

## FACT SHEET

E Energy Adams, LLC  
13238 East Aspen Road  
Adams, Nebraska 68301-4103

April 9, 2010

### DESCRIPTION OF THE FACILITY OR ACTIVITY:

E Energy Adams, LLC (E Energy) is an anhydrous ethanol manufacturing plant (Standard Industrial Classification code 2869 – Industrial Organic Chemicals, and North American Industry Classification System (NAICS) 325193 – Ethyl Alcohol Manufacturing) that uses a corn dry-milling process to produce 52,250,000 gallons per year of anhydrous ethanol. The facility has been designed to produce approximately 55,000,000 gallons/year of denatured ethanol. Solids resulting from the dry-milling process will be converted to animal feed. Based on the grain receiving throughput capacity the facility may produce 179,500 tons/year of dried distiller grain with solubles (DDGS), and up to 538,500 tons/year of wet distiller grain with solubles (WDGS). Both DDGS and WDGS are by-products of the ethanol process. The difference between the two by-products is moisture content; DDGS contains approximately 10% moisture while WDGS contains approximately 65% moisture.

E Energy was issued a construction permit (CP05-0060) on May 15, 2006, for initial construction. E Energy was also issued a reopen-for-cause construction permit (CP08-018r) on May 8, 2008. This revised construction permit (CP08-049) supersedes CP05-0060 and CP08-018r in their entirety, and will be the only active construction permit for E Energy at this time. Conditions from CP05-0060 and CP08-018r have been incorporated into CP08-049. Revisions made to the conditions carried over from previous permits have been described below.

On March 10, 2008, through March 16, 2008, E Energy conducted performance testing which was required by their construction permit CP05-0060. This testing demonstrated that E Energy was not in compliance with the scrubber (C40) and thermal oxidizer/waste heat recovery boiler (S10) PM limits in CP05-0060. Therefore the NDEQ issued E Energy a notice of violation and required the facility to either conduct additional testing or to submit a construction permit modification application. Construction permit application #08-049 was submitted as a result. The initial performance testing requirements, as specified in construction permits CP05-0060 and CP08-018r, and carried over into CP08-049, have been fulfilled. It is not the intent of CP08-049 to require additional performance testing for E Energy; rather the testing requirements have been carried forward for clarification since the previous permits are being entirely superseded by CP08-049. Also, the language was carried forward so that, if in the future, the NDEQ needs to require testing at E Energy, testing language still remains in their active construction permit.

In the construction permit application #08-049, E Energy requested to remove several of their established permit limits. The thought that permit limits could be removed was based on the change of the applicable Prevention of Significant Deterioration (PSD) major source threshold for ethanol facilities. At the time of the original permitting, the facility was subject to the 100 ton per year (tpy) major source PSD threshold. Due to a change in the PSD rules in Chapter 19 effective February 16, 2008, the facility is now subject to the 250 tpy major source PSD threshold. After discussing the permit limit removal requests with E Energy, the NDEQ determined that it could remove limits on SO<sub>2</sub>, NO<sub>x</sub>, and CO emissions, but that the limits for PM<sub>10</sub> and VOC could not be removed altogether but rather could be increased. The NDEQ and E Energy discussed that the removal or increase of limits may require additional monitoring or testing requirements.

Testing performed at E Energy showed that emissions of SO<sub>2</sub>, NO<sub>x</sub>, and CO were well below the 250 ton per year PSD threshold for each pollutant. Modeling was conducted which demonstrated that E Energy was in compliance with the National Ambient Air Quality Standards (NAAQS). Typically, for SO<sub>2</sub>, NO<sub>x</sub>, and CO testing at ethanol facilities results in relatively consistent emissions. Therefore the NDEQ has determined that the SO<sub>2</sub>, NO<sub>x</sub>, and CO limits could be removed without the source triggering any additional thresholds or requirements. E Energy later requested in an email on December 31, 2009, to keep the existing SO<sub>2</sub> and CO limits that were in the original permit.

Testing and modeling were also performed for PM<sub>10</sub>. The testing showed that E Energy was below the 250 ton per year PSD threshold for PM<sub>10</sub>. E Energy submitted modeling with construction permit application 08-049 which demonstrated that even when modeling PM<sub>10</sub> at levels twice the testing-result levels the facility is still expected to be in compliance with the NAAQS. Therefore the NDEQ determined that the PM<sub>10</sub> limits in the construction permit could be increased to levels twice the average testing results. The total of the average tested PM<sub>10</sub> results for the TO/WHRB and baghouses was 5.53 lb/hr; therefore the NDEQ has set the PM<sub>10</sub> limit for the Thermal Oxidizer/Waste Heat Recovery Boiler, and all the baghouses at 11.06 lb/hr.

Stack testing was also conducted at E Energy for VOC emissions. These stack tests results demonstrated that the facility was in compliance with their VOC permit limits. The NDEQ contends that VOC emissions from ethanol facilities can fluctuate greatly. Also, the NDEQ has recently discovered the potential for significant VOC emissions resulting from processes and equipment at ethanol facilities which had previously been thought to have little to no significant emissions. For these reasons, the NDEQ does not feel it can completely remove the VOC limits from E Energy's construction permit, but rather the VOC limits can be increased as a result of the change in the applicable PSD major source threshold as discussed above.

With this permitting action several permit limits have been revised and now exist as combined limits for several different units. A combined PM<sub>10</sub> limit exists for the Thermal Oxidizer/Waste Heat Recovery Boiler (TO/WHRB) and all the baghouses, and a combined VOC limit exists for the TO/WHRB, CO<sub>2</sub> Scrubber, and the DDGS Cooler Cyclone/Baghouse. As a result of taking combined limits, if and when testing is required for PM<sub>10</sub> or VOC, the testing may be required to be conducted for all units under the combined limit. Also, if any piece of equipment under the combined limits is found to be in violation of the combined limit, all other equipment under that same combined limit will be considered in violation as well.

### **Requested Revisions to Construction Permit CP05-0060:**

#### **Condition XIII:**

Specific Terms and Conditions:

(A): The combined PM<sub>10</sub> and VOC limits, as discussed above, have been incorporated into this condition; rather than stating the combined condition in each individual section of the permit for the equipment to which it applies.

Grain Receiving, Handling, Storing, and Milling:

(B)(2)(e): In the construction permit application 08-049 the facility requested to reword Condition XIII.(B)(2)(e). The last sentence of this condition in construction permit CP05-0060 reads as follows: "Corrective action shall be taken immediately if necessary." The requested language reads as follows: "Corrective action shall be taken as soon as possible, if necessary." The NDEQ believes that it is more

appropriate for the source to take corrective action immediately, if required, in order to remain in compliance with the permitting requirements. The NDEQ understands that “immediate action” means action to be taken with highest priority without any unreasonable delays. The NDEQ believes that “as soon as possible” might imply that unnecessary delays are acceptable. For this reason this condition has not been revised.

(B)(3),(4), and (5): In the construction permit application 08-049 the facility requested to remove the PM limits and the associated performance testing requirements for the unloading/loading baghouse (C20) and for the milling baghouse (C30). The NDEQ expressed concern to the facility regarding removing this limit altogether. After some discussion, the facility submitted a letter, received by the NDEQ on December 1, 2008, which requested that, rather than remove the PM limits from this condition altogether, the facility would take a combined PM<sub>10</sub> “group limit” for the TO/WHRB and all the baghouses at the facility (similar to a PAL-Plant wide Applicability Limit). The NDEQ has decided that they can allow for increases in the PM<sub>10</sub> limits to the extent that the increases do not predict violations of any National Ambient Air Quality Standards. Compliance with applicable NAAQS was demonstrated in the modeling conducted for this permitting action. Based on the results of the modeling analysis and the PM testing results, a combined PM<sub>10</sub> limit of 11.06 lb/hr for the TO/WHRB and the baghouses has been incorporated into Condition XIII.(A) for the equipment in this condition. This limit was established based on taking twice the average (5.53 lb/hr) testing results for the units under this combined limit, as was modeled. The associated testing requirements for this condition have been revised based on the above mentioned revision to the limits, but have not been removed since the limits were not removed.

