BEVERIDGE & DIAMOND PC

Madeleine B. Kadas, Esq.
98 San Jacinto Boulevard, Suite 1420
Austin, TX 78701-4039
Direct: (512) 391-8010
Fax: (512) 391-8099
mkadas@bdaw.com

July 25, 2016

Via Electronic Mail and Federal Express

Mr. Kevin Kim
U.S. EPA – Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: Response to Clean Air Act Section 114 Information Request
BASF Corporation
Freeport, Texas Plant

Dear Mr. Kim:

This letter and the accompanying documents constitute the response of BASF Corporation ("BASF" or the "Company") to USEPA's Clean Air Act 114 request for information ("114 Request") regarding flaring operations at the Company's Freeport, Texas chemical manufacturing plant that was received on May 25, 2016. We thank you for the extension of time until July 25, 2016 for the Company to respond to the 114 Request granted on June 1, 2016 and confirmed by email dated June 2, 2016.

This letter includes two attachments. Attachment I includes a scope of review, a set of objections, and the narrative responses, which in turn cross reference to Flare Workbooks. Attachment II includes the Flare Workbooks for each of the nine flares covered by the 114 Request. The Flare Workbooks contain the responses for each flare and identify the responsive documents for each question.

We are also providing two thumb drives that include the responsive documents identified in the Flare Workbooks. These thumb drives have folders that organize the documents by flare. One thumb drive contains Confidential Business Information (CBI) and the other contains non-confidential information. The thumb drive containing CBI has a password that will be provided separately by email to ensure confidentiality is maintained. With the exception of this letter, all of the documents provided have both common file titles and are Bates numbered for ease of reference.

The official versions of the responsive documents are the Bates numbered versions. Most documents have been produced in searchable PDF format. Some documents could not be provided in a searchable PDF format, given the age of the documents or the way in which they were produced. In addition to the official Bates

numbered PDF documents, courtesy copies of documents that contain significant data are also provided in their native format (i.e., Excel).

If you have any questions or need additional information, please contact me or Linda Brenneman at 973-245-7781.

Sincerely,

Madeleine B. Kadas
Counsel for BASF Corporation

Encl.
cc. Linda Mirsky Brenneman, Associate General Counsel, BASF Corporation

ATTACHMENT I

SCOPE OF REVIEW, OBJECTIONS AND NARRATIVE RESPONSES

I. SCOPE OF REVIEW

The 114 Request contains nine individual and multi-part requests regarding the Company's flaring operations for nine flares at its chemical manufacturing plant in Freeport, Texas (the "Freeport Site"). These Requests implicate several complex substantive program areas of the Clean Air Act (CAA) and request months of data for each flare that is not kept in the ordinary course of business or required by existing applicable state and federal regulations or the Freeport Site's permits. Taken as a whole, the 114 Request literally constitutes hundreds, if not thousands, of individual requests.

To provide a meaningful and reasonable response, the Company created an internal company team to collect and develop data for each flare; hired outside legal counsel; engaged in substantial document identification and production; reviewed environmental files, responsive documents and data; consulted with knowledgeable Freeport Site personnel; and developed a substantial technical response for each flare. Subject to this scope of review, the objections noted in this letter, and the interpretive assumptions that accompany the individual responses for each flare, the Company is producing the documents that it believes to be responsive, covers the intent of this request, and that can be reasonably produced within the limited time frame allowed by EPA.

At the same time, the breadth of the questions and the limited response time required the Company to impose certain limitations on the scope of the review. For example, Company personnel reviewed files where they expected responsive documents to be kept in the ordinary course of business and produced responsive files found there. The Company was not able to perform an exhaustive search for *all* "documents," given the broad definition of that term as defined in the 114 Request, nor was it able to search in all of the locations where documents might be found or that are not kept in the ordinary course of business. Thus, for example, while the Company reviewed paper and electronic environmental, health and safety ("EHS") files, engineering project files, maintenance files, and operations files that it believed would most likely contain the requested documents, it did not conduct a comprehensive search for documents that may be located outside the Company or in Freeport Site files that would not be expected to contain responsive documents in the ordinary course of business**.**

II. OBJECTIONS

The Company makes the following objections, all of which apply to each individual Request and to the 114 Request as a whole. Interpretive assumptions are provided for certain questions in the narrative responses or supporting documents for each flare.

A. Information Beyond the Scope Allowed Under CAA Section 114.

The Company objects to the 114 Request to the extent the documents or information requested are outside the scope or authority of Section 114 of the CAA, 42 U.S.C. § 7414. Except when gathering information for regulatory purposes, EPA's authority to request information from companies under CAA Section 114 is limited to information relevant to determining a company's current compliance status. *Id.* at § 7414(a)(ii). Many of the Requests seek information that goes well beyond the applicable requirements governing flaring operations at chemical manufacturing plants and determining compliance with those rules.

Current flare operating rules for chemical manufacturing plants are set forth at 40 C.F.R. §§ 60.18 and 63.11. These rules generally require that flares be: (a) designed for and operated with no visible emissions; (b) operated with a flame present at all times; (c) operated at all times when emissions may be vented to them; and (d) operated within minimum heat content requirements and maximum exit velocity requirements.

Compliance with these requirements is determined through specific methods that EPA identified in these regulations. Most of these compliance determinations are made through initial and periodic performance tests following EPA-approved technical Methods. 40 C.F.R. §§ 60.11(a); 63.8(b)(3); 63.116(a). Specifically, visible emissions are evaluated using Method 22. 40 C.F.R. §§ 60.18(c)(1), (f)(1); 63.11(b)(4). Minimum heat content must be determined using Method 18. 40 C.F.R. §§ 60.18(c)(3)(ii), (f)(3); 63.11(b)(6)(ii). Maximum exit velocity constraints are determined by Methods 2, 2A, 2C, or 2D. 40 C.F.R. §§ 60.18(c)(4)(i), (iii), (f)(4)-(5); 63.11(b)(7)(i), (iii). The only continuous ongoing monitoring obligation in current flare rules is the requirement to demonstrate that the pilot flame is present at all times "using a thermocouple or any other equivalent device." 40 C.F.R. §§ 60.18(f)(2); 63.11(b)(5).[1] EPA's 2012 Enforcement Alert pointing to good air pollution control practice standards, manufacturer's recommendations, and generally available information regarding the "current state of scientific knowledge" on flare operation is vague and unenforceable guidance that cannot be used to measure compliance. Lastly, the flaring settlements EPA has reached with individual companies on flare operating practices *only* govern those companies and cannot bind non-parties such as BASF as a matter of law.

---

[1] Some individual standards require flow indicators to identify specific periods in which gases are sent to the flare. *See, e.g.*, 40 C.F.R. § 60.663(a)(2).

The Company does not gather or maintain much of the flare operating information requested in the 114 nor is it required to do so under either federal or state law. In fact, many of the terms defined in the 114 Request, for example, assist steam, assist air, purge gas, and sweep gas, were only *proposed for the first time* in June 2014 as part of the proposed Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards. These rules only became final in December 2015 but will not become effective until 2019. 79 Fed. Reg. 36880, 36966-67 (June 30, 2014); 40 C.F.R. § 63.670. Significantly, the new rules *only* apply to petroleum refinery flaring operations and *not* chemical manufacturing plants. Application of these rules to chemical manufacturing plants would require EPA to propose a new rule and allow an opportunity for public comment. No such rules have even been proposed for the chemical manufacturing sector and these standards cannot be imposed through enforcement.

Finally, it bears noting that the 114 Request seeks information about the Freeport Site's flare operating practices – namely steam: vent gas ratios and air: vent gas ratios – that EPA's rule writers no longer believe is the best indicator for flare efficiency. In the final Petroleum Refinery rule, EPA has moved away from steam: and air: vent gas ratios as a compliance benchmark and is now focusing on combustion zone parameters. *See* 40 C.F.R. § 63.670(e).

In sum, the 114 Request seeks information that is not only irrelevant to determining the Freeport Site's current compliance with existing applicable flare operating rules, it would also be irrelevant to determining compliance with EPA's new operating parameters for refinery flares – even if they were to apply to chemical manufacturing flares. Accordingly, this Request goes far beyond EPA's authority under Section 114 of the CAA.

B. <u>Reasonableness as to Scope and Response Time.</u>

EPA's authority under the CAA is also circumscribed by the standard of reasonableness. *See* 42 U.S.C. § 7414(a)(1)(G) (requiring facilities to provide information "as the Administrator may reasonably require"); *United States v. Xcel Energy, Inc.*, 759 F. Supp. 2d 1106, 1114-15 (D. Minn. 2010) (analyzing a Clean Air Act 114 request for "reasonableness"). Accordingly, the Company also objects to the individual requests to the extent they are vague, unclear, ambiguous, unnecessarily burdensome, or call for speculation.

For example, several of the requests seek data that the Company does not regularly maintain, or does not maintain in the format requested by the 114 Request; others require the Company to perform a variety of detailed calculations that are not required under any federal or state permit or regulation. Further, CAA Section 114 does not authorize EPA to require facilities to interpret, assemble, compare, contrast, summarize, create, change the format of, or otherwise manipulate the available information. The Company objects to those aspects of the 114 Request that demand information that is not required to be developed and maintained by the Freeport Site to demonstrate compliance.

The Company further objects because the time provided for response is unreasonable. The majority of these requests are not limited to merely obtaining and copying specifically identified documents or existing data, but instead demand that the Company perform extensive technical calculations and data manipulations for months of hourly operations for 9 flares, which as noted previously, essentially constitutes hundreds of individual requests. The Company cannot reasonably be expected to respond to such extensive requests within the initial 30 days allowed by EPA, nor even with the additional 60 day extension.

