

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date:

Region: Raleigh Regional Office
County: Edgecombe
NC Facility ID: 3300193
Inspector's Name: Abdul Kadir
Date of Last Inspection: 06/26/2023
Compliance Code: 3 / Compliance - inspection

Facility Data	Permit Applicability (this application only)
<p>Applicant (Facility's Name): Comfort Research - Tarboro</p> <p>Facility Address: Comfort Research - Tarboro 3002 Anaconda Road Tarboro, NC 27886</p> <p>SIC: 3086 / Plastics Foam Products NAICS: 32615 / Urethane and Other Foam Product (except Polystyrene) Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p>SIP: 15A NCAC 02D .0515, 02D .0516, 02D .0521, 02D .0524, 02D .1100, 02D .1111, 02D .1806 and 02Q .0317 of 02D .0530 NSPS: NSPS Subpart Dc and Subpart III NESHAP: MACT ZZZZ PSD: N/A PSD Avoidance: VOCs NC Toxics: N/A 112(r): N/A Other: 40 CFR 68</p>

Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	<p>Application Number: 3300193.22C Date Received: 11/02/2022 Application Type: Modification Application Schedule: TV-1st Time Existing Permit Data Existing Permit Number: 10355/R04 Existing Permit Issue Date: 08/19/2022 Existing Permit Expiration Date: 04/30/2030</p>
<p>John Clark Operations Manager (252) 563-1149 3002 Anaconda Road Tarboro, NC 27886</p>	<p>John Clark Operations Manager (252) 563-1149 3002 Anaconda Road Tarboro, NC 27886</p>	<p>John Clark Operations Manager (252) 563-1149 3002 Anaconda Road Tarboro, NC 27886</p>	

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2022	1.15	5.66	224.23	6.31	0.7200	0.0016	0.0016 [Benzene]
2021	1.06	5.50	130.60	6.01	0.7000	0.0015	0.0015 [Benzene]
2020	1.08	5.86	155.82	6.36	0.4000	0.0015	0.0015 [Benzene]

<p>Review Engineer: Suraiya Akter</p> <p>Review Engineer's Signature: _____ Date: _____</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue: 10355T05 Permit Issue Date: _____ Permit Expiration Date: _____</p>
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1. Purpose of Application

Comfort Research owns and operates a plastic manufacturing facility at 3002 Anaconda Road in Tarboro, Edgecombe County, North Carolina (Facility ID: 3300193). The facility is currently operating in accordance with NC Department of Environmental Quality (DEQ) Permit No. 1035R04 issued on August 19, 2022.

In September 2021, the facility submitted a construction permit application to relax synthetic minor limits for volatile organic compounds (VOC), particulate matter (PM₁₀), and NO_x thus becoming a Title V source in accordance with 15A NCAC 02Q .0304 and 02Q .0305. As required by the Permit Condition 15, the Permittee shall file a 1st-time Title V Air Quality Permit Application pursuant to 15A NCAC 02Q .0504 on or before 12 months after commencing operation of the extrusion Line 3 in January 2022. Application 3300193.22C was received on 11/01/22 which was within 12 months of the commencement of the extrusion line 3. All terms and conditions of the existing permit shall remain in effect and the expiration date in the permit shall be changed from April 30, 2023 until five years from the issuance of the 1st Time Title (Title V permits have a five-year renewal cycle where as State 300 permits have an eight-year renewal cycle).

On September 13, 2022, a Section 502(b)(10) request letter was received by DAQ to notify the splitting out of a tandem extruder at the Tarboro site into two separate lines. Extrusion line 2 (ES-EL-2) is a tandem extruder that has two lines/die heads joined as one extrusion machine, and as such the isobutane from both lines exits together. This application request was to split out the tandem extruder into two separate lines (ES-EL-2 and ES-EL-4). The overall maximum throughput rate will be unchanged and the limit of 250 tpy will continue. Line -2 (ES-EL-2) is currently a component of a 250 tpy per 12 rolling month PSD avoidance condition and the splitting Line ES-EL-4 will continue to comply with the permit.

