### PREVENTION OF SIGNIFICANT DETERIORATION PERMIT FOR GREENHOUSE GAS EMISSIONS ISSUED PURSUANT TO THE REQUIREMENTS AT 40 CFR § 52.21

#### **U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6**

<b>PSD PERMIT NUMBER:</b>	PSD-TX-752-GHG		
PERMITTEE:	Equistar Chemicals, LP P.O. Drawer D Deer Park, TX 77536		
FACILITY NAME:	Equistar Chemicals, LP La Porte Complex		
FACILITY LOCATION:	1515 Miller Cut-Off Road La Porte, TX 77571		

Pursuant to the provisions of the Clean Air Act (CAA), Subchapter I, Part C (42 U.S.C. Section 7470, *et. Seq.*), and the Code of Federal Regulations (CFR) Title 40, Section 52.21, and the Federal Implementation Plan at 40 CFR § 52.2305 (effective May 1, 2011 and published at 76 FR 25178), the U.S. Environmental Protection Agency, Region 6 is issuing a *Prevention of Significant Deterioration* (PSD) permit to Equistar Chemicals, LP for Greenhouse Gas (GHG) emissions. The Permit applies to the addition of two new cracking furnaces and supporting equipment at their Olefins unit (QE-1) at the La Porte Complex located in La Porte, Texas.

Equistar is authorized to construct additional equipment at the QE-1 Olefins unit as described herein, in accordance with the permit application (and plans submitted with the permit application), the federal PSD regulations at 40 CFR § 52.21, and other terms and conditions set forth in this PSD permit in conjunction with the corresponding Texas Commission on Environmental Quality (TCEQ) PSD permit No. PSD-TX-752M5. Failure to comply with any condition or term set forth in this PSD Permit may result in enforcement action pursuant to Section 113 of the Clean Air Act (CAA). This PSD Permit does not relieve Equistar of the responsibility to comply with any other applicable provisions of the CAA (including applicable implementing regulations in 40 CFR Parts 51, 52, 60, 61, 72 through 75, and 98) or other federal and state requirements (including the state PSD program that remains under approval at 40 CFR § 52.2303).

In accordance with 40 CFR §124.15(b), this PSD Permit becomes effective 30 days after the service of notice of this final decision unless review is requested on the permit pursuant to 40 CFR §124.19.

David F. Garcia, Acting Director Multimedia Planning and Permitting Division Date

#### Equistar Chemical Company LP (PSD-TX-752-GHG) Prevention of Significant Deterioration Permit For Greenhouse Gas Emissions Final Permit Conditions

#### **PROJECT DESCRIPTION**

The proposed modification will add two new cracking furnaces and associated equipment to the existing Olefin unit (QE-1) at the La Porte Complex in La Porte, Texas. The Olefins unit (QE-1) receives hydrocarbon feedstock where it is fed into pyrolysis furnaces. The pyrolysis furnaces, which are fired on natural gas and/or process gas, heat the feedstock to a high temperature where it cracks and reforms as alkenes or olefins. The proposed GHG PSD permit allows Equistar to expand their Olefins unit (QE-1) by constructing two new cracking furnaces and supporting equipment at the existing facility at the La Porte Complex located in La Porte, Harris County, Texas. The modification increases the plant nominal ethylene production capacity from 875,000 tpy to 1,280,000 tpy. This equates to approximately 405,000 tons per year nominal capacity to produce ethylene. The plant also produces other products at varying capacities, but ethylene is the predominant product.

The process effluent from the furnaces is quenched and scrubbed with water. Pyrolysis gasoline is removed as a product during water scrubbing. The quenched gases are compressed, dried, and cooled prior to beginning a series of purification/distillation steps. A hydrogen rich stream from the final chilling step is further purified in a pressure swing absorber to produce hydrogen product.

The purification section consists of a demethanizer, deethanizer, acetylene recovery unit (ARU), depropanizer, methyl acetylene propadiene conversion unit (MAPD), debutanizer, C3 splitter, and C2 splitter. This equipment separates the process gas stream into acetylene, ethylene, propylene, mixed C4 hydrocarbons, and pyrolysis gasoline (pygas) products. Ethane and propane recovered during distillation and separation are recycled as feedstock into the pyrolysis furnaces.

