

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY**

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UNITED STATES OF AMERICA )  
)  
)  
)

**Plaintiff,** )  
)  
)

v. )

INFINEUM USA LP )  
)  
)

**Defendant.** )  
\_\_\_\_\_ )

Civil No. 2:19-cv-12441

**CONSENT DECREE**

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**Table 1:**

NUMBER	DESCRIPTION
1.1	[Reserved]
1.2	Methodology for Calculating $NHV_{cz}$ for Flares and Flare Tip Velocity
1.3	Methodology for Calculating the Unobstructed Cross Sectional Area of Various Types of Flare Tips
1.4	Depiction of Gases Associated with Steam-Assisted Flares
1.5	Outline of Requirements for the Flare Data and Initial Monitoring Systems Report
1.6	List of Compounds a Gas Chromatograph Must be Capable of Speciating
1.7	Waste Gas Mapping: Level of Detail Needed to Show Main Headers and Process Unit Headers
2.1	Calibration and Quality Control Requirements for CPMS
2.2	Requirements for CPMS Monitoring Plan
2.3	CPMS Downtime Calculation
2.4	Composition Data for Purchased Supplemental Gas Stream

Plaintiff United States of America, on behalf of the United States Environmental Protection Agency (“EPA”), has filed a complaint in this action (the “Complaint”) concurrently with this Consent Decree. The Complaint seeks civil penalties and injunctive relief, alleging that Defendant, Infineum USA LP (“Infineum” or “Defendant”), violated the Clean Air Act (the “CAA” or “Act”), 42 U.S.C. § 7401 *et seq.*, regulations promulgated pursuant to the Act, and its Title V operating permit issued under the Act, with respect to emissions of volatile organic compounds (“VOCs”) and hazardous air pollutants (“HAPs”) at Defendant’s chemical plant located in Linden, New Jersey (the “Facility”).

Specifically, the Complaint alleges that Defendant failed to operate its steam-assisted flare (the “Flare”), used to control emissions at the Facility, in compliance with limits and conditions in its Title V operating permit, and further alleges that Defendant failed to operate the Flare in a manner consistent with good air pollution control practices for minimizing emissions, because, among other things, Defendant injected steam into the Flare at rates that reduced its Combustion Efficiency and caused excess emissions of VOCs and HAPs.

WHEREAS, the Complaint alleges that the above-described failures violated one or more of the following Clean Air Act requirements:

- a. The National Emission Standards for Hazardous Air Pollutants (“NESHAPs”) promulgated at 40 C.F.R. Part 63, Subparts A and FFFF, pursuant to Sections 112 and 114 of the CAA, 42 U.S.C. §§ 7412 and 7414;
- b. The Title V requirements of the CAA found at 42 U.S.C. §§ 7661a(a) and 7661c(a); and
- c. The conditions in the Title V permit for the Facility that adopt, incorporate, or implement the provisions cited in subparagraphs a. and b. of this paragraph.

WHEREAS, by entering into this Consent Decree, Defendant commits to undertake projects at the Facility, including the operation of monitoring equipment and control technology, intended to (i) assure compliance with the requirements of the CAA and the Facility Title V permit, (ii) reduce emissions of air pollutants from the Facility by minimizing Waste Gas flows and ensuring proper Combustion Efficiency at the Flare, and (iii) protect public health, welfare, and the environment. Defendant estimates that the Compliance Requirements set forth in Section V of this Decree will cost \$3,000,000 to \$4,000,000.

WHEREAS, Defendant does not admit any liability to the United States arising out of the transactions or occurrences alleged in the Complaint.

WHEREAS, the Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation between the Parties and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law except as provided in Section I, and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

## I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and Sections 112, 113(b), and 502 of the Act, 42 U.S.C. §§ 7412, 7413(b), and 7661a. The Court has personal jurisdiction over the Parties. Venue lies in this District pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b), and 28 U.S.C. §§ 1391 (b) and (c) and 1395(a), because Defendant resides and is located in this judicial district and the violations alleged in the Complaint are alleged to have occurred in, and Defendant conducts business in, this judicial district. For purposes of this Decree, or any action to enforce this Decree, Defendant consents to the Court's jurisdiction over this Decree and any such action and over Defendant and consents to venue in this judicial district.

2. For purposes of this Consent Decree, Defendant agrees that the Complaint states claims upon which relief may be granted pursuant to Section 113 of the Act, 42 U.S.C. § 7413(b).

3. Notice of the commencement of this action has been given to the State of New Jersey in accordance with Section 113(b) of the CAA, 42 U.S.C. § 7413(b).

## II. APPLICABILITY

4. The obligations of this Consent Decree apply to and are binding upon the United States and upon Defendant and any successors, assigns, or other entities or persons otherwise bound by law.

5. At least 30 Days before a transfer of the ownership or operation of the Facility, Defendant must provide a copy of this Consent Decree to the proposed transferee and must simultaneously provide written notice of the prospective transfer to EPA Region 2, and the United States Department of Justice, in accordance with Section XV (Notices). Any attempt to transfer ownership or operation of the Facility without complying with this Paragraph constitutes a violation of this Consent Decree.

6. Defendant must provide a copy of this Consent Decree to all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Decree, as well as to any contractor retained to perform work required under this Consent Decree. Defendant must condition any such contract upon performance of the work in conformity with the terms of this Consent Decree.

7. In any action to enforce this Consent Decree, Defendant will not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree. Nothing in this Paragraph is intended to prevent Defendant from invoking Force Majeure pursuant to this Consent Decree.



### III. DEFINITIONS

8. Terms used in this Consent Decree that are defined in the CAA or in regulations promulgated pursuant to the CAA have the meanings assigned to them in the Act or such regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions will apply:

a. “Ambient Air” or “air” means that portion of the atmosphere, external to buildings, to which persons have access.

b. “Assist Steam” means all steam that is intentionally introduced before or at a Flare tip through nozzles or other hardware conveyance for the purposes of, including, but not limited to, protecting the design of the Flare tip, promoting turbulence or mixing or inducing air into the flame. Assist Steam includes, but is not necessarily limited to, Center Steam, Lower Steam, and Upper Steam.

c. “Baseload Waste Gas Flow Rate” means, for the Flare, the daily average flow rate, in scfd, to the Flare, excluding all flows during periods of startup, shutdown and Malfunction. The flow rate data period that must be used to determine Baseload Waste Gas Flow Rate is set forth in Subparagraph 21.a.ii.

d. “BTU/scf” means British Thermal Unit per standard cubic foot.

e. “Calendar Quarter” means a three-month period ending on March 31, June 30, September 30, or December 31.

f. “Combustion Efficiency” or “CE” means a Flare’s efficiency in converting the organic carbon compounds found in Combustion Zone Gas to carbon dioxide.

g. “Combustion Zone” means the area of the Flare flame where the combustion of the Combustion Zone Gas occurs.

h. “Combustion Zone Gas” means the mixture of all gases and steam found after the Flare tip. This gas includes all Vent Gas and Total Steam.

i. “Complaint” means the complaint filed by the United States in this action.

j. “Consent Decree” or “Decree” means this Decree and all appendices attached hereto.

k. “Continuous parameter monitoring system” or “CPMS” means the total equipment that may be required to meet the data acquisition and availability requirements of this Decree, used to sample, condition (if applicable), analyze, and provide a record of process or control system parameters. The Video Camera is not a type of CPMS.

l. “Flare” means the combustion device at the Facility, lacking an enclosed combustion chamber that uses an uncontrolled volume of Ambient Air to burn gases, which is

the device referred to as U15 in the Facility Title V operating permit, and is also known as the Infineum flare.

m. “Date of Lodging” means the Date that this Consent Decree is filed for lodging with the Clerk of the United States District Court for the District of New Jersey.

n. “Date of Entry” means the Effective Date of this Consent Decree as set forth in Section XVI.

o. “Day” means a calendar day unless expressly stated to be a business day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period must run until the close of business of the next business day.

p. “Defendant” means Infineum USA L.P.

q. “Effective Date” has the definition provided in Section XVI.

r. “EPA” means the United States Environmental Protection Agency and any of its successor departments or agencies.

s. “Facility” means Defendant’s chemical plant, known as the Bayway Chemical Plant, located at 1400 Park Avenue in Linden, New Jersey.

t. “In Operation” or “Being In Operation” or “Operating” with respect to the Flare means any and all times that any “Waste Gas” is being vented to the Flare.

u. “Lower Heating Value” or “LHV” means the theoretical total quantity of heat liberated by the complete combustion of a unit volume or weight of a fuel initially at 25 degrees Centigrade and 760 mmHg, assuming that the produced water is vaporized and all combustion products remain at, or are returned to, 25 degrees Centigrade; however, the standard for determining the volume corresponding to one mole is 20 degrees Centigrade.

v. “Malfunction” means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. In any dispute under this Consent Decree involving this definition, Defendant will have the burden of proving:

- i. The excess emissions were caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;
- ii. The excess emissions: (a) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (b) could not have been avoided by better operation and maintenance

practices;

- iii. To the maximum extent practicable the air pollution control equipment or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;
- iv. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been used, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;
- v. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;
- vi. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;
- vii. All emission monitoring systems were kept in operation if possible;
- viii. The owner or operator's actions during the period of excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence;
- ix. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and
- x. The owner or operator properly and promptly notified the appropriate regulatory authority if required.

w. "Monitoring System Malfunction" means any sudden, infrequent, and not reasonably preventable failure of instrumentation or a monitoring system to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Monitoring System Malfunctions. In any dispute under this Consent Decree involving this definition, Defendant has the burden of proving:

- i. The instrument or monitoring system downtime was caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;
- ii. The instrument or monitoring system downtime: (a) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (b) could not have been avoided by better operation and maintenance;



- iii. To the maximum extent practicable, the instrument or monitoring system were maintained and operated in a manner consistent with good practice for minimizing emissions;
  - iv. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been used, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;
  - v. The amount and duration of the instrument or monitoring system downtime was minimized to the maximum extent practicable;
  - vi. The owner's or operator's actions during the period of instrument or monitoring system downtime were documented by properly signed, contemporaneous operating logs, or other relevant evidence; and
  - vii. The instrument or monitoring system downtime was not part of a recurring pattern indicative of inadequate design, operation, or maintenance.
- x. "MSCF" or "mscf" means million standard cubic feet.
  - y. "Net Heating Value" means Lower Heating Value.
  - z. "Net Heating Value Analyzer" or "NHV Analyzer" means an instrument capable of measuring the Net Heating Value of Vent Gas in BTU/scf. The sample extraction point of a Net Heating Value Analyzer may be located upstream of the introduction of Supplemental and/or Sweep and/or Purge Gas if the composition and flow rate of any such Supplemental and/or Sweep and/or Purge Gas is a known constant and if this constant is then used in the calculation of the Net Heating Value of the Vent Gas.
    - aa. "Net Heating Value of Combustion Zone Gas" or "NHV<sub>cz</sub>" means the Lower Heating Value, in BTU/scf, of the Combustion Zone Gas in a Flare. NHV<sub>cz</sub> must be calculated in accordance with Step 3 of Appendix 1.2.
    - bb. "Paragraph" means a portion of this Decree identified by an arabic numeral.
    - cc. "Parties" means the United States and Defendant.
    - dd. "Pilot Gas" means gas introduced through the pilot tip of a Flare that provides a flame to ignite the Vent Gas.
    - ee. "Prevention Measures" means an instrument, device, piece of equipment, system, process change, physical change to process equipment, procedure, or program to

minimize or eliminate flaring.

ff. “Purge Gas” means the minimum amount of gas introduced between a Flare header’s water seal and the Flare tip to prevent oxygen infiltration (backflow) into the Flare tip. For a Flare with no water seal, the function of Purge Gas is performed by Sweep Gas, and therefore, by definition, such a Flare has no Purge Gas.

gg. “Reportable Flaring Incident” means a flare flow event while the Flare is In Operation meeting either one of the following criteria: (1) the Vent Gas flow rate exceeds the smokeless capacity of the Flare and Visible Emissions are present from the Flare during the event; or (2) the Vent Gas flow rate exceeds the smokeless capacity of the Flare and the 15-minute block average Flare Tip Velocity exceeds the Maximum Flare Tip Velocity determined using the methods in Appendix 1.2. A flaring event or events that have the same root cause(s) that last(s) more than 24 hours will be considered a single Reportable Flaring Incident.

hh. “SCFD” or “scfd” means standard cubic feet per day.

ii. “SCFH” or “scfh” means standard cubic feet per hour.

jj. “SCFM” or “scfm” means standard cubic feet per minute.

kk. “Section” means a portion of this Decree identified by a roman numeral.

ll. “Smoke Emissions” means small gasborne and airborne particles, exclusive of visible condensed water vapor, arising from a process of combustion in sufficient number to be observable. Smoke occurring within the flame, but not downstream of the flame, is not considered a Smoke Emission per the definition set forth in Section 3.5 of Method 22 of 40 C.F.R. Part 60, Appendix A. For purposes of this Consent Decree, Smoke Emissions may be documented either by a video camera or by an observer knowledgeable with respect to the general procedures for determining the presence of Smoke Emissions per Method 22.

mm. “Standard Conditions” means a temperature of 68 degrees Fahrenheit and a pressure of 1 atmosphere. Unless otherwise expressly set forth in this Consent Decree or an Appendix, Standard Conditions will apply.

nn. “Subparagraph” means a portion of a Section of this Consent Decree that has a heading identified by a small letter.

oo. “Supplemental Gas” means all gas introduced to a Flare to improve the combustible characteristics of the Combustion Zone Gas.

pp. “Sweep Gas” means gas intentionally introduced into a Flare header system to maintain a constant flow of gas through the flare header and out the Flare tip in order to prevent oxygen building in the Flare header and to prevent infiltration (backflow) into the Flare tip.

qq. “Tip Velocity” or “ $V_{tip}$ ” shall mean the velocity of gases exiting the Flare

tip as defined in Paragraph 32.

rr. “Total Steam” means the total of all steam that is intentionally introduced into a Flare to assist in combustion. Total Steam includes, but is not limited to, lower steam, center steam, and upper steam.

ss. “United States” means the United States of America, acting on behalf of EPA.

tt. “Unobstructed Cross Sectional Area of the Flare Tip” or “ $A_{tip-unob}$ ” means the open, unobstructed area of a Flare tip through which Vent Gas and center steam pass. Diagrams of four common Flare types are set forth in Appendix 1.3 together with the equations for calculating  $A_{tip-unob}$  of these four types.

uu. “Vent Gas” means the mixture of all gases found just before the Flare tip. This gas includes all Waste Gas, the portion of Sweep Gas that is not recovered, Purge Gas, and Supplemental Gas, but does not include Pilot Gas or Total Steam.

vv. “Visible Emissions” means more than three (3) minutes of Smoke Emissions during any 30-minute period, consistent with the requirements in Defendant’s Title V operating permit.

ww. “VOC” or “Volatile Organic Compounds” has the definition set forth in 40 C.F.R. § 51.100(s).

xx. “Waste Gas” means the mixture of all gases from Facility operations that are directed to a Flare for the purpose of disposing of the gas. “Waste Gas” does not include gas introduced to a Flare exclusively to make it operate safely and as intended, therefore, “Waste Gas” does not include Pilot Gas, Total Steam, or the minimum amount of Sweep Gas and Purge Gas that is necessary to perform the functions of Sweep Gas and Purge Gas. “Waste Gas” also does not include the minimum amount of gas introduced to a Flare to comply with regulatory and/or enforceable permit requirements regarding the combustible characteristics of Combustion Zone Gas; therefore, “Waste Gas” does not include Supplemental Gas. Appendix 1.4 to this Consent Decree depicts the meaning of “Waste Gas,” together with its relation to other gases associated with Flares.

#### IV. CIVIL PENALTY

9. By no later than thirty (30) Days after the Effective Date, Defendant must pay to the United States a civil penalty of \$187,500.00, together with interest accruing from the date on which the Consent Decree is lodged with the Court, at the rate specified in 28 U.S.C. § 1961, as of the date of lodging.

10. Defendant must pay the civil penalty due by FedWire Electronic Funds Transfer (EFT) to the U.S. Department of Justice account, in accordance with instructions provided to Defendant by the Financial Litigation Unit (FLU) of the United States Attorney’s Office for the

District of New Jersey after the Effective Date. The payment instructions provided by the FLU will include a Consolidated Debt Collection System (CDCS) number, which Defendant must use to identify all payments required to be made in accordance with this Consent Decree. The FLU will provide the payment instructions to:

Chris Hla-Gyaw  
US Finance Manager  
Infineum USA L.P.  
Bayway Chemical Plant  
Park and Brunswick Avenues  
Linden, New Jersey 07036  
Phone: (908) 474-2514  
Email: Chris.Hla-Gyaw@infineum.com

on behalf of Defendant. Defendant may change the individual to receive payment instructions on its behalf by providing written notice of such change to the United States and EPA in accordance with Section XV (Notices).

At the time of payment, Defendant must send notice that payment has been made: (i) to EPA via email at [cinwd\\_acctsreceivable@epa.gov](mailto:cinwd_acctsreceivable@epa.gov) or via regular mail at EPA Cincinnati Finance Office, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268; and (ii) to the United States via email or regular mail in accordance with Section XV. Such notice must state that the payment is for the civil penalty owed pursuant to the Consent Decree in *United States v. Infineum USA LP*, and must reference the civil action number, CDCS Number and DOJ case number 90-5-2-1-11191.

