STATE OF MISSISSIPPI
AIR POLLUTION CONTROL PERMIT

AND PREVENTION OF SIGNIFICANT DETERIORATION AUTHORITY TO CONSTRUCT AIR EMISSIONS EQUIPMENT

THIS CERTIFIES THAT

DuPont DeLisle Facility
7685 Kiln DeLisle Road
Pass Christian, Mississippi
Harrison County

"Export Capacity Project"

has been granted permission to construct air emissions equipment to comply with emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder and under authority granted by the Environmental Protection Agency under 40 CFR 52.01 and 52.21.

MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD

AUTHORIZED SIGNATURE
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Issued: March 21, 2011

Modified: September 8, 2011 and SEP 2 6 2012

Permit No.: 1020-00115

1832 PER20120001

PART I

A. GENERAL CONDITIONS

1. This permit is for air pollution control purposes only. (Ref.: APC-S-2, Section I.D)

2. Any activities not identified in the application are not authorized by this permit. (Ref.: Miss. Code Ann. 49-17-29 1.b)

3. The knowing submittal of a permit application with false information may serve as the basis for the Permit Board to void the permit issued pursuant thereto or subject the applicant to penalties for operating without a valid permit pursuant to State Law. (Ref.: APC-S-2, Section II.B.5)

4. It is the responsibility of the applicant/permittee to obtain all other approvals, permits, clearances, easements, agreements, etc., which may be required including, but not limited to, all required local government zoning approvals or permits. (Ref.: APC-S-2, Section I.D.6)

5. The issuance of a permit does not release the permittee from liability for constructing or operating air emissions equipment in violation of any applicable statute, rule, or regulation of state or federal environmental authorities. (Ref.: APC-S-2, Section II.B.7)

6. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit, unless halting or reducing activity would create an imminent and substantial endangerment threatening the public health and safety of the lives and property of the people of this state. (Ref.: APC-S-2, Section II.B.15(a))

7. The permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. Sufficient cause for a permit to be reopened shall exist when an air emissions stationary source becomes subject to Title V. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. (Ref.: APC-S-2, Section II.B.15(b))

8. The permit does not convey any property rights of any sort, or any exclusive privilege. (Ref.: APC-S-2, Section II.B.15(c))

9. The permittee shall furnish to the DEQ within a reasonable time any information the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee shall furnish such records to the DEQ along with a claim of confidentiality.

The permittee may furnish such records directly to the Administrator along with a claim of confidentiality. (Ref.: APC-S-2, Section II.B.15(d))

10. Design and Construction Requirements: The stationary source shall be designed and constructed so as to operate without causing a violation of an Applicable Rules and Regulations, without interfering with the attainment and maintenance of State and National Ambient Air Quality Standards, and such that the emission of air toxics does not result in an ambient concentration sufficient to adversely affect human health and well-being or unreasonably and adversely affect plant or animal life beyond the stationary source boundaries. (Ref.: APC-S-2, Section V.A)

11. Solids Removal: The necessary facilities shall be constructed so that solids removed in the course of control of air emissions may be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering State waters without the proper environmental permits. (Ref.: Miss. Code Ann. 49-17-29)

12. Diversion and Bypass of Air Pollution Controls: The air pollution control facilities shall be constructed such that diversion from or bypass of collection and control facilities is not needed except as provided for in Regulation APC-S-1, "Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants", Section 10. (Ref.: APC-S-1, Section 10)

13. Fugitive Dust Emissions from Construction Activities: The construction of the stationary source shall be performed in such a manner so as to reduce fugitive dust emissions from construction activities to a minimum. (Ref.: APC-S-2, Section V.A.4)

14. Right of Entry: The permittee shall allow the Mississippi Department of Environmental Quality Office of Pollution Control and the Mississippi Environmental Quality Permit Board and/or their representatives upon presentation of credentials:

    a) To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and

    b) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emissions. (Ref.: Miss. Code Ann. 49-17-21)

15. Permit Modification or Revocation: After notice and opportunity for a hearing, the Permit Board may modify the permit or revoke it in whole or in part for good cause shown including, but not limited to:

    a) Persistent violation of any of the terms or conditions of this permit;

b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

c) A change in federal, state, or local laws or regulations that require either a temporary or permanent reduction or elimination of previously authorized air emission.