Periodically, coke (primarily carbon) deposited in the furnace tubes must be removed. This decoking operation consists of two steps, of which only the second produces GHG emissions:

- An initial steam purge which moves hydrocarbons and coke particles further into the process, then
- A burn step which produces CO and CO<sub>2</sub>, and routes the vent stream including coke particles to a cyclone separator.

# EQUIPMENT LIST

FIN	EPN	Description				
QE1010B QE1011B	QE1010B QE1011B	Two Cracking Furnaces (Combustion Units). Each furnace has a maximum rated capacity of 600 MMBtu/hr, and will be equipped with a Selective Catalytic Reduction (SCR) system.				
QE1416FB	QE1416FB	Decoking Drum (Combustion Unit Vent).				
QE3050B	QE3050B	Acetylene Recovery Unit (ARU) Flare (Combustion Units).				
QE8050B	QE8050B	Elevated Flare (Combustion Unit).				
QEFUG	QEFUG	Process Fugitives				

The following devices are subject to this GHG PSD permit.

### I. GENERAL PERMIT CONDITIONS

### A. **PERMIT EXPIRATION**

As provided in 40 CFR §52.21(r), this PSD Permit shall become invalid if construction:

- 1. is not commenced (as defined in 40 CFR §52.21(b)(9)) within 18 months after the approval takes effect; or
- 2. is discontinued for a period of 18 months or more; or
- 3. is not completed within a reasonable time.

Pursuant to 40 CFR §52.21(r), EPA may extend the 18-month period upon a written satisfactory showing that an extension is justified.

## **B. PERMIT NOTIFICATION REQUIREMENTS**

Permittee shall notify EPA Region 6 in writing or by electronic mail of the:

- 1. date construction is commenced, postmarked within 30 days of such date;
- 2. actual date of initial startup, as defined in 40 CFR §60.2, postmarked within 15 days of such date; and
- 3. date upon which initial performance tests will commence, in accordance with the provisions of Section V, postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the performance test protocol required pursuant to Condition V.B.

## C. FACILITY OPERATION

At all times, including periods of startup, shutdown, and maintenance, Permittee shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility.

## D. MALFUNCTION REPORTING

1. Permittee shall notify EPA by mail within 48 hours following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in GHG emissions above the allowable emission limits stated in Section II and III of this permit.

- 2. Within 10 days of the restoration of normal operations after any failure described in I.D.1., Permittee shall provide a written supplement to the initial notification that includes a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Section II and III, and the methods utilized to mitigate emissions and restore normal operations.
- 3. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

### E. RIGHT OF ENTRY

EPA authorized representatives, upon the presentation of credentials, shall be permitted:

- 1. to enter the premises where the facility is located or where any records are required to be kept under the terms and conditions of this PSD Permit;
- 2. during normal business hours, to have access to and to copy any records required to be kept under the terms and conditions of this PSD Permit;
- 3. to inspect any equipment, operation, or method subject to requirements in this PSD Permit; and,
- 4. to sample materials and emissions from the source(s).

### F. TRANSFER OF OWNERSHIP

In the event of any changes in control or ownership of the facilities to be constructed, this PSD Permit shall be binding on all subsequent owners and operators. Permittee shall notify the succeeding owner and/or operator of the existence of the PSD Permit and its conditions by letter; a copy of the letter shall be forwarded to EPA Region 6 within thirty days of the letter signature.

### G. SEVERABILITY

The provisions of this PSD Permit are severable, and, if any provision of the PSD Permit is held invalid, the remainder of this PSD Permit shall not be affected.

#### H. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS

Permittee shall construct this project in compliance with this PSD Permit, the application on which this permit is based, the TCEQ PSD Permit PSD-TX-752M5 (when issued) and all other applicable federal, state, and local air quality regulations. This PSD permit does not release the Permittee from any liability for compliance with other applicable federal, state and local environmental laws and regulations, including the Clean Air Act.

