

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date: February 5, 2007

Region: Fayetteville Regional Office
County: Cumberland
NC Facility ID: 2600221
Inspector's Name:
Date of Last Inspection:
Compliance Code: /

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): E85, Inc. Facility Address: E85, Inc. 557 Bethune Drive Fayetteville, NC 28311 SIC: 2869 / Industrial Organic Chemicals,nec NAICS: 325193 / Ethyl Alcohol Manufacturing Facility Classification: Before: -- After: Synthetic Minor Fee Classification: Before: -- After: Synthetic Minor			SIP: Yes NSPS: Yes NESHAP: PSD: N/A PSD Avoidance: Yes NC Toxics: Yes 112(r): Yes Other: N/A
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 2600221.06A Date Received: 12/04/2006 Application Type: Greenfield Facility Application Schedule: State Existing Permit Data Existing Permit Number: N/A Existing Permit Issue Date: N/A Existing Permit Expiration Date: N/A
Dale Potz Senior Process Engineer (360) 824-9833 PO Box 560 Kingston WA, 98346	Mark Dassel Senior Vice President (360) 297-7618 PO Box 560 Kingston WA, 98346	Dale Potz Senior Process Engineer (360) 824-9833 PO Box 560 Kingston WA, 98346	
Review Engineer: Christy Richardson Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 09722 R00 Permit Issue Date: February 5, 2007 Permit Expiration Date: January 31, 2009	

1. Purpose of Application:

E85, Inc. is a greenfield ethanol manufacturing facility, with a maximum annual production capacity of 115 million gallons of denatured ethanol, located in Fayetteville, Cumberland County. The site will process approximately 41 million bushels of grain (corn) each year. Byproducts of this process include Distillers Dried Grain Solubles (DDGS) which will be used in poultry and swine feed. The facility will consist of grain storage and handling, hammermilling, fermentation, distillation, DDGS drying, product storage and loadout, and fugitive emissions. The facility also has two large natural gas-fired boilers with a maximum heat input capacity of 146.5 mmBTU/hr each. The facility will utilize flares and scrubbers for VOC control and baghouses for PM control. E85, Inc. (premise no. 2600221) will be classified as synthetic minor and has requested to take an avoidance condition for PSD purposes. Because of the number of testing requirements and vendor guarantees, FRO is following DAQ procedure by issuing an initial 2-year permit.

2. Facility and Application Chronology:

- November 28, 2006 Jim Moser, Bob Kennedy, and Christy Richardson (FRO) met with Dale Potz (Process Engineer for E85), Paul Jordan (Dept of Commerce), and Brian Derry and Carol Moser (Ensafe Consulting) at FRO to discuss the requirements for submitting a greenfield permit application.
- December 4, 2006 FRO received a permit application for E85, Inc., a greenfield ethanol facility.
- December 4, 2006 FRO received an email with the physical address of the facility. The original application did not include this information.
- December 7, 2006 FRO received a letter from Cumberland County's Planning and Inspection Department stating that one parcel purchased by E85, Inc. was zoned M2 (heavy industrial). The other parcel purchased by E85 is partially zoned M2 (heavy industrial) and the other portion is zoned PND (planned neighborhood development). Christy Richardson spoke with Dale Potz and explained that DAQ would continue processing the permit; however, E85 is responsible for corresponding directly with Cumberland County to resolve any zoning consistency issues.
- December 14, 2006 Christy Richardson spoke with Brian Derry (and sent email) requesting documentation for the NO_x and CO emission factors used for the natural gas-fired boilers in the application. I explained the factors were extremely low compared to AP-42 factors. Brian explained that E85 wants to construct the same facility in Fayetteville that they had designed for Washington. E85 had to perform a BACT analysis for the Washington plant (which is not yet under construction). The facility plans to use the same low NO_x boilers at this site that guarantee NO_x emissions of 9 ppm. I also requested potential emission calculations since they were not submitted as part of the application.
- December 18, 2006 Brian Derry emailed Christy Richardson concerning the boiler emission factors. He stated that E85 did not have vendor guarantees at this time because the vendors have not been selected. He supplied the Washington BACT analysis for review and stated that the RBLC clearinghouse has several sources with similar emission factors.
- December 19, 2006 Brian Derry supplied the potential emission calculations as previously requested.
- January 2, 2007 Christy Richardson, Steven Vozzo, and Mitchell Revels spoke with William Willets concerning the emission factors and PSD concerns. William Willets confirmed that if EPA approves the regulation that would remove ethanol production from the list of chemical manufacturing that the facility would still be subject to the 100 TPY threshold since their total

