

**NORTH CAROLINA DIVISION OF
AIR QUALITY
Application Review**

Region: Raleigh Regional Office
County: Vance
NC Facility ID: 9100069
Inspector's Name: John Dabinett
Date of Last Inspection: 04/26/2024
Compliance Code: 3 / Compliance - inspection

Issue Date: TBD

<p style="text-align: center;">Facility Data</p> <p>Applicant (Facility's Name): Ardagh Glass Inc.</p> <p>Facility Address: Ardagh Glass Inc. 620 Facet Road Henderson, NC 27537</p> <p>SIC: 3221 / Glass Containers NAICS: 327213 / Glass Container Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p style="text-align: center;">Permit Applicability (this application only)</p> <p>SIP: 02D .0515, .0516, .0521, .0524, .1100, .1806 NSPS: Subparts CC and IIII NESHAP: Subpart ZZZZ PSD: n/a PSD Avoidance: n/a NC Toxics: 02D .1100 112(r): no RMP required Other: Global Consent Decree</p>
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Contact Data			Application Data
<p style="text-align: center;">Facility Contact</p> <p>Steve Cantor EHS Manager (252) 430-3602 620 Facet Road Henderson, NC 27537</p>	<p style="text-align: center;">Authorized Contact</p> <p>Stephane Jean Plant Manager (252) 430-3651 620 Facet Road Henderson, NC 27537</p>	<p style="text-align: center;">Technical Contact</p> <p>Steve Cantor EHS Manager (252) 430-3602 620 Facet Road Henderson, NC 27537</p>	<p>Application Number: 9100069.23A Date Received: 10/20/2023 Application Type: Renewal Application Schedule: TV-Renewal <p style="text-align: center;">Existing Permit Data</p> Existing Permit Number: 02834/T28 Existing Permit Issue Date: 09/03/2020 Existing Permit Expiration Date: 04/30/2024</p>

Total Actual emissions in TONS/YEAR:							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2022	142.01	273.12	20.97	72.21	32.33	16.08	12.32 [Hydrogen chloride (hydrochlori)]
2021	158.90	281.72	21.88	75.30	37.30	16.03	12.20 [Hydrogen chloride (hydrochlori)]
2020	156.85	293.56	21.76	74.93	40.86	15.90	12.07 [Hydrogen chloride (hydrochlori)]
2019	171.33	289.67	21.01	74.39	49.90	15.67	11.88 [Hydrogen chloride (hydrochlori)]
2018	150.29	283.45	20.16	70.19	49.66	15.39	11.76 [Hydrogen chloride (hydrochlori)]

<p>Review Engineer: Russell Braswell</p> <p>Review Engineer's Signature: _____ Date: _____</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 02834/T29 Permit Issue Date: TBD Permit Expiration Date: TBD+5 years</p>
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1. Purpose of Application

Ardagh Glass Inc. (Ardagh; the facility) operates a factory in Vance County under Title V permit 02834T29 (the existing permit). The existing permit expired on April 30, 2024. Prior to expiry, and in accordance with General Condition K of the existing permit, Ardagh submitted this application in order to renew the Title V permit. Because the application for Title V permit renewal was received more than six months before the expiration of the existing permit, the existing permit will remain in effect, regardless of expiration date, until DAQ issues a response to this application for permit renewal.

In addition to renewing the Title V permit, Ardagh has requested some “administrative updates” to the Title V permit. Those updates will also be discussed in this application review.

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2. Application Chronology

Date	Event
October 20, 2023	Application received.
April 17, 2024	Responsibility for this application transferred to Russell Braswell.
May 21, 2024	Request for additional information sent via email: 1. Has the burner for CD-1 discussed in the application always been present, or was it installed after CD-1 was installed? 2. DAQ cannot remove the annual average throughput limit from Furnace 2 as proposed by the application during this Title V permit renewal. 3. Does the facility emit 1-BP?
May 30, 2024	Partial response received to the May 21 request: 1. "The 4.5 MMBtu/hr gas burner was part of the original CD-1 installation and has always been present." 3. "The materials and processes related to the Henderson facility have been reviewed and no indication of potential for 1-bromopropane (1-BP; CAS 106-94-5) emissions were identified."
June 4, 2024	Partial response received to the May 21 request: 2. "...the rate listed in the equipment description is <u>not</u> intended to be a federally enforceable limit. Further, PTE is based on the maximum pull rate of 385 tpd, which will remain in the description. The request to remove the average rate from the unit description is not related to any physical change or change in the method of operation of GF-2, so PSD applicability review is not required. Ardagh is not requesting to increase the capacity of the furnace from 345 tpd to 385 tpd but rather to remove extraneous information from the description."
June 5, 2024	DAQ responded by email to Ardagh's June 4, 2024 correspondence: In the 2011 application submitted by Ardagh (then operating as Saint-Gobain), Ardagh specified that the furnace 345 ton/day annual average production rate. Furthermore, Ardagh <i>did</i> use the 345 ton/day annual average (specifically, 125,925 ton/yr) production rate as the projected actual emissions of the rebuilt furnace. Given that the description of Furnace 2 is currently worded as Ardagh originally requested, and the 2011 emission calculations used the 345 ton/day average rate, removing the 345 ton/day average rate cannot be an administrative change.
June 7, 2024	An initial draft of the permit and this review were sent to DAQ Permits staff.
June 21, 2024	A revised draft of the permit and this application review were sent to DAQ SSCB staff, DAQ RRO staff, and Ardagh staff.
July 2, 2024	Conference call with DAQ and Ardagh to discuss Ardagh's proposal to remove the average annual production rate listed in the description of GF-2. DAQ concluded that this would require a 502(b)(10) notification.
August 1, 2024	Reminder sent to Ardagh regarding the June 21 draft permit.
August 27, 2024	Additional reminder sent to Ardagh regarding the June 21 draft permit.
August 28, 2024	Ardagh responded with comments on the June 21 draft permit.
XXXX	Public notice / EPA review
XXXX	Public notice ends
XXXX	EPA review ends
XXXX	Permit issued.