(Ref.: APC-S-2, Section II.C)

16. Public Record and Confidential Information: Except for data determined to be confidential under the Mississippi Air & Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Mississippi Department of Environmental Quality, Office of Pollution Control. (Ref.: Miss. Code Ann. 49-17-39)

17. Permit Transfer: This permit shall not be transferred except upon approval of the Permit Board. (Ref.: APC-S-2, Section XVI.B)

18. Severability: The provisions of this permit are severable. If any provision of the permit, or the application of any provision of the permit to any circumstances, is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof or their application to other persons or sets of circumstances, shall not be affected thereby. (Ref. APC-S-2, Section I.D.7)

19. Permit Expiration: The permit to construct will expire if construction does not begin within eighteen (18) months from the date of issuance or if construction is suspended for eighteen (18) months or more. (Ref.: APC-S-2, Section V.C.1)

20. Certification of Construction: A new stationary source issued a Permit to Construct cannot begin operation until certification of construction by the permittee. (Ref.: APC-S-2, Section V.D.3)

21. Beginning Operation: Except as prohibited in Part I, Condition 24 of this permit, after certification of construction by the permittee, the Permit to Construct shall be deemed to satisfy the requirement for a permit to operate until the date the application for issuance or modification of the Title V Permit or the application for issuance or modification of the State Permit to Operate, whichever is applicable, is due. This provision is not applicable to a source excluded from the requirement for a permit to operate as provided by APC-S-2, Section XIII.G. (Ref.: APC-S-2, Section V.D.4)

22. Application for a Permit to Operate: Except as otherwise specified in Part I, Condition 24 of this permit, the application for issuance or modification of the State Permit to Operate or the Title V Permit, whichever is applicable, is due twelve (12) months after beginning operation or such earlier date or time as specified in the Permit to Construct. The Permit Board may specify an earlier date or time for submittal of the application. Beginning operation will be assumed to occur upon

certification of construction, unless the permittee specifies differently in writing. (Ref.: APC-S-2, Section V.D.5)

23. Operating Under a Permit to Construct: Except as otherwise specified in Part I, Condition 24 of this permit, upon submittal of a timely and complete application for issuance or modification of a State Permit to Operate or a Title V Permit, whichever is applicable, the applicant may continue to operate under the terms and conditions of the Permit to Construct and in compliance with the submitted application until the Permit Board issues, modifies, or denies the Permit to Operate. (Ref.: APC-S-2, Section V.D.6)

24. Application Requirements for a Permit to Operate for Moderate Modifications: For moderate modifications that require contemporaneous enforceable emissions reductions from more than one emission point in order to "net" out of PSD/NSR, the applicable Title V Permit to Operate or State Permit to Operate must be modified prior to beginning operation of the modified facilities. (Ref.: APC-S-2, Section V.D.7)

25. Compliance Testing: Regarding compliance testing:

    a) The results of any emissions sampling and analysis shall be expressed both in units consistent with the standards set forth in any Applicable Rules and Regulations or this permit and in units of mass per time.

    b) Compliance testing will be performed at the expense of the permittee.

    c) Each emission sampling and analysis report shall include but not be limited to the following:

        (1) detailed description of testing procedures;

        (2) sample calculation(s);

        (3) results; and

        (4) comparison of results to all Applicable Rules and Regulations and to emission limitations in the permit.

    (Ref.: APC-S-2, Section VI.B.3, 4, and 6)

B. GENERAL NOTIFICATION REQUIREMENTS

1. Within fifteen (15) days of beginning actual construction, the permittee must notify DEQ in writing that construction has begun. (Ref.: APC-S-2, Section V.C.2)

2. The permittee must notify DEQ in writing when construction does not begin within eighteen (18) months of issuance or if construction is suspended for eighteen (18) months or more. (Ref.: APC-S-2, Section V.C.3)

3. Upon the completion of construction or installation of an approved stationary source or modification, the applicant shall notify the Permit Board that construction or installation was performed in accordance with the approved plans and specifications on file with the Permit Board. (Ref.: APC-S-2, Section V.D.1)

4. The Permit Board shall be promptly notified in writing of any change in construction from the previously approved plans and specifications or permit. If the Permit Board determines the changes are substantial, it may require the submission of a new application to construct with "as built" plans and specifications. Notwithstanding any provision herein to the contrary, the acceptance of an "as built" application shall not constitute a waiver of the right to seek compliance penalties pursuant to State Law. (Ref.: APC-S-2, Section V.D.2)