combustion capacity is greater than 250 mmBTU/hr. William also explained that a 9 ppm (0.011 lb/mmBTU) NO_x emission factor was not unheard of, that it was a reasonable factor. William confirmed that we need vendor guarantees and encouraged stack testing requirements, especially since the facility-wide NO_x emissions are so close to the PSD avoidance limit.

January 2, 2007

Brian Derry emailed a copy of two determinations from RBLC that showed similar NO_x and CO emission limits to those presented in the application.

January 2, 2007

Christy Richardson emailed Brian Derry and Dale Potz a copy of the Emission Source table for review. The table needed to be reviewed for description accuracy and classification accuracy. The email also requested additional information for descriptions of some control devices.

January 4, 2007

Brian Derry emailed emissions guarantees for the natural gas-fired Swiss Combi DDGS dryers.

January 5, 2007

Brian Derry supplied product brochures from the John Zink Company for boilers (burners) with guaranteed emission levels similar to those submitted in the application. These brochures were just examples, E85 has not decided on a vendor at this time.

January 9, 2007

FRO received the dispersion modeling analysis memo from Mark Yoder, RCO. Results – max annual benzene concentration was 52% of AAL and max 1-hour formaldehyde concentration was 9% of AAL.

January 10, 2007

Christy Richardson sent email to Dale Potz and Brian Derry stating that Steven Vozzo is willing to issue the permit prior to receiving actual boiler vendor guarantees since the vendors have not yet been chosen. I also explained that there would be a stipulation in the permit requiring that E85 submit vendor guarantees prior to startup and requiring stack tests. I also explained the importance of purchasing a boiler with these guaranteed emission factors since this would affect their PSD status.

January 16, 2007

Christy Richardson spoke with Brian Derry to finalize the emission source table and to obtain additional information on the storage tanks and associated vapor pressures.

January 17, 2007

Brian Derry confirmed, via email, that the distillation scrubber listed in the permit application forms is the same device as the vent gas scrubber listed in the emissions calculations.

January 18, 2007

Christy Richardson emailed Brian Derry requesting information regarding the difference between 'rail receiving' and 'rail receiving dump pit.'

Never received feedback on this issue. The two sources were combined into one rail receiving operation. The same was done with truck receiving.

January 24, 2007

Dale Potz requested that Brian Derry be able to review the draft permit prior to it being issued. Christy Richardson sent the draft permit to Brian Derry and Dale Potz for review.

January 24, 2007

Christy Richardson emailed Brian Derry concerning the applicability of NSPS Subpart IIII (Stationary Compression Ignition Internal Combustion Engines) to the emergency generator and fire pump. Brian Derry stated that E85 might purchase an emergency generator manufactured prior to the April 1, 2006 deadline. At this time, the applicability of NSPS Subpart IIII cannot be determined.

3. Equipment, Emissions, and Regulatory Review:

The permitted equipment list for E85, Inc. will be as shown below:

