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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

PSD PERMIT NUMBER:	PSD-TX-812-GHG
PERMITTEE:	INVISTA S.à.r.l.
FACILITY NAME:	INVISTA S.à.r.l. Victoria Site, West Powerhouse
FACILITY LOCATION:	2695 Old Bloomington Rd. North Victoria, Texas 77905

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 Greenhouse Gas (GHG) *Prevention of Significant Deterioration* (PSD) permit to INVISTA S.À.R.L (INVISTA). The Permit is for the modification and modernization of four existing boilers in the West Powerhouse (WPH) at its Victoria Site in Victoria Texas.

INVISTA is authorized to modify these boilers 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. 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 INVISTA of the responsibility to comply with any other applicable provisions of the CAA including applicable implementing regulations in 40 CFR Parts 51, 52, 60, 61,63, 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.

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

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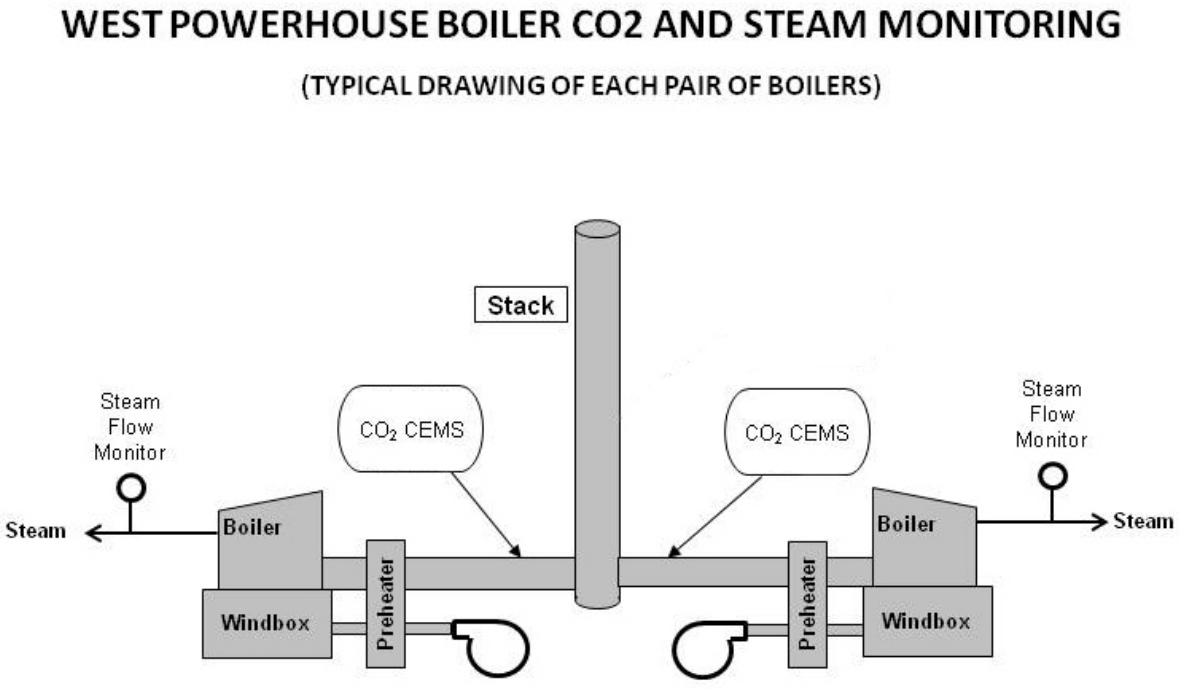
Prevention of Significant Deterioration Permit
For Greenhouse Gas Emissions
Final Permit Conditions

PROJECT DESCRIPTION

INVISTA proposes to add selective non-catalytic reduction (SNCR) NO_x controls to four existing boilers at the West Powerhouse (WPH) in the Victoria Plant per a consent decree with EPA entered on July 28, 2009, together with installation of low NOx burners. The Victoria plant consists of several processes that produce nylon intermediate compounds. The waste liquids and gases from these processes are used as fuel to the boilers and therefore the boilers must comply with the Boiler and Industrial Furnace (BIF), Resource Conservation and Recovery Act (RCRA) regulations as well as the Hazardous Waste Combustor National Emissions Standards for Hazardous Air Pollutants (MACT EEE) rules. In addition to the NOx controls, INVISTA will also replace boiler tubes and upgrade instrumentation and process controls to improve the efficiency of the boilers. Modification of the existing fuel lines is also part of the project that will result in an increase of fugitive emissions. The fuel for the boilers includes liquid and gaseous waste streams from the existing nylon intermediates plant and is supplemented with natural gas to meet the plant's steam demands. Modernization of the control system and automation of the soot blowers should increase the efficiency of steam production. The configuration of the boilers that share common stacks is shown in the figure below. INVISTA will monitor the carbon dioxide (CO_2) emissions using Continuous Emission Monitors (CEMS) in each duct.