(B)(6): In the construction permit application 08-049 the facility requested to remove Condition XIII.(B)(6); the applicability requirement for NSPS Subparts A and DD. The facility stated that the as-built storage units differed from the original design plan which was permitted in construction permit CP05-0060. Originally the facility planned to construct four 500,000 bushel grain bins, two 700,000 bushel grain bins, and one 5,000 bushel day storage bin (for a total of 3,405,000 bushels). The facility instead constructed two 300,000 bushel grain bins, two 750,000 bushel grain bins, and one 5,000 bushel day storage bin (for a total of 2,105,000 bushels). Subpart DD applies to grain handling operations at facilities with permanent storage capacity of greater than 2.5 million bushels. Therefore Subpart DD is not applicable to the as-built facility and the requirement has been removed. The facility remains subject to NSPS Subpart A due to the facility being subject to a number of other NSPS Subparts.

#### Fermentation Operations:

(C): In the construction permit application 08-049 the facility requested to incorporate chemical addition language from the reopen for cause permit (CP08-018r) into Condition XIII.(C). Language from construction permit CP08-018r has been merged with language from construction permit CP05-0060 and incorporated into this condition. The language of these two permits was merged in order to make sure that all applicable requirements from both of the above mentioned construction permits were incorporated into this permitting action.

(C)(3) and (5): In construction permit application 08-049 the facility requested to remove the PM and VOC limits and the associated performance testing requirements for the CO<sub>2</sub> scrubber in Conditions XIII.(C)(3) and (5) of construction permit CP05-0060. The NDEQ expressed concern to the facility regarding removing this limit altogether. After some discussion, the facility submitted a letter, received by the NDEQ on December 1, 2008, which stated that rather than remove the VOC limit for the CO<sub>2</sub> scrubber, the facility would take a combined VOC “group limit” for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse. The NDEQ has incorporated into Condition XIII.(A) a combined VOC limit of 49 lb/hr for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse. This limit was calculated by subtracting the potential VOC emissions from all units onsite (excluding the CO<sub>2</sub>

scrubber, the TO/WHRB and the DDGS Cooler Cyclone/Baghouses) from a value close to the PSD threshold (~245 tpy). The PM<sub>10</sub> limit for the CO<sub>2</sub> scrubber has been removed as the PM<sub>10</sub> emissions expected from the CO<sub>2</sub> scrubber are relatively small compared to other PM<sub>10</sub> emitting equipment at the facility and compared to any regulatory thresholds. The associated testing requirements for this condition have been revised based on the above mentioned revision to the limits, but have not been removed since the limits were not removed.

#### TO/WHRB:

(D)(4) and (5): In the construction permit application 08-049 the facility requested to remove the PM, SO<sub>2</sub>, NO<sub>x</sub>, CO, and VOC limits and associated testing requirements. The NDEQ expressed concern to the facility regarding removing this limit altogether. After some discussion, the facility submitted a letter, received by the NDEQ on December 1, 2008, which requested that rather than remove the PM and VOC limits, they would take a combined PM<sub>10</sub> “group limit” for the TO/WHRB and the baghouses, and a combined VOC “group limit” for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse. The NDEQ has decided that they can allow for increases in the PM<sub>10</sub> limits to the extent that the increases do not violate any National Ambient Air Quality Standards, including increment. Compliance with applicable NAAQS were demonstrated in the modeling conducted for this permitting action. Based on the results of the modeling analysis and the PM testing results, a combined PM<sub>10</sub> limit of 11.06 lb/hr for the TO/WHRB and the baghouses has been incorporated into Condition XIII.(A) for the equipment in this condition. This limit was established based on taking twice the average (5.53 lb/hr) testing results for those units under this combined permit limit, as was modeled. The NDEQ has incorporated a combined VOC limit of 49 lb/hr for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse. This limit was calculated by subtracting the potential VOC emissions from all units onsite (excluding the CO<sub>2</sub> scrubber, the TO/WHRB and the DDGS Cooler Cyclone/Baghouses) from a value close to the PSD threshold (~245 tpy). The associated testing requirements for this condition have been revised based on the above mentioned revision to the limits, but have not been removed since all of the limits were not removed. The NO<sub>x</sub> limit for the TO/WHRB have been removed as discussed above.

#### Ethanol Loadout:

(E)(2)(a) and (c): In the construction permit application 08-049 the facility requested to remove the operating hours restriction and associated hour meter requirement for the loadout flare. The operating hour restriction was originally requested by the facility in order to help limit CO and NO<sub>x</sub> emissions to below PSD thresholds. Since the PSD threshold for this facility has been increased from 100 tpy to 250 tpy and the potential emissions for CO and NO<sub>x</sub> are well below the 250 tpy threshold, this limitation is no longer necessary. Therefore, the NDEQ has removed the operating hour restriction and the associated hour meter requirement. The loadout flare is also used, in-part, to control VOC emissions. As discussed above, VOC emissions limits are still necessary at this facility. The emissions calculations from the loadout flare had previously been estimated based on the 2,500 hour operating restriction in construction permit CP05-0060. Since this operating hour restriction is being removed by this permitting action (CP08-049), emission calculations from the loadout flare have been revised to incorporate 8,760 operating hours, rather than 2,500 operating hours. The revised emission calculations for the loadout flare have been accounted for when determining the combined VOC limit for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse.

#### DDGS Drying and Cooling:

(F)(1): In the construction permit application 08-049 the facility requested to remove the DDGS production limit. This production limit was originally permitted in order to help ensure that the facility's emissions would remain below the 100 tpy PSD thresholds. Since the PSD threshold for this facility has

been increased from 100 tpy to 250 tpy and potential emissions are well below the 250 tpy thresholds, this limitation is no longer necessary. Therefore, the NDEQ has removed this production limit. The production limit was set at the maximum DDGS production capacity of the facility as-designed. As such, even with this limit removed from the permit, the facility is still limited as to the amount of DDGS produced based on the designed production maximum capacity.

(F)(4)(e): In the construction permit application 08-049 the facility requested to reword Condition (F)(4)(e). The last sentence of this condition in construction permit CP05-0060 reads as follows: "Corrective action shall be taken immediately if necessary." The requested language reads as follows: "Corrective action shall be taken as soon as possible, if necessary." The NDEQ believes that it is more appropriate for the source to take corrective action immediately, if required, in order to remain in compliance with the permitting requirements. The NDEQ understands that "immediate action" means action to be taken with highest priority without any unreasonable delays. The NDEQ believes that "as soon as possible" might imply that unnecessary delays are acceptable. For this reason this condition has not been revised.

(F)(5), (6): In the construction permit application 08-049 the facility requested to remove the PM and VOC limits and the associated performance testing requirements for the cyclone/baghouse in Conditions XIII.(F)(5) and (6). The NDEQ expressed concern to the facility regarding removing this limit altogether. After some discussion, the facility submitted a letter, received by the NDEQ on December 1, 2008, which stated that rather than remove the PM and VOC limits, they would take a combined PM<sub>10</sub> limit for the TO/WHRB and the baghouses, and a combined VOC limit for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse. The NDEQ has decided that they can allow for increases in the PM limits to the extent that the increases do not violate any National Ambient Air Quality Standards. Compliance with applicable NAAQS was demonstrated in the modeling conducted for this permitting action. Based on the results of the modeling analysis and the PM testing results, a combined PM<sub>10</sub> limit of 11.06 lb/hr for the TO/WHRB and the baghouses has been incorporated into Condition XIII.(A) for the equipment in this condition. This limit was established based on taking twice the average (5.53 lb/hr) testing results for all units under this combined permit limit, as was modeled. The NDEQ has incorporated a combined VOC limit of 49 lb/hr for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse. This limit was calculated by subtracting the potential VOC emissions from all units onsite (excluding the CO<sub>2</sub> scrubber, the TO/WHRB and the DDGS Cooler Cyclone/Baghouses) from a value close to the PSD threshold (~245 tpy). The associated testing requirements for this condition have been revised based on the above mentioned revision to the limits, but have not been removed since all of the limits were not removed.