3. Facility and Application Discussion

3.1 Facility description

This facility manufactures glass bottles using two glass melting furnaces. The furnaces are heated primarily with natural gas and are equipped with electric boost, and each furnace is subject to NSPS Subpart CC. Furnace 1 is equipped with a control device to reduce PM and NOx emissions. In addition, the facility operates supporting activities such as material handling and receiving and emergency generators. The facility has been operating at this location since 1970.

See Attachment 1 for process flow diagrams for the activities at this facility.

3.2 Title V permit history

Ardagh's Title V permit was most recently renewed on May 28, 2019. The table below summarizes the recent revisions to the Title V permit and applicability determinations issued by DAQ:

Permit revision (or determination #) (issued)	Application type	Discussion
T27 (May 28, 2019)	TV Renewal (with modification)	This action renewed the Title V permit and made minor changes to the permit.
T28 (September 3, 2020)	State-only modification	Ardagh updated the TAP modeling and associated TAP emission limits in the permit. In addition, because Ardagh is a major source of HAP, DAQ removed rules that apply exclusively to area sources (such as 40 CFR Part 63, Subpart SSSSSS) from the permit.
#3845 (August 17, 2022)	Applicability Determination	Ardagh planned to replace an electric mold heating oven with a natural gas-fired one. DAQ determined that no application was necessary for the proposed change.

3.3 Title V permit renewal

The existing Title V permit has expired. However, before expiration, Ardagh submitted an application for permit renewal pursuant to General Condition K of the permit.

In addition to renewing the permit, Ardagh requested the following administrative changes to the permit:

- Update the description of control device CD-1 to include a natural gas-fired burner (4.5 million Btu per hour maximum heat input).

This burner has always been part of CD-1 (*i.e.*, it was not installed after CD-1 was added to the permit).¹ Therefore, it not being mentioned in the permit was a previous oversight. Correcting this oversight is only meant to correct the permit and does not reflect a physical change by Ardagh.

¹ Email received May 30, 2024.

- Remove the average annual pull rate limit in the description of Furnace 2.

In the application, Ardagh explains the reason for this request:

“This change is requested so that the emission source description for GF-2 is more closely aligned with the emission source description for GF-1 (*which does not include an average annual pull rate*) as well as the emission source descriptions for GF-1 and GF-2 at the Ardagh Wilson facility.”

In subsequent correspondence, Ardagh explained:

“The rate listed in the equipment description is not intended to be a federally enforceable limit. Further, PTE is based on the maximum pull rate of 385 tpd, which will remain in the description. The request to remove the average rate from the unit description is not related to any physical change or change in the method of operation of GF-2, so PSD applicability review is not required. Ardagh is not requesting to increase the capacity of the furnace from 345 tpd to 385 tpd but rather to remove extraneous information from the description.”²

In 2011, Ardagh (then operating as Saint-Gobain) applied for a modification to Furnace 2. This was partially to comply with the 2010 consent decree, but it also covered rebuilding Furnace 2. DAQ then issued permit revision T20 (February 7, 2012). At that time, DAQ described Furnace 2 as “385/345 tons per day peak/annual average rated glass pull rate”.

In the 2011 application, Ardagh specified that the furnace 345 ton/day annual average production rate. Furthermore, Ardagh did use the 345 ton/day annual average (specifically, 125,925 ton/yr) production rate as in place of the “projected actual emissions” of the rebuilt furnace pursuant to 40 CFR 51.166(a)(7)(iv)(c). The application did calculate hourly and daily emission rates based on 385 ton/day for some air dispersion modeling calculations, but that does not change the fact that Ardagh based annual potential emissions on the 345 ton/day average rate.

Given that the description of Furnace 2 is currently worded as Ardagh originally requested, and the 2011 emission calculations used the 345 ton/day average rate, removing the 345 ton/day average rate cannot be an administrative change. Ardagh may submit a separate application (or potentially a 502(b)(10) notification) demonstrating that this proposed change is allowable.

3.4 Changes to the existing permit

Page No.	Section	Description of Changes
Throughout	Throughout	<ul style="list-style-type: none">• Updated dates and permit numbers.• Fixed formatting where appropriate. Changes to formatting are intended only for clarity and conformity with DAQ’s other Title V permits, and are not intended to affect the Permittee’s compliance requirements.
4	1	<ul style="list-style-type: none">• Updated description of CD-1 to include a 4.5 million Btu per hour natural gas-fired burner. This burner has always been present in CD-1, and this change is only to ensure the Title V permit accurately reflects the facility. This change does not represent a physical change by the Permittee.

² Email received June 4, 2024.

Page No.	Section	Description of Changes
8	2.1 A.4.f, g, and h	<ul style="list-style-type: none"> Updated monitoring paragraph for 02D .0521 to DAQ's current standard paragraph.
12	2.1 B.4.h (former)	<ul style="list-style-type: none"> Removed this paragraph because DAQ has determined that a specific limit for COMS downtime is not appropriate for the permit with regards to NSPS Subpart CC.
16	2.1 C.2.c	<ul style="list-style-type: none"> Updated monitoring paragraph for 02D .0521 to DAQ's current standard paragraph.
18	2.2 A.1.a and b	<ul style="list-style-type: none"> Added paragraph noting the date of the most recent modeling demonstration.
19	2.2 A.2	<ul style="list-style-type: none"> Changed rule citation to 15A NCAC 02Q .0508. This change is only for clarity, and does not reflect a change in the Permittee's compliance requirements. Removed reference to "state and federal enforceable" because that is always presumed, unless otherwise specifically stated (e.g., state-enforceable only)
33	3 (new)	<ul style="list-style-type: none"> Created this section. Moved list of insignificant activities to this section. Changed IS-AST to ammonium hydroxide based on DAQ's most recent inspection. Updated the description of the following sources at Permittee's request: <ul style="list-style-type: none"> IS-MGO IS-CT IS-PW-SK IS-DO Added the following insignificant activities at Permittee's request: <ul style="list-style-type: none"> IS-CNC IS-CRU
35	4 (new)	<ul style="list-style-type: none"> Created this section. Moved the General Conditions to this section. Updated the General Conditions to version 8.0.

