

Air Permit Review

Permit Issue Date: **December 10, 2008**

Region: Mooresville Regional Office County: Cabarrus NC Facility ID: 1300117 Inspector's Name: Bruce Ingle Date of Last Inspection: 06/27/2008 Compliance Code: C/In Compliance With Procedural Requirements

Facility Data			Permit Applicability		
Applicant (Facility's Name): Corning Incorporated 14556 Highway 601 South Midland, NC 28107 SIC: 3229/Pressed And Blown Glass, Nec NAICS: 327212/Other Pressed and Blown Glass and Glassware Mfg. Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: 2D .0503, .0515, .0516, .0521, .0614, .0958, and .1400 NSPS: 40 CFR 60, Subpart IIII NESHAP: 40 CFR 63, Subpart ZZZZ PSD: N/A PSD Avoidance: 2Q .0317 for NO _x NC Toxics: 2D .1100 and .0711 112(r): 40 CFR 68 for chlorine Other: 2D .1806		
Contact Data			Application Data		
Facility Contact	Authorized Contact	Technical Contact	Application Number: 1300117.06A Date Received: 12/27/2005 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 08436/T05 Existing Permit Issue Date: 10/25/2001 Existing Permit Expiration Date: 09/30/2006		
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Review Engineer: David Putney Review Engineer's Signature: _____ Date: _____			Comments / Recommendations: Issue 08436/T06 Permit Issue Date: December 10, 2008 Permit Expiration Date: November 30, 2013		

I Reason for Application:

Facility Description: Corning, Inc. (Corning) owns and operates an optical fiber manufacturing operation at its Midland, Cabarrus County, North Carolina facility which is currently permitted to operate under Air Quality Permit No. 08436T05.

Permit Modification: The Permittee submitted permit application 1300117.06A to renew Permit No. 08436T05. Also, the requirements of 40 CFR 64 (i.e. CAM) are added into Permit No. 08436T06 via application 1300117.06A. The Permittee temporarily reduced operations at this facility in 2002 – but maintained Permit No. 08436T05. Recently, due to improved market conditions, the Permittee has decided to resume full operations at this facility.

II Regulatory Review for Individual Source Categories:

A. Optical Waveguide Laydown Processes (ID Nos. ES-C-001, ES-C-002, ES-C-005, ES-C-006, ES-C-008 and ES-C-009) and associated control devices as follows:

ES-C-001: One bagfilter (minimum of 19,905 ft² of filter area on-line, ID No. CD-C-BH-1) in series with one of two sieve tray HCl scrubbers (minimum liquid injection rate of 44 gallons per minute, each, ID Nos. CD-C-HCL-1 or CD-C-HCL-2) in series with one of two sieve tray Cl scrubbers (minimum liquid injection rate of 8 gallons per minute, each, ID Nos. CD-C-CL-1 or CD-C-CL-2);

ES-C-002: One ammonia injection catalytic De-NO_x system (ID No. CD-C-NO_x-1) in series with one cartridge filter (minimum of 31,365 ft² of filter area on-line, ID No. CD-C-BH-2);

ES-C-005: One bagfilter (minimum of 53,080 ft² of filter area on-line, ID No. CD-C-BH-6) in series with two of three sieve tray HCL scrubbers operating in parallel (minimum liquid injection rate of 41 gallons per minute, each, ID Nos. CD-C-HCL-5, CD-C-HCL-6 or CD-C-HCL-7) in series with two of three sieve tray Cl scrubbers operating in parallel (minimum liquid injection rate of 25 gallons per minute, each, ID Nos. CD-C-CL-5, CD-C-CL-6 or CD-C-CL-7);

ES-C-006: One ammonia injection catalytic De-NO_x system (ID No. CD-C-NO_x-2) in series with one bagfilter (minimum of 83,640 ft² of filter area on-line, ID No. CD-C-BH-7);

ES-C-008: One bagfilter (minimum of 19,905 ft² of filter area on-line, ID No. CD-C-BH-8) in series with one of two sieve tray HCL scrubbers (minimum liquid injection rate of 33 gallons per minute, each, ID Nos. CD-C-HCL-8 or CD-C-HCL-9) in series with one of two vertical spray tower/sieve tray CL scrubbers (minimum liquid injection rate of 15 gallons per minute, each, ID Nos. CD-C-CL-11 or CD-C-CL-12); and

ES-C-009: One bagfilter (minimum of 41,780 ft² of filter area on-line, ID No. CD-C-BH-9)

The Optical Waveguide Laydown Processes (ID Nos. ES-C-001, -002, -005, -006, -008 and -009) oxidize various compounds in direct-fired natural gas-fired flames to “laydown” via vapor deposition the materials that form the core of the fiber optic cable. The Permittee considers the process rates, heat input rates and raw materials used to be proprietary information.

i. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

This rule applies to the natural gas-fired portion of the Optical Waveguide Laydown Processes and limits the allowable PM emissions (E) from these sources to those described in the following two equations:

$$E \leq 4.10(P)^{0.67} \quad \text{If } P \leq 30 \text{ (ton/hr), or}$$

$$E \leq 55.0(P)^{0.11} - 40 \quad \text{If } P > 30 \text{ (ton/hr)}$$

Where: P = process weight rate (ton/hr), and
E = allowable emissions (lb PM/hr)

The data presented in the table below was obtained from the review associated with Permit No. 08436T05 (which in turn obtained the information from application 1300117.00A) and indicated compliance with this rule, after controls. A PM control efficiency of 95% was used in the referenced analysis for ES-C-001, -005 and -008. A PM control efficiency of 97% was used in the referenced analysis for ES-C-002, -006 and -009.

Source	Process Weight Rate (P – tons/hour)	Allowable Emissions (E – lbs PM/hour)	Predicted Emissions (lb PM per hour)
ES-C-001	Confidential	Confidential	1.63
ES-C-002	Confidential	Confidential	6.46
ES-C-005	Confidential	Confidential	4.07
ES-C-006	Confidential	Confidential	10.32
ES-C-008	Confidential	Confidential	1.63
ES-C-009	Confidential	Confidential	6.46

Note: Predicted Emissions are at maximum process rate and after control.

For 2D .0515 (as applicable to the Optical Waveguide Laydown Processes), Permit No. 08436T06 will require that these sources not be operated without the concurrent operation of the associated bagfilter or cartridge filter. Permit No. 08436T06 will also include the standard language for the emission limits of, and the methods of testing for compliance (if/when required by DAQ) with this rule. The operations in the Optical Waveguide Laydown Processes are conducted year-round (i.e. there is no scheduled downtime of this equipment during which the Permittee could conduct internal control device inspections). Further, the equipment must be operated and maintained as in accordance with inspection and maintenance requirements recommended by the equipment manufacturer and/or established by the Permittee via operational experience. Therefore, Permit No. 08436T06 will defer to those specialized inspection and maintenance requirements and require recordkeeping and semiannual summary reporting of those activities.

ii. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

This rule applies to the Optical Waveguide Laydown Processes and limits the SO₂ emissions from these processes to 2.3 (lb/10⁶ Btu).

Table 1.4-2 of Supplement D to the 5th edition of the AP-42 document predicts SO₂ emissions of 0.6 (lb SO₂/10⁶ ft³) from the combustion of natural gas. Assuming a heat value of 1,020 (Btu/ft³) for natural gas we can calculate:

$$[0.6 \text{ (lb SO}_2\text{/10}^6 \text{ ft}^3\text{)}]/[1,020 \text{ (Btu/ft}^3\text{)}] = 0.00059 \text{ (lb SO}_2\text{/10}^6 \text{ Btu)}$$

For 2D .0516 (as applicable to the Optical Waveguide Laydown Processes), Permit No. 08436T06 will include the standard language for the emission limits of, and the methods of testing (if/when required by DAQ) for compliance with, this rule. However, since compliance with this rule by a large margin is expected, Permit No. 08436T06 will not include any MRR requirements associated with 2D .0516 for the Optical Waveguide Laydown Processes.

iii. 2D .0521 “Control of Visible Emissions”

The Optical Waveguide Laydown Processes were manufactured after 07/01/71. Therefore, except for those visible emissions (VEs) occurring during startup, shutdown and malfunctions that are regulated under Rule 2D .0535, paragraph (d) of this rule requires that the 6-minute average VEs from these sources be less than or equal to 20% opacity with the following exceptions:

- One six-minute average VE per hour may exceed 20% opacity as long as that VE does not also exceed 87% opacity; and
- Up to four six-minute average VEs per 24-hour period may exceed 20% opacity as long as those VEs do not also exceed 87% opacity.