Emission Source ID	Emission Source Description	Control System ID	Control System Description
Raw Material Receiving and Storage			
ES-1201 (NSPS)	Rail Receiving (unloading pit with 2-wall enclosure)	CD-1203	Baghouse (Size To Be Determined)
ES-1202 (NSPS)	Truck Receiving (unloading pit with 2-wall enclosure)	CD-1204	Baghouse (Size To Be Determined)
ES-1205 (NSPS)	Grain Bin Feed #1	CD-1205	Baghouse (Size To Be Determined)
ES-1206 (NSPS)	Grain Bin Feed #2	CD-1206	Baghouse (Size To Be Determined)
ES-1207 (NSPS)	Grain Bin Feed #3	CD-1207	Baghouse (Size To Be Determined)
ES-1208 (NSPS)	Scalper / Surge Bin	CD-1208	Baghouse (Size To Be Determined)
Ethanol Processing			
ES-1300	Four (4) Grain Hammermills (maximum capacity of 35 tons per hour each)	CD-1302	Hammermills Discharge Baghouse (Size To Be Determined)
		CD-1301	Hammermills Baghouse (Size To Be Determined)
ES-1400	Fermentation Process (maximum 115,000,000 gallons per year - denatured)	CD-1401	Pre-Fermentation Scrubber (Size To Be Determined)
		CD-1402	Main Fermentation Scrubber (Size To Be Determined)
ES-1500	Distillation / Dehydration Process (maximum 115,000,000 gallons per year - denatured)	CD-1501	Distillation Scrubber (Size To Be Determined)

Emission Source ID	Emission Source Description	Control System ID	Control System Description
DDGS Processing, Storage, and Loadout			
ES-1600	Evaporation Process	N/A	N/A
ES-1700	Stillage Decanting	N/A	N/A
ES-1800	Two (2) Natural Gas-Fired Swiss Combi DDGS Dryers (low NOx burners, 64 mmBTU/hr each) with integrated thermal oxidizer	CD-1800	Integrated Thermal Oxidizer
ES-1851	Dry DDGS Storage Silo	CD-1851	Baghouse (Size To Be Determined)
ES-1852	Dry DDGS Transfer to Loadout	CD-1852	Baghouse (Size To Be Determined)
ES-1853	Wet DDGS Storage and Loadout	N/A	N/A
Product and Denaturant Storage			
ES-2800 (NSPS)	Ethanol Shift Tank #1(200,000 gallons capacity, 200 proof, internal floating roof)	N/A	N/A
ES-2900 (NSPS)	Ethanol Shift Tank #2 (200,000 gallons capacity, 200 proof, internal floating roof)	N/A	N/A
ES-3000 (NSPS)	Denaturant Gasoline Tank (250,000 gallons capacity, internal floating roof)	N/A	N/A
ES-3100 (NSPS)	Product Storage Tank #1 (1,600,000 gallons, 200 proof, internal floating roof)	N/A	N/A
ES-3200 (NSPS)	Product Storage Tank #2 (1,600,000 gallons, 200 proof, internal floating roof)	N/A	N/A
ES-2150	Truck and Rail Product Loadout with Flare	CD-2151	Natural Gas-Fired Flare (2.75 mmBTU/hr maximum capacity)
Power House			
ES-2201 (NSPS)	Natural Gas-Fired Boiler (ultra-low NOx burners, 146.5 mmBTU/hr maximum heat input)	N/A	N/A
ES-2202 (NSPS)	Natural Gas-Fired Boiler (ultra-low NOx burners, 146.5 mmBTU/hr maximum heat input)	N/A	N/A
ES-2500	No. 2 Fuel Oil-Fired Generator (4,500 kW maximum capacity)	N/A	N/A
Fugitive Emissions			
ES-LDAR	Fugitive Emission from Equipment Leaks	N/A	N/A
ES-Roads	Fugitive Emissions from Plant Roads and Parking Areas	N/A	N/A
Wastewater Treatment			
ES-2400	Biomethanator and Flare	CD-2401	Methane Flare (5.42 mmBTU/hr maximum capacity)

The insignificant activities list for E85, Inc. will be as shown below:

Source	Date of Application	Exemption Regulation	Source of TAPs?	Source of Title V Pollutants?
IES-2505 - Fire Pump (maximum capacity to be determined)	12/04/2006	2Q .0102 (c)(2)(E)(i)	No	No
IES-2300 - Biomethanator Cooling Tower	12/04/2006	2Q .0102 (c)(2)(E)(i)	Yes	Yes

Several sources and control devices have capacities and sizes that will be determined during the engineering/construction process. This information will be submitted to DAQ and the permit amended prior to operation.

