NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Mooresville Regional Office
County: Union
NC Facility ID: 9000199
Inspector's Name: Alejandra Cruz
Date of Last Inspection: 09/01/2021
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Darnel, Inc.

Facility Address:
Darnel, Inc.
1809 Airport Road
Monroe, NC 28110

SIC: 3086 / Plastics Foam Products
NAICS: 32614 / Polystyrene Foam Product Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 02D .0515, .0521, 0958, .1806
NSPS: Subpart IIII
NESHAP: Subpart ZZZZ
PSD: NA
PSD Avoidance: 02Q .0317
NC Toxics: 02Q .0711
112(r): Yes
Other: NA

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Matthew Branan Facility Engineer (786) 871-2278 1809 Airport Road Monroe, NC 28110	Kenth Warrick Operations Manager (704) 625-9866 1809 Airport Road Monroe, NC 28110	Matthew Branan Facility Engineer (786) 871-2278 1809 Airport Road Monroe, NC 28110

Application Data

Application Number: 9000199.21A
Date Received: 07/14/2021
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 09709/T04
Existing Permit Issue Date: 04/07/2017
Existing Permit Expiration Date: 03/31/2022

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2020	---	---	170.58	---	8.99	1.11	1.11 [Styrene]
2019	---	---	166.64	---	8.87	0.8079	0.8079 [Styrene]
2018	---	---	170.72	---	9.08	0.8568	0.8568 [Styrene]
2017	---	---	177.35	---	10.35	1.05	1.05 [Styrene]
2016	---	---	152.51	---	11.54	4.13	4.13 [Styrene]

Review Engineer: Eric L. Crump, P.E.

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 09709/T05
Permit Issue Date:
Permit Expiration Date:

1. Purpose of Application

Darnel, Inc. (hereinafter referred to as Darnel) is a plastic and polystyrene foam disposable food container & packaging manufacturing plant located in Monroe, Union County, North Carolina. The facility currently operates under Title V Permit No. 09709T04 with an expiration date of March 31, 2022. Darnel has applied for renewal of their Title V air quality permit. Their renewal application, No. 9000199.21A, was received on July 14, 2021, or at least six months prior to the expiration date as required by General Condition 3.K of the current permit. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

2. Facility Description

Darnel is an extruded polymer foam production facility that produces polystyrene foam products for the food industry. The finished polystyrene foam products are plates, bowls, platters, boxes, and trays. The Darnel facility operates 24 hours per day, seven days per week, 52 weeks a year.

Fluff (scrap polystyrene product), virgin polystyrene pellets, and a nucleator (small pellet to which the blowing agent adheres) are the raw materials used to manufacture polystyrene foam products. Polystyrene pellets are formed using a physical blowing agent (such as butane, butane/propane, and carbon dioxide (CO_2)), which is soluble in the molten polymer under pressure. When depressurized, the blowing agent volatilizes, causing the polymer to foam through formation of gas cells. A heat exchanger, mandrel[1], and winders are used in the extrusion process to create sheets of polystyrene foam. The sheets of polystyrene foam are rolled and placed in a room referred to as roll stock storage, where the rolls cure and expand for 3 to 7 days.

After storage, the rolls of polystyrene foam are sent through the thermoforming process, during which an electric oven, mold machine, and trim press are used to produce containers such as bowls, plates, boxes, and platters for food storage. The waste trimmed from the final product is processed through grinders located on each thermoformer and sent to the fluff silos for reprocessing. The finished polystyrene foam products are packaged and stored in the finished good storage room of this facility for shipment to customers.

3. Application Chronology

April1 7, 2017	Division of Air Quality (DAQ) issues Permit No. 09709T04 to Darnel as a Title V renewal.
August 31, 2018	DAQ receives letter from Darnel requesting an applicability determination for installation of Research and Development (R&D) plastic foam extrusion line to test plastic alternate to the polystyrene base resin currently used. This request was processed as Permit Applicability Determination No. 3304.
September 21, 2018	DAQ issues Permit Applicability Determination No. 3304, authorizing Darnel to install R&D plastic foam extrusion line. The new source will be classified as an insignificant activity and will be added to the next permit modification.
July 14, 2021	DAQ receives permit renewal application (No. 9000199.21A) from Darnel.

[1] Mandrel: a cylindrical rod around which material is forged or shaped.