#### DDGS Storage and Loadout:

(G)(3) and (4): In the construction permit application 08-049 the facility requested to remove the PM limit and associated testing requirements for the DDGS Loading baghouse in Conditions XIII.(G)(3) and (4). The NDEQ expressed concern to the facility regarding removing this limit altogether. After some discussion, the facility submitted a letter, received by the NDEQ on December 1, 2008, which stated that rather than remove the PM limit, they would take a combined PM<sub>10</sub> limit for the TO/WHRB and the baghouses. The NDEQ has determined that they can allow for increases in the PM<sub>10</sub> limits to the extent that the increases do not violate any National Ambient Air Quality Standards. Compliance with applicable NAAQS were demonstrated in the modeling conducted for this permitting action. Based on the results of the modeling analysis and the PM testing results, a combined PM<sub>10</sub> limit of 11.06 lb/hr for the TO/WHRB and the baghouses has been incorporated into Condition XIII.(A) for the equipment in this condition. This limit was established based on taking twice the average (5.53 lb/hr) testing results for all units under this combined permit limit, as was modeled. The associated testing requirements for this condition have been

revised based on the above mentioned revision to the limits, but have not been removed since all of the limits were not removed.

#### Biomethanator:

(H)(2) and (4): In the construction permit application 08-049 the facility requested to remove the hourly operating limit and associated hour meter requirements for the methanator flare in Conditions XIII.(H)(2) and (4). The operating hour restriction was originally requested by the facility in order to help limit CO and NO<sub>x</sub> emissions to below PSD thresholds. Since the PSD threshold for this facility has been increased from 100 tpy to 250 tpy and the potential emissions for CO and NO<sub>x</sub> are well below the 250 tpy threshold, this limitation is no longer necessary. Therefore, the NDEQ, has removed the operating hour restriction and the associated hour meter requirement. The biomethanator flare is also used, in-part, to control VOC emissions. As discussed above, VOC emissions limits are still necessary at this facility. The emissions calculations from the biomethanator flare had previously been estimated based on the 5,000 hour operating restriction in construction permit CP05-0060. Since this operating hour restriction is being removed by this permitting action (CP08-049), emission calculations from the biomethanator flare have been revised to incorporate 8,760 operating hours, rather than 5,000 operating hours. The revised emission calculations for the biomethanator flare have been accounted for when determining the combined VOC limit for the CO<sub>2</sub> scrubber, the TO/WHRB, and the DDGS Cooler Cyclone/Baghouse.

#### Emergency Equipment:

(I)(1): In the construction permit application 08-049 the facility requested to revise Condition XIII.(I)(1) by incorporating a 100 hour limit for maintenance and readiness testing. The NDEQ has revised this condition to incorporate the 100 hour limit as requested. The 100 hour limit was taken from Subpart IIII and the facility was already subject to this requirement based on the federal regulation. Also, the size of the unit has been revised from 300 hp to 360 hp, at the request of the facility.

(I)(2): In the construction permit application 08-049 the facility requested to revise the sulfur content limit of the diesel fuel in Condition XIII.(I)(2). The facility requested that the limit be revised from "0.5%" to "the limits established in 40 CFR 60 Subpart IIII." The NDEQ has decided to incorporate the limits established in 40 CFR 60 Subpart IIII in addition to the already existing 0.5% limit. The condition now requires that the sulfur content of the diesel fuel be limited according the requirements established in 40 CFR 60 Subpart IIII, but at no time may the diesel fuel sulfur content exceed 0.5%. The facility was already subject to this requirement according to 40 CFR 60 Subpart IIII. Therefore, incorporating this requirement into the permit does not establish any additional requirements to which the facility is subject.

(I)(5): In the construction permit application 08-049 the facility requested to incorporate requirements for NSPS Subparts A and IIII and NESHAP Subparts A and ZZZZ applicability. The NDEQ has incorporated requirements for these Subparts in Condition XIII.(I)(6). The applicability of these Subparts has been addressed in the Chapter 18 and Chapter 28 discussions of this fact sheet.

#### Performance Tests:

(O): Condition XIII.(O) has been revised by incorporating performance testing language from the reopen for cause permit (CP08-018r). Language from construction permit CP08-018r has been merged with language from construction permit CP05-0060 and incorporated into this condition. The language of these two permits was merged in order to make sure that all applicable requirements from both of the above mentioned construction permits were incorporated into this permitting action.

Records:

(P)(2): The NDEQ has updated the references in this condition, based on the revisions discussed above, for Condition XIII.(B).

(P)(3): In the construction permit application 08-049 the facility requested that a requirement for recordkeeping for the operating parameters in Condition XIII.(C)(3) be incorporated into Condition XIII.(P)(3). The NDEQ has incorporated recordkeeping requirements for the operating parameters, as this requirement should likely have been included in CP05-0060 in order to demonstrate compliance.

(P)(4): The NDEQ has updated the references in this condition, based on the revisions discussed above, for Condition XIII.(D).

(P)(6)(c): In the construction permit application 08-049 the facility requested to remove Condition XIII.(P)(6)(c) of CP05-0060 which contained recordkeeping requirements for hours of operation of the loadout flare. The NDEQ removed this condition as requested, based on the removal of the hourly operations limit for the loadout flare, from Condition XIII.(E).

(P)(7): In the construction permit application 08-049 the facility requested to revise Condition XIII.(P)(7) of CP05-0060 which contained recordkeeping requirements for the DDGS Drying and Cooling operations as specified in Condition XIII.(F). Condition XIII.(P)(7) of CP08-049 has been revised by removing the recordkeeping requirements for documenting DDGS production, based on the removal of the DDGS production limit from Condition XIII.(F) as discussed above.

(P)(8): The NDEQ has updated the reference in this condition, based on the revisions discussed above, for Condition XIII.(F).

(P)(10): In the construction permit application 08-049 the facility requested to remove Condition XIII.(P)(10)(c) of CP05-0060 which contained recordkeeping requirements for hours of operation of the methanator flare. The NDEQ removed this condition as requested, based on removal of the hourly operations limit for the methanator flare, from Condition XIII.(H). Also, the references in Condition XIII.(P)(10) have been updated based on the revisions discussed above, for Condition XIII.(H).

#### **TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:**

E Energy generates emissions of several air pollutants, including particulate matter (PM), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM<sub>10</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), and hazardous air pollutants (HAP), specifically Acetaldehyde and Hexane. The primary emission sources at the facility are the following equipment/processes:

<b>Equipment/Process</b>	<b>Expected Pollutants</b>
Grain Receiving, Handling, Storing, and Milling	PM and PM <sub>10</sub>
Fermentation and Distillation	VOC and HAP
Ethanol and Denaturant Loadout	VOC and HAP
DDGS Drying	PM, PM <sub>10</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, VOC, and HAP
DDGS Cooling	PM, PM <sub>10</sub> , VOC, and HAP
DDGS Storage and Loadout	PM and PM <sub>10</sub>
WDGS Storage and Loadout	VOC and HAP
Emergency equipment	PM, PM <sub>10</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, VOC, and HAP
Fugitive Emissions	PM, PM <sub>10</sub> , VOC, and HAP

Due to this permitting action (CP08-049), none of the equipment or processes at E Energy are being modified. There are changes in potential emissions of several air pollutants due to this permitting action because several operating and emissions limits are being removed from the permit or revised. There are also changes in potential emissions expected as a result of stack testing data and new emission factors being used to estimate potential emissions. Stack testing data was used to estimate emissions for those units that were tested at the facility in March 2008. The estimated potential emissions for the cooling tower have changed as a result of using a more accurate method of calculating PM<sub>10</sub> emissions. The estimated emissions from the Loadout Flare and the Biomethanator Flare have increased due to increasing the hours of operation to 8,760 hours each. The estimated emissions from the process tank vents have increased as well. The liquefaction tanks, whole stillage tank, thin stillage tank, syrup tank, and cook water tank at E Energy are vented to the atmosphere. Testing from processes similar to those at E Energy have shown that emissions from the process tank vents are much higher than expected. The NDEQ has used the average of the stack testing data from similar facilities to developed emission factors, in lb/gal, used for these process tank vents emission. The liquefaction tanks, which were previously listed under emission points controlled by the TO/WHRB in the calculations for CP05-0060, are vented to the atmosphere and not controlled by the TO/WHRB. The potential emissions from the Haul Roads have been updated to reflect the most recent default emission factors used by the NDEQ. Emission calculations for the grain fugitives have been updated based on information provided by the facility on December 10, 2009, stating that some of their grain storage emissions are uncontrolled. Emissions from other processes and equipment at E Energy are not expected to be affected by this permitting action.

