

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Air Permit Review**

**Permit Issue Date:**

**Region:** Wilmington Regional Office  
**County:** Brunswick  
**NC Facility ID:** 1000054  
**Inspector's Name:** Lynette Bryan  
**Date of Last Inspection:** 09/24/2008  
**Compliance Code:** 3/In Compliance - Inspection

<b>Facility Data</b>			<b>Permit Applicability (this application only)</b>
<b>Applicant (Facility's Name):</b> Archer Daniels Midland Company  <b>Facility Address:</b> Archer Daniels Midland Company 1730 East Moore Street SE Southport, NC 28461  <b>SIC:</b> 2833 / Medicinals And Botanicals <b>NAICS:</b> 325411 / Medicinal and Botanical Manufacturing  <b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V			<b>SIP:</b> <b>NSPS:</b> <b>NESHAP:</b> <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b>
<b>Contact Data</b>			<b>Application Data</b>
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<b>Application Number:</b> 1000054.07A <b>Date Received:</b> 12/27/2007 <b>Application Type:</b> Renewal <b>Application Schedule:</b> TV-Renewal <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 02502/T19 <b>Existing Permit Issue Date:</b> 03/04/2005 <b>Existing Permit Expiration Date:</b> 09/30/2008
Jim Atack Environmental Engineer (910) 457-7545 1730 East Moore St, SE Southport NC, 28461	Eric Warner Plant Manager  1730 East Moore St., S.E. Southport NC, 28461	Jim Atack Environmental Engineer (910) 457-7545 1730 East Moore St, SE Southport NC, 28461	
<b>Review Engineer:</b> Fern Paterson  <b>Review Engineer's Signature:</b> _____ <b>Date:</b> _____		<b>Comments / Recommendations:</b> Issue 02502/T20 <b>Permit Issue Date:</b> <b>Permit Expiration Date:</b> 09/30/2008	

**I. Introduction:**

Archer Daniels Midland Company (ADM) manufactures food additives currently including citric acid (liquid and dry), sodium citrate, and potassium citrate through a process of biofermentation, separation, and drying. The facility is located in Southport, Brunswick County, North Carolina, and currently holds a Title V Air Quality Permit (No. 02502T19).

The application to renew the existing Title V air quality permit (Application No. 1000054.07A) was received by the Division of Air Quality's (DAQ) on December 27, 2005, and is currently covered by the Title V application shield. In the renewal application, ADM requests the following changes:

- Addition of various insignificant activities;
- Removal of one boiler that is no longer at the facility (ID No. EU24); and,
- Minor changes to the description of control device (ID No. CE12).

The Permittee has not proposed any changes to the existing Title V operating permit as part of the permit renewal process.

## II. Changes to Existing Title V Air Permit No. 02502T19:

Page(s)	Section	Description of Change(s)
Attachment	Insignificant Activity List	Add two new glycerin tanks ( <b>ID Nos. IT255 and IT2219</b> ) to the insignificant activity list.
1	Permit Cover Page	Amend permit revision numbers and issuance/effective/expiration dates.
3-4	Section 1, Table	- Remove all footnotes from table. - Change description of control device ( <b>ID No. CD12</b> ).
5	Sec. 2.1.A.1.c.i.-ii.	Split monthly visual inspection requirements and the monthly pressure/liquid flow rate checks into separate requirements to improve permit clarity.
Global	Visible Emissions Monitoring	Change visible emissions monitoring requirements to be consistent with current DAQ protocol.
Global	Testing Citations	Change all references to testing requirements from 15A NCAC 2D .0501(c) to 15A NCAC 2D .2601 to be consistent with DAQ rule changes.
6-7	Sec. 2.1.B.1.	- List control requirements (c) and inspection/maintenance requirements (d) separately to improve permit clarity. - Split monthly visual inspection requirements and the monthly pressure/liquid flow rate checks into separate requirements to improve permit clarity.
8	Sec. 2.1.C.1.c.i.-ii.	Split monthly visual inspection requirements and the monthly pressure/liquid flow rate checks into separate requirements to improve permit clarity.
9-10	Sec. 2.1.D.1.	- List control requirements (c) and inspection/maintenance requirements (d) separately to improve permit clarity. - Split monthly visual inspection requirements and the monthly pressure/liquid flow rate checks into separate requirements to improve permit clarity.
17-18	Sec. 2.1.I.1.	- List control requirements (c) and inspection/maintenance requirements (d) separately to improve permit clarity. - Split monthly visual inspection requirements and the monthly pressure/liquid flow rate checks into separate requirements to improve permit clarity.
20-23	Sec. 2.2.B.	- Remove all references to the boiler ( <b>ID No. EU24</b> ), which is no longer at the facility. - Reorganize the section for improved permit clarity and consistency with other NC DAQ permits. - Reduce the reporting frequency from quarterly to semiannual.
23	Sec. 2.3	Add Permit Shield language for CAM provisions.
24-31	General Conditions	Update General Conditions with the most current version (v2.20).