The applicable regulations are outlined in detail below:

- **Particulates from Fuel Burning Indirect Heat Exchangers (2D .0503):** The particulate emissions cannot exceed 0.25 lbs/mmBTU for both boilers.
- **Particulates from Miscellaneous Industrial Processes (2D .0515):** The particulate emissions cannot exceed those calculated using throughput rates.
- **Sulfur Dioxide Emissions from Combustion Sources (2D.0516):** The sulfur dioxide emissions from the combustion sources shall not exceed 2.3 lbs/mmBTU.
- **Control of Visible Emissions (2D .0521):** Visible emissions from all sources shall be less than 20% opacity.
- **NSPS Subpart Db (Industrial-Commercial-Institutional Steam Generating Units) (2D .0524):** Both natural gas-fired boilers are subject to NSPS Subpart Db since they have a maximum heat input greater than 100 mmBTU/hr. The boilers, since they combust only natural gas, are subject to NO_x requirements but not particulate matter or sulfur dioxide requirements of this subpart. The Permittee must submit the date of construction and initial startup date of both natural gas-fired boilers. The Permittee must also submit an excess emissions report semi-annually. The NO_x emission limits are 0.10 lbs/mmBTU for boilers with low heat release rate and 0.20 lbs/mmBTU for boilers with high heat release rate. The facility must perform a 30-day initial compliance test using a continuous system to monitor NO_x emissions. The facility must maintain records for each steam generating unit operating day. The facility may chose to monitor NO_x emissions using a continuous monitoring system or by monitoring steam generating unit operating conditions to predict NO_x emissions specified in an approved plan. FRO added a stipulation to require the facility to notify DAQ, prior to startup, which monitoring method they plan to use and whether the boilers have a high or low heat release rate.
- **NSPS Subpart DD (Grain Elevators) (2D .0524):** E85 is subject to the requirements of NSPS Subpart DD since the facility has a grain storage capacity of greater than 2.5 million bushels. The Permittee must submit the date of construction and initial startup date of all raw material receiving operations, grain bins, and scalper/surge bin. All controlled (or captured) sources have an emission limit of 0.01 gr/dscf for PM and 0% opacity for visible emissions. The uncontrolled (not captured) emission sources have a visible emissions limit of 5% opacity. The facility must perform a Method 5, Method 2, and Method 9 for all sources that are captured and a Method 9 only for all sources that are not captured. The application listed 'rail (& truck) receiving' and 'rail (& truck) receiving dump pit' as two difference sources. If listed as two separate sources, the loading pit was controlled by baghouse but the receiving operation was not controlled.

Christy Richardson contacted Brian Derry to determine if these were two separate sources but received no feedback. When comparing these sources to feed mill grain receiving, it seems that the dump pit and the receiving operation are the same emission source; therefore, the permit only shows one receiving operation for rail and one for trucks. The receiving operation includes the two-wall enclosure and dump pit which is controlled by bagfilters. It is important that these sources are classified correctly because as described above the receiving operation would have different NSPS requirements based on whether the source is controlled (captured) or whether it is fugitive. A determination can be made after construction, prior to startup, whether these sources are one in the same or if one source is a point source and one is a fugitive source.