11. Defendant must not deduct any penalties paid under this Decree pursuant to this Section or Section IX (Stipulated Penalties) in calculating its federal, state, or local income tax.

## V. COMPLIANCE REQUIREMENTS

### A. Instrumentation and Monitoring Systems

12. Flare Data and Monitoring Systems and Protocol Report. By no later than one year after the Effective Date, Defendant must submit to EPA a report for the Flare, consistent with the requirements in Appendix 1.5, including the following items:

- a. The information, diagrams, and drawings specified in Paragraphs 1-7 of Appendix 1.5;
- b. A detailed description of each instrument and piece of monitoring equipment, including the specific model and manufacturer, that Defendant has installed or will install in compliance with Paragraphs 14-17 of this Consent Decree (Paragraphs 8-9 of Appendix 1.5); and
- c. A narrative description of the monitoring methods and calculations that



Defendant will use to comply with the requirements of Paragraph 34 of this Consent Decree (Paragraph 10 of Appendix 1.5).

13. Installation and Operation of Monitoring and Control Systems. By no later than October 31, 2019, Defendant must install and commence operation of the instrumentation, controls, and monitoring systems set forth in Paragraphs 14-17 at the Flare.

14. Vent Gas and Assist Steam Monitoring Systems.

- a. Defendant must install, operate, calibrate, and maintain a monitoring system at the Flare that is capable of continuously measuring, calculating, and recording the volumetric flow rate of Vent Gas in the header or headers feeding the Flare. This system must also be able to continuously analyze pressure and temperature at each point of Vent Gas flow measurement. Different flow monitoring methods may be used to measure different gaseous streams that make up the Vent Gas provided that the flow rates of all gas streams that contribute to the Vent Gas are determined. Flow must be calculated in scfm and pounds per hour.
- b. Defendant must install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the volumetric flow rate of Assist Steam used with the Flare. This system must also be able to continuously analyze the pressure and temperature of Assist Steam at a representative point of steam flow measurement. Flow must be calculated in scfm and pounds per hour.
- c. Each flow rate monitoring system must be able to correct for the temperature and pressure of the system and output parameters in Standard Conditions.
- d. In lieu of a monitoring system that directly measures volumetric flow rate, Defendant may choose from the following additional options for monitoring any gas stream:
  - i. Mass flow monitors may be used for determining the volumetric flow rate of Steam provided that Defendant converts the mass flow rates to volumetric flow rates pursuant to the methodology in Step 2 of Appendix 1.2;
  - ii. Mass flow monitors may be used for determining the volumetric flow rate of Vent Gas, provided that Defendant determines the molecular weight of such Vent Gas using compositional analysis data collected pursuant to the monitoring method specified in Paragraph 17.a and provided that Defendant converts the mass flow rates to volumetric flow rates pursuant to the methodology in Step 2 of Appendix 1.2; or

- iii. Continuous pressure/temperature monitoring system(s) and appropriate engineering calculations may be used in lieu of a continuous volumetric flow monitoring system provided the molecular weight of the gas is known and provided that Defendant complies with the methodology in Step 2 of Appendix 1.2 for calculating volumetric flow rates. For Vent Gas, Defendant must determine molecular weight using computational analysis data collected pursuant to the monitoring method specified in Paragraph 17.a. This analysis may be performed by an instrument that also serves as part of the vent gas flow monitoring system installed pursuant to this Paragraph.

15. Assist Steam Control Equipment. Defendant must install and commence operation of equipment, including, as necessary, main and trim control valves and piping that enables Defendant to control Assist Steam flow to the Flare in a manner sufficient to ensure compliance with this Consent Decree.

16. Video Camera. Defendant must install and operate a video camera that is capable of recording, in digital format, the flame of the Flare and any Smoke Emissions from the Flare. Defendant shall retain the data recorded by the video camera for twelve (12) months. The specific monitoring requirements are set forth in Paragraph 29.b of this Consent Decree.

17. Vent Gas Compositional Monitoring or Direct Monitoring of Net Heating Value of Vent Gas. Defendant must determine the concentration of individual components in the Vent Gas or must directly monitor the Net Heating Value of the Vent Gas ( $NHV_{vg}$ ) for the Flare in compliance with one of the methods specified in this Paragraph. Defendant may elect to use different monitoring methods (of the methods provided in this Paragraph) for different gaseous streams that make up the Vent Gas provided that the composition or Net Heating Value of all gas streams that contribute to the Vent Gas are determined. Defendant must:

- a. Install, operate, calibrate, and maintain a monitoring system capable of continuously measuring (i.e., at least once every 15 minutes), calculating, and recording the individual component concentrations present in the Vent Gas; or
- b. Install, operate, calibrate, and maintain a calorimeter capable of continuously measuring, calculating, and recording the  $NHV_{vg}$  at Standard Conditions. If Defendant elects this method, Defendant may install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the hydrogen concentration in the Vent Gas. The sample extraction point of the calorimeter may be located upstream of the introduction of Supplemental and/or Sweep and/or Purge Gas if the composition and flow rate of any such Supplemental and/or Sweep and/or Purge Gas is a known constant and if this constant then is used in the calculation of the Net Heating Value of the Vent Gas.

- c. Direct compositional or Net Heating Value monitoring is not required for Defendant's purchased supplemental gas stream. As determined by monthly average grab sampling data submitted by Infineum (see Appendix 2.4 of this Consent Decree), the concentration of hydrogen of the purchased supplemental gas stream, denoted  $x_{H_2}$  in Equation 2 of Appendix 1.2 of this Consent Decree, shall be 26.6 mole percent.
  - i. Beginning 30 Days after the Date of Lodging, Defendant will demonstrate the consistent composition of the hydrogen concentration, using monthly average grab sampling measurement values that are representative of typical operating conditions and are taken at any one representative location. No further action is required to determine the Net Heating Value of the purchased supplemental gas stream except if operating conditions change in such a way as to affect hydrogen concentration of the supplemental gas stream. If conditions change, then Defendant will act in accordance with the following: (a) if the re-evaluated hydrogen concentration is still within the range of hydrogen concentrations included in the original determination under this Paragraph 17.c, then Defendant shall determine the hydrogen concentration on a grab sample and record the results as proof that the above hydrogen concentration assigned to the purchased supplemental gas stream is still appropriate; or (b) if the re-evaluated hydrogen concentration is outside the range of hydrogen concentrations included in the original determination under this Paragraph, then within sixty (60) Days after obtaining the re-evaluation data Defendant will update the hydrogen concentration of the purchased supplemental gas stream, as determined by representative monthly average grab sampling data. Defendant will provide notice of the updated hydrogen concentration, with all supporting documentation and data, in the next semi-annual report required under Paragraph 47 of the Consent Decree;
  - ii. Alternatively, if the Facility purchases natural gas, the Net Heating Value of any purchased natural gas stream can be assumed to be 920 BTU/scf.

18. Instrumentation and Monitoring Systems: Specifications, Calibration, Quality Control and Maintenance.

- a. The instrumentation and monitoring systems identified in Paragraphs 14 and 16-17 must:
  - i. Meet or exceed all applicable minimum accuracy, calibration, and quality control requirements specified in Appendix 2.1;



- ii. Have an associated readout (i.e., a visual display or record) or other indication of the monitored operating parameter that is readily accessible onsite for operational control or inspection by Defendant;
  - iii. Be capable of measuring the appropriate parameter over the range of values expected for that measurement location, and
  - iv. The associated data recording system must have a resolution that is equal to or better than the required instrumentation/system accuracy.
- b. Defendant must operate, maintain, and calibrate each instrument and monitoring system identified in Paragraphs 14 and 16-17 according to a monitoring plan that contains the information listed in Appendix 2.2.
  - c. All monitoring systems permitted by Paragraph 17.a must also meet the requirements of Appendices 1.6 and 2.1.
  - d. For each instrumentation and monitoring system required by Paragraphs 14 and 17, Defendant must comply with the out-of-control procedures described in Subparagraphs (1) and (2) below and with the data reduction requirements in sub-paragraphs (3), (4) and (5) below.
- (1) A CPMS is out-of-control if the zero (low-level), mid-level (if applicable) or high-level calibration drift exceeds two times the accuracy requirement of Appendix 2.1,
  - (2) When the CPMS is out of control, the owner or operator shall take the necessary corrective action and repeat all necessary tests that indicate the system is out of control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour a performance check (e.g., calibration drift) that indicates an exceedance of the performance requirements established in this section is conducted. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. The owner or operator shall not use data recorded during periods the CPMS is out of control in data averages and calculations, used to report emissions or operating levels, as specified in Subparagraph (5), below.
  - (3) The owner or operator may round the data to the same number of significant digits used in that operating limit.
  - (4) Periods of non-operation of the process unit (or portion thereof) resulting in cessation of the emissions to which the monitoring applies must not be included in the 15-minute block averages.



- (5) Periods when the CPMS is out of control must not be included in the 15-minute block averages.

19. Instrumentation and Monitoring Systems: Recording and Averaging Times. The instrumentation and monitoring systems identified in Paragraphs 14 and 16-17 must be able to produce and record data measurements and calculations for each parameter at the following time intervals:

<u>Instrumentation and Monitoring System</u>	<u>Recording and Averaging Times</u>
Vent Gas, Assist Steam Flow, Monitoring Systems, and Pilot Gas Flow (if installed)	Measure continuously and record 15-minute block averages
Vent Gas Compositional Monitoring (if using the methodology in Paragraph 17.a)	Measure no less than once every 15 minutes and record that value
Vent Gas Net Heating Value Analyzer (if using the methodology in Paragraph 17.b)	Measure continuously and record 15-minute block averages
Video Camera	Record at a rate of no fewer than 4 frames per minute

This Paragraph addresses only the recording and averaging time of the Video Camera when the Video Camera is utilized; however, the specific monitoring requirements are set forth in Paragraph 29.b. of this Consent Decree. Nothing in this Paragraph is intended to prohibit Defendant from setting up process control logic that uses different averaging times from those in this table provided that the recording and averaging times in this table are available and used for determining compliance with this Consent Decree. With regard to flow monitoring, compositional monitoring, and Net Heating Value analysis, Appendix 2.3 provides for allowed downtime.

20. Instrumentation and Monitoring Systems: Operation. Defendant must operate each of the instruments and monitoring systems required by Paragraphs 14 and 16-17 and collect data on a continuous basis at all times when the Flare is In Operation, except for the following periods of time:

- a. Monitoring System Malfunctions;
- b. Repairs associated with Monitoring System Malfunctions;
- c. Scheduled maintenance of an instrument required by Paragraphs 14 and 16-17 in accordance with the manufacturer's recommended schedule; and/or
- d. Quality Assurance/Quality Control activities on an instrument required by Paragraphs 14 and 16-17 (including, as applicable, calibration checks and required zero and span adjustments).

The calculation of downtime must be made in accordance with Appendix 2.3. Any exceedance of the allotted downtime provided in Appendix 2.3 shall constitute a violation of this Paragraph 20.

## B. Waste Gas Minimization

21. Initial Waste Gas Minimization Plan (“Initial WGMP”). By no later than one year after the Effective Date, Defendant must submit to EPA an Initial Waste Gas Minimization Plan for the Flare that discusses and evaluates flaring Prevention Measures on both a facility-wide and Flare-specific basis. The Initial WGMP must include but not be limited to:

- a. Waste Gas Characterization and Mapping. Defendant must characterize the Waste Gas being disposed of at the Flare and determine its source as follows:
  - i. Volumetric (in scfm) and mass (in pounds) flow rate. Defendant must identify the volumetric flow of Waste Gas, in scfm on a 30-Day rolling average, and the mass flow rate, in pounds per hour on a 30-Day rolling average, vented to the Flare for a one-year period of time before the Effective Date. To the extent that Defendant has instrumentation capable of measuring and/or calculating the volumetric and mass flow rate of hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or water (steam), Defendant may calculate the volumetric and mass flow of: (i) all Waste Gas flows excluding hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or water (steam) flows in the Waste Gas. Defendant may use either an engineering evaluation or measurements from monitoring or a combination to determination flow rate. In determining flow rate, flows during all periods (including but not limited to normal operations and periods of startup, shutdown, Malfunction, process upsets, relief valve leakages, utility losses due to interruptible utility service agreement, and emergencies arising from events within the boundaries of the Facility), except those described in the next sentence, must be included. Flows that could not be prevented through reasonable planning and are in anticipation of or caused by a natural disaster, act of war, or terrorism, or External Utility Loss are the only flows that may be excluded from the calculation of flow rate. Defendant must specifically describe the date, time, and nature of the event that results in exclusion of any flows from the calculation.
  - ii. Baseload Waste Gas Flow Rates. Defendant must use flow rate data for the one-year period of time before the Effective Date to determine the Baseload Waste Gas Flow Rate, in scfd, to the Flare. If reductions have been previously realized, the Facility will

include in the discussion of the baseload.

- iii. Identification of Constituent Gases. Defendant must use best efforts to identify the constituent gases within the Flare's Waste Gas and the percentage contribution of each such constituent during baseload conditions. Defendant may use either an engineering evaluation or measurements from monitoring or a combination to determine Waste Gas Constituents.
- iv. Waste Gas Mapping. Using instrumentation, isotropic tracing, and/or engineering calculations, Defendant must identify and estimate the flow from each process unit header (sometimes referred to as a "subheader") to the main header(s) servicing the Flare. Using that information and all other available information, Defendant must complete an identification of each Waste Gas tie-in to the main header(s) and process unit header(s), as applicable, consistent with Appendix 1.7. Temporary connections to the main header(s) of the Flare and/or process unit header(s) are not required to be included in the mapping.
- b. Reductions Previously Realized. Defendant must describe the equipment, processes, and procedures installed or implemented to reduce flaring for the period of time between the Effective Date and sixty (60) Days prior to the submission of the Initial WGMP. The description must specify the date of installation or implementation and the amount of reductions (in both flow and mass of pollutants) realized.
- c. Planned reductions. Defendant must describe any equipment, processes, or procedures Defendant plans to install or implement to eliminate or reduce flaring. The description must specify a schedule for expeditiously installing and commencing operation of these steps. The description must also include a projection of the amount of reductions to be realized. After submitting the Initial WGMP, Defendant may revise the installation and operation dates provided Defendant: (i) does so in writing to EPA before the First Updated Waste Gas Minimization Plan is due and (ii) provides a reasonable explanation for the revised date. In formulating this plan, Defendant must review and evaluate the results of the Waste Gas Mapping required by Subparagraph 21.a.
- d. Prevention Measures. Defendant must describe and evaluate all Prevention Measures, including a schedule for expeditiously implementing and commencing operation of all Prevention Measures, to address the following:
  - i. Flaring that has occurred or may reasonably be expected to occur during planned maintenance activities, including startup and



shutdown. The evaluation must include a review of flaring that has occurred during these activities in the three (3) years prior to the Effective Date and must consider the feasibility of performing these activities without flaring, provided that Defendant may include in the evaluation its POA unit shutdown even though occurring more than three (3) years prior to the Effective Date.

- ii. Flaring that may reasonably be expected to occur due to issues of gas quantity and quality.
- iii. Flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation must consider the adequacy of existing maintenance schedules and protocols for such equipment. A failure is “recurrent” if it occurs more than twice during any five-year period as a result of the same cause.
- iv. The evaluation must provide clear rationale in terms of costs (capital and annual operating), natural gas offset credits (if applicable), technical feasibility, secondary environmental impacts and safety considerations for the selected minimization alternative(s) or a statement, with justifications, that flow reduction could not be achieved. Based on the current operations at the Facility, flare gas recovery is deemed not to be a feasible preventative measure. Therefore, a cost assessment for flare gas recovery for the Flare is not required.

22. First Updated Waste Gas Minimization Plan (“First Updated WGMP”). By no later than 730 Days after the Effective Date, Defendant must submit to EPA a First Updated WGMP that updates, if and as necessary, the information, diagrams, and drawings required in the Flare Data and Monitoring Systems and Protocol Report required by Paragraph 12 and the information required in Subparagraphs 21.a – 21.d for the twelve (12) month period following the period covered by the Initial Waste Gas Minimization Plan. The First Updated WGMP must also include:

- a. Updated Waste Gas Mapping. Defendant must update the Waste Gas Mapping from each process unit header (sometimes referred to as a “subheader”) to the main header(s) servicing the Flare, if more information becomes available. Defendant must use this updated mapping to plan reductions;
- b. Reductions Based on Root Cause Analysis. Defendant must review all of the Root Cause Analysis reports submitted under Paragraph 26 to determine if reductions, in addition to the reductions achieved through any required corrective action under Paragraph 27, can be realized; and



- c. Revised Schedule. To the extent that Defendant proposes to extend any schedule set forth in the Initial WGMP, Defendant may do so only with good cause, the determination of which is subject to Section XI (Dispute Resolution).
- d. If no changes have occurred since the preparation of the WGMP required under Paragraph 21, then Defendant is not required to submit a First Updated WGMP and is required only to inform that no changes/updates have occurred as part of the Semi-Annual Report required by Section VIII (Reporting Requirements).