2. Facility Description

Comfort Research is a foam manufacturer that makes pool toys and floats in Tarboro, Edgecombe County. The facility mixes a slurry of solid and liquid chemical compounds which is poured into molds and baked until they become solid. Some of the products are then run through a steam oven so the product expands. There is a small silk screen operation on site for custom logos.

Solid polyethylene [(C₂H₄)_n] resin pellets are melted in the extruder. Subsequently, the liquid resin is injected with isobutane (C₄H₁₀) as the blowing/expansion agent and then mixed and extruded through a die. Die extrusion forms a continuous round, low-density polyethylene (LDPE) foam, which air cools and is then cut to length forming the product.

Air emissions from the facility primarily consist of volatile organic compounds (VOC) generated due to emissions of the blowing agent (isobutane) during the foam extrusion process as well as smaller amounts released during reclaim operations. The foam production process consists of expanding heated polyethylene resin using isobutane as a blowing agent. The boiling point of isobutane is 11°F, so it changes from liquid-phase to gas-phase in the process. Isobutane, as a liquid at 3,200 psi, is injected into the melt, which is then moved by screw through a die to form the shape of the final product.

Isobutane is the only VOC constituent emitted from the facility's foam production process. No other hazardous or toxic air pollutant is emitted in the process. Emissions of VOC from the facility occur via several modes:

- Fugitive releases from the process line.
- Direct atmospheric releases from the extruder die exhaust vents; and
- Fugitive releases from the foam curing area (warehouse).

The foam extrusion lines are periodically shutdown to allow for product changeover multiple times per week. These periods of shutdown are followed by a startup cycle that lasts approximately one hour before the final high-quality, low-density foam product is produced.

Due to the delicate nature of the low-density, closed cell polyethylene foam, several parameters (temperature, pressure, amount of gas, and air flow from vents) must be adjusted gradually throughout the startup cycle.

The first few minutes of the startup cycle are spent bringing the temperature and pressure up to the required levels. During approximately the first 15 minutes of the startup cycle, high temperature and pressure are used to lower the viscosity of the plastic in the extruder lines. A low amount of blowing agent (isobutane) is injected into the melted polymer resulting in the formation of inferior cellular structures. These inferior structures are incapable of capturing and retaining a significant amount of isobutane. As a result, the gas is allowed to escape as the off-spec product exits the extruder. A vent hood is positioned near the point where the product exits the extruder to collect the escaping gas.

Over the next 45 minutes, the temperature and pressure gradually lowered, and the amount of isobutane increased. As a result, the cellular structures become more stable.

Once the desired product characteristics are achieved, it is imperative that airflow from the exhaust vents not be introduced anywhere near the newly formed foam. Significant airflow passing over the foam interferes with the production of the low-density polyethylene foam and would alter the desired specifications, so vent hoods are only located at the die heads. These vent hoods are positioned approximately 3 to 4 feet above the die heads. Isobutane emissions will occur from the downstream process line and curing area.

3. History/Background/Application Chronology

History/Background

September 19, 2019	Air Permit 10355R02 issued.
April 21, 2020	Inspection conducted by Mathew Mahler and issued Notice of Violation for failure to submit risk management plan (RMP).
July 23, 2020	RMP submitted by Comfort Research in response to the NOV form April 21, 2020.
March 11, 2021	Inspection conducted by Mathew Mahler and facility appeared to be in compliance.
May 11, 2022	Inspection conducted by Abdul Kadir and facility appeared to be in violation of compliance for not submitting RMP.