- **NSPS Subpart VV (Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry) (2D .0524):** Subpart VV applies to any facility which manufactures chemicals listed in 40 CFR 60.489 “as intermediates or final products...” Ethanol is a listed chemical in 60.489. The Permittee must submit the date of construction and initial startup date of affected sources. The Permittee shall also submit reports semi-annually. The facility has recordkeeping requirements for affected sources. Emission limits for pumps, compressors, pressure relief devices, sampling connectors, valves, and closed vent systems are listed in the permit. Method 21 performance testing is also required for these affected sources.
- **NSPS Subpart Kb (Volatile Organic Liquid Storage Vessels) (2D .0524):** Ethanol shift tanks, denaturant gasoline tanks, and product storage tanks are subject to NSPS Subpart Kb since the storage tanks have a capacity of greater than 151 m³ and store liquid with a vapor pressure less than 3.5 kPa. The Permittee must submit the date of construction and initial startup date of affected sources and control equipment descriptions. The facility shall maintain records of inspections, dimensions, VOL stored, time of storage, and true vapor pressure. Emissions limits and performance testing requirements for these storage tanks are described in detail in the permit.
- **Testing Requirements:** Since the actual NO_x, CO, and VOC emissions are extremely close to 100 tons per year (PSD and Title V avoidance limit), FRO is requiring E85 to perform several initial performance tests. This stipulation requires testing on the two boilers for NO_x and CO emissions. The stipulation also requires testing on the Swiss Combi DDGS dryers for NO_x emissions. The facility is planning to install boilers with NO_x emissions < 0.011 lbs/mmBTU and CO emissions < 0.022 lbs/mmBTU. These emission rates are much lower than AP-42 factors. The facility will provide DAQ with manufacturers guarantees for these rates (required by stipulation 22). However, since the facility is very close to Title V and PSD classification for both pollutants, DAQ is requiring initial stack tests as well to ensure that NO_x and CO emissions are below the threshold limits.
- **Work Practices for Sources of VOCs (2D .0958):** The Permittee shall adhere to work practices to reduce emissions from VOC containing material used in solvent cleaning. All solvent containers, rags, etc must be kept closed at all times.
- **Control of Toxic Air Pollutants (2D .1100):** The emissions limits listed in the permit for benzene and formaldehyde shall not be exceeded. The facility must adhere to the requirements of the Synthetic Minor condition to ensure compliance with this condition. As part of the application, the facility modeled for both benzene and formaldehyde. The stipulation states that toxics may have to be reviewed if the removal efficiencies listed in

the SM condition are not met during stack testing. Toxics will be discussed in more detail later in this review.

- **Control and Prohibition of Odorous Emissions (2D .1806):** The Permittee shall install and operate odor control equipment to prevent odorous emissions from causing objectionable odors beyond the facility boundaries.
- **40 CFR Part 68 – Risk Management Plan:** The application submitted by E85 states that the facility will be subject to 112(r) for ammonia. Brian Derry stated that at this point the facility is not certain that it will be subject since the designs for storage tanks and refrigeration system have not been finalized. This stipulation will be removed from the permit prior to startup if the facility determines that they are under the 112(r) threshold limits for ammonia.
- **Zoning Specific Condition:** The Permittee must comply with local ordinances at the time of construction or operation. E85 purchased two parcels of land – one of which was zoned for heavy industrial. The other parcel had split zoning – a portion of the parcel was zoned for heavy industrial and the other portion was zoned for planned residential neighborhood. The facility has met with Cumberland County Zoning officials to determine what steps must be taken to comply with all zoning ordinances.
- **Limitation to Avoid 15A NCAC 20 .0501 (Synthetic Minor):** The facility has a synthetic minor limit for PM-10, VOC, CO, Individual HAPs (acetaldehyde), and Total HAPs. Operational requirements include operating and inspecting control devices and conducted stack tests as specified in the permit. I&M must be performed on all baghouses, scrubbers, thermal oxidizers, and flares. Monitoring requirements will be added to the permit when control device specifications are received and may be changed when stack tests are performed. Manufacturer specifications for all control devices must be submitted to DAQ prior to startup. If a PE seal is required for any devices, the Permittee must submit this information prior to startup. The facility is required to conduct stack tests on the fermentation process, distillation/dehydration process, and two DDGS dryers. The stack tests should confirm that emissions do not exceed facility-wide emissions limits and confirm the removal efficiencies submitted in the permit application. A stipulation was added to the stack test requirements that state the facility must perform testing within 180 days after initial startup. If the facility is not operating at 90% capacity, the Permittee must conduct another test when 90% capacity is reached. The facility shall maintain and report quarterly, the PM-10, VOC, CO, Acetaldehyde, and total HAP emissions and results of control device monitoring and maintenance. The facility is not SM for NO_x since uncontrolled emissions are less than 100 TPY. The boilers will have ultra-low NO_x burners; however, burners are not considered a control device.
- **Limitation to Avoid 15A NCAC 2D .0530 (PSD):** Facility-wide VOC emissions shall be less than 100 tons per year. The facility is subject to the 100 TPY PSD limit for two reasons – (1) the facility is classified as a chemical manufacturing facility and (2) the facility has a total (combined) combustion rate of greater than 250 mmBTU/hr. A rule has been proposed that would remove ethanol production from being classified as a chemical manufacturing facility; however, the facility would still be a 100-ton source since the total combustion rate is 293 mmBTU/hr. The facility shall comply with this regulation by complying with operational restrictions, recordkeeping, reporting, and stack testing as required in the SM condition.