23. Subsequent Updates to WGMPs. On an annual basis after submitting the First Updated WGMP until termination of the Decree, Defendant must submit an updated WGMP as part of the Semi-Annual Report required by Section VIII (Reporting Requirements) if Defendant (a) installs and commences operation of a new flare or permanently removes the existing Flare from service, (b) connects a new Waste Gas stream to the Flare, (c) intentionally modifies the baseload Waste Gas flow rate to the Flare, (d) installs FGRS, or (e) changes the design of the Flare. Each update must update, if and as necessary, the information required in Subparagraphs 21.a.i through 21.a.iii, and 22.a and 22.b. To the extent Defendant proposes to extend any schedule set forth in a previous WGMP for the Facility, Defendant may do so only with good cause, the determination of which is subject to Section XI (Dispute Resolution). If no update of WGMP is triggered per (a) through (e) of this Paragraph, then no action is required.

24. Waste Gas Minimization Plan. By no later than the dates specified in the WGMP, Defendant must implement the actions described therein.

25. Enforceability of WGMPs. The terms of each WGMP submitted under this Consent Decree are specifically enforceable.

26. Root Cause Analysis for Reportable Flaring Incident.

- a. Internal Reporting and Recordkeeping. Except as provided in Paragraph 28, commencing on the dates set forth in the definition of “Reportable Flaring Incident” in Section III (Definitions), by no later than forty-five (45) Days following the end of a Reportable Flaring Incident at the Facility, Defendant must conduct an investigation into the root causes(s) of a Reportable Flaring Incident and must prepare and keep as a record an internal report that must include, at a minimum, the following:
  - i. The date and time that the Reportable Flaring Incident started and ended;
  - ii. The volume of Waste Gas flared and an estimate of the quantities of VOCs and HAPs, if any, that were emitted and the calculations that were used to determine those quantities;

- iii. The steps, if any, that Defendant took to limit the duration of the Reportable Flaring Incident and to limit the quantity of VOC and HAP (if any) emissions associated therewith;
  - iv. A detailed analysis that sets forth the root cause and all contributing causes of the Reportable Flaring Incident, to the extent determinable;
  - v. An analysis of the measures, if any, that are available to reduce the likelihood of a recurrence of a Reportable Flaring Incident resulting from the same root cause or contributing causes in the future. The analysis must discuss the alternatives, if any, that are available and the probable effectiveness and the cost of the alternatives, if an alternative is eliminated based on cost. Possible design, operation, and maintenance changes must be evaluated. If Defendant concludes that corrective action is required under Paragraph 27, the report must include a description of the action and, if not already completed, a schedule for its implementation, including proposed commencement and completion dates. If Defendant concludes that corrective action is not required under Paragraph 27, the report must explain the basis for that conclusion; and
  - vi. To the extent that investigations of the causes and/or possible corrective actions still are underway at the time the internal report will be completed (i.e., forty-five (45) Days after the Reportable Flaring Incident began), a statement of the anticipated date by which a follow-up report fully conforming to the requirements of this Subparagraph will be submitted.
- b. Special circumstances affecting the number of root cause analyses and/or corrective action analyses are as follows: (i) Defendant may conduct a single root cause analysis and corrective action analysis for a single continuous flare flow event that meets the definition of a Reportable Flaring Incident; and (ii) Defendant may conduct a single root cause analysis and corrective action analysis for a single continuous flare flow event regardless of the number of 15-minute block periods in which the Flare Tip Velocity was exceeded or the number of Visible Emissions.
- c. Submitting Summary of Internal Flaring Incident Reports. In each semi-annual report due under Section VIII of this Decree (Reporting Requirements), Defendant must include a summary of the following items for each Reportable Flaring Incident that occurred during the six-month period that the semi-annual report covers:
- i. Date;
  - ii. Duration;

- iii. Amount of VOCs and HAPs (if any) released;
- iv. Root cause(s);
- v. Corrective action(s) completed;
- vi. Corrective action(s) still outstanding; and
- vii. An analysis of any trends identified by Defendant in the number of Reportable Flaring Incidents, the root causes, or the type(s) of corrective action(s).

27. Corrective Action Implementation. In response to any Reportable Flaring Incident that occurs on or after six months after the Date of Entry, Defendant must take, as expeditiously as possible, such interim and/or long-term corrective actions, if any, as are consistent with good engineering practices to minimize the likelihood of a recurrence of the root cause and all contributing causes of that Reportable Flaring Incident.

28. In lieu of preparing a new report under Paragraph 26 and analyzing and implementing corrective action under Paragraph 27 for a Reportable Flaring Incident that has as its root cause the same root cause as a previously reported Reportable Flaring Incident, Defendant may cross-reference and utilize the prior report and analysis when preparing the report required by Paragraph 26.

### **C. Flare Combustion Efficiency**

29. General Emission Standards Applicable to the Facility Flare. By no later than the Effective Date, Defendant must comply with the requirements set forth in this Paragraph at the Flare at all times when the Flare is in Operation:

- a. Operation During Emissions Venting. Defendant must operate the Flare at all times when emissions may be vented to the Flare.
- b. No Visible Emissions. Defendant must specify the smokeless design capacity of the Flare and operate with no Visible Emissions when the Flare is in Operation. For purposes of this Consent Decree, Visible Emissions will be documented by a video camera; provided, however, that when the video camera is not in operation due to malfunction, maintenance or repair, Visible Emissions may be determined by a person trained in accordance with Section 2.3 of Method 22 at 40 C.F.R. Part 60. Defendant must monitor for Visible Emissions from the Flare while it is in Operation, as specified below in Subparagraphs 29.b.i and 29.b.ii. It is acknowledged that Defendant previously performed an initial Visible Emissions demonstration using Method 22 in connection with its Title V permit. Defendant must record and report any instance where Visible Emissions are observed.



- i. Defendant will utilize a video surveillance camera to record continuously (at least one (1) frame every fifteen (15) seconds with time and date stamps) images of the Flare flame and at least a reasonable distance above the Flare flame at an angle suitable for visual emissions observations. Defendant must provide real-time video surveillance camera output to the control room or other continuously-manned location where the camera images can be viewed at any time.
- ii. Whenever the video camera is not in operation due to malfunction, maintenance or repair, Defendant must conduct Visible Emissions observations using an observation period of five (5) minutes using Method 22 at 40 C.F.R. Part 60. If at any time Defendant sees Visible Emissions, Defendant must immediately begin an observation period of five (5) minutes using Method 22 at 40 C.F.R. Part 60, Appendix A-7. If Visible Emissions are observed for more than one continuous minute during any five (5) minute observation period, the observation period using Method 22 at 40 C.F.R. Part 60, Appendix A-7 must be extended to meet the length of time contained within the Visible Emissions definition in this Decree.

30. Pilot Flame Presence. Defendant must operate the Flare with a pilot flame present at all times. Defendant must monitor continuously the presence of the pilot flame(s) using a device (including, but not limited to, a thermocouple, ultraviolet beam sensor, or infrared sensor) capable of detecting that the pilot flame is present.

31. Good Air Pollution Control Practices. At all times, including during periods of startup, shutdown, and/or Malfunction, Defendant must implement good air pollution control practices to minimize emissions from the Flare; provided, however, that Defendant shall not be in violation of this requirement for any practice that this Decree requires Defendant to implement after the Date of Lodging for the period between the Date of Lodging and the implementation date or compliance date (whichever is applicable) for the particular practice. It is further provided that nothing in this Paragraph requires Defendant to install or maintain flare monitoring equipment in addition to or different from the equipment required by this Consent Decree.

32. Exit Velocity. By no later than October 31, 2019, Defendant must operate the Flare in compliance with either Subparagraphs 32.a or 32.b below, provided that the appropriate monitoring systems are in place, whenever the Vent Gas flow rate is less than the smokeless design capacity of the Flare.

- a. Except as provided in Paragraph 32.b below, the actual Flare Tip Velocity must be less than 60 feet per second. The Defendant shall monitor  $V_{tip}$  using the procedures specified in Appendix 1.2; or
- b.  $V_{tip}$  must be less than 400 feet per second and also less than the maximum allowed Flare Tip Velocity ( $V_{max}$ ) as calculated according to Equation 8 in Appendix 1.2. The Defendant shall monitor  $V_{tip}$  and gas composition,



and determine  $NHV_{vg}$  using the procedures specified in Appendix 1.2. The Unobstructed Cross Sectional Area of the Flare tip must be calculated consistent with Appendix 1.3.

33. Operation According to Design. By no later than October 31, 2019, Defendant must operate and maintain the Flare in accordance with its design and the requirements of this Consent Decree.

34. Net Heating Value Standard. Defendant must comply with the following Net Heating Value standard, except as provided in Paragraph 36 (Standard During Instrument Downtime).

- a. Net Heating Value of Combustion Zone Gas ( $NHV_{cz}$ ). By no later than October 31, 2019, at any time that the Flare is in Operation, Defendant must operate the Flare so as to maintain the  $NHV_{cz}$  at or above 270 BTU/scf determined on a 15-minute block period basis. Defendant must monitor and calculate  $NHV_{cz}$  at the Flare in accordance with Appendix 1.2.

35. Flare Efficiency Requirements in Title V Permit. Defendant must operate the Flare in accordance with the efficiency requirements contained in its Title V operating permit at all times when Waste Gases are vented to it. For purposes of this Consent Decree, compliance with the applicable requirements in Paragraph 34 may be considered compliance with this Paragraph.

36. Standard During Instrument Downtime. If one or more of the following conditions (collectively referred to as "Instrument Downtime") is present and renders Defendant incapable of operating the Flare in accordance with the applicable  $NHV_{cz}$  standard in Paragraph 34, Defendant must operate the Flare in accordance with good air pollution control practices so as to minimize emissions from and ensure good combustion efficiency at the Flare:

- a. Malfunction of an instrument, for an instrument needed to meet the requirement(s);
- b. Repairs following instrument Malfunction, for an instrument needed to meet the requirement(s);
- c. Scheduled maintenance of an instrument in accordance with the manufacturer's recommended schedule, for an instrument needed to meet the requirement(s); and/or
- d. Quality Assurance/Quality Control activities on an instrument needed to meet the requirement(s).

The calculation of Instrument Downtime must be made in accordance with Appendix 2.3.

37. Recordkeeping: Timing and Substance. Defendant must comply with the following recordkeeping requirements:

- a. By no later than October 31, 2019, Defendant must calculate and record each of the following parameters for the Flare:
  - i. Volumetric flow rates for all gas streams that contribute to the Vent Gas volumetric flow rate (in scfm) (in 15-minute block averages and in accordance with any calculation requirement of Paragraph 14 and Step 2 of Appendix 1.2);
  - ii. Assist Steam volumetric flow rate (in scfm) (in 15-minute block averages and in accordance with any calculation requirements of Paragraph 14 and Step 2 of Appendix 1.2);
  - iii.  $NHV_{vg}$  (in BTU/scf) (in 15-minute block averages in accordance with Step 1 of Appendix 1.2); and
  - iv.  $NHV_{cz}$  (in BTU/scf) (in 15-minute block averages in accordance with Step 3 of Appendix 1.2).
- b. Instrument Downtime. By no later than October 31, 2019, Defendant must record the duration of all periods of Instrument Downtime for the Flare that exceed allotted downtime provided in Appendix 2.3. Defendant must record which instrument(s) experienced the downtime, an explanation of the cause(s) of the deviation, and a description of the corrective action(s) that Defendant took.
- c. By no later than October 31, 2019, at any time that Defendant deviates from the emission standard in Paragraph 34 at the Flare, Defendant must record the duration of the deviation, an explanation of the cause(s) of the deviation, and a description of the correction action(s) that Defendant took.

## VI. PERMITS

38. Permits Needed for Compliance Obligations. Defendant must obtain all required federal, state, and local permits necessary for performing any compliance obligations under this Consent Decree including, without limitation, permits for the construction of pollution control technology and the installation of equipment at the Facility. Defendant may seek relief under Section X (Force Majeure) for any delay in performing any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, provided that Defendant has submitted timely and complete applications and has taken all other actions necessary to obtain all such permits or approvals.

39. Permits to Ensure Survival of Consent Decree Limits and Standards after Termination of Consent Decree. By no later than one year after the Effective Date, Defendant must complete and submit to the New Jersey Department of Environmental Protection (“NJDEP”), pursuant to NJDEP’s consolidated preconstruction and Title V CAA permitting

program, appropriate applications to incorporate the requirements listed in Paragraph 40 of this Consent Decree, as applicable, into a federally enforceable permit for the Facility, such that those requirements: (i) become and remain “applicable requirements” as that term is defined in 40 C.F.R. § 70.2; (ii) are incorporated into a federally enforceable Title V permit for the Facility, and (iii) survive the termination of this Consent Decree.

40. Requirements that Survive Termination. The requirements of the following Paragraphs of this Consent Decree will survive termination:

- a. Paragraphs 14-17 (Instrumentation and Monitoring);
- b. Paragraphs 18-20 (Specifications, Calibration, Quality Control, and Maintenance/Recording and Averaging Times/Operation);
- c. Paragraph 29 (Operation During Emissions Venting and No Visible Emissions);
- d. Paragraph 31 (Good Air Pollution Control Practices);
- e. Paragraph 32 (Exit Velocity);
- f. Paragraph 33 (Operation According to Design);
- g. Paragraph 34 (NHV<sub>CZ</sub> Standard);
- h. Paragraph 36 (Standard During Instrument Downtime); and
- i. Paragraph 37 (Recordkeeping).

41. The permit applications and process of incorporating the requirements of this Consent Decree must be in accordance with applicable state or local Title V rules, including applicable administrative amendment provisions of such rules. The Parties agree that the incorporation may be “by amendment” under 40 C.F.R. § 70.7(d) and analogous state Title V rules, where allowed by state law.

42. This Consent Decree will not terminate until the requirements set forth in Paragraph 40 are incorporated into the Title V operating permit for the Facility. Requirements incorporated into the Title V operating permit or other operating permits pursuant to Paragraph 40 will survive termination of this Consent Decree.

43. Following submission of complete permit applications, Defendant must cooperate with NJDEP by promptly submitting all available information that NJDEP seeks following the receipt of the permit materials.

44. For any permit application required by this Section that is filed after the Effective Date of this Consent Decree, Defendant must submit to EPA and NJDEP, in the manner set forth in Section XV (Notices), a copy of each application, as well as a copy of any permit proposed as



a result of any such application, to allow for timely participation in any public comment process. If, as of the Effective Date, Defendant has already received any permit necessary to implement the requirements of this Consent Decree, then no later than thirty (30) Days after the Effective Date, Defendant shall submit copies of any such permit to EPA and NJDEP in the manner set forth in Section XV (Notices). EPA and/or NJDEP may excuse in writing all or part of the latter submission if copies of the permit have already been submitted before the Effective Date.

## VII. EMISSION CREDIT GENERATION

### 45. Prohibitions.

- a. Definition. “CD Emission Reductions” means any NO<sub>x</sub>, VOC, PM, PM<sub>TOTAL</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, HAP, or CO emission reductions that result from any project conducted or controls used to comply with this Consent Decree.
- b. Except as provided in Paragraph 46, Defendant must not use, apply for, obtain, trade, or sell any netting reductions or emission reduction credits that result from CD Emissions Reductions:
  - i. As netting reductions,
  - ii. As emissions offsets, or
  - iii. For the purpose of determining whether a project would result in a significant emissions increase or significant net emissions increase in any major or minor NSR permit or permit proceeding, or for the purpose of obtaining offsets in any non-attainment NSR permit or permit proceeding. Baseline actual emissions during any 24-month period selected by Defendant must be adjusted downward to exclude any portion of the baseline emissions that would have been eliminated as CD Emissions Reductions (including the Waste Gas Minimization Requirements of Section V.B) had Defendant been complying with this Consent Decree during that 24-month period.

46. Outside the Scope of Prohibition. Nothing in this Section is intended to prohibit Defendant from using or generating:

- a. Netting reduction or emission reduction credits generated by process units at the Facility that are not subject to emission limitation pursuant to this Consent Decree; or
- b. CD Emissions Reductions for the Facility’s compliance with any rules or regulations designed to address regional haze or the non-attainment status of any area (including NSR rules, but including, for example, RACT rules) that apply to the Facility; provided, however, that Defendant must not



trade or sell any CD Emissions Reductions.

