

INITIAL TITLE V AIR PERMIT APPLICATION REVIEW

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XX

APPLICANT: Valley Proteins, Inc. d.b.a. Carolina By-Products - Fayetteville Plant	SITE LOCATION: Fayetteville	COUNTY: Cumberland	
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REGIONAL CONTACT: Sally McKinney	REGIONAL OFFICE: Fayetteville Regional Office	SIC CODES: 2077	
APPLICATION NUMBER: 260013A5.A	EXISTING PERMIT NUMBER: 00951R20	NEW PERMIT NUMBER: 00951T21	

I Introduction

The U.S. Environmental Protection Agency (EPA) has given 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. Title V facilities are required to obtain an operating permit which addresses all applicable regulations under the State 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 Initial Title V Air Permit Application Review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to construct the Title V operating permit. The primary source of information used to construct the permit is the above referenced air permit application.

II Background Information

The Title V Operating Permit replaces the existing Air Quality Construction and Operation Permit No. 00951R20, issued on June 30, 2003, and currently scheduled to expire on September 30, 2006.

Pursuant to 15A NCAC 2Q .0506, Carolina By-Products - Fayetteville Plant, A Subsidiary of Valley Proteins, Inc. (formerly known as Cape Fear Feed Products Company) submitted its initial Title V application to the Division of Air Quality on January 17, 1996. The application was considered complete for processing on September 25, 1996. The draft permit was noticed to the public pursuant to 15A NCAC 2Q .0521 on XX, 2003.

Carolina By-Products - Fayetteville Plant is considered as a major source of air pollution and subject to Title V requirements since the potential emissions of the following pollutants exceed 100 tons per year:

- < nitrogen oxides - 286 tons/year
- < sulfur dioxide - 1443 tons/year
- < carbon monoxide - 291 tons/year

The facility is not subject to the MACT requirements as total potential emissions of all hazardous air pollutants do not exceed 25 tons per year and emissions of individual hazardous air pollutants do not exceed 10 tons/year.

The existing permit (Air Permit No. 00951R20) includes provisions that specify emission limits and

monitoring and reporting requirements that will be utilized to avoid Prevention of Significant Deterioration (PSD) requirements.

III. Facility Description

Carolina By-Products – Fayetteville Plant is a poultry rendering facility that consists of two plants - the old plant (Feed Grade) and the new plant (Pet Grade). The old Feed Grade Plant runs 24 hours per day, 5.5 to 6 days per week. The new Pet Grade Plant runs about 20 hours per day, 5 days a week - starting around 9 am and finishing at midnight each day.

Four rendering products are produced. All products are used as ingredients in animal feed manufacturing. Products are :

- < feather meal - from feathers and blood; contains 5% fat; very dry looking and dark like blood meal
- < poultry meal - from offal process; contains 11-12% fat
- < poultry grease - from processing of offal and feathers; comes off of the centrifuges and presses
- < kitchen grease - from processing of restaurant grease

The New Pet Grade Plant produces only two products -

- < pet grade poultry meal
- < poultry grease

IV. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. The most recent facility inspection was performed June 10, 2003. The facility has been the subject of several odor complaints and Notices of Violation (NOV) have been filed in response to these complaints. All have been resolved except for the latest NOV for an odor violation on June 18, 2003. The facility appeared to be in compliance during the latest inspection.

The applicant has certified that the facility will be in compliance with all applicable requirements. The applicant has also certified that the facility will be in compliance with any applicable requirements taking effect during the term of the permit and will meet such requirements on a timely basis.

V. Summary of Emission Sources and Control Devices

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The following table identifies all emission sources and associated control devices including those for which the Initial Title V Operating Permit is being issued.

Emission Source ID No.	Emission Source Description	Principal Pollutants Emitted	Control Device ID No.	Control Device Description	Emission Point ID No.
ES-1	Process Boiler #1 - maximum firing rate of 26.8 million Btu/hour (Natural gas, No. 5 fuel oil, No. 6 fuel oil, and saleable animal fat)	Particulate matter Sulfur dioxide Nitrogen oxides Volatile organic compounds Carbon monoxide	N/A	None	EP-1
ES-2	Process Boiler #2 - maximum firing rate of 26.8 million Btu/hour (Natural gas, No. 5 fuel oil, No. 6 fuel oil, and saleable animal fat)	Particulate matter Sulfur dioxide Nitrogen oxides Volatile organic compounds Carbon monoxide	N/A	None	EP-2
ES-3	Process Boiler #3 - maximum firing rate of 59.3 million Btu/hour (Natural gas, No. 5 fuel oil, No. 6 fuel oil, and saleable animal fat)	Particulate matter Sulfur dioxide Nitrogen oxides Volatile organic compounds Carbon monoxide	N/A	None	EP-3

Emission Source ID No.	Emission Source Description	Principal Pollutants Emitted	Control Device ID No.	Control Device Description	Emission Point ID No.
ES-4	Feed Grade Plant Offal Material Process	Particulate matter Ammonia	CD-4b CD-4c CD-4d ES-3 or CD-4e ES-12 or CD-6a CD-6b	Air cooled condenser Venturi scrubber with a pressure range of 12 to 15 PSIG Mist eliminator Boiler #3 (PRIMARY CONTROL) or Mist eliminator Boiler #4 (PRIMARY CONTROL) or (BACK-UP CONTROL) Venturi scrubber with a pressure range of 12 to 15 PSIG Packed bed scrubber with a pressure range of 6 to 10 PSIG utilizing chlorine dioxide	EP-3 EP-12 EP-6b
ES-5a and ES-5c	Two feather process dryers	Particulate matter Ammonia	CD-5c CD-4c CD-4d ES-3 or CD-4e ES-12 or CD-6a CD-6b	Air cooled condenser Venturi scrubber with a pressure range of 12 to 15 PSIG Mist eliminator Boiler #3 (PRIMARY CONTROL) or Mist eliminator Boiler #4 (PRIMARY CONTROL) or (BACK-UP CONTROL) Venturi scrubber with a pressure range of 12 to 15 PSIG Packed bed scrubber with a pressure range of 6 to 10 PSIG utilizing chlorine dioxide	EP-3 EP-12 EP-6b

Emission Source ID No.	Emission Source Description	Principal Pollutants Emitted	Control Device ID No.	Control Device Description	Emission Point ID No.
ES-5b	Feather process cooker	Particulate matter Ammonia	CD-5d CD-4d ES-3 or CD-4e ES-12 or CD-6a CD-6b	Air cooled condenser Mist eliminator Boiler #3 (PRIMARY CONTROL) or Mist eliminator Boiler #4 (PRIMARY CONTROL) or (BACK-UP CONTROL) Venturi scrubber with a pressure range of 12 to 15 PSIG Packed bed scrubber with a pressure range of 6 to 10 PSIG utilizing chlorine dioxide	EP-6b
ES-6	Feed Grade Plant Pressors, centrifuges, & misc. equipment	Particulate matter	CD-6a CD-6b	Venturi scrubber with a pressure range of 12 to 15 PSIG Packed bed scrubber with a pressure range of 6 to 10 PSIG utilizing chlorine dioxide	EP-6b

Emission Source ID No.	Emission Source Description	Principal Pollutants Emitted	Control Device ID No.	Control Device Description	Emission Point ID No.
ES-7	Fat and Grease process	Particulate matter Ammonia	CD-7b CD-4d ES-3 or CD-4e ES-12 or CD-6a CD-6b	Shell and Tube Condenser with 2700 square feet of surface area Mist eliminator Boiler #3 (PRIMARY CONTROL) or Mist eliminator Boiler #4 (PRIMARY CONTROL) or (BACK-UP CONTROL) Venturi scrubber with a pressure range of 12 to 15 PSIG Packed bed scrubber with a pressure range of 6 to 10 PSIG utilizing chlorine dioxide	EP-6b
ES-9	Rendering room air system	Odors	CD-9a or CD-9b	Two-staged cross-flow scrubber with a pressure range of 13 to 17 PSIG utilizing chlorine dioxide or Peabody scrubber with a nozzle pressure range of 18 to 22 PSIG and a flood valve pressure range of 4 to 6 PSIG utilizing chlorine dioxide	EP-9a EP-9b
ES-10	Covered anaerobic lagoon pretreatment system	Particulate matter	CD-10a	Natural gas/Biogas-fired flare (3.5 million Btu/hour maximum heat input)	EP-10

Emission Source ID No.	Emission Source Description	Principal Pollutants Emitted	Control Device ID No.	Control Device Description	Emission Point ID No.
ES-11	Pet Grade Plant Offal Material Process	Particulate matter Ammonia	CD-11a and CD-11b CD-11c ES-14 or ES-19 or CD-11d	Air cooled condenser and Air cooled condenser Venturi scrubber with a pressure range of 13 to 15 PSIG Boiler #5 or Boiler #6 or Packed bed scrubber with a pressure range of 3 to 8 PSIG utilizing chlorine dioxide	EP-11a EP-14 EP-19 EP-11d
ES-12 NSPS	Process Boiler #4 - natural gas/ No. 2 oil/saleable animal fat oil-fired (61.5 million Btu/hour maximum firing rate)	Particulate matter Sulfur dioxide Nitrogen oxides Volatile organic compounds Carbon monoxide	N/A	None	EP-12
ES-13	Poultry meal and feather meal truck and/or container load out operation	Particulate matter	N/A	Two-sided roofed enclosure	EP-13
ES-14 NSPS	Process Boiler #5 - natural gas/ No. 2 fuel oil/ saleable animal fat-fired (58.6 million Btu/hr heat input)	Particulate matter Sulfur dioxide Nitrogen oxides Volatile organic compounds Carbon monoxide	N/A	None	EP-14
ES-15	Rendering room air system	Odors	CD-15a	Cross-flow scrubber with a pressure range of 13 to 17 PSIG utilizing chlorine dioxide	EP-15

Emission Source ID No.	Emission Source Description	Principal Pollutants Emitted	Control Device ID No.	Control Device Description	Emission Point ID No.
ES-16	Pet Grade Plant Pressors, centrifuges, and miscellaneous equipment	Particulate matter	ES-14 or ES-19 or CD-11d	Boiler #5 or Boiler #6 or Packed bed scrubber with a pressure range of 3 to 8 PSIG utilizing chlorine dioxide	EP-14 or EP-19 or EP-11d
ES-17	Truck and/or container meal load out operation	Particulate matter	N/A	Four-sided roofed enclosure	EP-17
ES-19	Process Boiler - natural gas/No. 2 fuel oil/No. 6 fuel oil/saleable animal fat-fired (39.5 million Btu/hr heat input)	Particulate matter Sulfur dioxide Nitrogen oxides Volatile organic compounds Carbon monoxide	N/A	None	EP-19

VI. Emission Source-by-Source Evaluation

A. Process Boilers and Covered Anaerobic Lagoon Pretreatment System

1. Description

Boilers serve two purposes - to produce process steam and as a control device for odors.