4. Rules Review

Ardagh is subject to the following State Implementation Plan (SIP) rules and state-enforceable only rules, in addition to the General Conditions:

- 15A NCAC 02D .0515 “Particulates from Miscellaneous Industrial Processes”
- 15A NCAC 02D .0516 “Sulfur Dioxide from Combustion Sources”
- 15A NCAC 02D .0521 “Control of Visible Emissions”
- 15A NCAC 02D .0524 “New Source Performance Standards”
- 15A NCAC 02D .1100 “Control of Toxic Air Pollutants” [state-enforceable only]
- 15A NCAC 02D .1806 “Control and Prohibition of Odorous Emissions” [state-enforceable only]
- 15A NCAC 02Q .0508 “Permit Content”

Ardagh’s applicability and compliance requirements for each of these rules are discussed in detail below.

In addition to the above SIP rules, Ardagh is subject to a consent decree. The history of consent decree and Ardagh’s requirements for that decree are discussed in Section 7.

4.1 15A NCAC 02D .0515 “Particulates from Miscellaneous Industrial Processes”

Applicability: This rule applies to emission sources that exhaust through a stack and are not subject to another particulate matter (PM) emission limit. Note that, when demonstrating compliance with this rule, facilities must perform emission testing using EPA Methods 5 and 202 (i.e., test for filterable and condensable PM). Therefore, rules that only apply to filterable PM (such as NSPS Subpart CC) are not considered for the purposes of this rule. Each permitted source at this facility is subject to this rule.

Note that the distributors and hearths associated with Furnaces 1 and 2 do not have dedicated emission points, and therefore are not subject to this rule.³

Emission limit: The emission limit for this rule is calculated by the equations $E = 4.10 \times P^{0.67}$ (for $P \leq 30$) or $E = 55(P)^{0.11} - 40$, where E is the emission limit in pounds per hour and P is the process rate of the emission source measured in tons per hour. The equations are listed in the permit as an emission limit.

Furnace	Production rate P	Emission limit E	Emission test results ⁴
GF-1	350 ton/day, equal to 14.58 ton/hr	24.67 lb/hr	0.017 lb/ton, equal to 0.25 lb/hr
GF-2	385 ton/day, equal to 16.04 ton/hr	26.32 lb/hr	0.057 lb/ton, equal to 0.83 lb/hr

Requirements for Furnace 1: Ardagh must ensure that checker cleaning events happen at least once per 263 operating days. If the checker cleaning interval is longer than the limit, Ardagh must re-test Furnace 1 during a checker cleaning event for compliance with this rule.⁵ In addition, Ardagh must perform an annual

³ See DAQ’s review of Title V permit revision 02834T21 (issued May 10, 2013).

⁴ The most recent DAQ approved test results come from emission testing performed on April 18 and 19, 2023. See 2023-043ST.

⁵ See DAQ’s review of Title V permit revision 02834T19 (issued September 7, 2011).

emission test on Furnace 1. Ardagh must keep records of production and of checker cleaning events and submit a semiannual summary report.

Requirements for Furnace 2: Ardagh must conduct an annual stack test to demonstrate compliance with this rule. Ardagh must keep records of production and submit a semiannual summary report.

Requirements for other sources: The material handling operations are each controlled by bagfilters. Ardagh must conduct monthly and annual inspections of the bagfilters and associated ductwork. Ardagh must keep records of bagfilter inspections and maintenance and submit a semiannual summary report.

Compliance: Ardagh appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

4.2 15A NCAC 02D .0516 “Sulfur Dioxide from Combustion Sources”

Applicability: This rule applies to combustion sources that are not subject to an SO₂ emission limit under NSPS or MACT. The furnaces, refiners, and forehearths are subject to this rule.

Emission limit: In all cases, the emission limit is 2.3 pounds of SO₂ per million Btu of heat input.

Requirements for glass furnaces: SO₂ is expected to be emitted by the glass furnaces because the combustion fuel contains sulfur and the raw materials contain sulfur.

Ardagh is required by the Global Consent Decree (GCD; discussed in Section 7 below) to operate a continuous emission monitoring system (CEMS) for SO₂ on each glass furnace. Furthermore, the GCD limits SO₂ emissions to, in the worst-case scenario, 2.4 pounds per ton of glass produced (see Specific Condition 2.2 A.2 of the existing permit). Using the production and heat input rates in the permit, this limit can be compared to the limit in 02D .0516.

$$\frac{\left(\frac{\text{GCD emission limit, lb}_{\text{SO}_2}/\text{ton}_{\text{glass}}}{\left(\frac{\text{total heat input, MMBtu/hr}}{\text{hourly production rate, ton}_{\text{glass}}/\text{hr}} \right)} \right)}{\left(\frac{\text{total heat input, MMBtu/hr}}{\text{hourly production rate, ton}_{\text{glass}}/\text{hr}} \right)} = \text{SO}_2 \text{ emission rate, lb}_{\text{SO}_2}/\text{MMBtu}$$

GF-1	GF-2
77.5 MMBtu/hr total heat input	94 MMBtu/hr total heat input
14.6 ton _{glass} /hr	14.375 ton _{glass} /hr
2.4 lb _{SO2} / ton glass emission limit	2.4 lb _{SO2} / ton glass emission limit
0.45 lb_{SO2} / MMBtu	0.37 lb_{SO2} / MMBtu

Based on the above calculation, both GF-1 and GF-2 can demonstrate compliance with 02D .0516 by complying with the GCD limit on SO₂ emissions.

