

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Air Permit Review**

Permit Issue Date: **PROPOSED**

**Region:** Mooresville Regional Office  
**County:** Union  
**NC Facility ID:** 9000169  
**Inspector's Name:** Tony McManus  
**Date of Last Inspection:** 07/06/2007  
**Compliance Code:** 3/In Compliance - Inspection

<b>Facility Data</b>			<b>Permit Applicability (this application only)</b>
<b>Applicant (Facility's Name):</b> Bakery Feeds  <b>Facility Address:</b> Bakery Feeds 5805 Highway 74 Marshville, NC 28103  <b>SIC:</b> 2048 / Prepared Feeds Nec <b>NAICS:</b> 311119 / Other Animal Food Manufacturing  <b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V			<b>SIP:</b> 2D .0503, .0515, .0516, .0521 <b>NSPS:</b> <b>NESHAP:</b> <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b>
<b>Contact Data</b>			<b>Application Data</b>
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<b>Application Number:</b> 9000169.06A <b>Date Received:</b> 01/23/2006 <b>Application Type:</b> Modification <b>Application Schedule:</b> TV-1st Time <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 08194/R07 <b>Existing Permit Issue Date:</b> 01/19/2007 <b>Existing Permit Expiration Date:</b> 06/30/2011
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<b>Review Engineer:</b> Kevin Godwin  <b>Review Engineer's Signature:</b> _____ <b>Date:</b> _____		<b>Comments / Recommendations:</b> Issue 08194/T08 <b>Permit Issue Date:</b> <b>Permit Expiration Date:</b>	

**I. Introduction and Purpose of Application**

The U.S. Environmental Protection Agency (EPA) gave final approval to North Carolina's Title V operating permits program effective on October 1, 2001. This EPA approval triggered the requirements for Title V facilities to submit permit applications to the Division of Air Quality (DAQ). Title V facilities are required to obtain an operating permit which addresses all applicable regulations under the State Implementation Plan, Federal Implementation Plan, and other provisions of the Clean Air Act (CAA). The Title V Operating Permit will define all of the facility's obligations under the CAA.

This 1<sup>st</sup> Time Title V Air Permit review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to create the Title V operating permit. The primary source of information used to develop the permit is the above referenced air permit application.

**II. Background Information**

The Title V operating permit will replace existing Air Quality Construction and Operation Permit No. 08194R07, which was issued on January 19, 2007 and is currently set to expire on June 20, 2011.

Pursuant to 15A NCAC 2Q .0504, Bakery Feeds submitted its Title V application to DAQ on January 23, 2006. The application was considered complete for processing. The PROPOSED permit is required to go through public notice pursuant to 15A NCAC 2Q .0521.

### III. Facility Description

Bakery Feeds collects raw materials consisting of inedible bakery waste products including bread, dough, crackers, sweet goods, and snack chips from commercial bakeries and snack food manufacturers. These raw materials are blended, ground, dried, screened, and cooled to produce ingredients for use in animal feed.

### IV. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. Based on its latest inspection, conducted on July 6, 2007 by Mr. Tony McManus of the Mooresville Regional Office (MRO), the facility appeared to be operating in compliance with applicable air regulations. As noted in the July 6, 2007 inspection report, there have not been any compliance issues during the last five years.

### V. Summary of Emission Sources and Control Devices

The following table contains a summary of all permitted emission sources and associated air pollution control devices and appurtenances:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-2	Sawdust/propane/refuse derived fuel-fired rotary dryer (22.5 million Btu per hour maximum rated input, utilizing scrap paper/packaging composed of food grade material and sawdust as fuel sources with propane as an emergency back-up fuel)	CD-1	Simple cyclone (120 inches in diameter)
ES-4	Sawdust/propane/refuse derived fuel-fired rotary dryer (22.5 million Btu per hour maximum rated input, utilizing scrap paper/packaging composed of food grade material and sawdust as fuel sources with propane as an emergency back-up fuel)	CD-2	Simple cyclone (120 inches in diameter)
ES-7	One No. 2 fuel oil/propane/yellow grease-fired boiler (8.37 million Btu per hour maximum rated input)	N/A	N/A

### VI. Emission Source-by-Source Evaluation

#### A. Two Rotary Dryers (ID Nos. ES-2 and ES-4)

Waste bakery products are processed to make an ingredient for animal feed. Packaging materials are separated from the raw materials, mixed with sawdust, and used as fuel to provide heat for the drying process. The sawdust is purchased from outside suppliers and may contain negligible amounts of finishing materials. The applicant estimates less than 2% of the sawdust could possibly contain finishing material. Therefore, the sawdust is considered an unadulterated fuel.