C. Privileged Information.

The Company further objects to the 114 Request to the extent that it seeks information that is subject to the attorney-client privilege, the attorney work product immunity, audit privilege immunity, or any other applicable privilege, protection, or immunity authorized by law. Similarly, the Company also objects to requests that require the Company to draw legal conclusions. Legal opinions are not "information" that the Company is required to provide pursuant to Section 114 of the CAA. The Company is not providing information that is subject to these long-established legal privileges nor providing legal opinions.

D. Time Frame for Response.

Several of the Requests include specific time frames for response but others do not. Where there is no time frame indicated in the Request, the Company has provided responses to reflect current existing operations. Where a time frame is specified, the Company has sought to provide responsive information within that time frame. However, the Company objects to any request that is intended to require or in fact requires a response based on information or events beyond the five-year federal statute of limitations. Information preceding the five-year statute of limitations is irrelevant to a current compliance determination because the Agency is precluded from enforcing potential violations that may have arisen more than five years ago. 28 U.S.C. § 2463. *See, e.g., United States v. Midwest Generation, LLC,* 720 F.3d 644, 648 (7th Cir. 2013).

E. Paperwork Reduction Act.

The Company reserves its right to object to the 114 Request on the basis that it may violate the Paperwork Reduction Act ("PRA"). 44 U.S.C. § 3512. EPA is prohibited from conducting a "collection of information" directed towards more than ten persons without undertaking several procedural steps under the PRA including, most significantly: (1) obtaining approval from the Office of Management & Budget (OMB); (2) publishing advanced notice for public comment of the proposed collection of information in the Federal Register; (3) obtaining a valid OMB control number for the information request; and (4) marking that control number on the request together with a statement that the respondent is not required to respond to the information request unless

the collection of the information displays a valid OMB control number. *See* 44 U.S.C.A. §§ 3502(a)(3), 3506(c), 3507(a).

The Company believes that as part of the agency's well-established and long-standing Flaring Initiative, EPA has sent identical or virtually identical 114 Requests to many companies over the past three years and more recently, to what constitutes virtually the entirety of the U.S. chemical manufacturing sector and numerous flare operators in Region VI. Should the 114 Request constitute a collection of information under the PRA, the Company would not be required to respond because EPA has not provided either an OMB control number nor the requisite statement that the Company need not respond if no such control number is provided. Further, as far as the Company is aware, no notice of the information request was published in the Federal Register. For these reasons, the Company may not be required to respond to the 114 Request and it reserves its right to assert this objection at any time.

F. Purported Certification Requirement.

The Company objects to EPA's demand for a certification under "authorized signature" regarding both the availability and accuracy of documents and information provided and where documents and information are not available because there is no legal basis for requiring such a certification as part of a CAA Section 114 information request. Although Section 7414(a)(3) allows EPA to require a certification statement under the Title V Operating Permit program, that provision does not extend to CAA Section 114 information requests.

Moreover, as a practical matter, the Company cannot sign the required certification given the limited time frame to develop its response and the scope and type of the information at issue. As noted above, the 114 Request asks the Company to provide extensive information, compiled over a significant period of time and also demands estimates, calculations, best measurements, and speculations when information does not exist. Much of the terminology in the questions is undefined and allows for so much interpretive latitude, the precise question for many of the requests is impossible to glean. The lack of certainty for some of these data and derivative responses makes any certification impossible. Nevertheless, the Company believes that it is producing true copies of the responsive documents or relevant portions of those documents as they were found at the Company and, where required, has endeavored to develop responsive data that it believes to be accurate based on available information.

G. Purported Duty to Supplement.

The Company objects to the requirement to continuously supplement the 114 Request with unknown or new information as being unreasonably burdensome and beyond the scope of CAA Section 114. As discussed above, the Request seeks thousands of data points, calculations and documents relating to 9 flares. Moreover, because many of these documents directly relate to these flares' operation, more responsive documents

theoretically are created every day. EPA's demand for continuous supplementation converts its already-burdensome information request into a literally never-ending document production, which is both unduly burdensome and unreasonable under Section 114. The Company simply does not have the resources to engage a continuously operative document production team. The Company has produced documents that were in existence as of January 25, 2016. This cutoff date was necessary to allow the Company time to identify, process, and produce the requested information. The Company will discuss with the Agency providing additional data, as appropriate.

H. Formatting.

The Company objects to EPA's instructions to produce the requested information in specific formats (*e.g.*, "in a searchable electronic format (e.g., pdf.")). The Company also objects to the requirement that it submit hardcopy information in a logically sequenced, bound format. These instructions are vague, potentially conflicting and/or overlapping, beyond the scope of Section 114, and unreasonable and unduly burdensome in light of the scope of information and time frame required to respond.

The Company is producing relevant documents as they are maintained in the ordinary course of business and developed some documents to provide the data EPA requested. The Company has identified the request(s) to which each document responds, assigned individual Bates numbers, and is submitting them in electronic format on thumb drives. While the Company's objective is to provide documents in a logical and user-accessible format, it cannot ensure that all documents will be searchable or sequenced in a particular manner, depending upon the age of the documents and the different types and versions of software involved in both the creation and production processes.

I. Identification of Persons Consulted.

The Company objects to EPA's instruction that the Freeport Site identify each person responding to any question or consulted in the preparation of a response contained in this Response. This instruction is irrelevant to determining the Company's compliance with current flare operating rules under the CAA. The request is also unreasonable and burdensome in light of the limited time to respond as there is no meaningful way to track who might have been consulted or might have reviewed the Company's response to the hundreds and thousands of individual requests that are contained within the 114 Request. Finally, identification of individual employees would contravene BASF policy. To the extent that EPA has follow-up questions regarding the response you may contact me at mkadas@bdlaw.com or (512) 391-8010.

J. Identification of Documents.

The Company objects to EPA's instruction that the Freeport Site identify each document consulted, examined, or referred to in the response or referred to in the response preparation or that contains information responsive to the question. The Company

further objects to EPA's instruction that the Freeport Site provide a true and correct copy of those documents. These instructions are unreasonable and unduly burdensome in light of the number of individual questions contained within the 114 and the exceptionally broad definition of the term "document." The Company has provided responsive documents when specifically sought in a request, developed flare operating data where specifically requested, provided a table of contents that identifies the documents provided, and submitted a meaningful response that contains hundreds of pages of material and even more individual data points. The Company has not excluded any documents that it believes are responsive on the basis of this objection, but it has not sought to identify *all* documents that may have been consulted or referred to in the response or preparation of the response.

K. Ordinary Meaning of Terms.

The Request includes numerous terms and phrases that are undefined and allow for significant room for interpretation, for example: "best means available," "each constituent," "process knowledge," and "working pressure," among others. The Company objects to all technical terms and terms of art or phrases that are undefined and are therefore ambiguous and overbroad and unduly burdensome.

The Company further objects to EPA's effort to compensate for the potential breadth and ambiguity of these terms through its assertion that undefined terms will have their "ordinary meaning" unless defined under the CAA and its implementing regulations. Many of these terms relate to highly sophisticated chemical manufacturing and flaring operations, involve unique monitoring equipment and technologies, and have their foundation in chemical engineering concepts and practices, and are technical or legal terms of art. There are no "ordinary" meanings for many of these terms across the industry, across companies, or in some cases, within a single plant.

In light of the limited time allowed for this response and unless otherwise noted, the Company has interpreted the terms used in the Requests as they are ordinarily used in the course of business at the Freeport Site and relative to the individual flare in question. Additional data and analysis may bear on the information provided and additional conversations with EPA may reveal that the Freeport Site's interpretation of a question is different than EPA's interpretation. The Company reserves its right to clarify, supplement or amend its responses, provide additional analysis or data, undertake comprehensive quality assurance or quality control of the data, and/or supplement this narrative response.

L. Definitions.

The Company objects to the following Definitions:

BASF Corporation ("BASF"). The Company objects to the definition of "BASF Corporation" as overbroad and internally conflicting and beyond the scope of

CAA Section 114. The definition blurs any meaningful distinction between a corporation and its employees by including any officer, director, agent or employee of BASF and any merged, consolidated or acquired predecessor or parent, subsidiary, division, or affiliate thereof. It also conflicts and overlaps with the definitions of "person" and "you or yours" separately set forth in the 114 Request. The Company interprets the term "BASF Corporation" as it is defined through its corporate charters.

Document. The Company objects to the definition of "Document" as beyond the scope of CAA Section 114, overbroad, vague, and unduly burdensome, especially in light of the limited time allowed for a response. The definition identifies various examples of "documents" that barely resemble any notion of a "document," for example, information which if in computer format or memory, is to be translated into a form that is useable and readable. The Company cannot reasonably produce such extensive information for several months of operation within the time frame allowed by EPA. During the course of this effort, the Company has not excluded any documents based on the type or format of the document, but it has not made specific efforts to identify all of the listed categories of documents.

Facilities. The Company objects to the term "Facility" and "Facilities" for its potential for confusion and ambiguity with the legal definition of "facility" and "affected facility," both legal terms under the CAA and its implementing regulations. The Company uses the term "Freeport Site" for its chemical manufacturing plant in Freeport, Texas.

Assist Air, Assist Steam, Flare, Purge Gas, Supplemental Gas, Sweep Gas, Vent Gas, Pressure Relief Device. The Company objects to the definitions of "Assist Air," "Assist Steam," "Flare," "Purge Gas," "Supplemental Gas," "Sweep Gas," "Vent Gas," and "Pressure Relief Device." Each and all of these terms are vague, ambiguous, overbroad; lack or exceed any regulatory basis in existing applicable federal or state flare rules or permits; and are unrelated to making compliance determinations under applicable flare operating rules.