### I. ACRONYMS AND ABBREVIATIONS

ARU	Acetylene Recovery Unit
AVO	Auditory, Visual, and Olfactory
BACT	Best Available Control Technology
C <sub>3</sub> +	Hydrocarbon with Three or More Carbon Atoms
CAA	Clean Air Act
CC	Carbon Content
CCS	Carbon Capture and Sequestration
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
$CO_2$	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
dscf	Dry Standard Cubic Foot
EF	Emission Factor
EPN	Emission Point Number
FIN	Facility Identification Number
FR	Federal Register
GCV	Gross Calorific Value
GHG	Greenhouse Gas
gr	Grains
GWP	Global Warming Potential
HHV	High Heating Value
hr	Hour
HRSG	Heat Recovery Steam Generating
LAER	Lowest Achievable Emission Rate
lb	Pound
LDAR	Leak Detection and Repair
MAPD	Methyl Acetylene Propadiene
MMBtu	Million British Thermal Units
MSS	Maintenance, Start-up and Shutdown
NAAQS	National Ambient Air Quality Standards
NNSR	Nonattainment New Source Review
N <sub>2</sub> O	Nitrous Oxides
NSPS	New Source Performance Standards
PSD	Prevention of Significant Deterioration
QA/QC	Quality Assurance and/or Quality Control
SCFH	Standard Cubic Feet per Hour
SCR	Selective Catalytic Reduction
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TOC	Total Organic Carbon
ТРҮ	Tons per Year
USC	United States Code
VDU	Vapor Destruction Unit
VHP	Very High Pressure
VOC	Volatile Organic Compound

#### **II.** Annual Emission Limits

Annual emissions, in tons per year (TPY) on a 12-month, rolling average, shall not exceed the following:

FIN	EPN	Description	GHG Mass Basis		ТРҮ	
FIIN				TPY <sup>1</sup>	$CO_2e^{1,2}$	BACT Requirements
QE1010B	QE1010B	Cracking Furnace	CO <sub>2</sub>	281,506	281,766	Furnace Gas Exhaust Temperature ≤ 302 °F. Maintain Thermal Efficiency of 91%. See permit condition III.A.1.n. through p.
			CH <sub>4</sub>	5		
			N <sub>2</sub> O	0.5		
QE1011B (	QE1011B	Cracking Furnace	CO <sub>2</sub>	281,506	281,766	Furnace Gas Exhaust Temperature ≤ 302 °F. Maintain Thermal Efficiency of 91%. See permit condition III.A.1.n. through p.
			$\mathrm{CH}_4$	5		
			N <sub>2</sub> O	0.5		
QE3050B	QE3050B	ARU Flare	CO <sub>2</sub>	6,037	6,121	Good Combustion Practices. See permit condition III.A.2.
			CH <sub>4</sub>	4		
			N <sub>2</sub> O	Negligible <sup>3</sup>		
0000	0.500.505	Elevated Flare	CO <sub>2</sub>	32,563	33,025	Good Combustion Practices. See permit condition III.A.2.
QE8050B	QE8050B		CH <sub>4</sub>	22		
			N <sub>2</sub> O	Negligible <sup>3</sup>		
QE1416FB	QE1416FB	Decoking Drum	CO <sub>2</sub>	1,047	1,047	Good Combustion Practices. See permit condition III.A.1.q. and r.
QEFUG	QEFUG	Fugitive Process Emissions	CH <sub>4</sub>	Not Applicable	Not Applicable	Implementation of LDAR program. See permit condition III.A.3.
Totals <sup>4</sup>		CO <sub>2</sub>	602,659	CO <sub>2</sub> e 603,872		
		CH <sub>4</sub>	43			
			N <sub>2</sub> O	1.0		

**Table 1. Annual Emission Limits** 

1. The TPY emission limits specified in this table are not to be exceeded for this facility and include emissions from the facility during all operations and include MSS activities.

2. Global Warming Potentials (GWP):  $CH_4 = 21$ ,  $N_2O = 310$ 

3. All values indicated as negligible are less than 0.01 TPY with appropriate rounding.

4. Total emissions include the PTE for fugitive emissions. Totals are given for informational purposes only and do not constitute emission limits.