December 13, 2021	DAQ sends draft permit to Darnel and Mooresville Regional Office (MRO) for review and comment.
December 13, 2021	DAQ receives comments on draft permit from Darnel.
January 13, 2022	Eric Crump, DAQ discusses Darnel's comments on draft permit with Matt Branan, Darnel via telephone.
January 28, 2022	DAQ sends revised draft permit to Darnel for review.
February 3, 2022	Darnel concurs with revised draft permit language.
xxx	DAQ receives comments on draft permit from MRO.
xxx	Permit renewal notice published, 30-day public notice and comment period begins, and 45-day EPA comment period begins.
xxx	30-day public notice and comment period ends.
xxx	45-day EPA comment period ends.

4. Changes to Permit and Title V Equipment Editor (TVEE) Discussion

The following table summarizes changes made to the current Darnel permit as a result of this permit renewal:

Page No.	Section	Description of Changes
Cover and throughout	---	• Updated all dates and permit revision numbers • Changed all citations of 15A NCAC 2D to 15A NCAC 02D • Changed all citations of 15A NCAC 2Q to 15A NCAC 02Q
Insignificant Activities List	Attachment	Now new Section 2.3 of permit, including the following changes: • Added source ID No. I-RDEL, R&D plastic foam extrusion line. • Deleted parentheses and the word "Subpart" from table
Table of Contents	---	• Renumbered Section 2.3, Other Applicable Requirements as Section 2.4 • Added new Section 2.3, Insignificant Activities per 15A NCAC 02Q .0503(8) • Renumbered Section 2.4, Permit Shield for Non-applicable requirements as Section 2.5
1	---	Updated application number and application date
5	2.1 A 2.1 A.1.a	Updated summary of limits and standards table to current format Updated section to reflect the most current stipulations for 15A NCAC 0D2 .0515

Page No.	Section	Description of Changes
6	2.1 A.1.c	Added sources and ID numbers
	2.1 A.1.d	Added source ID numbers for bagfilters
	2.1 A.1.e	Added fluff silos and source ID numbers
	2.1 A.1.d, e, g	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515
	2.1 A.2.a	Added sources and source ID numbers
7	2.1 A.2.c	Added fluff silos and source ID numbers. Removed requirement to establish "normal".
	2.1 A.2.c, e	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
	2.1 A.3	Updated section to reflect the most current stipulations for 15A NCAC 02D .317
	2.1 A.3.a	Added sources and source ID numbers
8	2.2 A.1	Updated section to reflect the most current stipulations for 15A NCAC 02Q .0711
	2.2 A.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0958
9	2.2 A.3	Updated section to reflect the most current stipulations for 15A NCAC 02D .1806
10	2.3	Changed Section 2.3, "Other Applicable Requirements" to new Section 2.3, "Insignificant Activities per 15A NCAC 02Q .0503(8)"
11	2.4	Changed Section 2.4, "Permit Shield for Non-Applicable Requirements to "Other Applicable Requirements"
12	2.5	Added new Section 2.5 (formerly Section 2.4), "Permit Shield for Non-Applicable Requirements"
13-21	3	Updated General Conditions to Version 6.0 dated January 7, 2022

The only change made to the TVEE is the addition of the following source: ID No. I-RDEL, R&D plastic foam extrusion line.

5. Description of Changes and Estimated Emissions

No changes to the facility were indicated in the permit application. However, on August 31, 2018, Darnel requested that DAQ determine if an air quality permit was needed for the installation of Research and Development (R&D) plastic foam extrusion line to test plastic alternate to the polystyrene base resin currently used. On September 21, 2018, DAQ issued Permit Applicability Determination No. 3304, authorizing Darnel to install the R&D plastic foam extrusion line (I-RDEL). Under this determination, the extrusion line would be classified as an insignificant activity under 15A NCAC 02Q .0503(8)[2], and would

[2] A source can be classified as an insignificant activity under 15A NCAC 02Q .0503(8) provided (1) its emissions would not violate any applicable emissions standard, (2) its potential uncontrolled criteria pollutant emissions are no more than five tons per year, and (3) its potential uncontrolled HAP emissions are below 1000 pounds per year.

be added to the permit at the next opportunity. The addition of this source would have a negligible impact on overall emissions at the facility.