Monitoring, Recordkeeping, and Reporting: Based on the wide margin of compliance for each of the subject sources at this facility, DAQ has determined that no monitoring, recordkeeping, or reporting is required to demonstrate compliance with 15A NCAC 02D .0516.

4.3 15A NCAC 02D .0521 “Control of Visible Emissions”

Applicability: This rule applies to sources of visible emissions (VE) that are not subject to another VE standard under 02D .0500. Generally, this rule is not applied to sources that are not expected to produce any VE (e.g., from a storage tank). Each source at this facility is subject to this rule.

Emission limits: The VE limit for this rule depends on the construction date of the individual source in question. For sources constructed before July 1, 1971, the VE limit is 40%. For other sources, the VE limit is 20%.

- GF-1 is (generally) subject to the 20% limit.
- GF-2 is subject to the 40% limit.
- Each other source at this facility is subject to the 20% limit.

Emission limit exception: Per 02D .0521(f), a facility may request to comply with the 40% VE limit instead of the 20% limit. The facility must perform emission testing to show that this request would not result in exceedances of applicable PM emission limits and would not contravene air quality standards. For GF-1, Ardagh has applied to comply with the 40% VE limit during checker cleaning events. DAQ has approved this request.⁶

Allowed exceedances: For sources not operating a continuous opacity monitoring system (COMS), the rule allows for one exceedance of the specific limit per hour, and four exceedances per 24-hour period. For sources operating a COMS, the rule allows for four six-minute exceedances per day and limits opacity exceedances on a quarterly basis.

Compliance for GF-1: Ardagh must perform a weekly VE observation for GF-1. In addition, Ardagh must perform a daily observation during control device bypass events, and perform continuous observations during checker cleaning events.

Compliance for GF-2: Ardagh operates a COMS for GF-2 in order to demonstrate compliance with the PM standard of NSPS Subpart CC. Note that the emission standard under NSPS Subpart CC is specifically for PM, and opacity is Ardagh’s method of complying with the PM standard. The rule does not include a specific VE standard, and therefore does not allow for exemption from 02D .0521. The data gathered by the COMS is used to demonstrate compliance with the VE limit as specified in 02D .0521(g).

Compliance for other sources: Ardagh must perform a monthly VE observation on the material handling operations. Ardagh does not have any specific compliance requirements for VE from the mold swabbing operation.

Monitoring and recordkeeping: For sources not operating a COMS, Ardagh must conduct regular VE observations on all emission points for VE above normal and during checker cleaning events. If VE above normal is detected, Ardagh must take corrective actions or conduct a Method 9 test to determine that an exceedance of the VE standard has not occurred.

For sources operating a COMS, Ardagh must operate the COMS according to 15A NCAC 02D .0613 and keep records of COMS data and COMS downtime.

⁶ See note 5.

Reporting: Ardagh must submit a semiannual summary report. For sources operating COMS, Ardagh must also submit a report per NSPS Subpart CC.

Compliance: Ardagh appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit: DAQ will update the monitoring requirements for 02D .0521 to the latest standard template. This change is mostly for clarity and conformity, and should not have a meaningful impact on Ardagh's compliance requirements.

4.4 15A NCAC 02D .0524 "New Source Performance Standards" (NSPS)

This rule incorporates the NSPS rules (40 CFR Part 60) into North Carolina's SIP. See Section 5.1 for a discussion of NSPS rules that apply to this facility.

4.5 15A NCAC 02D .1100 "Control of Toxic Air Pollutants" [State-enforceable Only]

Background: Ardagh has previously performed air dispersion modeling in order to demonstrate compliance with the acceptable ambient limits (AAL) for the toxic air pollutants (TAP) listed in 02D .1104. The modeled emission rates are listed in the Title V permit as emission limits. See Section 6 for additional discussion of Ardagh's requirements for TAP emissions.

Monitoring, recordkeeping, and reporting: Ardagh has previously modeled at maximum potential emission rates. Therefore, DAQ has concluded that no monitoring, recordkeeping, or reporting is required to demonstrate compliance with this rule.

Changes to the existing permit: The permit will be updated to include the following paragraphs. DAQ has determined that this paragraph is necessary for permits that include emission limits based on modeling demonstrations.

2.2 A.1:

a. ...

The Permittee has submitted a toxic air pollutant dispersion modeling analysis dated March 29, 2004 for the facility's toxic air pollutant emissions as listed in the above table. The modeling analysis was reviewed and approved by the AQAB on April 26, 2004. Placement of the emission sources, configuration of the emission points, and operation of the sources shall be in accordance with the submitted dispersion modeling analysis and should reflect any changes from the original analysis submittal as outlined in the AQAB review memo.

b. ...

The Permittee has submitted a toxic air pollutant dispersion modeling analysis dated December 28, 2018 for the facility's toxic air pollutant emissions as listed in the above table. The modeling analysis was reviewed and approved by the AQAB on January 16, 2019. Placement of the emission sources, configuration of the emission points, and operation of the sources shall be in accordance with the submitted dispersion modeling analysis and should reflect any changes from the original analysis submittal as outlined in the AQAB review memo.

4.6 15A NCAC 02D .1806 “Control and Prohibition of Odorous Emissions” [state-enforceable only]

Applicability: This rule applies to facilities that emit, or could potentially emit, odorous emissions. The existing permit includes a specific condition for this rule.

Monitoring, recordkeeping, and reporting: The existing permit does not require any monitoring, recordkeeping, or reporting for this rule.

Compliance: Based on the most recent inspection report, Ardagh appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections.

4.7 15A NCAC 02Q .0508 “Permit Content” (and Global Consent Decree)

Applicability: Per 02Q .0508(i)(16), a Title V permit shall contain “provisions the Director considers appropriate.” DAQ has previously determined that portions of the Global Consent Decree (see Section 7) must be included in the Title V permit.

Compliance: The facility must comply with the SO₂ emission limits set by the Global Consent Decree. The facility must demonstrate compliance using a certified SO₂ CEMS. See Section 7 for additional information regarding compliance with the Global Consent Decree.