## III. Statement of Compliance:

The DAQ has reviewed the compliance status of this facility. On its latest inspection, conducted on September 24, 2008 by Ms. Lynette Bryan of the Wilmington Regional Office (WiRO), the facility appeared to be in full compliance with all applicable requirements.

## IV. Review of Applicable Regulations

### A. One sodium citrate packaging operation (ID No. EU1) with one associated wet Venturi scrubber (25 to 50 gallons per minute liquid injection rate, ID No. CE1)

- Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
- No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

- B. Citric acid dryers/sodium citrate dryers/ coolers including:**  
One citric acid dryer (ID No. EU2) with one associated dynamic wet scrubber (ID No. CE2, 20 to 50 gallons per minute liquid injection rate)  
Two citric acid coolers (ID Nos. EU3 and EU4) with one associated dynamic wet scrubber (ID No. CE3, 30 to 70 gallons per minute liquid injection rate)  
One sodium citrate dryer (ID Nos. EU5) with one associated dynamic wet Venturi scrubber (ID No. CE5, 20 to 50 gallons per minute liquid injection rate)

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

- C. Railcar unloading operations including:**  
Sodium carbonate railcar unloading (ID No. EU6) with associated bagfilter (ID No. CE6)  
Limestone railcar unloading (ID No. EU47)

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

- D. Two filter pre-coat preparation tanks (ID Nos. EU7 and EU8) with associated vent spray systems followed by 20" x 21" x 2" HV-2 filter cells (ID Nos. CE7 and CE8)**

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

- E. Storage silos including:**  
Two limestone (calcium carbonate) storage silos (ID Nos. EU9 and EU17) and one hydrated lime (calcium hydroxide) storage tank (ID No. EU14) with three associated bagfilters (ID Nos. CE9, CE17, and CE14).  
Two Filteraid (perlite) storage silos (ID Nos. EU10 and EU11) with two associated bagfilters (ID Nos. CE10 and CE11)  
Two starch storage silos (ID Nos. EU25 and EU26) with one associated bagfilter (ID No. CE25)  
Two starch storage silos (ID Nos. EU38 and EU39) with one associated bagfilter (ID No. CE38)

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515

- 15A NCAC 2D .0521
- 15A NCAC 2Q .0711 (*State-Enforceable Only*)
- 15A NCAC 2D .1806 (*State-Enforceable Only*)

2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

**F. Three limestone slurry mixing tanks (ID Nos. EU18, EU19, and EU20) with one associated vent spray with an injection rate of 20 to 40 gallons per minute (ID No. CE18)**

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

**G. One calcium hydroxide slurry mixing tank (ID No. EU12) with one associated bagfilter (ID No. CE12)**

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

**H. Combustion Turbines including:**

**Two natural gas/No. 2 fuel oil-fired combustion turbines with maximum firing rates of 240 million Btu per hour, each (ID Nos. EU21 and EU22) and steam-injection with a minimum steam to fuel (s:f) ratio of 0.46 while firing No. 2 fuel oil**  
**One natural gas-fired combustion turbine with a maximum firing rate of 190 million Btu per hour (ID No. EU23)**

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0516
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0317 (*Avoidance of 15A NCAC 2D .0530*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

**I. Powdered Products Sources, including:**

**One steam-heated fluidized bed dryer (powdered products) (ID No. EU27) with an associated cyclonic wet scrubber with a liquid injection rate of 75 to 125 gallons per minute (ID No. CE27)**  
**Powdered products packaging (ID No. EU28) with an associated multi-vane scrubber with a liquid injection rate of 10 to 40 gallons per minute (ID No. CE28) with a demister**

**One steam-heated fluidized bed dryer (powdered products) (ID No. EU40) with an associated cyclonic wet scrubber with a liquid injection rate of 20 to 70 gallons per minute (ID No. CE40)**