For 2D .0521 (as applicable to the Optical Waveguide Laydown Processes), Permit No. 08436T06 will include the standard language for the emission limits of, and the methods of testing for compliance (if/when testing is required by DAQ) with this rule and the following MRR requirements:

- Monthly monitoring and recordkeeping requirement of visible emissions; and
- Semiannual summary reporting of monitoring/recordkeeping.

iv. 2D .0614 “Compliance Assurance Monitoring”

Applicability [§64.2]: This rule applies to the six Optical Waveguide Laydown Processes (see Attachment A to this document) pursuant to 40 CFR Part 64 “Compliance Assurance Monitoring” because those sources:

- (1) Are subject to an emission standard that is not exempt under §64.2(b)(1) for a regulated pollutant (i.e. the 2D .0515 limits for PM/PM₁₀ and 2D .0521 limits for VEs);
- (2) Use control devices (i.e. the associated bagfilters and a cartridge filter) to comply with those emission standards; and
- (3) Have before-control potential emissions of the regulated pollutant in excess of the threshold for being considered major for Title V.

Note that the CAM plan submitted with permit application 1300117.06A indicates that CAM also applies to the scrubbers on ES-C-001, ES-C-005 and ES-C-008 citing the toxics limits under 2D .1100 as the applicable emission standard. However, these State-only enforceable limits do not trigger CAM applicability and, therefore, CAM is not applied to the scrubbers installed on ES-C-001, ES-C-005 and ES-C-008 in Permit No. 08436T06.

Monitoring [§64.3, §64.6 and §64.7]:

- (1) **Indicators:** The submitted CAM plan indicates that the Permittee will use bagfilter and cartridge filter pressure drops as the indicators for these operations.
- (2) **Frequency:** The submitted CAM plan indicates that an automated monitoring system monitors the bagfilter and cartridge filter pressure drops at least once every 15 minutes in accordance with §64.3(b)(4).
- (3) **Bypass:** The Optical Waveguide Processes are configured such that bypass of the associated control devices is not possible. Therefore, monitoring of indicators of bypass described in §64.3(a)(2) does not apply to these emission sources.
- (4) **Indicator Range:** The submitted CAM plan cites a pressure drop range of from 0.5 inches of water to 14 inches of water for each of these bagfilters and cartridge filter. An excursion is defined as a bagfilter or cartridge filter pressure drop outside this range and triggers inspection, corrective action and recordkeeping requirements. An exception is made for low pressure drops that are due to recently replaced filters.
- (5) **QA/QC Practices:** The differential pressure cells must be calibrated in accordance with the manufacturer's recommendations. Also, the Permittee is required to conduct inspections and maintenance, as recommended by the equipment manufacturer, of the differential pressure drop monitoring system.

Recordkeeping [§64.9(b)]: The Permittee is required to maintain records of the pressure drops, pressure cell calibrations, control device inspections and maintenance activities, and any corrective actions taken.

Reporting [§64.9(a)]: The Permittee must submit semiannual summary reports of the monitoring to NC DAQ. The report must clearly identify any excursions (if applicable) and identify their duration and cause (including unknown cause).

Quality Improvement Plan (QIP) [§64.8]: Permit No. 08436T06 will require the Permittee to develop a QIP for a bagfilter or cartridge filter associated with a Optical Waveguide Process if the pressure drop across that bagfilter or cartridge filter qualifies as an excursion for 5% or more of the operating period for the associated Optical Waveguide Process.

v. 2D .1100 “Control of Toxic Air Pollutants”

Not applicable - refer to the discussion in Section III A of this document, below.

vi. 2D .1111 “Maximum Achievable Control Technology”

According to the Initial Notification Form received from the Permittee on 06/23/08, this operation is **not subject** to 40 CFR Part 63, Subparts HHHH or SSSSSS (i.e. the NESHAPs

for Wet Fiberglass Mat Production and Glass Manufacturing at Area Sources) because it does not manufacture wet fiberglass mats, or glass by melting raw materials.

vii. 2D .1400 “Nitrogen Oxides”

Refer to the RACT discussion in Section IV of this document, below.

viii. 2D .1806 “Control and Prohibition of Odorous Emissions”

Refer to the discussion in Section III B of this document, below.

ix. 2Q .0317 “Avoidance Conditions”

Refer to the discussion in Section III C of this document, below.

B. Miscellaneous Small Source Exhausts (ID No. ES-C-004) with emissions controlled by one of two vertical spray chamber/venturi wet scrubbers (minimum liquid injection rate of 735 gallons per minute, each, ID Nos. CD-C-HCL-3 or CD-C-HCL-4)

This source includes, but is not limited to, the laboratory hoods, the acid tank vent, emergency relief rupture discs, emergency vents, chlorine cylinder change out/header maintenance, and bulk tank vents. The initial Title V permit application indicated that the associated wet scrubbers are designed for control of hydrogen chloride (HCl) and chlorine (Cl) emissions and claimed no particulate matter control efficiency for these devices.

i. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

This rule applies to the Miscellaneous Small Source Exhausts and limits the allowable PM emissions (E) from these sources to those described in the following two equations:

$$\begin{aligned} E &\leq 4.10(P)^{0.67} && \text{If } P \leq 30 \text{ (ton/hr), or} \\ E &\leq 55.0(P)^{0.11} - 40 && \text{If } P > 30 \text{ (ton/hr)} \end{aligned}$$

Where: P = the process weight rate (ton/hr), and
E = allowable emissions (lb PM/hr)

According to the review associated with Permit No. 08436T05, the maximum allowable emissions rate for the Miscellaneous Small Sources Exhaust is 14.71 pounds of PM per hour and the associated emission rate is 5.37 pounds of PM per hour, before controls. Therefore, compliance with this rule is indicated before controls.

For 2D .0515 (as applicable to Miscellaneous Small Sources Exhaust), Permit No. 08436T06 will include the standard language for the emission limits of, and the methods of testing for compliance (if/when required by DAQ) with this rule. However, the permit will not include any MRR requirements since (1) this source complies with 2D .0515 without any controls, and (2) most PM emissions from this source would be the result of a malfunction (and should therefore be reported as required under 2D .0535).

ii. 2D .0521 “Control of Visible Emissions”

The Miscellaneous Small Sources were manufactured after 07/01/71. Therefore, except for those visible emissions (VEs) occurring during startup, shutdown and malfunctions that are regulated under Rule 2D .0535, paragraph (d) of this rule requires that the 6-minute average VEs from this source be less than or equal to 20% opacity with the following exceptions:

- One six-minute average VE per hour may exceed 20% opacity as long as that VE does not also exceed 87% opacity; and
- Up to four six-minute average VEs per 24-hour period may exceed 20% opacity as long as those VEs do not also exceed 87% opacity.

For 2D .0521 (as applicable to Miscellaneous Small Sources Exhaust), Permit No. 08436T06 will include the standard language for the emission limits of, and the methods of testing for

compliance (if/when required by DAQ) with this rule. However, the permit will not include any MRR requirements since (1) the visible emissions are not predictable (making visual observation difficult), (2) most visible emissions from this source would be the result of a malfunction (and should therefore be reported as required under 2D .0535), and (3) emissions from this source are routed through stack EP-C-01 (i.e. the stack that also serves Optical Waveguide Processes ES-C-001 and ES-C-002). Permit 08436T06 requires weekly monitoring of VEs from this stack under 2D .0521 for sources ES-C-001 and ES-C-002.

iii. 2D .1100 “Control of Toxic Air Pollutants”

Refer to the discussion in Section III A of this document, below.

iv. 2D .1806 “Control and Prohibition of Odorous Emissions”

Refer to the discussion in Section III B of this document, below.

C. Seven diesel-fired emergency generators as follows:

- **Two with 2,000 kW maximum rated power output, each, ID Nos. ES-C-PG1a and ES-C-PG1b; and**
- **Five with 2,190 kW maximum rated power output, each, ID Nos. ES-C-PG2a, ES-C-PG2b, ES-C-PG2c ES-C-PG3a and ES-C-PG3b**

These emergency generators are used to provide power during electric power outages to ensure safety of operations. These emergency generators are not eligible for inclusion in the list of insignificant activities because they are subject to the RICE MACT (i.e. 40 CFR Part 63, Subpart ZZZZ – see the discussion of 2D .1111, below) and (in the case of ES-C-PG1a, -PG1b and -PG2a) the PSD avoidance condition for NO_x (refer to the discussions in Section III D and Section IV below). Four of these emergency generators (ID Nos. ES-C-PG2b, -PG2c, -PG3a and -PG3b) have not been installed yet (see email and letter from Rodney Morgan of Corning, Inc. dated 02/26/08 and 07/26/08, respectively). Note that 2D .0503 does not apply since the emergency generators are not indirect heat exchangers and 2D .0515 does not apply by DAQ policy (see discussion of Internal Combustion Engines on page 5-11 of version S-9 of Appendix 5 to the North Carolina Air Quality Rules).

i. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

This rule limits the SO₂ emissions from combustion devices to 2.3 (lb/10⁶ Btu). Note, however, that paragraph 2D .0516(b) exempts sources that are subject to an emission standard for sulfur dioxide pursuant to a NSPS or a MACT from the sulfur dioxide limits in 2D .0516. These emergency generators are subject to a MACT and (in the case of ID Nos. ES-C-PG2b, -PG2c, -PG3a and -PG3b) a NSPS (refer to the discussions of rules 2D .0524 and 2D .1111 below). The MACT does not limit SO₂ emissions but the NSPS standard does include a SO₂ emissions limit (in the form of a fuel sulfur content limit) for these emergency generators. Therefore, 2D .0516 does not apply to generators ES-C-PG2b, -PG2c, -PG3a and -PG3b but does apply to generators ES-C-PG1a, -PG1b, and -PG2a.