Potential emissions as determined for this permitting action are as follows:

Regulated Pollutant	New PTE CP08-049 (tons/year)	Previous PTE CP05-0060 (tons/year)	Change in PTE (tons/year)
Particulate Matter (PM)	75.5	95.3	-19.8
PM smaller than or equal to 10 microns (PM <sub>10</sub> )	57.6	53.7	3.9
Sulfur Dioxide (SO <sub>2</sub> )	41.1	41.1	-
Oxides of Nitrogen (NO <sub>x</sub> )	99.9	98.2	1.7
Carbon Monoxide (CO)	116.2	99.9	16.3
Volatile Organic Compounds (VOC)	247.8	93.1	154.7
Hazardous Air Pollutants (HAPs):			
Individual HAP	<10	<10	-
Total HAPs	<25	<25	-

\*New PTE is taken as worst-case for each pollutant (DDGS vs. WDGS production).

### **APPLICABLE REQUIREMENTS AND VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS:**

#### **Title 129, Chapter 4 -National Ambient Air Quality Standards (NAAQS)**

The revised air quality impact analysis for E Energy consisted of a refined modeling analysis to demonstrate that the facility, with revised permit conditions, will not cause or contribute to any violations of applicable Ambient Air Quality Standards (AAQS). The analysis includes all appropriate regional emission sources (other nearby facilities). Based on the results of the previous modeling and the proposed changes to the permit, a refined analysis was completed for 24-hour and annual PM<sub>10</sub> only. Although there is currently no annual air quality standard for PM<sub>10</sub>, the NDEQ continues to model for compliance with the previous standard (50 ug/m<sup>3</sup>). At this time, PM<sub>10</sub> modeling is used by the NDEQ as a surrogate for PM<sub>2.5</sub> modeling due to the unresolved challenges of accurately modeling PM<sub>2.5</sub>. More specific details of the air

quality impact analysis can be found in NDEQ's permitting files, however, the results are summarized below. Based on the potential emissions from the proposed facility and other sources' allowable emissions, this analysis demonstrates that the facility is expected to be in compliance with the AAQS PM<sub>10</sub> under the revised conditions of this permit.

**Predicted 6<sup>th</sup> Highest High Ambient PM<sub>10</sub> 24-Hour Concentrations**

Averaging Period	Year	UTM Coordinates (m)		Background (µg/m <sup>3</sup> )	Modeled (µg/m <sup>3</sup> )	Total (µg/m <sup>3</sup> )	AAQS (µg/m <sup>3</sup> )
		X	Y				
24-hour	2007	707858.5	4484777	60	52.40	112.40	150

**Maximum Predicted Ambient PM<sub>10</sub> Annual Concentrations**

Averaging Period	Year	UTM Coordinates (m)		Background (µg/m <sup>3</sup> )	Modeled (µg/m <sup>3</sup> )	Total (µg/m <sup>3</sup> )	AAQS (µg/m <sup>3</sup> )
		X	Y				
Annual	2003	707858.5	4484777	25	9.10	34.10	50
	2004	707858.5	4484777		9.73	34.73	
	2005	707858.5	4484777		10.09	35.09	
	2006	707858.5	4484777		9.20	34.20	
	2007	707858.5	4484777		10.95	35.95	

**Title 129, Chapter 17 – Construction Permit Requirements**

The facility requested this construction permit revision in order to revise several of their existing construction permit conditions. The facility-wide potential emissions after the issuance of this permit fall into the following category:

- 100 tons per year or more of any regulated air pollutant; or
- 10 tons per year or more of any single HAPs; or
- 25 tons per year or more of any combination of HAPs

Therefore, the facility submitted a \$3,000 fee in order to obtain this Air Quality Construction Permit, in accordance with Title 129, Chapter 17, Section 003.01.

**Title 129, Chapter 18 - New Source Performance Standards (NSPS)**

This facility is subject to a number of NSPS subparts which are summarized in the fact sheet for construction permit CP05-0060. Summarized below are NSPS subparts to which the facility is no longer subject or to which the facility is newly subject.

Subpart DD – Standards of Performance for Grain Elevators: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.19, applies to affected facilities which commenced construction, modification, or reconstruction after August 3, 1978. For purposes of this subpart an affected facility is each truck unloading station, truck loading station, barge and ship unloading station, barge and ship loading station, railcar loading station, railcar unloading station, grain dryer, and all grain handling operations at any grain terminal elevator or grain storage elevator. This subpart does not apply to this facility because E Energy is a grain terminal elevator that has a permanent storage capacity of less than 2.5 million bushels.

Subpart IIII – Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE): This subpart, adopted by reference into Title 129, Chapter 18, Section 001.76, applies to stationary compression ignition internal combustion engines (CI ICE) that have commenced construction

or have been modified or reconstructed after July 11, 2005. The subpart limits emissions of CI ICE based on engine size (hp, cylinder displacement), type of use (emergency or non-emergency), and model year. The emergency fire water-pump engine at E Energy is subject to this subpart. As described by the applicant, this engine is for emergency use only. This subpart was promulgated July 11, 2006, and was not included in CP05-0060 because it had not yet been promulgated at the time that CP05-0060 was issued.

The NSPS, Subpart IIII requirements include, but are not limited to, the following:

- a. Maintenance checks and readiness testing shall be limited to 100 hours per year. (40 CFR 60.4211(e))
- b. Emission standards as specified in 40 CFR 60.4205.
- c. Owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a) (40 CFR 60.4207(a))
- d. Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel (40 CFR 60.4207(b)).
- e. A non-resettable hour meter must be installed on the stationary CI ICE prior to startup of the engine (40 CFR 60.4209(a)).
- f. If the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

#### **Title 129, Chapter 19 - Prevention of Significant Deterioration (PSD)**

This construction permit revision does not trigger the PSD applicability thresholds. It should be noted that the threshold at which an ethanol plant is considered a "major PSD" source was raised from 100 to 250 tons per year after CP05-0060 was issued. This does not mean that an ethanol plant can now emit up to 250 tons per year without approval. The source must still comply with the terms and conditions of all air quality permits unless/until they are revised or removed through a future permitting action. Potential emissions from E Energy are expected to be less than 250 tons per year (and 10/25 tpy for HAPs). Since the potential emissions are not expected to exceed 250 tons/yr for any criteria pollutant, this plant is not subject to PSD and is a PSD minor source.

#### **Title 129, Chapter 20 – Particulate Emissions, Limitations and Standards**

The subjectivity and compliance of processes and equipment at E Energy subject to requirements of Title 129, Chapter 20 are not expected to be affected by this permitting action. Therefore, the facility is expected to continue to be in compliance with the Chapter 20 requirements as was discussed in the fact sheet for construction permit CP05-0060.

## **Title 129, Chapter 24 - Sulfur Compounds Emissions**

The subjectivity and compliance of processes and equipment at E Energy subject to requirements of Title 129, Chapter 24 are not expected to be affected by this permitting action. Therefore, the facility is expected to continue to be in compliance with the Chapter 24 requirements as was discussed in the fact sheet for construction permit CP05-0060.

## **Title 129, Chapter 27 – Hazardous Air Pollutants, Maximum Achievable Control Technology**

The potential HAP emissions at E Energy are expected to exceed 2.5 tons/year of individual HAP or 10 tons/year of combined HAPs, and to remain below 10 tons/year of individual HAP and 25 tons/year of combined HAPs. As discussed in the fact sheet for construction permit CP05-0060 the facility is subject to Toxics Best Available Control Technology (T-BACT) and is not subject to Maximum Achievable Control Technology. Revisions approved by this permit do not change the applicability of T-BACT.