Replacement of the burners with low NOx burners and the implementation of SNCR will increase GHG emissions. WPH is an inherently energy efficient process since the waste streams fuel a portion of the energy needed for the boilers to produce the high pressure steam (550psig) utilized in the plant. Additionally INVISTA will repair the existing Ljungstrom air preheaters which use flue gas to preheat the inlet air to the boilers.

The fuel for startup events will be natural gas. Startup and shutdown emission have been estimated in the total GHG emission calculations.

EQUIPMENT LIST:

The following devices are subject to this GHG PSD permit

Equipment No. FIN	Emission Point No. EPN	Source Description
15BLR001,15LR002 15BLR002	15STK-005	Boilers 1 and 2 rated at 300Mlb/hr- 550 psig steam[1]
15BLR003,15LR004 15BLR004	15STK-006	Boilers 3 and 4 rated at 400 Mlb/hr- 550 psig steam[1]
15FUG	15FUG	Project fugitives

[1] Nominal rated capacity for description; not a limit.

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.

B. PERMIT NOTIFICATION REQUIREMENTS

Permittee shall notify EPA Region 6 Compliance Assurance and Enforcement Division in writing of:

1. Date construction is commenced on the project, postmarked within 30 days of such date;
2. Actual date of initial startup for each boiler, as defined in 40 CFR §60.2, postmarked within 15 days of such date;

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3. Date upon which initial performance tests will commence, in accordance with the provisions of Section VI, 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 VI.A.2,and VI.B.2; and
4. Date upon which certification tests for each CO_2 continuous emission monitoring system (CEMS) will commence in accordance with 40 CFR Part 60, Appendix B, Performance Specification 3 no later than 30 days prior to test date. Additionally, results of the initial certification or recertification test shall be submitted for the CO_2 CEMS within 30 days of the test.

C. FACILITY OPERATION

At all times, including periods of startup, shutdown, and malfunction, 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 Region 6 EPA Compliance Assurance and Enforcement Division in writing 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 may result in an increase in GHG emissions above the allowable emission limits stated in Section II of this permit.
2. In addition, Permittee shall provide a notification in writing within 10 days of any failure of described compliance monitoring equipment such as the CO_2 CEMS or other equipment that is intended to meet the requirements under Section II, III and IV of this permit. Within 10 days of the restoration of normal operations, Permittee shall provide a written supplement to the 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 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;

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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) subject to this permit.

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 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 Permit No. 812 and all other applicable federal, state, and local air quality regulations. This PSD permit does not release the Permittee from any liability or compliance with other applicable federal, state and local environmental laws and regulations, including the Clean Air Act.

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I. ACRONYMS AND ABBREVIATIONS

BACT	Best Available Control Technology
CAA	Clean Air Act
CC	Carbon Content
CCS	Carbon Capture and Sequestration
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CH_4	Methane
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
dscf	Dry Standard Cubic Foot
EF	Emission Factor
EPN	Emission Point Number
FR	Federal Register
GCV	Gross Calorific Value
GHG	Greenhouse Gas
gr	Grains
GWP	Global Warming Potential
HHV	High Heating Value
hr	Hour
lb	Pound
LDAR	Leak Detection and Repair
MACT	Maximum Achievable Control Technology
Mlbs	Thousand pounds
MMBtu	Million British Thermal Units
MSS	Maintenance, Start-up and Shutdown
N_2O	Nitrous Oxides
ppmv	parts per million by volume
PSD	Prevention of Significant Deterioration
QA/QC	Quality Assurance and/or Quality Control
RATA	Relative Accuracy Test Audit
RCRA	Resource Conservation and Recovery Act
SCFH	Standard Cubic Feet per Hour
SNCR	Selective non-Catalytic Reduction
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPY	Tons per Year
USC	United States Code
VOC	Volatile Organic Compound

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II. Emission Limits and Standards.