According to Table 3.4-1 of Supplement B to the 5th edition of the AP-42 document, we can predict SO_x emissions of 0.50 pounds per million Btu of heat input from the combustion of diesel fuel (0.5% sulfur content) in a large (> 600 hp) diesel engine, indicating compliance.

For 2D .0516 (as applicable to the subject emergency generators), Permit No. 08436T06 will include the standard language for the emission limits of, and the methods of testing (if/when required by DAQ) for compliance with, this rule. However, since compliance with this rule by a large margin is expected, no MRR requirements will appear in the permit.

ii. 2D .0521 “Control of Visible Emissions”

The emergency generators were manufactured after 7/1/71. Therefore, except for those visible emissions (VEs) occurring during startup, shutdown and malfunctions that are

regulated under Rule 2D .0535, paragraph (d) of this rule requires that the 6-minute average VEs from these sources be less than or equal to 20% opacity with the following exceptions:

- One six-minute average VE per hour may exceed 20% opacity as long as that VE does not also exceed 87% opacity; and
- Up to four six-minute average VEs per 24-hour period may exceed 20% opacity as long as those VEs do not also exceed 87% opacity.

Note that paragraph 2D .0521(b) exempts sources that are subject to an opacity limit pursuant to a NSPS or a MACT from the opacity limits in 2D .0521. Although these generators are subject to a MACT and (in the case of ID Nos. ES-C-PG2b, -PG2c, -PG3a and -PG3b) a NSPS (refer to the discussions of rules 2D .0524 and 2D .1111 below), those standards do not include opacity limits for these sources. Therefore, 2D .0521 does apply to these emergency generators.

For 2D .0521 (as applicable to the emergency generators), Permit No. 08436T06 will include the standard language for the emission limits of, and the methods of testing (if/when required by DAQ) for compliance with, this rule. However, since compliance with this rule by a large margin is expected, no MRR requirements will appear in the permit.

iii. 2D .0524 “New Source Performance Standards”

Applicability: The new source performance standards (NSPS) for this source category (i.e. compression ignition internal combustion engines (CI ICE) found in 40 CFR Part 60, Subpart IIII) apply to owners and operators of stationary CI ICE that: [§60.4200(a)]

- Commence construction after 07/11/05 where the stationary CI ICE are:
 - Manufactured after 04/01/06 and are not fire pump engines; or
 - Manufactured as a certified NFPA fire pump engine after 07/01/06.
- Modify or reconstruct their stationary CI ICE after 07/11/05.

The three existing emergency generators (i.e. ID Nos. ES-C-PG1a, ES-C-PG1b, and ES-C-PG2a) pre-date this rule and the Permittee has indicated that none of these sources has been modified or reconstructed since 07/11/05 (refer to letter dated 07/16/08). Therefore, these existing emergency generators are not subject to the NSPS requirements.

The NSPS requirements will apply to the four emergency generators that have not been installed yet (i.e. ID Nos. ES-C-PG2b, ES-C-PG2c, ES-C-PG3a and ES-C-PG3b) upon their construction. These generators will be post 2007 model year and will have displacements of about 4 liters per cylinder (see 08/18/08 email from Rodney Morgan).

Emission Standards: Pursuant to §60.4205(b) and §60.4202(a)(2), these emergency generators will have to comply with the emission standards for new nonroad CI engines in 40 CFR §89.112 and §89.113 for the same model year and maximum engine power. The applicable emission standards from Table 1 of 40 CFR 89.112(a) are summarized below:

Rated Power (kW)	Class	Model Year	Emission Standards (g/kW-hr)				
			NO _x	HC	NMHC+NO _x	CO	PM
> 560	Tier 2	2006 and later	--	--	6.4	3.5	0.20

Alternatively, the Permittee may use generators that are manufacturer-certified to comply with the applicable family emission limit (FEL) of Table 2 of 40 CFR 89.112(d).

Paragraph §89.113(a) requires that the exhaust opacity from compression-ignition nonroad engines do not exceed 20% during the acceleration mode, 15% during the lugging mode, and 50% during the peaks in either the acceleration or lugging modes. However, paragraph

§89.113(c) exempts constant-speed engines (such as these emergency generators) from the smoke emission standards of §89.113.

Pursuant to §60.4207(a), beginning 10/01/07, the diesel fuel utilized in these generators must meet the requirements of 40 CFR 80.510(a). Those per gallon requirements include:

- Sulfur content less than or equal to 500 ppm; and either
- Cetane index of at least 40; or
- Aromatic content of less than or equal to 35 volume percent

Pursuant to §60.4207(b), beginning 10/01/10, the diesel fuel utilized in these generators must meet the requirements of 40 CFR 80.510(b). Those per gallon requirements include:

- Sulfur content less than or equal to 15 ppm; and either
- Cetane index of at least 40; or
- Aromatic content of less than or equal to 35 volume percent

Pursuant to §60.4211(c), the Permittee must comply with the emission standards of §60.4205(b) by purchasing an engine certified to those emission standards for the same model year and maximum engine power. The Permittee must install and configure the engine according to the manufacturer's specifications.

Operational/MRR Requirements: Pursuant to §60.4206 and §60.4211(a), the Permittee must operate and maintain the emergency generators according to the engine manufacturer's written instructions (or procedures developed by the owner/operator and approved by the engine manufacturer) over the entire life of the engine.

Pursuant to §60.4209(a), the Permittee must install a non-resettable hour meter on the emergency generators prior to startup of the engines.

Pursuant to §60.4211(a), the Permittee may only change those engine settings that are permitted by the engine manufacturer and must meet the requirements of 40 CFR Parts 89, 94 and/or 1068, as applicable. The applicable requirements of 40 CFR Part 89 were addressed under emission standards, above. The requirements of 40 CFR Part 94 do not apply to these emergency generators. The applicable requirements of 40 CFR Part 1068 are found in Subpart B of that part and include prohibitions against engine tampering, installation of defeat devices, or making a stationary ICE mobile, conditions that must be met when obscuring an engine's label or rebuilding an engine, etc.

The Permittee may use the emergency generators without limit during emergency situations. The Permittee may use the emergency generators for up to 100 hours per year for the purposes of maintenance checks and readiness testing provided such operation is recommended by Federal, State, or local government, the engine manufacturer, the engine vendor, or the insurance company associated with the engine. The Permittee may petition the EPA for approval to operate the emergency generators for more than 100 hours per year for the purposes of maintenance checks and readiness testing, however, such a petition is not necessary if the Permittee maintains records indicating that Federal, State, or local standards require such operation. Any operation of these emergency generators other than as described in this paragraph above is prohibited. [§60.4211(e)]

Pursuant to §60.4214(b), no initial notification is required for these emergency generators. However, if the emergency generators are model year 2011 or later and do not meet the emission standards for non-emergency engines, the Permittee must comply with the labeling requirements of §60.4210(f) and §1039.135(b) and maintain records of operation of the engine in emergency and non-emergency service via the non-resettable hour meter.

iv. 2D .1111 “Maximum Achievable Control Technology”

These emergency generators are subject to 2D .1111 due to the applicability of 40 CFR Part 63, Subpart ZZZZ (i.e. the MACT for reciprocating internal combustion engines - RICE).

The Permittee has indicated that the three existing emergency generators (i.e. ID Nos. ES-C-PG1a, ES-C-PG1b, and ES-C-PG2a) are considered existing sources under this rule and that these sources have not been modified or reconstructed since their installation (refer to letter dated 07/16/08). Therefore, in accordance with §63.6590(b)(3), these sources do not have to meet the requirements of Subparts ZZZZ or A (i.e. no initial notification is necessary).

The four emergency generators that have not been installed yet (i.e. ID Nos. ES-C-PG2b, ES-C-PG2c, ES-C-PG3a and ES-C-PG3b) will be considered new sources under this rule upon their construction. Therefore, in accordance with §63.6590(b)(1)(i) these emergency generators do not have to meet the requirements of Subparts ZZZZ or A except for the initial notification requirements of §63.6645(f).

Permit No. 08436T06 is modified to show applicability of Subpart ZZZZ and include the associated notification requirements.

v. 2D .1806 “Control and Prohibition of Odorous Emissions”

Refer to the discussion in Section III B of this document, below.

vi. 2Q .0317 “Avoidance Conditions”

Refer to the discussion in Section III C of this document, below.