### **III. SPECIAL PERMIT CONDITIONS**

#### A. Emission Unit Work Practice Standards, Operational Requirements, and Monitoring

#### 1. Cracking Furnaces (QE1010B and QE1011B) and Decoking Drum (QE1416FB)

- a. The cracking furnaces shall combust pipeline quality natural gas and/or plant tail gas (fuel gas).
- b. All fuel combustion units identified in this permit shall have fuel metering for each fuel, and Permittee shall:
  - i. Measure and record the fuel flow rate using an operational non-resettable elapsed flow meter or by recording the flow rate data in an electronic format with individual flow measurements being taken no less frequently than once every 15 minutes. Electronic data may be reduced to hourly averages for recordkeeping purposes.
  - ii. Record the total fuel combusted for each fuel monthly.
  - iii. The fuel gross calorific value (GCV) [high heat value (HHV)], carbon content and, if applicable, molecular weight, shall be determined, at a minimum, hourly using an online chromatograph, or by the procedures contained in 40 CFR Part 98.34(b)(3). Records of the fuel GCV shall be maintained for a minimum period of five years. Upon request, Permittee shall provide a sample and/or analysis of the fuel that is fired in any unit covered by this permit at the time of the request, or shall allow a sample to be taken by EPA for analysis.
  - iv. The fuel flow of the fuel fired in the cracking furnaces (QE1010B and QE1011B) shall be continuously monitored and recorded.
- c. Permittee shall calibrate and perform preventative maintenance check of the fuel gas flow meters and document annually.
- d. Permittee shall install, operate, and maintain an O<sub>2</sub> analyzer on the furnace flue gas at a location downstream of the radiant sections of the furnaces, (QE1010B and QE1011B).
- e. Oxygen analyzers shall continuously monitor and record the excess oxygen concentration in the combustion gases. The monitoring data shall be reduced to hourly average concentrations at least once every day using a minimum of four equally spaced data points over each one-hour period. The individual average concentration shall be reduced to units of the permit allowable emission rates in pounds per hour and lb/MMBtu (hourly average) at least once every week.
- f. Permittee shall perform preventative maintenance check of oxygen control analyzers and document quarterly.
- g. The oxygen analyzers shall be quality-assured at least once per quarter using cylinder gas audits (CGAs) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, § 5.1.2, with the following exception: a relative accuracy test audit is not required once every four quarters (i.e., two successive semiannual CGAs may be conducted).
- h. The Permittee will validate oxygen analyzers with zero and span gas at least weekly to maintain 1% accuracy.
- i. All analyzers identified in this section III.A.1. shall achieve 95 percent on-stream time or greater.

- j. Permittee shall utilize insulation materials where feasible to reduce heat loss.
- k. The cracking furnaces shall not exceed the one-hour maximum firing rate of 600 MMBtu/hr (HHV).
- 1. The cracking furnaces shall not exceed an annual average firing rate of 550 MMBtu (HHV) per hour per furnace.
- m. A rolling 12 month average and the one-hour maximum firing rates shall be calculated daily to demonstrate compliance with the firing rate conditions in III.A.1.k.and III.A.1.l.
- n. Permittee shall continuously monitor and record the furnace gas exhaust temperature and flow rate hourly and limit the exhaust temperature to less than or equal to 302 °F on a 365-day rolling average basis. This stack temperature is for normal operations and does not include commissioning, startup, shutdown, and decoking operations.
- o. The Permittee shall maintain a minimum overall thermal efficiency of 91% on a 12month rolling average basis, calculated monthly, for the furnaces (QE1010B and QE1011B) excluding periods of start-up, shutdown, malfunction, and decoking.
- p. The furnaces (QE1010B and QE1011B) will be continuously monitored for exhaust temperature, input fuel temperature, and stack oxygen. Thermal efficiency for furnaces will be calculated monthly from these parameters using equation G-1 from American Petroleum Institute (API) methods 560 (4<sup>th</sup> ed.) Annex G.
- q. The cracking furnace cell shall be decoked no more than 20 times per year per furnace. Records must be maintained of all decokes including the date and duration.
- r. CO<sub>2</sub> emissions from the decoking drum shall be limited to 1,047 tpy for both furnaces combined.
- s. Permittee shall calculate, on a monthly basis, the amount of  $CO_2$  emitted from combustion in tons/yr using equation C-5 in 40 CFR Part 98 Subpart C, converted to short tons. Compliance shall be based on a 12-month rolling basis to be updated by the last day of the following month.
- t. Permittee shall calculate the CH<sub>4</sub> and N<sub>2</sub>O emissions on a 12-month rolling basis to be updated by the last day of the following month. Permittee shall determine compliance with the CH<sub>4</sub> and N<sub>2</sub>O emissions limits contained in this section using the default CH<sub>4</sub> and N<sub>2</sub>O emission factors contained in Table C-2 and equation C-8 of 40 CFR Part 98 and the measured actual heat input (HHV), converted to short tons.
- Permittee shall calculate the CO<sub>2</sub>e emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1, as published on October 30, 2009 (74 FR 56395). The record shall be updated by the last day of the following month.