## **Title 129, Chapter 28 - Hazardous Air Pollutants; Emission Standards**

Summarized below is the NESHAP Subpart ZZZZ which is newly applicable to the facility. Summarized in the fact sheet for construction permit CP05-0060 are a number of other NESHAP Subparts relevant to E Energy.

Subpart A – General Provision: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.01, applies to the owner or operator of any stationary source that emits or has the potential to emit any hazardous air pollutant listed in or pursuant to section 112(b) of the Act; and is subject to any standard, limitation, prohibition, or federally enforceable requirement established pursuant to Part 63. This facility is subject to this subpart because it is subject to at least one subpart (as described below) contained in Part 63 and emits hazardous air pollutants listed in section 112(b) of the Act. Although the facility may be subject to this subpart it may not have to meet any of the requirements of this subpart, as discussed in 40 CFR 63.6590 of Subpart ZZZZ.

Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE): This subpart, adopted by reference in Title 129, Chapter 28, Section 001.88, currently applies to existing, new, or reconstructed stationary reciprocating internal combustion engines (RICE) located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand. The emergency fire water-pump engine at this facility is subject to Subpart ZZZZ because it is a stationary RICE at an area source. New sources are subject to this rule upon startup as specified in §63.6595(a)(7). Sources, as specified in §63.6590 may not need to comply with any of the requirements this subpart but may need to comply with requirements of 40 CFR 60 Subpart IIII for compression ignition internal combustion engines. NESHAP Subpart ZZZZ was amended to apply to area sources of HAPs on January 18, 2008, after which CP05-0060 was issued. Since E Energy is an area source of HAPs, this subpart was not included in the last construction permitting action (CP05-0060).

Subpart VVVVVV- National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: This subpart promulgated on October 29, 2009, but not yet adopted into Title 129, Chapter 28, applies to area sources, which own or operate chemical manufacturing process units (CMPU). The CMPU must use as feedstocks, generate as byproducts, or produce as products any of the following HAP: 1,3-butadiene, 1,3-dichloropropene, Acetaldehyde, Chloroform, Ethylene dichloride, Hexachlorobenzene, Methylene chloride, Quinoline, Arsenic compounds, Cadmium compounds, Chromium compounds, Lead compounds, Manganese compounds or Nickel compounds. Additionally the HAP must be present in feedstocks or must be generated or produced in the CMPU at concentrations

greater than 0.1 % for carcinogens and 1.0% for non-carcinogens as defined by the Occupational Safety and Health Administration (OSHA) (percentages are determined on a mass basis).

A CMPU includes all process vessels, equipment, and activities necessary to operate a chemical manufacturing process as defined in §63.11502, that produces a material or a family of materials described by NAICS code 325. A CMPU consists of one or more unit operations and any associated recovery devices and, A CMPU also includes each storage tank, transfer operation, surge control vessel, and bottoms receiver associated with the production of such NAICS code 325 materials. Ethanol production is one of the source categories to which the rule applies (NAICS code 325193). The existing sources, those facilities that commenced construction or reconstruction of the affected source before October 6, 2008, must achieve compliance with the applicable provisions in this subpart no later than October 29, 2012. New sources, those facilities that commenced construction or reconstruction of the affected source on or after October 6, 2008, must achieve compliance with this rule by October 29, 2009. Any new affected source started after October 29, 2009, must achieve compliance with this rule upon startup of the affected source.

There is some uncertainty regarding whether ethanol plants would be subject to this rule. EPA is expected to address this uncertainty later this year with new proposals or clarifying language. At this time, the NDEQ cannot conclude with certainty whether the source is subject to the requirements of this rule.

**Proposed changes to specific requirements under Specific Conditions XIII. of construction permit 05-0060 are discussed as follows:**

Revisions to the original conditions have been identified in the following ways; added items are **bold and underlined**, while removed items have a ~~strikethrough~~.

Specific Conditions XIII.

- (A) **(1)** The facility shall emit less than the following in any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) calendar months after the startup date shall the sum of all the previous months' emissions equal or exceed the following emission limitations. Compliance with this condition shall be demonstrated using the testing results conducted as specified in Condition XIII.(O) and emission calculations records as specified in Condition XIII.(P)(1) of this permit. (Title 129, Chapters 17, 27 and 28)
- (a) 10 tons of any individual HAP
  - (b) 25 tons of total combined HAPs
- (2) **PM<sub>10</sub> emissions from the Unloading/Loading Baghouse (C20), the Milling Baghouse (C30), the TO/WHRB (S10), the DDGS Cyclone Baghouse (S70), and the DDGS loading baghouse (C90) combined shall not exceed 11.06 pounds per hour (3-hour or test method average). When testing is conducted for any of the units subject to this limit or in order to demonstrate compliance with this limit, testing shall be conducted for all units subject to this limit. (Title 129, Chapter 17)**
- (3) **VOC emissions from the CO<sub>2</sub> scrubber (C40), the TO/WHRB (S10), and the DDGS Cyclone Baghouse (S70) combined shall not exceed 49.0 pounds per hour (3-hour or test method average). When testing is conducted for any of the units subject to this limit or in order to demonstrate compliance with this limit,**

testing shall be conducted for all units subject to this limit. (Title 129, Chapters 17 and 19)

(B) The following conditions apply to: Grain Receiving, Handling, Storing, and Milling

- (1) PM/~~PM~~<sub>10</sub> emissions from all grain handling and milling operations shall be captured and controlled by the following baghouses: (Title 129, Chapters 19 and 20)

C20 – Unloading/Loading Baghouse

C30 – Milling Baghouse

\* \* \* \*

- (3) ~~The emissions from the Unloading/Loading Baghouse (C20) and the Milling Baghouse (C30) are subject to the PM<sub>10</sub> limit as specified in Condition XIII.(A)(2). shall not exceed the following emissions limit (3-hour or test method average). (Title 129, Chapter 19)~~

~~(a) — 1.67 pounds per hour PM.~~

- ~~(4) — The emissions from the Milling Baghouse, C30, shall not exceed the following emissions limit (3-hour or test method average). (Title 129, Chapter 19)~~

~~(a) — 0.75 pounds per hour PM.~~

- ~~(5) (4)~~ In order to demonstrate compliance with Condition XIII.(B)(3) ~~and (4)~~ the source shall conduct a performance test for PM<sub>10</sub> on units C20 and C30 located at the facility. The performance test shall be conducted in accordance with Condition XIII.(O). (Title 129, Chapter 34)

- ~~(6) — The requirements of the NSPS in 40 CFR 60, Subparts A and DD (Title 129, Chapter 18, Sections 001.01 and 001.19) apply to the grain handling operations at this facility.~~

(C) The following conditions apply to: Fermentation Operations

- (1) ~~VOC and HAP~~ **The emissions from the fermentation operations shall be controlled by the CO<sub>2</sub> scrubber (C40) with chemical addition. Chemical addition may not be required provided the requirements of Condition XIII.(C)(2) are met.** (Title 129, Chapters 19 17 and 27)

- ~~(2) — The source may demonstrate through testing performed in accordance with Condition XIII.(O), or the use of a CEMS, that chemical addition is not necessary. Testing completed after May 8, 2007, and approved by the NDEQ, may be used to demonstrate chemical addition is not necessary. (Title 129, Chapters 17, 27, and 34)~~

- ~~(2) (3)~~ The operation **and maintenance** of the CO<sub>2</sub> scrubber shall be in accordance with the following requirements: (Title 129, Chapters 19 17 and 27)

- (a) The CO<sub>2</sub> scrubber shall be operated **and controlling emissions** at all times when the associated emission units are in operation.