6. Regulatory Review

The Darnel facility is comprised of the following sources:

- Five polystyrene foam extruders (ID Nos. ES-1, ES-2, ES-25, ES-26, and ES-27)
- Eleven thermoformers and associated grinders (ID Nos. ES-17, ES-20, ES-21, ES-22, ES-23, ES-24, ES-28, ES-29, ES-3, ES-30, ES-31, ES-32, ES-33, ES-36, ES-37, ES-38, ES-39, ES-4, ES-40, ES-41, ES-5, ES-6)
- Roll stock storage (ID No. ES-7)
- Six fluff silos (ID Nos. ES-8 through ES-13)
- Finished goods storage (ID No. ES-16) and
- Four off-line scrap grinders (ID Nos. ES-18, ES-19, ES-34, and ES-35)

Of these sources, the only ones with emission controls are the six fluff silos (ID Nos. ES-8 through ES-13). Each fluff silo is controlled by two bagfilters in parallel (ID Nos. CD-8 and CD-8A through CD-13 and CD-13A.)

Darnel is subject to the following state regulations under Title 15A of the North Carolina Administrative Code (15A NCAC), in addition to the requirements in the General Conditions. No other state regulations will be added to or deleted from this permit as a result of this permit renewal/modification.

15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes: As suggested by the title, this regulation applies to those industrial processes for which no other particulate emission control standards are applicable. Under this rule, the allowable emission rates for particulate matter from any stack, vent, or outlet are a function of the process rate—i.e., the amount of product throughput for the industrial process being regulated. The maximum allowable emission rate shall not exceed the level calculated using the following equations:

For process rates less than or equal to 30 tons per hour (ton/hr): $E = 4.10(P)^{0.67}$
For process rates greater than 30 ton/hr: $E = 55.0(P)^{0.11} - 40$

Where
E = maximum allowable emission rate for particulate matter in pounds per hour, calculated to three significant figures
P = furnace process rate in tons/hr

While all the sources at the Darnel facility are subject to 02D .0515, minimal amounts of particulate matter are emitted from the uncontrolled sources—the polystyrene foam extruders, thermoformers and associated grinders, and storage. The only sources at the facility that have particulate controls are the six fluff silos (ID Nos. ES-8 through ES-13) which receive ground-up off-spec product and scrap before it is fed back to the polystyrene foam extruders. The fluff silos are each controlled by two bagfilters operating in parallel. As discussed in an earlier permit review (T03, November 8, 2011):

Bagfilter efficiency: 99.8%. (0.998)
Maximum individual silo process rate: 1200 lb/hr
Percent total suspended particulate (TSP) in airstream entering the silo: 0.32% (0.0032)
(Ref: particle size analysis, CHEM BAC Laboratories, Inc., 8/24/11).

Allowable TSP emission rate = $4.10 \times (1200 \text{ lb/hr} \times 1 \text{ ton}/2000 \text{ lb})^{0.67} = 2.9$ ton/hr

TSP emissions before control emissions = 1200 lb/hr × 0.0032 = 3.84 lb/hr.

TSP emissions after control = 3.84 – 3.84 (0.998) = are **0.007 lb/hr**

As shown in the calculation above, TSP emissions after control are significantly lower than the permitted allowable rate. This permit revision does not affect this status. Continued compliance is expected.

15A NCAC 02D .0521, Control of Visible Emissions: This regulation establishes opacity limits for visible emissions generated by fuel burning operations and industrial processes (except during startups, shutdowns, and malfunctions approved according to procedures in 15A NCAC 02D .0535). Because the sources at the Darnel facility were manufactured after July 1, 1971, this regulation limits them to 20 percent opacity averaged over a six-minute period. The six-minute averaging periods may exceed 20 percent not more than once in any hour, and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity. To ensure compliance, Darnel is required to make monthly observations of the following emission points when the silos are being filled for any visible emissions above normal.

- Five polystyrene foam extruders (ES-1, ES-2, ES-25, ES-26, and ES-27);
- Eleven thermoformers and associated grinders (ES-17, ES-20 through ES-24, ES-28 through ES-33, ES-36 through ES-41, and ES-3 through ES-6);
- Roll stock storage (ES-7);
- Six fluff silos (ES-8 through ES-13);
- Finished goods storage (ES-16); and
- Four off-line scrap grinders (ES-18, ES-19, ES-34, and ES-35)

(Note: Darnel has had sufficient time to establish "normal" with regard to visible emissions for the above sources; therefore, in this permit renewal the language in the permit requiring Darnel to establish normal for the above listed sources is being removed,)

The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. If visible emissions are observed to be above normal, Darnel must either correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2610 (Method 9) for 12 minutes is below the required limit given in Section 2.1 A.2.a above. This permit revision does not affect this status. Continued compliance is expected.