D. Vapor Degreaser (ID No. ES-C-OLDC1)

Vapor degreaser ES-C-OLDC1 utilizes methylene chloride as the solvent and was subject to both 2D .1100 and 2D .1111 (MACT Subpart T). This vapor degreaser has been removed from the facility and will be replaced by a new vapor degreaser that does not utilize any HAP as solvent (see 07/16/08 letter).

Note that the new vapor degreaser (identified as ID No. IES-DC in the referenced letter) qualifies as an insignificant activity and is added to the list of insignificant activities attached to Permit No. 08436T06.

The specific conditions for ES-C-OLDC1 in Permit No. 08436T05 associated with 2D .1100 and 2D .1111 are not included in Permit No. 08436T06. However, an avoidance condition is added to Permit No. 08436T06 pursuant to 2Q .0317.

i. 2Q .0317 “Avoidance Conditions”

As requested by the Permittee, and Raleigh Regional Office staff an avoidance condition is added to Permit No. 08436T06 such that MACT Subpart T does not apply to the vapor degreasing operations conducted at this facility. Keith Overcash, Director of NC DAQ, approved of this change.

E. Acrylate Coating Process (ID No. ES-C-ACP)

The acrylate coating process coats the glass fiber with a dual layer plastic sheath and winds it onto spools. The UV-curable coatings emit VOCs, including toluene. According to the Permittee (refer to 03/04/08 email from Mark Huncik – consultant for Permittee, and 08/20/08 phone log), this operation has potential uncontrolled HAP emissions of 0.039 tons per year.

i. 2D .0958 “Work Practices for Sources of Volatile Organic Compounds”

This rule applies to the operations in this facility that use VOCs as solvents, carriers, material processing media, etc. and requires the Permittee to follow certain procedures when

using or storing the VOC-containing materials or cleaning or draining the equipment used to apply these materials. Permit No. 08436T06 will include the standard language for work practice standards and MRR associated with this rule for the Acrylate Coating Process.

ii. 2D .1806 “Control and Prohibition of Odorous Emissions”

Refer to the discussion in Section III B of this document, below.

iii. 2Q .0711 “Emission Rates Requiring a Permit”

Refer to the discussion in Section III D of this document, below.

F. Soot Handling System, Silo 1 (ID No. ES-C-SHP1) and associated bin vent filter (985 ft² of filter area, ID No. CD-C-BH-3);

Soot Handling System, Silo 2 (ID No. ES-C-SHP2) and associated bin vent filter (985 ft² of filter area, ID No. CD-C-BH-4); and

Soot Handling System, Bagging Operations (ID No. ES-C-SHP3) and associated bin vent filter (1,261 ft² of filter area, ID No. CD-C-BH-5)

Silicone dioxide is pneumatically transferred into soot storage silos (Silo 1 and Silo 2). The silicone dioxide is unloaded from the silos to the bagging operation.

i. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

This rule applies to Silo 1, Silo 2 and the Bagging Operations and limits the allowable PM emissions (E) from these sources to those described in the following two equations:

$$E \leq 4.10(P)^{0.67} \quad \text{If } P \leq 30 \text{ (ton/hr), or}$$

$$E \leq 55.0(P)^{0.11} - 40 \quad \text{If } P > 30 \text{ (ton/hr)}$$

Where: P = the process weight rate (ton/hr), and
E = allowable emissions (lb PM/hr)

The data presented in the table below was obtained from the review associated with Permit No. 08436T05 (which in turn obtained the information from permit application 1300117.00A) and indicates compliance with this rule, after controls. A bin vent filter particulate matter control efficiency of 99% was used in the referenced analysis.

Source	Process Weight Rate (P)	Allowable Emissions (E)	Predicted Emissions	
			No Control	Control
Silo 1	0.28	1.75	20.2	0.20
Silo 2	0.28	1.75	20.2	0.20
Bagging Operation	0.23	1.53	68.6	0.69

Notes: P is in units of tons per hour

Predicted Emissions and E are in units of pounds of PM per hour

For 2D .0515 (for the Soot Handling System), Permit No. 08436T06 will require that these sources not be operated without the concurrent operation of the associated bin vent filter and include the standard language for the emission limits of, and the methods of testing for compliance (if/when required by DAQ) with this rule and the following MRR requirements:

- Monthly external (ductwork and bin vent filters - while the Soot Handling System is operating) and annual internal (bin vent filter) monitoring and recordkeeping requirement of leaks and structural integrity; and
- Semiannual summary reporting of monitoring/recordkeeping.

ii. 2D .0521 “Control of Visible Emissions”

The Soot Handling System was manufactured after 7/1/71. Therefore, except for those visible emissions (VEs) occurring during startup, shutdown and malfunctions that are regulated under Rule 2D .0535, paragraph (d) of this rule requires that the 6-minute average VEs from this source be less than or equal to 20% opacity with the following exceptions:

- One six-minute average VE per hour may exceed 20% opacity as long as that VE does not also exceed 87% opacity; and
- Up to four six-minute average VEs per 24-hour period may exceed 20% opacity as long as those VEs do not also exceed 87% opacity.

For 2D .0521 (as applicable to the Soot Handling System), Permit No. 08436T06 will include the standard language for the emission limits of, and the methods of testing for compliance (if/when required by DAQ) with this rule and the following MRR requirements:

- Monthly monitoring and recordkeeping requirement of visible emissions (while the Soot Handling System is operating); and
- Semiannual summary reporting of monitoring/recordkeeping.

**iii. 2Q .0317 “Avoidance Conditions” to avoid
2D .0614 “Compliance Assurance Monitoring”**

The Permittee has requested a limit of 2,900 hours per 12-consecutive month period for the bagging operations (ES-C-SHP3) to avoid applicability of CAM. The before-control PM potential emissions from this source are therefore limited to:

$$PM = [68.6 \text{ (lb PM/hour)}][2,900 \text{ hours}]/[2,000 \text{ (lb/ton)}] = 99.47 \text{ (lb PM)}$$

Permit No. 08436T06 will include monthly monitoring/recordkeeping requirements and semiannual reporting requirements associated with ES-C-SHP3 pursuant to these rules.

G. Five natural gas-fired humidification boilers, including:

- **Two with 5.02 million Btu per hour maximum heat input rate, each, ID Nos. ES-C-HB1a and ES-C-HB1b; and**
- **Three with 8.37 million Btu per hour maximum heat input rate, each, ID Nos. ES-C-HB2a, ES-C-HB2b and IES-C-HB3**

These boilers are used to generate steam to provide humidification for the manufacturing process. According to the review associated with Permit No. 08436T05, boilers ES-C-HB1a and ES-C-HB1b were installed in 1999. Boilers ES-C-HB2a and ES-C-HB2b were first permitted via application 1300117.99B, received 11/29/99, but have not been installed yet. These four humidification boilers are subject to the PSD avoidance condition (for NO_x) because they are part of Fiber Optic Lines 1 and 2. Therefore, these four boilers are not eligible for inclusion on the list of insignificant activities.

The fifth boiler (ID No. IES-C-HB3), which was first permitted via application 1300117.00C, received 12/21/00, has not been installed yet and is included on the list of insignificant activities because it is part of Fiber Optic Line 3 which is not subject to the PSD avoidance condition.

i. 2D .0503 “Particulates from Fuel Burning Indirect Heat Exchangers”

This rule applies to these boilers and limits the allowable PM emissions (E) from these indirect heat exchangers to those described in the following equations:

$$E = \begin{matrix} 0.10 & \text{If } Q \geq 10,000, \\ 0.60 & \text{If } Q \leq 10, \text{ and} \\ 1.090(Q)^{-0.2594} & \text{If } Q \text{ is any other value} \end{matrix}$$

Where: E = allowable emissions (lb PM/10⁶ Btu), and
Q = maximum heat input (10⁶ Btu/hr)

In accordance with 2D .0503(e):

For boilers ES-C-HB1a and HB1b: Q = 10.04 (10⁶ Btu/hr) and
E = 0.60 (lb PM/10⁶ Btu)

For boilers ES-C-HB2a and HB2b: Q = 26.78 (10⁶ Btu/hr) and
E = 0.46 (lb PM/10⁶ Btu)

For boiler IES-C-HB3: Q = 35.15 (10⁶ Btu/hr) and
E = 0.43 (lb PM/10⁶ Btu)

These boilers are permitted to burn only natural gas. Table 1.4-2 of Supplement D to the 5th edition of the AP-42 document predicts total PM emissions of 7.6 (lb/10⁶ scf) from the combustion of natural gas. If we assume a natural gas heat value of 1,020 (Btu/scf) then we can calculate PM emissions of:

$$[7.6 \text{ (lb/10}^6 \text{ scf)}] / [1,020 \text{ (Btu/scf)}] = 0.0075 \text{ (lb PM/10}^6 \text{ Btu)}$$

Compliance with this rule is indicated.