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .0515
  - 15A NCAC 2D .0521
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

**J. Citric acid fermentation system, including**

**ID Nos. EU33a, EU33b, EU33c, EU33d, EU33e, EU33f, EU33g, and EU33h with one associated cyclonic impingement scrubber (ID No. CE33) and a gravity spray tower wet scrubber with a liquid injection rate of 0 to 1200 gallons per minute (ID No. CE34) and equipped with a demister section**

**ID Nos. EU31a, EU31b, EU31c, EU31d, and EU31e with one associated packed bed scrubber with a liquid injection rate of 0 to 400 gallons per minute (ID No. CE31) and equipped with demister section**

1. Applicable Regulatory Requirements:
  - 15A NCAC 2Q .0711 (*State-Enforceable Only*)
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

**K. One 1,200hp/900kW diesel-fired emergency generator (ID No. EU48)**

1. Applicable Regulatory Requirements:
  - 15A NCAC 2D .1806 (*State-Enforceable Only*)
2. No new applicable regulations apply to these sources as part of this Title V permit renewal. No regulatory review is required at this time.

**V. Compliance Assurance Monitoring:**

Pursuant to 40 CFR 64.2, the provisions of the Compliance Assurance Monitoring (CAM) rule are applicable to emission units that meet all of the following criteria:

- Criteria #1: The unit is subject to an emission limitation AND uses a control device to achieve compliance with the limit;
- Criteria #2: The unit has pre-control potential emissions that are equal to or greater than 100% of the amount (in tpy) required for a source to be classified as a major source (i.e., 100 tpy of any criteria pollutant or 10 tpy of any HAP, North Carolina); and,
- Criteria #3: The unit is not exempt under 40 CFR 64.2(b).

Per NC DAQ request, ADM submitted a revised CAM Applicability Determination, including uncontrolled Potential to Emit (PTE) calculations for all permitted sources, to Ms. Fern Paterson on December 23, 2008. As summarized in the following Table, the facility does not include any controlled emission sources with an uncontrolled PTE greater than Title V major source thresholds, and therefore is not subject to the CAM provisions in 15A NCAC 2D .0614.

**Table. CAM Applicability Summary**

<b>Emission Unit</b>	<b>Criteria #1: Does the Source Use a Control Device?</b>	<b>Criteria #2: Pre-control PTE <math>\geq</math>100% of major source thresholds?</b>	<b>Criteria #3: Exempt Under 40 CFR 64.2(b)?</b>	<b>CAM Source?</b>
EU1	Yes (PM-10)	No (61.6 tpy)	-	No
EU2	Yes (PM-10)	No (57.5 tpy)	-	No
EU3	Yes (PM-10)	No (48.4 tpy)	-	No
EU4	Yes (PM-10)	No (48.4 tpy)	-	No
EU5	Yes (PM-10)	No (23.1 tpy)	-	No
EU6	Yes (PM-10)	No (93.6 tpy)	-	No
EU47	No	-	-	No
EU7	Yes (PM-10)	No (11.4 tpy)	-	No
EU8	Yes (PM-10)	No (11.4 tpy)	-	No
EU9	Yes (PM-10)	No (2.9 tpy)	-	No
EU17	Yes (PM-10)	No (2.9 tpy)	-	No
EU14	Yes (PM-10)	No (18.0 tpy)	-	No
EU10	Yes (PM-10)	No (11.4 tpy)	-	No
EU11	Yes (PM-10)	No (11.4 tpy)	-	No
EU25	Yes (PM-10)	No (25.5 tpy)	-	No
EU26	Yes (PM-10)	No (25.5 tpy)	-	No
EU38	Yes (PM-10)	No (25.5 tpy)	-	No
EU39	Yes (PM-10)	No (25.5 tpy)	-	No
EU12	Yes (PM-10)	No (54.1 tpy)	-	No
EU18	Yes (PM-10)	No (<1.0 tpy)	-	No
EU19	Yes (PM-10)	No (2.9 tpy)	-	No
EU20	Yes (PM-10)	No (2.9 tpy)	-	No
EU21*	No	-	-	No
EU22*	No	-	-	No
EU23	No	-	-	No
EU27	Yes (PM-10)	No (74.4 tpy)	-	No
EU28	Yes (PM-10)	No (43.5 tpy)	-	No
EU40	Yes (PM-10)	No (50.0 tpy)	-	No
EU31	Yes (PM-10)	No (<1.0 tpy)	-	No
EU33	Yes (PM-10)	No (<1.0 tpy)	-	No
EU48	No	-	-	No

\* These turbines are equipped with steam injection systems to control NO<sub>x</sub>. However, the emission control is not required to comply with any standard under 15A NCAC Subchapter 2D. The steam injection is used for PSD avoidance under 15A NCAC 2Q .0317. Pursuant to 15A NCAC 2D .0614(b)(1)(E), an emissions cap that is approved under the rules of this Subchapter 15A NCAC 2Q and incorporated in a permit issued under 15A NCAC 2Q .0500 are exempt for the CAM requirements.