### 2. Flares (QE3050B and QE8050B)

- a. The flares shall be designed to achieve a minimum destruction and removal efficiency (DRE) of 99.5% based on flowrate and gas composition measurements.
- b. GHG emissions shall be calculated as specified in 40 CFR Part 98 Subpart X § 98.253(b)(1) through (b)(3).
- c. The flares are continuous use flares. The flares are designed for control of routine venting, during maintenance, startup, and shutdown (MSS) activities, and upset conditions.

- d. The flares shall only combust pipeline natural gas in the pilots as a continuous stream.
- e. The flares are steam-assisted.
- f. Each flare shall be equipped with a flow meter which will determine the flow at least once each 15 minutes, and block one hour records will be maintained.
- g. Each flare shall be equipped with a gas composition analyzer which will provide the gas composition at least once each hour. The analyzer will be calibrated daily. Records of gas composition will be maintained.
- h. Permittee must record the time, date, fuel heat input (HHV) in MMBtu/hr and duration of each MSS event. The records must include hourly CH<sub>4</sub> emission levels as measured by the in-line gas analyzer (Gas chromatograph or equivalent with volumetric stack gas flowrate) and the calculations based on the actual heat input for the CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> emissions during each MSS event. These records must be kept for five years following the date of each event.
- i. The flare shall be designed and operated in accordance with 40 CFR 60.18 specifications of minimum heating value of the waste gas, maximum tip velocity, and pilot flame monitoring. An infrared monitor is considered equivalent to a thermocouple for flame monitoring purposes.

### **3.** Piping Fugitives (QEFUG)

- a. The Permittee shall implement the TCEQ 28LAER leak detection and repair (LDAR) program for fugitive emissions of methane.
- b. The Permittee shall implement an as-observed AVO program to monitor for fugitive emissions between instrumented monitoring as required in III.A.3.a above.
- c. The Permittee shall use high quality components and materials of construction that is compatible with the service in which they are employed.
- d. As an alternative to III.A.3.b., the Permittee may conduct remote sensing for detection of leaks in fuel gas and natural gas piping components that are in methane service in addition to instrumented detection under the TCEQ 28LAER LDAR program.

### **B.** Continuous Emissions Monitoring Systems (CEMS)

- 1. As an alternative to Special Condition III.A.1.u., Permittee may install a CO<sub>2</sub> CEMS and volumetric stack gas flow monitoring system with an automated data acquisition and handling system for measuring and recording CO<sub>2</sub> emissions discharged to the atmosphere, and use these values to show compliance with the annual emission limit in Table 1.
- 2. Permittee shall ensure that all required CO<sub>2</sub> monitoring system/equipment are installed and all certification tests are completed on or before the earlier of 90 unit operating days or 180 calendar days after the date the unit commences operation.
- **3.** Permittee shall ensure compliance with the specifications and test procedures for CO<sub>2</sub> emission monitoring system at stationary sources, 40 CFR Part 75, or 40 CFR Part 60, Appendix B, Performance Specification numbers 1 through 9, as applicable.

#### IV. Recordkeeping and Reporting

#### A. Records

- 1. In order to demonstrate compliance with the GHG emission limits in Table 1, the Permittee will monitor the following parameters and summarize the data on a calendar month basis.
  - a. Operating hours for all air emission sources;
  - b. Records of the fuel consumed by each source
  - c. The fuel usage for all combustion sources, using continuous fuel flow monitors (a group of equipment can utilize a common fuel flow meter, as long as actual fuel usage is allocated to the individual equipment based upon actual operating hours and maximum firing rate);
  - d. Semi-annual fuel sampling for natural gas, daily fuel sampling of plant tail gas, or other frequencies as allowed by 40 CFR Part 98 Subpart C §98.34(b)(3);
  - e. The hourly ethylene processing rate; and
  - f. Records of decoking cycle times in hours and frequency.
- 2. Permittee shall maintain a file of all records, data, measurements, reports, and documents related to the operation of the facility, including, but not limited to, the following: all records or reports pertaining to significant maintenance performed on any system or device at the facility; duration of startup, shutdown; the initial startup period for the emission units; pollution control units; malfunctions; all records relating to performance tests, calibrations, checks, and monitoring of combustion equipment; duration of an inoperative monitoring device and emission units with the required corresponding emission data; and all other information required by this permit recorded in a permanent form suitable for inspection. The file must be retained for not less than five years following the date of such measurements, maintenance, reports, and/or records.
- 3. Permittee shall maintain records of all GHG emission units and CO<sub>2</sub> emission certification tests and monitoring and compliance information required by this permit.
- 4. Permittee shall maintain records and submit a written report of all excess emissions to EPA semi-annually except when, more frequent reporting is specifically required by an applicable subpart or the Administrator or authorized representative, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. The report is due on the 30<sup>th</sup> day following the end of each semi-annual period and shall include the following:
  - a. Time intervals, data and magnitude of the excess emissions, the nature and cause (if known), corrective actions taken and preventive measures adopted;
  - b. Applicable time and date of each period during which the monitoring equipment was inoperative (monitoring down-time);
  - c. A statement in the report of a negative declaration; that is; a statement when no excess emissions occurred or when the monitoring equipment has not been inoperative, repaired or adjusted;