- **Limitation to Avoid 15A NCAC 2D .1111 (MACT):** Individual HAP emissions shall be less than 10 tons per year and total HAP emissions shall be less than 25 tons per year. By complying with the SM condition, compliance with this stipulation shall be achieved.
- **Toxic Air Pollutant Emissions Limitations Requirement (20 .0711):** The facility shall ensure that emissions from the listed toxic pollutants do not exceed limits in the permit.
- **Equipment Specification Reporting:** E85 has not completed final design of the facility; therefore specific information about some emissions sources and control devices are not known at this time. We included this stipulation in the permit so that we could continue processing the application and issue a permit to allow the facility to begin construction prior to them completing the final design. This stipulation states that prior to startup, the facility must submit, to DAQ, equipment specification and updated permit application forms as well as vendor guarantees for NO_x and CO emissions from the boilers. Prior to installation of the emergency generator and fire pump, the Permittee must submit equipment specifications so that a determination can be made on the applicability of NSPS Subpart IIII (Stationary Compression Ignition Internal Combustion Engines).

4. PSD, NESHAPs, NSPS, and Chemical Accident Prevention (112r):

The emission levels at the facility are above the PSD thresholds; however, the facility has requested emissions limitations in order to stay below PSD applicability thresholds. The facility is subject to the following NSPS Subparts:

NSPS Subpart	NSPS Description	Source
Subpart Db	Industrial-Commercial-Institutional Steam Generating Units	ID Nos. 2201 & 2202
Subpart Kb	Volatile Organic Liquid Storage Vessels	ID Nos. 2800, 2900, 3000, 3100, & 3200
Subpart DD	Grain Elevators	ID Nos. 1201, 1202, 1205, 1206, 1207, & 1208
Subpart VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	ID No. ES-LDAR

The facility is not subject to NSPS Subpart NNN, “VOC Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations” or NSPS Subpart RRR, “VOC Emissions from SOCMI Reactor Processes” because applicability determinations have been issued by EPA excluding ethanol production via biological processes. (See attached applicability determination.) The facility will maintain HAP minor status through permit limitations; therefore, the facility will not be subject to any NESHAP requirements. The facility expects to store ammonia over the 112(r) threshold level and therefore will be required to submit and maintain a written Risk Management Plan (RMP). If during the final design stages, the facility determines that ammonia will not be stored over the 112(r) threshold limit, this stipulation will be removed from the air permit and the facility will not be required to maintain a RMP.

5. Facility-Wide Air Toxics Review:

During the initial application process, the applicant modeled formaldehyde and benzene emissions from the dryers, denaturant tanks, and product loadout flare. The RCO review indicated compliance as follows: maximum annual benzene concentration was 52% of the AAL and maximum 1-hour formaldehyde concentration was 9% of the AAL. The 2D .1100 condition requires the Permittee to operate, inspect, and maintain control devices as specified in the Synthetic Minor condition. The acetaldehyde, acetic acid, ammonia, dichlorobenzene, ethyl acetate, manganese, toluene, and xylene emissions do not exceed TPER limits; therefore, these pollutants will be included in the 2Q .0711 condition. The following chart depicts the estimated actual emissions for formaldehyde, benzene, acetaldehyde, acetic acid, ammonia, dichlorobenzene, ethyl acetate, manganese, toluene, and xylene as well as the North Carolina TPER limits. Those pollutants that exceeded the TPER limit and required modeling are shaded in gray.