Changes to the existing permit: In the existing permit, this specific condition was incorporated into the Title V permit under the generic North Carolina General Statute (NCGS) 143-215.108(c); which encompasses DAQ’s responsibilities with regards to issuing air quality permits. That citation is too broad. For clarity, that reference will be replaced with a specific reference to 15A NCAC 02Q .0508(i)(16).

5. NSPS, NESHAP, MACT, CAM, PSD, and §112(r)

5.1 New Source Performance Standards (NSPS; 40 CFR Part 60)

5.1.1 NSPS Subpart CC “Standards of Performance for Glass Manufacturing Plants”

Applicability: This rule applies to glass melting furnaces that commenced construction or modification after June 15, 1979. Both furnaces at this facility are subject to this rule.

Rule updates: This rule was first adopted on October 7, 1980. It was most recently substantially updated on October 17, 2000.

Emission standards: The rule limits PM emissions based on glass production. Emission standards under this rule depend on the type of glass produced and the type of process.

- Furnace 1 is subject to a limit of 0.2 pounds of PM per ton of glass produced (see 40 CFR 60.292(a)(1) and Table CC-1). Furnace 1 is equipped with a PM control device in order to meet this limit.
- Furnace 2 is classified as “with modified-processes” and is therefore subject to a limit of 1.0 pound of PM per ton of glass produced (see 40 CFR 60.293(b)(1)).

Demonstrating compliance: Ardagh demonstrates compliance differently for Furnaces 1 and 2:

- For Furnace 1, Ardagh performs regular inspection and maintenance of the associated filter. Note that Ardagh is also required to perform annual PM emission testing as part of compliance with 02D .0515, but that emission testing is not associated with NSPS Subpart CC.
- For Furnace 2, Ardagh must operate a continuous opacity monitoring system (COMS). Data gathered by the COMS must be compared to opacity measured during previous performance testing. Ardagh must use the “upper confidence limit” (UCL) method in §60.293(c)(4) and (5) to determine excess emissions. Note that this method does not necessarily determine violations of 15A NCAC 02D .0524, and DAQ has chosen to include a three-hour block average opacity value in the permit as well.⁷

Note that the existing permit includes a specific limit on COMS downtime. DAQ has determined that such a limit is unnecessary:

“As a result of issues raised by the DAQ Technical Services Section...it was determined upon review that [percent COMS downtime], which was originally intended to only reflect normal operation but in practice it was defined to reflect all operation (that is, it included periods of startup, shutdown, and malfunction) was redundant with the standard DAQ compliance enforcement policy for sources using COMs. As a result, it

⁷ Note that this method is not explicitly listed in NSPS Subpart CC. See DAQ’s review of Title V permit revision 02834T18 (issued February 3, 2009) for the history of how DAQ and Ardagh (then operating under the name “Saint-Gobain Containers”) came to this conclusion.

was decided to remove explicit mention of the ‘Percent COMs Downtime’ parameter as specified in the NSPS Subpart CC conditions.”⁸

Recordkeeping and reporting: Ardagh must keep records of control device inspections and maintenance, COMS operation, furnace operating time, checker cleaning events, and periods of startup, shutdown, and malfunction. EGFA must submit a quarterly summary report.

Compliance: Ardagh appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit: As discussed above, the permit will no longer require calculation of percent COMS downtime because it is redundant.

5.1.2 NSPS Subpart III “Standards of Performance for Stationary Compression Ignition Internal Combustion Engines”

Applicability: This rule applies to stationary compression ignition internal combustion engines (CI ICE) constructed or modified after the applicability dates in 40 CFR 60.4200(a)(2). For the purposes of this rule, each engine at this facility is an emergency-use CI ICE. The engines IS-DG4 and IS-DG5 are subject to this rule.

Emission standards: Emergency CI engines subject to this rule must be certified to meet the applicable emission standards in 40 CFR 60.4205(b).

Fuel requirements: Diesel fuel must meet the sulfur requirements in 40 CFR 1090.305 (a.k.a. ultra-low sulfur diesel).

Monitoring requirements: Ardagh must install a non-resettable hour meter on each subject emergency engine. The engines must only be operated such that they meet the definition of emergency engine (e.g., not operated as a peak shaving engine).

Compliance requirements: The engines must be operated with good work practices and according to the manufacturer’s instructions. To be designated as an emergency engine, the engine can operate for non-emergency purposes (e.g., maintenance testing) for less than 100 hours per year. Up to 50 of those hours can be for non-emergency use, except for peak-shaving (with rare exceptions).

Insignificant activities: This rule only applies to emission sources included in the list of insignificant activities per 15A NCAC 02Q .0503(8). Such sources are not referenced elsewhere in the Title V permit. Because this rule only applies to insignificant activities, the Title V permit does not include a specific condition for this rule. Note that Ardagh must still comply with this rule.

⁸ See DAQ’s application review for Title V permit 02688T46 issued to Electric Glass Fiber America, LLC. That facility also operates glass furnaces subject to NSPS Subpart CC under the “with modified-processes” category.

5.2 National Emission Standards for Hazardous Air Pollutants (NESHAP; 40 CFR Part 61)

5.2.1 NESHAP Subpart N “National Emission Standard for Inorganic Arsenic Emissions From Glass Manufacturing Plants” [not applicable]

Applicability: This rule applies to glass furnaces that use commercial arsenic as a raw material. According to the application for renewal, this facility does not use commercial arsenic as defined by the rule (Application at 5-3). Therefore, this rule does not apply to this facility.

5.3 National Emission Standards for Hazardous Air Pollutants for Source Categories (a.k.a. Maximum Achievable Control Technology, MACT; 40 CFR Part 63)

5.3.1 Major Source Status

Ardagh is a major source of hazardous air pollutants (HAP) because the facility has actual emissions of HAP greater than the thresholds listed in the definition of “major source” in 40 CFR 63.2. Because this facility is a major source of HAP, rules that apply exclusively to area sources of HAP (*e.g.*, Subpart SSSSSS) categorically do not apply to this facility.

