than major source threshold. Therefore, CAM for PM_{10} is not applicable since the requirement specified in 40 CFR §64.2(a)(3) is not satisfied.

If you have any questions about this request, please feel free to contact me at (419) 248-7124, or Mr. Rahul Pendse, Trinity Consultants, at (949) 296-4100 Ext. 106.

Sincerely,
OWENS CORNING INSULATING SYSTEMS, LLC

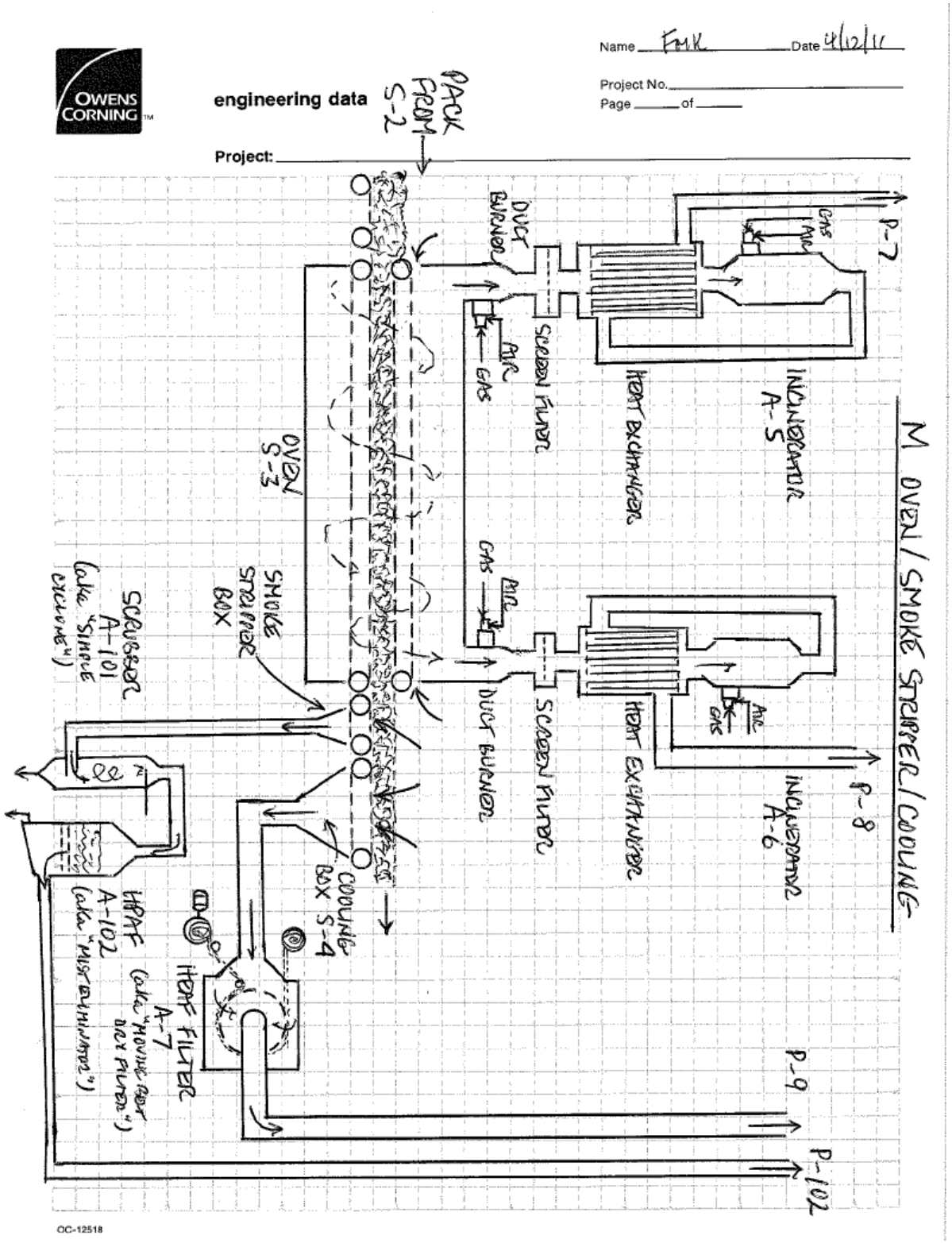
Frank M. Kristie

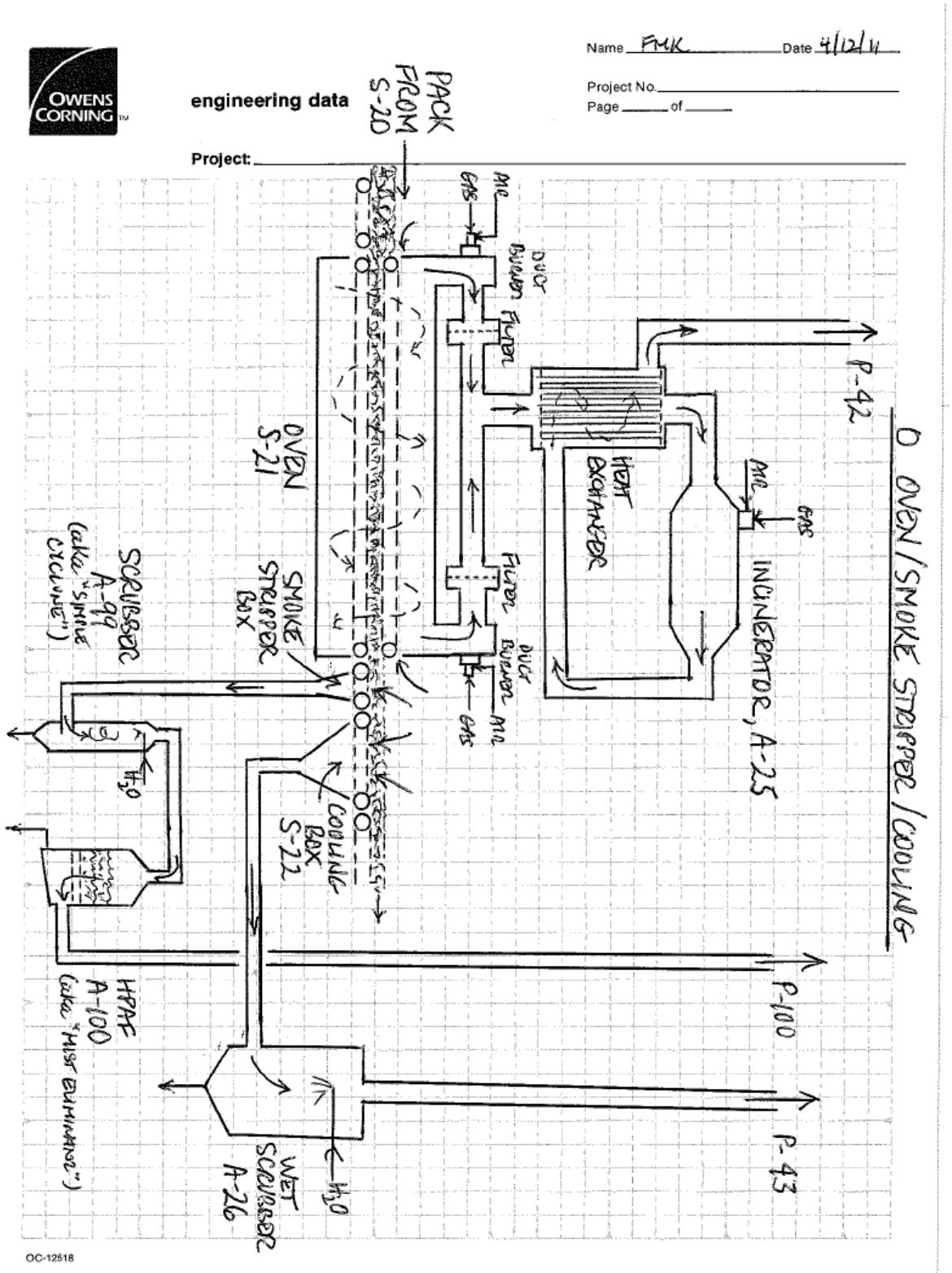
Frank Kristie

cc: Mr. Rahul Pendse, Trinity Consultants

Attachments:
Attachment A – Source and Abatement Device Layout
Attachment B – Pre-Control PTE Calculations