### VIII. REPORTING REQUIREMENTS

47. Semi-Annual Reports. By February 28 (February 29 in a leap year) and August 31 of each year after the Effective Date, until termination of this Consent Decree pursuant to Section XIX, Defendant must submit a "Semi-Annual Report" to EPA, containing, for the preceding six months (i.e., February through July will be addressed in the report submitted by August 31, and August through January will be addressed in the report to be submitted February 28 (February 29 in a leap year)), the following information:

- a. A description of the status of work performed and progress made toward implementing all requirements of Section V (Compliance Requirements) at the Facility. This description should identify and describe major milestones completed and remaining to be completed;
- b. A description of any problems encountered or anticipated in meeting the requirements in Section V (Compliance Requirements) at the Facility, together with implemented or proposed solutions;
- c. A description of the status of any permit applications, including a summary of all permitting activity, pertaining to compliance with this Consent Decree;
- d. A copy of any report that was submitted only to NJDEP and that pertains to compliance with this Consent Decree;
- e. Any updated WGMP for the Facility as required by Paragraph 23,
- f. Any summary of internal flaring incident reports as required by Paragraph 26,
- g. A summary of the following, per Calendar Quarter (hours must be rounded to the nearest tenth):
  - i. The total number of hours of downtime of each monitoring instrument/equipment required pursuant to Paragraphs 14-17 while the Flare is In Operation;
  - ii. If the total number of hours of downtime on any monitoring instrument/equipment required pursuant to Paragraphs 14-17 exceeds 110 hours of the time in a Calendar Quarter that the Flare affected by the Instrument Downtime is In Operation, an identification of the periods of downtime by date, time, cause (including Malfunction or maintenance), and, if the cause is asserted to be a Malfunction, the corrective action taken;

iii. Exceedances of Net Heating Value of the Combustion Zone Standard:

- (a) The total number of hours of exceedances of the emissions standards in Paragraphs 34-35 while the Flare was In Operation; provided, however, that if the exceedances of these standards was less than 110 hours in a Calendar Quarter and was due to one or more of the exceptions set forth in Paragraph 36, the report shall so note; and
- (b) If the exceedance of the emissions standards in Paragraphs 34-35 was not due to one of the exceptions in Paragraph 36 (Standard During Instrument Downtime), or if the exceedance was due to one or more of the exceptions in Paragraph 36 and the total number of hours caused by the exceptions exceeds 110 hours in a Calendar Quarter, an identification of each block period that exceeded the standard, by time and date; the cause of the exceedance (including startup, shutdown, maintenance, or Malfunction), and if the cause is asserted to be a Malfunction, an explanation of any corrective actions taken.

v. Any additional matters that Defendant believes should be brought to the attention of EPA.

48. Annual Emission Data. In the Semi-Annual Report, Defendant must provide, for the Flare, for the prior calendar year, the amount of emissions of the following compounds (in tons per year): VOCs and HAPs (if any).

49. Each Semi-Annual Report must also include a description of any non-compliance with the requirements of this Consent Decree and an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the time that the report is due, Defendant must so state in the report. Defendant must investigate the cause of the violation and must then submit an amendment to the report, including a full explanation of the cause of the violation, within thirty (30) Days of the day Defendant becomes aware of the cause of the violation. Nothing in this Paragraph or the following Paragraph relieves Defendant of its obligation to provide the notice required by Section X (Force Majeure). If Defendant has reason to believe that it may violate any requirement of this Consent Decree, Defendant must notify the United States of any such likely violation and its possible duration, in writing, within ten working Days of the day Defendant first becomes aware of the potential violation, with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation.

50. Whenever any violation of this Consent Decree may pose an immediate threat to the public health or welfare or the environment, Defendant must notify EPA orally or by electronic or facsimile transmission as soon as possible, but no later than twenty-four (24) hours

after Defendant first knew of the violation or event. This procedure is in addition to the requirements set forth in the preceding Paragraph.

51. All Reports required to be submitted under this Section must be provided to the persons designated in Section XV (Notices).

52. Each report submitted by Defendant under this Section must be signed by an official of the submitting party and include the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

53. This certification requirement does not apply to emergency or similar notifications where compliance would be impractical.

54. The reporting requirements of this Consent Decree do not relieve Defendant of any reporting obligations required by the Act or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

55. Any information provided pursuant to this Consent Decree may be used by the United States in any proceeding to enforce the provisions of this Consent Decree and as otherwise permitted by law.

#### **IX. STIPULATED PENALTIES**

56. Defendant will be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below, unless excused under Section X (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

57. Late Payment of Civil Penalty. If Defendant fails to pay the civil penalty required to be paid under Section IV (Civil Penalty) when due, Defendant must pay a stipulated penalty of \$2,500 per Day for each Day that the payment is late.



58. Failure to Meet the Obligations in Section V of this Consent Decree. If Defendant fails to meet obligations required under Section V of this Consent Decree, unless excused under Section X of this Consent Decree (Force Majeure), Defendant must pay stipulated penalties as follows:

<b>Violation</b>	<b>Stipulated Penalty</b>	
58.a. <u>Violations of Paragraph 12.</u> Failure to submit a timely Flare Data and Monitoring Systems and Protocol Report that complies with the requirements of Paragraph 12.	<u>Period of Delay or Noncompliance</u> Days 1-30 Days 31-60 Days 61 and later	<u>Penalty per Day per Violation</u> \$300 \$400 \$500
58.b. <u>Violations of Paragraphs 13-17.</u> Failure to install the equipment and monitoring systems required by Paragraphs 14-17 within the required time period and/or in accordance with respective, applicable technical specifications in those Paragraphs 18-19 (except for those QA/QC requirements referenced in Paragraph 18, which are covered in Subparagraph 58.c below).	<u>Period of Delay or Noncompliance, per Monitoring System/Instrument</u> Days 1-30 Days 31-60 Days 61 and later	<u>Penalty per Day per Violation</u> \$750 \$1,250 \$2,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater
58.c. <u>Violations of QA/QC requirements in Paragraph 18.</u> Failure to comply with the QA/QC requirements referenced in Paragraph 18.	<u>Violation of a:</u>  Daily requirement Quarterly requirement Annual requirement	<u>Penalty per Day per Violation</u>  \$100 \$200 per Day late \$500 per Day late
58.d. <u>Violations of Paragraph 20.</u> Except for allotted downtime provided in Appendix 2.3, failure to operate each monitoring system while the Flare is In Operation as required by Paragraphs 14 and 16-17, in accordance with Paragraph 20. For any monitoring system that serves a dual purpose, this stipulated penalty applies per instrument only.	<u>Per Monitoring System/Control Instrument, Number of Hours per Calendar Quarter</u> 0.25-50.0 50.25-100.0 Over 100.0	<u>Penalty per Hour per Monitoring System/Control Instrument</u>  \$250 \$500 \$1,000



<p>58.e. <u>Violations of Paragraph 21, 22, or 23.</u> Failure to submit a timely WGMP that complies with the requirements of the applicable paragraph.</p>	<p><u>Period of Delay or Noncompliance</u> Days 1-30 Days 31-60 Days 61 and later</p>	<p><u>Penalty per Day per Violation</u> \$500 \$750 \$1,000</p>
<p>58.f. <u>Violations of Paragraph 26.</u> Failure to develop a timely root cause flaring investigation report that complies with the requirements of Paragraph 26.a; or failure to keep it as an internal record; or failure to submit a timely summary of the flaring incident reports that complies with the requirements of Subparagraph 26.c.</p>	<p><u>Period of Delay or Noncompliance</u> Days 1-30 Days 31-60 Days 61 and later</p>	<p><u>Penalty per Day per Violation</u> \$800 \$1,600 \$3,000</p>
<p>58.g. <u>Violations of Paragraph 27.</u> Failure to complete any corrective action in accordance with the requirements of Paragraph 27 unless an extension of time is agreed by the Parties.</p>	<p><u>Period of Delay or Noncompliance</u> Days 1-30 Days 31-60 Days 61 and later</p>	<p><u>Penalty per Day per Violation</u> \$1,000 \$2,000 \$5,000</p>
<p>58.h. <u>Violations of Paragraphs 34 and 36.</u> Each failure to comply with the Combustion Zone Net Heating Value standard for the Flare in Paragraph 34 or the Standard During Instrument Downtime in Paragraph 36.</p>	<p><u>Hours per Calendar Quarter in Noncompliance</u> Hours 0.25-50.0 Hours 50.25-100.0 Hours over 100.0</p>	<p><u>Penalty per Hour</u> \$50 \$100 \$300</p> <p>For purposes of calculating the number of hours of noncompliance with the NHV<sub>CZ</sub> standard, all 15-minute periods of violation will be added together to determine the total.</p>
<p>58.i. <u>Violations of Paragraph 37.</u> Failure to record any information required to be recorded pursuant to Paragraph 37.</p>	<p>\$100 per Day</p>	

For those provisions where a stipulated penalty of either a fixed amount or 1.2 times the economic benefit of delayed compliance is available, the decision of which alternative to seek rests exclusively within the discretion of the United States.

59. Incorporation of Consent Decree Requirements into Federally Enforceable Permits. For each failure to submit a timely permit application to NJDEP under Paragraph 39, to incorporate the Consent Decree requirements listed in Paragraph 40:

<u>Period of Delay or Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$500
Days 31-60	\$1,500
Days 61 and later	\$3,000

60. Failure to Meet Reporting Requirements. For each failure to submit a Semi-Annual Report that complies with the requirements of Section VIII:

<u>Period of Delay or Noncompliance per Semi-Annual Report</u>	<u>Penalty per Day per Semi-Annual Report</u>
Days 1-30	\$300
Days 31-60	\$1,000
Days 61 and later	\$2,000

61. Stipulated penalties under this Section must begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and will continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties will accrue simultaneously for separate violations of this Consent Decree.

62. Defendant must pay stipulated penalties to the United States within 60 Days of a written demand by the Plaintiff, unless the demand is disputed through compliance with the requirements of the dispute resolution provisions in Section XI of this Consent Decree.

63. The United States may in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due to it under this Consent Decree.

64. Stipulated penalties will continue to accrue as provided in Paragraph 61, during any Dispute Resolution, but need not be paid until the following:

- a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to the Court, Defendant must pay accrued penalties determined to be owing, together with interest, to the United States within 30 Days of the Effective Date of the agreement or the receipt of EPA's decision or order.
- b. If the dispute is appealed to the Court and the United States prevails in

whole or in part, Defendant must pay all accrued penalties determined by the Court to be owing, together with interest, within sixty (60) Days of receiving the Court's decision or order, except as provided in Subparagraph c, below.

- c. If any Party appeals the District Court's decision, Defendant must pay all accrued penalties determined to be owing, together with interest, within fifteen (15) Days of receiving the final appellate court decision.

65. Defendant must pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 10, except that the transmittal letter must state that the payment is for stipulated penalties and must state for which violation(s) the penalties are being paid.

66. If Defendant fails to pay stipulated penalties according to the terms of this Consent Decree, Defendant will be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph must be construed to limit the United States from seeking any remedy otherwise provided by law for Defendant's failure to pay any stipulated penalties.

67. The payment of penalties and interest, if any, does not alter in any way Defendant's obligation to complete the performance of the requirements of this Consent Decree.

68. Non-Exclusivity of Remedy. Stipulated penalties are not the United States' exclusive remedy for violations of this Consent Decree. Subject to the provisions of Section XIII (Effect of Settlement/Reservation of Rights), the United States expressly reserves the right to seek any other relief it deems appropriate for Defendant's violation of this Decree or applicable law, including but not limited to, an action against Defendant for statutory penalties, additional injunctive relief, mitigation or offset measures, and/or contempt. However, the amount of any statutory penalty assessed for a violation of this Consent Decree must be reduced by an amount equal to the amount of any stipulated penalty assessed and paid pursuant to this Consent Decree.

## **X. FORCE MAJEURE**

69. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Defendant, of any entity controlled by Defendant, or of Defendant's contractors, which delays or prevents the performance of any obligation under this Consent Decree despite Defendant's best efforts to fulfill the obligation. The requirement that Defendant exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (a) as it is occurring and (b) following the potential force majeure, such that the delay and any adverse effects of the delay are minimized. "Force Majeure" does not include Defendant's financial inability to perform any obligation under this Consent Decree.

70. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, Defendant



must provide written notice, within 15 days of when Defendant first knew, or by the exercise of due diligence should have known, that the event might cause a delay, which includes an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Defendant's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of Defendant, such event may cause or contribute to an endangerment to public health, welfare or the environment. Defendant must include with any notice all available documentation supporting the claim that the delay was attributable to a force majeure. Failure to comply with the above requirements must preclude Defendant from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Defendant must be deemed to know of any circumstance of which Defendant, any entity controlled by Defendant, or Defendant's contractors knew or should have known.

71. If EPA agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event must not, of itself, extend the time for performance of any other obligation. EPA will notify Defendant in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

72. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify Defendant in writing of its decision.

73. If Defendant elects to invoke the dispute resolution procedures set forth in Section XI (Dispute Resolution), it must do so no later than 45 days after receipt of EPA's notice. In any such proceeding, Defendant will have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Defendant complied with the requirements of Paragraphs 69 and 70. If Defendant carries this burden, the delay at issue must be deemed not to be a violation by Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.

## XI. DISPUTE RESOLUTION

74. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section will be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. Defendant's failure to seek resolution of a dispute under this Section will preclude Defendant from raising any such issue as a defense to an action by the United States to enforce any obligation of Defendant arising under this Decree.

75. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree must first be the subject of informal negotiations. The dispute will be



considered to have arisen when Defendant sends the United States a written Notice of Dispute. Such Notice of Dispute must state clearly the matter in dispute. The period of informal negotiations must not exceed sixty (60) Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States will be considered binding unless, within forty-five (45) Days after the conclusion of the informal negotiation period, Defendant invokes formal dispute resolution procedures as set forth below.

76. Formal Dispute Resolution. Defendant must invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States a written Statement of Position regarding the matter in dispute. The Statement of Position must include, but need not be limited to, any factual data, analysis, or opinion supporting Defendant's position and any supporting documentation relied upon by Defendant.

77. The United States must serve its Statement of Position within forty-five (45) Days of receipt of Defendant's Statement of Position. The United States' Statement of Position must include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position will be binding on Defendant, unless Defendant files a motion for judicial review of the dispute in accordance with the following Paragraph.

78. Defendant may seek judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XV (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within forty-five (45) Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion must contain a written statement of Defendant's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and must set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

79. The United States must respond to Defendant's motion within the time period allowed by the Local Rules of this Court. Defendant may file a reply memorandum, to the extent permitted by the Local Rules.

80. Standard of Review. In a formal dispute resolution proceeding under this Section, Defendant bears the burden of demonstrating that its position complies with this Consent Decree and the CAA, and that it is entitled to relief under applicable principles of law. The United States reserves the right to argue that its position is reviewable only on the administrative record and must be upheld unless arbitrary or capricious or otherwise not in accordance with law, and Defendant reserves the right to argue the contrary.

81. The invocation of dispute resolution procedures under this Section will not, by itself, extend, postpone, or affect in any way any obligation of Defendant under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the dispute matter will continue to accrue from the first Day of noncompliance, but payment will be stayed pending resolution of the dispute as provided in Paragraph 64. If

Defendant does not prevail on the disputed issue, stipulated penalties will be assessed and paid as provided in Section IX (Stipulated Penalties).

## XII. INFORMATION COLLECTION AND RETENTION

82. The United States and its representatives, including attorneys, contractors, and consultants, will have the right of entry into any facility covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

- a. Monitor the progress of activities required under this Consent Decree;
- b. Verify any data or information submitted to the United States in accordance with the terms of this Consent Decree;
- c. Obtain samples and, upon request, splits of any samples taken by Defendant or its representatives, contractors, or consultants;
- d. Obtain documentary evidence, including photographs and similar data; and
- e. Assess Defendant's compliance with this Consent Decree.

83. Upon request, Defendant must provide EPA or its authorized representatives splits of any samples taken or obtained by Defendant. Upon request, EPA must provide Defendant splits of any samples taken by EPA.

84. Notwithstanding Section XIX (Termination), and except for data recorded by any video camera required pursuant to Paragraph 16, until three years after the termination of this Consent Decree, Defendant must retain, and must instruct its contractors and agents to preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate in any manner to Defendant's performance of its obligations under this Consent Decree. This information-retention requirement will apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States, Defendant must provide copies of any documents, records, or other information required to be maintained under this Paragraph. Defendant shall retain the data recorded by the video camera required pursuant to Paragraph 16 for one year from the date of recording.

85. Except for emissions data, Defendant may also assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that Defendant seeks to protect as CBI, Defendant must follow the procedures set forth in 40 C.F.R. Part 2.

86. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of Defendant

to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

### XIII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

87. Entry of this Consent Decree resolves the civil claims of the United States for the violations alleged in the Complaint filed in this action and occurring through the Date of Lodging, and as provided below.

88. Resolution of Pre-Lodging Claims at the Flare for Failure to Comply with: (a) BTU/scf Flared Gas Requirements; (b) General Flare Requirements; (c) Good Air Pollution Control Practice Requirements; and (d) Requirements Related to Monitoring, Operation, and Maintenance According to Flare Design. With respect to emissions of VOCs and HAPs from the Flare, this Consent Decree resolves the civil claims of the United States against Defendant for violations of the following requirements from the date those claims accrued until the Date of Lodging:

(a) BTU/scf flared gas requirements in the following regulations:

(i) 40 C.F.R. § 63.11(b)(6)(ii), and

(ii) the provisions of 40 C.F.R. Part 63, Subpart FFFF (including those incorporated by reference) that require compliance with 40 C.F.R. § 63.11(b)(6)(ii) and are applicable requirements in a federally enforceable permit for the Facility as issued prior to the Date of Lodging;

(b) General flare requirements in the following regulations:

(i) 40 C.F.R. § 63.11(b)(3) (related to operation during emission venting),

(ii) 40 C.F.R. § 63.11(b)(4) (prohibition on Visible Emissions),

(iii) 40 C.F.R. § 63.11(b)(5) (related to flame presence), and

(iv) 40 C.F.R. § 63.11(b)(7) (related to exit velocity for steam-assisted flares);

(c) Good air pollution control practice requirements in 40 C.F.R. § 63.6(e)(1)(i); and

(d) Requirements related to monitoring, operation, and maintenance according to flare design in 40 C.F.R. § 63.11(b)(1).