Note that this facility is a major source of HAP, but there is no corresponding MACT rule for activities at this facility (glass bottle production).

5.3.2 112(g) Case-by-Case MACT (and 15A NCAC 02D .1112 “112(g) Case-by-Case MACT”) [not applicable]

Background: In general, 15A NCAC 02D .1112 requires facilities to develop a case-by-case MACT pursuant to §112(g) if they are constructing a major source of HAP *and* if that source has no applicable MACT rule under 40 CFR Part 63. As an alternative, a facility can accept an enforceable emission limit under 02Q .0317 to avoid applicability of the rule. The potential applicability of 15A NCAC 02D .1112 and potential need for an avoidance limit are examined below.

Greenfield facilities: This facility has been in operation since before July 1, 1998. Per 15A NCAC 02D .1112(a)(2), this rule does not apply to an existing major source if it was operating prior to July 1, 1998. Therefore, this rule did not apply when the facility was originally constructed (*i.e.*, as a greenfield facility), regardless of major source status. However, subsequent modifications may still trigger applicability of this rule.

Process or production unit: For facilities that are not greenfield facilities, this rule applies to individual process or production units. Based on the definition in 02D .1112(c)(13), Furnaces 1 and 2 are each separate production units.

Reconstruct a major source: If a facility reconstructs a process or production unit with potential HAP emissions greater than the major source threshold, applicability of this rule is triggered. According to the application, neither Furnace 1 nor 2 have potential HAP emissions greater than the major source threshold (Application at 5-5). Therefore, modifications made to Furnaces 1 and 2 previously cannot meet the definition of “reconstruct a major source” in 02D .1112(c)(14).

Applicability: Based on the above analysis, Ardagh has not triggered the requirement to establish a case-by-case MACT:

- This facility was constructed before 1998, and therefore cannot have been a greenfield facility.

- Neither Furnace 1 nor Furnace 2 is a “process or production unit” with potential HAP emissions greater than the major source threshold, and therefore any modifications to Furnace 1 or Furnace 2 cannot trigger reconstruction under this rule.

Therefore, this rule does not apply to Ardagh.

5.3.3 MACT Subpart ZZZZ “National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines”

Applicability: This rule applies to all stationary reciprocating internal combustion engines (RICE). Each engine at this facility is subject to this rule. The rule has different requirements for engines based on the status of the facility (major or minor source of HAP), use of the engine (emergency, nonemergency, etc.), age of the engine, and size of the engine.

RICE with limited requirements: Under this rule, there are several categories of RICE that do not have to meet the requirements of the rule or of Subpart A (although in some cases, the RICE must submit an initial notification).

- “Existing” emergency RICE with capacities greater than 500 horsepower: see 40 CFR 63.6590(b)(3)(iii). These units do not need to meet the requirements of MACT Subpart ZZZZ. This category covers engine I-DG3.
- New or reconstructed emergency RICE with capacities greater than 500 horsepower: see 40 CFR 63.6590(b)(1)(i). These units must meet the initial notification requirements. This category covers engines I-DG4 and I-DG5.

Insignificant activities: This rule only applies to emission sources included in the list of insignificant activities per 15A NCAC 02Q .0503(8). Such sources are not referenced elsewhere in the Title V permit. Because this rule only applies to insignificant activities, the Title V permit does not include a specific condition for this rule. Note that Ardagh must still comply with this rule.

5.4 Compliance Assurance Monitoring (CAM; 40 CFR Part 64; and 15A NCAC 02D .0614 “Compliance Assurance Monitoring”)

Background: The compliance assurance monitoring (CAM) rule requires owners and operators to conduct monitoring to provide a reasonable assurance of compliance with applicable requirements under the act. Per 02D .0614(a), this rule potentially applies to any facility required to obtain a permit under 02Q .0500 (i.e., a Title V permit). This facility is required to obtain a permit under 02Q .0500. Therefore, CAM applicability must be examined.

Applicability: Monitoring focuses on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards. An emission unit is subject to CAM, under 40 CFR Part 64, if all of the following conditions are met:

- I. The unit is subject to any (non-exempt, e.g., pre-November 15, 1990, Section 111 or 112 standard) emission limitation or standard for the applicable regulated pollutant.
- II. The unit uses any control device to achieve compliance with any such emission limitation or standard.
- III. The unit’s pre-control potential emission rate exceeds 100 percent of the amount required for a source to be classified as a major source under Title V.

This facility operates control devices to limit PM from Furnace 1 and all of the material handling systems, and an SCR system to limit NOx from Furnace 1.

- PM: The application notes that no emission source at this facility has pre-control potential emissions greater than the applicable major source threshold. Therefore, CAM cannot be triggered for any PM emission limit.
- NOx: The application notes that Ardagh is required to operate a continuous emission monitoring system (CEMS) for NOx. The NOx CEMS constitutes a “continuous compliance determination method,” and therefore, per 02D .0614(b)(1)(F), any associated NOx emission standard is exempt from CAM.

Therefore, no CAM plan is required for this facility, and 15A NCAC 02D .0614 does not apply.

5.5 Prevention of Significant Deterioration (PSD)

Background: The Federal rules for PSD are implemented into North Carolina’s SIP under 15A NCAC 02D .0530 and 02D .0544. In general, a facility is a major stationary source for PSD if the facility has actual or potential emissions of a pollutant greater than the threshold listed in 40 CFR 51.166(b)(1). For facilities that fall under the specific categories listed in 40 CFR 51.166(b)(1)(i)(a), the threshold is 100 tpy. Ardagh is a glass bottle manufacturer (notably not a “glass fiber processing plant”), which is not one of the listed categories; therefore the threshold is 250 tpy (see 40 CFR 51.166(b)(1)(i)(b)).