The covered anaerobic lagoon pretreatment system consists of a biogas flare with a natural gas pilot light

The process rates for the boilers are as follows:

Emission Source	Emission Source ID No.	Maximum Process Rate ¹
Process Boiler #1 - (natural gas/No. 5 oil/No. 6 oil/saleable animal fat-fired boiler)	ES-1	26.8 million Btu/hour maximum firing rate
Process Boiler #2 - (natural Gas/No. 5 oil /No. 6 oil/saleable animal fat-fired boiler)	ES-2	26.8 million Btu/hour maximum firing rate

Emission Source	Emission Source ID No.	Maximum Process Rate¹
Process Boiler #3 - (natural Gas/No. 5 oil/No. 6 oil/saleable animal fat-fired boiler)	ES-3	59.3 million Btu/hour maximum firing rate
Process Boiler #4 - (natural gas/No. 2 fuel oil/saleable animal fat-fired boiler)	ES-12 NSPS	61.5 million Btu/hour maximum firing rate
Process Boiler #5 - (natural gas/No. 2 fuel oil/saleable animal fat-fired boiler)	ES-14 NSPS	58.6 million Btu/hour maximum firing rate
Process Boiler #6 - (natural gas/No. 2/saleable animal fat-fired boiler)	ES-19	39.5 million Btu/hour maximum firing rate
Covered anaerobic lagoon pretreatment system (natural gas/sewer gas (biogas)-fired flare)	ES-10	3.5 million Btu/hour maximum firing rate

¹ Permit Application (January 17, 1996) Section B

2. An Overview of Applicable Regulatory Requirements

The following table provides a summary of limits and/or standards for the emission units. A review of the information in the application was performed to ensure that the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	$E=1.090 Q^{-0.2594}$ E = allowable emission limit Q = maximum heat input in million Btu/hour heat input Note limits and discussion in Section VI.A.3.a	15A NCAC 2D .0503(c)
sulfur dioxide	2.3 pounds per million Btu heat input Note limits and discussion in Section VI.A.3.b	15A NCAC 2D .0516(a)
visible emissions	40 percent opacity (<i>applies to boiler (ID No. ES-19)</i>) Note limits and discussion in Section VI.A.3.c	15A NCAC 2D .0521(c)
visible emissions	20 percent opacity Note limits and discussion in Section VI.A.3.c	15A NCAC 2D .0521(d)

Regulated Pollutant	Limits/Standards Draft Document	Applicable Regulation
sulfur dioxide visible emissions	sulfur in fuel limit of 0.5 weight percent sulfur. 20 percent opacity Note limits and discussion in Section VI.A.3.d	15A NCAC 2D .0524 (40 CFR 60.40c, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (60.40c--60.48c))
sulfur dioxide	Sulfur dioxide emissions from the 60.5 million Btu per hour boiler (ID No. ES-3) and the 39.5 million Btu per hour boiler (ID No. ES-19) shall be less than 240 tons per consecutive twelve (12) month period and sulfur dioxide emissions from the two 26.8 million Btu per hour boilers (ID Nos. ES-1 and ES-2) shall be less than 250 tons per consecutive twelve (12) month period. Note limits and discussion in Section VI.A.3.e	15A NCAC 2D .0530
nitrogen dioxide sulfur dioxide carbon monoxide	Sulfur dioxide and nitrogen oxide emissions from the boiler (ID No. ES-12) shall be less than 40 tons per consecutive twelve (12) month period and carbon monoxide emissions from the boiler (ID No. ES-12) shall be less than 100 tons per consecutive twelve (12) month period. Note limits and discussion in Section VI.A.3.f	15A NCAC 2D .0530
nitrogen dioxide sulfur dioxide carbon monoxide	Sulfur dioxide and nitrogen oxide emissions from the boiler (ID No. ES-14) shall be less than 40 tons per consecutive twelve (12) month period and carbon monoxide emissions from the boiler (ID No. ES-14) shall be less than 100 tons per consecutive twelve (12) month period. Note limits and discussion in Section VI.A.3.g	15A NCAC 2D .0530
carbon monoxide	Carbon monoxide emissions from boilers (ID Nos. ES-1, ES-2, ES-3, ES-12, ES-14, and ES-19) shall be less than 100 tons per consecutive twelve (12) month period while combusting saleable animal fat oil. Note limits and discussion in Section VI.A.3.h	15A NCAC 2D .0530
odors	The owner or operator of any facility that produces feed-grade animal proteins or feed-grade animal fats and oils, but do not apply to any portions of such facilities that are engaged exclusively in the processing of food for human consumption, shall comply with work practices standards - Section VII.B.1. Facility-wide Affected Emission Sources State-enforceable only	15A NCAC 2D .0539

3. Specific requirements and affected emission points

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a. **15A NCAC 2D .0503: Particulates from Fuel Burning Indirect Heat Exchangers**

Statement of Basis

- i. The emission limits for particulate matter from the fuel burning indirect heat exchangers (i.e. boilers) were prescribed in the Air Permit No. 00951R20 (Specific Conditions and Limitations No. 2). Specifications for used No. 2 fuel oil, recovered fuel oil, and equivalent virgin unadulterated fuel are prescribed in Specific Conditions and Limitations Nos. 16 and 17; however, those conditions will not be placed in the Title V permit per the facility's request to not burn waste oil any more. Requirements for use of boilers as control devices are prescribed in Specific Conditions and Limitations No. 15.
- ii. All boilers burn a combination of natural gas, No. 5 fuel oil, No. 6 fuel oil, and saleable animal fat. No specific emission controls were listed in the application or in the current permit.
- iii. Four of the boilers (**ID Nos. ES-3, ES-12, ES-14, and ES-19**) are also used as control devices for odors.
- iv. Potential emissions of particulate matter from the burning of gas or oil are significantly less than allowable limits. No monitoring, record keeping, or reporting are required when burning oil or gas.

Regulatory Requirements

- iv. The allowable emissions of particulate matter shall be calculated by the equation $E = 1.090 \text{ times } Q \text{ to the } -0.2594 \text{ power}$. E = allowable emission limit in lb/million Btu. Q = maximum heat input in million Btu/hour (See 15A NCAC 2D .0503(c)). Emissions of particulate matter from the combustion of natural gas or propane, fuel oil, and saleable animal fat as discharged from each indirect heat exchanger into the atmosphere shall not exceed the following limitations:

<u>Source</u>	<u>Emission Limit</u>	<u>Maximum Firing Rate</u>	<u>Allowable Emission Rate</u>	<u>Potential Emissions</u>
Process Boiler #1 (ID No. ES-1)	0.27 lb/million Btu	26.8 million Btu/hour	7.24 lbs/hour	4.3 lbs/hour
Process Boiler #2 (ID No. ES-2)	0.27 lb/million Btu	26.8 million Btu/hour	7.24 lbs/hour	4.3 lbs/hour
Process Boiler #3 (ID No. ES-3)	0.29 lb/million Btu	59.3 million Btu/hour	17.1 lbs/hour	9.5 lbs/hour
NSPS Process Boiler #4 (ID No. ES-12)	0.29 lb/million Btu	61.5 million Btu/hour	17.8 lbs/hour	1.4 lbs/hour
NSPS Process Boiler #5 (ID No. ES-14)	0.25 lb/million Btu	58.6 million Btu/hour	14.6 lbs/hour	1.4 lbs/hour
Process Boiler #6 (ID No. ES-19)	0.25 lb/million Btu	39.5 million Btu/hour	9.88 lbs/hour	0.9 lbs/hour

Monitoring/Recordkeeping

v. The boilers (**ID Nos. ES-1, ES-2, ES-3 and ES-19**) shall be fired only with natural gas, saleable animal fat, No. 5 fuel oil or No. 6 fuel oil.

b. 15A NCAC 2D .0516: Sulfur Dioxide Emissions from Combustion Sources
Statement of Basis

- i. The emission limits for sulfur dioxide from the fuel burning indirect heat exchangers (i.e., the boilers) were prescribed in the Air Permit No. 00951R20 (Specific Conditions and Limitations No. 5).
- ii. Units at the facility burn a combination of natural gas, No. 5 fuel oil, No. 6 fuel oil, and saleable animal fat. Minimal emissions of sulfur dioxide are expected as the sulfur content of the fuel is very low.
- iii. This regulation is applicable to four of the boilers (**ID Nos. ES-1, ES-2, ES-3, and ES-19**). The other two boilers (**ID Nos. ES-12 and ES-14**) are subject to the requirements of 15A NCAC 2D .0524.
- iv. Though potential emissions of sulfur dioxide from the boilers are less than allowable limits, the difference is not significant. Some monitoring of the sulfur content of the fuel oil will be required.

Regulatory Requirements

v. Emissions of sulfur dioxide from the boilers (**ID Nos. ES-1, ES-2, ES-3, and ES-19**) shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. [15A NCAC 2D .0516(a)]. Emissions of sulfur dioxide from the combustion of natural gas, No. 5 fuel oil, No. 6 fuel oil, and saleable animal fat as discharged from the following emission points shall not exceed the following limitations:

<u>Source</u>	<u>Emission Limit</u>	<u>Maximum Firing Rate</u>	<u>Allowable Emission Rate</u>	<u>Potential Emissions</u>
Process Boiler #1 (ID No. ES-1)	2.3 lbs/million Btu	26.8 million Btu/hour	61.6 lbs/hour	59.0 lbs/hour
Process Boiler #2 (ID No. ES-2)	2.3 lbs/million Btu	26.8 million Btu/hour	61.6 lbs/hour	59.0 lbs/hour
Process Boiler #3 (ID No. ES-3)	2.3 lbs/million Btu	59.3 million Btu/hour	136.4 lbs/hour	130 lbs/hour
Process Boiler #6 (ID No. ES-19)	2.3 lbs/million Btu	39.5 million Btu/hour	90.8 lbs/hour	Not provided
Covered anaerobic lagoon pretreatment system (ID No. ES-10)	2.3 lbs/million Btu	3.5 million Btu/hour	8.05 lbs/hour	0.008 lbs/hour

Monitoring/Record Keeping/Reporting

vi. No monitoring, record keeping, or reporting is required for sulfur dioxide emissions from the firing of natural gas/propane or No. 2 fuel oil, and saleable animal fat in the boilers (**ID Nos. ES-1, ES-2, ES-3, and ES-19**) and the firing of natural gas, biogas, or sewer gas in the covered anaerobic lagoon pretreatment system (**ID No. ES-10**).