For these boilers, Permit No. 08436T06 will include the standard language for the emission limits of 2D .0503 and the methods of testing for compliance (if required by DAQ) but will not (since the fuel is inherently compliant) require any additional testing or any MRR to demonstrate compliance with 2D .0503.

ii. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

This rule applies to these boilers and limits the SO₂ emissions from these combustion devices to 2.3 (lb/10⁶ Btu).

These boilers permitted to burn only natural gas. Table 1.4-2 of Supplement D to the 5th edition of the AP-42 document predicts SO₂ emissions of 0.6 (lb SO₂/10⁶ scf) from natural gas combustion. Assuming a heat value of 1,020 (Btu/scf) for natural gas we can calculate:

$$[0.6 \text{ (lb SO}_2\text{/10}^6 \text{ scf)}] / [1,020 \text{ (Btu/scf)}] = 0.00059 \text{ (lb SO}_2\text{/10}^6 \text{ Btu)}$$

Compliance with this rule is indicated.

For these boilers, Permit No. 08436T06 will include the standard language for the emission limits of 2D .0516 and the methods of testing for compliance (if required by DAQ) but will not (since the fuel is inherently compliant) require any additional testing or any MRR to demonstrate compliance with 2D .0516.

iii. 2D .0521 “Control of Visible Emissions”

The subject boilers were manufactured after 7/1/71. Therefore, except for those visible emissions (VEs) occurring during startup, shutdown and malfunctions that are regulated under Rule 2D .0535, paragraph (d) of this rule requires that the 6-minute average VEs from these boilers be less than or equal to 20% opacity with the following exceptions:

- One six-minute average VE per hour may exceed 20% opacity as long as that VE does not also exceed 87% opacity; and
- Up to four six-minute average VEs per 24-hour period may exceed 20% opacity as long as those VEs do not also exceed 87% opacity.

For these boilers, Permit No. 08436T06 will include the standard language for the emission limits of 2D .0521 and the methods of testing for compliance (if/when required by DAQ) but

will not (since natural gas-fired boilers are extremely unlikely to violate this standard) require any additional testing or any MRR to demonstrate compliance with 2D .0521.

iv. 2D .0524 “New Source Performance Standards”

This rule **does not apply** to these boilers because these boilers’ heat input capacities are not within the range covered by 40 CFR Part 60, Subpart Dc (i.e. 10 million Btu per hour through 100 million Btu per hour, inclusive).

v. 2D .1400 “Nitrogen Oxides”

Refer to the RACT discussion in Section IV of this document, below.

vi. 2D .1806 “Control and Prohibition of Odorous Emissions”

Refer to the discussion in Section III B of this document, below.

vii. 2Q .0317 “Avoidance Conditions”

Refer to the discussion in Section III C of this document, below.

H. Glass Drying Operations (ID Nos. ES-C-003, ES-C-007 and ES-C-010) and associated control devices, as follows:

ES-C-003: One of two packed tower scrubbers (minimum liquid injection rate of 285 gallons per minute, each, ID Nos. CD-C-CL-3 or CD-C-CL-4)

ES-C-007: Two of three packed tower Cl scrubbers operating in parallel (minimum liquid injection rate of 285 gallons per minute, each, ID Nos. CD-C-CL-8, CD-C-CL-9 or CD-C-CL-10)

ES-C-010: One vertical countercurrent packed tower scrubber (minimum liquid injection rate of 285 gallons per minute, ID No. CD-C-CL-13)

In the Glass Drying Operations the Permittee utilizes electrically-generated heat to dry the manufactured glass optical fibers. No PM or visible emissions are expected from these sources.

i. 2D .1100 “Control of Toxic Air Pollutants”

Refer to the discussion in Section III A of this document, below.

ii. 2D .1806 “Control and Prohibition of Odorous Emissions”

Refer to the discussion in Section III B of this document, below.

III Regulatory Review for Multiple Source Categories:

A. 2D .1100 “Control of Toxic Air Pollutants”

The Permittee submitted, with a previous permit application, a toxics demonstration dated 12/18/00 that was deemed acceptable by NC DAQ (see 02/05/01 memo from Tom Anderson). The demonstration addressed predicted emissions of HCl, Cl, methylene chloride, toluene, xylene and ammonia from the Optical Waveguide Laydown Processes (ID Nos. ES-C-001, -002, -005, -006 and -008), the Glass Drying Operations (ID Nos. ES-C-003, -007 and -010) and Miscellaneous Small Source Exhausts (ID No. ES-C-004).

According to that demonstration, toluene and xylene emissions are below their associated TPER (see discussion of 2Q .0711, below). Further, with the issuance of Permit No. 08436T06, the Permittee will no longer be authorized to utilize methylene chloride in the vapor degreasing operations (this source has been removed from the facility - see discussion in Section II D of this document, above). Finally, current DAQ policy is to not include TAP emissions from control devices when determining compliance with the NC toxics program. Ammonia injection in the catalytic De-NO_x systems on ES-C-002 and ES-C-006 is the only source of ammonia emissions

(or any TAP from these two sources). Therefore, the conditions addressing methylene chloride and ammonia emissions pursuant to 2D .1100 in Permit No. 08436T05 are not included in Permit No. 08436T06.

The Permittee demonstrated compliance with the TAP emission limits for sources ES-C-001, ES-C-003 and ES-C-004 via stack testing conducted 09/20/00. That testing was deemed acceptable to DAQ (see memo from SSCB dated 01/24/01). Note that although TAP emissions from ES-C-004 can be reasonably expected to increase as the facility increases production, re-testing of the associated stack will not be required in Permit No. 08436T06 since the 09/20/00 test indicated actual emissions of only about 10% of the limits.

The condition in Permit No. 08436T05 addressing hydrogen chloride and chlorine emissions from sources ES-C-005, ES-C-007, ES-C-008 and ES-C-010 pursuant to 2D .1100 is “carried over” into Permit No. 08436T06. This condition requires testing within 180 days of startup of the subject equipment.

B. 2D .1806 “Control and Prohibition of Odorous Emissions”

This rule requires the Permittee to prevent odorous emissions from the facility from causing or contributing to objectionable odors [as defined at 2D .1801(9)] beyond the facility’s boundary. The Permittee conducts operations that would reasonably be expected to create objectionable odors but does not have a history of violations of this rule. Therefore, this rule is added to Permit No. 08436T06, but with only the standard shell language.

C. 2Q .0317 “Avoidance Conditions” to avoid 2D .0530 “Prevention of Significant Deterioration”

In an 11/13/00 permit modification the Permittee requested a facility-wide PSD avoidance condition to limit NO_x emissions below 250 tons per 12 consecutive month period. That limit applies to Fiber Optic Lines 1 and 2 (i.e. optical waveguide laydown processes ES-C-001, -002, -005 and -006; emergency generators ES-C-PG1a, -PG1b, -PG2a, -PG2b and -PG2c; and humidification boilers ES-C-HB1a, -HB1b, -HB2a and -HB2b).

In a 12/19/00 modification the Permittee added Fiber Optic Line 3 (i.e. optical waveguide laydown processes ES-C-008 and -009; emergency generators ES-C-PG3a and -PG3b; and humidification boiler ES-C-HB3). The addition of Fiber Optic Line 3 qualified as a minor PSD modification and the associated sources are not subject to the NO_x emissions limit under PSD.

Permit No. 08436T06 requires the Permittee to establish the proper ammonia injection rates of the De-NO_x systems on ES-C-002 and ES-C-006, the proper firing rates of the associated duct burners, and determine the NO_x removal efficiencies within 180 days of equipment startup. The Permittee is required to perform I/M on the De-NO_x systems as recommended by the equipment manufacturer and monitoring of the operating parameters. Further, the Permittee must maintain monthly records of natural gas usage, diesel fuel usage, and NO_x emissions and submit semiannual (changed from quarterly in Permit No. 08436T05) summary reports.

D. 2Q .0711 “Emission Rates Requiring a Permit”

The NC toxics demonstration submitted for this facility (dated 12/18/00 – see the discussion of 2D .1100, above) indicated that toluene and xylene emissions are below the associated TPER. Note that, with the issuance of Permit No. 08436T06, the Permittee is no longer authorized to emit methylene chloride. Note also that, the xylene emissions from this facility are entirely from sources (i.e. the humidification boilers and emergency generators – see 08/20/08 phone log) that qualify as combustion sources under 2Q .0703(6) and are therefore currently deferred from demonstrating compliance with the NC toxics rules pursuant to 2Q .0702(a)(18). Therefore, the permit condition addressing 2Q .0711 in Permit No. 08436T06 will address only toluene and methylene chloride (i.e. xylene is not listed in that permit condition).