- (b) The CO<sub>2</sub> scrubber shall be properly installed, operated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the CO<sub>2</sub> scrubber shall be kept on site and readily available to Department representatives.
- (c) The CO<sub>2</sub> scrubber shall be equipped with indicators of scrubbing liquid flow rate and other operating parameters, such as pressure differential, as appropriate. Operating parameter readings shall be recorded at least once each day the CO<sub>2</sub> scrubber is in operation. **devices capable of continuously monitoring operating parameters including, at a minimum, the scrubbing liquid temperature, scrubbing liquid flow rate, chemical addition flow rate, and pressure differential. Except for the scrubbing liquid and chemical addition flow rates, operating parameter readings shall be recorded at least once each day the scrubber is in operation. The scrubbing liquid flow rate shall be recorded continuously. When chemical is added to the scrubbing liquid, the flow rate of the chemical being added shall be recorded continuously.** The indicators **devices** shall be properly installed, operated, calibrated, and maintained. Manufacturer's documentation shall be kept on site and readily available to Department representatives.
- (d) All monitored operating parameters of the scrubber shall be maintained at the levels recorded during the most recent performance test that demonstrated compliance with the permitted emissions limits. Alternative levels may be used provided the facility can justify, through testing or the use of a CEMS, that better emissions control is being achieved. Normal operating parameters or operating parameter ranges that demonstrate compliance with the permitted emissions limits, with appropriate averaging periods, shall be submitted with the source's operating permit application.**
- (1) For scrubbing liquid temperature and pressure differential "maintained at the levels recorded during the most recent performance test" shall mean within a range that is representative of the tested level(s) under normal operating conditions, as determined by NDEQ.**
- (2) For scrubbing liquid and chemical addition flow rate "maintained at the levels recorded during the most recent performance test" shall mean at or above the tested levels.**
- (e) Observations at least once each day during daylight hours of scrubber operation shall be conducted to determine whether there are leaks, noise, or other indications that corrective action is necessary. If corrective action is required, it shall occur immediately.**
- (d) Routine observations (at least once each day of CO<sub>2</sub> scrubber operation) shall be conducted to determine whether there are leaks, noise, atypical operating parameters (e.g., scrubbing liquid flow rate), or other indications that may necessitate corrective action.
- (f) Unless the source has testing data demonstrating chemical addition is not necessary, as provided for in Condition XIII.(C)(2), equipment for**

**continuously recording the scrubbing liquid flow rate and chemical addition flow rate (if chemicals are added) shall have been installed by July 10, 2008.**

- (3) ~~(4)~~ The emissions from the CO<sub>2</sub> scrubber (C40), shall not exceed the following emissions limits (3-hour or test method average). (Title 129, Chapter 19)
- (a) ~~0.035 pounds per hour PM~~
- (4) The CO<sub>2</sub> scrubber (C40) is subject to the VOC limit as specified in Condition XIII.(A)(3).**
- (b) ~~11.93 pounds per hour VOC~~
- ~~(4)~~ **(5)** The CO<sub>2</sub> scrubber shall have a minimum control efficiency of 65 percent for combined HAPs or the emissions shall not exceed 20 ppm<sub>v,dry</sub>. (Title 129, Chapter 27)
- ~~(5)~~ **(6)** In order to demonstrate compliance with Conditions XIII.(A), ~~(C)(3)~~ and ~~(C)(4)~~, **(C)(5)** and to verify the assumptions used in the permit application, the source shall conduct a performance test for VOC, HAP, and PM<sub>10</sub> (both filterable and condensable) on C40. In addition, the performance test shall determine the HAP control efficiency of the scrubber. The performance test shall be conducted in accordance with Condition XIII.(O) and shall include speciation and quantification of the HAP composition of the emissions. VOC emissions shall be expressed as total mass of VOC. (Title 129, Chapter 34)
- (D) The following conditions apply to: ~~Reeuperative~~ Thermal Oxidizer (TO)/Waste Heat Recovery Boiler System (WHRB)
- (1) Emissions from the drying process while producing MWDGS and/or DDGS, the distillation process, and pre-fermentation operations shall be controlled by a TO/WHRB system exhausting through emission point S10. . For purposes of this condition the liquefaction tank, whole stillage tank, thin stillage tank, syrup tank, and cook water tank are not part of the pre-fermentation, distillation, or dryer operations.
- (2) Only natural gas shall be burned as fuel in the TO (C10). (Title 129, Chapters ~~19~~ **17** and 24)
- (3) Operation of the TO/WHRB shall be in accordance with the following requirements: (Title 129, Chapters ~~19~~ **17** and 27)
- (a) The TO/WHRB shall be operated at all times when the associated emission units are in operation.
- (b) The TO/WHRB shall be properly designed, installed, operated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the TO/WHRB shall be kept on site and readily available to Department representatives.
- (c) The TO/WHRB shall be equipped with a thermocouple or equivalent device capable of continuously monitoring the temperature of the thermal oxidizer. The thermocouple or equivalent device shall monitor temperature on a continuous basis, with the one-hour average temperature recorded once per hour. The

thermocouple or equivalent device shall be properly installed, operated, calibrated, and maintained. Manufacturer's documentation shall be kept on site and readily available to Department representatives.

- (d) The one-hour average operating temperature of the TO/WHRB shall be maintained at a minimum 1400 °F. Upon approval by the Director, the 1400 °F limitation may be replaced with an alternate minimum operating temperature limitation established based on results of the most recent performance test that demonstrate compliance with Conditions XIII.(A)(2) and (A)(3)-(D)(4).
  - (e) Routine observations (at least once each day during daylight hours of TO/WHRB) shall be conducted to determine whether there are visible emissions from the stack, leaks, noise, atypical operating parameters (e.g., pressure differential, temperature), or other indications that may necessitate corrective action. Corrective action shall be taken immediately if necessary.
- (4) The total emissions from the TO/WHRB system stack (S10) shall not exceed the following emission limits-(30-day rolling average for NO<sub>x</sub>, 3-hour or test method average for other pollutants).-(Title 129, Chapter 17)s 4 and 19)
- (a) — 3.07 pounds per hour PM
  - (b)(a) 9.35 pounds per hour SO<sub>2</sub>
  - (c) — 21.08 pounds per hour NO<sub>x</sub>
  - (d)(b) 20.70 pounds per hour CO
  - (e) — 2.87 pounds per hour VOC

**(5) The TO/WHRB system stack (S10) is subject to the PM<sub>10</sub> and VOC limit as specified in Conditions XIII.(A)(2) and (A)(3).**

- (56) In order to demonstrate compliance with Conditions XIII.(A) and (D)(4) and to verify the assumptions used in the permit application, the source shall conduct a performance test for SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, HAPs, and PM<sub>10</sub> (both filterable and condensable) on the TO/WHRB system stack (S10) for each product type (DDGS and MWDGS) that is dried. The performance test shall be conducted in accordance with Condition XIII.(O) and shall include speciation and quantification of the HAP composition of the emissions. VOC emissions shall be expressed as total mass of VOC. (Title 129, Chapter 34)
- (67) **The TO/WHRB is subject to Subparts A and Db of requirements of the NSPS in 40 CFR 60. Subparts A and Db (Title 129, Chapter 18, Sections 001.01 and 001.22) apply to the TO/WHRB system.**

(E) The following conditions apply to: Ethanol Loadout

- (1) The source shall use submerged loading when transferring liquid product from the storage tanks to tanker railcars or tanker trucks. (Title 129, Chapters 19 17 and 27)