PART II

EMISSION LIMITATIONS AND MONITORING REQUIREMENTS

EMISSION POINT AA-105

Beginning upon permit issuance, the permittee is authorized to make modifications to Emission Point AA-105, the combined stack for the following: the baghouse controlling PM emissions from the Coke Storage Silo and the Line 1 and Line 2 Wet Ore Bins (currently Emission Points AB-101 and AB-201, respectively) and the baghouse controlling PM emissions from the Line 1 and Line 2 Wet Ore Bin feed conveyors. The permittee is modifying the Coke Storage Silo baghouse to also control the Wet Ore Bins and is constructing a new baghouse to control emissions from the conveyors.

The air emissions equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations.

EMISSIONS LIMITATIONS

Particulate Matter (PM) and Particulate Matter less than 10 microns (PM_{10}) (filterable + condensable)	0.40 lb/hr (3-hour average)
Particulate Matter less than 2.5 microns ($PM_{2.5}$) (filterable + condensable)	0.20 lb/hr (3-hour average)

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modifications to Emission Point AA-105, the permittee shall demonstrate compliance with the emission limitations for the following pollutants by stack testing in accordance with the specified methods.

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A*, in conjunction with Test Method 202, or an EPA-approved alternative.

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a diameter of 2.5 microns and less, unless the permittee chooses to assume all filterable PM to be 2.5 microns and less.

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the

results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

EMISSION POINT AB-202

Beginning upon permit issuance, the permittee is authorized to make the following modifications to Emission Point AB-202, the Line 2 Ore Dryer currently equipped with two baghouses in parallel for PM control: Replacement of the 22 MMBtu/hr burner with a 30 MMBtu/hr low-NO_x burner and replacement of the two baghouses with a reverse jet wet scrubber for control of PM.

The air emissions equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations.

EMISSIONS LIMITATIONS

PM/PM_{10} (filterable + condensable)	0.011 gr/dscf (3-hour average, BACT limit), not to exceed 2.00 lb/hr (3-hour average)
$PM_{2.5}$ (filterable + condensable)	0.0085 gr/dscf (3-hour average, BACT limit), not to exceed 1.55 lb/hr (3-hour average)
Carbon Monoxide (CO)	13.20 lb/hr (3-hour average)
Nitrogen Oxides (NO_x)	4.40 lb/hr (3-hour average)

* The previous SO_2 and VOC emission limitations have been deemed unnecessary for complying with any previous or current PSD requirements and are, therefore, being removed.

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modifications to Emission Point AB-202, the permittee shall demonstrate compliance with the emission limitations for the following pollutants by stack testing in accordance with the specified methods.

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A*, in conjunction with Test Method 202, or an EPA-approved alternative.
CO	EPA Test Method 10, or an EPA-approved alternative.
NO_x	EPA Test Method 7, or an EPA-approved alternative.

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a

diameter of 2.5 microns and less, unless the permittee chooses to assume all filterable PM to be 2.5 microns and less.

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

MONITORING AND RECORDKEEPING REQUIREMENTS

The permittee shall install instruments for continuously monitoring the pressure drop across the scrubber and the scrubber liquid flow rate. This monitoring system shall be installed, calibrated, operated, and maintained in accordance to the manufacturer's specifications. The pressure drop shall be measured and recorded a minimum of every 15 minutes and averaged hourly. The scrubber liquid flow rate shall be measured continuously in gallons per minute (gpm). The permittee shall calculate and record the 3-hour average pressure drop and 3-hour average liquid flow rate every hour.

The permittee shall determine a pressure drop range and minimum flow rate indicative of compliance during the required performance testing for PM. The basis for the pressure drop range established during the stack test shall be documented and maintained on-site. Also, this pressure drop range and flow rate shall be submitted with the semiannual compliance reports required by the Title V Operating Permit. For any 3-hour average pressure drop or scrubber liquid flow rate that is not within the documented range, the permittee shall take prompt action to determine the cause of the deviation and any corrective measures necessary to restore the scrubber operations within the established pressure drop range or at or above the minimum liquid flow rate. The time, date, and duration of any deviation shall be recorded, as well as the cause and any corrective measures taken. All of the required records shall be maintained in electronic form and made available to DEQ personnel upon request.

