UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

APR 0 9 2013

Mr. Randy Smith
Vice President/General Manager
Formosa Plastics Corporation, Texas
P.O. Box 700
Point Comfort, TX 77978

RE Completeness Determination for Formosa Plastics Corporation, Texas
Greenhouse Gas Prevention of Significant Deterioration (PSD) Permit Application
2012 Expansion Project: Olefins Expansion- Olefins 3 and Propane Dehydrogenation Plant

Dear Mr. Smith,

The EPA has reviewed your Greenhouse Gas (GHG) Prevention of Significant Deterioration (PSD) permit application for Formosa Plastics Corporation, Texas that was received by the EPA on December 11, 2012, including supporting documentation, and determined that your application is incomplete at this time. A list of the information needed from you so that the EPA can continue its completeness review is enclosed (see Enclosure). Please notify us if a complete response is not possible by April 29, 2013.

The requested information is necessary for EPA to develop a Statement of Basis and Rationale for the terms and conditions for any proposed permit. As we develop our preliminary determination, it may be necessary for EPA to request additional clarifying or supporting information. If the supporting information substantially changes the original scope of the permit application, an amendment or new application may be required.

The EPA may not issue a final permit without determining that: 1) there will be no effects on threatened or endangered species or their designated critical habitat, or 2) until it has completed consultation under Section 7(a)(2) of the Endangered Species Act (16 USC § 1536). In addition, the EPA must undergo consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) (16 USC § 470f). As a reminder, NHPA implementing regulations require that EPA provide information to the public with an opportunity for participation in the Section 106 process. 36 CFR § 800.2(d). We look forward to receiving the Biological Assessment and Cultural Resources Reports that you have agreed to prepare for EPA for our use in complying with these statutes.

If you have any questions regarding the review of you permit application, please contact Melanie Magee of my staff at (214) 665-7161or magee.melanie@epa.gov.

Sincerely yours,

for David F. Garcia
Acting Director
Multimedia Planning and
Permitting Division

ENCLOSURE

EPA Information Request

Formosa Plastics Corporation, Texas (FPC TX)

2012 Expansion Project: Olefins Expansion and Propane Dehydrogenation Plant (PDH)

Application for Greenhouse Gas Prevention of Significant Deterioration Permit

1. The process description should closely follow the process diagram that is provided and identify all emission points that emit GHG emissions or have the potential to emit. Also, include non-GHG sources, but please identify as such, if it is an integral part of process and feeds a GHG source. It is suggested that additional pages be created and provided to EPA to represent the process to avoid overcrowding and confusion. Please supplement the Olefins 3 and the PDH Plant process flow diagram with the following information:

Olefins 3 Unit

A. A representation of all nine cracking furnaces along with the emission point identification numbers.

B. The heat recovery that is mentioned throughout the process description should be included on the process flow diagram. This includes, but is not limited to, ethane feed (stream 1) combined with recycle ethane (stream 1R) is superheated with quench water prior to the saturator, ethane feed from saturator is superheated in a heat exchanger, feed stream to furnace is preheated in convection section, product stream (cracked gas) from the furnace radiant coils (stream 3) routed through heat exchangers where heat is recovered by boiler feed water to produce superheated high pressure steam, the vapor (stream 8) from the charge gas driers is cooled (by propylene refrigerant) before entering the deethanizer, and the deethanizer column is heated with recovered energy from low pressure steam.

C. On page 19 of the application, a description of the process water stripper is summarized; therefore the process water stripper should be included on the process flow diagram and clearly indicate the closed-loop water treatment of the process water that is used to cool the cracked gases in the quench tower.

D. On page 20 of the application, it is stated that the caustic blowdown from the caustic/water wash tower is routed to a collection tank. Since it is possible that the blowdown could possibly contain hydrocarbons, this collection tank is vented to a set of carbon canisters. Please supplement the process flow diagram to include the carbon canisters. What will be the compliance strategy for the canisters?

E. The process description states that hydrogen is recovered in the pressure swing absorption system (PSA), but it is not included on the process flow diagram. Please supplement the diagram to include it along with the emission point identification number for the GHG source, if appropriate, or identify it as a non-GHG emission source.

F. On page 22 of the application, the process description states that the fuel gas is a mixture of hydrogen-rich gas from the dryer regeneration system (deethanizer overhead), methane-rich off gas from the chilling train (demethanizer overhead), PSA off-gas and natural gas from outside battery limits (OSBL). The process flow diagram doesn't depict the combining of these streams to produce the fuel gas fed to the furnaces and steam boilers. Please supplement the process flow diagram to indicate these streams along with the emission point identification number for the GHG source, if appropriate, or identify it as a non-GHG emission source.

G. Please provide a process flow diagram of the decoking system along with the emission point identification number for the GHG source. The process diagram of the system can be depicted separately to avoid overcrowding.