- (2) Truck loadout of liquid product shall be controlled by a vapor recovery system with a flare at all times liquid product truck loadout is occurring. (Title 129, Chapters 19 17 and 27)
- (a) ~~The loadout flare shall not exceed 2,500 operating hours per any period twelve (12) consecutive calendar months. At no time during the first eleven (11) calendar months after the permit issuance date shall the sum of all the previous months' operating hours exceed 2,500 hours. The flare's pilot may operate 8,760 hours per year. (Title 129, Chapter 19)~~
- (b a) The vapor recovery system shall be properly installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the vapor recovery system shall be kept on site and readily available to Department representatives.
- (c) ~~The loadout flare shall be equipped with a hour meter to record the hours of operation of the emission unit to determine compliance with Condition XIII.(E)(2)(a). The meter shall be installed, operated, calibrated, and maintained in accordance with manufacturer's documentation.~~
- (d b) When truck loadout is occurring, a flame shall be present at the flare. The facility must install an appropriate safety device or flame monitoring system to ensure that truck loadout cannot occur without the presence of a flame. The safety device or flame monitoring system shall be properly installed, operated, calibrated and maintained. Manufacturer's documentation shall be kept on site and readily available to Department representatives.
- (F) The following conditions apply to: DDGS Drying and Cooling
- (1) ~~The facility shall produce no more than 179,500 tons of DDGS per any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) calendar months after the initial start up date shall the total DDGS produced be greater than 179,500 tons. (Title 129, Chapters 19 and 20)~~
- (2-1) Only natural gas and biomethanor off-gases shall be burned as fuel in the dryers.
- (3-2) The DDGS cooler shall be equipped with a cyclone with integrated baghouse (P70). (Title 129, Chapters 19 17 and 20)
- (4-3) Operation of the cyclone/baghouse system (dry dust collector) shall be in accordance with the following requirements: (Title 129, Chapters 19 17 and 27)
- (5-4) ~~The total emissions from the DDGS Cyclone Baghouse system (S70) is subject to the PM<sub>10</sub> limit as specified in Condition XIII.(A)(2). shall not exceed the following emissions limits (3-hour or test method average). (Title 129, Chapter 19)~~
- (a) ~~1.20 pounds per hour PM~~
- (5) The DDGS Cyclone Baghouse System (S70) is subject to the VOC limit as specified in Condition XIII.(A)(3).
- (b) ~~2.04 pounds per hour VOC~~

- (6) In order to demonstrate compliance with Condition XIII.(A) and ~~(F)(5)~~ and to verify the assumptions used in the permit application, the source shall conduct a performance test for VOC, HAP, and PM<sub>10</sub> (both filterable and condensable) from the DDGS cooling operations (S70). The performance test shall be conducted in accordance with Condition XIII.(O) and shall include speciation and quantification of the HAP composition of the emissions. VOC emissions shall be expressed as weight of VOC. (Title 129, Chapter 34)

(G) The following conditions apply to: DDGS Storage and Loadout

- (1) PM emissions from DDGS storage and loadout shall be captured and controlled by the DDGS loading baghouse, C90. (Title 129, Chapter ~~19~~ 17)

\* \* \* \*

- (3) ~~The emissions from the DDGS Loading Baghouse (C90) shall not exceed the following emissions limit (3-hour or test method average). (Title 129, Chapter 19)~~ **The emissions from the DDGS Loading Baghouse (C90) is subject to the PM<sub>10</sub> limit as specified in Condition XIII.(A)(2).**

~~(a) — 0.16 pounds per hour PM~~

- (4) In order to demonstrate compliance with Condition XIII.~~(A)(2)~~ ~~(G)(3)~~, the source shall conduct a performance test for PM<sub>10</sub> (both filterable and condensable) on the DDGS Loading Baghouse (C90). The performance test shall be conducted in accordance with Condition XIII.(O). (Title 129, Chapter 34)

(H) The following conditions apply to: Biomethanator Operation

- (1) Biomethanator off-gases generated from the biomethanator shall be combusted in the methanator flare or the dryers.
- ~~(2) — The methanator flare shall not exceed 5,000 operating hours per any period twelve (12) consecutive calendar months. At no time during the first eleven (11) calendar months after the startup date shall the sum of all the previous months' operating hours exceed 5,000 hours. The pilot for the flare may operate continuously. (Title 129, Chapter 19)~~
- (~~3~~ 2) The biomethanator, flare, and associated equipment shall be properly installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the biomethanator, flare, and associated equipment shall be kept on site and readily available to Department representatives.
- ~~(4) — The methanator flare shall be equipped with a hour meter to record the hours of operation of the emission units to determine compliance with Condition XIII.(H)(2). The meter shall be installed, operated, calibrated, and maintained in accordance with manufacturer's documentation.~~

(I) The following conditions apply to: Emergency Equipment

- (1) The ~~360~~ 300-hp emergency fire water-pump engine shall not exceed 500 operating hours per any period twelve (12) consecutive calendar months. At no time during the first eleven

(11) calendar months after the initial start up date shall the sum of all the previous months' operating hours exceed 500 hours. (Title 129, Chapter 17)

**(a) Maintenance checks and readiness testing for the emergency fire water-pump engine shall not exceed 100 operating hours per any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) calendar months after the initial start up date shall the sum of the previous months' operating hours for maintenance checks and readiness testing exceed 100 hours. (Title 129, Chapter 17 and 40 CFR 60 Subpart III)**

- (2) Only diesel fuel (No. 1 and No. 2) shall be combusted in the emergency fire water-pump engine. The sulfur content of the diesel fuel shall **be limited according to the requirements established in 40 CFR 60 Subpart III. At no time shall the sulfur content of the diesel fuel** not exceed 0.5%. (Title 129, Chapters 17, 18, and 24)
- (3) The emergency fire water-pump engine shall be properly installed, operated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the engine shall be kept on site and readily available to Department representatives. (Title 129, Chapter 17)
- (4) The emergency fire water-pump engine shall be equipped with a non-resettable hour meter to record the operating hours to determine compliance with Condition XIII.(I)(1). The hour meter shall be properly installed and maintained in accordance with the manufacturer's requirements. (Title 129, Chapters 17 and 40 CFR 60 Subpart III)
- (5) The emergency fire water-pump engine is subject to Subparts A and IIII of 40 CFR 60 (Title 129, Chapter 18 Sections 001.01 and 001.76) and Subparts A and ZZZZ of 40 CFR 63 (Title 129, Chapter 28 Sections 001.01 and 001.88).**

\* \* \* \*

- (O) The Performance tests, **when required by the NDEQ**, required in the permit must **shall** be completed and submitted to the ~~Department~~ **NDEQ** as follows: (Title 129, Chapter 34)
- (1) Unless otherwise specified in this permit **or by the NDEQ**, the performance tests shall be conducted while operating at full capacity within 60 days after reaching the maximum capacity but not more than 180 days after the start up of operations.
- (2) ~~Testing methods shall be from 40 CFR 60 Appendix A, or other method approved by the NDEQ.~~ **Testing shall be conducted according to the methodologies found in Title 129, Chapter 34, Section 002, or other NDEQ approved methodologies.**
- (3) Performance tests shall be conducted for a minimum of three (3) one-hour runs unless another run-time is specified by the applicable Subpart or as deemed appropriate by the NDEQ.**
- (3 4) An emissions testing protocol shall be submitted to the Department at least 45 days prior to testing. The owner or operator shall provide the NDEQ with an emissions testing protocol at least thirty (30) days prior to testing.**

- (4 ~~5~~) The owner or operator of a source shall provide the ~~Department~~ NDEQ at least thirty (30) days written notice prior to testing to afford the ~~Department~~ NDEQ an opportunity to have an observer present.
- (~~5~~ 6) The permittee shall monitor the operating parameters for process and control equipment during the performance testing required in the permit (e.g., production rate, liquid flow rate and pressure differential during testing of the scrubber). The operating parameters shall be submitted with the test results.
- (~~6~~ 7) A certified written copy of the test results signed by the person conducting the test shall be provided to the ~~Department~~ NDEQ within forty-five (45) days of completion of the test and will, at a minimum, contain the following items:
- (a) A description of the source's operating parameters (i.e., production rates, firing rates of combustion equipment, fuel usage ,etc.) control equipment parameters (i.e., baghouse fan speed, scrubber liquid flow rates, chemical addition flow rates (if used), etc.), and ambient conditions (i.e., weather conditions, etc.) during testing.
- (b) Copies of all data sheets from the test run(s).
- (c) A description and explanation of any erroneous date or unusual circumstance(s) and the cause for such situation.
- (d) A final conclusion section describing the outcome of the testing.
- (P) Records of all limits, measurements, results, inspections, and observations listed in Conditions XIII.(A) through XIII.~~(N O)~~, as required to ensure compliance with this permit shall be maintained. Calculations and records shall be completed no later than the 15th day of each calendar month through the previous calendar month. Records shall be kept on-site for a minimum of five years, unless otherwise specified in this permit. These records shall be clear and readily accessible to Department representatives and shall include the following:
- (1) Compliance with Condition XIII.(A)~~(1)~~ may shall be demonstrated with the following records:
- (a) Emission calculations performed in accordance with the emission calculation methodology specified in Attachment A of this permit. The permittee shall keep appropriate records to support the emission calculations including, but are not limited to, actual material throughput rates, production rates, fuel usage rates, and operating hours.
- (2) Compliance with Condition XIII.(B)~~(2) and (6)~~ may shall be demonstrated with the following records associated with Grain Receiving, Handling, Storing, and Milling baghouses:
- (a) Records documenting when routine observations were performed with a description, including operating parameters (e.g., pressure differential readings) and any atypical observations.