EMISSION POINT AB-301

Beginning upon permit issuance, the permittee is authorized to construct equipment for the control of emissions of air contaminants from Emission Point AB-301, the Dust Abatement Stack, a common stack venting PM emissions from the following existing emission units:

(1) Coke Bin (formerly Emission Point AA-107) equipped with a baghouse which will be modified to increase efficiency,
(2) Line 1 Dry Ore Bin (formerly Emission Point AB-103) equipped with a baghouse which will be modified to increase efficiency,
(3) Line 2 Dry Ore Bin (formerly Emission Point AB-203) equipped with a baghouse which will be modified to increase efficiency,
(4) Line 1 Mix Bin, Solids Feed Pump, and Chlorinator Reactor Feed Pipe (formerly Emission Point AB-104) and fugitive emissions from the Reaction Area (previously part of Emission Point AA-001) equipped with a new baghouse for dust abatement,
(5) Line 2 Mix Bin, Solids Feed Pump, and Chlorinator Reactor Feed Pipe (formerly Emission Point AB-204) and fugitive emissions from the Reaction Area (previously part of Emission Point AA-001) equipped with a new baghouse for dust abatement.

The air emissions control equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations.

EMISSIONS LIMITATIONS

PM/PM_{10} (filterable + condensable)	1.30 lb/hr (3-hour average)
$PM_{2.5}$ (filterable + condensable)	0.65 lb/hr (3-hour average)

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modifications to Emission Point AB-301, the permittee shall demonstrate compliance with the emission limitations for the following pollutants by stack testing in accordance with the specified methods.

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A*, in conjunction with Test Method 202, or an EPA-approved alternative.

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a

diameter of 2.5 microns and less, unless the permittee chooses to assume all filterable PM to be 2.5 microns and less.

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

MONITORING AND RECORDKEEPING REQUIREMENTS

The permittee shall install an instrument(s) for continuously monitoring the pressure drop across the baghouse. This monitoring system shall be installed, calibrated, operated, and maintained in accordance to the manufacturer's specifications. The pressure drop shall be measured and recorded a minimum of every 15 minutes and averaged hourly. The permittee shall calculate and record the 3-hour average pressure drop every hour.

The permittee shall determine a pressure drop range indicative of compliance during the initial stack test for PM. The basis for the pressure drop range established during the stack test shall be documented and maintained on-site. Also, this pressure drop range shall be submitted with the semiannual compliance reports required by the Title V Operating Permit. For any 3-hour average pressure drop that is not within the documented range, the permittee shall take prompt action to determine the cause of the deviation and any corrective measures necessary to restore the baghouse operations within the established pressure drop range. The time, date, and duration of any deviation shall be recorded, as well as the cause and any corrective measures taken. All of the required records shall be maintained in electronic form and made available to DEQ personnel upon request.

EMISSION POINT AC-101

Beginning upon permit issuance, the permittee is authorized to make the following modifications to Emission Point AC-101, the Line 1 HCl Recovery Process Reaction Fume Disposal equipped with a 4-stage scrubbing system, thermal oxidizer inlet scrubber, thermal oxidizer, thermal oxidizer quench chamber, and thermal oxidizer outlet scrubber consisting of dual reverse-jet scrubbers followed by a cyclonic gas-liquid separator for control of PM, SO_2, CO, and COS (a VOC): Installation of a larger first-stage HCl scrubber.

The air emissions equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations, unless otherwise noted.

EMISSIONS LIMITATIONS

PM/PM_{10} (filterable + condensable)	6.17 lb/hr (3-hour average, BACT limit)
$PM_{2.5}$ (filterable + condensable)	5.00 lb/hr (3-hour average, BACT limit)
Sulfur Dioxide (SO_2)	125.2 lb/hr (3-hour average), not to exceed 15.00 ton/yr (12-month rolling total)
Carbon Monoxide (CO)	30,000 lb/hr (1-hour average), not to exceed 20,000 lb/hr (8-hour average) and 6,415 ton/yr (12-month rolling total)[1]
Nitrogen Oxides (NO_x)	0.048 lb/MMBtu (3-hour average, BACT limit[2]), not to exceed 2.40 lb/hr (3-hour average)
Carbonyl Sulfide (COS)	16,440 lb/day (24-hour rolling average), not to exceed 530 ton/yr (12-month rolling total)[1]
Sulfuric Acid Mist (H_2SO_4)	6.00 lb/hr (3-hour average)
Chlorine (Cl_2)	55.00 lb/hr (3-hour average), not to exceed 21.90 ton/yr (12-month rolling total)
Hydrochloric Acid (HCl)	5.00 lb/hr (3-hour average), not to exceed 17.13 ton/yr

[1] All of the CO and COS limits are the combined limits from both the Line 1 and Line 2 HCl Recovery Processes.
[2] This BACT limit was established in the TRI Project PSD Permit.