PDH Unit

A. Please include all four PDH reactors and Steam boilers along with the emission point identification numbers.
B. Please represent the heat recovery from the reactors that is used to vaporize the propane feed to the depropanizer tower on the process flow diagram.
C. On page 24 of the application, the process description states that the solvent flash drum bottoms are routed to the solvent system stripper for processing and reuse. Please supplement the process flow diagram to include this stripper along with the emission point identification, if appropriate, or identify if it has a non-GHG emission source.
D. On page 25 of the application, the process description states that the mechanical energy recovery that is available at the coupling of the expander is used to generate electrical power that is charged to the electrical grid. Also, the cooling down of the expanded gas is supplying the cryogenic energy required in the cold boxes. If possible, please supplement process flow diagram to depict this energy recovery.
E. On page 26 of the application, the process description summarizes the operation of the process condensate stripper. It is not clear from the process flow diagram the placement of this equipment in the PDH process and what feed streams are routed to the stripper and where the exit streams are routed. Please supplement process flow diagram with this information.

2. Beginning on page 27 of the permit application in the section entitled "Overall Energy-Efficient Design Philosophy", it is stated that FPC TX is incorporating several design strategies that will provide operating cost savings and the benefit of minimizing emissions of GHG throughout the plant. In this section there is a summary of the equipment selection and design attributes that include, but not limited to, the following:
   - energy saving motors on applicable compressors,
   - capacity control will be installed to reduce electric energy consumption,
   - variable speed for blowers, pumps and compressors,
   - use of cold box heat exchangers instead of shell and tube exchangers,
   - Olefins 3 plant is designed to maximize cooling from process off-gas streams to minimize refrigerant requirements,
   - Olefins 3 plant is designed to operate at lower pressure to allow easier separation of methane, which is estimated to reduce up to 10% required power for the binary compressor, requiring less refrigeration, and
   - Ethylene fractionator's lower-reflux design.

Please provide supplemental technical benchmark data that compares the design selections to be employed to a similar or existing source in the industry. If possible, please provide the technical resources used to evaluate the design decisions and to support the assertions made in this section. If technical benchmark data is not available, then please provide information detailing or projecting the potential efficiency gains that are expected utilizing these design strategies. Please include the basis for the rationale and supporting calculations and resources for this information.

3. Please provide a representation of the cooling towers for both the Olefin 3 and PDH on the process flow diagram. Will the cooling towers be a possible GHG emission source? Are there heat exchangers in either process that if a leak occurs, would allow GHG emission into the cooling water system? If so please include the emission point identification number and emission calculations. Typically CO_2 emissions are associated with combustion pollutants and CH_4 pollutant is associated with VOC pollutants, therefore if FPC TX feels that such streams do not have GHG pollutants an explanation is required.

4. On page 19 of the permit application, it states that the quench tower overhead vapors (5) are compressed in a steam turbine-driven centrifugal process gas compressor. Is the steam turbine driven compressor a GHG emission source? If so, please provide supplemental information to the BACT analysis. If not, is the steam that is used the result of heat recovery in the furnace area? Please provide supplemental information to process description and process flow diagram

5. On page 46 of the permit application, it states that "high efficiency burners, designed for optimum combustion of the hydrogen-rich fuel gas, will be installed in the firebox on both sides of the radiant tubes." Please provide any benchmark comparison for similarly designed burners that have been permitted by air permitting authorities nationwide.

6. Please provide supporting calculations, technical information and a basis for the rationale used to calculate the energy that will be recovered from the "Energy Efficient Design Elements" section proposed for the cracking furnace on page 48 of the permit application.

7. On page 56 of the permit application, it is stated that there aren't any applicable technologies for controlling GHG emissions from the MAPD regeneration vent. The MAPD regeneration vent's CO_2e emissions (estimated at less than 30 tons per year) represent less than .001% of the project's GHG emissions; therefore, this source is an inherently low-emitting GHG emission source. Being mindful of EPA's PSD and Title V Permitting Guidance for GHG dated March, 2011 on page 17, which states if the permitting authority determines that technical or economic limitations on the application of a measurement methodology would make a numerical emissions standard infeasible for one or more pollutants, it may establish design, equipment, work practices or operational standards to satisfy the BACT requirement. Were work practices or operational standards evaluated? Please provide supplemental data that details the work practices and operational standards that FPC TX is proposing to put into place for the MAPD that are practically enforceable.

8. On page 69 of the permit application, it states that FPC TX is designing the Olefins 3 plant and PDH unit with fuel gas systems which will provide beneficial reuse of hydrocarbon-containing streams that would otherwise be routed to a flare for control. In fact, as explained on page 29, "the PDH unit fuel gas system will be used as the primary fuel in all of the unit's large fired sources (reactors); totaling approximately 600 MMBtu/hr of combustion equipment….Depending on the propane feed composition even an export of fuel gas for use as fuel in other plants is possible." If possible, please quantify the amount of fuel gas that is anticipated to be exported to other plants?

9. On page 75 of the permit application, FPC TX proposes to use weekly AVO monitoring. Please provide supplemental data that discusses the details of what this program will involve. What is the proposed compliance strategy including recordkeeping, schedule, and the protocol for equipment repairs? Is there a TCEQ LDAR method that FPC TX prefers to use? Please provide supplemental data that includes the basis for utilizing this preferred method versus other potential methods.