- vii. The maximum sulfur content of any No. 5 or No. 6 fuel oil received and burned in the boilers shall not exceed 2.1 percent by weight. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0516 if the sulfur content of the fuel oil exceeds this limit.
- viii. To assure compliance, the Permittee shall monitor the sulfur content of the No. 5 and No. 6 fuel oil by using fuel oil supplier certification per shipment received. The results of the fuel oil supplier certifications shall be recorded in a logbook (written or electronic format) on a quarterly basis and include the following information:
 - (a) the name of the fuel oil supplier;
 - (b) the maximum sulfur content of the fuel oil received during the quarter;
 - (c) the method used to determine the maximum sulfur content of the fuel oil; and
 - (d) a certified statement signed by the responsible official that the records of fuel oil supplier certification submitted represent all of the No. 6 fuel oil fired during the period.The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0516 if the sulfur content of the oil is not monitored and recorded.

Reporting

- ix. The Permittee shall submit a summary report of the fuel oil supplier certifications postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

c. 15A NCAC 2D .0521: Control of Visible Emissions

Statement of Basis

- i. Emission limits for visible emissions were prescribed in Air Permit No. 00951R20 (Specific Conditions and Limitations No. 6).
- ii. The visible emissions limits for two boilers (**ID Nos. ES-12 and ES-14**) are prescribed in 15A NCAC 2D .0524.
- iii. As indicated in the air permit review document, dated November 1, 2001, the boiler (**ID No. ES-19**), manufactured prior to July 1, 1971, was removed from another facility in Anson County and installed at this facility. Based on the manufactured date of the boiler, the visible emissions from the boiler shall not be more than 40 percent opacity.

Regulatory Requirements

- iv. As required by 15A NCAC 2D .0521(c) "Control of Visible Emissions," visible emissions from sources manufactured as of July 1, 1971, shall not be more than 40 percent opacity when averaged over a six-minute period [15A NCAC 2D .0521(d)]. However, six minute averaging periods may exceed 40 percent opacity if:
 - (a) No six-minute period exceeds 90 percent opacity;
 - (b) No more than one six-minute period exceeds 40 percent opacity in any hour; and
 - (c) No more than four six-minute periods exceed 40 percent opacity in any 24-hour period

- v. As required by 15A NCAC 2D .0521(d) "Control of Visible Emissions," visible emissions from sources manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period [15A NCAC 2D .0521(d)]. However, six minute averaging periods may exceed 20 percent opacity if:
- (a) No six-minute period exceeds 87 percent opacity;
 - (b) No more than one six-minute period exceeds 20 percent opacity in any hour; and
 - (c) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period
- vi. Visible emissions from the boilers and the covered anaerobic lagoon pretreatment system shall not exceed the following limitations:

<u>Source</u>	<u>Emission Point ID No.</u>	<u>Pollutant</u>	<u>Opacity Limit</u>
Process Boiler #1 (ID No. ES-1)	EP-1	Visible Emissions	20%
Process Boiler #2 (ID No. ES-2)	EP-2	Visible Emissions	20%
Process Boiler #3 (ID No. ES-3)	EP-3	Visible Emissions	20%
Process Boiler #6 (ID No. ES-19)	EP-19	Visible Emissions	40%
Covered anaerobic lagoon pretreatment system (ID No. ES-10)	EP-10	Visible Emissions	20%

Monitoring/Recordkeeping

- vii. To ensure compliance, the Permittee shall observe, on a weekly basis, the emission points for boilers #1, #2, and #3 and the covered anaerobic lagoon pretreatment system, listed in Sections VI.A.3.c.vi., above, for any visible emissions above normal. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions are observed to be above normal, the Permittee shall either:
- (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or
 - (b) demonstrate that the visible emissions from boilers #1, #2, and #3, listed in Section VI.A,3.c. vi., above, in accordance with 15A NCAC 2D .0501(c)(8), do not exceed 20 percent opacity.
- If the demonstrations in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521.
- viii. To ensure compliance, the Permittee shall observe, on a weekly basis, the emission point for the boiler (**ID No. ES-19**) for any visible emissions above normal. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions are observed to be above normal, the Permittee shall either:
- (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or
 - (b) demonstrate that visible emissions from boiler (**ID No. ES-19**) in accordance with 15A NCAC 2D .0501(c)(8), do not exceed 40 percent opacity.
- If the demonstrations in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521.

- ix. The results of the monitoring for visible emissions shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. To ensure quality, entries in the logbook should be signed by personnel responsible for the effective operation of the sources and their air pollution control devices. The logbook shall record the following:
- (a) the date and time of each recorded action;
 - (b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
 - (c) the results of any corrective actions performed.
- The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521 if these records are not maintained.

Reporting

- x. The Permittee shall submit a summary report of monitoring and record keeping activities by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

d. 15A NCAC 2D .0524: New Source Performance Standards (also see Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units as promulgated in 40 CFR Part 60 (60.40c--60.48c))

Statement of Basis

- i. New Source Performance Standards for the boilers #4 and #5 (**ID Nos. ES-12 and ES-14**) were listed in Air Permit No. 00951R20 (Specific Conditions and Limitations No. 8).
- ii. As indicated in 40 CFR 60.40c(a), the affected facility to which this regulation applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)) or less, but greater than or equal to 2.9 MW (10 million Btu/hr). The boiler with **ID No. ES-12** (61.5 million Btu/hour) was placed in operation in 1990. The boiler with **ID No. ES-14** (58.6 million Btu/hour) was placed in operation in 1997.
- iii. According to a permit review document for the Air Permit Number 00951R16, both boilers burn natural gas, No. 2 fuel oil, used oil, and saleable animal fat. No coal is combusted in the units.
- iv. No emission control devices have been installed on the boilers.
- v. The units are subject to standard for sulfur dioxide as prescribed in 40 CFR 60.42c(d): “On and after the date on which the initial performance test is completed or required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility *that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/million Btu) heat input; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur.* The percent reduction requirements are not applicable to affected facilities under this paragraph.”

- vi. As stated in 40 CFR 60.42c(h): "For affected facilities listed under paragraphs (h)(1), (2), or (3) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under § 60.48c(f)(1), (2), or (3), as applicable.
- (1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 million Btu/hr).
 - (2) Residual oil-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 million Btu/hr).
 - (3) Coal-fired facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 million Btu/hr)."
- As only distillate oil is burned, the Permittee has selected this option to demonstrate compliance.
- vii. As stated in 40 CFR 60.42c(i): "The SO₂ emission limits, fuel oil sulfur limits, and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction."
- viii. When using distillate oil, the Permittee may comply with the sulfur in fuel requirement as indicated in 40 CFR 60.44c(h): "For affected facilities subject to § 60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO₂ standards based on fuel supplier certification, the performance test shall consist of the certification, the certification from the fuel supplier, as described under § 60.48c(f)(1), (2), or (3), as applicable."
- ix. When using distillate oil, no monitoring for sulfur dioxide is necessary, as specified in 40 CFR 60.46c(e): "The monitoring requirements of paragraphs (a) and (d) of this section shall not apply to affected facilities subject to § 60.42c(h) (1), (2), or (3) where the owner or operator of the affected facility seeks to demonstrate compliance with the SO₂ standards based on fuel supplier certification, as described under § 60.48c(f) (1), (2), or (3), as applicable."
- x. The units are subject to standard for particulate matter as prescribed in 40 CFR 60.43c(c): "On and after the date on which the initial performance test is completed or required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 million Btu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity." Both units have a heat capacity which exceeds 30 million Btu/hour.
- xi. As indicated in 40 CFR 60.43c(d): "The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction."
- xii. Test measures and procedures for determining compliance with the emission limitations for particulate matter and opacity are listed in 40 CFR 45c(a). As indicated in 40 CFR 60.45c(a)(7): "Method 9 (6-minute average of 24 observations) shall be used for determining the opacity of stack emissions."

- xiii. The requirements for monitoring emissions of particulate matter are prescribed in 40 CFR 60.47c(a) and (b): "(a) The owner or operator of an affected facility combusting coal, residual oil, or wood that is subject to the opacity standards under § 60.43c shall install, calibrate, maintain, and operate a COMS for measuring the opacity of the emissions discharged to the atmosphere and record the output of the system. (b) All COMS for measuring opacity shall be operated in accordance with the applicable procedures under Performance Specification 1 (appendix B). The span value of the opacity COMS shall be between 60 and 80 percent." As the boilers only burn distillate oil, continuous monitoring of visible emissions is not necessary.

Regulatory Requirements

- xiv. Under provisions of 40 CFR 60 Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, and as specifically stated in 40 CFR 60.42c(d): "... no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur."
- xv. As specifically stated in 40 CFR 60.42c(i): "The ... fuel oil sulfur limits ... under this section apply at all times, including periods of startup, shutdown, and malfunction."
- xvi. As specifically stated in 40 CFR 60.43c(c): " no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 million Btu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. "
- xvii. As specifically stated in 40 CFR 60.43c(d): "The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction."
- xviii. Terms used throughout this segment [Section VI.A.3.d.] are defined in the Clean Air Act as amended in 1990 and in 40 CFR 60.2 and 60.41c.

Monitoring/Recordkeeping

- xix. To comply with the provisions of the permit and ensure compliance with the limitations prescribed in 15A NCAC 2D .0524, the Permittee shall establish an inspection and maintenance schedule/checklist and perform such inspections and maintenance on the process boilers (**ID No. ES-12 and ES-14**). As a minimum, the inspection and maintenance program will include a monthly inspection of the indirect heat exchangers, boilers, fans, and duct work for leaks and to ensure structural integrity. In addition, Permittee shall perform maintenance and cleaning at least once per year. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if the process boilers are not inspected, cleaned, and maintained.
- xx. The results of inspection and maintenance activities, discussed above for the process boilers, shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative of DAQ upon request. The logbook shall record the following:
- (a) the date and time of each recorded action;
 - (b) the results of each inspection; and
 - (c) corrective actions taken.
- To ensure quality, entries in the logbook should be signed by personnel responsible for the effective operation of the boilers. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if these records are not maintained.