Pollutant	Toxic Air Pollutant (TAP)	Hazardous Air Pollutant (HAP)	Estimated Actual Emissions	NC TPER Level
Acetaldehyde	✓	✓	2.1 lb/hr	6.8 lb/hr
Acetic Acid	✓		0.5 lb/hr	0.96 lb/hr
Ammonia	✓		0.048 lb/hr	0.68 lb/hr
Benzene	✓	✓	29 lb/yr	8.1 lb/yr
Dichlorobenzene	✓	✓	0.04 lb/hr	16.8 lb/hr
Ethyl Acetate	✓		6.48 lb/hr	36 lb/hr
Formaldehyde	✓	✓	0.49 lb/hr	0.040 lb/hr
Manganese	✓	✓	0.00015 lb/day	0.63 lb/day
Toluene	✓	✓	1.1 lb/day	98 lb/day
Xylene	✓	✓	0.74 lb/day	57 lb/day

The testing requirements listed in the Synthetic Minor condition may affect the toxic pollutant emissions. The facility must demonstrate that these emissions rates have not been exceeded based on the emission rates and control efficiencies obtained in the stack test results. These results will be compared with the information provided in the application and modeling analysis. If there is variation between these factors, the 2Q .0711 limits may have to be reviewed again and a corrected modeling analysis may need to be submitted.

6. Facility Compliance Status:

The facility has not completed construction and has no compliance history at this time. Christy Richardson will conduct an air quality inspection and stack test reviews once the facility is fully operational.

7. Facility Emissions Review:

Facility wide estimated actual emissions and potential emissions without controls were based on the application and email correspondence. The estimated actual emissions were calculated based on 24/7 operation. Potential emissions with controls were calculated by assuming that the actual emissions accounted for two weeks of maintenance shutdown during a calendar year; therefore potential emissions with controls were calculated by scaling actual emissions up to 52 weeks/year.

Pollutant	Estimated Actual Emissions (TPY)	Potential Emissions <u>With</u> Controls (TPY)	Potential Emissions <u>Without</u> Controls (TPY)
PM	62.1	65	367
PM-10	44.8	47	333
SO ₂	12.2	12.2	12.2
NO _x	89.5	89.5	89.5
CO	88.1	92	531
VOC	98.9	103	10,689
Single Highest HAP (Acetaldehyde)	9.4	9.8	1,271
Total HAP	15.5	16	1,347

Based on the information submitted in the application, the facility will be classified as synthetic minor for PM-10, CO, VOC, Single Highest HAP, and Total HAPs. The facility will have a MACT avoidance condition also limiting the Single Highest HAP emissions to 10 tons per year and the Total HAPs emissions to 25 tons per year. The air permit will include a PSD avoidance condition limiting VOC emissions to 100 tons per year as well. PSD and MACT avoidance conditions will be satisfied if the Permittee satisfies the requirements of the Synthetic Minor condition.

8. Stipulation Review:

The following regulations are applicable to this facility:

Regulation	Affected Sources	Emission Limits or Requirements
15A NCAC 2D .0503	Boilers	PM < 0.25 lbs/mmBTU
15A NCAC 2D .0515	Facility-wide	PM limits calculated using equation
15A NCAC 2D .0516	Facility-wide	SO ₂ < 2.3 lbs/mmBTU
15A NCAC 2D .0521	Facility-wide	Opacity < 20%
15A NCAC 2D .0524	Boilers	Subpart Db – emissions limits and recordkeeping, reporting, testing, & monitoring requirements
15A NCAC 2D .0524	1201, 1202, 1205, 1206, 1207, & 1208	Subpart DD – emissions limits and reporting & testing requirements