May 24, 2022	<p>Permit No. 10355R03 issued to relax synthetic minor limits for volatile organic compounds (VOC), particulate matter (PM10), and NOx. The facility had one year to submit the 1st Time Title V permit. During the technical review, an error from permit R02 was found incorrect capacity for ES-EL-1 and ES-EL-2)</p> <p>The following applications were included in this permit.</p> <p><u>Application ID No. 3300193.21A</u></p> <p>State Modification received on September 30, 2021, requesting the following:</p> <ul style="list-style-type: none"> - To construct and operate one new extrusion line for production of polyethylene foam products (ID No. ES-EL-3). - To accept a second VOC PSD avoidance limit of less than 250 TPY for new foam extrusion line (ID No. ES-EL-3). - To add one foam grinding operation (IS-GR-1) as an insignificant activity. <p><u>Application ID No. 3300193.21B</u></p> <p>Renewal Permit application. In the addition to the renewal, the facility requested the following:</p> <ul style="list-style-type: none"> - To remove Storage Tank 3 (ID No. IS-ST3) from the insignificant activities list. - To add Fire pump (ID No. IS-FP-1) to the insignificant activity list. - To add 6,552-gallon Isobutane isotainer (ID No. IS-ISOTANK1) to the insignificant activity list.
June 12, 2022	<p>NOV sent to Comfort Research for:</p> <ul style="list-style-type: none"> - Not applying for TV as they were already exceeding the VOC emission threshold prior the permit - A new foam extrusion line ES-EL3 was installed and operated at the facility prior to the issuance of new TV permit
July 7, 2022	<p>Response email to NOV from June 16, 2022 submitted by Comfort Research stating the exact timeline of starting ES-EL3 which is four months before permit issuance. This happened due to the change of authority and Comfort Research acknowledging their fault.</p>
August 19, 2022	<p>Name Change from “Spin Master Tarboro facility” to “Comfort Research – Tarboro” [Application 3300193.22A (Connie Horne).</p>
February 27, 2023	<p>Civil penalty notice sent to Comfort for violation.</p>
March 14, 2023	<p>Email received by DEQ from Comfort Research to clarify timeline for the start date of extrusion line EL-3 and submittal date of TV application for this line.</p>
May 22, 2023	<p>Notification for Unpaid civil penalty for violation was sent to Comfort Research.</p>
June 05, 2023	<p>Payment of civil penalty for violation was received by NCDEQ.</p>

July 03, 2023 Facility was inspected by Abdul Kadir (RRO) on 26th June, 2023 and found to be in compliance with Air Permit No. 10355R04. Recommended the facility to be re-inspected in one year.

Application Chronology

September 13, 2022 Received permit application 3300193.22B for a 502(b)(10) request

November 02, 2022 Received permit application 3300193.22C for 1st Time TV with Modification.

November 03, 2022 Sent acknowledgment letter indicating that the application for the 1st Time Title V permit was complete.

January 08, 2024 Draft permit and review forwarded to Pullen Booker for comments. After couple of round of discussion, the final review was completed by January 24th, 2024

January 24, 2024 Draft permit and permit review forwarded region, applicant and SSCB for comments. SSCB complete review by January 31, and region completed their review by February 15, 2024.

March 5, 2024 Draft permit review by the applicant was completed by March 5, 2024 after a round of discussion over phone and email correspondence.

March 5, 2024 Official letter to change authorized official contact for Comfort Research has received by DAQ.

March 5, 2024 Most updated draft of permit and review was forwarded to Mark and Connie for comments.

XXXX, 2024 The Public Notice and EPA Review periods began

XXXX, 2024 Public comment period ends. No comments received.

xxxx EPA comment period ends. No comments received.

xxxx Permit issued.

4. Permit Modifications/Changes and TVEE Discussion

The following table describes the modifications to the current permit as part of this application.

Pages	Section	Description of Changes
--	Cover page and Throughout	Updated all dates and permit revision numbers.
--	Table	“Summary of changes made to existing permit” table added
--	--	“Air Quality Permit” page added and the whole document was formatted as title V permit
--	Table of Contents	Table of Contents added

Pages	Section	Description of Changes
--	--	List of Acronyms added
--	Permitted emitted source table	New Foam Extrusion Line 4 added
5	Section 2	<ul style="list-style-type: none"> • Detailed specific limitations and conditions for each of the permitted sources added. • Clarified permitting language. • Rearranged and renumbered the permit conditions to follow the numerical order of the regulations.
4	Sections 2.1 – throughout regulations	Emission source ES-EL-4 added
13	2.2	Added multiple emission sources specific limitations and conditions section
16	Section 3	Insignificant activities list added
17	Section 4	General conditions and limitations is updated as of version 7.0, 08/21/2023

This 1st Time Title V permit includes a modification that requests the splitting of extrusion line ES-EL-2 into two lines; ES-EL-2 and ES-EL-4, hence the new line **ES-EL-4** will need to be added to TVEE. Also, the storage tank **IS-ST3** was added to the TVEE. Several pieces of equipment will have their descriptions revised in TVEE.