For emissions of sulfur dioxide

- xxi. To ensure compliance, the Permittee shall monitor the sulfur content of distillate fuel oil by using fuel oil supplier certification per shipment received. The results of the fuel oil supplier certifications shall be recorded in a logbook (written or electronic format) on a quarterly basis and include the following information:
- (a) the name of the fuel oil supplier;
 - (b) the maximum sulfur content of the fuel oil received during the quarter;
 - (c) a statement from the oil supplier that the oil complies with the specification under the definition of distillate oil in 40 CFR 41c and
 - (d) a certified statement signed by the responsible official that the records of fuel oil supplier certification submitted represent all of the fuel oil fired during the period.

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if the sulfur content of the distillate oil is not monitored and recorded. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if the sulfur content of the fuel oil exceeds 0.5 weight percent sulfur.

For emissions of particulate matter

- xxii. Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the emission limit(s) above by testing the emission points for the oil-fired process boilers (**ID Nos. ES-12 and ES-14**) for visible emissions utilizing EPA Reference Method No. 9, contained in 40 CFR Part 60 Appendix A and in accordance with a testing protocol approved by the DAQ. Details of the emissions testing and requirements can be found in 40 CFR 60.43c, 40 CFR 60.45c, and in Section 3 - General Condition JJ. Testing shall be completed and the results submitted within **one year after permit issuance**, unless an alternate date is approved by the DAQ. Thereafter the testing shall be performed on an annual basis. If the results of these tests are above 20 % opacity, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524.

- xxiii. To ensure compliance and effective operation of the boilers, the Permittee shall observe, on a weekly basis, the emission points for the boilers with **ID Nos. ES-12 and ES-14** for any visible emissions above normal. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions are observed to be above normal, the Permittee shall either:

- (a) be deemed to be in noncompliance with 15A NCAC 2D .0524 or
- (b) demonstrate that the visible emissions from the boilers (**ID Nos. ES-12 and ES-14**), in accordance with 40 CFR 60.43c, 40 CFR 60.45c, and 15A NCAC 2D .0501(c)(8), do not exceed 20 percent opacity.

If the demonstrations in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0524.

- xxiv. The results of the monitoring for visible emissions shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. To ensure quality, entries in the logbook should be signed by personnel responsible for the effective operation of the continuous opacity monitor and the boiler and its air pollution control devices. The logbook shall record the following:

(a) the date and time of each recorded action;

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(b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and

(c) the results of any corrective actions performed.

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if these records are not maintained.

xxv. In addition to any other record keeping requirements of the Environmental Protection Agency (EPA), the Permittee is required to maintain records as follows:

(a) the owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day; and

(b) all records required under this section shall be maintained by the owner or operator of an affected facility for a period of two years following the date of such record.

The record of the amounts of fuel combusted during each day shall be made available to an authorized representative of DAQ upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if the amounts of fuel combusted during each day are not recorded.

Reporting

xxvi. In addition to any other notification requirements to the Environmental Protection Agency (EPA), the Permittee is required to **NOTIFY** the Regional Supervisor, Division of Air Quality, in **WRITING**, of the following:

(a) the sulfur content of the distillate oil combusted in an affected facility shall not exceed 0.5 percent by weight. **Within thirty days after each calendar year quarter, the Permittee must submit in writing** to the Regional Supervisor, Division of Air Quality, the sulfur content of the distillate oil combusted in an affected facility. If fuel supplier certification is used to demonstrate compliance, fuel supplier certification shall include the following information:

(1) the name of the oil supplier;

(2) a statement from the oil supplier that the oil complies with the specification under the definition of distillate oil in 40 CFR 60.41c; and

(3) a certified statement signed by the owner or operator of an affected facility that the records of fuel supplier certification submitted represents all of the fuel combusted during the quarter;

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if the sulfur content of the fuel oil exceeds 0.5 weight percent sulfur.

xxvii. The Permittee shall submit a summary report of monitoring and record keeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

e. 15A NCAC 2D .0530: Prevention of Significant Deterioration

Statement of Basis

i. Requirements regarding “prevention of significant deterioration” for the affected emission points were prescribed in Air Permit No. 00591R20

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Regulatory Requirements

- ii. To comply with this permit and avoid the applicability of 15A NCAC 2D .0530, Prevention of Significant Deterioration, as requested by the Permittee, sulfur dioxide emissions from the 60.5 million Btu per hour boiler (**ID No. ES-3**) and the 39.5 million Btu per hour boiler (**ID No. ES-19**) shall be less than 240 tons per consecutive twelve (12) month period **and** sulfur dioxide emissions from the two 26.8 million Btu per hour boilers (**ID Nos. ES-1 and ES-2**) shall be less than 250 tons per consecutive twelve (12) month period.

Monitoring/Record keeping

- iii. To ensure federal enforceability of these limits, the maximum sulfur content of the oil combusted in the boilers (**ID Nos. ES-1, ES-2, ES-3, and ES-19**) shall not exceed 2.1 percent by weight. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the sulfur content of the fuel oil combusted in these boilers exceeds 2.1 percent by weight.
- iv. To assure compliance, the Permittee shall monitor the sulfur content of the fuel oil by using a fuel oil supplier certification per shipment received. The results of the fuel oil supplier certifications shall be recorded in a logbook (written or electronic format) on a quarterly basis and include the following information:
- (a) the name of the fuel oil supplier;
 - (b) the maximum sulfur content of the fuel oil received during the quarter;
 - (c) the method used to determine the maximum sulfur content of the fuel oil; and
 - (d) a certified statement signed by the responsible official that the records of fuel oil supplier certification submitted represent all of the No. 5 and No. 6 fuel oil fired during the period.
- The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the sulfur content of the oil is not monitored and recorded.

Reporting

- v. For compliance purposes, within thirty (30) days after each calendar year quarter the following shall be reported to the Regional Supervisor, Division of Environmental Management:
- (a) The maximum sulfur content of the oil combusted in the boilers (**ID Nos. ES-1, ES-2, ES-3, and ES-19**) including certification from the fuel supplier.
 - (b) The amount of No. 5/No. 6 oil combusted in the two 26.8 million Btu per hour boilers (**ID Nos. ES-1 and ES-2**) for the previous fourteen (14) months. The No. 5/No. 6 oil usage must be calculated for each of the three twelve month periods over the previous fourteen months.
 - (c) The amount of No. 5/No. 6 oil combusted in the 60.5 million Btu per hour boiler (**ID No. ES-3**) for the previous fourteen (14) months. The No. 5/No. 6 oil usage must be calculated for each of the three twelve month periods over the previous fourteen months.
 - (d) The amount of No. 2/No. 6 oil combusted in the 39.5 million Btu per hour boiler (**ID No. ES-19**) for the previous fourteen (14) months. The No. 2/No. 6 oil usage must be calculated for each of the three twelve month periods over the previous fourteen months.

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(e) The use of fuel in boilers shall be calculated monthly. Calculations shall be recorded in a logbook (written or in electronic format), according to the following formula:

$$X = Y \times 0.6 \frac{\text{lbs sulfur dioxide}}{\text{million cubic feet}} \% Z \times \frac{157 \text{ lbs sulfur dioxide}}{1000 \text{ gallon fuel oil}} \times S$$

Where: X is the total actual emissions of sulfur dioxide in pounds
Y is the total amount of natural gas used in the boilers in cubic feet
Z is the amount of fuel oil used in the boilers in gallons
S is the percent sulfur in the fuel oil

vi. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the sulfur dioxide emissions from the 60.5 million Btu per hour boiler (**ID No. ES-3**) and the 39.5 million Btu per hour boiler (**ID No. ES-19**) exceed 240 tons per consecutive twelve (12) month period. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the sulfur dioxide emissions from the two 26.8 million Btu per hour boilers (**ID Nos. ES-1 and ES-2**) exceed 250 tons per consecutive twelve (12) month period.

f. 15A NCAC 2D .0530: Prevention of Significant Deterioration

Statement of Basis

i. Requirements regarding “prevention of significant deterioration” for the affected emission points were prescribed in Air Permit No. 00951R20 (Specific Conditions and Limitations No. 10).

Regulatory Requirements

ii. To comply with this permit and avoid the applicability of 15A NCAC 2D .0530, "Prevention of Significant Deterioration," as requested by the Permittee, sulfur dioxide and nitrogen oxide emissions from the boiler (**ID No. ES-12**) shall be less than 40 tons per consecutive twelve (12) month period and carbon monoxide emissions from the boiler (**ID No. ES-12**) shall be less than 100 tons per consecutive twelve (12) month period.

Monitoring/Recordkeeping

iii. To ensure enforceability of this limit, the combination of fuel usage in the boiler (**ID No. ES-12**) shall be limited such that emissions do not exceed those levels specified above.

iv. The Permittee shall keep records in a log (written or electronic format) of the amount of each fuel combusted in the boiler (**ID No. ES-12**), sulfur content of fuel oil combusted, and the emissions calculations for sulfur dioxide, nitrogen oxide, and carbon monoxide for each month. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if these records are not maintained.

v. Calculations of emissions of sulfur dioxide, carbon monoxide, and nitrogen oxide from the boiler (**ID No. ES-12**) shall be made monthly for each of the three twelve month periods over the previous fourteen months. Calculations shall be made using AP-42 emission factors for emissions from fuel oil and natural gas combustion and emission factors listed below for emissions from the saleable animal fat oil combustion source test that was completed on April 5, 2001 at the Valley Proteins Inc. - Wadesboro Plant.

Nitrogen Oxide

0.293 pounds/million Btu

Carbon Monoxide

0.017 pounds/million Btu

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the emissions of sulfur dioxide, nitrogen oxide, and carbon monoxide from the boiler (**ID No. ES-12**) are not calculated.

- vi. The Permittee shall keep each monthly record of emissions of sulfur dioxide, nitrogen dioxide, and carbon monoxide from the boiler (**ID No. ES-12**) on file for a minimum of **five (5) years**. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the monthly records are not maintained.