OPERATIONAL FLEXIBILITY

Under normal operating conditions, all process waste gases shall be controlled by the thermal oxidizer. During partial or total thermal oxidizer shutdown, malfunction, or failure, the process gases may bypass the thermal oxidizer and thermal oxidizer outlet scrubber and may be discharged through Emission Point AC-101. Nevertheless, any emissions which bypass the thermal oxidizer must be used to determine compliance with the lb/hr and ton/yr emission limitations.

During the initial heating of the chlorinator reactors but prior to chlorine being introduced to the reactors, the permittee shall vent emissions through the startup scrubber (formerly Emission Point AB-109) for control of PM and SO_2. Emissions from the startup scrubber shall be included when demonstrating compliance with the ton/yr emission limitations.

When the HCl Recovery Process is not operating, the permittee may continue to combust natural gas in the thermal oxidizer to minimize the time necessary to bring the thermal oxidizer to the adequate operating temperature and to minimize damage to the oxidizer refractory. Emissions from the combustion of natural gas in the thermal oxidizer shall be vented through the thermal oxidizer uptime stack (formerly Emission Point AC-106). Emissions from operating the thermal oxidizer during HCl Recovery Process downtime shall be included when demonstrating compliance with the ton/yr emission limitations.

FUEL RESTRICTION

The thermal oxidizer burners shall only combust natural gas.

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modifications to Emission Point AC-101, the permittee shall demonstrate compliance with the emission limitations for the following pollutants by stack testing in accordance with the specified methods.

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A *, in conjunction with Test Method 202, or an EPA-approved alternative.
Sulfuric Acid Mist	EPA Test Method 8
Chlorine (Cl_2)	EPA Test Method 26A
Hydrogen Chloride (HCl)	EPA Test Method 26A

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a diameter of 2.5 microns and less, unless the permittee chooses to assume all filterable PM to be 2.5 microns and less.

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

EMISSION POINT AC-201

Beginning upon permit issuance, the permittee is authorized to make the following modifications to Emission Point AC-201, the Line 2 HCl Recovery Process Reaction Fume Disposal equipped with a 4-stage scrubbing system, thermal oxidizer inlet scrubber, thermal oxidizer, thermal oxidizer quench chamber, and thermal oxidizer outlet scrubber consisting of dual reverse-jet scrubbers followed by a cyclonic gas-liquid separator for control of PM, SO_2, CO, and COS (a VOC): Installation of a new spray nozzle between the first- and second-stage scrubbers.

The air emissions equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations, unless otherwise noted.

EMISSIONS LIMITATIONS

PM/PM_{10} (filterable + condensable)	6.17 lb/hr (3-hour average, BACT limit)
$PM_{2.5}$ (filterable + condensable)	5.00 lb/hr (3-hour average, BACT limit)
Sulfur Dioxide (SO_2)	125.2 lb/hr (3-hour average), not to exceed 15.00 ton/yr (12-month rolling total)
Carbon Monoxide (CO)	30,000 lb/hr (1-hour average), not to exceed 20,000 lb/hr (8-hour average) and 6,415 ton/yr (12-month rolling total)[1]
Nitrogen Oxides (NO_x)	0.048 lb/MMBtu (3-hour average, BACT limit[2]), not to exceed 2.40 lb/hr (3-hour average)
Carbonyl Sulfide (COS)	16,440 lb/day (24-hour rolling average), not to exceed 530 ton/yr (12-month rolling total)[1]
Sulfuric Acid Mist (H_2SO_4)	6.00 lb/hr (3-hour average)
Chlorine (Cl_2)	55.00 lb/hr (3-hour average), not to exceed 21.90 ton/yr (12-month rolling total)
Hydrochloric Acid (HCl)	5.00 lb/hr (3-hour average), not to exceed 17.13 ton/yr (12-month rolling total)

[1] All of the CO and COS limits are the combined limits from both the Line 1 and Line 2 HCl Recovery Processes.
[2] This BACT limit was established in the TRI Project PSD Permit.