5. New/Modified Equipment/Changes in Emissions

In September 13, 2022, Comfort Research (previously Spin Master – Tarboro) submitted a 502(b)(10) request (Application 3300193.22B) proposing that the current tandem extruder line (ES-EL2) to be split into two separate lines, ES-EL2 and ES-EL-4. The current facility is permitted as a PSD avoidance source as the facility’s (excluding ES-EL4) NOx and VOC are limited to 250 tons per consecutive 12-month period. The VOC emissions for ES-EL3 is also limited to 250 tons per 12-month period to avoid PSD applicability.

Proposed New Equipment

Extrusion Line

Comfort Research (previously Spin Master) proposed in application No. 3300193.22A to split extrusion line ES-EL2 into ES-EL2 and ES-EL4 for production of polyethylene foam products.

The new extrusion line (ES-EL4) will have a throughput rate of 25 lb/hr of isobutane (provided by Comfort Research). Comfort Research requested a VOC PSD avoidance limit of less than 250 TPY for ES-EL-1, ES-EL-2 and ES-EL-4 together (the previous Permit revision R03) along with a separate VOC PSD avoidance limit of 250 TPY for ES-EL-3 (in the current permit).

Because of the two existing 250 PSD avoidance conditions for VOCs, this facility will be considered a major source for PSD. This designation will be added to the 1st page of the cover letter.

Emission Calculations for the new Extrusion Line (ID No. ES-EL-4):

Extrusion lines 1, 2 and 4 operate approximately for 4000 hours/year while extrusion line 3 operates approximately for 6000 hours/year to meet current permit limits. The calculation conservatively estimates 10% operating time for startup and 90% operating time for production.

During production, the total isobutane usage rate for the new extrusion line (**ID No. ES-EL-4**) is 11.36 kg/hr (0.013 ton/hr).

During startup, it utilizes 50% of the total isobutane used during production. As a result, the total hourly isobutane usage for the new extruder (**ID No. ES-EL-4**) is 5.68 kg/hr (0.0006 ton/hr).

* The emission factor (ton/hr) is the highest usage rate per extrusion line provided by Comfort Research.

Assumptions:

100% isobutane used is emitted.

Annual operation hours: 4000 hr

Production time (% of annual operation hrs) = 90%

Start-up time (% of annual operation hrs) = 10%

Annual production time = 3600 hr/year spent making final product = $4000 * 0.90 = 3600$

Annual start-up time = 400 hr/yr spent starting time = $4000 * 0.10 = 400$

Annual isobutane usage for Extrusion line 3 (**ID No. ES-EL-4**) during start-up

= Annual start-up time (hr/yr) * isobutane usage (tons/hr) * 50%

= $400 * 0.013 * 0.5$

= 2.6 tpy

Annual isobutane usage for Extrusion line 3 (**ID No. ES-EL-4**) during production

= Annual production time (hr/yr) * isobutane usage (tons/hr)

= $3600 * 0.013$

= 46.8 tpy

Total annual emissions from Extrusion line 3 (ID No. ES-EL-4) = $2.6 + 46.8 = 49.4$ tpy

Annual emissions from all the extrusion lines are listed in the following table. It is clear that the extrusion lines 1, 2 and 4 together are emitting below the limit and so is the extrusion line 3.