Reporting

- vii. For compliance purposes, within thirty (30) days after each calendar year quarter, the following shall be reported to the Regional Supervisor, Division of Environmental Management:
 - (a) emissions of carbon monoxide, sulfur dioxide, and nitrogen oxide from the boiler (**ID No. ES-12**) for each of the twelve month periods over the previous fourteen month period, and
 - (b) the monthly quantity of each fuel combusted in the boiler (**ID No. ES-12**) over the previous fourteen month period.

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the emissions of sulfur dioxide and nitrogen oxide from the boiler (**ID No. ES-12**) exceed 40 tons per consecutive twelve (12) month period. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the emissions of carbon monoxide from the boiler (**ID No. ES-12**) exceed 100 tons per consecutive twelve (12) month period.

g. 15A NCAC 2D .0530: Prevention of Significant Deterioration

Statement of Basis

- i. Requirements regarding "prevention of significant deterioration" for the affected emission points were prescribed in Air Permit No. 00951R20 (Specific Conditions and Limitations No. 11).

Regulatory Requirements

- ii. To comply with this permit and avoid the applicability of 15A NCAC 2D .0530, "Prevention of Significant Deterioration," as requested by the Permittee, sulfur dioxide and nitrogen oxide emissions from the boiler (**ID No. ES-14**) shall be less than 40 tons per consecutive twelve (12) month period and carbon monoxide emissions from the boiler (**ID No. ES-14**) shall be less than 100 tons per consecutive twelve (12) month period.

Monitoring/Recordkeeping

- iii. To ensure enforceability of this limit, the combination of fuel usage in the boiler (**ID No. ES-14**) shall be limited such that emissions do not exceed those levels specified above.
- iv. The Permittee shall keep records in a log (written or electronic format) of the amount of each fuel combusted in the boiler (**ID No. ES-14**), sulfur content of fuel oil combusted, and the emissions calculations for sulfur dioxide, nitrogen oxide, and carbon monoxide for each month. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if these records are not maintained
- v. Calculations of emissions of sulfur dioxide, carbon monoxide, and nitrogen oxide from the boiler (**ID No. ES-14**) shall be made monthly for each of the three twelve month periods over the previous fourteen months. Calculations shall be made using AP-42 emission factors for emissions from fuel oil and natural gas combustion and emission factors listed below for emissions from the saleable animal fat oil

combustion source test that was completed on April 5, 2001 at the Valley Proteins Inc. - Wadesboro Plant.

Nitrogen Oxide

0.293 pounds/million Btu

Carbon Monoxide

0.017 pounds/million Btu

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the emissions of sulfur dioxide, nitrogen oxide, and carbon monoxide from the boiler (**ID No. ES-14**) are not calculated.

- vi. The Permittee shall keep each monthly record of emissions of sulfur dioxide, nitrogen dioxide, and carbon monoxide from the boiler (**ID No. ES-14**) on file for a minimum of **five (5) years**. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the monthly records are not maintained.

Reporting

- vii. For compliance purposes, within thirty (30) days after each calendar year quarter, the following shall be reported to the Regional Supervisor, Division of Environmental Management:

- (a) emissions of carbon monoxide, sulfur dioxide, and nitrogen oxide from the boiler (**ID No. ES-14**) for each of the twelve month periods over the previous fourteen month period, and
- (b) the monthly quantity of each fuel combusted in the boiler (**ID No. ES-14**) over the previous fourteen month period.

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the emissions of sulfur dioxide and nitrogen oxide from the boiler (**ID No. ES-14**) exceed 40 tons per consecutive twelve (12) month period. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the emissions of carbon monoxide from the boiler (**ID No. ES-14**) exceed 100 tons per consecutive twelve (12) month period.

h. 15A NCAC 2D .0530: Prevention of Significant Deterioration

Statement of Basis

- i. Requirements regarding “prevention of significant deterioration” for the affected emission points were prescribed in Air Permit No. 00951R20 (Specific Conditions and Limitations No. 12).

Regulatory Requirements

- ii. To comply with this permit and avoid the applicability of 15A NCAC 2D .0530, Prevention of Significant Deterioration, as requested by the Permittee, carbon monoxide emissions from boilers (**ID Nos. ES-1, ES-2, ES-3, ES-12, ES-14, and ES-19**) shall be less than 100 tons per consecutive twelve (12) month period while combusting saleable animal fat oil.

Monitoring/Recordkeeping

- iii. To ensure federal enforceability of these limits the total saleable animal fat oil combusted in boilers (**ID Nos. ES-1, ES-2, ES-3, ES-12, ES-14, and ES-19**) shall not exceed 1.91 million gallons during any consecutive twelve month period.
- iv. The Permittee shall keep records in a log (written or electronic format) of the quantity of animal fat combusted in the boilers and the calculated emissions for carbon monoxide. Emission calculations of carbon monoxide for the consecutive twelve (12) month periods shall begin upon the effective date of this permit. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the above records are not kept or if emissions of carbon monoxide from the combustion of saleable animal fat oil in the boilers (**ID Nos. ES-1, ES-2, ES-3, ES-12, ES-14, and ES-19**) exceed 100 tons per consecutive 12 month period.

- v. The Permittee shall cease burning saleable animal fat oil upon written notification from the Regional Supervisor, Division of Air Quality. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if saleable animal fat oil continues to be burned after receiving the written notification from the Division of Air Quality.
- vi. The Permittee shall keep each monthly record of saleable animal fat oil combusted in the boilers and each calculation of emissions of carbon monoxide on file for a minimum of **five (5) years**. The Permittee shall keep monthly records of the amount of each fuel used each monthly record on file for a minimum of **five (5) years**. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the records and calculations are not maintained.

Reporting

- vii. For compliance purposes, within thirty (30) days after each calendar year quarter the following shall be reported to the Regional Supervisor, Division of Air Quality:
 - (a) carbon monoxide emissions from the boilers (**ID Nos. ES-1, ES-2, ES-3, ES-12, ES-14 and ES-19**) while burning animal fat for each of the three twelve month periods over the previous fourteen month period and
 - (b) the amount of saleable animal fat oil combusted in boilers (**ID Nos. ES-1, ES-2, ES-3, ES-12, ES-14 and ES-19**) for each of the three twelve month periods over the previous fourteen month period.
- viii. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the total amount of saleable animal fat oil combusted in boilers (**ID Nos. ES-1, ES-2, ES-3, ES-12, ES-19 and ES-10**) exceeds 1.91 million gallons during any consecutive twelve month period.

B. Cooking Processes

- 1. Description
 The cooking process includes offal processes (**ID Nos. ES-4 and ES-11**), the feather process (**ID Nos. ES-5a, ES-5b, and ES-5c**), the fat and grease process (**ID No. ES-7**), and the pressors, centrifuges, and miscellaneous equipment (**ID Nos. ES-6 and ES-16**). The substances are cooked to remove water and to process into a product.

The process rates for the units that make up the cooking processes are as follows:

Emission Source	Emission Source ID No.	Maximum Process Rate ¹
Feed Grade Plant offal material process	ES-4	36 tons/hour
Feather process dryers ²	ES-5a and ES-5c ²	Not provided
Feather process cooker ²	ES-5b ²	8 tons/hour
Feed Grade Plant pressors, centrifuges, and miscellaneous equipment ²	ES-6	Not provided
Fat and Grease process ²	ES-7	16 tons/hour ³
Pet Food Grade Plant offal material process ²	ES-11	22.5 tons/hour ²

Pet Food Grade Plant pressors, centrifuges, and miscellaneous equipment ²	ES-16	Not provided
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¹ Permit Application (January 17, 1996) Section B

² Information obtained from existing air permit 00951R20

³ Information calculated by combining processes discussed in application submitted January 17, 1996

2. An Overview of Applicable Regulatory Requirements

The following table provides a summary of limits and/or standards for the emission units. A review of the information in the application was performed to ensure that the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	$E = 4.10P^{0.67}$ for units with process weight rates less than 30 tons	15A NCAC 2D .0515
visible emissions	20 percent opacity Note limits and discussion in Section VI.B.3.b	15A NCAC 2D .0521(d)
odors	The owner or operator of any facility that produces feed-grade animal proteins or feed-grade animal fats and oils, but do not apply to any portions of such facilities that are engaged exclusively in the processing of food for human consumption, shall comply with work practices standards - Section VII.B.1. Facility-wide Affected Emission Sources State-enforceable only	15A NCAC 2D .0539

3. Specific requirements and affected emission points

a. 15A NCAC 2D .0515: Particulate Emissions from Miscellaneous Industrial Processes

Statement of Basis

- i. The methods for calculating the emission limits for particulate matter were prescribed in Air Permit No. 00951R20 in Specific Conditions and Limitations No. 3.
- ii. Particulate emissions are controlled by condensers, venturi scrubbers, and packed tower scrubbers. In addition to removing particulate matter from the exhaust stream, these control devices help reduce odors.
- iii. Stack testing is not required to ensure compliance with this regulation. However the test method condition will be put in the permit in the event that DAQ or EPA finds that due to improper operation, violations, etc., source testing is required. Testing requirements are specified in 2D .0501(c).

Regulatory Requirements

- iv. Emissions of particulate matter that are discharged into the atmosphere

shall not exceed an allowable emission rate as calculated by the following equation: [15A NCAC 2D .0515(a)].