The applicant reports a maximum hourly per burner usage rate of 2,812 pounds of sawdust or 1,899 pounds of packaging materials. Products of combustion are pulled from the burner through the dryer by an ID fan and come into direct contact with the raw materials. Air discharged from the stack includes both process air and combustion gases. The following regulations apply:

15A NCAC 2D .0515 "Particulates from Miscellaneous Industrial Processes" – Since no other regulation applies to PM emissions from these sources, 2D .0515 applies. 2D 0503 does not apply to the burners because they are not considered indirect heat exchangers due to combustion air coming into direct contact with products. This determination has been made in previous permit revisions. 2D .0515 includes an equation that calculates allowable emissions (E) based on process input weight rate (P) as follows:

$$E = 4.10 * P^{0.67} \quad \text{for process rates less than or equal to 30 tph}$$
$$E = 55.0 * P^{0.11} - 40 \quad \text{for process rates greater than 30 tph}$$

Where, E = allowable emissions (lb/hr)  
P = process weight rate (tph)

As reported on the application Form B9, P = 33 tons per hour per dryer. Therefore, E calculates to be 40.79 lb/hr per dryer. The applicant uses data from an April 1998 internal engineering test using EPA Method 5/202 to estimate TSP emissions to be 10.29 lb/hr per dryer. The test was not reviewed by DAQ. Compliance is indicated.

15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources" – This regulation applies to all sources of combustion. The sulfur dioxide emissions standard is 2.3 pounds per million Btu. The fuels used in the biomass burners (sawdust and packaging material) contain low amounts of sulfur. Compliance with the standard is indicated.

15A NCAC 2D .0521 "Control of Visible Emissions" – This regulation applies to all sources of visible emissions. The visible emission standard for sources constructed after July 1, 1971 is 20 percent opacity. The latest inspection report did not cite any visible emissions exceeding the standard. Visible emissions have not historically been a problem from this source. Continued compliance is expected.

**B. No. 2 fuel oil/propane/yellow grease-fired boiler (8.37 million Btu per hour heat input, ID No. ES-7)**  
Applicable regulations are as follows:

15A NCAC 2D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers" – This rule applies to installations in which fuel is burned for the purpose of producing heat or power by indirect heat transfer. Emissions of particulate matter from the combustion of fuel that are discharged from a stack to the atmosphere shall not exceed 0.60 lb/million Btu heat input (0.60 lb/million Btu \* 8.37 million Btu/hr = 5.02 lb/hr) for heat input of 10 million Btu/hr and less.

The worst-case potential PM emission rate will result from burning recycled cooking oil (i.e. yellow grease). Using an emission factor of 0.083 lb/million Btu developed from a University of Georgia study, the PM emission rate is calculated to be 0.70 lb/hr. Therefore, compliance is indicated. Because the worst-case potential emission rate is significantly lower than the allowable emission rate, no monitoring or recordkeeping is required for particulate emissions.

15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources"

This regulation applies to any combustion equipment except the combustion sources subject to any applicable NSPS SO<sub>2</sub> emission standard. Emissions of SO<sub>2</sub> from the boiler shall not exceed 2.3 lb/million Btu. The emission source is expected to comply with the above standard due to low sulfur contents of No. 2 fuel oil (0.5%w sulfur) and recycled cooking oil (0.07%w sulfur), and negligible sulfur content of propane. The worst-case (No. 2 fuel oil) potential SO<sub>2</sub> emission rate can be estimated as follows:

$$(0.5 \text{ S}/100 \text{ lbs No. 2 fuel oil}) \times (2 \text{ lb SO}_2/1 \text{ lb S}) \times (\text{gal No. 2 fuel oil}/141,000 \text{ Btu}) \times (7.05 \text{ lb/gal No. 2 fuel oil}) = 0.5 \text{ lb SO}_2/\text{million Btu}$$

Compliance with this applicable requirement is expected. Because the worst-case potential emission rate is significantly lower than the allowable emission rate, no monitoring or recordkeeping will be required.

#### 15A NCAC 2D .0521 "Control of Visible Emissions"

This rule applies to any stationary source of visible emissions, except the sources subject to any applicable visible emission standards in NSPS. For sources manufactured as of July 1, 1971, visible emissions shall not be more than 40 percent opacity when averaged over a six-minute period.

Excess emissions during startup and shutdown shall be excluded from the determination of compliance with this limit, if the excess emissions are exempted according to the procedures set out in 2D .0535(g). Excess emissions during malfunctions shall be excluded from the determination of compliance with this limit, if the excess emissions are exempted according to the procedures set out in 2D .0535(c).

The boiler is subject to a 40 percent opacity limit as it was manufactured in July 1969 (note: it was installed at the Bakery Feed facility in June 1998). It should be noted that visible emissions from this boiler firing either recycled cooking oil alone or in combination with No. 2 fuel oil or propane may be low<sup>1</sup>. The most recent compliance inspection did not cite any visible emissions exceeding this standard. Compliance with this standard is expected.

### **VII.MACT Applicability**

Bakery Feeds is not a major source of HAP emissions. As reported in the application, HCl is the only HAP emitted from the facility at a rate of 0.61 tpy.

### **VIII. NSPS, PSD/NSR, RACT, CAM, 112(r)**

#### NSPS

No NSPS applies to the sources at this facility. The permitted boiler does not meet the Subpart Dc applicability threshold of 10 million Btu/hr and it was constructed prior to the June 9, 1989 applicability date. The rotary dryers do not meet the definition of a steam-generating unit.

All liquid storage tank capacities are less than the applicability threshold of Subpart Kb.