Extrusion Line	Isobutane Usage (lb/hr)	Isobutane Usage (ton/hr)	Potential to emit		
			Start-up (tpy)	Production (tpy)	Total (tpy)
ES-EL-1	46.3	0.023	4.6	83	87.97
ES-EL-2	49.9	0.025	5.0	90	95
ES-EL-4	25	0.013	2.5	45	48
Total (ES-EL1, ES-EL-2, and ES-EL4)	121	0.061	12.1	218	230
ES-EL-3	83.7	0.042	12.6	226	239

6. Regulatory Review

Comfort Research is subject to following regulations:

- 02D .0503: Particulates from Fuel Burning Indirect Heat Exchangers
- 02D .0515: Particulates from Miscellaneous Industrial Processes

- 02D .0516: Sulfur Dioxide Emissions from Combustion Sources
- 02D .0521: Control of Visible Emissions
- 02D .0524: New Source Performance Standards (40 CFR 60, Subpart Dc and Subpart IIII)
- 02D .1100: Control of Air Toxic Air Pollutants
- 02D .1111: Maximum Achievable Control Technology (40 CFR 63, Subpart ZZZZ)
- 02D .1806: Control and Prohibition of Odorous Emissions
- 02Q .0317: Avoidance Conditions (Prevention of Significant Deterioration)
- 02Q .0711: Emission Rates Requiring a Permit
- 15A NCAC 02D .0503: Particulates from Fuel Burning Indirect Heat Exchangers – Particulate emissions from indirect heat exchanger (ES-BL1) shall not exceed 0.50 pounds per million Btu heat input. The following equation is used to determine the PM limit:

$$E = 1.090 \times (Q)^{-0.2594}$$

Where, E = allowable emission limit for particulate matter in lb/MMBtu
 Q = maximum heat input in MMBtu/hr

No additional changes to the 02D .0503 condition in the permit are required as a part of this Title V permit renewal. Compliance with this regulation is expected.

- 15A NCAC 02D .0515: Particulates from Miscellaneous Industrial Processes - This rule applies to stacks, vents, or outlets emitting particulates from industrial processes with no other applicable standards. The allowable emission rate is in terms of pounds per hour and is calculated using the following equations:

For process rates up to 30 tons per hour:

$$E = 4.10(P)^{0.67}$$

For process rates greater than 30 tons per hour:

$$E = 55.0(P)^{0.11} - 40$$

Where: E = Allowable emission rate in pounds per hour
 P = Process weight in tons per hour

The following emission sources are subject to 02D .0515:

- Bag Dump Stations (**ID Nos. ES-PH-BS1, ES-PH-BS2, and ES-PH-BS3**) and Associated Cartridge Filters (**ID Nos. CD-PH-CF1, CD-PH-CF2, and CD-PH-CF3**) – Compliance is demonstrated by inspections and maintenance as recommended by the manufacturer, monthly visual inspection of ductwork, and annual the cartridge filters’ inspection maintenance, recordkeeping and reporting.
- Powder Systems (**ID Nos. ES-PHPS1 and ES-PHPS2**) are controlled by Bagfilters (**ID Nos. CD-PH-BF1 and CD-PH-BF2**) – Compliance is demonstrated by inspections and maintenance as recommended by the manufacturer, monthly visual inspection of ductwork, and annual the cartridge filters’ inspection maintenance, recordkeeping, and reporting.

No further changes to the 02D .0515 permit condition in the permit, outside of changes made to reflect current permit shell language, with respect to this rule are necessary as part of this 1st Time Title V modification. Compliance with this regulation is expected.

- 15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources

This regulation applies to any source of combustion that emits sulfur dioxide, which is formed by the combustion of sulfur in fuels, wastes, ores, and other substances. This rule does not apply to sources subject to sulfur dioxide standards in NSPS and MACT standards under 02D .0524 and .1111, respectively. Sources subject to this standard have an emission limit of 2.3 pounds of sulfur dioxide per million BTU heat input. The following emission source at the Spin Master Tarboro Facility is subject to this rule:

Emergency/Peak Shaving Diesel-fired Generator (**ID No. ES-GEN**) - This source combusts diesel fuel, which has inherently low sulfur content. Therefore, no MRR is required.

No additional changes to the 02D .0516 condition in the permit are required as a part of this 1st Time Title V permit. Compliance with this regulation is expected.