$E = 4.10 \times P^{0.67}$ for units with process weight rate less than 30 tons per hour
 Where E = allowable emission rate in pounds per hour calculated to three significant figures
 P = process weight rate in tons per hour

or $E = 55.0(P)^{11} - 40$ for units with process weight rates greater than 30 tons per hour
 Where E = allowable emission rate in pounds per hour calculated to three significant figures
 P = process weight rate in tons per hour

Liquid and gaseous fuels and combustion air are not considered as part of the process weight. In no case shall the following emission limitations be exceeded:

<u>Source</u>	<u>Pollutant</u>	<u>Process Weight Rate</u>	<u>Emission Limit</u>	<u>Emissions after Controls</u>
Feed Grade Plant offal material process (ID No. ES-4)	Particulate matter	36 tons per hour	41.6 lbs/hour	16.7 lbs/hour
Feather process dryers (ID No. ES-5a and ES-5c)	Particulate matter	Not provided	N/A	Not available
Feather process cooker (ID No. ES-5b)	Particulate matter	8 tons per hour	14.5 lbs/hour	4.02 lbs/hour
Feed Grade Plant pressors, centrifuges, & misc. equipment (ID No. ES-6)	Particulate matter	Not provided	N/A	Not available
Fat and Grease process (ID No. ES-7)	Particulate matter	16 tons per hour	26.3 lbs/hour	9.75 lbs/hour
Pet Food Grade Plant offal material process (ID No. ES-11)	Particulate matter	22.5 tons per hour	33.0 lbs/hour	Not available
Pet Food Grade Plant pressors, centrifuges, & misc. equipment (ID No. ES-16)	Particulate matter	Not provided	N/A	Not available

To comply with the provisions of the permit and ensure compliance with the limitations prescribed in 15A NCAC 2D .0515, the Permittee shall establish an inspection and maintenance schedule/checklist and perform such inspections and maintenance on the condensers (ID Nos. CD-4b, CD-5c, CD-5d, CD-7b, CD-11a, and CD-11b), venturi scrubbers (ID Nos. CD-4c, CD-6a, and CD-11c), mist eliminators (ID Nos. CD-4e and CD-4d), packed tower scrubbers (ID Nos. CD-6b and CD-11d), peabody scrubber (ID No. CD-9b) and Process Boilers (ID Nos. ES-3, ES-12, ES-14, and ES-19). As a minimum, the inspection and maintenance program will include a monthly inspection of the indirect heat exchanger, fans, and duct work for corrosion, damage, leaks, and grease buildup and to ensure structural integrity. In addition, Permittee shall perform maintenance and cleaning at least once per year. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0515 if the condensers, venturi scrubber, packed tower scrubber, and the process boilers are not inspected, cleaned, and maintained.

Inspection and Maintenance Requirements

- v. The inspection and maintenance conditions apply to each control device regardless of whether the control device is in service at any given point in time. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0515 if the control devices are not inspected and maintained.

- vi. To comply with the provisions of this Permit and ensure that maximum control efficiency is maintained, the Permittee shall perform periodic inspections and maintenance as recommended by the manufacturer. As a minimum, the inspection and maintenance program will include:
- (a) Weekly inspection of scrubbers, including spray nozzles, packing material, and chemical feed system (chlorine dioxide) to ensure proper operation.
 - (b) Weekly inspection of mist eliminators to ensure that each system is draining properly,
 - (c) Weekly visual inspection of condensers, including ductwork leading to and coming from the condenser.
 - (d) Weekly inspection and replacement, as needed, of all instrumentation associated with control devices (including pH meters, pressure gauges, temperature gauges, etc.).
 - (e) Monthly inspection of fan belts associated with air cooled condensers.
 - (f) Semi-annual calibration of chlorine dioxide generation system.
 - (g) Daily inspection and replacement, as needed, of flowmeters associated with fuel rate to each boiler.
 - (h) Annual internal inspection of the control devices and external inspection of associated ductwork to ensure structural integrity.

Monitoring Requirements for Odor Control Devices:

- vii. Monitoring Requirements: The Permittee shall monitor and record which control devices are used during all hours of operation. If the control device is not operating within the permitted operating parameter a maintenance request shall be recorded in the logbook as well as the date that the corrective action was completed. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0515 if these monitoring activities below are not completed and records are not maintained.
- (a) Scrubbers: The Permittee shall ensure the proper performance of the scrubber by monitoring pressure, ORP, pH and exit gas temperature, as indicated for each scrubber (see below for specific parameters).

Scrubbers at Feed Grade Plant:

- (i) One packed bed scrubber (**ID No. CD-6b**) shall operate in a pressure range of 6 to 10 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.
- (ii) One venturi scrubber (**ID No. CD-6a**) shall operate in a pressure range of 12 to 15 PSIG. The maximum temperature of the gas exiting the scrubber shall not exceed 120 degrees Fahrenheit. Daily monitoring of the pressure and the gas temperature shall be performed to ensure proper operation.

- (iii) One peabody scrubber (**ID No. 9b**) shall operate in the nozzle pressure range of 18 to 22 PSIG and in the flood valve range of 4 to 6 PSIG when operational. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2 when operational. The minimum ORP shall be 550 mV when operational. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation. *****(Note this scrubber is currently not operational. Notification of the proper monitoring parameters to an authorized DAQ representative shall be required prior to operation of this scrubber.)***
- (iv) One two-staged cross-flow scrubber (**ID No. CD-9a**) shall operate in a nozzle pressure range of 13 to 17 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.

Scrubbers at Pet Grade Plant:

- (v) One two-staged cross-flow scrubber (**ID No. CD-15a**) shall operate in a nozzle pressure range of 13 to 17 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.
- (vi) One venturi scrubber (**ID No. CD-11c**) shall operate in a pressure range of 13 to 17 PSIG. The maximum temperature of the gas exiting the scrubber shall not exceed 120 degrees Fahrenheit. Daily monitoring of the pressure and the gas temperature shall be performed to ensure proper operation.
- (vii) One packed bed scrubber (**ID No. CD-11d**) shall operate in a pressure range of 3 to 8 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.

Boilers at Feed Grade and Pet Grade Plants:

- (viii) Boilers: Each boiler that is to be used as a control device (**ID Nos. ES-3, ES-12, ES-14, and ES-19**) shall be equipped with a device to continuously measure the amount of fuel flow into the boiler. The Permittee shall record daily the date, time, fuel flow rate into

each applicable boiler, while these boilers are being used as a control device.

Condensers at Feed Grade and Pet Grade Plants:

- (ix) Condensers: The condensers shall be equipped with a device to continuously measure the exit water temperature. The maximum temperature of the water exiting the condensers shall not exceed 160 degrees Fahrenheit. The device (*e.g.*, thermocouple) shall be installed in an accessible location and shall be maintained by the Permittee such that it is in proper working order at all times. Daily monitoring of the outlet temperature from each condenser shall be performed to ensure proper operation.

Record keeping Requirements

- viii. The Permittee shall maintain a logbook (written or electronic format) for each control device. This logbook(s) shall include the results of all inspection and maintenance and monitoring activities. The logbook(s) shall be kept on site and made available to the authorized DAQ representative upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0515 if these records are not maintained.
- ix. The results of the inspection and maintenance performed shall be maintained in a logbook (written or electronic format). This logbook shall be on site and made available to the authorized DAQ representative.
- (a) Date and time of actions;
- (b) The results of each inspection;
- (c) The results of any maintenance performed on the control devices and/or chemical feed system; and
- (d) Any variance from the manufacturer's recommendations, if any, and corrections made.
- x. The results of the required monitoring shall be maintained in a logbook (written or electronic format) on site and made available to the authorized DAQ representative upon request. The logbook shall record the following:
- (a) The proper operating range for each parameter being monitored;
- (b) The observed operating parameter at the time it was monitored;
- (c) Date and time of this observation;
- (d) Corrective action taken if the control device is not operating in the proper operating range; and
- (e) Date and time corrective action completed.

Reporting Requirements

- ix. The Permittee shall submit the results of any maintenance performed on the condensers (**ID Nos. CD-4b, CD-5c, CD-5d, CD-7b, CD-11a, and CD-11b**), mist eliminators (**ID Nos. CD-4d and CD-4e**), venturi scrubbers (**ID Nos. CD-4c, CD-6a, and CD-11c**), packed bed scrubbers (**ID Nos. CD-6b and CD-11d**), peabody scrubber (**ID No. CD-9b**) and process boilers used as control devices (**ID Nos. ES-3, ES-12, ES-14, and ES-19**) within 30 days of a written request by the DAQ.
- (a) The Permittee shall submit a summary report of monitoring and record keeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year

b. 15A NCAC 2D .0521: Control of Visible Emissions

Statement of Basis

- i. Emission limits for visible emissions were prescribed in Air Permit No. 00951R20 (Specific Conditions and Limitations No. 6).
- ii. Exceedances of VE requirements have been observed in recent inspections and complaint investigations.
- iii. Multiple emission sources are exhausted through a shared control device and ultimately to a single emission point.

Regulatory Requirements

- iv. As required by 15A NCAC 2D .0521(d) "Control of Visible Emissions," visible emissions from sources manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period [15A NCAC 2D .0521(d)]. However, six minute averaging periods may exceed 20 percent opacity if:
 - (a) No six-minute period exceeds 87 percent opacity;
 - (b) No more than one six-minute period exceeds 20 percent opacity in any hour; and
 - (c) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period
- v. Visible emissions from the units that make up the cooking processes shall not exceed the following limitations:

<u>Source</u>	<u>Emission Point ID No.</u>	<u>Pollutant</u>	<u>Opacity Limit</u>
Feed Grade Plant offal material process (ID No. ES-4)	EP-3 EP-12 EP-6b	Visible Emissions	20%
Feather process dryers (ID Nos. ES-5a and ES-5c)	EP-3 EP-12 EP-6b	Visible Emissions	20%
Feather process cooker (ID No. ES-5b)	EP-6b	Visible Emissions	20%
Feed Grade Plant pressors, centrifuges, & misc. equipment (ID No. ES-6)	EP-6b	Visible Emissions	20%
Fat and Grease process (ID No. ES-7)	EP-6b	Visible Emissions	20%
Pet Food Grade Plant offal material process (ID No. ES-11)	EP-14 EP-11d	Visible Emissions	20%
Pet Food Grade Plant pressors, centrifuges, & misc. equipment (ID No. ES-16)	EP-14 EP-11d	Visible Emissions	20%

Monitoring/Recordkeeping

- vi. To ensure compliance, the Permittee shall observe, on a weekly basis, the emission points for the cooking processes (ID Nos. ES-4, ES-5a, ES-5b, ES-5c, ES-6, ES-7, ES-11 and ES-16), listed in Section VI.B.3.b.v., above, for any visible emissions above normal. The Permittee shall establish “normal” for the source in the first 30 days following the effective date of the permit. If visible emissions are

observed to be above normal, the Permittee shall either:
(a) be deemed to be in noncompliance with 15A NCAC 2D .0521
or

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(b) demonstrate that the visible emissions from the cooking processes (ID Nos. ES-4, ES-5a, ES-5b, ES-5c, ES-6, ES-7, ES-11 and ES-16), in accordance with 15A NCAC 2D .0501(c)(8), do not exceed 20 percent opacity.

If the demonstrations in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521 for all affected emission sources.

- vii. The results of the monitoring for visible emissions shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. To ensure quality, entries in the logbook should be signed by personnel responsible for the effective operation of the sources and their air pollution control devices. The logbook shall record the following:
- (a) the date and time of each recorded action;
 - (b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
 - (c) the results of any corrective actions performed.

