Review of Draft Construction Permit for Proposed DIMLA Plant
Draft Permit No.: 1130004-019-AC

February 21, 2011
Reba;

As we discussed on the phone today, here is my preliminary response to your administrative corrections below. There are question marks to the left of the ones that I requested additional clarification on. Thank you for taking the time to be so thorough in your review. This will save us all additional re-work. Teresa Knepper, P.E. (FDEP Permit Engineer)

PUBLIC NOTICE

- Just a few clarifications to the text. Need to mention that the residue can also be disposed of offsite. VOC increases also come from fugitive leaks, and control of many vents is by the flare).

  The Public Notice does not require a high level of project detail. Since none of the administrative corrections noted below relax any of the permit conditions, you can go ahead and publish and we can go ahead and start making the corrections as noted below.

TECHNICAL EVALUATION AND PRELMINARY DETERMINATION

Section 1. General Project Information – pg 2

- Under "Project Description", please update the text to indicate that if the formic acid is needed it will be used with the formalin (change to: "A second methylation reaction using formalin and possibly formic acid completes……..."). *Agree--corrected*
- Myristyl alcohol is misspelled. *Agree--corrected*
- Please update the text similar to the public notice. { Need to mention that the residue can also be disposed of offsite. VOC increases also come from fugitive leaks, and control of many vents is by the flare). } *Added "or disposed of offsite," and, "fugitive emissions associated with the new process and." Already mentions that vents are routed through scrubbers that vent to the flare.*
- Paging may be off. The pages are numbered 2 of 2, 3 of 3 ect. and should be 2 of 5 ect. *Mary Beth has fixed this*.
- Under the heading " Facility Description and Location", Dimethyl Formamide should be changed to Amylamines. *Agree—corrected.*

Section 2. PSD Applicability – pgs. 3,4&5

- Please update the text similar to the public notice and for the use of formic acid as in section 1. Page 4 first paragraph for the formic acid and second paragraph the last two sentences. *Agree—corrected.*

- We will add make-up hydrogen and recycle hydrogen in comment on pg 3. *Agree—corrected.*
- On page 5 in the second paragraph, the first sentence should be changed to include the NOx emission estimates from the flare. *Agree—added "NOx emissions from the flare and the boilers will increase."*
- Please update the limit for burning the DIMLA residue from 5,000 to 5,356 gallons to be consistent with the emission increase calculations. *Agree—the 5000 came from me rounding down. I will change it to 5356 gallons.*
- Table A – the baseline and projected actual emissions do not agree with the information provided on 12-17-10. Filename: 2008-2009 Actual Emissions (12-15-10).xls. The emission increases are correct. We cannot verify how the baseline and projected actual emissions methanol values were derived. We estimate that the Methanol increases from DIMLA are 17.0 tpy (instead of 17.5 tpy) based on the sum of equipment fugitives (0.105 tpy), wastewater (difference between the existing and proposed operation – 16.45 tpy), DIMLA maintenance WW (0.4 tpy), tanks (0.0148 tpy). *The projected actual emissions come from the confidential spreadsheet "Max PTE Dec15.xls." The emissions themselves cannot be kept confidential (even if some of the information used to calculate them are) and are for the facility as a whole, not just this project.*

  When I looked again, I could not find the extra 0.5 TPY of methanol either so I corrected the table as shown.

Pollutant	Baseline Actual Emissions (tpy) in Draft Permit	Baseline Actual Emissions (tpy) from Calculations File	Projected Actual Emissions (tpy) in Draft Permit	Projected Actual Emissions (tpy) from Calculations File
CO	142.04	59.52	158.56	76.04
NOx	383.28	152.6	423.18	192.5
PM/ PM_{10}	20.67/20.66	40.05/39.66	21.85/21.84	41.24/40.85
SO_2	13.72	7.73	14.71	8.72
VOC	107.4	52.77	141.0	86.4
Methanol	~~49.88~~ *50.38*	None provided	67.38	None provided
Formaldehyde	0	None provided, but zero is correct	0.857	None provided, but 0.857 tpy is correct

DRAFT PERMIT

Section 1. General Information – pgs 4 and 5

- EU075 Waste Water Treatment Plant Fugitives is listed under regulated emission units but in the Title V renewal it is listed under unregulated emission units. We think this is right and it should be changed in the Title V renewal. *Actually, if you look at the definitions of "regulated" and "unregulated" emissions units on Page 29 of the application instructions, it appears that EU075 should be considered unregulated in the air operating permit ("unregulated" and "regulated" don't really apply for the purposes of construction permitting—I just put those notes in to help the permit writer who*

incorporates this into the air operating permit).I will remove the unregulated section since all of the emissions unit are subject to permitting.