- 15A NCAC 02D .0521: Control of Visible Emissions

This regulation applies to fuel burning operations and industrial processes where visible emissions can be reasonably expected to occur. Sources subject to visible emissions standards under specifically identified rules under 02D (including .0508, .0524, and .1111) are required to meet the standards of those rules instead of the standards in 02D .0521.

Sources manufactured after July 1, 1971, have a visible emissions limit of 20 percent opacity when averaged over a 6-minute period. The 6-minute averaging periods may exceed 20 percent if no 6-min period exceeds 87 percent opacity, no more than one six-minute period exceeds 20 percent opacity in one hour, and no more than 4 6-minute periods exceed 20 percent in any 24-hour period. Compliance with this standard is demonstrated by conducting either daily, weekly, or monthly stack observations.

These following sources are required to conduct weekly/monthly observations to ensure compliance with the 20 percent opacity visible emissions standard, along with recordkeeping and reporting.

- Bag Dump Stations (**ID Nos. ES-PH-BS1, ES-PH-BS2, and ES-PH-BS3**) and Associated Cartridge Filters (**ID Nos. CD-PH-CF1, CD-PH-CF2, and CD-PH-CF3**)
- Powder Systems (**ID Nos. ES-PHPS1 and ES-PHPS2**) are controlled by Bagfilters (**ID Nos. CD-PH-BF1 and CD-PH-BF2**)
- Emergency/Peak Shaving Diesel-fired Generator (**ID No. ES-GEN**)

There are no changes to the 02D .0521 permit condition as a part of this 1st Time Title V modification. Compliance with this regulation is expected.

- 15A NCAC 02D .0524: New Source Performance Standards (40 CFR 60, Subpart Dc and Subpart IIII)

This regulation is applicable to the Emergency/Peak Shaving Diesel-fired Generator (**ID No. ES-GEN**) and boiler (**ID No. ES-BL1**). There are emission standards, recordkeeping, and reporting requirements for this regulation. The sulfur content in the diesel fuel is limited to 15 ppm (0.0015%). The permittee purchased a certified unit and uses ultra-low sulfur diesel.

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder (g/kw-hr)			
	HC	NOx	CO	PM

> 560 kW (>750 HP)	1.3	9.2	11.4	0.54
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Based on the most recent compliance inspection by Abdul Kadir on June 26, 2023, this unit is in compliance with this permit condition. The generator at this facility is certified, therefore the facility is only required to keep maintenance records and fuel certification notices. The generator is remotely operated by PowerSecure. Maintenance is performed twice a year and is conducted by Gregory Pool. Maintenance was last performed on October 20, 2020. The oil in the generator was tested and passed certification standards and was thus not changed.

There are no changes to the 02D .0524 permit condition as a part of this 1st Time Title V modification. Compliance with this regulation is expected.

- 15A NCAC 02D 1100: Control of Air Toxic Air Pollutants (State-Enforceable Only)
The Permittee shall not exceed the toxic emission limits specified in the permit (0.68 pounds of NH₃ per hour). Compliance was determined during the technical review (R00) and no recordkeeping or reporting requirements are needed to demonstrate compliance. Please, see Section 8 for detailed information.

There are no changes to the 02D .1100 permit condition as a part of this 1st Time Title V modification. Compliance with this regulation is expected.

- 15A NCAC 02D .1111: Maximum Achievable Control Technology (40 CFR 63, Subpart ZZZZ)
The facility operates the engine in compliance with NSPS IIII, therefore no further requirements from NESHAP ZZZZ apply. Please, see Section 7 for detailed information.

There are no changes to the 02D .1111 permit condition as a part of this 1st Time Title V modification. Compliance with this regulation is expected.

- 15A NCAC 02D 1806: Control and Prohibition of Odorous Emissions (State-Enforceable Only)
This facility is subject to this regulation, which addresses control and prevention of objectionable odors from extending beyond the facility's boundary. There is no history of complaints concerning odors associated with this facility.
There are no changes to the 02D .1806 permit condition as a part of this 1st Time Title V modification. Compliance with this regulation is expected.