Person. The Company objects to the definition of "Person" or "Persons" as irrelevant and meaningless within the context of this 114 Request. The term does not appear to be used in the Request and therefore is superfluous. The Company also objects to the definition because it is confusing and to the extent it is included in other definitions, such as "Company" and "You" or "Yours," is duplicative, vague, ambiguous and conflicts with the term "person" as ordinarily used. For example, the Company is not a municipality and no part of the Company is a municipality. For the purposes of this request, the Company will use the term "person" as it is ordinarily defined (i.e., a human person).

You or Yours. The Company objects to the term "You" or "Yours" as unreasonable, ambiguous, burdensome and overbroad. The term improperly defines the Company to include the Company's subsidiaries, division, affiliates, predecessors, successors, assigns, and former and present officers, directors, agents, employees, representatives, attorneys, consultants, accountants and all other persons acting on its behalf. The purpose of the 114 Request is to assess the current compliance status of flaring operations at the Freeport Site in Freeport, Texas. Most of the persons identified by the term "You" or "Yours" would have no information responsive to these requests. The Company has focused its efforts on the locations and individuals whom it believes are most likely to contain/have knowledge of responsive information.

The Company further objects to the terms "You" and "Yours" to the extent they demand a response that requires the Company to waive its legal rights to preserve as confidential any of the following types of information: attorney-client privileged communication, confidential privileged audit information, confidential business information, confidential financial information, confidential government affairs information, or any other information that is not otherwise publicly available, or any other right to confidentiality allowed or required by law. For the purposes of this response, the Company interprets "You" and "Yours" to mean the Freeport Site in Freeport, Texas.

M. <u>Confidential Business Information.</u>

Certain responses and documents provided by the Company are considered by the Company to be proprietary and should be treated as confidential business information (CBI). In accordance with 40 CFR Part 2 and the instructions provided in the 114 Request, each such response or document is appropriately labeled CBI and is provided separately from non-confidential information. The thumb drive containing CBI is password protected.

III. <u>NARRATIVE RESPONSES</u>

The Company provides the following narrative responses, subject to the Scope of Review, Objections, and Interpretive Assumptions and any Claims for CBI, and without waiving any objections or ability to make future objections:

1. **Provide the following information for each flare at the Facility:**
   a. **Unique identification numbers and names used in permit;**
   b. **Date of installation;**
   c. **Manufacturer and model number;**
   d. **Purpose (e.g., emergency only, routine, intermittent process waste gas);**
   e. **General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted whether flare is steam, air, or pressure assisted);**

f. **Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);**
g. **Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored; and**
h. **Provide a diagram that shows the locations of each:**
    i. **Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;**
    ii. **Knockout drum and water seal; and**
    iii. **Injection point for purge gas, sweep gas, and supplemental gas.**

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

2. **For all periods when waste gas is sent to the flare, provide the following information for each flare in searchable and editable electronic format (e.g., spreadsheet):**
    a. **The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.**
    b. **The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.**
    c. **The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.**
    d. **The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.**

    If the hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).

    If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at your response. Such methods of calculation/estimation include, but are not limited to, the use of calculations from an online, intermittent, or continuous gas chromatograph (whether at the flare or upstream of the flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.

If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance at a flare), provide an explanation of why no data is available and why the data cannot be calculated or estimated.

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

3. **For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.**

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

4. **For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.**

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

5. **For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air**

addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

6. **For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, and flare operation and maintenance, including but not limited to the following: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, Facility operating procedures, Facility monitoring procedures, and flare performance testing.**

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

7. **For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.**

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

8. **State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.**

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

9. For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

10. For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.

Response. Subject to the Scope of Review, Objections, and Interpretive Assumptions, and any Claims for CBI, and without waiving any objections or ability to make future objections, the Company provides the following response:

See attached Flare Workbooks.

ATTACHMENT II

FLARE WORKBOOKS

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	FL-200 (EPN 5-2-02) is one of the flares for the OXO plant.	
1b	Date of installation	Initial installation: 1986 Flare Tip Replaced on: 7/6/2014	Flare tip was replaced on 7/6/14 with a new tip, similar design.
1c	Manufacturer and model number;	Initial Installation: McGill Americas Inc., Mfg. Serial No: 1217-1 Latest Flare Tip: UOP Callidus, Mfg. Serial No: IS3-24C	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Serves as an Emergency, Routine and Intermittent Flare.	See permit NSR 8074A for authorized emissions, document titled: F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate whether flare is steam, air, or pressure assisted);	Elevated, Single Tip, Steam Assisted	

Request Item No.	Request	Response	Interpretive Assumptions
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);	3,000 lb/hr (all locations)	There are no regulations that impose minimum assist steam requirements. This figure is based on past performance data. The latest manufacturer did not provide steam flow data.
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored; and	The waste gas is measured by ultrasonic flow meter. The purge/sweep gas is measured by rotameter. The supplemental gas is measured by engineering calculation and assist steam is also measured by engineering calculation.	Engineering calculations are based on process knowledge of valve position.
1hi	Provide a diagram that shows the locations of each: i. Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	P&ID2658 Please see document entitled: F01Q1_F02Q01_2658_and_2660_PID_BASFFP114-000002.pdf	
1hii	Provide a diagram that shows the locations of each: Knockout drum and water seal;	Please see document entitled: F01Q1_F02Q01_2658_and_2660_PID_BASFFP114-000002.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
1hiii	Provide a diagram that shows the locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	P&ID 2660 and 2178 Please see documents entitled: F01Q1_F02Q01_2658_and_2660_PID_BASFFP114-000002.pdf F01Q1_2178_PID_BASFFP114-000001.pdf	
2	**For all periods when waste gas is sent to the flare, provide the following information for each flare in searchable and editable electronic format (e.g., spreadsheet):**		

Request Item No.	Request	Response	Interpretive Assumptions
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	The hourly average net heating value will vary and is provided in the documents entitled: F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-000248.pdf F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-003577.xls F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-000150.pdf F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-003576.xls F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-000310.pdf F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-003578.xls F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-000050.pdf F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-003575.xls F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-000414.pdf F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-003579.xls	
2b	The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	The hourly average concentration of each constituent of vent gas will vary and is provided in these documents: F01Q02_F02Q02_Emissions_Speciated_BASFFP114-000519.pdf F01Q02_F02Q02_Emissions_Speciated_BASFFP114-003580.xlsx	The constituent data is based on continuous emission monitoring system data.

Request Item No.	Request	Response	Interpretive Assumptions
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	The hourly average mass flow rate of vent gas will vary and is provided in these documents: F01Q0203_Vent_Gas_Flow_Assist_Rate_SVG Ratio_BASFFP114-000004.pdf F01Q0203_Vent_Gas_Flow_Assist_Rate_SVG Ratio_BASFFP114-003574.xlsx	The hourly average mass flow rate is based off an ultrasonic flow meter.
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.	The hourly average rate at which assist steam was added to the flare will vary and is provided in these documents: F01Q0203_Vent_Gas_Flow_Assist_Rate_SVG Ratio_BASFFP114-000004.pdf F01Q0203_Vent_Gas_Flow_Assist_Rate_SVG Ratio_BASFFP114-003574.xlsx	There are no regulations that impose requirements for monitoring assist steam.

Request Item No.	Request	Response	Interpretive Assumptions
2	If the hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	**2/9/2016** The data historian was out of service; however data was collected immediately after the data historian was back up. The unit alarm summaries showed no alarms on IR cameras, indicating that the IR cameras were fully functional and flame detection was adequately present throughout the event. **4/7/2016** The data historian was out of service; however, data was collected immediately after data historian was back up. The unit alarm summaries showed no alarms on IR cameras, indicating that the IR cameras were fully functional and flame detection was adequately present throughout the event. **4/7/2016 7:00 - 4/7/2016 9:00** There were times in which data was missing; data was generated by averaging the hour before and after the missing data. Please see documents entitled: F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-000248.pdf F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-003577.xls F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-000150.pdf F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-003576.xls F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-000310.pdf F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-003578.xls F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-000050.pdf F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-003575.xls F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-000414.pdf F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-003579.xls	

Request Item No.	Request	Response	Interpretive Assumptions
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at your response. Such methods of calculation/estimation include, but are not limited to, the use of calculations from an online, intermittent, or continuous gas chromatograph (whether at the flare or upstream of the flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	All data were measured or calculated with the exceptions described above.	
2	If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance at a flare),provide an explanation of why no data is available and why the data cannot be calculated or estimated.	All data were measured or calculated with the exceptions described above.	

Request Item No.	Request	Response	Interpretive Assumptions
3	For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.	The hourly average Steam-to-Vent Gas Ratio will vary and is provided in these documents: F01Q0203_Vent_Gas_Flow_Assist_Rate_SVG Ratio_BASFFP114-000004.pdf F01Q0203_Vent_Gas_Flow_Assist_Rate_SVG Ratio_BASFFP114-003574.xlsx	There are no regulations that require monitoring the steam-to-vent gas ratios.

Request Item No.	Request	Response	Interpretive Assumptions
4	For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-000248.pdf F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-003577.xls F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-000150.pdf F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-003576.xls F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-000310.pdf F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-003578.xls F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-000050.pdf F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-003575.xls F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-000414.pdf F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-003579.xls While the flare was originally equipped with thermocouples, we do not maintain or use the thermocouples to demonstrate environmental compliance. We use the IR cameras to demonstrate environmental compliance.	