ATTACHMENT A. SOURCE AND ABATEMENT DEVICE LAYOUT


OWENS CORNING
engineering data
Project:
Name FMK Date 4/12/11
Project No.
Page of
PACK FROM S-2
DUCT BURNER
AIR
GAS
SCREEN FILTER
HEAT EXCHANGER
INCINERATOR A-5
P-7
OVEN S-3
SMOKE STRIPPER BOX
SCRUBBER A-101 (aka "SINGLE CYCLONE")
DUCT BURNER
SCREEN FILTER
HEAT EXCHANGER
INCINERATOR A-6
P-8
COOLING BOX S-4
HEPA FILTER A-102 (aka "MIST ELIMINATOR")
HEPA FILTER A-7 (aka "MOVING BED FILTER")
P-9
P-102
M OVEN / SMOKE STRIPPER / COOLING
OC-12518


OWENS CORNING
engineering data
Project:
Name FHK
Date 4/12/11
Project No.
Page of
OVEN / SMOKE STRIPPER / COOLING
PACK FROM S-20
OVEN S-21
SMOKE STRIPPER BOX
COOLING BOX S-22
INCINERATOR, A-25
HEAT EXCHANGER
FILTER
DUCT BURNER
P-42
P-100
P-43
SCRUBBER A-99 (also "SMOKE EXCHANGE")
HPAF A-100 (also "MIST ELIMINATOR")
WET SCRUBBER A-26
H2O
OC-12518

ATTACHMENT B. PRE CONTROL PTE CALCULATIONS

CAM Applicability[1]

Source	Process	Control Device	Pollutant	Estimated Control Efficiency[2] (%)	Controlled Emissions[3] (tpy)	Estimated Pre-Controlled Emissions[4] (tpy)	Major Source Threshold (tpy)	CAM Applicable?[5] (YES/NO)
S-3	"M" Curing Oven	A-5 "M" Charge Incinerator A-6 "M" Discharge Incinerator A-7 Moving Belt Dry Filter	POC	98%	0.75	37.5	100	NO
S-4	"M" Cooling	A-101 Simple Cyclone[6] A-102 Fiber Filter[6]	PM_{10}	75%	12.75	51.0	100	NO
S-21	"O" Curing Oven	A-25 Direct Flame Afterburner (Incinerator)	POC	98%	0.40	20.0	100	NO
S-22	"O" Cooling	A-26 Scrubber A-99 Simple Cyclone[6] A-100 Fiber Filter[6]	PM_{10}	75%	4.70	18.8	100	NO

[1] Sources included in this CAM applicability have both an emission limit (Authority to Construct for Permit Application No. 21631, Plant No. 41, Condition No. 24873) and a control device for the pollutant listed.

[2] Control efficiency is based on Owen Corning Insulating Systems, LLC (OCIS) best engineering judgment and operational knowledge.

[3] Controlled emissions are based on the Authority to Construct for Permit Application No. 21631, Plant No. 41, Condition No. 24873.

[4] Pre-Controlled emissions = controlled emissions / (1 - control efficiency [%]/100)

[5] For the units listed in this table, CAM is triggered if the pre-controlled emissions for each pollutant exceeds the major source threshold.

[6] The simple cyclones (actually tangential bottom entry low pressure drop scrubbers) and fiber filters (high performance air filters developed by Owens Corning) control the particulates from Smoke Stripppers, which were originally permitted as parts of the Curing Ovens, but are more correctly associated with the Cooling Sections.

APPENDIX E

GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

Basis
The underlying authority which allows the District to impose requirements.

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAM
Compliance Assurance Monitoring per 40 CFR Part 64

CAPCOA
California Air Pollution Control Officers Association

CEM
Continuous Emission Monitor

CEQA
California Environmental Quality Act

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO
Carbon Monoxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Cumulative increase is used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District regulations.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MOP
The District's Manual of Procedures.

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC
Non-methane Hydrocarbons (Same as NMOC)

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

PTE
Potential to Emit as defined by BAAQMD Regulation 2-6-218

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2
Sulfur dioxide

THC
Total Hydrocarbons (NMHC + Methane)

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Plan

TSP
Total Suspended Particulate

VOC
Volatile Organic Compounds

Units of Measure:

Bhp	=	brake-horsepower
btu	=	British Thermal Unit
cu. ft.	=	cubic foot
cfm	=	cubic feet per minute
dscf	=	dry standard cubic foot
dscfm	=	dry standard cubic foot per minute
g	=	gram
gal	=	gallon
gpm	=	gallons per minute
gr	=	grain
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inch
max	=	maximum
m2	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
tpy	=	tons per year
yr	=	year