15A NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds: This rule applies to any facility that uses volatile organic compounds (VOCs) as solvents, carriers, material processing media, or industrial chemical reactants, or in other similar uses, or that mix, blend, or manufacture VOCs, or emit VOCs as a product of chemical reactions. This rule applies to facilities located in one of the maintenance area counties for the 1997 8-hour ozone standard identified in 15A NCAC 02D .0902(f). Union County, where Darnel is located, is one of those maintenance area counties, and this rule applies to the facility.

Under this rule, Darnel is required to do the following [15A NCAC 02D .0958(c) and (d)]:

- store all material, including waste material, containing VOCs in tanks or in containers

covered with a tightly fitting lid that is free of cracks, holes, or other defects, when not in use,
- clean up spills of VOCs as soon as possible following proper safety procedures,
- store wipe rags containing VOCs in closed containers,
- not clean sponges, fabric, wood, paper products, and other absorbent materials with VOCs,
- transfer solvents containing VOC used to clean supply lines and other coating equipment into closable containers and close such containers immediately after each use, or transfer such solvents to closed tanks, or to a treatment facility regulated under section 402 of the Clean Water Act,
- clean mixing, blending, and manufacturing vats and containers containing VOCs by adding cleaning solvent and close the vat or container before agitating the cleaning solvent. The spent cleaning solvent shall then be transferred into a closed container, a closed tank or a treatment facility regulated under section 402 of the Clean Water Act.
- When cleaning parts with a solvent containing a VOC:
  - flush parts in the freeboard area,
  - take precautions to reduce the pooling of solvent on and in the parts,
  - tilt or rotate parts to drain solvent and allow a minimum of 15 seconds for drying or until all dripping has stopped, whichever is longer,
  - not fill cleaning machines above the fill line,
  - not agitate solvent to the point of causing splashing.

To ensure compliance with these work practices, Darnel must, at a minimum, perform a visual inspection once per month during normal operations of all operations and processes onsite that use VOCs.

This permit revision does not affect this status. Continued compliance is expected.

15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions: This rule provides for the control and prohibition of objectionable odorous emissions, applies facility-wide and is state-enforceable only. This rule requires Darnel to implement management practices or install and operate odor control equipment sufficient to prevent odorous emissions from causing or contributing to objectionable odors beyond the facility's boundary. This permit revision does not affect this status. Continued compliance is expected.

15A NCAC 02Q .0711, Emission Rates Requiring a Permit: This rule establishes requirements for any facility with emissions of specified toxic air pollutants (TAP) that exceed the TAP permitting emission rates (TPER) specified in the rule. The requirements for the Darnel facility are discussed in more detail in Section 11 of this review.

15A NCAC 02Q .0317, Avoidance Conditions: Under this rule, the owner or operator of a facility may request that DAQ place terms and conditions that facility's permit to avoid the applicability of other state regulations that implement specific Federal air regulations. Darnel requested conditions to avoid the applicability of 02D .0530, Prevention of Significant Deterioration. This is discussed in further detail in Section 9 of this review.

Finally, the permit has been updated to reflect the most current stipulations for all applicable regulations.

7. National Emission Standards for Hazardous Air Pollutants (NESHAPS): Maximum and/or Generally Achievable Control Technology (MACT/GACT)

An existing 225 horsepower diesel-fired emergency fire pump **(ID No. I-FP-1)** at the Darnel facility is the only source at currently subject to a MACT standard—40 CFR 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Under Subpart ZZZZ, the pump would be required to demonstrate compliance by complying with the requirements of 40 CFR 60, Subpart IIII (see Section 8 below). Installed in 2007, this pump has been classified as an insignificant activity under 15A NCAC 02Q .0503(8) because its emissions—as an emergency internal combustion engine expected to operate no more than 500 hours per year--would not violate any applicable emissions standard, its potential uncontrolled criteria pollutant emissions are no more than five tons per year, and its potential uncontrolled HAP emissions are below 1000 pounds per year. For this reason, the fire pump is an insignificant activity, and no conditions are included in the permit for this source. This permit renewal does not affect this status. Continued compliance is expected.

It should be noted that because an emission source or activity is insignificant does not mean it is exempted from any applicable requirement, or that the Permittee is exempted from demonstrating compliance with any applicable requirement. The Permittee shall have documentation— including calculations, if necessary—available at the facility at all times that demonstrates that an emission source or activity is insignificant.