IV NSPS/NESHAP/PSD/Toxics/112(r)/CAM/RACT Applicability:

NSPS: The applicability of new source performance standards (i.e. NSPS in 40 CFR Part 60) to sources at this facility are discussed briefly below:

- **Subpart Dc** for Small Steam Generating Units: The boilers at this facility **are not subject** to the relevant standard for Small Industrial-Commercial-Institutional Steam Generating Units because their heat input capacities (i.e. 5.02 and 8.37 million Btu per hour) are below the heat input capacity threshold associated with that regulation (refer to discussion in Section II G.iv above).
- **Subpart Kb** for VOL Storage Vessels: The storage tanks at this facility **are not subject** to this regulation which applies to VOL storage tanks that were constructed/reconstructed/modified after 7/23/84, and either (1) have storage capacities > 151 m³ (39,898 gallons) and store liquids with maximum true vapor pressures ≥ 3.5 kPa; or (2) have storage capacities of ≥ 75 m³ (19,817 gallons) but < 151 m³ and store liquids with maximum true vapor pressures of ≥ 15.0 kPa. None of the storage tanks at this facility meet the storage capacity threshold of 19,817 gallons.
- **Subpart IIII** for Compression Ignition Internal Combustion Engines (CI ICE): Emergency generators ES-C-PG2b, ES-C-PG2c, ES-C-PG3a and ES-C-PG3b **will be subject** to this regulation upon installation (refer to the discussion of rule 2D .0524 in Section II C.iii, above).

NESHAP: The applicability of national emission standards for hazardous air pollutants (i.e. NESHAP in 40 CFR Part 63) to sources at this facility are discussed briefly below:

- **Subpart ZZZZ** for Reciprocating Internal Combustion Engines (RICE): Emergency generators ES-C-PG2b, ES-C-PG2c, ES-C-PG3a and ES-C-PG3b **will be subject** to this regulation upon installation with the only applicable requirement being an initial notification (refer to discussion in Section II C.iv above).
- **Subpart HHHH** for Wet Formed Fiberglass Mat Production: This facility **is not subject** to this regulation because they do not perform wet-formed fiberglass matt production as defined at 40 CFR §63.3004 at the subject facility (see discussion in Section II A.vi, above).
- **Subpart DDDDD** for Boilers and Process Heaters: The boilers at this facility **are not subject** to this regulation since it has been vacated.
- **Subpart NNNNN** for HCl Production: This facility **is not subject** to the HCl Production MACT since the facility does not produce a liquid HCl product at concentrations greater than 10% [refer to the 112(j) Part I application submitted by the Permittee for this facility, dated 05/03/02]. Subpart NNNNN only applies to facilities at major HAP sources that produce a liquid HCl product at concentrations greater than or equal to 30 weight percent [refer to §63.8985(a)].
- **Subpart SSSSS** for Glass Manufacturing at Area Sources: This facility **is not subject** to this regulation because they do not manufacture glass by melting raw materials at this facility [see 40 CFR §63.11448(a) and the discussion in Section II A.vi, above].

PSD: This facility does not fall into one of the PSD categories listed at 40 CFR §51.166(b)(1)(i)(a) with a 100 ton per year threshold but does have the potential to emit more than 250 tons of NO_x per consecutive 12-month period before controls/limits. To avoid being classified as major for PSD purposes under 40 CFR §51.166(b)(1)(i)(b) the Permittee has previously accepted PSD avoidance conditions for NO_x (see discussion in Section III D, above). Application 1300117.06A is a renewal without modification and does not represent a major modification for PSD purposes – therefore a PSD review is not triggered.

Toxics: The Permittee has (with previous applications) triggered reviews under the NC toxics program for xylene, toluene, ammonia, methylene chloride, hydrogen chloride and chlorine pursuant to 2D .1100 and 2Q .0711 (see discussions in Sections III A and D, above). Application 1300117.06A is a renewal without modification and therefore does not trigger a toxics review.

112(r): This facility was previously subject to the requirements of both Section 2D .2100 “Risk Management Program” and 40 CFR Part 68 “Chemical Accident Prevention Provisions” due to the use/handling/storage of chlorine onsite in quantities in excess of the associated thresholds. This RMP will eventually be modified to address ammonia (i.e. when the third fiber optic line is installed making the use/handling/storage of ammonia in quantities in excess of the associated thresholds necessary – see 08/20/08 phone log). The Permittee initially developed and submitted a Risk Management Plan (RMP) in 1999 as required. Due to business conditions, the Permittee reduced production at this facility and de-registered in June of 2004. The Permittee re-submitted an RMP for this facility in February of 2008. Permit No. 08436T06 will include a general requirement to maintain, modify and re-submit this RMP in accordance with 40 CFR §68.10 and §68.150.

CAM: This facility is subject to CAM requirements. Specifically, the six Optical Waveguide Laydown processes satisfy all the criteria listed at 40 CFR Part 64 “Compliance Assurance Monitoring” (refer to the discussion of 2D .0614 in Section II A.iv of this document, above, and Attachment A of this document, below). The associated MRR requirements have been added to Permit No. 08436T06.

RACT: The subject facility has the potential to emit > 100 tons per year of NO_x, as permitted, and is located in an area listed in 2D .1402(d). Therefore, the Permittee is subject to the requirements of Section 2D .1400 “Nitrogen Oxides” (i.e. RACT for existing NO_x sources).

The Permittee temporarily reduced operations at this facility for several years and therefore has had very low actual emissions of NO_x and was consequently overlooked when NC DAQ sent out notifications of RACT requirements to permitted facilities. The Permittee was made aware of their RACT status in a letter dated 02/01/08. The Permittee submitted a RACT permit application, dated 03/31/08, which will be processed as a separate permit application.

V Permit Modifications/Changes:

The following table summarizes the changes in Permit No. 08436T06 resulting from Permit Application No. 1300117.06A:

Old Page(s)	New Page(s)	Condition/Item	Description of Change(s)
Global	Global	N/A	<ul style="list-style-type: none"> Change permit revision number to T06 Change the issuance/effective dates of the permit Amend the application number and complete date Update 2D .0521 monitoring requirements Change testing rule citations to 15A NCAC 2D .2601
3 - 5	3 - 5	Equipment List	<ul style="list-style-type: none"> Add designations indicating applicability of NSPS (Subpart IIII), MACT (Subpart ZZZZ), CAM and RACT Modify ID Nos. of the emergency generators and humidification boilers to show multiple units
5 - 11	6 - 9	2.1 A	Merge Sections 2.1 A and B of Permit No. 08436T05 (i.e. the Optical Waveguide Laydown Processes) into one section
6 and 8	6	2.1 A	Modify the limits/standards table to add the applicability of 2D .0614 (CAM), 2D .1400 (RACT) and 2D .1806
6, 8 and 9	7	2.1 A.1.c - d	Modify monitoring and recordkeeping requirements for Optical Waveguide Laydown Processes pursuant to 2D .0515
7 and 9	8	2.1 A.3.c	Remove requirement to establish “normal” for VEs and reduce the required monitoring frequency from weekly to monthly
N/A	8 - 9	2.1 A.4	Add CAM requirements to the Optical Waveguide Laydown Processes pursuant to 2D .0614
8 - 11	9	2.1 B	Add the Glass Drying Operations to this permit section

Old Page(s)	New Page(s)	Condition/Item	Description of Change(s)
10 - 11	N/A	2.1 B.4 (08436T05)	Remove testing requirement for ammonia emissions from ES-C-002 and ES-C-006
11	10	2.1 C	Modify Miscellaneous Small Source Exhausts limits/standards table to add the applicability of 2D .1806
12	10 - 11	2.1 D	Modify emergency generators' descriptions to show ID Nos. and rated power output (as opposed to the maximum heat input)
12	11	2.1 D	Modify the limits/standards table to add applicability of 2D .0524 (NSPS IIII), 2D .1111 (MACT ZZZZ) and 2D .1806
12 - 13	N/A	2.1 D.2.c - e (08436T05)	Remove the MRR requirements associated with 2D .0521 for the emergency generators
N/A	11 - 13	2.1 D.3.a - n	Add the MRR requirements associated with 2D .0524 (i.e. NSPS IIII) for the emergency generators
N/A	13	2.1 D.4.a - c	Add the requirements associated with 2D .1111 (i.e. MACT ZZZZ) for the emergency generators
13	14	2.1 E	Modify the Vapor Degreaser limits/standards table to remove the applicability of 2D .1100 and 2D .1111 (MACT T) and add the applicability of 2Q .0317 to avoid those rules
13 - 14	14	2.1 E.1	Remove MRR requirements associated with 2D .1111 (MACT T) and add avoidance conditions under 2Q .0317
14	14	2.1 E.2	Remove MRR requirements associated with 2D .1100 and add avoidance conditions under 2Q .0317
14	14	2.1 F	Modify Acrylate Coating Process limits/standards table to add applicability of 2D .1806 and 2Q .0711
14 - 15	14 - 15	2.1 F.1.a - e	Update MRR requirements associated with 2D .0958 to the current shell version
N/A	15	2.1 F.2.a - c	Add requirements associated with 2Q .0711
15	16	2.1 G	Modify the soot handling systems limits/standards table to add rule 2Q .0317 to avoid the applicability of 2D .0614
16	16	2.1 G.1.c - d	Modify monitoring and recordkeeping requirements for 2D .0515 to reflect standard language
16	17	2.1 G.2.c	Remove requirement to establish "normal" for VEs and reduce the required monitoring frequency from weekly to monthly
N/A	17 - 18	2.1 G.3	Add this permit section for the monitoring, recordkeeping and monitoring requirements associated with 2Q .0317 to avoid the applicability of 2D .0614 to ES-C-SHP3
17	18	2.1 H	Modify humidification boilers limits/standards table to add the applicability of 2D .1400 and 2D .1806
18 - 21	20 - 22	2.2 A	Move the PSD avoidance requirements to 2.2 C and add (modified) 2D .1100 MRR requirements to 2.2 A
21 - 23	22	2.2 B	Move testing and MRR requirements of sources subject to 2D .1100 to 2.2 A and add odor requirements of 2D .1806 to this permit section
N/A	22 - 25	2.2 C	Add permit section and insert the (modified) MRR requirements pursuant to 2Q .0317 to avoid PSD applicability
N/A	26	2.3 A	Add section to show RACT applicability
23	26	2.3 B	Place the 112(r) requirements in this section
24 - 31	27 - 34	Section 3	Update General Conditions to the current shell version