Request Item No.	Request	Response	Interpretive Assumptions
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	Please see documents entitled: F01Q05_F02Q05_Flare_Tip_Manufacturer_Data_Book_BASFFP114-000747.pdf F0105_F02Q05_Flare_Tip_Replacement_Operating Manual_BASFFP114-000703.pdf	
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, and flare operation and maintenance, including but not limited to the following: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, Facility operating procedures, Facility monitoring procedures, and flare performance testing.	Please see documents entitled: F01Q06_F02Q06_AVO_Inspections_Jan-May_2016_BASFFP114-000880.pdf F01Q06_F02Q06_AVO_Inspections_Jan-May_2016_BASFFP114-003581.xlsx F01Q06_F02Q06_Flare_Gas_Sample_Procedure_BASFFP114-000899.pdf F01Q06_F02Q06_M21_CVS_Monitoring_Jan-May_2016_BASFFP114-000908.pdf F01Q06_F02Q06_M21_CVS_Monitoring_Jan-May_2016_BASFFP114-003582.xlsx F01Q06_F02Q06_Relief_Device_Procedure_BASFFP114-000980.pdf F01Q06_Flare_Test_Report_April_2015_BASFFP114-000990.pdf F01Q06_Startup_Procedure_OXO_Flare_BASFFP114-001220.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Apr_BASFFP114-001240.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Feb_BASFFP114-001242.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Jan_BASFFP114-001244.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Mar_BASFFP114-001246.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-May_BASFFP114-001248.pdf F01Q07_IR_Camera_Quarterly_Calibration_Mar_2016_BASFFP114-001250.pdf	
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	Please see documents entitled: F01Q0809_F02Q0809_F03Q0809_Title_V_Permit_01928_BASFFP114-001277.pdf F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf See also 30 TAC 111(a), 30 TAC 115.121, 30 TAC 115.122, 30 TAC 115.125, 30 TAC 115.126, 30 TAC 115.722, 30 TAC 115.725, 30 TAC 115.726, 40 CFR 60.18	
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F01Q0809_F02Q0809_F03Q0809_Title_V_Permit_01928_BASFFP114-001277.pdf F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	Yes.	

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	FL-200A (EPN 5-2-03) is one of the flares for the OXO plant.	
1b	Date of installation	Initial Installation: 1999 Latest Flare Tip: 7/6/2014	Flare tip was replaced on 7/6/14 with a new tip, similar design.
1c	Manufacturer and model number;	UOP Callidus, Mfg. Serial No: PF-3	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Routine	See permit NSR 8074A for authorized emissions, document titled: F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate whether flare is steam, air, or pressure assisted);	Elevated, Single Tip, Non-Assisted	
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);	Because the flare is a non-assist flare, the Plant determined that this question was not applicable.	

Request Item No.	Request	Response	Interpretive Assumptions
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored; and	The waste gas is measured with a flow meter. The purge/sweep gas is measured with a rotameter. No steam or air is measured or monitored because the flare is non-assist.	
1hi	Provide a diagram that shows the locations of each: i. Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	P&ID2658 Please see document entitled: F01Q1_F02Q01_2658_and_2660_PID_BASFFP114-000002.pdf	
1hii	Provide a diagram that shows the locations of each: Knockout drum and water seal;	Please see document entitled: F01Q1_F02Q01_2658_and_2660_PID_BASFFP114-000002.pdf	
1hiii	Provide a diagram that shows the locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	P&ID 2660, 2174, 2656A, 2420 Please see documents entitled: F01Q1_F02Q01_2658_and_2660_PID_BASFFP114-000002.pdf F02Q01_2174_2656A_2420_PIDs_BASFFP114-001355.pdf	
2	**For all periods when waste gas is sent to the flare, provide the following information for each flare in searchable and editable electronic format (e.g., spreadsheet):**		

Request Item No.	Request	Response	Interpretive Assumptions
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-000248.pdf F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-003577.xls F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-000150.pdf F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-003576.xls F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-000310.pdf F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-003578.xls F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-000050.pdf F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-003575.xls F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-000414.pdf F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-003579.xls	
2b	The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	The hourly average concentration of each constituent of vent gas will vary and is provided in these documents: F01Q02_F02Q02_Emissions_Speciated_BASFFP114-000519.pdf F01Q02_F02Q02_Emissions_Speciated_BASFFP114-003580.xlsx	The constituent data is based on continuous emission monitoring system data.

Request Item No.	Request	Response	Interpretive Assumptions
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	The hourly average mass flow rate of vent gas will vary and is provided in documents entitled: F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_B ASFFP114-000248.pdf F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_B ASFFP114-003577.xls F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_B ASFFP114-000150.pdf F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_B ASFFP114-003576.xls F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_B ASFFP114-000310.pdf F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_B ASFFP114-003578.xls F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_B ASFFP114-000050.pdf F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_B ASFFP114-003575.xls F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_B ASFFP114-000414.pdf F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_B ASFFP114-003579.xls	The hourly average mass flow rate is based off a flow meter.
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.	Because the flare is a non-assist flare, the Plant determined that this question was not applicable.	

Request Item No.	Request	Response	Interpretive Assumptions
2	If the hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	**2/9/2016** The data historian was out of service, however data was collected immediately after the data historian was back up. The unit alarm summaries showed no alarms on IR cameras, indicating that that the IR cameras were fully functional during this time and flame detection was adequately present throughout the event. **4/7/2016** The data historian was out of service, however data was collected immediately after the data historian was back up. The unit alarm summaries showed no alarms on IR cameras, indicating that the IR cameras were fully functional during this time and flame detection was adequately present throughout the event. **4/7/2016 7:00 - 4/7/2016 9:00** There were times during which data was missing; data was generated by averaging the hour before and after the missing data. Please see documents entitled: F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-000248.pdf F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_BASFFP114-003577.xls F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-000150.pdf F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_BASFFP114-003576.xls F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-000310.pdf F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_BASFFP114-003578.xls F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-000050.pdf F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_BASFFP114-003575.xls F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-000414.pdf F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_BASFFP114-003579.xls	

Request Item No.	Request	Response	Interpretive Assumptions
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at your response. Such methods of calculation/estimation include, but are not limited to, the use of calculations from an online, intermittent, or continuous gas chromatograph (whether at the flare or upstream of the flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	All data was measured or calculated, with the exceptions outlined above.	
2	If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance at a flare),provide an explanation of why no data is available and why the data cannot be calculated or estimated.	All data was measured or calculated, with the exceptions outlined above.	

Request Item No.	Request	Response	Interpretive Assumptions
3	For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.	Because the flare is a non-assist flare, the Plant determined that this question was not applicable.	

Request Item No.	Request	Response	Interpretive Assumptions
4	For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_B ASFFP114-000248.pdf F01Q0204_F02Q0204_Jan_Daily_Emissions_Pilot_Flame_B ASFFP114-003577.xls F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_B ASFFP114-000150.pdf F01Q0204_F02Q0204_Feb_Daily_Emissions_Pilot_Flame_B ASFFP114-003576.xls F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_B ASFFP114-000310.pdf F01Q0204_F02Q0204_Mar_Daily_Emissions_Pilot_Flame_B ASFFP114-003578.xls F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_B ASFFP114-000050.pdf F01Q0204_F02Q0204_Apr_Daily_Emissions_Pilot_Flame_B ASFFP114-003575.xls F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_B ASFFP114-000414.pdf F01Q0204_F02Q0204_May_Daily_Emissions_Pilot_Flame_B ASFFP114-003579.xls While the flare was originally equipped with thermocouples, we do not maintain or use the thermocouples to demonstrate environmental compliance. We use the IR cameras to demonstrate environmental compliance.	

Request Item No.	Request	Response	Interpretive Assumptions
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	Please see documents entitled: F01Q05_F02Q05_Flare_Tip_Manufacturer_Data_Book_BASFFP114-000747.pdf F0105_F02Q05_Flare_Tip_Replacement_Operating Manual_BASFFP114-000703.pdf	
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, and flare operation and maintenance, including but not limited to the following: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, Facility operating procedures, Facility monitoring procedures, and flare performance testing.	Please see documents entitled: F01Q06_F02Q06_AVO_Inspections_Jan-May_2016_BASFFP114-000880.pdf F01Q06_F02Q06_AVO_Inspections_Jan-May_2016_BASFFP114-003581.xlsx F01Q06_F02Q06_Flare_Gas_Sample_Procedure_BASFFP114-000899.pdf F01Q06_F02Q06_M21_CVS_Monitoring_Jan-May_2016_BASFFP114-000908.pdf F01Q06_F02Q06_M21_CVS_Monitoring_Jan-May_2016_BASFFP114-003582.xlsx F01Q06_F02Q06_Relief_Device_Procedure_BASFFP114-000980.pdf F01Q06_F02Q06_Startup_Procedure_Hydrogen_Flare_BASFFP114-001358.pdf F02Q06_Nitrogen_Methane_Purge_Reduction_BASFFP114-001371.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Apr_BASFFP114-001240.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Feb_BASFFP114-001242.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Jan_BASFFP114-001244.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Mar_BASFFP114-001246.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-May_BASFFP114-001248.pdf	
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	Please see documents entitled: F01Q0809_F02Q0809_F03Q0809_Title_V_Permit_01928_BASFFP114-001277.pdf F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf See also 30 TAC 111(a); see also, 30 TAC 115.121, 30 TAC 115.122, 30 TAC 115.125, 30 TAC 115.126, 30 TAC 115.722, 30 TAC 115.725, 30 TAC 115.726, 40 CFR 60.18	
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see permit documents entitled: F01Q0809_F02Q0809_F03Q0809_Title_V_Permit_01928_BASFFP114-001277.pdf F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	Yes.	Routine emissions are authorized. A release from a PRV would be an unauthorized emissions event.