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521 if these records are not maintained.

Reporting

- viii. The Permittee shall submit a summary report of monitoring and record keeping activities by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

C. Truck Load Out Operations

1. Description

The process rates for the truck load out operations are as follows:

Emission Source	Emission Source ID No.	Maximum Process Rate¹
poultry meal and feather meal truck and/or container load out operation ²	ES-13	Not provided
truck and/or container meal load out operation ²	ES-17	Not provided

¹ Permit Application (January 17, 1996) Section B

² Identified in Air Permit Number 00951R20

2. An Overview of Applicable Regulatory Requirements

The following table provides a summary of limits and/or standards for the emission units. A review of the information in the application was performed to ensure that the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
visible emissions	20 percent opacity Note limits and discussion in Section VI.C.3.a	15A NCAC 2D .0521(d)
odors	The owner or operator of any facility that produces feed-grade animal proteins or feed-grade animal fats and oils, but do not apply to any portions of such facilities that are engaged exclusively in the processing of food for human consumption, shall comply with work practices standards - Section VII.B.1. Facility-wide Affected Emission Sources State-enforceable only	15A NCAC 2D .0539

Other regulations considered for emissions from the truck load out operations:

C 15A NCAC 2D .0515: Particulate Emissions from Miscellaneous Industrial Processes. As emissions from the load out operations are fugitive, this emission limitation does not apply.

a. 15A NCAC 2D .0521: Control of Visible Emissions

Statement of Basis

- i. Emission limits for visible emissions were prescribed in Air Permit No. 00951R20 (Specific Conditions and Limitations No. 6).
- ii. According to a recent inspection report: "This area has dry meal all about, but it is essentially enclosed except for the open bay door for the tractor trailer truck loadout. There are four overhead loadout shoots with burlap-like sleeves."
- iii. Emissions are principally fugitive in that the emissions are not from a stack.

Regulatory Requirements

- iv. As required by 15A NCAC 2D .0521(d) "Control of Visible Emissions," visible emissions from sources manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period [15A NCAC 2D .0521(d)]. However, six minute averaging periods may exceed 20 percent opacity if:
 - (a) No six-minute period exceeds 87 percent opacity;
 - (b) No more than one six-minute period exceeds 20 percent opacity in any hour; and
 - (c) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period
- v. Visible emissions from the units that make up the truck load out operations shall not exceed the following limitations:

<u>Source</u>	<u>Source ID No.</u>	<u>Pollutant</u>	<u>Opacity Limit</u>
Poultry meal and feather meal truck and/or container load out operation	ES-13	Visible Emissions	20%
Truck and/or container meal load out operation	ES-17	Visible Emissions	20%

Monitoring/Recordkeeping

- vi. To ensure compliance, the Permittee shall observe, on a weekly basis, emissions from the truck load out operations (**ID Nos. ES-13 and ES-17**), listed in Section VI.C.3.a.v., above, for any visible emissions above normal. The Permittee shall establish “normal” for the source in the first 30 days following the effective date of the permit. If visible emissions are observed to be above normal, the Permittee shall either:
- (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or
 - (b) demonstrate that the visible emissions from the truck load out operations (**ID Nos. ES-13 and ES-17**), in accordance with 15A NCAC 2D .0501(c)(8), do not exceed 20 percent opacity.
- If the demonstrations in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521 for all affected emission sources.
- vii. The results of the monitoring for visible emissions shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. To ensure quality, entries in the logbook should be signed by personnel responsible for the effective operation of the sources. The logbook shall record the following:
- (a) the date and time of each recorded action;
 - (b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
 - (c) the results of any corrective actions performed.
- The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521 if these records are not maintained.

Reporting

- viii. The Permittee shall submit a summary report of monitoring and record keeping activities by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

D. Rendering Room Air Systems

1. Description

The process rates for the rendering room air systems are as follows:

Emission Source	Emission Source ID No.	Maximum Process Rate¹
Feed Grade Plant rendering room air system	ES-9	9 million scf/hour
Pet Food Grade Plant rendering room air system ²	ES-15	Not provided

¹ Permit Application (January 17, 1996) Section B

² Identified in Air Permit Number 00951R20

2. An Overview of Applicable Regulatory Requirements

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The following table provides a summary of limits and/or standards for the emission units. A review of the information in the application was performed to ensure that the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
odors	The owner or operator of any facility that produces feed-grade animal proteins or feed-grade animal fats and oils, but do not apply to any portions of such facilities that are engaged exclusively in the processing of food for human consumption, shall comply with work practices standards - Section VII.B.1. Facility-wide Affected Emission Sources State-enforceable only	15A NCAC 2D .0539

Other regulations considered for emissions from the truck load out operations:

- C 15A NCAC 2D .0515: Particulate Emissions from Miscellaneous Industrial Processes. Emissions from the rendering room air systems are gases.
- C 15A NCAC 2D .0521: Visible Emissions. The requirements do not apply where the presence of uncombined water is the reason for noncompliance. Emissions result from scrubbers which are used to reduce odors from the rooms.

VII Facility-wide affected emission sources

A. Overview of Applicable Regulatory Requirements

The following table provides a summary of limits and standards applicable facility-wide:

Regulated Pollutant	Limits/Standards	Applicable Regulation
odors	The owner or operator of any facility that produces feed-grade animal proteins or feed-grade animal fats and oils, but do not apply to any portions of such facilities that are engaged exclusively in the processing of food for human consumption, shall comply with work practices standards State-enforceable only	15A NCAC 2D .0539

B. Specific requirements and affected emission points

1. 15A NCAC 2D .0539: Odor Control of Feed Ingredient Manufacturing Plants (State only requirement)

Statement of Basis

- a. The Permittee is subject to these requirements as it produces feed-grade animal proteins and feed-grade animal fats and oils and is not engaged in processing food for human consumption.
- b. Provisions for these odor requirements were prescribed in Air Permit No. 00951R20 (Specific Conditions and Limitations Nos. 14 and 15).

Regulatory Requirement

- c. As required by 15A NCAC 2D.0539 "Odor Control of Feed Ingredient Manufacturing Plants:" The Permittee shall not allow, cause, or permit the operation or use of any device, machine, equipment, or other contrivance to process material to be used in the production of feed-grade animal proteins or feed-grade animal fats and oils unless all gases, vapors, and gas-entrained effluents from these processes are passed through condensers to remove all steam and other condensible materials. All noncondensibles passing through the condensers shall then be incinerated at 1200 degrees Fahrenheit for a period of not less than 0.3 seconds, or treated in an equally effective manner.

Monitoring and Record keeping

- d. Permittee shall install, operate, and maintain in good working order and calibration continuous measuring and recording devices for equipment operational parameters to document equipment operation in accordance with 2D .0539. In addition, the Permittee shall follow the approved quality assurance program for all monitoring devices and systems, which include:
- i. procedures and frequencies for calibration,
 - ii. standards traceability,
 - iii. operational checks,
 - iv. maintenance schedules and procedures,
 - iv. auditing schedules and procedures,
 - v. data validation, and
 - vi. schedule for implementing the quality assurance program.
- e. The Permittee shall not allow, cause, or permit the installation or operation of expeller units unless they are properly hooded and all exhaust gases are collected or ducted to odor control equipment.
- f. The Permittee shall not cause or permit any raw material to be handled, transported, or stored, or to undertake the preparation of any raw material without taking reasonable precautions to prevent odors from being discharged. For the purpose of 2D.0539, such raw material is in "storage" after it has been unloaded at a facility or after it has been located at the facility for at least 24 hours. Reasonable precautions shall include the following:
- i. storage of all raw material before or in the process of preparation, in properly enclosed and vented equipment or areas, together with the use of effective devices and methods to prevent the discharge of odor bearing gases;
 - ii. use of covered vehicles or containers of watertight construction for the handling and transporting of any raw material; and
 - iii. use of hoods and fans to enclose and vent the storage, handling, preparation, and conveying of any odorous materials together with effective devices or methods, or both, to prevent emissions of odors or odor bearing gases.
- g. Notification of Release of Excessive and Malodorous Gases or Vapors. The Permittee shall notify the regional supervisor of the appropriate regional office within two business days after conditions are encountered that cause or may cause release of excessive and malodorous gases or vapors.
- h. Compliance Statement: The Permittee shall continue to operate in compliance as described in the compliance determination submitted before January 1, 1997, pursuant to 15A NCAC 2D .0539(h)(1). The Division of Air Quality may request additional information at a later date upon further review of the compliance demonstration.
- i. To ensure compliance with 15A NCAC 2D .0539, the Permittee shall:
- i. Wash raw material truck trailers interiors after unloading and before they are moved to a staging or parking area;
 - ii. Daily clean up spilled or leaked materials, to include materials in the parking area as well as in other areas not controlled with odor control

- iii. Conduct monthly odor surveys of processes and storage areas around the plant in order to minimize odors and record the results of the survey. At a minimum, the survey should include areas identified for improvement and corrective action taken;
- iv. Wash the raw material staging area a minimum of three times per week when daily temperatures are above freezing and record the washes in a logbook; and
- v. Maintain a negative pressure in all processing areas. Entrance doors to all processing areas may be opened for the entrance and exit of trucks, and the doors may remain open as long as a negative pressure is maintained.
- j. Record keeping: The Permittee shall record the time that reasonable precautions were taken for each raw material load relative to the maximum 24 hour storage time without taking those precautions. Each exceedence of the 24-hour storage time limit and the associated calendar date shall be recorded in a logbook which shall be made available for review by the Regional Office inspector.
- k. Reporting: The Permittee shall submit quarterly reports by January 30, April 30, July 30, and October 30 of each calendar year relative to the storage of raw material. Each quarterly report shall include:
 - i. Calendar dates covered in that period; and
 - ii. Exceedences of the 24-hour storage time limit.
- l. To prevent odorous emissions from the facility the optimum control efficiency of the venturi scrubbers (**ID Nos. CD-4c, CD-6a, and CD-11c**), packed bed scrubbers (**ID Nos. CD-7b and CD-11d**), crossflow scrubbers (**ID Nos. CD-9a and CD-15a**), peabody scrubber (**ID No. CD-9b**), condensers (**ID Nos. CD-4b, CD-5c, CD-5d, CD-7a, CD-7b, CD-11a, and CD-11b**), mist eliminators (**ID Nos. CD-4d and CD-4e**), and boilers (**ID Nos. ES-3, ES-12, ES-14, and ES-19**) shall be maintained. To ensure these control devices are maintained, the Permittee shall perform inspections and maintenance as recommended by the manufacturer.
- m. Inspection and Maintenance Requirements:
 - i. The inspection and maintenance conditions apply to each control device regardless of whether the control device is in service at any given point in time.
 - ii. To comply with the provisions of this Permit and ensure that maximum control efficiency is maintained, the Permittee shall perform periodic inspections and maintenance as recommended by the manufacturer. As a minimum, the inspection and maintenance program will include:
 - (a) Weekly inspection of scrubbers, including spray nozzles, packing material, and chemical feed system (chlorine dioxide) to ensure proper operation.
 - (b) Weekly inspection of mist eliminators to ensure that each system is draining properly,
 - (c) Weekly visual inspection of condensers, including ductwork leading to and coming from the condenser.
 - (d) Weekly inspection and replacement, as needed, of all instrumentation associated with control devices (including pH meters, pressure gauges, temperature gauges, etc.)
 - (e) Monthly inspection of fan belts associated with air cooled condensers.
 - (f) Semi-annual calibration of chlorine dioxide generation system.
 - (g) Daily inspection and replacement of flowmeters associated with fuel rate to each boiler.
 - (h) Annual internal inspection of the control devices and external inspection of associated ductwork to ensure structural integrity.