89. Resolution of Claims Continuing Post-Lodging for Failure to Comply with Requirements Related to Monitoring, Operation, and Maintenance According to Flare Design for the Flare. With respect to emissions of VOCs and HAPs from the Flare, this Consent Decree resolves the civil claims of the United States against Defendant for post-lodging violations of the requirements related to monitoring, operation, and maintenance according to flare design, referenced in Paragraph 88(d), above, which occur before the Effective Date, but only to the extent that the claims are based on Defendant's use of excessive steam in relation to Vent Gas flow.

90. Resolution of Title V Violations. This Consent Decree resolves the civil claims of the United States against Defendant for the violations of Sections 502(a), 503(c), and 504(a) of the CAA, 42 U.S.C. §§ 7661a(a), 7661b(c), and 7661c(a), and of the Facility Title V permit, that are based upon the violations resolved by Paragraphs 88 and 89 for the time frames set forth in those Paragraphs.

91. Reservation of Rights – Resolution of Liability in Paragraph 89 Can be Rendered Void. Notwithstanding the resolution of liability in Paragraph 89, for the period of time between the Date of Lodging and the Effective Date, those resolutions of liability will be rendered void if Defendant materially fails to comply with any of the obligations and requirements of Sections V (Compliance Requirements) and Section VII (Emission Credit Generation). The resolutions of liability in Paragraph 89 will not be rendered void if Defendant, as expeditiously as practicable, remedies such material failure and pays all stipulated penalties due as a result of such material failure.

92. The United States reserves all legal and equitable remedies available to enforce the provisions of this Consent Decree. This Consent Decree will not be construed to limit the rights of the United States to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal or state laws, regulations, or permit conditions. Except as specified in Paragraphs 87-90, the United States further reserves all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, the Facility, whether related to the violations addressed in this Consent Decree or otherwise.

93. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, civil penalties, other appropriate relief relating to the Facility or Defendant's violations, Defendant may not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraphs 87-90.

94. This Consent Decree is not a permit, or a modification of any permit, under any federal, State, or local laws or regulations. Defendant is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits; and Defendant's compliance with this Consent Decree will be no defense to any

action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that Defendant's compliance with any aspect of this Consent Decree will result in compliance with provisions of the Act, 42 U.S.C. § 7401 *et seq.*, or with any other provisions of federal, State, or local laws, regulations, or permits.

95. This Consent Decree does not limit or affect the rights of Defendant or of the United States against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Defendant, except as otherwise provided by law.

96. This Consent Decree must not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

#### XIV. COSTS

97. The Parties must bear their own costs of this action, including attorneys' fees, except that the United States will be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Defendant.

#### XV. NOTICES

98. Unless otherwise specified in this Decree, whenever notifications, submissions, or communications are required by this Consent Decree, they must be made in writing and addressed as follows:

As to the United States

As to the Department of Justice

By email: [eescdcopy.enrd@usdoj.gov](mailto:eescdcopy.enrd@usdoj.gov)  
Re: DJ #90-5-2-1-11191

By mail: EES Case Management Unit  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
Re: DJ #90-5-2-1-11191

As to the U.S. Environmental Protection Agency

By email: [Buettner.robert@epa.gov](mailto:Buettner.robert@epa.gov)

By mail: U.S. Environmental Protection Agency, Region 2  
290 Broadway, Floor 21  
New York, New York 10007  
Attention: Robert Buettner, Chief, Air Compliance  
Branch

And

By email: [Villatora.liliana@epa.gov](mailto:Villatora.liliana@epa.gov)

By mail: U.S. Environmental Protection Agency, Region 2  
290 Broadway, Floor 16  
New York, New York 10007  
Attention: Liliana Villatora Esq., Chief, Air Branch

As to Defendant:

By email: [carl.howard@infineum.com](mailto:carl.howard@infineum.com)

By mail: Infineum USA L.P.  
1900 East Linden Avenue  
Linden, New Jersey 07036  
Attention: Carl D. Howard, General Counsel

99. Submission by U.S. mail or courier is required and will be sufficient to comply with the notice requirements of this Consent Decree; however, for the submission of technical information or data, Defendant must submit the data in electronic form (e.g., a disk or hard drive). The email addresses above are provided to allow for submission of additional electronic courtesy copies.

100. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

101. Notices submitted pursuant to this Section must be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

#### **XVI. EFFECTIVE DATE**

102. The Effective Date of this Consent Decree is the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket.



## **XVII. RETENTION OF JURISDICTION**

103. The Court will retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XI (Dispute Resolution) and XVIII (Modification), or effectuating or enforcing compliance with the terms of this Decree.

## **XVIII. MODIFICATION**

104. Except as otherwise set forth in Paragraphs 10 and 98 (notice recipients and addresses), the terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to this Decree, it will be effective only upon approval by the Court.

105. Any disputes concerning modification of this Decree must be resolved pursuant to Section XI (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 80, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

## **XIX. TERMINATION**

106. Before seeking termination of the Consent Decree, Defendant must:

- a. Pay the civil penalty and any accrued stipulated penalties required under this Consent Decree;
- b. Satisfactorily comply with all provisions of Section V (Compliance Requirements) applicable to the Facility;
- c. Operate for at least two years in satisfactory compliance with the limitations and standards set forth in Paragraphs 34 (NHV<sub>oz</sub> standard), and 35 (Title V permit compliance) for the Flare;
- d. Apply for and receive all non-Title V air permits necessary under Paragraph 39 to ensure that the Consent Decree limits and standards specified in Paragraph 40 survive termination of the Consent Decree; and
- e. Apply for a modification or amendment to the applicable Title V permit(s) under Paragraph 39 to incorporate the limits and standards in Paragraph 40 into the Title V permit(s) for the Facility.

107. After Defendant believes that it has satisfied the conditions for termination set forth in the preceding Paragraph, Defendant may submit a request for termination to the United States by certifying such compliance in accordance with the certification language in Paragraph

52. In the Request for Termination, Defendant must demonstrate that it has satisfied the conditions for termination set forth in the preceding Paragraph, as well as submit all necessary supporting documentation.

108. Following receipt by the United States of Defendant's Request for Termination, the Parties must confer informally concerning the Request and any disagreement that the Parties may have as to whether Defendant has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States agrees that the Decree may be terminated, the Parties must submit, for the Court's approval, a joint stipulation terminating the Decree.

109. If the United States does not agree that the Decree may be terminated, Defendant may invoke Dispute Resolution under Section XI. However, Defendant must not seek Dispute Resolution of any dispute regarding termination until ninety (90) Days after service of its Request for Termination.

## **XX. PUBLIC PARTICIPATION**

110. This Consent Decree must be lodged with the Court for a period of not less than thirty (30) Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Defendant consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of, this Consent Decree by the Court or to challenge any provision of the Consent Decree, unless the United States has notified Defendant in writing that it no longer supports entry of the Consent Decree.

## **XXI. SIGNATORIES/SERVICE**

111. Each undersigned representative of Defendant, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

112. This Consent Decree may be signed in counterparts, and its validity must not be challenged on that basis. Defendant agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

## **XXII. INTEGRATION**

113. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and

approved pursuant to this Decree, the Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

### **XXIII. FINAL JUDGMENT**

114. Upon approval and entry of this Consent Decree by the Court, this Consent Decree will constitute a final judgment of the Court as to the United States and Defendant.

### **XXIV. APPENDICES**

115. The following Appendices are attached to and part of this Consent Decree:

“Appendix 1.2: Methodology for Calculating  $NHV_{cz}$  for Flares and Flare Tip Velocity”

“Appendix 1.3: Methodology for Calculating the Unobstructed Cross Sectional Area of Various Types of Flare Tips”

“Appendix 1.4: Depiction of Gases Associated with Steam-Assisted Flares”

“Appendix 1.5: Outline of Requirements for the Flare Data and Initial Monitoring Systems Report”

“Appendix 1.6: List of Compounds a Gas Chromatograph Must be Capable of Speciating”

“Appendix 1.7: Waste Gas Mapping: Level of Detail Needed to Show Main Headers and Process Unit Headers”

“Appendix 2.1: Calibration and Quality Control Requirements for CPMS”

“Appendix 2.2: CPMS Monitoring Plan”

“Appendix 2.3: Calculation of Downtime”

“Appendix 2.4: Composition Data for Purchased Supplemental Gas Stream”



Dated and entered this \_\_\_\_\_ day of \_\_\_\_\_, 2019

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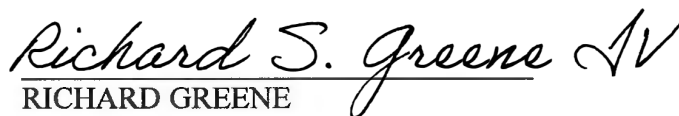
UNITED STATES DISTRICT JUDGE  
DISTRICT OF NEW JERSEY

FOR THE UNITED STATES OF AMERICA:



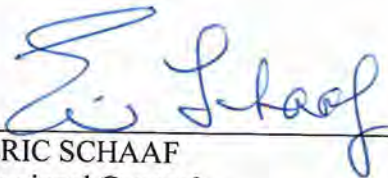
ELLEN M. MAHAN  
Deputy Section Chief  
United States Department of Justice  
Environment and Natural Resources Division  
Environmental Enforcement Section

5/10/2019  
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AGENCY:



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FOR INFINEUM USA L.P.:

  
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5/2/2019  
Date

*United States*  
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**APPENDICES TO CONSENT DECREE**

**APPENDIX 1.2**

**Net Heating Value of the Combustion Zone Gas ( $NHV_{cz}$ ) and Flare  
Tip Velocity**

**APPENDIX 1.2**

All abbreviations, constants, and variables are defined in the Key on Page 7 of this Appendix.

**Step 1: Determine the Net Heating Value of the Vent Gas (NHV<sub>vg</sub>)**

Infineum USA L.P. (Infineum) shall determine the Net Heating Value of the Vent Gas (NHV<sub>vg</sub>) based on composition monitoring data on a 15-minute block average basis according to the following requirements. If Infineum monitors separate gas streams that combine to comprise the total Vent Gas flow to the Flare, the 15-minute block average Net Heating Value shall be determined separately for each measurement location according to the following requirements and a flow-weighted average of the gas stream Net Heating Values shall be used to determine the 15-minute block average Net Heating Value of the cumulative Vent Gas. The NHV<sub>vg</sub> 15-minute block averages shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

**Step 1a: Equation or Output to be Used to Determine NHV<sub>vg</sub> at a Measurement Location**

**For any gas stream for which Infineum complies with Paragraph 17 of the Consent Decree by collecting compositional analysis data in accordance with the method set forth in Paragraph 17.a:** Equation 1 shall be used to determine the NHV<sub>vg</sub> of a specific sample by summing the Net Heating Value for each individual component by individual component volume fractions. Individual component Net Heating Values are listed in Table 1 of this Appendix.

$$NHV_{vg} = \sum_{i=1}^n (x_i \cdot NHV_i) \quad \text{Equation 1}$$

**For any gas stream for which Infineum complies with Paragraph 17 of the Consent Decree by collecting direct Net Heating Value monitoring data in accordance with the method set forth in Paragraph 17.b but for which a Hydrogen Concentration Monitor is not used:** Use the direct output (measured value) of the monitoring system(s) (in BTU/scf) to determine the NHV<sub>vg</sub> for the sample.

**For any gas stream for which Infineum complies with Paragraph 17 of the Consent Decree by collecting direct Net Heating Value monitoring data in accordance with the method set forth in Paragraph 17.b and for which a Hydrogen Concentration Monitor is also used, and for the purchased supplemental gas stream that Infineum demonstrates has a consistent composition (including a consistent hydrogen concentration) based on grab sampling data and in accordance with Paragraph 17.c:** Equation 2 shall be used to determine the NHV<sub>vg</sub> or NHV<sub>NG</sub> for each sample measured via the Net Heating Value monitoring system, or based on grab sampling, as applicable. Where hydrogen concentration data is collected as provided in Paragraph 17, Equation 2 performs a net correction for the measured heating value of hydrogen since the theoretical Net Heating Value for hydrogen is 274 Btu/scf, but for the purposes of this Consent Decree, a Net Heating Value of 1,212 Btu/scf may be used (1,212 – 274 = 938 BTU/scf).



**APPENDIX 1.2**

$$NHV_{vg} = NHV_{measured} + 938x_{H2} \quad \text{Equation 2}$$

**Step 1b: Calculation Method to be Used in Applying Equation/Output to Determine  $NHV_{vg}$** 

**Where Infineum complies with Paragraph 17 of the Consent Decree by using a continuous monitoring system for the Flare in accordance with the method set forth in Paragraph 17.a or 17.b:** Infineum may elect to determine the 15-minute block average  $NHV_{vg}$  using either the Feed-Forward Calculation Method or the Direct Calculation Method (both described below). Infineum must elect one calculation method that will apply at all times, and use that method for all continuously monitored flare vent streams associated with the Flare. If Infineum intends to change the calculation method that applies to the Flare, Infineum must notify the EPA 30 days in advance of such a change.

**Feed-Forward Calculation Method.** When calculating  $NHV_{vg}$  for a specific 15-minute block:

1. Use the results from the first sample collected during an event (for periodic Vent Gas flow events) for the first 15-minute block associated with that event.
2. If the results from the first sample collected during an event (for periodic Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the second 15-minute block associated with that event.
3. For all other cases, use the results that are available from the most recent sample prior to the 15-minute block period for that 15-minute block period for all Vent Gas streams. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:45 AM to 1:00 AM.

**Direct Calculation Method.** When calculating  $NHV_{vg}$  for a specific 15-minute block:

1. If the results from the first sample collected during an event (for periodic Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the first 15-minute block associated with that event.
2. For all other cases, use the arithmetic average of all  $NHV_{vg}$  measurement data results that become available during a 15-minute block to calculate the 15-minute block average for that period. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:30 AM to 12:45 AM.

**APPENDIX 1.2****Step 2: Determine Volumetric Flow Rates of Gas Streams**

Infineum shall determine the volumetric flow rate in standard cubic feet (scf) of Vent Gas, along with the volumetric flow rates (in scf) of any Supplemental Gas and Assist Steam, over a 15-minute block average basis. The 15-minute block average volumetric flow rates shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

**For any gas streams for which Infineum complies with Paragraph 14 of the Consent Decree by using a monitoring system that directly records volumetric flow rate:** Use the direct output (measured value) of the monitoring system(s) (in scf), as corrected for the temperature and pressure of the system to standard conditions (i.e., a temperature of 20 °C (68 °F) and a pressure of 1 atmosphere) to then calculate the average volumetric flow rate of that gas stream for the 15-minute block period.

**For Vent Gas or Assist Steam streams for which Infineum complies with Paragraph 14 of the Consent Decree by using a mass flow monitor to determine volumetric flow rate:**

Equation 3 shall be used to determine the volumetric flow rate of Vent Gas or Assist Steam by converting mass flow rate to volumetric flow at standard conditions (i.e., a temperature of 20 °C (68 °F) and a pressure of 1 atmosphere). Equation 3 uses the molecular weight of the gas stream as an input to the equation; therefore, if Infineum elects to use a mass flow monitor to determine volumetric flow rate of Vent Gas, Infineum must collect compositional analysis data for such Vent Gas in accordance with the method set forth in Paragraph 17.a of the Consent Decree. For assist steam, use a molecular weight of 18 pounds per pound-mole. The converted volumetric flow rates at standard conditions from Equation 3 shall then be used to calculate the average volumetric flow rate of that gas stream for the 15-minute block period.

$$Q_{vol} = \frac{Q_{mass} * 385.3}{MW_t} \quad \text{Equation 3}$$

**For gas streams for which the molecular weight of the gas is known and for which Infineum complies with Paragraph 14 of the Consent Decree by using continuous pressure/temperature monitoring system(s):** Use appropriate engineering calculations to determine the average volumetric flow rate of that gas stream for the 15-minute block period. For Assist Steam, use a molecular weight of 18 pounds per pound-mole. For Vent Gas, molecular weight must be determined by collecting compositional analysis data for such Vent Gas in accordance with the method set forth in Paragraph 17.a.

**Step 3: Calculate the Net Heating Value of the Combustion Zone Gas (NHV<sub>cz</sub>)**

**For the Flare, if: 1) the Feed-Forward Calculation Method is used; 2) gas composition or Net Heating Value monitoring is performed in a location representative of the cumulative Vent Gas stream; and 3) Supplemental Gas flow additions to the Flare are directly**

**APPENDIX 1.2**

**monitored:** Equation 4 shall be used to determine the 15-minute block average  $NHV_{cz}$  based on the 15-minute block average Vent Gas, Supplemental Gas, and assist gas flow rates.

$$NHV_{cz} = \frac{(Q_{vg} - Q_{NG2} + Q_{NG1}) * NHV_{vg} + (Q_{NG2} - Q_{NG1}) * NHV_{NG}}{Q_{vg} + Q_s} \quad \text{Equation 4}$$

For the first 15-minute block period of an event,  $Q_{NG1}$  shall use the volumetric flow value for the current 15-minute block period (i.e.  $Q_{NG1} = Q_{NG2}$ ).  $NHV_{NG}$  shall be determined in accordance with Paragraph 17 of the Consent Decree and Step 1a of this Appendix.