Note: Condition/Item numbers are those as they appear on Permit No. 08436T06, unless otherwise noted.

VI Title V Permit History:

The following table provides a very brief summary of Title V permit revisions for this facility:

Permit No.	Issuance	Description of Revision
08436T05	10/25/01	Issuance of initial Title V permit
08436T06	12/10/08	Renewal of Title V permit and addition of CAM requirements

VII Application Fee/Zoning Consistency:

No fee or zoning consistency determination is required for the renewal without equipment modification and/or facility expansion requested via application 1300117.06A.

VIII Compliance Status:

The facility was most recently inspected on 06/27/08 by Bruce Ingle of MRO and appeared to be operating in compliance with DAQ requirements during that inspection.

IX Miscellaneous:

Equipment List: Vapor degreaser ID No. ES-C-OLDC1 has been removed from this facility (refer to the discussion in Section II D of this document, above). Also, as noted by the Permittee, the controls on the Soot Handling System are bin vent filters as opposed to bagfilters. These changes are made in equipment list of Permit No. 08436T06.

Insignificant Activities List: At the Permittee's request, two batch die cleaning machines utilizing solvent that is neither a NC TAP nor a HAP (ID No. IES-DC) and one furnace gas treatment operation utilizing a CO/He mixture (ID No. IES-CF) are added to the insignificant activities list attached to Permit No. 08436T06. Also, in accordance with the Permittee's request, OLDC2 and OLDC3 are removed from this list (they never existed and are no longer planned for this facility).

Certification by Responsible Official: In accordance with 2Q .0520, Doug Gillison (i.e. the responsible official for Corning, Inc. – Midland at the time of submittal of permit application 1300117.06A) provided the required certification on Form E5 of application 1300117.06A.

X Permit Review:

Draft Permit: A draft version of Permit No. 08436T06 and the associated review were sent to the Permittee and the MRO for a review and comment period on 08/29/08. A summary of the comments received and the associated responses is provided in Attachment B to this document. The changes described therein are reflected in the proposed permit and review.

Public Participation: In accordance with 2Q .0521, NC DAQ must provide the opportunity for public participation during the renewal of a Title V permit (such as that represented by application 1300117.06A). NC DAQ met this obligation with the public notice posted in Independent Tribune of Cabarrus County on 10/24/08.

EPA & Affected States Review: In accordance with 2Q .0522, NC DAQ must provide EPA and any Affected States [as defined at 2Q .0503(1)] the opportunity to review the proposed renewal of a Title V permit such as that requested by application 1300117.06A. NC DAQ met this obligation by sending those agencies a copy of Proposed Permit No. 08436T06 on 10/24/08.

XI Recommendation:

The Title V Permit renewal application for the Corning, Inc. facility in Midland, Cabarrus County, NC has been reviewed by NC DAQ personnel to determine compliance with all applicable procedures and requirements. NC DAQ personnel have determined that this facility is complying or will achieve compliance with all applicable requirements as specified in Permit No. 08436T06.

Issuance of Permit No. 08436T06 is recommended.

Attachment A: Summary of CAM Applicability

Emission Source(s)	Control Device(s)	Controlled Pollutant(s)	Pre-Control PTE (tons per year)	CAM Disqualifications/Exemption(s)	CAM Applicable?
Boilers: ES-C-HB1a and -HB1b; ES-C-HB2a and -HB2b; ES-C-HB3	N/A	N/A	All pollutants < 100	Does not meet criteria of 15A NCAC 2D .0614(a)	No
Emergency generators: ES-C-PG1a and -PG1b; ES-C-PG2a, -PG2b and -PG2c; ES-C-PG3a and -PG3b	N/A	N/A	All pollutants < 100	Does not meet criteria of 15A NCAC 2D .0614(a)	No
ES-C-OLDC1	N/A	N/A	All pollutants < 100	Does not meet criteria of 15A NCAC 2D .0614(a)	No
ES-C-ACP	N/A	N/A	All pollutants < 100	Does not meet criteria of 15A NCAC 2D .0614(a)	No
ES-C-004	CD-C-HCl3/4	HCl	< 100	Does not meet criteria of 15A NCAC 2D .0614(a) [Also, limits under 2D .1100 do not trigger CAM]	No
ES-C-SHP1	CD-C-BH3	PM	< 100	Does not meet criteria of 15A NCAC 2D .0614(a)	No
ES-C-SHP2	CD-C-BH4	PM	< 100	Does not meet criteria of 15A NCAC 2D .0614(a)	No
ES-C-SHP3	CD-C-BH5	PM	< 100	Does not meet criteria of 15A NCAC 2D .0614(a)	No
Optical Waveguide Laydown Processes:					
ES-C-001, -005 and -008	Various	PM	> 100	N/A	Yes
	Various	HCl and Cl	> 100	Does not meet criteria of 15A NCAC 2D .0614(a) [Limits under 2D .1100 do not trigger CAM]	No
ES-C-002 and -006	CD-C-BH2/7	PM	> 100	N/A	Yes
	CD-C-NO _x 1/2	NO _x	> 100	15A NCAC 2D .0614(b)(1)(E) [Emissions of NO _x from these sources are subject to a PSD limit]	No
ES-C-009	CD-C-BH9	PM	> 100	N/A	Yes
Glass Drying Operations: ES-C-003, -007 and -010	Various	Cl	> 100	Does not meet criteria of 15A NCAC 2D .0614(a) [Limits under 2D .1100 do not trigger CAM]	No

Attachment B: Summary of Modifications to DRAFT Permit No. 08436T06

The main substance of the Permittee's comments presented below were obtained from the email dated 09/09/08. Those comments (as presented herein) have been minimally modified as necessary to protect business confidential information, correct typographical errors, and to make the comments more succinct. The modifications are denoted by square brackets (i.e. "[]") in this document.

Technical Review Comments

1. In the review, we would [prefer] "The Permittee temporarily reduced operations at this facility in 2002 – but maintained Permit No. 08436T05. Recently, due to improved market conditions, the Permittee has resumed operations at this facility."

- o These are public records, and we would rather competitors not know what our operation status has been

DAQ Response: NC DAQ does not object - this change will be made in the technical review.

2. Section II.C.i – SO₂ Emissions from Diesel Emergency Generators

- o The review should use AP42 Section 3.4, Table 3.4-1 for emissions estimates for SO₂, rather than Section 3.3, Table 3.3-1. Section 3.4 be used for these size engine generators (> 600 HP) as they are rated near 2900 HP. Section 3.3 is for smaller engines (up to 600 HP).

DAQ Response: I agree – thanks for catching this error. The requested change will be made in the technical review – the permit is not affected.

3. Section II.C.iii – NSPS

- o Emission Standards – this section should be revised to include provisions under 40 CFR 82.112(d) which permits different standards if manufacture uses "engine families" as follows:

- (d) In lieu of the NOX standards, NMHC + NOX standards, and PM standards specified in paragraph (a) of this section, manufacturers may elect to include engine families in the averaging, banking, and trading program, the provisions of which are specified in subpart C of this part. The manufacturer must set a family emission limit (FEL) not to exceed the levels contained in Table 2. The FEL established by the manufacturer serves as the standard for that engine family. Table 2 follows:

DAQ Response: I agree that Corning has the option of buying an engine that is manufacturer-certified to meet the FEL in §89.112(d) as opposed to an engine that is individually-certified to meet the standards in §89.112(a). This option will be included in the proposed permit and review.

Permit Comments

1. Section 2.1 [D].4.c. – The initial notification requirements for the "new" emergency engines (ES-C-PG2b, ES-C-PG2c, ES-C-PG3a and ES-C-PG3b) should reference §63.6645(f) rather than §63.6645(h). I think this is an improper reference in the final rule.