- On page 4 of 34, EU076 lists DIMLA loading as new and unregulated. Our analysis shows the loading is subject to MON. (Any material loaded from the DIMLA Plant would contain HAPs only as impurities. The rack-weighted average partial pressure, would be less than 1.5 pound per square inch absolute. Therefore, this is a Group 2 Transfer Rack. *Basically same answer as for EU075—since there are no unit specific requirements for Group 2 in the MON, these can be considered "unregulated" for the purposes of the air operating permit. It doesn't really mean anything for the purposes of the construction permit.*
- The emissions changes table does not agree with the information provided on 12-17-10. Filename: 2008-2009 Actual Emissions (12-15-10).xls. See PSD Applicability above. *Same answer as for the TEPD above—the methanol baseline emission has been corrected.*

<u>Section 3. Emissions Unit Specific Information</u>

EU ID No. 001 (Riley Stoker Boiler) – pg 9 of 34

- **?????????**Equipment - The maximum capacity of the boiler is 113 MMBTU/hr at 80% efficiency (instead of 144 MMBtu/hr at 75% efficiency). *I am not able to duplicate this number. If I ignore superheat and just assume the boiler makes 90,000 lb/hr of 600 psig steam, this is what I get:*
  90,000 lb/hr x 1200 btu/lb ÷0.8 = 135 MMBtu/hr. The 144 MMBtu/hr was a result of using the 75% efficiency listed in the current Title V emission unit description. Please help me understand why we are getting different numbers.
- Performance Restrictions – authorized fuel. Please update the limit for burning the DIMLA residue from 5,000 to 5,356 gallons to be consistent with the emission increase calculations. *Agree—corrected as described above.*
- Please change the sentence under A.2. to reflect that we have 3 Cogen units. *Agree—corrected.*

EU ID No. 003 (B&W Boiler) – pg 11 of 34

- **?????????**Equipment - The maximum capacity of the boiler is 113 MMBTU/hr (instead of 144 MMBtu/hr). *Same question as above under EU001.*
- Please update section B.1 to reflect that we have 3 Cogen units. *Agree—corrected.*

EU ID No. 005 (Amines Plants Flare) – pgs 12 & 13 of 34

- **?????????**Please take out the ratio of natural gas and process gas. We are regulated under temperature, flow and presence of flame. *Actually, the letter from EPA Region IV to the FDEP included with the permit application (labeled Exhibit 4) indicates that one of the conditions for waiving the requirement to test the heating value of the gas being flared was to ratio the natural gas to the process gas in a ratio 0.33:1. Currently, this is not included as a specific condition, but only in the emission unit description. In order*

for you to be afforded the protection of the permit shield, we should take this out of the description and make it part of the specific condition that addresses the heating value.

- **?????????**C.1. – The sentence should be changed to: This permit allows the routing of process vent streams from the DIMLA absorption column vent, the Desorption column vent and the methylation Reactor vent cooler to the Amines Plants' Flare via the #1 Methylamines Low Pressure Absorber. *I can make this change, but the Process Flow Diagram that was submitted with the application refers to the "Amines Separation" column rather than to the "Desorption" column. To avoid confusion in the public record, I think it is best to use terminology that is consistent with the information provided in the application. So, if you can provide me an updated Process Flow Diagram that uses the preferred terminology, I will make this change.*
- We will not have a bypass on the flare so do we need to take that language out? *I think it won't hurt to leave this language in so that, in the future, someone will not think it might be all right to install piping that inadvertently could allow the flare to be bypassed without applying the required administrative controls or monitoring device (for example, there might be a bleed or open ended line for clearing equipment for maintenance that could allow material to "bypass" the flare if you don't remember to close it when you're finished using it).*