**For all other scenarios for the Flare:** Equation 5 shall be used to determine the 15-minute block average  $NHV_{cz}$  based on the 15-minute block average Vent Gas and assist gas flow rates. For periods when there is no Assist Steam flow,  $NHV_{cz} = NHV_{vg}$ .

$$NHV_{cz} = \frac{Q_{vg} * NHV_{vg}}{Q_{vg} + Q_s} \quad \text{Equation 5}$$

**Step 4: Ensure that during flare operation,  $NHV_{cz} \geq 270$  BTU/scf**

The Flare must be operated to ensure that  $NHV_{cz}$  is equal to or above 270 BTU/scf, as determined for each 15-minute block period when Waste Gas is routed to the Flare for at least 15-minutes. Equation 6 shows this relationship.

$$NHV_{cz} \geq 270 \text{ BTU/scf} \quad \text{Equation 6}$$

**Calculation Method for Determining Compliance with  $V_{tip}$  Operating Limits.**

Infineum shall determine  $V_{tip}$  on a 15-minute Block Average basis according to the following requirements:

(a) Infineum shall use design and engineering principles and the guidance in Appendix 1.3 to determine the Unobstructed Cross Sectional Area of the Flare Tip. The Unobstructed Cross Sectional Area of the Flare Tip is the total tip area that Vent Gas can pass through. This area does not include any stability tabs, stability rings, and Upper Steam or air tubes because Vent Gas does not exit through them.

(b) Infineum shall determine the cumulative volumetric flow of Vent Gas for each 15-minute Block Average Period using the data from the continuous flow monitoring system required in Paragraph 14 of the Consent Decree according to the requirements in Step 2 above.



**APPENDIX 1.2**

(c) The 15-minute Block Average  $V_{tip}$  shall be calculated using Equation 7.

$$V_{tip} = \frac{Q_{cum}}{Area \times 900} \quad \text{Equation 7}$$

(d) If Infineum chooses to comply with Paragraph 32.b of the Consent Decree, Defendant shall also determine the  $NHV_{vg}$  using Step 1 above and calculate  $V_{max}$  using Equation 8 in order to compare  $V_{tip}$  to  $V_{max}$  on a 15-minute Block Average basis.

$$\log_{10}(V_{max}) = \frac{NHV_{vg} + 1,212}{850} \quad \text{Equation 8}$$

APPENDIX 1.2**Key to the Abbreviations:**

385.3 = conversion factor (scf/lb-mol)

850 = Constant

900 = Conversion factor, (seconds / 15-minute block average)

1,212 = Constant

Area = The unobstructed cross sectional area of the flare tip is the total tip area that vent gas can pass through, ft<sup>2</sup>. This area does not include any stability tabs, stability rings, and upper steam or air tubes because flare vent gas does not exit through them. Use design and engineering principles to determine the unobstructed cross sectional area of the flare tip.

Diam = Effective diameter of the unobstructed area of the flare tip for flare vent gas flow, ft. Determine the diameter as

$$\text{Diam} = 2 * \sqrt{\text{Area} \div \pi}$$

i = individual component in Vent Gas (unitless)

MWt = molecular weight of the gas at the flow monitoring location (lb/lb-mol)

n = number of components in Vent Gas (unitless)

NHV<sub>cz</sub> = Net Heating Value of Combustion Zone Gas (BTU/scf)

NHV<sub>i</sub> = Net Heating Value of component i according to Table 1 of this Appendix (BTU/scf)

NHV<sub>measured</sub> = Net Heating Value of Vent Gas stream as measured by monitoring system (BTU/scf)

NHV<sub>NG</sub> = Net Heating Value of Supplemental Gas to flare during the 15 – minute block period (BTU/scf)

NHV<sub>vg</sub> = Net Heating Value of Vent Gas (BTU/scf)

Q<sub>cum</sub> = cumulative volumetric flow over 15-minute block average period (scf)

Q<sub>mass</sub> = massflow rate (pounds per second)

Q<sub>NG1</sub> = cumulative vol flow of Supplemental Gas to flare during previous 15 – minute block period (scf)

Q<sub>NG2</sub> = cumulative vol flow of Supplemental Gas to flare during the 15 – minute block period (scf)

Q<sub>s</sub> = cumulative vol flow of Total Steam during the 15 – minute block period (scf)

Q<sub>vg</sub> = cumulative vol flow of Vent Gas during the 15 – minute block period (scf)

Q<sub>vol</sub> = volumetric flow rate (scf per second)

V<sub>max</sub> = Maximum allowed flare tip velocity (feet per second)

V<sub>tip</sub> = Flare tip velocity (feet per second)

x<sub>i</sub> = concentration of component i in Vent Gas (vol fraction)

x<sub>H2</sub> = concentration of H2 in Vent Gas at time sample was input into NHV monitoring system (vol fraction)

**APPENDIX 1.2**

**Table 1**  
**Individual Component Properties**

Component	Molecular Formula	MW <sub>i</sub> (pounds per pound-mole)	CMN <sub>i</sub> (mole per mole)	NHV <sub>i</sub> (British thermal units per standard cubic foot)	LFL <sub>i</sub> (volume %)
Acetylene	C <sub>2</sub> H <sub>2</sub>	26.04	2	1,404	2.5
Benzene	C <sub>6</sub> H <sub>6</sub>	78.11	6	3,591	1.3
1,2-Butadiene	C <sub>4</sub> H <sub>6</sub>	54.09	4	2,794	2.0
1,3-Butadiene	C <sub>4</sub> H <sub>6</sub>	54.09	4	2,690	2.0
iso-Butane	C <sub>4</sub> H <sub>10</sub>	58.12	4	2,957	1.8
n-Butane	C <sub>4</sub> H <sub>10</sub>	58.12	4	2,968	1.8
cis-Butene	C <sub>4</sub> H <sub>8</sub>	56.11	4	2,830	1.6
iso-Butene	C <sub>4</sub> H <sub>8</sub>	56.11	4	2,928	1.8
trans-Butene	C <sub>4</sub> H <sub>8</sub>	56.11	4	2,826	1.7
Carbon Dioxide	CO <sub>2</sub>	44.01	1	0	∞
Carbon Monoxide	CO	28.01	1	316	12.5
Cyclopropane	C <sub>3</sub> H <sub>6</sub>	42.08	3	2,185	2.4
Ethane	C <sub>2</sub> H <sub>6</sub>	30.07	2	1,595	3.0
Ethylene	C <sub>2</sub> H <sub>4</sub>	28.05	2	1,477	2.7
Hydrogen	H <sub>2</sub>	2.02	0	1,212 <sup>A</sup>	4.0
Hydrogen Sulfide	H <sub>2</sub> S	34.08	0	587	4.0
Methane	CH <sub>4</sub>	16.04	1	896	5.0
Methyl-Acetylene	C <sub>3</sub> H <sub>4</sub>	40.06	3	2,088	1.7
Nitrogen	N <sub>2</sub>	28.01	0	0	∞
Oxygen	O <sub>2</sub>	32.00	0	0	∞
Pentane+ (C5+)	C <sub>5</sub> H <sub>12</sub>	72.15	5	3,655	1.4
Propadiene	C <sub>3</sub> H <sub>4</sub>	40.06	3	2,066	2.16
Propane	C <sub>3</sub> H <sub>8</sub>	44.10	3	2,281	2.1
Propylene	C <sub>3</sub> H <sub>6</sub>	42.08	3	2,150	2.4
Water	H <sub>2</sub> O	18.02	0	0	∞

<sup>A</sup> The theoretical Net Heating Value for hydrogen is 274 Btu/scf, but for the purposes of this Consent Decree, a Net Heating Value of 1,212 Btu/scf shall be used in accordance with the provisions in Paragraph 17 of the Consent Decree and in this Appendix.

Note: If a component is not specified in this Table 1, the heats of combustion may be determined using any published values where the net enthalpy per mole of offgas is based on combustion at 25 °C and 1 atmosphere (or constant pressure) with offgas water in the gaseous state, but the standard temperature for determining the volume corresponding to one mole of vent gas is 20 °C.

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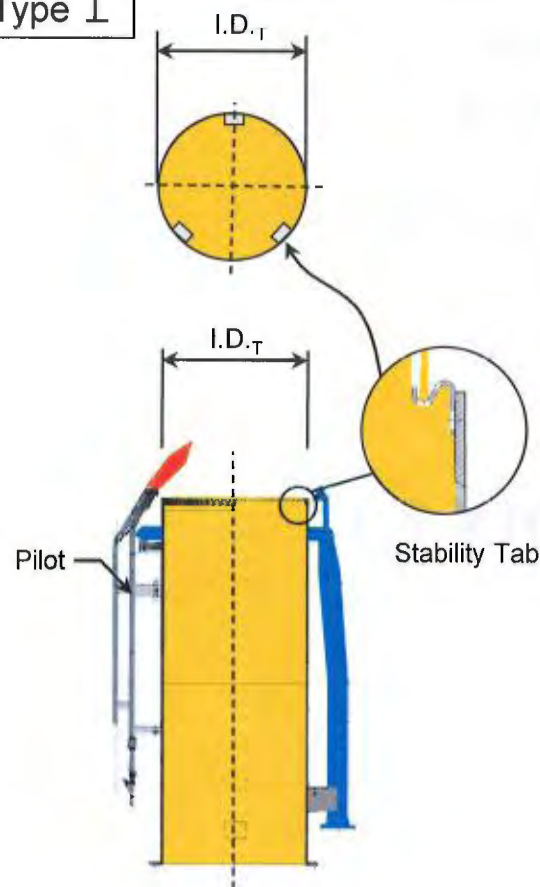
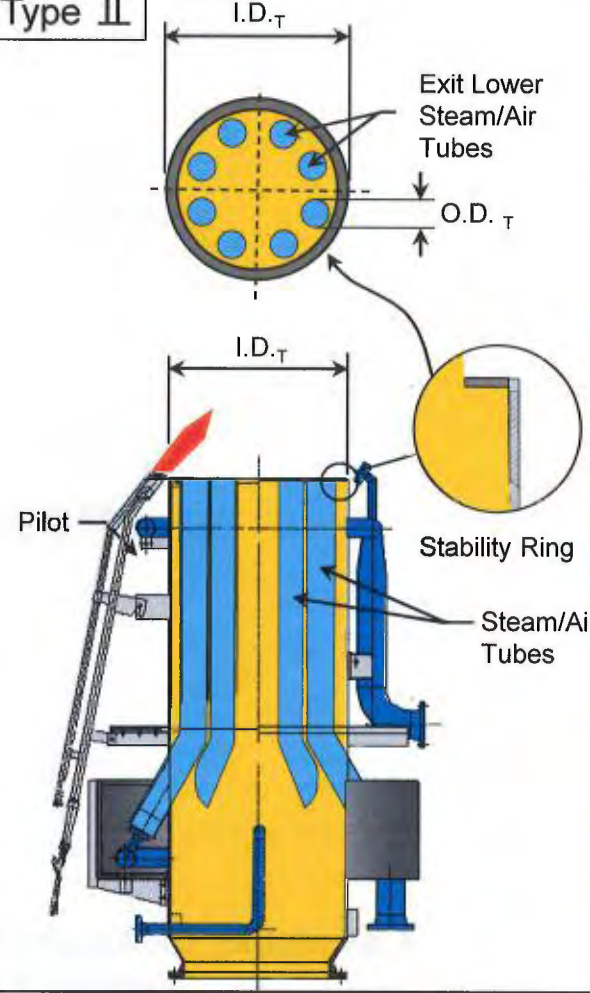
**APPENDICES TO CONSENT DECREE**

**APPENDIX 1.3**

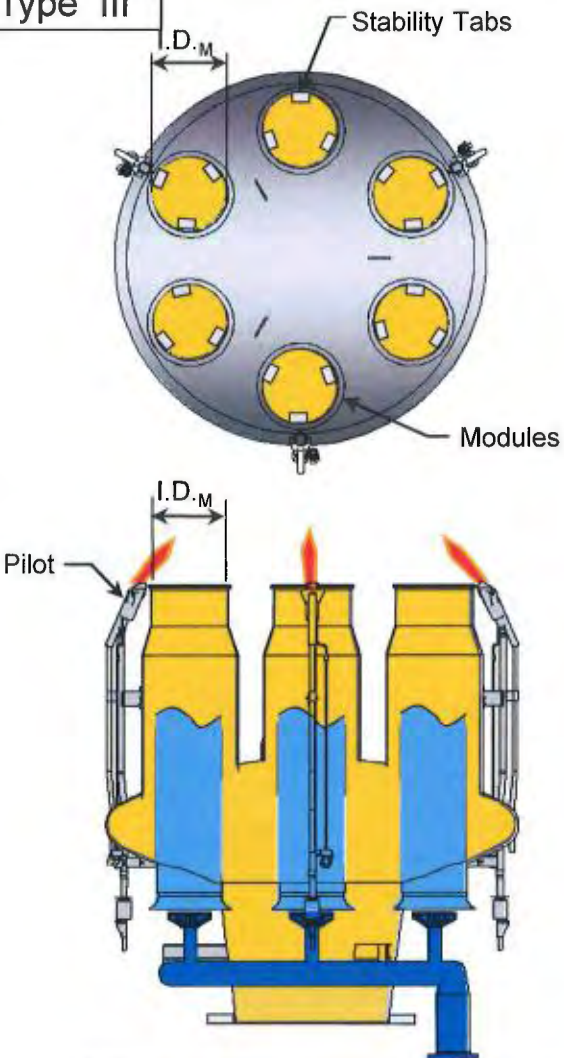
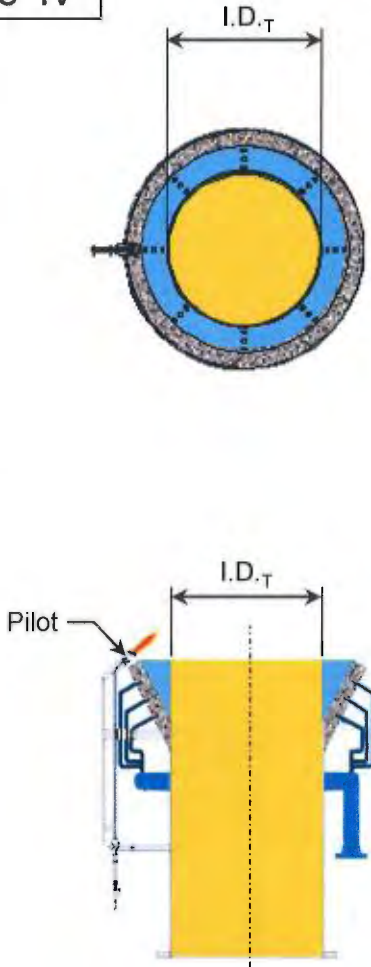
**Calculating the Unobstructed Cross Sectional Area of  
Various Types of Flare Tips**



APPENDIX 1.3

<p><b>Type I</b></p>  <p style="text-align: center;"><math>A_{tip-unob} = \pi(I.D.T)^2/4 - (X_T * A_{ST})</math></p>	<p><b>Type II</b></p>  <p style="text-align: center;"><math>A_{tip-unob} = \pi(I.D.T)^2/4 - A_{ST} - N_T * \pi * (O.D.T)^2/4</math></p>
<p><b>Where:</b></p> <ul style="list-style-type: none"> <li><math>A_{tip-unob}</math> = Unobstructed Cross Sectional Area of Flare Tip</li> <li><math>I.D.T</math> = Inside Diameter Flare Tip</li> <li><math>X_T</math> = Number of Stability Tabs</li> <li><math>A_{ST}</math> = Area of a Stability Tab</li> </ul>	<p><b>Where:</b></p> <ul style="list-style-type: none"> <li><math>A_{tip-unob}</math> = Unobstructed Cross Sectional Area of Flare Tip</li> <li><math>I.D.T</math> = Inside Diameter Flare Tip</li> <li><math>A_{ST}</math> = Area of Stability Ring</li> <li><math>O.D.T</math> = Outside Diameter of Steam/Air Tubes</li> <li><math>N_T</math> = Number of Steam/Air Tubes</li> </ul>
<p><b>Example:</b></p> <ul style="list-style-type: none"> <li><math>I.D.T</math> = 41.5 inches</li> <li><math>X_T</math> = 3</li> <li><math>A_{ST}</math> = 3 Sq. inches</li> </ul>	<p><b>Example:</b></p> <ul style="list-style-type: none"> <li><math>I.D.T</math> = 47.5 inches</li> <li><math>A_{ST}</math> = 100 Sq. inches</li> <li><math>O.D.T</math> = 6.5 inches</li> <li><math>N_T</math> = 8</li> </ul>
<p><math>A_{tip-unob} = \pi(41.5)^2/4 - (3 * 3)</math>  <math>A_{tip-unob} = 1344</math> Sq. inches</p>	<p><math>A_{tip-unob} = \pi(47.5)^2/4 - 100 - 8 * \pi * (6.5)^2/4</math>  <math>A_{tip-unob} = 1322</math> Sq. inches</p>