DAQ Response: I agree – thanks for catching this. This change will be made in the proposed permit (the regulatory citation was correct in the technical review).

2. Section 2.2 [D].1.e. – This condition should be amended to allow the use of newly derived (tested) emission factors or revised AP42 factors, as appropriate, in the formulas. [...] Also, while the RACT analysis determined "gas-oxy burners" [...] represent RACT, the technically feasible control technology is wet scrubbers rather than ammonia-injected catalytic units. These NOx controls are needed to maintain the 250 tpy PSD avoidance cap. The permit will be revised as part of the RACT requirements and emissions will be tested to confirm appropriate emission rates/factors.

DAQ Response: I agree with your reasoning. The proposed permit will be modified to allow the Permittee to administratively modify the permit to update the emission factors utilized in this permit section.

3. **Insignificant activities list**

- o OLDC2 and OLDC3 can be removed. These were to be Acetone based machines for the expansions. They are not on site (and have never been).

DAQ Response: Thanks for the information. I will modify the proposed technical review accordingly.

4. Permit Cover Sheet

- o Complete Application Date needs to be filled in.

DAQ Response: Thanks for catching this – I will modify the proposed permit accordingly.

5. Permit Page 7 - ES-C-001, ES-C-002, ES-C-005, ES-C-006, ES-C-008 and ES-C-009

- o The air stream for several of these sources is acidic and cooling the bag house causes acid to form in the system.
- o This acid is more likely to cause issues with structural integrity than keeping the bag house hot.
- o When parametric (dP) monitoring indicates an issue, the bag houses would be cooled and entered to fix the problem.
- o I would suggest the following language which will give us the flexibility to not enter the bag house if parametric conditions do not call for an entry.

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f)]

- c. Particulate matter emissions from Optical Waveguide Laydown Processes (ID Nos. ES-C-001, -002, -005, -006, -008 and -009) shall be controlled by associated bagfilters and cartridge filter (ID Nos. CD-C-BH-1, -BH-2, -BH-6, -BH-7, -BH-8 and -BH-9, respectively). To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the equipment manufacturer. In addition to the equipment manufacturer's inspection and maintenance recommendations, or if there are no equipment manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:
 - i. A monthly visual inspection of the system ductwork and material collection units for leaks; and
 - ii. An annual (for each 12 month period following the initial inspection) internal inspection, **where feasible**, of the bagfilters and cartridge filter for structural integrity.

DAQ Response: The specifics of operations in the Optical Waveguide Laydown Processes are considered business confidential and are conducted year-round (i.e. there is no regularly-scheduled downtime of this equipment during which the Permittee could conduct the internal inspections). Moreover, the associated equipment is subject to CAM and must be operated and maintained in strict accordance with manufacturer's recommendations. Therefore, the proposed permit condition will be modified to match the language of current Permit No. 08436T05 (i.e. to remove the text "In addition to ... for structural integrity." from paragraph c).

6. Permit Page 8 -Source ID Nos. ES-C-001, -002, -005, -006, -008

- o When the facility operated under this condition in the past, no emissions were ever noted to be "non-normal"
- o Since particulate and visible emissions are expected to be minimal at these sources and they are subject to more frequent CAM monitoring (pressure drop), I would request that the weekly VE be removed for this source

DAQ Response: NC DAQ believes that some VE monitoring is required under Part 70. The required frequency will be adjusted to monthly in the proposed permit.

7. Permit Page 14 – OLDC 1

- o I would suggest pulling OLDC 1 from the permit entirely. E.1.b states that we must first get a permit before operating a Subpart T source - This would be the requirement whether we were subject to Subpart T in the past or not.

DAQ Response: I agree with your logic, however, Regional Office staff requested the language in the draft permit. Since this language does not impose any additional burden on Corning, I will defer to the Regional Office staff and leave the language as presented in the draft permit.

8. Permit Page 15 – ACP

- o 1.b seems to be indicating a machine in iv, but that is not called out specifically in b

Suggested wording:

- b. When **using a parts cleaning machine that utilizes** ~~cleaning parts with~~ [a solvent containing] a volatile organic compound, the Permittee shall:

DAQ Response: NC DAQ does not object to the proposed wording (as modified). This change will be made in the proposed permit.

9. Page 16 - Soot Handling

- When the facility operated under this condition in the past, no emissions were ever noted to be “non-normal”
- Emissions are intermittent and expected to be low
- A monthly visual inspection and annual internal inspection should ensure that this device is operating as intended.
- Suggest removing VE from this source.

DAQ Response: NC DAQ believes that some VE monitoring is required under Part 70. The required frequency will be adjusted to monthly in the proposed permit.

10. Page 19 and 20 – Soot Handling System

- The soot handling system notes bag houses
 - These are actually “Bin Vents”
 - Condition 2.2.A.1.c.i notes monitoring dP of the soot handling systems every 15 minutes.
 - Condition 2.2.A.1.c.ii notes a max dP across the bag filter of 14 inches
 - The bin vents are not hooked into the facility control system and thus the parameters are not monitored
 - The bin vents do not have continuous air flow and only filter when a transport of soot takes place thus making the monitoring of dP every 15 minutes impractical even if they were wired into the system
- [...]
- 2.1G1.c.i and ii require a monthly duct work inspection and annual internal inspection
 - The inspections should ensure that these devices are in good working order – Suggest removing reference to the Soot Handling source in 2.2A

DAQ Response: Pursuant to a subsequent discussion (see 10/01/08 phone log) a CAM avoidance limit will be applied to the Soot Handling System, resolving this issue. Thanks for the bin vent information. These changes will be made in the proposed permit and technical review.

11. Page 22 - Sources 001, 005, and 008

- Condition 2.2 B.1.c.i references an hourly average for liquid injection rates.
- This facility uses a control system that compares the device parameter to a stored value based on permit requirement.
- The system does not average – if a parameter is outside of the permitted parameter, the operator is notified and takes action.
- I would suggest using Section 1 – Permitted emissions sources table when referencing the liquid injection rates. These are the number we use when determining compliance.

Suggested language change:

- i. Maintain hourly **average** liquid injection rates in the associated scrubbers equal to or greater than the liquid injection rates as referenced in Section 1. ~~established for each associated scrubber during the compliance testing conducted pursuant to Section 2.2 B.1.b, above;~~
- ii. Maintain hourly **average** differential pressure drops across the associated equal to or greater than the liquid injection rates as referenced in Section 1. ~~established for each associated scrubber during the compliance testing conducted pursuant to Section 2.2 B.1.b, above;~~ and;

- iii. Maintain hourly ~~average~~ scrubber liquid pH values equal to or greater than the liquid pH values recommended by the manufacturer. ~~established for each associated scrubber during the compliance testing conducted pursuant to Section 2.2 B.1.b, above.~~

Monitoring [15A NCAC 2D .1105]

- c. The Permittee shall monitor hourly ~~average~~ values of the three operational parameters listed in Sections 2.2 B.1.c.i, ii, and iii, above, via an electronic parametric monitoring system that notifies the operator of any out-of-range values. The parametric monitoring system shall be installed, maintained, operated and calibrated as recommended by the monitoring system manufacturer.

DAQ Response: The requested changes [i.e. comparing instantaneous scrubber injection rates (as opposed to hourly averages) to the permit limits (as opposed to the presumably less-stringent limits established via testing)] make the condition more restrictive. NC DAQ does not object to the requested changes – these changes will be made in the proposed permit and technical review.

12. Page 22 - Sources 001, 005, and 008

- o Condition 2.2 B.1.e
- o The term “in addition to” adds an extreme burden to the facility.
- o All equipment is on a routine I&M program as recommended by the manufacturer.
- o Any equipment that does not have a program called out by the manufacturer is on a schedule based on like equipment or operational knowledge.

Suggested Language for wet scrubber systems inspection and maintenance requirements:

To comply with the provisions of this permit and ensure optimum control efficiency is maintained, the Permittee shall

- o Establish an inspection and maintenance schedule/checklist based on manufacturers recommendations.
- o Perform an annual internal inspection on the wet scrubbers by to ensure structural integrity such that optimum control efficiency is achieved
- o At a minimum, the inspection and maintenance program will include:
 - Inspection of spray nozzles, packing material, chemical feed system (if equipped) and the cleaning/calibration of all associated instrumentation.

DAQ Response: The specifics of operations in the Optical Waveguide Laydown Processes and Glass Drying Operations are considered business confidential and are conducted year-round (i.e. there is no regularly-scheduled downtime during which the Permittee could conduct the internal inspections). Moreover, the associated equipment must be operated and maintained in strict accordance with manufacturer’s recommendations. Therefore, the proposed permit condition will be modified to match the language of current Permit No. 08436T05 (i.e. to remove the text “In addition to ... for structural integrity.” from paragraph c.)