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	FL-90 (EPN 5-1-02) is the flare for the Syngas plant.	
1b	Date of installation	Installation: 1998	
1c	Manufacturer and model number;	John Zink, Mfg. Serial No. EEF-U-18	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Routine	See permit for NSR 8074A which describes the details for routine streams, document entitled: F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate whether flare is steam, air, or pressure assisted);	Elevated, non-assisted	
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);	Because the flare is a non-assist flare, the Plant determined that this question was not applicable.	
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored; and	Waste gas is measured by engineering calculations.	Current regulations do not require measurement or monitoring of waste gas, purge gas, sweep gas, assist steam or assist air. They can be estimated through engineering calculations.

Request Item No.	Request	Response	Interpretive Assumptions
1hi	Provide a diagram that shows the locations of each: i. Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	Please see documents entitled: F03Q0105_General_Manufacturer_Information_BASFFP114-001373.pdf F03Q0105_Molecular_Seal_Diagram_BASFFP114-001377.pdf F03Q0105_Stack_Diagram_BASFFP114-001378.pdf F03Q0105_Tip_Diagram_BASFFP114-001379.pdf F03Q01_775_PID_BASFFP114-001372.pdf	
1hii	Provide a diagram that shows the locations of each: Knockout drum and water seal;	Please see documents entitled: F03Q0105_General_Manufacturer_Information_BASFFP114-001373.pdf F03Q0105_Molecular_Seal_Diagram_BASFFP114-001377.pdf F03Q0105_Stack_Diagram_BASFFP114-001378.pdf F03Q0105_Tip_Diagram_BASFFP114-001379.pdf F03Q01_775_PID_BASFFP114-001372.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
1hiii	Provide a diagram that shows the locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	Please see documents entitled: F03Q0105_General_Manufacturer_Information_BASFFP114-001373.pdf F03Q0105_Molecular_Seal_Diagram_BASFFP114-001377.pdf F03Q0105_Stack_Diagram_BASFFP114-001378.pdf F03Q0105_Tip_Diagram_BASFFP114-001379.pdf F03Q01_775_PID_BASFFP114-001372.pdf	
2	**For all periods when waste gas is sent to the flare, provide the following information for each flare in searchable and editable electronic format (e.g., spreadsheet):**		
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	The hourly average net heating value will vary and is provided in these documents: F03Q02_Emissions_Data_Jan-May2016_BASFFP114-001381.pdf F03Q02_Emissions_Data_Jan-May2016_BASFFP114-003583.xlsx	

Request Item No.	Request	Response	Interpretive Assumptions
2b	The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	See Data Narrative and see Emissions Data for response and interpretive assumptions. Documents entitled: F03Q02_Data_Narrative_BASFFP114-001380.pdf F03Q02_Emissions_Data_Jan-May2016_BASFFP114-001381.pdf F03Q02_Emissions_Data_Jan-May2016_BASFFP114-003583.xlsx	
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	See Data Narrative and see Emissions Data for response and interpretive assumptions. Documents entitled: F03Q02_Data_Narrative_BASFFP114-001380.pdf F03Q02_Emissions_Data_Jan-May2016_BASFFP114-001381.pdf F03Q02_Emissions_Data_Jan-May2016_BASFFP114-003583.xlsx	
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.	Because the flare is a non-assist flare, the Plant determined that this question was not applicable.	
2	If the hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	Periods during which data were missing were generated by averaging the hour before and after the missing data.	

Request Item No.	Request	Response	Interpretive Assumptions
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at your response. Such methods of calculation/estimation include, but are not limited to, the use of calculations from an online, intermittent, or continuous gas chromatograph (whether at the flare or upstream of the flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	All data was measured or calculated with the exceptions noted. For response and interpretive assumptions, please see document entitled: F03Q02_Data_Narrative_BASFFP114-001380.pdf	
2	If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance at a flare),provide an explanation of why no data is available and why the data cannot be calculated or estimated.	All data was measured or calculated with the exceptions noted.	

Request Item No.	Request	Response	Interpretive Assumptions
3	For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.	Because the flare is a non-assist flare, the Plant determined that this question was not applicable.	
4	For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F03Q04_Hourly_Pilot_Status_Jan-May2016_BASFFP114-001429.pdf F03Q04_Hourly_Pilot_Status_Jan-May2016_BASFFP114-003584.xlsx F03Q04_Pilot_Status_Apr072016_BASFFP114-001475.pdf F03Q04_Pilot_Status_Feb092016_BASFFP114-001476.pdf While the flare was originally equipped with thermocouples, we do not maintain or use the thermocouples to demonstrate environmental compliance. We use the IR cameras to demonstrate environmental compliance.	

Request Item No.	Request	Response	Interpretive Assumptions
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	Please see documents entitled: F03Q0105_General_Manufacturer_Information_BASFFP114-001373.pdf F03Q0105_Molecular_Seal_Diagram_BASFFP114-001377.pdf F03Q0105_Stack_Diagram_BASFFP114-001378.pdf F03Q0105_Tip_Diagram_BASFFP114-001379.pdf	
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, and flare operation and maintenance, including but not limited to the following: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, Facility operating procedures, Facility monitoring procedures, and flare performance testing.	Please see documents entitled: F03Q06_Process_Manual-Consequences_of_Deviation_BASFFP114-001477.pdf F03Q06_Process_Manual-Control_System_BASFFP114-001478.pdf F03Q06_Process_Manual-Equipment_Description_BASFFP114-001479.pdf F03Q06_Process_Manual-General_Description_BASFFP114-001480.pdf F03Q06_Startup_Process_BASFFP114-001483.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Apr_BASFFP114-001240.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Feb_BASFFP114-001242.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Jan_BASFFP114-001244.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-Mar_BASFFP114-001246.pdf F01Q07_F02Q07_F03Q07_Daily_Inspection_Log-May_BASFFP114-001248.pdf	
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	Please see documents entitled: F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf F01Q0809_F02Q0809_F03Q0809_Title_V_Permit_01928_BASFFP114-001277.pdf See also 30 TAC 111(a).	
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F01Q010809_F02Q010809_F03Q010809_NSR_Permit_8074A_BASFFP114-001251.pdf F01Q0809_F02Q0809_F03Q0809_Title_V_Permit_01928_BASFFP114-001277.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	Yes.	Routine emissions are authorized. A release from a PRV would be an unauthorized emission event.

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	EPN 4-2-4 is the emission point for the Flare FS-5900 in the Acrylic Acid Plant AAE3.	
1b	Date of installation	1996	
1c	Manufacturer and model number;	BASF Aktiengesellschaft - FS 5900 Shielded Flare	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Routine and Intermittent	See permit application for NSR9513A_PSDTX641 which describes the details for routine and intermittent streams. Please see document entitled: F04Q0102_June2008_Flare_Permit_Application_BASFFP114-001836
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate whether flare is steam, air, or pressure assisted);	Elevated, Single Tip, Non-Assisted	
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);	This flare is not steam or air assisted.	
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored; and	Waste gas is measured by flow meters upstream. Supplemental gas is monitored by the use of a restricting orifice and an on/off valve in the range of 26-38 scfm. There is no purge gas or sweep gas. This flare is not steam or air assisted.	

Request Item No.	Request	Response	Interpretive Assumptions
1hi	Provide a diagram that shows the locations of each: i. Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	Please see document entitled: F04Q01_750_PID_BASFFP114-001497.pdf	Net heating value, molecular weight, and constituent concentrations are calculated so they will not appear in the diagrams.
1hii	Provide a diagram that shows the locations of each: Knockout drum and water seal;	Please see document entitled: F04Q01_740_PID_BASFFP114-001496.pdf	
1hiii	Provide a diagram that shows the locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	Please see document entitled: F04Q01_750_PID_BASFFP114-001497.pdf	
2	**For all periods when waste gas is sent to the flare, provide the following information for each flare in searchable and editable electronic format (e.g., spreadsheet):**		
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F04Q02_Hourly_Emissions_Data_BASFFP114-001498.pdf F04Q02_Hourly_Emissions_Data_BASFFP114-003585.xlsx	
2b	The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F04Q02_Hourly_Emissions_Data_BASFFP114-001498.pdf F04Q02_Hourly_Emissions_Data_BASFFP114-003585.xlsx	
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	See FS5900 Official Hourly Data.xlsx	

Request Item No.	Request	Response	Interpretive Assumptions
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.	The Plant determined that this question is not applicable because the design and operation of flare is non-assist.	
2	If the hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	There are no data missing for this period.	
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at your response. Such methods of calculation/estimation include, but are not limited to, the use of calculations from an online, intermittent, or continuous gas chromatograph (whether at the flare or upstream of the flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	Data are measured with the exception of Excel workbook Tab Tank Farm and Process Tank which are calculated. Example calculations for the Tank Farm and Process Tank tabs are in the Flare Permit Application (Appendix B). Please see documents entitled: F04Q0102_June2008_Flare_Permit_Application_BASFFP114-001836F04Q02_Hourly_Emissions_Data_BASFFP114-001498.pdf F04Q02_Hourly_Emissions_Data_BASFFP114-003585.xlsx	
2	If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance at a flare),provide an explanation of why no data is available and why the data cannot be calculated or estimated.	All data were measured and/or calculated.	

Request Item No.	Request	Response	Interpretive Assumptions
3	For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.	This flare is not steam or air assisted, therefore the Plant determined that this question was not applicable.	
4	For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	The pilot flame is monitored by two temperature elements T-5900 and T-5901. Please see documents entitled: F04Q04_Temperature_Indication_BASFFP114-001743.pdf F04Q04_Temperature_Indication_BASFFP114-003586.xlsx	
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	This flare is not steam or air assisted and therefore the Plant determined that this question was not applicable.	