8. New Source Performance Standards (NSPS)

The facility's diesel-fired emergency fire pump **(ID No. I-FP-1)** is currently the only source at the facility subject to a NSPS—40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards for non-methane organic compounds, nitrogen oxides (NOx), carbon monoxide (CO), and particulate matter (PM), which are determined based on the maximum power of the engine and the model year. Owners and operators are required to use ultralow sulfur diesel fuel[3] if their displacement is less than 30 liters per cylinder, and diesel with a maximum per gallon sulfur content of 1,000 parts per million[4] if their displacement is 30 liters per cylinder or greater. As stated above in Section 7, this pump has been classified as an insignificant activity under 15A NCAC 02Q .0503(8). This permit renewal does not affect this status. Continued compliance is expected.

9. New Source Review (NSR)/Prevention of Significant Deterioration (PSD)

Union County has been designated as attainment for the national ambient air quality standards (NAAQS), most recently for ozone. Before the redesignation date, there were no volatile organic compound (VOC) control devices used at the Darnel facility and all insignificant activities emitted less than 15 pounds per day. A reasonably available control technology (RACT) analysis submitted in support of an earlier permit (see permit review 09709T03, 11/08/11) determined that RACT for Darnel at that time was no additional controls. Since the area where the facility is located is now in attainment, RACT—which for Darnel is no control—remains in place. This permit renewal does not affect this status.

The prevention of significant deterioration (PSD) regulations apply to new major stationary sources or existing major sources that propose a major modification. A major source is defined as a source with the

[3] Beginning on October 1, 2010.
[4] Beginning on June 1, 2012.

potential to emit 250 tpy (without considering fugitive emissions) of a regulated pollutant unless it is part of one of 28 source categories for which the major source threshold is the potential to emit 100 tpy(including fugitive emissions). As an extruded polymer foam production facility, Darnel is not considered to be in one of the 28 source categories subject to regulation with potential emissions greater than 100 tpy of any PSD-regulated pollutant. Therefore, the major source threshold for Darnell is 250 tpy of a regulated pollutant, and does not include fugitive emissions. Darnel is currently classified as a PSD minor facility for all regulated pollutants (the regulated pollutant with the highest PTE is VOC) and operates under 15A NCAC 02Q .0317 "Avoidance Condition" to avoid applicability of 15A NCAC 02D .0530 "Prevention of Significant Deterioration." To avoid applicability of 02D .0530, Darnel's non-fugitive emission sources listed in permit Section 2.1 A ". . . shall discharge into the atmosphere less than 250 tons of VOCs per consecutive 12-month period." As the permit is currently written, Darnel is required to keep records of the tons of scrap foam reprocessed monthly, then calculate and keep records of monthly non-fugitive VOC emissions at the end of each month using the following equation:

VOC (tons) = [(scrap material, tons) × (gas concentration)].

In the permit renewal, the stipulation to avoid applicability of 02D .0530 "Prevention of Significant Deterioration" in Section 2.1 A.3.b will be updated so that instead of requiring use of the above equation as written, the permit will require that Darnel determine monthly VOC emissions by "multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. This change is being made so that the permit requirements more closely reflect the current stipulation for 02D .0530 with regard to VOC emissions. This wording change does not effect a substantial change to the emission calculation requirement. The Permittee shall be deemed in noncompliance if the amounts of VOC containing materials or the VOC emissions are not monitored and recorded.

In Permit No. 09709T03 (issued 11/08/2011), the sources listed in Section 2.1 A of the permit were subject to avoidance conditions so as not to be subject to 15A NCAC 02D .0531, Sources in Nonattainment Areas. This condition was removed when the permit was renewed (Permit No. 09709T04, issued 4/07/2017), since Union County had been redesignated to attainment.

This permit renewal does not affect this status and no further changes are required as part of this permitting action. Continued compliance is expected.

10. Risk Management Plan (RMP) Requirements

40 CFR Part 68 requires stationary sources storing more than threshold quantities of regulated substances to develop a RMP in accordance with Section 112(r) of the Clean Air Act. The RMP lists the potential effects of a chemical accident at the facility, steps the facility is taking to prevent an accident, and emergency response procedures to be followed if an accident should occur.