APPENDIX 1.3

<div data-bbox="207 226 349 275" style="border: 1px solid black; padding: 2px;">Type III</div>  <div data-bbox="305 1312 803 1367" style="border: 1px solid black; padding: 5px;"> <math display="block">A_{tip-unob} = N_M * (\pi * (I.D._M)^2 / 4 - X_T * A_{ST})</math> </div>	<div data-bbox="906 237 1047 285" style="border: 1px solid black; padding: 2px;">Type IV</div>  <div data-bbox="1068 1312 1339 1367" style="border: 1px solid black; padding: 5px;"> <math display="block">A_{tip-unob} = \pi (I.D._T)^2 / 4</math> </div>
<p><b>Where:</b> <math>A_{tip-unob}</math> = Unobstructed Cross Sectional Area of Flare Tip  <math>I.D._M</math> = Inside Diameter of One Tip Module  <math>N_M</math> = Number of Modules  <math>X_T</math> = Number of Stability Tabs per Module  <math>A_{ST}</math> = Area of a Stability Tab</p>	<p><b>Where:</b> <math>A_{tip-unob}</math> = Unobstructed Cross Sectional Area of Flare Tip  <math>I.D._T</math> = Inside Diameter of Flare Tip</p>
<p><b>Example:</b> <math>I.D._M = 17</math> inches  <math>N_M = 6</math>      <math>X_T = 3</math>  <math>A_{ST} = 3</math> Sq. inches</p>	<p><b>Example:</b> <math>I.D._T = 41.5</math> inches</p>
<p><math>A_{tip-unob} = 6 * (\pi * (17)^2 / 4 - 3 * 3)</math>  <math>A_{tip-unob} = 1308</math> Sq. inches</p>	<p><math>A_{tip-unob} = \pi (41.5)^2 / 4</math>  <math>A_{tip-unob} = 1353</math> Sq. inches</p>



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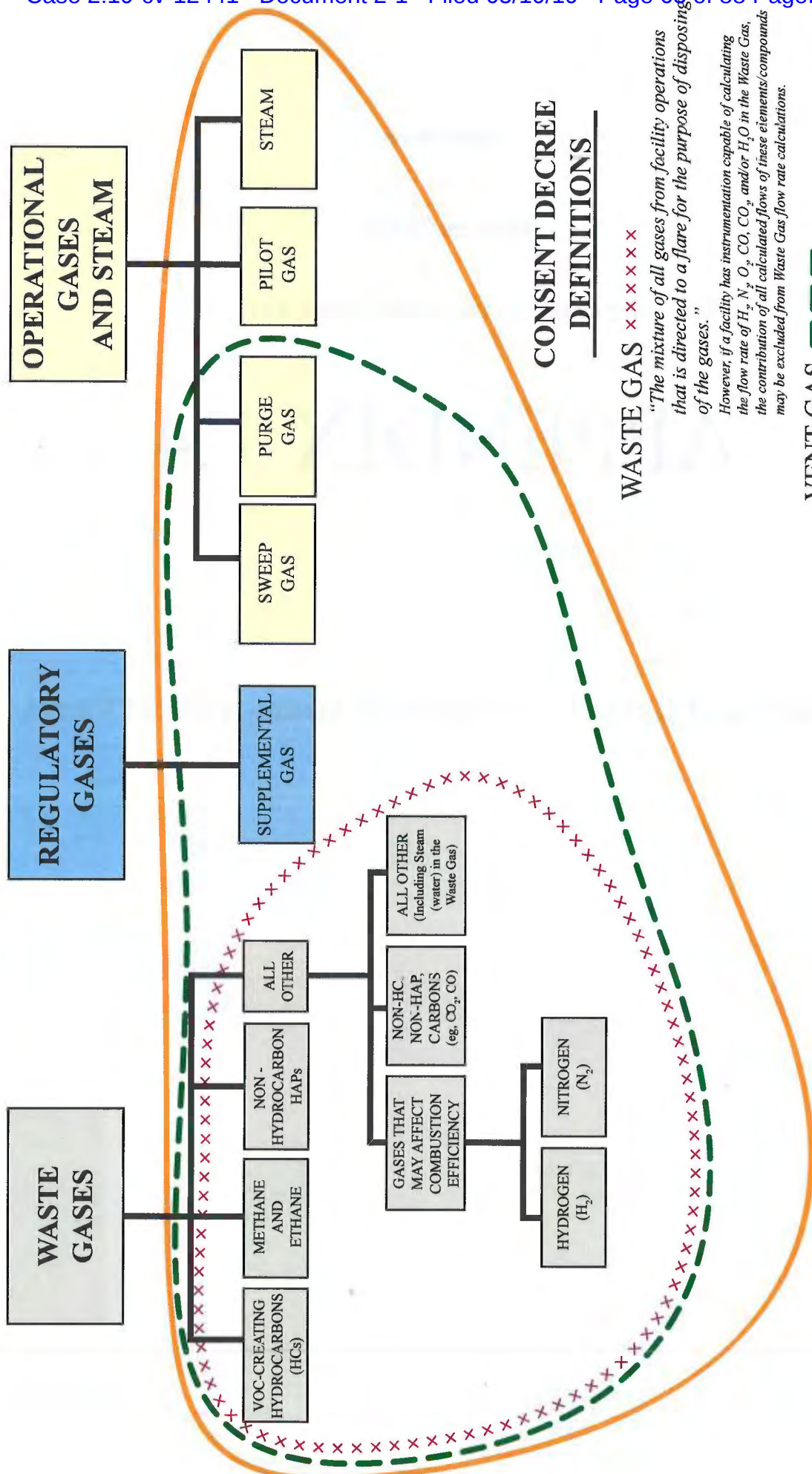
APPENDICES TO CONSENT DECREE

# APPENDIX 1.4

**Depiction of Gases Associated with Steam-Assisted Flares**



# DEPICTION OF GASES ASSOCIATED WITH STEAM-ASSISTED FLARES



## CONSENT DECREE DEFINITIONS

### WASTE GAS x x x x x x x

"The mixture of all gases from facility operations that is directed to a flare for the purpose of disposing of the gases."

However, if a facility has instrumentation capable of calculating the flow rate of H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>, and/or H<sub>2</sub>O in the Waste Gas, the contribution of all calculated flows of these elements/compounds may be excluded from Waste Gas flow rate calculations.

### VENT GAS - - - - -

"The mixture of all gases found prior to the flare tip. This includes all Waste Gas, Supplemental Gas, Sweep Gas, and Purge Gas."

### COMBUSTION ZONE GAS

"The mixture of all gases and steam found just after the flare tip. This includes all Vent Gas, Pilot Gas, and Total Steam."

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**APPENDICES TO CONSENT DECREE**

**APPENDIX 1.5**

**Outline of Requirements for the Flare Data and Initial Monitoring  
Systems Report**

## APPENDIX 1.5

### OUTLINE OF REQUIREMENTS FOR THE FLARE DATA AND INITIAL MONITORING SYSTEMS REPORT

1. Facility-Wide
  - 1.1 Facility plot plan showing the location of each Flare in relation to the general plant layout
2. General Description of Flare
  - 2.1 Ground or elevated
  - 2.2 Type of assist system
  - 2.3 Simple or integrated (*e.g.*, sequential, staged)
  - 2.4 Date first installed
  - 2.5 History of any physical changes to the Flare
  - 2.6 Whether the Flare is a Temporary-Use Flare, and if so, the duration and time periods of use
  - 2.7 Flare Gas Recovery System (“FGRS”), if any, and date first installed
3. Flare Components: Complete description of each major component of the Flare, except any Flare Gas Recovery System (*see* Part 5), including but not limited to:
  - 3.1 Flare stack (for elevated flares)
  - 3.2 Flare tip
    - 3.1.2.1 Date installed
    - 3.1.2.2 Manufacturer
    - 3.1.2.3 Tip Size
    - 3.1.2.4 Tip Drawing
    - 3.1.2.5 Smokeless Design Capacity
  - 3.3 Knockout or surge drum(s) or pot(s), including dimensions and design capacities
  - 3.4 Water seal(s), including dimensions and design parameters
  - 3.5 Flare header(s)
  - 3.6 Sweep Gas system
  - 3.7 Purge gas system
  - 3.8 Pilot gas system
  - 3.9 Supplemental gas system
  - 3.10 Assist system
  - 3.11 Ignition system
4. Simplified process diagram(s) showing the configuration of the components listed in Paragraph 3

## APPENDIX 1.5

5. Existing Flare Gas Recovery System (“FGRS”)
  - 5.1 Complete description of each major component, including but not limited to:
    - 5.1.1 Compressor(s), including design capacities
    - 5.1.2 Water seal(s), rupture disk, or similar device to divert the flow
  - 5.2 Maximum actual past flow on an scfm basis and the annual average flow in scfm for the five years preceding Date of Lodging
  - 5.3 Simplified schematic showing the FGRS
  - 5.4 Process Flow Diagram that adds the FGRS to the PDF(s) in Part 4
  
6. Flare Design Parameters
  - 6.1 Maximum Vent Gas Flow Rate and/or Mass Rate
  - 6.2 Maximum Sweep Gas Flow Rate and/or Mass Rate
  - 6.3 Maximum Purge Gas Flow and/or Mass Rate, if applicable
  - 6.4 Maximum Pilot Gas Flow and/or Mass Rate
  - 6.5 Maximum Supplemental Gas Flow Rate and/or Mass Rate
  - 6.6 If steam-assisted, Minimum Total Steam Rate, including all available information on how that Rate was derived
  
7. Gases Venting to Flare
  - 7.1. Sweep Gas
    - 7.1.1 Type of gas used
    - 7.1.2 Actual set operating flow rate (in scfm)
    - 7.1.3 Average lower heating value expected for each type of gas used
  - 7.2 Purge Gas, if applicable
    - 7.2.1 Type of gas used
    - 7.2.2 Actual set operating flow rate (in scfm)
    - 7.2.3 Average lower heating value expected for each type of gas used
  - 7.3 Pilot Gas
    - 7.3.1 Type of gas used
    - 7.3.2 Actual set operating flow rate (in scfm)
    - 7.3.3 Average lower heating value expected for each type of gas used
  - 7.4 Supplemental Gas
    - 7.4.1 Type of gas used
    - 7.4.2 Average lower heating value expected for each type of gas used
  - 7.5 Steam (if applicable)
    - 7.5.1 Drawing showing points of introduction of Lower, Center, Upper, and any other steam
  - 7.6 Simplified flow diagram that depicts the points of introduction of all gases, including Waste Gases, at the Flare (in this diagram, the detailed drawings of 7.5.1 may be simplified; in addition, detailed Waste Gas mapping is not required; a simple identification of the header(s) that carries(y) the Waste Gas to the Flare



**APPENDIX 1.5**

and show(s) its(their) location in relation to the location of the introduction of the other gases is all that is required)

8. Existing Monitoring Systems

8.1 A brief narrative description, including manufacturer and date of installation, of all existing monitoring systems, including but not limited to:

- 8.1.1 Waste Gas and/or Vent Gas flow monitoring
- 8.1.2 Waste Gas and/or Vent Gas heat content analyzer
- 8.1.3 Sweep Gas flow monitoring
- 8.1.4 Purge Gas flow monitoring
- 8.1.5 Supplemental Gas flow monitoring
- 8.1.6 Steam flow monitoring
- 8.1.7 Waste Gas or Vent Gas molecular weight analyzer
- 8.1.8 Gas Chromatograph
- 8.1.9 Sulfur analyzer(s)
- 8.1.10 Video camera
- 8.1.11 Thermocouple

8.2 Drawing(s) showing locations of all existing monitoring systems

9. Monitoring Equipment to be Installed to Comply with Consent Decree

10. Narrative Description of the Monitoring Methods and Calculations that will be used to comply with the NHV<sub>CZ</sub> Requirements in the Consent Decree

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**APPENDICES TO CONSENT DECREE**

**APPENDIX 1.6**

**List of Compounds Gas Chromatographs  
Must be Capable of Speciating**

## APPENDIX 1.6

### LIST OF COMPOUNDS GAS CHROMATOGRAPHS MUST BE CAPABLE OF SPECIATING

Gas Chromatographs used to comply with this Consent Decree must be capable of speciating the Vent Gas into the following:

1. Hydrogen
2. Nitrogen
3. Carbon Dioxide
4. Methane
5. Ethane
6. Ethene (aka: Ethylene)
7. Propane
8. Propene (aka: Propylene)
9. 2-Methylpropane (aka: iso-Butane)
10. Butane (aka: n-Butane)
11. But-1-ene (aka: butene, alpha-butylene) and 2-methylpropene (aka: iso-butylene, iso-butene) (these two constituents will be measured on the same column and the reported result will be one value: the sum of the two constituents)
12. E-but-2-ene (aka: beta-butylene, trans-butene)
13. Z-but-2-ene (aka: beta-butylene, cis-butene)
14. 1,3 butadiene
15. Pentane plus (aka: C<sub>5</sub> plus) (*i.e.*, all HCs with five Cs or more)

Outputs from all Gas Chromatographs shall be on a mole percent basis.

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**APPENDIX 1.7**

**Waste Gas Mapping: Level of Detail Needed to Show Main Headers  
and Process Unit Headers**



## APPENDIX 1.7

### WASTE GAS MAPPING: LEVEL OF DETAIL NEEDED TO SHOW MAIN HEADERS AND PROCESS UNIT HEADERS

#### **Purpose:**

Waste Gas Mapping is required in order to identify the source(s) of waste gas entering each Covered Flare. Waste Gas Mapping can be done using instrumentation, isotopic tracing, acoustic monitoring, and/or engineering estimates for all sources entering a flare header (e.g. pump seal purges, sample station purges, compressor seal nitrogen purges, relief valve leakage, and other sources under normal operations). This Appendix outlines what needs to be included as the Waste Gas Mapping section within the Initial Waste Gas Minimization Plan ("Initial WGMP") and, as needed, later updated.

#### **Waste Gas Mapping Criteria:**

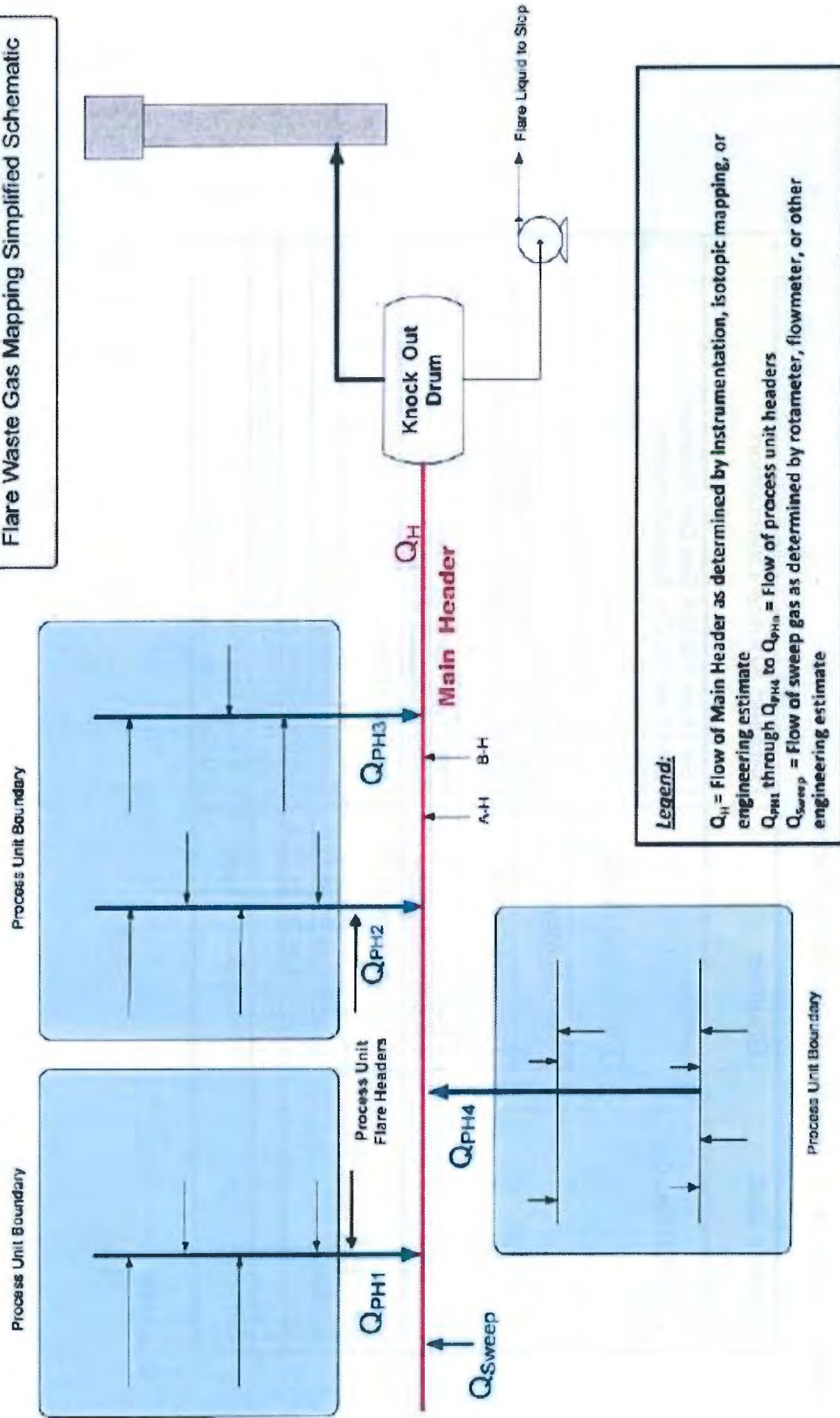
For purposes of waste gas mapping, a main header is defined as the last pipe segment prior to the flare knock out drum. Process unit headers are defined as pipes from inside the battery limits of each process unit that connect to the main header. For process unit headers that are greater than or equal to six (6) inches in diameter, flow ("Q") must be identified and quantified if it is technically feasible to do so. In addition, all sources feeding each process unit header must be identified and listed in a table, but not necessarily individually quantified. For process unit headers that are less than six (6) inches in diameter, sources must be identified, but they do not need to be quantified.