OPERATIONAL FLEXIBILITY

Under normal operating conditions, all process waste gases shall be controlled by the thermal oxidizer. During partial or total thermal oxidizer shutdown, malfunction, or failure, the process gases may bypass the thermal oxidizer and thermal oxidizer outlet scrubber and may be discharged through Emission Point AC-201. Nevertheless, any emissions which bypass the thermal oxidizer must be used to determine compliance with the lb/hr and ton/yr emission limitations.

During the initial heating of the chlorinator reactors but prior to chlorine being introduced to the reactors, the permittee shall vent emissions through the startup scrubber (formerly Emission Point AB-109) for control of PM and SO_2. Emissions from the startup scrubber shall be included when demonstrating compliance with the ton/yr emission limitations.

When the HCl Recovery Process is not operating, the permittee may continue to combust natural gas in the thermal oxidizer to minimize the time necessary to bring the thermal oxidizer to the adequate operating temperature and to minimize damage to the oxidizer refractory. Emissions from the combustion of natural gas in the thermal oxidizer shall be vented through the thermal oxidizer uptime stack (formerly Emission Point AC-206). Emissions from operating the thermal oxidizer during HCl Recovery Process downtime shall be included when demonstrating compliance with the ton/yr emission limitations.

FUEL RESTRICTION

The thermal oxidizer burners shall only combust natural gas.

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modifications to Emission Point AC-201, the permittee shall demonstrate compliance with the emission limitations for the following pollutants by stack testing in accordance with the specified methods.

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A*, in conjunction with Test Method 202, or an EPA-approved alternative.
Sulfuric Acid Mist	EPA Test Method 8
Chlorine (Cl_2)	EPA Test Method 26A
Hydrogen Chloride (HCl)	EPA Test Method 26A

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a diameter of 2.5 microns and less, unless the permittee chooses to assume all filterable PM to be 2.5 microns and less.

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

EMISSION POINT AG-101

Beginning upon permit issuance, the permittee shall meet the following emission limitations for Emission Point AG-101, the common stack for the Titanium Tetrachloride ($TiCl_4$) Purification Process. The Line 1 $TiCl_4$ Purification System, the Line 2 $TiCl_4$ Purification System, and the Reliability $TiCl_4$ Purification System each have multiple refrigerated condensers that vent through one of three available two-stage scrubbing systems at any given time (i.e., the Line 1 Scrubber, Line 2 Scrubber, or Paleface Scrubber).

There are no physical modifications to Emission Point AG-101, only changes to the HCl and PM/PM_{10} limits.

EMISSIONS LIMITATIONS[1]

PM/PM_{10} (filterable + condensable)	3.49 lb/hr (3-hour average)
Chlorine (Cl_2)	0.50 lb/hr (3-hour average)
Hydrochloric Acid (HCl)	5.00 lb/hr (3-hour average), not to exceed 16.50 ton/yr (12-month rolling total)

[1] These limits represent the combined emissions from the three purification systems, as vented through the common stack.

OPERATING RESTRICTION

Under normal operations, all emissions from the Line 1, Line 2 and Reliability $TiCl_4$ Purification Systems vent to only one of the three available scrubber systems. Emissions may vent to more than one scrubber system during maintenance or upset conditions. For purposes of demonstrating compliance with the emission limitations above, stack testing shall be performed when all emissions are venting through a single scrubber system.

EMISSION POINT AH-102

Beginning upon permit issuance, the permittee is authorized to make the following modification to Emission Point AH-102, the Line 1 Oxygen Preheater: Replacement of the existing 15 MMBtu/hr low-NO_x burner with a 20 MMBtu/hr ultra low-NO_x burner.

The air emissions equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations, unless otherwise noted.

OPERATING REQUIREMENT

The permittee shall operate the preheater in a manner consistent with good combustion practices for minimizing emissions of particulate matter (BACT work practice for $PM/PM_{10}/PM_{2.5}$).

FUEL RESTRICTION

The Line 1 Oxygen Preheater shall only combust natural gas.

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modification to Emission Point AH-102, the permittee shall perform the following stack test to confirm the emission rate of 0.10 lb/hr used in the application for PM, PM_{10}, and $PM_{2.5}$. (Note that this is a one-time test and does not establish an emission limit for PM, PM_{10}, or $PM_{2.5}$.)

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A*, in conjunction with Test Method 202, or an EPA-approved alternative.