#### **VI. MACT Applicability:**

ADM is an area source of hazardous air pollutants (HAPs). The potential to emit for this facility is less than 10 tpy for all individual HAP and less than 25 tpy for total, aggregated HAP.

The source has three emergency generators that are affected *existing emergency stationary engines* under 40 CFR 63, Subpart ZZZZ – Reciprocating Internal Combustion Engine (RICE) MACT. However, pursuant to 40 CFR 63.6590(b)(3), the sources do not have any applicable requirements.

#### **VII. Prevention of Significant Deterioration (PSD):**

ADM is an existing major source under the PSD permitting program with the potential to emit greater than 250 tpy of multiple PSD-regulated pollutants, including NO<sub>x</sub>, SO<sub>2</sub>, and PM-10. The facility is currently operating under several PSD avoidance conditions and has never been issued a PSD construction permit.

#### **VIII. Insignificant Activities:**

The following insignificant activities because of size or production rate were added to this facility pursuant to 15A NCAC 2Q .0503(8).

- Glycerin storage tank (ID No. IT-255)
- Glycerin storage tank (ID No. IT-2219)

NC DAQ confirmed that maximum emissions from these facilities are less than 5 tpy of all regulated criteria pollutants and less than 1,000 lb/year HAP. In addition, these sources do not require permitting under the state-enforceable TAP requirements pursuant to 15A NCAC 2D .1100.

**IX. Actual Emissions Summary**

The following are actual emissions reported in the Annual Air Pollutant Emissions Inventory:

	<u>2006</u>		<u>2007</u>	
TSP.....	20.72 tons/yr	TSP.....	20.87 tons/yr	
PM-10.....	5.13 tons/yr	PM-10.....	5.14 tons/yr	
SO <sub>2</sub> .....	0.23 tons/yr	SO <sub>2</sub> .....	0.50 tons/yr	
NO <sub>x</sub> .....	5.71 tons/yr	NO <sub>x</sub> .....	11.56 tons/yr	
VOCs.....	1.82 tons/yr	VOCs.....	0.53 tons/yr	
CO.....	0.78 tons/yr	CO.....	2.47 tons/yr	
Total HAPs.....	< 1 ton/yr	Total HAPs.....	< 1 ton/yr	

**X. Title V Permit History:**

02502T18	October 2003	Initial Title V Permit
02502T19	March 2005	Modification to install and operate one calcium hydroxide slurry mixing tank with associated bagfilter, two citric acid fermenters, and one diesel-fired emergency generator listed as an insignificant activity.

**XI. Other Regulatory Considerations:**

- An application fee **is not required** for this renewal application.
- A consistency determination **is not required** for this renewal application.
- A Professional Engineers Seal **is not required** for this renewal application.
- An application-processing fee **is not required** for this renewal.

**XII. Draft/Proposed Permit Review Summary**

- Ms. Lynette Bryan (WiRO) was provided a draft permit for review on January 22, 2009. [ENTER DATE, SUMMARY]
- Mr. Jim Atack (ADM) was provided a draft permit for review on January 22, 2009. [ENTER DATE, SUMMARY]
- NC DAQ published a Public Notice of the proposed Title V permit renewal in the [ENTER DATE] edition of [ENTER PAPER, SUMMARY]
- Ms. Katy Forney and Ms. Gracy DeNois (U.S. EPA, Region IV) were provided a draft permit for review on [ENTER DATE, SUMMARY].

**XIII. Recommendations:**

This Title V Permit Renewal for the Archer Daniels Midland Company facility in Southport, Brunswick County, North Carolina has been reviewed by the DAQ to determine compliance with all procedures and requirements. The DAQ has determined that this facility is complying or will achieve compliance as specified in the permit with all applicable requirements.

**Issue Air Quality Permit No. 02502T20.**