#### **Waste Gas Mapping Submission Requirements:**

For each Covered Flare, the following shall be included within the Waste Gas Mapping section of the Initial WGMP:

1. A simplified schematic consistent with the example schematic included on the second page of this Appendix.
2. A table of all sources connected to each flare main header and process unit header consistent with the Table included on the third page of this Appendix.

Flare Waste Gas Mapping Simplified Schematic



**Legend:**  
 $Q_H$  = Flow of Main Header as determined by instrumentation, isotopic mapping, or engineering estimate  
 $Q_{PH1}$  through  $Q_{PH4}$  = Flow of process unit headers  
 $Q_{Sweep}$  = Flow of sweep gas as determined by rotameter, flowmeter, or other engineering estimate

Table 1: Example of Flare Source Description Table

Process Unit Header	Sources	Detailed Source Description
Q <sub>PH1</sub> (Ex: FCCU Gas Con Unit)	3 PSVs	PSV-14 on 110-D-5 Gas Con Absorber PSV-12 on 110-D-1 Amine Scrubber PSV-7 on 110-F-1 Batch Caustic Vessel
	2 Pump Seal Purges	110-G-1 LPG Pump 110-G-2 Rich Amine Pump
	1 Sample Station	110-S-1 LPG
	1 PSV	PSV 17 on 112-D-1 Main Column
	1 Pressure Control Valve	PCV 21 – Emergency Wet Gas Compressor
	1 PSV	PSV-21 on Flush Oil Drum
	1 Pump Seal Purge	110-G-23 Slurry Oil Pump
	Cccontinue same as PH1	Continue same as PH1
	Cccontinue same as PH1	Continue same as PH1
	Cccontinue same as PH1	Continue same as PH1
A-H	1 PSVs	PSV-17 on 109-E-42 Slurry Heat Exchanger
B-H	2 Pump Seal Purges	110-G-3 Gas Oil Feed 110-G-4 Main Column Reflux

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**APPENDICES TO CONSENT DECREE**

**APPENDIX 2.1**

**Calibration and Quality Control Requirements for CPMS**



**APPENDIX 2.1****CALIBRATION AND QUALITY CONTROL REQUIREMENTS FOR CPMS**

<b>Parameter</b>	<b>Minimum Accuracy Requirements</b>	<b>Calibration Requirements</b>
Temperature	±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater	Conduct calibration checks at least annually; conduct calibration checks following any period of more than 24 hours throughout which the temperature exceeded the manufacturer's specified maximum rated temperature or install a new temperature sensor.
		At least quarterly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion, unless the CPMS has a redundant temperature sensor.
		Record the results of each calibration check and inspection.
		Locate the temperature sensor in a position that provides a representative temperature; shield the temperature sensor system from electromagnetic interference and chemical contaminants.
Flow Rate for All Flows Other Than Flare Vent Gas	±5 percent over the normal range of flow measured or 1.9 liters per minute (0.5 gallons per minute), whichever is greater, for liquid flow	Conduct a flow sensor calibration check at least biennially (every two years); conduct a calibration check following any period of more than 24 hours throughout which the flow rate exceeded the manufacturer's specified maximum rated flow rate or install a new flow sensor.
	±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute), whichever is greater, for gas flow	At least quarterly, inspect all components for leakage, unless the CPMS has a redundant flow sensor.
	±5 percent over the normal range measured for mass flow	Record the results of each calibration check and inspection. Locate the flow sensor(s) and other necessary equipment (such as straightening vanes) in a position that provides representative flow; reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.
Flare Vent Gas Flow Rate	±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second)	Conduct a flow sensor calibration check at least biennially (every two years); conduct a calibration check following any period of more than 24 hours throughout which the flow rate exceeded the manufacturer's specified maximum rated flow rate or install a new flow sensor.
	±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second)	At least quarterly, inspect all components for leakage, unless the CPMS has a redundant flow sensor.
		Record the results of each calibration check and inspection.
		Locate the flow sensor(s) and other necessary equipment (such as straightening vanes) in a position that provides representative flow; reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

**APPENDIX 2.1**

<u>Parameter</u>	<u>Minimum Accuracy Requirements</u>	<u>Calibration Requirements</u>
Pressure	±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater	Review pressure sensor readings at least once a week for straightline (unchanging) pressure and perform corrective action to ensure proper pressure sensor operation if blockage is indicated.
		Using an instrument recommended by the sensor's manufacturer, check gauge calibration and transducer calibration annually; conduct calibration checks following any period of more than 24 hours throughout which the pressure exceeded the manufacturer's specified maximum rated pressure or install a new pressure sensor.
		At least quarterly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage, unless the CPMS has a redundant pressure sensor.
		Record the results of each calibration check and inspection.
		Locate the pressure sensor(s) in a position that provides a representative measurement of the pressure and minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.
Net Heating Value by Calorimeter	±2 percent of span	Specify calibration requirements in your site specific CPMS monitoring plan. Calibration requirements should follow manufacturer's recommendations at a minimum.
		Temperature control (heated and/or cooled as necessary) the sampling system to ensure proper year-round operation.
		Where feasible, select a sampling location at least two equivalent diameters downstream from and 0.5 equivalent diameters upstream from the nearest disturbance. Select the sampling location at least two equivalent duct diameters from the nearest control device, point of pollutant generation, air in-leakages, or other point at which a change in the pollutant concentration or emission rate occurs.
Net Heating Value by Gas Chromatograph	As specified in Performance Specification 9 of 40 CFR part 60, appendix B	Follow the procedure in Performance Specification 9 of 40 CFR part 60, appendix B, except that a single daily mid-level calibration check can be used (rather than triplicate analysis), the multi-point calibration can be conducted quarterly (rather than monthly), and the sampling line temperature must be maintained at a minimum temperature of 60 °C (rather than 120 °C).
Hydrogen analyzer	±2 percent over the concentration measured or 0.1 volume percent, whichever is greater	Specify calibration requirements in your site specific CPMS monitoring plan. Calibration requirements should follow manufacturer's recommendations at a minimum.
		Select the sampling location at least two equivalent duct diameters from the nearest control device, point of pollutant generation, air in-leakages, or other point at which a change in the pollutant concentration occurs.

APPENDIX 21

Description of the Work Product	Exhibits	Page(s)
<p>The following information was obtained from the records maintained by the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs. The information was obtained from the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs. The information was obtained from the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs.</p>	<p>Exhibits 1 through 10</p>	<p>Pages 1 through 10</p>
<p>The following information was obtained from the records maintained by the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs. The information was obtained from the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs. The information was obtained from the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs.</p>	<p>Exhibits 11 through 20</p>	<p>Pages 11 through 20</p>
<p>The following information was obtained from the records maintained by the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs. The information was obtained from the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs. The information was obtained from the defendant's computer system, including but not limited to, the defendant's email system, and the defendant's internal network logs.</p>	<p>Exhibits 21 through 30</p>	<p>Pages 21 through 30</p>

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**APPENDICES TO CONSENT DECREE**

**APPENDIX 2.2**

**Requirements for CPMS Monitoring Plan**



## APPENDIX 2.2

### CPMS MONITORING PLAN

**(1) CPMS monitoring plan.**

Infineum shall have the CPMS monitoring plan readily available on-site at all times and shall submit a copy of the CPMS monitoring plan to the EPA upon request. The CPMS monitoring plan must contain the information listed below in paragraphs (1)(a) through (e) of this Appendix.

**(1)(a)**

Identification of the specific flare being monitored and the flare type (air-assisted only, steam-assisted only, air- and steam-assisted, pressure-assisted, or non-assisted).

**(1)(b)**

Identification of the parameter to be monitored by the CPMS and the expected parameter range, including worst case and normal operation.

**(1)(c)**

Description of the monitoring equipment, including the information specified in paragraphs (1)(c)(i) through (vii) of this section.

**(1)(c)(i)**

Manufacturer and model number for all monitoring equipment components installed to comply with applicable provisions in the Consent Decree.

**(1)(c)(ii)**

Performance specifications, as provided by the manufacturer, and any differences expected for this installation and operation.

**(1)(c)(iii)**

The location of the CPMS sampling probe or other interface and a justification of how the location meets the requirements for flare monitoring systems, including the minimum accuracy, calibration and quality control requirements specified in Appendix 2.1 of the Consent Decree.

**(1)(c)(iv)**

Placement of the CPMS readout, or other indication of parameter values, indicating how the location meets the requirements for flare monitoring systems, including the requirement to ensure that the readout (that portion of the CPMS that provides a visual display or record) or other indication of the monitored operating parameter from any CPMS required for compliance is readily accessible onsite for operational control or inspection by the operator of the source.

**(1)(c)(v)**

Span of the CPMS. The span of the CPMS sensor and analyzer must encompass the full range of all expected values.

**(1)(c)(vi)**

How data outside of the span of the CPMS will be handled and the corrective action that will be taken to reduce and eliminate such occurrences in the future.

**APPENDIX 2.2**

**(1)(c)(vii)**

Identification of the parameter detected by the parametric signal analyzer and the algorithm used to convert these values into the operating parameter monitored to demonstrate compliance, if the parameter detected is different from the operating parameter monitored.

**(1)(d)**

Description of the data collection and reduction systems, including the information specified in paragraphs (1)(d)(i) through (ii) of this section.

**(1)(d)(i)**

A copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard and to calculate the applicable averages.

**(1)(d)(ii)**

Identification of whether the algorithm excludes data collected during CPMS breakdowns, out-of-control periods, repairs, maintenance periods, instrument adjustments or checks to maintain precision and accuracy, calibration checks, and zero (low-level), mid-level (if applicable) and high-level adjustments.

**(1)(e)**

Routine quality control and assurance procedures, including descriptions of the procedures listed in paragraphs (1)(e)(i) through (vi) of this section and a schedule for conducting these procedures. The routine procedures must provide an assessment of CPMS performance.

**(1)(e)(i)**

Initial and subsequent calibration of the CPMS and acceptance criteria.

**(1)(e)(ii)**

Determination and adjustment of the calibration drift of the CPMS.

**(1)(e)(iii)**

Daily checks for indications that the system is responding. If the CPMS system includes an internal system check, the owner or operator may use the results to verify the system is responding, as long as the system provides an alarm to the owner or operator or the owner or operator checks the internal system results daily for proper operation and the results are recorded.

**(1)(e)(iv)**

Preventive maintenance of the CPMS, including spare parts inventory.

**(1)(e)(v)**

Data recording, calculations and reporting.

**(1)(e)(vi)**

Program of corrective action for a CPMS that is not operating properly.

ALTERNATIVE DISPUTE RESOLUTION

(1)(a) Identification of the parties to the dispute, including the names and addresses of the parties, and the nature of the dispute, including the facts and circumstances giving rise to the dispute.

(1)(b) The description of the data collection and retention practices, including the types of data collected, the sources of the data, and the methods of collection and retention.

(1)(c) A description of the data processing, storage, and transmission practices, including the types of processing, storage, and transmission methods used, and the security measures in place to protect the data.

(1)(d) Identification of whether the algorithm or other tool collected during the course of the investigation, or any other period, maintenance, or other activity, includes or is designed to include, or is used to maintain, precision and accuracy, efficiency, checks, and (low-level) individual (i) applicable and high-level adjustments.

(1)(e) Routine quality control and assurance procedures, including descriptions of the data sets listed in paragraphs (1)(b) through (1)(d) of this section and a schedule for conducting these procedures. The routine procedures shall provide an assessment of the data's performance.

(1)(f) Initial and ongoing training, education, and certification of the personnel who are responsible for the collection, processing, storage, and transmission of the data.

(1)(g) Determination and adjustment of the appropriate level of data collection, processing, storage, and transmission.

(1)(h) Initial and ongoing training, education, and certification of the personnel who are responsible for the collection, processing, storage, and transmission of the data, including the types of training, education, and certification methods used, and the frequency of such training, education, and certification.

(1)(i) A description of the data processing, storage, and transmission practices, including the types of processing, storage, and transmission methods used, and the security measures in place to protect the data.

(1)(j) A description of the data processing, storage, and transmission practices, including the types of processing, storage, and transmission methods used, and the security measures in place to protect the data.

(1)(k) A description of the data processing, storage, and transmission practices, including the types of processing, storage, and transmission methods used, and the security measures in place to protect the data.

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**APPENDICES TO CONSENT DECREE**

**APPENDIX 2.3**

**CPMS Downtime Calculation**



## **APPENDIX 2.3**

### **CPMS Downtime Calculation**

- (A) To determine valid data capture for the 15-minute blocks within a Calendar Quarter, Infineum is required to have one (1) reading per 15-minute block that the Flare is In Operation.
- a. If there is at least one (1) valid reading within the 15-minute block, no downtime is attributed to that 15-minute block.
  - b. If the Flare is not In Operation, no downtime is attributed to that 15-minute block.
- (B) If a calibration error check is failed during any operating hour, all data for that hour shall be invalidated, unless a subsequent calibration error test is passed in the same hour.
- (C) Downtime includes those periods where the CPMS are not providing compliance parameter data while the Flare is In Operation for the entire 15-minute block. It also includes periods of Quality Assurance (QA) and Preventive Maintenance (PM) procedures and CPMS calibration if during the entire 15-minute block while the Flare In Operation.
- (D) Downtime includes periods when CPMS is out-of-control for the entire 15-minute block while the Flare is In Operation.
- (E) Allowed downtime is no more than 110 hours (i.e., 440 15-minute blocks) per Calendar Quarter.

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**APPENDIX 2.4**

**Composition Data for Purchased Supplemental Gas Stream**

APPENDIX 24

Exhibit 24 for the record Supplemental Case 2:19-cv-12441

	BTU/SCF SWEET GAS BTU CONTENT	SG SWEET GAS SPEC GRAVITY	MOL % HYDROGEN	MOL % CARBON DIOXIDE	MOL % NITROGEN	MOL % OXYGEN
4/1/18	919.1479	0.5830	0.7000	0.1000	0.3000	0.0000
4/2/18	907.6411	0.5746	14.8657	0.0292	5.7538	0.0708
4/3/18	896.2156	0.5662	20.7000	0.0000	8.0000	0.1000
4/4/18	877.4073	0.5525	20.7000	0.0000	8.0000	0.1000
4/5/18	875.2040	0.5509	20.7000	0.0000	8.0000	0.1000
4/6/18	884.7734	0.5579	20.7000	0.0000	8.0000	0.1000
4/7/18	882.8625	0.5565	20.7000	0.0000	8.0000	0.1000
4/8/18	891.4618	0.5628	20.7000	0.0000	8.0000	0.1000
4/9/18	892.3996	0.5635	27.1426	0.0000	13.6638	0.1708
4/10/18	892.8468	0.5638	29.8000	0.0000	16.0000	0.2000
4/11/18	885.5005	0.5584	29.8000	0.0000	16.0000	0.2000
4/12/18	912.3218	0.5780	29.8000	0.0000	16.0000	0.2000
4/13/18	894.6241	0.5651	29.8000	0.0000	16.0000	0.2000
4/14/18	891.1325	0.5625	29.8000	0.0000	16.0000	0.2000
4/15/18	900.9665	0.5697	29.8000	0.0000	16.0000	0.2000
4/16/18	906.4114	0.5737	28.3129	0.0000	11.6804	0.1292
4/17/18	908.0845	0.5749	27.7000	0.0000	9.9000	0.1000
4/18/18	905.5627	0.5731	27.7000	0.0000	9.9000	0.1000
4/19/18	906.4962	0.5737	27.7000	0.0000	9.9000	0.1000
4/20/18	903.6845	0.5717	27.7000	0.0000	9.9000	0.1000
4/21/18	912.4692	0.5781	27.7000	0.0000	9.9000	0.1000
4/22/18	903.9557	0.5719	27.7000	0.0000	9.9000	0.1000
4/23/18	901.3449	0.5700	27.7000	0.0000	9.9000	0.1000
4/24/18	916.7518	0.5812	27.7000	0.0000	9.9000	0.1000
4/25/18	914.9242	0.5799	27.7000	0.0000	9.9000	0.1000
4/26/18	912.7618	0.5783	27.7000	0.0000	9.9000	0.1000
4/27/18	912.0244	0.5778	27.7000	0.0000	9.9000	0.1000
4/28/18	920.5435	0.5840	27.7000	0.0000	9.9000	0.1000
4/29/18	973.6052	0.6227	27.7000	0.0000	9.9000	0.1000
4/30/18	994.2544	0.6377	27.7000	0.0000	9.9000	0.1000
Average	906.5793	0.5738	25.3940	0.0043	10.4666	0.1190
Min	875.20	0.55	0.70	0.00	0.30	0.00
Max	994.25	0.64	29.80	0.10	16.00	0.20





MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	VPPM
BUTENE-1 1C4=	iso-BUTENE iC4=	trans-BUTENE- 2tC4=	cis-BUTENE-2 cC4=	iso-PENTANE iC5	normal- PENTANE nC5	PENTENES & C6+	VALID REFRNRY LO-S FG H2S	
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0708	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6252
0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077
0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033
0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.3714
0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0990
0.0000	0.0292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0067
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0061
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1953
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0456
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2561
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0021
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	21.1999
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.6121
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0179
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3018
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1481
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0233	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8634
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	21.20

99.862