15A NCAC 2D .0524	LDAR	Subpart VV – emissions limits and recordkeeping, reporting, & testing requirements
15A NCAC 2D .0524	2800, 2900, 3000, 3100, & 3200	Subpart Kb – emissions limits and recordkeeping, reporting, & testing requirements
Testing Requirement	Boilers & Dryers	Testing requirements for NO _x from boilers and dryers and for CO from boilers
15A NCAC 2D .0958I	Facility-wide	VOC Work Practices
15A NCAC 2D .1100	1800, 3000, & 2150	Emission limits & must operate control devices as listed in SM condition
15A NCAC 2D .1806	Facility-wide	Objectionable odors beyond facility boundary
40 CFR Part 68 [112R]	Facility-wide	Permittee must submit RMP to EPA
Zoning Condition	Facility-wide	Permittee shall comply with local ordinance
15A NCAC 2Q .0315	Facility-wide	PM-10, VOC, & CO < 100 TPY; Single HAP < 10 TPY; Total HAP < 25 TPY; operational restrictions, I&M, and monitoring, testing, recordkeeping, & reporting requirements
15A NCAC 2Q .0317	Facility-wide	VOC < 100 TPY; Comply with this stipulation by complying with SM condition
MACT Avoidance	Facility-wide	Single HAP < 10 TPY; Total HAP < 25 TPY; Comply with this stipulation by complying with SM condition
15A NCAC 2Q .0711	Facility-wide	TPER Limitations
Adhoc Stipulation	Facility-wide	Facility must submit equipment specifications prior to facility startup
15A NCAC 2D .0535	Facility-wide	Notification Requirement

9. Conclusions, Comments, and Recommendations:

I recommend that permit no. 09722R00 be issued to E85, Inc. with the following modifications to the Permit Writer output:

- Adjusted column widths, merged cells in the emissions source table and all tables throughout the permit;
- Deleted NSPS Subpart descriptions in Stipulation 1 and added correct ones;
- Added stipulation 7 (NSPS Subpart Db);
- Added stipulation 8 (NSPS Subpart DD);
- Added stipulation 9 (NSPS Subpart VV);
- Added stipulation 10 (NSPS Subpart Kb);
- Changed “90” to “180” in section 12.c. (Testing);
- Deleted into sentence in Stipulation 14.a. (Toxics);

- Deleted “Packed Bed” and “PM” in 18.b.ii. (SM);
- Added section 18.b.4. (SM flare requirements);
- Added “Control Device Specification and Testing Requirements” in section 18.d. (SM);
- Deleted intro sentences in Stipulation 19.a. & b. (PSD);
- Added “and Reporting” to section 19.b. (PSD);
- Added stipulation 20 (MACT Avoidance);
- Added stipulation 22 (Equipment Specification Reporting);
- Added and deleted spaces and punctuation as needed throughout the document; and
- Capitalized and un-capitalized as needed throughout the document.

10. Additional Items to be Evaluated at Next Permit Issuance:

The following items should be evaluated at the next permit issuance:

- Verify NSPS DD for grain handling operations;
- Verify NSPS IIII for emergency generator and fire pump;
- Verify configuration of controls on the following:
 - Hammermills
 - Fermentation
 - Rail receiving
 - Truck receiving
- Richard (Dick) Lindstrom, Ohio EPA, called to express concern that the emission factors submitted for E85 fermentation process, distillation, cooling, etc were not accurate. E85 is currently trying to obtain a permit in Ohio for a similar facility and Mr. Lindstrom is reviewing their application. He explained that Ohio is considering requiring thermal oxidizers in addition to the process scrubbers. I explained that we were requiring stack tests to verify emission factors and removal efficiencies.
- Consider requiring testing stipulation limitations into a specific limitation condition elsewhere in the permit.

Review Engineer: _____ Date: _____

Permit Coordinator: _____ Date: _____

DAQ Supervisor: _____ Date: _____

\CTR

cc: RCO Files
FRO Files