#### PSD/NSR

Bakery Feeds is located in Union County. Union County is classified as being in non-attainment with the 8-hour ozone standard and is governed by NSR rules under 15A NCAC 2D .0531. NO<sub>x</sub> and VOC are precursors to ozone. To avoid being a NSR major source, the facility was given a limit of less than 100 tpy VOC for the first drying line. Upon installation of the second drying line at a later date, the facility became major for NSR and a second 100 tpy VOC limit was placed in the permit to avoid NSR review.

The existing condition limits hours of operation to 6,754 hours per year for each line. The facility must record hours of operation and resulting VOC emissions monthly. Semiannual reporting of records is required.

#### RACT

Since bread and baked goods are not produced at this facility it does not meet the definition of "Commercial Bakery," pursuant to 15A NCAC 2D .0957. However, since potential VOC emissions are greater than 100 tpy, the facility is subject to requirements under case-by-case Reasonably Available Control Technology (RACT). Bakery Feeds is an existing major source and must achieve final compliance by April 1, 2009.

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<sup>1</sup> University of Georgia research study (Jan and Feb 2001) indicated the particulate and visible emissions from 100,000 lbs/hr boiler to be 0.083 lb/million Btu and 0-11 percent opacity, respectively, when firing different biofuels (chicken fat, yellow grease, choice white grease, beef tallow, and combination of these fuels with No. 2 fuel oil, etc.).

CAM

Pursuant to 40 CFR 64.2 and 15A NCAC 2D .0614, the requirements of this Subpart shall apply to a pollutant specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

1. the unit is subject to an emission limitation or standard for the applicable regulated air pollutant;
2. the unit uses a control device to achieve compliance with any such emission limitation or standard; and
3. the unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount required for a source to be classified as a major source.

According to the applicant, these cyclones are integral to the process and used as product recovery devices rather than emission control devices. The cyclones are not being used to comply with an emission standard. Therefore, the cyclones are not subject to a CAM plan.

112(r)

As reported in the application, this facility does not store any chemicals on site in quantities above the applicability threshold.

North Carolina Toxic Air Pollutants

Hydrochloric acid is the only toxic air pollutant (TAP) reported as being emitted from the facility. HCl is emitted from the rotary dryer processing lines at a rate of 0.09 lb/hr. This emission rate was arrived at using stack test data. Pursuant to 2Q .0711, the toxic permit emission rate (TPER) for HCl is 0.18 lb/hr. Therefore, no further analysis is necessary to determine compliance with the acceptable ambient level (AAL). A condition referencing the TPER limit is included in the permit.

**IX. Permit Shield (including non-applicable requirements)**

Pursuant to 15A NCAC 2Q .0512, the permit will include a provision stating that compliance with the terms, conditions, and limitations of the Title V Permit shall be deemed in compliance with applicable requirements specifically identified in the permit, as of the date of permit issuance. If the permit does not expressly state that a permit shield exists, then it shall be presumed not to provide such a shield.

**X. Other Applicable Requirements**

None

**XI. General Conditions**

The “General Conditions” section of the Title V Permit lists additional applicable rule requirements that the Permittee must adhere to, as with any other permit condition. These requirements in general are common to all Title V facilities. The general conditions include provisions such as annual fee payment, permit renewal and expiration, transfer of ownership or operation, property rights, submission of documents, inspections and entry procedures, reopen for cause, severability, etc.

**XII. Insignificant Activities**

The insignificant activities listed in the application have been reviewed and verified. The following table lists insignificant activities under 15A NCAC 2Q .0503(8):

<b>ID No.</b>	<b>Source Description</b>
<b>IOIL-1</b>	One washwater skimmer tank for waste cooking oil recycling (3,000 gallons)
<b>IBO-1</b>	One natural gas/No. 2 fuel oil-fired boiler (6.3 million Btu per hour heat input)
<b>IDRY-1</b>	Dry blending and stock receiving (19.2 tons per hour)

<b>ID No.</b>	<b>Source Description</b>
<b>IDF-1</b>	Dispensing equipment used solely to dispense diesel fuel, kerosene, or lubricants
<b>IAST-1</b>	Above ground storage tank with a capacity of less than 1,100 gallons
<b>IPW-1</b>	Parts washer
<b>IGRO-1</b>	Waste cooking grease recycling operation
<b>IS-3</b>	Finished products shipping area (41 tons per hour maximum process rate)

This table is included as an attachment to the permit cover letter. Because an emission source or activity is insignificant does not mean that the source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.

### **XIII. Public Notice**

Pursuant to 15A NCAC 2Q .0521, a notice of the PROPOSED Title V Operating Permit will be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice will be sent to persons on the Title V mailing list, the affected states, and EPA.

### **XIV. Recommendations**

Bakery Feeds Title V application has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. DAQ has made a preliminary determination that the facility is complying or will achieve compliance as specified in the permit with all applicable requirements. A draft permit was provided to Mr. Jim Westmoreland (MRO) and Mr. Michael Schmidt, Bakery Feeds on July 16, 2007. Following public notice and EPA review periods, DAQ proposes to take final action on the Title V Permit.