EPN	Description	GHG Mass Basis		TPY[3] CO_2e	BACT Requirements
		Pollutant	TPY[1,2]		
15STK-005, 15STK-006	Boiler Stack	CO_2	1,270,730[5]	1,371,711	1. Work practice standards in Section IV.4. 2. Fuel for the boilers in Section IV.1. 3. Annual output based limit of 235 lbs CO2/M lbs of 550 psig steam.[6]
		CH_4	11		
		N_2O	325		
15FUG[4]	Fugitives	CH_4	Not applicable	Not applicable	28 VHP LDAR TCEQ program and conditions in Section IV

1. Compliance with the annual emission limits (sum of 15STK-005 and 15STK-006 in tons per year) is based on a 12-month rolling average.
2. The TPY emission limits specified in this table are not to be exceeded for the listed equipment and include emissions during all operations including startup and shutdown activities.
3. Global Warming Potentials (GWP): CH_4 = 21, N_2O = 310
4. Only the 28VHP LDAR program is practically enforceable.
5. The mass emission limits in TPY are based on 12-month rolling average and will become effective once the WPH project is complete.
6. The BACT limit of 235 lbs CO_2/M lbs of 550psig steam is calculated based on the equation referenced in Special Condition IV.2. of the permit. During project construction, the BACT limit will apply for each modified boiler or combination of modified boilers after the initial test in Section VI.A. Once the WPH testing in Section VI.B. is completed, the BACT limit will apply at all times.

III. Special Permit Conditions:

A. Fuel Requirements for the WPH

1. Fuel for Boilers will be determined by optimizing the waste to each boiler consistent with the RCRA BIF and the MACT EEE regulations and is limited to the waste and fuel streams below:

    a. Liquid Waste, estimated average Carbon factor of 0.62 lb/lb fuel
    b. Low BTU Gaseous Waste, estimated average Carbon Factor of 0.039 lb/lb fuel
    c. High Gaseous BTU waste, estimated average Carbon Factor of 0.26 lb/lb fuel
    d. Pipeline quality sweet natural gas, estimated average Carbon Factor of 0.73 lb/lb fuel

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2. CO2 CEMS and flue gas flow monitors will be installed in the WPH boiler ductwork to determine the quantity of CO_2 emitted from the WPH boilers. The CO_2 CEMS will be installed and operated in accordance with 40 CFR Part 60, appendix B Performance Specification 3 as applicable.
3. The CO_2 CEMS will meet the appropriate quality assurance requirements specified in 40 CFR Part 60, Appendix F.
4. The flue gas flow monitors will be installed and operated in accordance with Performance Specification 6 as applicable.
5. The boiler steam rates from the boilers are to be measured continuously and recorded. The steam flow meters should be calibrated annually or at each routinely scheduled boiler maintenance shut down, if more than 12 months since the last calibration.
6. A data acquisition and handling system (DAHS) will be used to measure and record the CO_2 emissions and demonstrate compliance with the annual emission rates and BACT limits.
7. Upon request, Permittee shall provide a sample and/or analysis of the fuel that is fired in the units covered by this permit at the time of the request, or shall allow a sample to be taken by EPA for analysis where feasible.
8. The annual GHG emission rate will not exceed 1,371,711 CO_2e tpy based on a 12-month rolling average.

B. Boiler Operating Specifications

1. Maximum operating rate for boilers 15BLR001 and 15BLR002 is 300 Mlb/hr of 550 psig steam (based on a monthly rolling average)
2. Maximum operating rate for boilers 15BLR003 and 15BLR004 is 400 Mlb/hr of 550 psig steam (based on a monthly rolling average)
3. Fuel for the boilers is as in III. A. 1.

IV. BACT Requirements:

1. Fuel specifications: The fuel for the boilers is primarily the liquid and gaseous waste streams from the process plants at III.A.1. a-c. Only pipeline quality natural gas will be fired in any boiler in order to supplement the steam production requirements for the plant.

2. The BACT limit of 235 lbs CO_2 /thousand pounds of 550 psig steam is based on a rolling 12-month average and will be obtained by using the 12-month sum of monthly CO2 emissions from the continuous CO_2 stack analyzer and flow meters divided by the 12-month sum of the monthly steam production from the boilers and is equal to:

$$\text{BACT } Limit = \frac{\sum(\text{monthly CO2 lbs from each WPH boiler } \frac{\text{duct}}{\text{stack}})}{\sum(\text{monthly Mlbs of 550 psig Steam output from each WPH boiler})}$$

Until the WPH project is completed with all four boilers in operation, the Permittee shall demonstrate compliance with the BACT limit after commencing operations (See VI.A.) for each modified boiler.