- 40 CFR 68: Chemical Accident Prevention Provisions
This facility does have requirements under this regulation, however it will not be written into the body of the permit. This condition is addressed in the General Conditions (condition DD) in a Title V permit.

The Permittee shall comply with all applicable requirements in accordance with 40 CFR Part 68 including submitting a Risk Management Plan to EPA pursuant to 40 CFR 68.150 or as specified in 40 CFR 68.10.

Pursuant to 15A NCAC 2D .2100 "Risk Management Program," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan with the USEPA in accordance with 40 CFR Part 68. Comfort Research maintains isobutane onsite above the threshold quantity and is required to maintain a risk management plan (RMP) under the 112(r) program. Comfort Research

does have an active RMP for isobutane in one covered process: isobutane storage, which expires on December 31, 2025. Comfort Research is a new RMP facility and has not been inspected for the 112(r) program by RRO personnel. The current RMP was briefly reviewed on site dated 7/21/2020 and is due to be reviewed and updated by 12/31/2025.

- 15A NCAC 02Q .0317: Avoidance Conditions (Prevention of Significant Deterioration)
The facility upon the 1st Time Title V application submittal has the potential to emit (PTE) greater than 250 tons per year VOC and NOx emissions each. However, this facility has an avoidance condition which limits facility-wide VOC and NOx emissions to be less than 250 tpy for each individual pollutant. This classified the facility as a minor source under PSD. The Permittee wishes to retain this facility wide limit and requested to add another 250 tpy avoidance limit under the 1st Time Title V application for Foam Extrusion Line No. 3 (**ID No. ES-EL-3**). Therefore, the facility's potential to emit for VOCs will now be greater than 250 tons per year and will make this facility a r source under PSD. For more detailed information, see Section 7 emission calculations.

7. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS

This facility is subject to New Source Performance Standards (NSPS), 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. This Subpart is applicable to emergency/peak shaving diesel-fired generator (**ID No. ES-GEN**). The facility is required to comply with all applicable provisions including the notification, testing, reporting, record-keeping, and monitoring requirements. Continuous compliance is anticipated.

Natural gas-fired Boiler (**ID No. ES-BL1**) is subject to New Source Performance Standards (NSPS), 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. It is required to comply with all applicable provisions including the notification, testing, reporting, record-keeping, and monitoring requirements. The facility is expected to be in continued compliance.

NESHAP/MACT

This facility is subject to Maximum Available Control Technology (MACT) standards under 40 CFR 63 Subpart ZZZZ. This subpart is applicable to emergency/peak shaving diesel-fired generator (**ID No. ES-GEN**). Compliance is demonstrated through meeting NSPS Subpart IIII standards. This 1st Time Title V permit modification does not affect this status.

Natural gas-fired Boiler (**ID No. ES-BL1**) is not subject to area source boiler per 40 CFR 63.11195(e) as the boiler exclusively fires gas as defined by 40 CFR 63.11237.

PSD

Comfort Research has accepted a PSD avoidance condition to limit the emissions of both VOC and NOx for each to be less than 250 tons per consecutive 12-month period in order to remain classified as a PSD minor source. VOC emissions are determined by multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. As shown in the header of this permit review, the VOC emissions are much less than 250 tons per year, which demonstrates compliance with the PSD avoidance limit.

Comfort Research is located in Edgecombe County which is currently designated as attainment/unclassified for all PSD regulated pollutants. Edgecombe County is triggered for PM₁₀, SO₂, and NO_x emissions with respect to minor source baseline dates:

https://files.nc.gov/ncdeq/Air%20Quality/permits/psd/docs/PSD_County_Minor_Baseline_Dates_20200814.pdf.

The facility operates under Standard Industrial Classification Code 3086. This is not one of the 28 named source categories in 40 CFR Part 52.21(b)(1)(i). Thus, the PSD major source threshold for Comfort Research is 250 tpy. The facility currently complies with Condition 16 of Permit No. 10355R04 where facility wide emissions of NO_x and VOC are limited to 250 tons per consecutive 12-month period to avoid PSD applicability.