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a diameter of 2.5 microns and less, unless the permittee chooses to assume all filterable PM to be 2.5 microns and less.

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an

observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

MONITORING AND RECORDKEEPING REQUIREMENTS

As an indicator of good combustion practices, the permittee shall install an instrument for continuously monitoring the O_2 or the CO_2 concentration in the stack. This monitoring system shall be installed, calibrated, operated, and maintained in accordance to the manufacturer's specifications. The O_2 or CO_2 shall be measured and recorded a minimum of every 15 minutes and records maintained in an electronic log available for inspection upon request by DEQ personnel.

Within 180 days of startup of the modified preheater, the permittee shall determine ranges of O_2 or CO_2, expressed as concentration or percentage in stack, indicative of good combustion. This determination shall be made using available information, such as historical data from the other natural gas heaters or manufacturer's recommendations, and shall be confirmed during the initial stack test for PM. The permittee shall maintain the following documentation on site: (1) The parameter to be monitored (i.e., O_2 or CO_2) and the manufacturer's specifications for the relevant monitoring instrumentation. (2) The basis for the O_2 or CO_2 range used to indicate good combustion. (3) The operating procedures used to ensure that actions are promptly taken to restore the preheater to good combustion conditions when there are excursions from the O_2 or CO_2 ranges.

EMISSION POINT AH-202

Beginning upon permit issuance, the permittee is authorized to make the following modification to Emission Point AH-202, the Line 2 Oxygen Preheater: Replacement of the existing 15 MMBtu/hr low-NO_x burner with a 20 MMBtu/hr ultra low-NO_x burner.

The air emissions equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations, unless otherwise noted.

EMISSIONS LIMITATIONS

Carbon Monoxide (CO)	1.47 lb/hr (3-hour average)
Nitrogen Oxides (NO_x)	2.40 lb/hr (3-hour average)

* The previous SO_2 and VOC emission limitations have been deemed unnecessary for complying with any previous or current PSD requirements and are, therefore, being removed.

FUEL RESTRICTION

The Line 2 Oxygen Preheater shall only combust natural gas.

OPERATING REQUIREMENT

The permittee shall operate the preheater in a manner consistent with good combustion practices for minimizing emissions of particulate matter (BACT work practice for $PM/PM_{10}/PM_{2.5}$), as well as CO and NO_x.

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modification to Emission Point AH-202, the permittee shall perform the following stack tests to demonstrate compliance with the emission limitations.

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A*, in conjunction with Test Method 202, or an EPA-approved alternative.
CO	EPA Test Method 10, or an EPA-approved alternative.
NO_x	EPA Test Method 7, or an EPA-approved alternative.

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a diameter of 2.5 microns and less, unless the permittee chooses to assume all filterable PM to be 2.5 microns and less. (Note that this is a one-time test and does not establish an emission limit for PM, PM_{10}, or $PM_{2.5}$, but will be used to confirm the emission rate of 0.10 lb/hr used in the application.)

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

EMISSION POINT AK-107

Beginning upon permit issuance, the permittee is authorized to make the following modifications to Emission Point AK-107, the No. 7 Pigment Grinding Feed Bin equipped with a baghouse for particulate matter (PM) control: Increase the size of the pigment conveyor downstream of the bin and add a second grinder.

The air emissions equipment shall be modified to comply with the emission limitations and monitoring requirements specified below. These limitations shall be effective upon certification of construction and shall supersede any previous limitations.

EMISSIONS LIMITATIONS

PM/PM_{10} (filterable + condensable)	0.01 gr/dscf (3-hour average, BACT limit), not to exceed 0.37 lb/hr (3-hour average)
$PM_{2.5}$ (filterable + condensable)	0.005 gr/dscf (3-hour average, BACT limit), not to exceed 0.18 lb/hr (3-hour average)

PERFORMANCE TESTING AND PROCEDURES

Within 180 days of certification of construction for completion of the modifications to Emission Point AK-107, the permittee shall demonstrate compliance with the emission limitations for the following pollutants by stack testing in accordance with the specified methods.

$PM/PM_{10}/PM_{2.5}$	EPA Test Method 5, 201, or 201A*, in conjunction with Test Method 202, or an EPA-approved alternative.

* The test method used to determine filterable PM emissions shall measure total PM mass, the mass of PM with a diameter of 10 microns and less, and the mass of PM with a diameter of 2.5 microns and less.