Major stationary source: Ardagh is a major stationary source for PSD, but Ardagh does not have any specific requirements under PSD because it has not made a major modification which would trigger PSD applicability. Furthermore, Ardagh is not avoiding triggering a PSD major modification.

5.6 Section 112(r) of the Clean Air Act (and 15A NCAC 02D .2100 “Risk Management Program”)

Background: This rule requires facilities that store materials above the threshold quantities in 40 CFR 68.130 above their respective thresholds to prepare and submit a risk management plan (RMP).

Applicability: In the renewal application on Form A3, Ardagh states that an RMP is not required for this facility because the facility “does not store regulated materials above threshold quantities.” Therefore, Ardagh does not have any increased requirements under §112(r). Note that other parts of that rule, such as the General Duty clause, may still apply to this facility; those portions of §112(r) are beyond the scope of the Title V permit.

6. Toxic Air Pollutants

Background: In general, a facility that emits toxic air pollutants (TAP) at rates greater than the TAP permitting emission rate (TPER) listed in 15A NCAC 02Q .0711 must perform air dispersion modeling following the procedures in 15A NCAC 02D .1106. The results of this modeling must be less than the acceptable ambient limits (AAL) listed in 15A NCAC 02D .1104.

Previous modeling: The permit includes two separate groups of TAP emission limits.

- The first group of TAP limits is based on modeling performed in 2004 and incorporated into the T15 permit revision (issued July 7, 2005). The modeled emission rates for each TAP were based on the maximum potential emission rates of that TAP. The modeled emission rates are incorporated into the permit as emission limits.
- The second group of TAP limits is based on modeling performed in 2018 and incorporated into the T28 permit revision (issued September 3, 2020). The modeled emission rates for each TAP were based on the maximum potential emission rates of that TAP. The modeled emission rates are incorporated into the permit as emission limits.

Compliance: Based on the data reported in the CY2022 Annual Emission Inventory, Ardagh appears to be in compliance with the TAP emission limits listed in the permit.

Emission Source	Pollutant	Limit	Reported Emission Rate			Compliance?
			(lb/yr)**	(lb/day)	(lb/hr)	
GF-1	As	113.2 lb/yr	13.22			Yes
	Cd	2,706.5 lb/yr	7.05			Yes
	H ₂ SO ₄	80.0 lb/hr	2800		0.32	Yes
	H ₂ SO ₄	989.3 lb/dy		7.67		Yes
	F	200.0 lb/hr	2,748.68		0.31	Yes
	F	1,319.1 lb/dy		7.53		Yes
	HCl	2.5 lb/hr	7,610.36		0.87	Yes
	HF	0.48 lb/hr	1,602.18		0.18	Yes
	Ammonia	2.84 lb/hr*	614.1		0.07	Yes
GF-2	As	113.2 lb/yr	3.51			Yes
	Cd	2,706.5 lb/yr	6.59			Yes
	H ₂ SO ₄	80.0 lb/hr	14120		1.61	Yes
	H ₂ SO ₄	989.3 lb/dy		38.68		Yes
	F	200.0 lb/hr	3,937.44		0.45	Yes
	F	1,319.1 lb/dy		10.79		Yes
	HCl	2.86 lb/dy	11,580.7		1.32	Yes
	HF	0.65 lb/dy	2,779.37		0.32	Yes
	Ammonia	0.43 lb/hr*	1,554.26		0.18	Yes

* Combined melter stack and distributor/forehearth

** Data taken from CY2022 emission inventory. Ardagh reported 24/7 operation.

7. Global Consent Decree

Background: Saint-Gobain Containers, Incorporated (SGCI),⁹ the US EPA, the NC DENR,¹⁰ and other state agencies finalized a global consent decree (GCD) on May 7, 2010.¹¹ The GCD was applicable to glass making operations at several facilities owned by SGCI; both furnaces at this facility were covered by the GCD. The relevant requirements of the GCD were incorporated into the Title V permit with the T20 revision (issued February 17, 2012) in a section specifically dedicated to the GCD. DAQ has, where possible, retained the original paragraph numbering system from the GCD.

Requirements: In general, Ardagh must:

- Install oxygen enriched air staging (OEAS) technology on both furnaces to reduce NOx emissions. Ardagh has installed OEAS on Furnace 2. As an alternative to OEAS (and as allowed by the GCD), Ardagh has installed a NOx control device on Furnace 1.
- Operate a NOx CEMS on each furnace and comply with a 30-day rolling average NOx emission limit (with exceptions for startup, shutdown, malfunction, and “abnormally low production rate days”).
- Operate an SO₂ CEMS on each furnace and comply with a 30-day rolling average SO₂ emission limit (with exceptions for “abnormally low production rate days”).
- Comply with a total PM emission limit and conduct annual emission testing.
- Operate a COMS on each furnace. Ardagh has installed a COMS on Furnace 2. As an alternative to COMS (and as allowed by the GCD), the facility may install a selective catalytic reduction (SCR) system. Ardagh used this option for Furnace 1.

The GCD also covers the implementation timeline for the above requirements. Ardagh has completed implementation, so those timelines are no longer relevant.

Recordkeeping and reporting: Ardagh must keep records of emissions and compliance activities and submit an annual summary report.

Specific condition for the GCD in the Title V permit: Note that the GCD required Ardagh to incorporate the SO₂ limits into the Title V permit. Therefore, the existing Title V permit includes Specific Condition 2.2 A.2. When originally drafted, the GCD did not include the same requirement for the NOx and PM limits, so those limits only appear in the section of the Title V permit specifically dedicated to the GCD (Section 2.3 of the existing permit).

Future of the GCD: On August 23, 2023, the United States Department of Justice informed the various parties to the GCD that “We [the DOJ] are currently reviewing our records to ensure everything is in order to terminate [the GCD].”¹² If the US DOJ terminates the GCD, DAQ will review the terms of the GCD and determine if any changes to the Title V permit are required at that time.

⁹ The former name of this facility. The facility was renamed with the T23 revision of the Title V permit, issued June 9, 2014.