EU ID No. 063 Cooling Towers (4) pg 19 of 34

- The only cooling tower affected by the DIMLA process will be CT-67102 *Sorry, there was some confusion here. The spreadsheet indicated that CT-67102/CT67103 would be affected, but Table 2 listed CT67038 and CT32000 as being the affected towers. I will make this correction and pencil in the corrected equipment number in Table 2.*

EUID No. 076 DIMLA Storage Tanks and Loading (New/Unregulated) pg. 20 of 34

- **?????????**F.1. In the first paragraph we are thinking we need to change the paragraph to reflect that we vent from loading to the atmosphere in everything except formalin or just take the whole paragraph out. *The information in the spreadsheet indicated that the vapors from loading were routed back to the storage tanks and so, were lumped together with the working and standing losses from the tanks. That was why I lumped the tanks and loading rack together this way. If this is not a correct understanding please let me know.*

EU ID No. 078 DIMLA VOC Equipment Leaks pg. 23 of 34

- At the bottom of the page the citation [Rule 624.070(3), F.A.C.] appears as it does on pages 25 and 31. It is 62-4.070(3) FAC on page 31. We could not find the first regulation so we are assuming it is the second one and should it be at those locations? *This is the regulatory citation that authorizes us to include any conditions deemed necessary to ensure compliance with all the rules of the Department. I will review whether they are really needed in those locations and remove them if not. However, this does not change any of the specific conditions in the permit.*

EU ID No. 058 (Higher Amines and 72" Batch Column/DIMLA MON Group 2 Storage Tanks) – pg 26

- Under "Equipment" the tank number for the Formalin Tank should be TK-62141. The tank will be stainless steel instead of white. The Formic Acid tank number has also changed to TK-62-148. *I agree. I have made the corrections in the draft permit and also penciled in the corrections on the DIMLA Plant Storage Block Flow Diagram submitted with the permit.*

EU ID No. 072 (Higher Amines/DIMLA MON Wastewater) – pg 29-30.

- **??????????**In the first paragraph we need to change the last sentence to read: Waste water exits the process from tank TK-62099 and is treated in the existing waste water treatment system (EU075). *As mentioned above, the description was based on the Process Flow Diagram that was provided. Please add this tank to the process flow diagram and show the correct routing of wastewater and I will make this change.*

EU ID No. 074 (Sitewide MON Heat Exchangers) – pg 31-32.

- We made a mistake and only considered the requirement of 5% or less HAP for the heat exchangers to be subject to the rule. We did not consider the 35kPA, therefore E-62054 (Vacuum Flash Condenser and E-62065A/B/C (Vacuum Jet Inter Coolers) will not meet the requirement since the pressure on the process is less than 35kPA of the pressure on the cooling side. *Agree. These exchangers are not subject to monitoring requirements so I will delete them from this emissions unit.*

DIMLA Scrubber – pg 33.

- Please add "amines and" after scrub and before methanol. *Agree--corrected*
- **??????????**The second sentence of the first paragraph should read as follows: The recovered amines are fed to the #4 Methylamines plant via the new DIMLA Amines Absorption Column and Desorption Column with the methanol going to tank TK-62099 to be released to the waste water treatment system. *Will be corrected pending update of the Process Flow Diagram.*
- **??????????**Under Performance Restrictions M.2. Collection of Emissions. Could we change the 20 gallons per minute minimum water flow requirement to a gallons per minute ratio based on our production rate? We are thinking the 20 gallons per minute will be too much water at the rates we plan to run. Therefore, we are proposing a ratio of 0.75 of our alcohol feed rate to minimize water usage and therefore steam consumption. At this ratio we will still have more than enough water to scrub the methanol out of the vent stream. *Yes. I never intended to force you to flood the column. This condition will be amended to require that the water be maintained at 75% of the ROH feedrate. Should this be by volume or by weight? (In what units do you intend to measure the flows?)*
- Under Monitoring Requirements pg 33- There is no bypass for the scrubber. *Same comment as applies to the flare. It is best to leave this in so it will be clear that bleed valves, such as for preparation for maintenance, that could inadvertently be left open allowing material to "bypass" the scrubber are required to be locked shut or monitored.*