For the purpose of compliance demonstration, the permittee shall operate the emission source within 20% of its maximum rated capacity, or at a rate identified in the pretest conference.

The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s).

PART III
OTHER REQUIREMENTS

Records:

(1) The permittee shall maintain on-site records of all required monitoring data and support information required by this permit for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. These records shall be made available for review upon request from DEQ personnel.

Reporting Deviations:

(2) The permittee shall report any deviations from the permit requirements, including deviations attributable to upsets, within five (5) days of such deviation. The report shall also include the cause of the deviation(s) and any corrective action(s) or preventive measure(s) taken. A copy of the report shall be maintained in accordance with Part III, Condition 1.

Semiannual Reporting:

(3) As required by the Title V Operating Permit, the permittee shall submit reports of any required monitoring by July 31 and January 31 for the preceding six-month period. All instances of deviations from permit requirements must be clearly identified in such reports and all required reports must be certified by a responsible official.

PM Emissions Limit Changes Related to the Addition of Condensable PM:

(4) The following emission points have existing PM emission limits based upon the filterable PM only. Upon permit issuance, these limits are being adjusted to reflect emissions of both filterable and condensable PM as shown in the table below. Also, the tpy limits are being removed for all because they equate to the maximum potential hours of operation during a year.

Emission Point	Description	PM/PM_{10} Limits (lb/hr) (filterable + condensable)
AF-103	231 MMBtu/hr Boiler No. 3 (natural gas or landfill gas)	9.23
AF-202	101-231 MMBtu/hr Temporary Boiler (natural gas)	9.23
AJ-201	Line 2 Product Dryer	117.63
AK-105	No. 5 Pigment Grinding Feed Bin	0.37
AK-106	No. 6 Pigment Grinding Feed Bin	0.37
AL-105	No. 5 Pigment Packing Feed Bin	0.31
AL-106	No. 6 Pigment Packing Feed Bin	0.31
AL-107	No. 7 Pigment Packing Feed Bin	0.31
AL-110	Dryer Discharge Bin	0.41

All stack testing currently required in the Title V Operating Permit shall be performed using EPA Test Methods 5, 201, or 201A, in conjunction with Method 202 (or an EPA-approved equivalent). For these emission points, the permittee shall not request a waiver of any stack testing required in the next 24 months by the Title V Operating Permit, as allowed in Condition 5.B.36 of the Title V Operating Permit.

SO_2 Emission Limit Changes to AF-103:

(5) Upon permit issuance, the effective SO_2 emission limits for Emission Point AF-103, the 231 MMBtu/hr Boiler No. 3, firing natural gas and/or landfill gas, shall be 6.24 lb/hr, not to exceed 26.72 ton/yr.

CO Emission Limit Changes to AJ-201:

(6) Upon permit issuance, the effective CO emission limits for Emission Point AJ-201, the 90 MMBtu/hr Line 2 Product Dryer, firing natural gas, shall be 13.50 lb/hr.

Projected Actual Emissions Recordkeeping:

(7) For the project modified and affected emission units, the permittee shall calculate and maintain a record of the annual SO_2, CO_2e, NO_x, CO, and VOC emissions, in tons per year on a calendar year basis, for a period of ten (10) years following resumption of regular operations after startup of the change. (Ref.: 40 CFR 52.21(r)(6)(iii))

(8) The permittee shall submit a report to the DEQ if the annual emissions, in tons per year, from the modifications allowed by this permit, exceed the baseline actual emissions (as documented in the project application), by a significant amount for any regulated NSR pollutant, and if such emissions differ from the preconstruction projection as documented and maintained in the Export Capacity Project application. Such report shall be submitted to the DEQ within 60 days after the end of such year. The report shall contain the following:

(a) The name, address, and telephone number of the major stationary source;

(b) The annual emissions as calculated pursuant to §52.21(r)(6)(iii); and

(c) Any other information that the owner or operator wishes to include in the report (e.g., an explanation as the why the emissions differ from the preconstruction projection).

(Ref.: 40 CFR 52.21(r)(6)(v))

(9) The permittee shall make the information required to be documented and maintained pursuant to §52.21(r)(6) available for review upon a request for

inspection by DEQ or the general public pursuant to the requirements contained in §70.4(b)(3)(viii) of this chapter. (Ref.: 40 CFR 52.21(r)(7))