Request Item No.	Request	Response	Interpretive Assumptions
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, and flare operation and maintenance, including but not limited to the following: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, Facility operating procedures, Facility monitoring procedures, and flare performance testing.	Please see documents entitled: F04Q06_1998_Stack_Test_BASFFP114-001777.pdf F04Q06_CVS_AVO_Inspections_BASFFP114-001780.pdf F04Q06_CVS_AVO_Inspections_BASFFP114-003587.xlsx F04Q06_CVS_M21_Monitoring_BASFFP114-001786.pdf F04Q06_CVS_M21_Monitoring_BASFFP114-003588.xlsx F04Q06_HON_Malfunction_Checklist_Jan282016_BASFFP114-001792.pdf F04Q06_Process_Manual_BASFFP114-001793.pdf F04Q06_Shutdown_Checklist_April202016_BASFFP114-001796.pdf F04Q06_Startup_Checklist_Apr222016_BASFFP114-001797.pdf F04Q06_Startup_Process_BASFFP114-001798.pdf	
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F04Q07_Haz_Waste_Inspections_Jan2016_BASFFP114-001835.pdf F04Q07_Haz_Waste_Inspections_Feb2016_BASFFP114-001823.pdf F04Q07_Haz_Waste_Inspections_Mar2016_BASFFP114-001827.pdf F04Q07_Haz_Waste_Inspections_Apr2016_BASFFP114-001818.pdf F04Q07_Haz_Waste_Inspections_May2016_BASFFP114-001831.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	Please see documents entitled: F04Q0809_Title_V_Permit_1927_BASFFP114-001926.pdf F04Q0809_NSR_Permit_9513A_BASFFP114-001894.pdf See also: 30 TAC 115.111, 30 TAC 115.122, 30 TAC 115.125, 30 TAC 115.126, 40 CFR 60.18	
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F04Q0809_Title_V_Permit_1927_BASFFP114-001926.pdf F04Q0809_NSR_Permit_9513A_BASFFP114-001894.pdf	
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	No	

BA Flare The BA Flare is a multi tip flare. It has two tips, Tip FS-7711B and Tip FS-7711A.				
Request Item No.	**Request**	**Response for FS-7711B Tip**	**Response for FS-7711A Tip**	**Interpretive Assumptions**
1	**Provide the following information for each flare at the Facility:**			
1a	Unique identification numbers and names used in permit;	BA Flare has two tips (FS-7711A and FS-7711B); Emission Point Number 3-3-02	BA Flare has two tips (FS-7711A and FS-7711B); Emission Point Number 3-3-02	
1b	Date of installation	23-Dec-98	23-Dec-98	
1c	Manufacturer and model number;	FS-7711B Flare Burner Package One (1) - 3" NFF-GR (NAO Fluidic Flare - Gas Ring Assisted Type) For details, see our specification sheet P-10196. Please see document entitled: F05Q0106_BA_Flare_Specifications_BASFFP114-002074.pdf	FS-1711A Flare Burner Package One (1) - 4" NFF-GR (NAO Fluidic Flare - Gas Ring Assisted Type) For details, see our specification sheet P-10196. Please see document entitled: F05Q0106_BA_Flare_Specifications_BASFFP114-002074.pdf	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Emergency only	Emergency only	The BA Flare Tip FS-7711B is only used when the incinerator IN-4702 is down for maintenance or unexpected shutdown, therefore, FS-7711B is viewed as an emergency flare. The BA Flare Tip FS-7711A was not used in the requested time period. There are no plans in the near future to send any material to FS-7711A and all streams are prevented from flowing from this flare with insurance by using car seal closed valves.
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate whether flare is steam, air, or pressure assisted);	Multi tip (FS-7711B and FS-7711A), Non-assisted	Multi tip (FS-7711B and FS-7711A), Non-assisted	Not Steam Assisted, Not Air Assisted.
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);	This flare is not steam or air assisted. Therefore, the Plant determined that this question was not applicable.	This flare is not steam or air assisted. Therefore, the Plant determined that this question was not applicable.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored; and	Nitrogen purge gas is measured using flowmeter (BUTA_FI5812.PV). Methane flow rate is measured by flowmeter (FI-7110). This flare is not steam or air assisted.	Nitrogen purge gas is measured using flowmeter (BUTA_FI7712.PV). Methane flow rate is measured by flowmeter (FI-7110). This flare is not steam or air assisted.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
1hi	Provide a diagram that shows the locations of each: i. Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	For pressure indication, see document entitled: F05Q01_21581_PID_BASFFP114-002101.pdf, D-2580A (knockout drum)	Pressure indicators are shown in document entitled: F05Q01_71711_PID_BASFFP114-002103.pdf	
		Flow indicators are shown in documents entitled: F05Q01_21581_PID_BASFFP114-002101.pdf F05Q01_71711_PID_BASFFP114-002103.pdf	Flow indicators are shown in documents entitled: F05Q01_71710_PID_BASFFP114-002102.pdf F05Q01_71711_PID_BASFFP114-002103.pdf	
		Net heating value is not measured. It is a calculated value, see 2a.	Net heating value is not measured. It can be calculated.	
		For molecular weight of waste stream see page 23 of document entitled: F05Q0102_Flare_Test_Report_BASFFP114-002106.pdf	Molecular weight is not measured. It can be calculated.	
		For constituents concentration see pages 29 - 30 of document entitled: F05Q0102_Flare_Test_Report_BASFFP114-002106.pdf	No flow to this flare during this period. Flare tip on standby.	
1hii	Provide a diagram that shows the locations of each: Knockout drum and water seal;	Please see document entitled: F05Q01_21581_PID_BASFFP114-002101.pdf, D-2580A (knockout drum)	Not applicable, no knockout drum.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
1hiii	Provide a diagram that shows the locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	Please see document entitled: F05Q01_71711_PID_BASFFP114-002103.pdf, FS-7711B (BA Flare Tip)	Please see document entitled: F05Q01_71711_PID_BASFFP114-002103.pdf, FS-7711A (OXO / HDO Flare tip)	
2	**For all periods when waste gas is sent to the flare, provide the following information for each flare in searchable and editable electronic format (e.g., spreadsheet):**			
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F05Q02_Hourly_Emissions_Data_BASFFP114-002305.pdf F05Q02_Hourly_Emissions_Data_BASFFP114-003589.xlsx	The Plant determined that this question was not applicable. No flow was sent to FS-7711A Tip during the requested period. The BA Flare Tip FS-7711A was not used in the last four months. There are no plans in the near future to send any material to FS-7711A and all streams are prevented from flowing from this flare with insurance by using car seal closed valves.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
2b	The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	The hourly average concentration of each constituent of the vent gas was empirically determined during the stack test. Please see pages 32 and 33 of document entitled: F05Q0102_Flare_Test_Report_BASFFP114-002106.pdf Please see document entitled: F05Q02_Flare_Protocol_BASFFP114-002104.pdf	The Plant determined that this question was not applicable. No flow was sent to FS-7711A Tip during the requested period. The BA Flare Tip FS-7711A was not used in the last four months. There are no plans in the near future to send any material to FS-7711A and all streams are prevented from flowing from this flare with insurance by using car seal closed valves.	
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F05Q02_Hourly_Emissions_Data_BASFFP114-002305.pdf F05Q02_Hourly_Emissions_Data_BASFFP114-003589.xlsx	The Plant determined that this question was not applicable. No flow was sent to FS-7711A Tip during the requested period. The BA Flare Tip FS-7711A was not used in the last four months. There are no plans in the near future to send any material to FS-7711A and all streams are prevented from flowing from this flare with insurance by using car seal closed valves.	
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.	The Plant determined that this question was not applicable because design and operation of flare is non-assist.	The Plant determined that this question was not applicable because design and operation of flare is non-assist.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
2	If the hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	There are two dates (2/8/2016 and 4/24/2016) on which the data were measured but not recorded. On occasion, the PIMS (historian) software will experience unexpected and temporary down time and lose track of the process data and stop recording the process data for short periods of time. On 2/8/2016 the historian lost track for 2 hours. On 4/24/2016 the historian lost track for 4 hours. The data before and after these events looks very consistent and it can be estimated that the flow rates remained fairly constant during these periods. There were no process upset conditions observed or documented during this time that would suggest potential deviations from hourly averages. Please see documents entitled: F05Q02_Hourly_Emissions_Data_BASFFP114-003589.xlsx F05Q02_Hourly_Emissions_Data_BASFFP114-002305.pdf	The Plant determined that this question was not applicable. No flow was sent to FS-7711A Tip during the requested period. The BA Flare Tip FS-7711A was not used in the last four months. There are no plans in the near future to send any material to FS-7711A and all streams are prevented from flowing from this flare with insurance by using car seal closed valves.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at your response. Such methods of calculation/estimation include, but are not limited to, the use of calculations from an online, intermittent, or continuous gas chromatograph (whether at the flare or upstream of the flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	During these two periods, the flare was operating under normal conditions. The data was averaged using the available data before and after the historian outage. Since no process upset conditions were observed / documented during this period and based on process knowledge, we have reason to believe that stream flows were fairly constant and stable during this time. The estimated data is highlighted in yellow in the spreadsheet. Please see documents entitled: F05Q02_Hourly_Emissions_Data_BASFFP114-002305.pdf F05Q02_Hourly_Emissions_Data_BASFFP114-003589.xlsx	The Plant determined that this question was not applicable. No flow was sent to FS-7711A Tip during the requested period. The BA Flare Tip FS-7711A was not used in the last four months. There are no plans in the near future to send any material to FS-7711A and all streams are prevented from flowing from this flare with insurance by using car seal closed valves.	
2	If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance at a flare),provide an explanation of why no data is available and why the data cannot be calculated or estimated.	All data was measured or calculated.	All data was measured or calculated.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
3	For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.	This flare is not steam or air assisted. Therefore, the Plant determined that this question was not applicable.	This flare is not steam or air assisted. Therefore, the Plant determined that this question was not applicable.	
4	For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	Both flare tip pilots are controlled via a control card on the field. Both pilots have an auto ignition function in case the flame goes out. Both flare tips are equipped with thermocouples. The thermocouples (TE-7103A and TE-7103B) read on a local panel in the field and communicate with the DCS via TAL-7103. In case one of the pilots go off, TAL-7103 will send an alarm signal into the control room. There is also an infrared sensor (TI7104) that looks at both pilots to ensure they are lit.		
		Please see documents entitled: F05Q04_Pilot_Monitoring_Data_BASFFP114-003590.xlsx F05Q04_Pilot_Monitoring_Data_BASFFP114-002448.pdf	Please see documents entitled: F05Q04_Pilot_Monitoring_Data_BASFFP114-003590.xlsx F05Q04_Pilot_Monitoring_Data_BASFFP114-002448.pdf	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	This flare is not steam or air assisted. Therefore, the Plant determined that this question was not applicable.	This flare is not steam or air assisted. Therefore, the Plant determined that this question was not applicable.	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, and flare operation and maintenance, including but not limited to the following: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, Facility operating procedures, Facility monitoring procedures, and flare performance testing.	Please see documents entitled: F05Q0106_BA_Flare_Specifications_BASFFP114-002074.pdf F05Q06_Flare_Instruction_Manual_BASFFP114-002498.pdf F05Q06_Flare_Testing_Proposal_BASFFP114-002541.pdf F05Q06_Light_Pilot_and_Operate_Flare_Tips_Processes_BASFFP114-002440.pdf	Please see documents entitled: F05Q0106_BA_Flare_Specifications_BASFFP114-002074.pdf F05Q06_Flare_Instruction_Manual_BASFFP114-002498.pdf F05Q06_Flare_Testing_Proposal_BASFFP114-002541.pdf F05Q06_Light_Pilot_and_Operate_Flare_Tips_Processes_BASFFP114-002440.pdf	
		Please see documents entitled: F05Q06_Flare_Process_Manual_BASFFP114-002495.pdf F05Q06_Stack_Test_Corr_Vendor_Dec2015_BASFFP114-002559.pdf F05Q06_Stack_Test_Corr_Vendor-Notification_Lead_Time_Dec2015_BASFFP114-002548.pdf F05Q06_Stack_Test_Corr_Vendor-Protocol_Dec2015_BASFFP114-002550.pdf F05Q06_Stack_Test_Cover_Letter_Feb2016_BASFFP114-002564.pdf F05Q06_Stack_Test_Cover_Letter_Feb2016-ExecutedVersion_BASFFP114-002563.pdf F05Q06_Stack_Test_Notification_Cover_Letter_Dec2015_BASFFP114-002566.pdf F05Q06_Stack_Test_Notification_Dec2015_BASFFP114-002568.pdf		