- d. Any failure to conduct any required source testing, monitoring, or other compliance activities; and
- e. Any violation of limitations on operation, including but not limited to restrictions on hours of operation of the emergency generator or fire pump.
- 5. Excess emissions shall be defined as any period in which the facility emissions exceed an emission limit set forth in this permit or a malfunction occurs causing such an emissions exceedance.
- 6. Excess emissions indicated by GHG emission source certification testing or compliance monitoring shall be considered violations of the applicable emission limit for the purpose of this permit.
- 7. Instruments and monitoring systems required by this PSD permit shall have a 95% onstream time on an annual basis.
- 8. All records required by this PSD Permit shall be retained for not less than 5 years following the date of such measurements, maintenance, and reporting.

### V. Initial Performance Testing Requirements:

- A. The Permittee shall perform stack sampling and other testing to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the stacks of the Cracking Furnaces (QE1010B and QE1011B) to determine the initial compliance with the CO<sub>2</sub> emission limits established in this permit. Sampling shall be conducted in accordance with 40 CFR § 60.8 and EPA Method 3a or 3b for the concentration of CO<sub>2</sub>.
  - 1. Multiply the CO<sub>2</sub> hourly average emission rate determined under maximum operating test conditions by 8,760 hours.
  - 2. If the above calculated CO<sub>2</sub> emission total does not exceed the tons per year (TPY) specified on Table 1, no compliance strategy needs to be developed.
  - 3. If the above calculated CO<sub>2</sub> emission total exceeds the tons per year (TPY) specified in Table 1, the facility shall:
    - a. Document the potential to exceed in the test report; and
    - b. Explain within the report how the facility will assure compliance with the CO<sub>2</sub> emission limit listed in Table 1.
- **B.** No later than 180 days after initial startup, or restart after modification of the facility, performance tests(s) must be conducted and a written report of the performance testing results furnished to the EPA within 60 days after the testing is completed. Additional sampling may be required by TCEQ or EPA.
- **C.** Permittee shall submit a performance test protocol to afford the EPA the opportunity to have an observer present and/or to attend a pre-test meeting. If there is a delay in the original test date, the facility must provide at least 7 days prior notice of the rescheduled date of the performance test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA.
- **D.** The cracking furnaces (QE1010B and QE1011B) shall operate at maximum production rates during stack emission testing.

- **E.** Performance tests must be conducted under such conditions to ensure representative performance of the affected facility. The owner or operator must make available to the EPA such records as may be necessary to determine the conditions of the performance tests.
- **F.** The owner or operator shall provide, or cause to be provided, performance testing facilities as follows:
  - 1. Sampling ports adequate for test methods applicable to this facility,
  - 2. Safe sampling platform(s),
  - 3. Safe access to sampling platform(s), and
  - 4. Utilities for sampling and testing equipment.
- **G.** Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For purposes of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply.
- **H.** Emissions testing, as outlined above, shall be performed every five years, plus or minus 6 months, after the previous performance test was performed, or within 180 days after the issuance of a permit renewal, whichever comes later to verify continued performance at the permitted emission limits.

#### VI. Agency Notifications

Permittee shall submit GHG permit applications, permit amendments, and other applicable permit information to:

Multi Media Planning and Permitting Division EPA Region 6 1445 Ross Avenue (6 PD-R) Dallas, TX 75202 Email: Group R6AirPermits@EPA.gov

Permittee shall submit a copy of all compliance and enforcement correspondence as required by this Approval to Construct to:

Compliance and Enforcement Division EPA Region 6 1445 Ross Avenue (6EN) Dallas, TX 75202