As part of the polystyrene foam manufacturing process, polystyrene pellets are melted in extruders, mixed with a liquid isobutane/propane mixture under pressure and extruded through a die to atmospheric pressure producing foam. The isobutane/propane mixture is stored under pressure on-site at a maximum inventory of 136,000 pounds in a 30,000-gallon bullet tank. Darnel is subject to Section 112(r) of the Clean Air Act requirements because it stores isobutane in quantities above the threshold in the rule.

The MRO previously conducted Section 112(r) inspection of the Darnel facility on July 24, 2018. A review of records indicated that a compliance audit was conducted in 2012. There were no records of follow-up compliance audits. 40 CFR 68.79(a) requires that certification that compliance with the provisions of this subpart be evaluated through compliance audits at least every three years. DAQ issued a

Notice of Deficiency (NOD) to Darnel on August 8, 2018 for failure to conduct compliance audits of their RMP as required. Darnel responded to the NOD in a letter dated August 16, 2018, stating their plans to conduct an internal RMP compliance audit, and describing actions taken to ensure that future audits are conducted as required. To further ensure compliance with 40 CFR Part 68 requirements, a new Section 2.3, "40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs under the Clean Air Act, Section 112(r)" has been included in this permit renewal, highlighting Darnels most recent RMP submittal to EPA on July 14, 2021, and citing a specific due date for future RMP plan submittals. DAQ will continue to monitor Darnel to ensure future compliance with RMP requirements.

10. Compliance Assurance Monitoring (CAM)

The CAM rule (40 CFR 64) applies to each pollutant specific emissions unit located at a major source that is required to obtain a Title V, Part 70 or 71 permit if it meets all of the following criteria:

- It is subject to an emission limitation or standard, and
- It uses a control device to achieve compliance, and
- It has potential pre-control emissions that equal or exceed the major source threshold (i.e., either 100 tpy for criteria pollutants, 10 tpy of any individual HAP, or 25 tpy of any combination of HAP).

The following emission limitations or standards are exempted from the CAM rule:

- NSPS or NESHAP standards proposed after November 15, 1990;
- Stratospheric ozone protection requirements under Title VI of the Clean Air Act
- Acid rain program requirements;
- Emission limitations or standards or other requirements that apply solely under an approved emissions trading program;
- An emissions cap that meets requirements of 40 CFR 70.4(b)(12) or 71.6(a)(13);
- Emission limitations or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method, as defined in 40 CFR 64.1, unless the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (e.g., a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test; in this example, this part would apply to the control device and capture system, but not to the remaining elements of the coating line, such as raw material usage).
- Certain municipally-owned utility units, as defined in 40 CFR 72.2.

Please note that the emission unit is not exempted from the CAM rule if nonexempt emission limitations or standards (e.g. a state rule or an older NSPS emission limits) apply to the emissions unit.

The fluff silos are the only sources at the Darnel facility that use a control device to demonstrate compliance with a regulation; the silos are equipped with bagfilters to reduce PM emissions. CAM was determined in a preceding permit review (09709T03, 11/08/11) to not be applicable because potential pre-controlled emissions (particulate) from each silo were 263 tpy, which is less than the CAM 100-tpy threshold discussed above. This permit renewal does not affect the facility's status with respect to compliance assurance monitoring (CAM). Continued compliance is expected.

11. Facility-wide Air Toxics Review

In the application review for the initial Darnel air permit (09709R00, 1/24/07), emission limits for styrene were established in accordance with 15A NCAC 02Q .0711, "Emission Rates Requiring a Permit". As stated in that review, potential styrene emissions were 1.68 tons/yr, based on mass balance calculations from the FIRE database and the maximum throughput for the two polystyrene foam extruders (ID Nos. ES-1 and ES-2) in use at the facility at that time.

Toxic air pollution permitting emission rate (TPER) for styrene emitted from obstructed or non-vertical oriented release points (from 02Q .0711): 2.7 lb/hr

Potential styrene emission rate from Darnel (in 2007):
1.68 tons/yr × 2000 lb/ton × 1 yr/8760 hr = 0.38 lb/hr

Since the potential styrene emission rate was below the TPER, the facility was expected to be in compliance with 02Q .0711. Currently, Darnell has five polystyrene foam extruders (ID Nos. ES-1, ES-2, ES-25, ES-26, and ES-27), which is 2.5 times the number of extruders in 2007—suggesting potential styrene emissions could have increased by a factor of 2.5.