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	For operator logbook, please see document entitled: F05Q07_Control_Devices_CheckSheet_Jan-May2016_BASFFP114-002571.pdf	For operator logbook, please see document entitled: F05Q07_Control_Devices_CheckSheet_Jan-May2016_BASFFP114-002571.pdf	
		There were no maintenance activities in the flare for the given period.	There were no maintenance activities in the flare for the given period.	
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	40 CFR 60.18, 40 CFR 63.11	40 CFR 60.18, 40 CFR 63.11	
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F05Q09_NSR_Permit_7595A_BASFFP114-002572.pdf F05Q09_Title_V_Permit_1927_BASFFP114-002594.pdf	Please see documents entitled: F05Q09_NSR_Permit_7595A_BASFFP114-002572.pdf F05Q09_Title_V_Permit_1927_BASFFP114-002594.pdf	

Request Item No.	Request	Response for FS-7711B Tip	Response for FS-7711A Tip	Interpretive Assumptions
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	No. The flare is not configured to receive gases from relief devices.	Yes	

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	FL-280 Vent Gas Flare - emission point number 12-1-1	
1b	Date of installation	Installed April of 2002.	
1c	Manufacturer and model number;	Custom-designed and manufactured by BASF Flare Group in Ludwigshafen, Germany. No model number assigned.	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Routine; combusts residual gas from hydroxylamine reaction process.	
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate if flare is steam, air, or pressure assisted);	FL-280 is an elevated, single-tip, steam and air-assisted flare. Please see document entitled: F06Q01_Flare_Specifications_BASFFP114-002744.pdf	Steam is only used to cool refractory and not during normal operations; otherwise this is an air-assisted flare.

Request Item No.	Request	Response	Interpretive Assumptions
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);	Air assist: 18,400 scf/hr is the minimum air flow. There is a low flow alarm at 49,000 scf/hr. Normal operating requires approximately 100,000 scf/hr flow for good mixing and combustion while flaring. Air injected at bottom of flare can-flow is controlled by thermocouples near mid-can. The means of air flow control is through mid-can thermocouples. If below 1,500^{o}C setpoint, the master controller opens air control valve to stay below 1,600^{o}C. Steam assist: If above 1,500^{o}C setpoint, master controller opens 60psi steam control valve. Below 1,500^{o}C, minimum steam flow of 355 lb/hr to cool nozzles is orifice-controlled. Please see document entitled: F06Q0105_Steam_Air_Control_Description_BASFFP114-003202.pdf	
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored;	Process vent gas is measured by ultrasonic flowmeter. Nitrogen purges are measured by orifice plate flowmeter. Methane is measured by orifice plate flowmeters. Assist air is measured by thermal mass flow meter. Supplemental hydrogen is measured by orifice plate. Online analyzer waste stream is measured by rotameter.	There are no regulations that require measurements of waste gas, purge gas, sweep gas, supplemental gas, assist gas or assist air.

Request Item No.	Request	Response	Interpretive Assumptions
1hi	Provide a diagram that shows locations of each: Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	Please see document entitled: F06Q01_Flare_Diagram _BASFFP114-002743.pdf	In diagrams: PCU = pressure control valve VG = vent gas HV = hand valve
1hii	Provide a diagram that shows locations of each: Knockout drum and water seal;	Flare is associated with D-280 knockout drum / water seal. Please see document entitled: F06Q01_Flare_Diagram _BASFFP114-002743.pdf	
1hiii	Provide a diagram that shows locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	Please see document entitled: F06Q01_Flare_Design_Comparison_BASFFP114-002742.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
2	For all periods waste gas sent to flare, provide following information for each flare in editable and searchable electronic format (spreadsheet):	Measured data for 2a--2d are included in spreadsheet. Any data for discrete hours that are not available are explained in comment column of spreadsheet. Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx For explanation of how net heating value and waste gas constituents were calculated, please see document entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_DataCalcs_BASFFP114-002745.pdf	<u>Vent gas constituents:</u> Hydrogen Nitric Oxide Nitrous Oxide Nitrogen Nat. gas (methane) Water All flows to flare are accounted for except assist air, assist steam. There are no regulations or permit conditions that require the plant to measure and/or monitor the hourly average net heating value. Data provided is calculated based on flow rates and component net heating values.
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2b	The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2c	The <u>hourly average mass flow rate</u>, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2d	The <u>hourly average rate</u> at which assist steam and/or <u>assist air</u> was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to date of receipt of this request.		

Request Item No.	Request	Response	Interpretive Assumptions
2	If hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at response. Such methods of calculation/estimation include, but are not limited to, use of calculations from an online, intermittent, or continuous gas chromatograph (whether at flare or upstream of flare), estimating flow from pressure measurements or from valve position data, periodic	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
2	If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance), provide explanation of why no data is available and why the data cannot be calculated or estimated.	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
3	Provide hourly average Steam-to-Vent Gas Ratio (lb Steam / lb Vent Gas) for period beginning 4 months prior to the date of receipt of this request. If rate at which steam added is not measured, use best means available to estimate it. Provide narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.	There is no steam assist used during normal operations; therefore the Plant determined that this question is not applicable.	

Request Item No.	Request	Response	Interpretive Assumptions
4	For each flare, describe how pilot flame is monitored and how monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	The pilot flame is monitored by three thermocouples: two at the top and one at the bottom of the flare-can. Thermocouple data is sent to DCS and historized in PIMS (process information management system). Measured data is included in spreadsheet. Any data for discrete hours that is not available is explained in comment column of spreadsheet. Please see documents entitled: F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003018.pdf F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003592.xlsx	
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	FL-280 steam control valve opens to provide cooling to flare can. Remote set point on cooling steam set at 25°C above the FL-280 temperature controller. FL-280 temperature controller outputs a set point for the air flow to the flare. The air controller takes that air flow set point and opens/closes a control valve to achieve the flow set point. The temperature controller will ask for higher air flow to achieve higher temperatures. Please see document entitled: F06Q0105_Steam_Air_Control_Description_BASFFP114-003202.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, flare operation and maintenance, including but not limited to: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational, monitoring procedures / recommendations, Facility operating procedures, Facility monitoring procedures, and flare performance testing.	Please see documents entitled: F06Q06_Flare_Pre-Startup_CheckSheet_BASFFP114-003211.pdf F06Q06_StartupProcess_BASFFP114-003231.pdf F06Q06_F07Q06_F08Q06_F09Q06_ShutdownProcess_BASFFP114-003205.pdf	This flare was designed by BASF and there are no standard flare manuals.
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	Please see document entitled: F06Q07_MSSLog_BASFFP114-003242.pdf	
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	30 TAC 111.111(a)	FL-280 is a Texas-only regulated flare. There are no federal flare regulations that apply to this flare.
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F06Q09_F07Q09_F08Q09_F09Q09_FOP01926-FlareRequirements_BASFFP114-003246.pdf F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	Yes.	Any PRV release is an unauthorized emission event and an emergency.