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3. Boiler Work Practice Standards.

    a. Maintain and calibrate the Oxygen analyzers to ensure boiler efficiencies per the manufacturers recommendations. Oxygen analyzers should be maintained and calibrated using 40 CFR 60 Appendix, Spec.3.
    b. Perform regular inspections and maintenance on the air preheater to maintain optimum heat transfer per the manufacturer's recommendations
    c. Perform regular inspection and tune-ups of the boiler burners and equipment to include cleaning of the burner tips.
    d. Perform regular tube cleanings via the automatic soot blower systems. Perform regular maintenance on the soot blower systems per the manufacturer's recommendations.

4. Process Fugitives (15FUG)

    a. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for fugitive emission monitoring during plant operation.
    b. The TCEQ 28 VHP directed leak detection and repair (LDAR) program for fugitive emissions of methane in the fuel gas line will be implemented for this project. Any leaking component should be repaired and recorded as required in the 28 VHP program.
    c. The gas detector shall conform to requirements listed in Method 21 of 40 CFR part 60, appendix A. The gas analyzer shall be calibrated with CH_4 and have a response factor no less than 10 for the pollutant or combination of pollutants being measured. Replacements for leaking components should be remonitored when placed back in service.
    d. A weekly audio, visual inspection program will be used to determine methane leaks from the fugitive components in the fuel piping.

V. Excess Emission Reporting and Records:

Excess emissions are defined as any period in which the facility emissions exceed a maximum emission limit set forth in this permit. 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.

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 30th 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;

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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; and
d. Any failure to conduct any required source testing, monitoring, or other compliance activities.

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VI. Initial Performance Testing Requirements:

A. Interim Initial Boiler Tests for each modified boiler.

1. Permittee shall perform an initial test to determine the BACT limit for each modified boiler by the equation in IV.2.
2. Permittee shall submit a performance test protocol to Region 6 EPA Compliance Assurance and Enforcement Division (address below) no later than 30 days prior to the tests to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol and any changes required by EPA.
3. Within 60 days after achieving the maximum production rate at which the boiler will operate, but not later than 180 days after initial startup of the facility, performance tests must be conducted and a written report of the performance testing results furnished to the EPA. Additional sampling may be required by EPA.
4. Tests shall be conducted at 90% or greater of rated steam production (maximum) capacity of the boilers to determine compliance with the stated efficiency.

B. The tests below will be performed after completion of the WPH project.

1. Permittee shall perform an initial stack test to establish the actual quantities of GHG air contaminants being emitted into the atmosphere from the stacks and emission units, 15STK-005 and 15STK-006.
2. Permittee shall submit a performance test protocol to Region 6 EPA Compliance Assurance and Enforcement Division (address below) no later than 30 days prior to the tests to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol and any changes required by EPA.
3. Within 60 days after achieving the maximum production rate at which the boilers will operate, but not later than 180 days after initial startup of the facility, performance tests must be conducted and a written report of the performance testing results furnished to the EPA. Additional sampling may be required by EPA.
4. Sampling and analysis for GHG shall be conducted during this testing, in accordance with 40 CFR § 60.8 and EPA Method 3a or 3b (40 CFR App. A-2).
5. Tests shall be conducted at 90% or greater of rated steam production (maximum) capacity of the boilers to compute compliance with the BACT and GHG permit emission limits.

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VII. Recordkeeping and Reporting

1. In order to demonstrate compliance with the GHG emission limits in Sections II, III and IV Permittee will monitor the following parameters and summarize the data on a calendar month basis:
    a. Operating hours for the each boiler.
    b. The fuel usage using continuous fuel flow monitors of natural gas, gaseous and liquid waste feed to the boilers;
    c. The daily steam production rate;
    d. Records of soot blowing cycle times in hours and frequency;
    e. Records of maintenance required in IV.
2. Maintain a file of all records, data, measurements, reports, and documents related to the operation of the facilities authorized by this permit, including, but not limited to, the following: all records or reports pertaining to the maintenance performed on any system or device that is a part of a facility authorized by this permit; all records relating to performance tests and monitoring of combustion equipment; and all other information required by this permit recorded in a permanent form suitable for inspection.
3. Maintain records of startup, shutdown, or malfunction, initial startup period for the emission units, performance testing, calibrations, checks, duration of any periods during which a monitoring device is inoperative, and corresponding emission measurements.
4. Maintain records of all GHG emission units and CO_2 emission certification tests, monitoring and compliance information required by this permit.
5. 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.

VIII. 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: R6AirPermits@EPA.gov

Permittee shall submit a copy of all performance tests, analyzers quality assurance tests, compliance and enforcement correspondence as required by this Approval to construct to:

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

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