Styrene emission rate from Darnel (assuming current emissions are 2.5 times 2007 emissions):
2.5 (1.68 tons/yr × 2000 lb/ton × 1 yr/8760 hr)= 0.95 lb/hr

So, even with the increase in foam extruders, the potential emission rate remains well below the TPER for styrene, and Darnel is expected to remain in compliance with 02Q .0711. The permit requires Darnel to:

- operate and maintain the facility so that emissions of styrene, including fugitive emissions, will not exceed the TPERs; and to
- maintain records that demonstrate compliance with the TPER for styrene. Based on the most recent inspection, Darnel has been complying with this regulation. Continued compliance will be determined during subsequent inspections.
- Obtain a permit to emit styrene if actual emissions from all sources will become greater than the TPER for styrene.

This permit renewal does not affect this status. Continued compliance is expected.

12. Facility Emissions Review

The table in the header page of this review summarizes the total actual emissions Darnel has reported to DAQ for the years 2016 through 2020. During that period, VOC emissions ranged from 152.51 tons in 2016 to a high of 177.35 tons in 2017. PM_{10} emissions have generally declined from in 11.54 tons in 2016 to 8.99 tons in 2020. HAP emissions, consisting solely of styrene, also declined over that time period, from 4.13 tons in 2016 to 1.11 tons in 2020.

As discussed in Section 5 of this review, no changes have occurred at the Darnel facility that would affect the facility's potential to emit.

13. Compliance History and Status

The following chronology dates from when the Darnel permit was last renewed on April 7, 2017.

June 28, 2017	Karyn Kurek, MRO conducts facility compliance inspection. Facility appeared to be operating in compliance with all permit requirements.
March 26, 2018	Karyn Kurek, MRO conducts facility compliance inspection. Facility appeared to be operating in compliance with all permit requirements.
July 24, 2018	Jim Hafner, MRO conducts facility Section 112(r) compliance inspection. The inspection revealed that Darnel had no record of conducting a RMP compliance audit for the facility since 2012.
August 8, 2018	MRO issues Notice of Deficiency (NOD) to Darnel for failure to conduct a compliance audit of their RMP at least once every three years as required.
August 16, 2018	Darnel responds to MRO concerning the NOD, stating their plans to conduct an internal RMP compliance audit, and describing actions taken to ensure that future audits are conducted as required.
January 18, 2019	Karyn Kurek, MRO conducts facility compliance inspection. Facility appeared to be operating in compliance with all permit requirements.
July 2, 2020	Alejandra Cruz, MRO conducts partial facility compliance inspection due to COVID-19 restrictions. Facility appeared to be in compliance with recordkeeping and recording requirements that could be observed during this partial compliance evaluation. Compliance with other permit conditions will be determined at a future date when a field investigation can be conducted.
August 27, 2020	Alejandra Cruz, MRO conducts follow-up to July 2, 2020 partial facility compliance inspection. Due to COVID-19 restrictions, facility was observed from the parking lot. Facility appeared to be operating in compliance with all permit requirements.
September 1, 2021	Alejandra Cruz, MRO conducts facility compliance inspection. Facility appeared to be operating in compliance with all permit requirements.

Other than the failure to conduct RMP compliance audits as required—which Darnel has taken steps to correct—Darnel appears to be operating the facility in compliance with the requirements of their Title V air permit. Continued compliance is expected.

14. 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 is provided to the public under 02Q .0521 above.

South Carolina is an affected state within 50 miles of the facility, and the Mecklenburg County Department of Environmental Protection is an affected local program.

Notice of the DRAFT Title V Permit to Affected States ran from XXXX YY, 2021, to XXXX YY, 2021. ***Indicate whether comments from Affected States or Local Programs were received.***

Public Notice of the DRAFT Title V Permit ran from XXXX YY, 2021, to XXXX YY, 2021. ***Indicate whether public comments were received.***

EPA's 45-day review period ran concurrent with the 30-day Public Notice, from XXXX YY, 2021, to XXXX YY, 2021. ***Indicate whether comments from EPA and U.S. EPA Region 4 were received.***

15. Other Regulatory Considerations

The following items were not required in Permit Application No. 9000199.21A:

- Professional Engineer's seal
- Zoning consistency determination
- Permit fee.

16. Recommendations

DAQ has reviewed the permit application for Darnel, Inc. located in Monroe, Union County to determine compliance with all procedures and requirements. DAQ has determined that 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. 09709R05.