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- iii. Noncondensable vapor from the feather process dryers (**ID Nos. ES-5a and ES-5c**) cannot be exhausted to the venturi scrubber (**ID No. CD-6a**) / packed bed scrubber (**ID No. CD-6b**) (back-up control) unless boilers (**ID Nos. ES-3 and ES-12**) (primary control) cannot be used for odorous emission combustion per 2D .0539.
 - iv. **By August 29, 2003**, noncondensable vapor from the offal material process (**ID No. ES-4**), and fat and grease process (**ID No. ES-7**) must be combusted in Boiler (**ID Nos. ES-3 or ES-12**) and cannot be exhausted to the venturi scrubber (**ID No. CD-6a**) / packed bed scrubber (**ID No. CD-6b**) (back-up control) unless boilers (**ID Nos. ES-3 and ES-12**) (primary control) cannot be used for odorous emission combustion per 2D .0539.
 - v. **By September 28, 2003:**
 - (a) the facility shall install a continuous recording system to record whether noncondensable vapors from the offal cooker (**ID No. ES-4**), the feather process dryers (**ID Nos. ES-5a and ES-5c**), feather process cooker (**ID No. ES-5b**), and fat and grease process (**ID No. ES-7**) are ducted to the primary odorous emission control devices consisting of two boilers (**ID Nos. ES-3 and ES-12**) or back-up odorous emission control system, consisting of the venturi scrubber (**ID No. CD-6a**) operating in series with the packed bed scrubber (**ID No. CD-6b**), and
 - (b) the facility shall establish operating parameters for the primary odorous emission control devices consisting of:

Feed Grade Plant:

two boilers (**ID Nos. ES-3 and ES-12**) to control noncondensable vapors and the back-up odorous emission control system, consisting of the venturi scrubber (**ID No. CD-6a**) operating in series with packed bed scrubber (**ID No. CD-6b**), the cross-flow scrubber (**ID No. CD-9a**) and wet scrubber (**ID No. CD-9b**) to control odorous vapors from the rendering room air;

Pet Grade Plant:

two boilers (**ID Nos. ES-14 and ES-19**) to control noncondensable vapors and the back-up control device consisting of the venturi scrubber (**ID No. CD-11c**) and packed bed scrubber (**ID No. CD-11d**), and the cross-flow scrubber (**ID No. CD-15a**) to control odorous vapors from the rendering room air.

Within 15 days after completing items (a) and (b) above, the facility shall provide the regional office written notification that these requirements have been completed.

Monitoring Requirements for Odor Control Devices:

- n. Monitoring Requirements: The Permittee shall monitor and record which control devices are used during all hours of operation. If the control device is not operating within the permitted operating parameter a maintenance request shall be recorded in the logbook as well as the date that the corrective action was completed. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0539 if these monitoring activities below are not completed and records are not maintained.
 - (a) Scrubbers: The Permittee shall ensure the proper performance of the

scrubber by monitoring pressure, ORP, pH and exit gas temperature, as indicated for each scrubber (see below for specific parameters).

Scrubbers at Feed Grade Plant:

- (i) One packed bed scrubber (**ID No. CD-6b**) shall operate in a pressure range of 6 to 10 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.
- (ii) One venturi scrubber (**ID No. CD-6a**) shall operate in a pressure range of 12 to 15 PSIG. The maximum temperature of the gas exiting the scrubber shall not exceed 120 degrees Fahrenheit. Daily monitoring of the pressure and the gas temperature shall be performed to ensure proper operation.
- (iii) One peabody scrubber (**ID No. 9b**) shall operate in the nozzle pressure range of 18 to 22 PSIG and in the flood valve range of 4 to 6 PSIG when operational. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2 when operational. The minimum ORP shall be 550 mV when operational. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation. ****(Note this scrubber is currently not operational. Notification of the proper monitoring parameters to an authorized DAQ representative shall be required prior to operation of this scrubber.)***
- (iv) One two-staged cross-flow scrubber (**ID No. CD-9a**) shall operate in a nozzle pressure range of 13 to 17 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.

Scrubbers at Pet Grade Plant:

- (v) One two-staged cross-flow scrubber (**ID No. CD-15a**) shall operate in a nozzle pressure range of 13 to 17 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.
- (vi) One venturi scrubber (**ID No. CD-11c**) shall operate in a pressure range of 13 to 15 PSIG. The maximum temperature of the gas exiting the scrubber shall not exceed 120 degrees Fahrenheit. Daily monitoring of the pressure and the gas temperature shall be performed to ensure proper operation.
- (vii) One packed bed scrubber (**ID No. CD-11d**) shall operate in a pressure range of 3 to 8 PSIG. This scrubber shall utilize chlorine dioxide to control odors. The pH range shall be 2.6 to 3.2. The minimum ORP shall be 550 mV. An alarm shall be

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used to notify the facility when the chlorine dioxide generating equipment is not operating properly. Daily monitoring of the pressure, pH and ORP shall be performed to ensure proper operation.

Boilers at Feed Grade and Pet Grade Plants:

- (viii) Boilers: Each boiler that is to be used as a control device (**ID Nos. ES-3, ES-12, ES-14, and ES-19**) shall be equipped with a device to continuously measure the amount of fuel flow into the boiler. The Permittee shall record daily the date, time, fuel flow rate into each applicable boiler, while these boilers are being used as a control device.

Condensers at Feed Grade and Pet Grade Plants:

- (ix) Condensers: The condensers shall be equipped with a device to continuously measure the exit water temperature. The maximum temperature of the water exiting the condensers shall not exceed 160 degrees Fahrenheit. The device (*e.g.*, thermocouple) shall be installed in an accessible location and shall be maintained by the Permittee such that it is in proper working order at all times. Daily monitoring of the outlet temperature from each condenser shall be performed to ensure proper operation.

Record keeping Requirements

- o. The Permittee shall maintain a logbook (written or electronic format) for each control device. This logbook(s) shall include the results of all inspection and maintenance and monitoring activities. The logbook(s) shall be kept on site and made available to the authorized DAQ representative upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0515 if these records are not maintained.
- p. The results of the inspection and maintenance performed shall be maintained in a logbook (written or electronic format). This logbook shall be on site and made available to the authorized DAQ representative.
 - (i) Date and time of actions;
 - (ii) The results of each inspection;
 - (iii) The results of any maintenance performed on the control devices and/or chemical feed system; and
 - (iv) Any variance from the manufacturer's recommendations, if any, and corrections made.
- q. The results of the required monitoring shall be maintained in a logbook (written or electronic format) on site and made available to the authorized DAQ representative upon request. The logbook shall record the following:
 - (i) The proper operating range for each parameter being monitored;
 - (ii) The observed operating parameter at the time it was monitored;
 - (iii) Date and time of this observation;
 - (iv) Corrective action taken if the control device is not operating in the proper operating range; and
 - (v) Date and time corrective action completed.

Reporting Requirements

- r. The Permittee shall submit the results of any maintenance performed on the condensers (**ID Nos. CD-4b, CD-5c, CD-5d, CD-7b, CD-11a, and CD-11b**), mist eliminators (**ID Nos. CD-4d and CD-4e**), venturi scrubbers (**ID Nos. CD-4c, CD-6a, and CD-11c**), packed bed scrubbers (**ID Nos. CD-6b and CD-11d**), peabody scrubber (**ID No. CD-9b**) and process boilers used as control devices (**ID Nos. ES-3, ES-12, ES-14, and ES-19**) within 30 days of a written request by the DAQ.

- (i) The Permittee shall submit a summary report of monitoring and record keeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

2. Other Conditions

STATE-ONLY REQUIREMENT:

A. PERMIT REOPENING

The state-only portion of the permit shall be reopened following issuance of this permit to evaluate the effectiveness of additional controls and/or limitations that may be implemented to significantly reduce the odorous emissions.

- B.** The Permittee shall collect one representative sample of saleable animal fat oil during each calendar year that this fuel is fired in any boiler. Each representative sample shall be analyzed for density and Btu value and this analysis will be reported by January 30 annually.

VIII. Permit Shield (including non-applicable requirements)

In accordance with 2Q .0512 the permit will contain 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.

IX. General Conditions

The “General Conditions” section of the Title V Operating Permits 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, and severability.

X. Insignificant Activities

The insignificant activities listed in the application have been reviewed and verified. Because an emission source or activity is insignificant does not mean that the emission 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. Following are the items on the insignificant activities list:

poultry meal silos (ID Nos. ES-S1 & ES-S2)
product recovery fabric filter (ID No. CD-13)

XI. Public Notice

Pursuant to 15A NCAC 2Q .0521, a notice of the draft Title V Operating Permit shall 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 shall be sent to persons on the Title V mailing list and EPA.

XII. Recommendations

The initial Title V application for Carolina By-Products Fayetteville Plant has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. The DAQ has made a preliminary determination that the facility is complying or will achieve compliance as specified in the draft permit with all applicable requirements. Therefore, the DAQ is proposing to issue the Title V Operating Permit upon completion of the public comment period and the EPA review.

Draft Document