¹⁰ The former name of the NC Department of Environmental Quality, the parent agency of the Division of Air Quality.

¹¹ *United States v. Saint-Gobain Containers, Inc.* (Civil Action No. 2:10-cv-00121-TSZ)

¹² Email from Sasha Alvarenga (Trial Attorney, US DOJ Environment and Natural Resources Division) to Taylor Hartsfield (Deputy Director, NC DAQ) (et al.) received August 23, 2023.

8. Compliance Status and Other Regulatory Concerns

Compliance status:

- The application includes a signed Form E5 “Title V Compliance Certification.” In this form, Ardagh certified compliance with all applicable requirements.
- This facility was most recently inspected on April 29, 2024 by John Dabinett. Ardagh appeared to be in compliance with the Title V permit at that time.
- Since the Title V permit was most recently renewed, Ardagh has not been issued any Notices of Violation.

Application fee: Applications for Title V renewal do not require an application fee.

PE Seal: Applications for Title V renewal do not require a PE Seal.

Zoning Consistency Determination: Applications for Title V renewal do not require a zoning consistency determination.

Removal of References to Affirmative Defense: EPA has promulgated a rule (88 FR 47029, July 21, 2023), with an effective date of August 21, 2023, removing the emergency affirmative defense provisions in operating permits programs, codified in both 40 CFR 70.6(g) and 71.6(g). EPA has concluded that these provisions are inconsistent with the EPA’s current interpretation of the enforcement structure of the CAA, in light of prior court decisions.¹³ Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses¹⁴ and will harmonize the EPA’s treatment of affirmative defenses across different CAA programs.

As a consequence of this EPA action to remove these provisions from 40 CFR 70.6(g), it will be necessary for states and local agencies that have adopted similar affirmative defense provisions in their Part 70 operating permit programs to revise their Part 70 programs (regulations) to remove these provisions. In addition, individual operating permits that contain Title V affirmative defenses based on 40 CFR 70.6(g) or similar state regulations will need to be revised.

DAQ has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition J. Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance.

¹³ NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

¹⁴ In newly issued and revised New Source Performance Standards (NSPS), emission guidelines for existing sources, and NESHAP regulations, the EPA has either omitted new affirmative defense provisions or removed existing affirmative defense provisions. See, e.g., National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 80 FR 44771 (July 27, 2015); National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters; Final Rule, 80 FR 72789 (November 20, 2015); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Final Rule, 81 FR 40956 (June 23, 2016).

Addition of 1-bromopropane to §112(b): On December 22, 2021, the US EPA added 1-bromopropane (1-BP) to the list of HAP.¹⁵ Ardagh has not previously quantified emissions of 1-BP. As part of processing this application, DAQ asked Ardagh to quantify 1-BP emissions from the facility. Ardagh responded: “The materials and processes related to the Henderson facility have been reviewed and no indication of potential for 1-bromopropane (1-BP; CAS 106-94-5) emissions were identified.”

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¹⁵ See 87 FR 393 (published January 5, 2022).

9. Facility Emissions Review

Title V: Ardagh is a major source for Title V (as defined in 40 CFR 70.2) because it has potential emissions of regulated pollutants greater than 100 tpy. This application for Title V permit renewal will not affect Ardagh's status as a major source for Title V.

HAP: Ardagh is a major source of HAP (as defined in 40 CFR 63.2) because it has potential emissions of HAP greater than the major source threshold. This application for Title V permit renewal will not affect Ardagh's status as a major source of HAP.

PSD: Ardagh is a major stationary source for PSD because it has potential emissions of regulated NSR pollutants greater than the thresholds in 40 CFR 51.166(b)(1)(i)(b). Note that a "glass fiber processing plant" is a specifically listed source category in 40 CFR 51.166(b)(1)(i)(a), but other types of glass product manufacturing (such as bottles) are not specifically listed. This Title V permit renewal will not affect Ardagh's status as a major stationary source under PSD.

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10. Draft Permit Review Summary, Public Notice, and EPA Review

Initial draft: An initial draft of the permit and this application review were sent to DAQ staff on June 7, 2024. Comments were received in-person on June 20, 2024.

- Permits Comment 1: Why is Specific Condition 2.2 A.2 incorporated under NCGS 143-215.108?
Response: After additional review, this should be a reference to 15A NCAC 02Q .0508 instead. The permit will be corrected and a discussion of 02Q .0508 will be included in the application review.
- Permits Comment 2: The application review should include an analysis of recent emission testing and compliance with 02D .0515.
Response: This will be added to the application review.
- Permits Comment 3: Various typos and corrections throughout the application review and permit.
Response: These will be corrected.

Subsequent draft: A revised draft of the permit and this application review were sent to DAQ SSCB staff, DAQ RRO staff, and Ardagh staff on June 21, 2024.

- DAQ SSCB had no comments.
- DAQ RRO did not provide a response.
- On August 28, 2024, Ardagh staff pointed out that the changes to the list of insignificant activities requested in the application (Application at 3-3) were not implemented. DAQ will correct this oversight.

Public Notice and EPA Review: A notice of the draft Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0518(b), the EPA will have a 45-day review period. Based on an agreement between DAQ and EPA, this period will generally coincide with the 30-day public notice period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the draft Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. DAQ voluntarily provides notice to each bordering State (Virginia, Tennessee, Georgia, and South Carolina).

- The Public Notice and EPA Review periods began on XXXXX.
- The Public Notice period ended on XXXXX.
- The EPA Review period ended on XXXXX.

11. Recommendations

This permit application has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC DAQ has determined that this facility appears to be complying with all applicable requirements.

DAQ recommends issuance of Permit No. 02834T29. RRO, SSCB, and Ardagh have received a copy of this permit and submitted comments that were incorporated as described in Section 10.

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Attachment: Process Diagrams

The following diagrams were prepared by Trinity Consultants (a firm representing Ardagh) and included in the application as “Appendix B.”