As stated above, the facility is also requesting to split a current extrusion line (ES-EL-2) into two lines (ES-EL-2) and ES-EL-4. Comfort Research is requesting to accept a second PSD avoidance limit of 250 TPY for this new extrusion line 4(ES-EL-4) combined with the previous two lines ES-EL-1 and ES-EL-2. After the installation of this line, the facility will become a major source under the Federal Prevention of Significant Deterioration (PSD) program and any future projects will need to be analyzed for PSD applicability.

• 15A NCAC 02Q .0317, Avoidance Conditions – The facility has accepted the following conditions to avoid applicability of 02D .0530, Prevention of Significant Deterioration (PSD):

- Extrusion Line (ID No. ES-EL-1, ES-EL-2 and ES-EL-4 together): Emissions of Volatile Organic Compounds (VOC) from this line are limited to less than 250 tons per consecutive 12-month period.
 - Extrusion Line (ID No. ES-EL-3): Emissions of Volatile Organic Compounds (VOC) from this line are limited to less than 250 tons per consecutive 12-month period.
- Facility-wide: Emissions of Nitrogen Oxides (NO_x) are limited to less than 250 tons per consecutive 12-month period for all combustion sources at the facility.

Compliance demonstration is going to be performed by monitoring and recordkeeping which includes calculating VOC and NO_x emissions based on material usage, natural gas usage, and hours of operation of generator and maintain reports of emission monthly and yearly.

112(r)

The facility is currently subject to the requirements of the Chemical Accident Release Prevention Program, Section 112(r) requirements as per §68.10(a) storage of regulated substance (isobutane) above the applicable regulatory threshold. It appears that the Permittee became subject to the Risk Management Plan (RMP) requirement in Part 68 (40 CFR) due to storage of isobutane above the applicable regulatory threshold. As per the application, the maximum intended inventory of isobutane is 6,500 gallons. The latest Risk Management Plan (RMP) was submitted on July 21, 2020.

CAM

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. 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 64.2, if all of the following three conditions are met:

- 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.
- The unit uses any control device to achieve compliance with any such emission limitation or standard.
- 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; i.e., either 100 tpy (for criteria pollutants) or 10 tpy of any individual/25 tpy of any combination of HAP.

The emission units ES-PH-BS1, ES-PH-BS2, ES-PH-BS3, ES-PHPS1, and ES-PHPS2 have control devices (cartridge filter and bagfilter) for the control of PM and PM10 to demonstrate compliance with the applicable emission standard 15A NCAC 02D .0515. The potential pre-control device emissions from each emission unit are less than 100 tons per year of PM/PM10, therefore CAM does not apply to any emission unit.

8. Facility Wide Air Toxics

A regulatory review for air toxics was completed for the issuance of permit 10355R00 (see Dena Pittman's January 1, 2014 technical review). As such the permit includes a permit condition for ammonia pursuant to 15A NCAC 02D .1100. This permit modification for a 1st Time Title V permit does not affect the status of this demonstration. Continued compliance is expected.

9. Facility Emissions Review

The new extrusion line (ID No. ES-EL-4) will not impact facility-wide emissions. Actual emissions for criteria pollutants and HAPs for the years 2020 through 2022 are provided in the header of this permit review.

10. Compliance Status

DAQ has reviewed the compliance status of Comfort Research. During the most recent inspection, conducted on June 26, 2023 by Mr. Abdul Kadir of the Raleigh Regional Office, the facility appeared to be in compliance with its current Air Permit No. 10355R04.

11. Public Notice/EPA and Affected State(s) 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 .0525, the EPA will have a concurrent 45-day review 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 provided to the public under 02Q .0521 above. No affected states or local agencies are within 50 miles of this facility.

12. Other Regulatory Considerations

- A P.E. seal was submitted with this 1st Time Title V application (Dana W. Norvell, PE).
- A zoning consistency determination is NOT required for this 1st Time Title V application.
- A permit fee is required for this 1st Title V permit application (3300193.22C) and was submitted with the application.

13. Recommendations

This permit application for a 1st Time Title V for Comfort Research, located in Tarboro, Edgecombe County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 10355T05.