- (b) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted.
  - (c) Filter replacement records including filter position, type, and date of filter installation.
  - (d) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made. Reporting to the Department shall be in accordance with Chapter 35, Section 005.
- (3) Compliance with Condition XIII.(C)(2 ~~3~~) ~~may~~ **shall** be demonstrated with the following records associated with the CO2 Scrubber (Fermentation Operations):
- (a) Records documenting when routine observations were performed with a description, including operating parameters (e.g., pressure differential readings, scrubbant flow rates) and any atypical observations.
  - (b) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action performed.
  - (c) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made. Reporting to the Department shall be in accordance with Chapter 35, Section 005.
  - (d) Records documenting operating parameters as specified in Condition XIII.(C)(3).**
- (4) Compliance with Conditions XIII.(D)(2) and (D)(~~6~~ **7**) ~~may~~ **shall** be demonstrated with the following records associated with the TO/WHRB system:
- (a) Fuel receipts for the natural gas supplier.
  - (b) As designated in Title 129, Chapter 18, Section 001.22, Industrial-Commercial-Institutional Steam Generating Units –Subpart Db, Recordkeeping Requirements (40 CFR 60.49b)
- (5) Compliance with Condition XIII.(D)(3) ~~may~~ **shall** be demonstrated with the following records associated with the TO/WHRB system:
- (a) Records documenting the temperature of the TO/WHRB system, including hourly temperature readings while the dryers, pre-fermentation, and distillation equipment are in operation.
  - (b) Records documenting when routine observations were performed with a description, including operating parameters (e.g., temperature) and any atypical observations.

- (c) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action performed.
  - (d) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made. Reporting to the Department shall be in accordance with Chapter 35, Section 005.
- (6) Compliance with Condition XIII.(E)(2) ~~may~~ **shall** be demonstrated with the following records associated with the Vapor Recovery System with a Flare (Ethanol Loadout):
- (a) Records documenting when routine maintenance and preventive actions were conducted with a description of the maintenance and/or preventive action conducted.
- (7) Compliance with Condition XIII.(F)(1) ~~and (F)(2) may~~ **shall** be demonstrated with the following records associated with DDGS Drying and Cooling:
- ~~(a) Records documenting totals of DDGS produced (in tons) at the facility for each calendar month and for each period of twelve (12) consecutive calendar months.~~
  - (~~b~~ **a**) Fuel receipts for the natural gas from the supplier.
- (8) Compliance with Condition XIII.(F)(4 ~~3~~) ~~may~~ **shall** be demonstrated with the following records associated with DDGS Drying and Cooling:
- (a) Records documenting when routine observations were performed with a description, including operating parameters (e.g., pressure differential readings) and any atypical observations.
  - (b) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted.
  - (c) Filter replacement records including filter position, type, and date of filter installation.
  - (d) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made. Reporting to the Department shall be in accordance with Chapter 35, Section 005.
- (9) Compliance with Condition XIII.(G)(2) ~~may~~ **shall** be demonstrated with the following records associated with the DDGS loading baghouse (C90):
- (a) Records documenting when routine observations were performed with a description, including operating parameters (e.g., pressure differential readings) and any atypical observations.

- (b) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted.
  - (c) Filter replacement records including filter position, type, and date of filter installation.
  - (d) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made. Reporting to the Department shall be in accordance with Chapter 35, Section 005.
- (10) Compliance with Condition XIII.(H)(2) and ~~(H)(3)~~ may shall be demonstrated with the following records associated with biomethanator operation:
- (a) Records documenting when routine maintenance and preventive actions were conducted with a description of the maintenance and/or preventive action conducted.
  - (b) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made. Reporting to the Department shall be in accordance with Chapter 35, Section 005.
  - ~~(c) Hours of operation for the methanator flare for each calendar month and for each period of twelve (12) consecutive calendar months.~~
- (11) Compliance with Condition XIII.(I) may shall be demonstrated with the following records associated with the Emergency Equipment:
- (a) Hours of operation for the emergency fire water-pump engine for each calendar month and for each period of twelve (12) consecutive calendar months.
  - (b) Fuel receipts for the diesel from the supplier, which shall include the fuel sulfur content, including the sulfur content of the diesel fuel in weight percent. **If a fuel receipt or equivalent documentation indicating the sulfur content of the fuel is not available, the facility may test the sulfur content of the fuel using an approved ASTM method.**
  - (c) Operation and maintenance records for the emergency generator shall include the following:
    - (i) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action performed.
    - (ii) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made. Reporting to the Department shall be in accordance with Chapter 35, Section 005.

- (12) Compliance with Condition XIII.(J) ~~may~~ **shall** be demonstrated with the following records associated with the Equipment Leaks:
- (a) As designated in Title 129, Chapter 18, Section 001.14, Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry – Subpart VV, Reporting and Recordkeeping Requirements (40 CFR 60.486).
- (13) Compliance with Condition XIII.(K)(4) ~~may~~ **shall** be demonstrated with the following records associated with the Haul Roads:
- (a) Records documenting use of fugitive dust control measures on haul roads.
  - (b) Records of haul road visible emissions checks taken daily during operation. **If necessary** and a description of corrective action taken, ~~if needed~~.
- (14) Compliance with Condition XIII.(L) ~~may~~ **shall** be demonstrated with the following records associated with the Cooling Tower:
- (a) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action performed.
  - (b) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made.
  - (c) Manufacturer's drift loss guarantee. This record shall be kept for the life of the equipment.
  - (d) TDS concentration in cooling water for each sampling event.
- (15) Compliance with Condition XIII.(M) ~~may~~ **shall** be demonstrated with the following records associated with the Storage Tanks:
- (a) As designated in Title 129, Chapter 18, Section 001.62, Volatile Organic Liquid Storage Vessels (including petroleum storage vessels) – Subpart Kb, Reporting and Record keeping Requirements (40 CFR 60.115b).
- (16) Compliance with Condition XIII.(N) ~~may~~ **shall** be demonstrated with the following records associated with the NAAQS modeling requirements:
- (a) Site survey or similar documentation and the restricted public access provisions. These records shall be kept for the life of the equipment.

**STATUTORY OR REGULATORY PROVISIONS ON WHICH PERMIT REQUIREMENTS ARE BASED:**

Applicable regulations: Title 129 - Nebraska Air Quality Regulations as amended May 17, 2009.

**PROCEDURES FOR FINAL DETERMINATION WITH RESPECT TO THE PROPOSED CONSTRUCTION PERMIT:**

The public notice, as required under NAQR Chapter 14, shall be published on January 14, 2010, in the Beatrice Daily Sun newspaper. Persons or groups shall have 30 days from that issuance of public notice (February 12, 2010) to provide the NDEQ with any written comments concerning the proposed permit action and/or to request a public hearing, in accordance with NAQR Chapter 14. If a public hearing is granted by the Director, there will be a notice of that meeting published at least 30 days prior to the hearing. Persons having comments or requesting a public hearing may contact:

W. Clark Smith-Permitting Section Supervisor  
Air Quality Division  
Nebraska Department of Environmental Quality  
PO Box 98922  
Lincoln, Nebraska 68509-8922

If no public hearing is requested, the permit may be granted at the close of the 30-day comment period. If a public hearing is requested, the Director of the NDEQ may choose to extend the date on which the permit is to be granted until after that public hearing has been held. During the 30-day comment period, persons requiring further information should contact:

Carmen Kunze-Environmental Engineer  
Air Quality Division-Permitting Section  
Nebraska Department of Environmental Quality  
PO Box 98922  
Lincoln, Nebraska 68509-8922

**Telephone inquiries may be made at:**

(402) 471-2189

**TDD users please call 711 and ask the relay operator to call us at (402) 471-2186.**