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	FL-170B Small Burner Flare - emission point number 12-1-2	Note, per NSR Permit No. 1733A, Special Condition 26, simultaneous venting of waste gas to burner flares FL-170B and FL-171 is not authorized. FL-170B did not operate during the Jan. 25-May 25, 2016 request period and was scheduled to be offline. Please see document entitled: F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf
1b	Date of installation	October 1997.	
1c	Manufacturer and model number;	This flare was designed jointly by NAO, Inc. and BASF and is unique to Freeport plant-specific peak flowrates. Manufactured by NAO Inc. Design was verified by BASF Germany Flare Technology Group and no model number was assigned.	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Routine, intermittent and emergency.	When FL-170B is operational, it flares waste gas from routine, intermittent Hydroxylamine process burner system start-ups and shutdowns, NO-only outages, or emergency mix gas outages.

Request Item No.	Request	Response	Interpretive Assumptions
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate whether flare is steam, air, or pressure assisted);	Elevated, air-assisted. Please see document entitled: F07Q01_Flare_Specifications_BASFFP114-003460.pdf	
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on flare, and means of control of steam or air (e.g., valve, bypass orifice);	FL-170B is not steam-assisted. Primary combustion air: minimum assist is 38,000 scf/hr (low flow alarm) to 66,000 scf/hr (setpoint) Secondary air for cooling: up to 635,000 scf/hr protects flare can (420,000 scf/hr) and pas+C13ses through gaps in refractory to help oxidize residual methane (215,000 scf/hr) only during flaring event. Means of assist air flow control: Combustion air flow is controlled by valve with flowmeter for efficient methane burn without smoking at flare tip. Cooling air flow is controlled by a dedicated valve open during flaring to protect can--flow does not exceed 635,000 scf/hr.	Combustion air setpoint provides good combustion with minimal or no visible emissions.
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored;	Waste Gas: Nitric oxide flow is sum of six acid tower orifice flowmeters. Sweep Gas is measured by rotameter. Supplemental Gas is measured by flowmeter. Assist air is measured by flowmeters.	

Request Item No.	Request	Response	Interpretive Assumptions
1hi	Provide diagram that shows locations of each: Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	Please see document entitled: F07Q01_Header_Diagram_BASFFP114-003461.pdf	In diagrams: DA = detonation arrestor LI = level indicator DL = dip leg PDI = pressure differential indicator
1hii	Provide a diagram that shows locations of each: Knockout drum and water seal;	Flare is associated with D-170A knockout drum. Please see document entitled: F07Q01_Knockout_Diagram_BASFFP114-003462.pdf	
1hiii	Provide a diagram that shows locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	Please see documents entitled: F07Q01_Point_Diagram_BASFFP114-003464.pdf F07Q01_Methane_Flow_Diagram_BASFFP114-003463.pdf F07Q01_Air_Flow_Diagram_BASFFP114-003459.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
2	For all periods waste gas is sent to the flare, provide following information for each flare in searchable and editable electronic format (spreadsheet):	All measured data for 2a--2d is included in spreadsheet. Any data for discrete hours that is not available is explained in comment column of spreadsheet. Please see tab "FL-170B" in documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx For explanation of how net heating value and waste gas constituents were calculated, please see document entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_DataCalcs_BASFFP114-002745.pdf	<u>Vent gas constituents:</u> Hydrogen Nitric Oxide Nitrous Oxide Nitrogen Dioxide Nitrogen Nat. gas (methane) All flows to flare are accounted for. There are no regulations or permit conditions that require the plant to measure and/or monitor the hourly average net heating value. Data provided is calculated based on flow rates and component net heating values.
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2b	Hourly average concentration of each constituent of vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 mo. prior to the date of receipt of this request.		
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.		

Request Item No.	Request	Response	Interpretive Assumptions
2	If hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	Please see the documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at response. Such methods of calculation/estimation include, but are not limited to, use of calculations from an online, intermittent, or continuous gas chromatograph (whether at flare or upstream of flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	Please see the documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
2	If the requested data was not measured or cannot be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance), provide explanation of why no data is available and why the data cannot be calculated or estimated.	Please see the documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	

Request Item No.	Request	Response	Interpretive Assumptions
3	Provide hourly average Steam-to-Vent Gas Ratio (lb Steam / lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (incl. minimum or bypass steam) should be included in ratio calculation.	Because the flare is not steam assisted, the Plant determined that this question is not applicable.	For safety--during start-ups only--steam is injected far upstream into header for cooling to prevent ammonium nitrate formation and reduce explosion risk. Steam condenses upstream of FL-170B at D-170A knock-out drum, demister pad, and detonation arrestor so no water is admitted to flare.
4	For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	There are three pilots at bottom of the flare can, each of which is monitored with a thermocouple. Thermocouple data sent to DCS and historized in PIMS (production information management system). Please see tab "FL-170B" in documents entitled: F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003018.pdf F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003592.xlsx	

Request Item No.	Request	Response	Interpretive Assumptions
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	Please see documents entitled: F07Q05_Operating_Parameters_BASFFP114-003465.pdf	Note: the minimum 95% DRE is pursuant to NSR permit 1733A, Special Condition 25. This is Texas-only regulated flare. Please see document entitled: F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, flare operation and maintenance, including but not limited to: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, facility operating procedures, facility monitoring procedures, and flare performance testing.	Please see documents entitled: F07Q06_Pre-Startup_Process_BASFFP114-003466.pdf F07Q06_Startup_Process_BASFFP114-003476.pdf F06Q06_F07Q06_F08Q06_F09Q06_ShutdownProcess_BASFFP114-003205.pdf	This flare was designed by BASF and there are no standard flare manuals.
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	There are no relevant data because FL-170B did not operate during the Jan. 25-May 25, 2016 request period.	

Request Item No.	Request	Response	Interpretive Assumptions
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	30 TAC 111.111(a)	FL-170B is a Texas-only regulated flare. There are no federal regulations that govern its operation.
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F06Q09_F07Q09_F08Q09_F09Q09_FOP01926_BASFFP114-003254.pdf F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf	
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	No. The flare does not receive gases from any pressure relief device.	

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	FL-171 Large Burner Flare - emission point number 12-1-48	Per the NSR permit, only one burner flare may operate at any time. Only FL-171 'burner flare' operated during Jan.25-May 25, 2016 request period. Please see document entitled: F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf
1b	Date of installation	October of 1997.	
1c	Manufacturer and model number;	The flare was designed jointly by NAO, Inc. and BASF and is unique to Freeport plant-specific peak flowrates. Manufactured by NAO Inc. Design was verified by BASF Germany Flare Technology Group and no model number was assigned.	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Routine, intermittent and emergency.	When FL-171 is operational, it flares waste gas from routine, intermittent Hydroxylamine process burner system start-ups and shutdowns, NO-only outages, or emergency mix gas outages.
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate if flare is steam, air, or pressure assisted)	Elevated, air-assisted. Please see document entitled: F08Q01_Flare_Specifications_BASFFP114-003488.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g., valve, bypass orifice);	FL-171 is not steam-assisted. Primary combustion air: minimum assist is 48,000 (low flow alarm) to 96,000 scf/hr (setpoint) Secondary air for cooling: up to 780,000 scf/hr protects flare can (450,000 scf/hr) and passes through gaps in refractory to oxidize residual methane (330,000 scf/hr) only during a flaring event. Means of assist air flow control: Combustion air flow is controlled by valve with flowmeter for efficient methane burn without smoking at flare tip. Cooling air flow is controlled by a dedicated valve open during flaring to protect can-- flow does not exceed 780,000 scf/hr.	Combustion air setpoint provides good combustion with minimal or no visible emissions.
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored;	Waste Gas Nitric oxide flow is sum of six acid tower orifice flowmeters. Sweep Gas is measured by rotameter. Supplemental Gas is measured by flowmeter. Assist air is measured by flowmeter.	
1hi	Provide diagram that shows locations of each: Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	Please see document entitled: F08Q01_Header_Diagram_BASFFP114-003489.pdf	In diagrams: DA = detonation arrestor PT = pressure transmitter PSV = pressure relief valve FCV = flow control valve PCV = pressure control valve
1hii	Provide a diagram that shows locations of each: Knockout drum and water seal;	Flare is associated with D-171 knockout drum. Please see document entitled: F08Q01_Knockout_Diagram_BASFFP114-003490.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
1hiii	Provide a diagram that shows locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	Please see documents entitled: F08Q01_Point_Diagram_BASFFP114-003492.pdf F08Q01_Methane_Flow_Diagram_BASFFP114-003491.pdf F08Q01_Air_Flow_Diagram_BASFFP114-003487.pdf	PCV = pressure control valve
2	For all periods waste gas is sent to the flare, provide following information for each flare in searchable and editable electronic format (spreadsheet):	All measured data for 2a--2d is included in spreadsheet. Any discrete hourly data that is not available is explained in Comments column of spreadsheet. Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx For explanation of how net heating value and waste gas constituents were calculated, please see document entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_DataCalcs_BASFFP114-002745.pdf	<u>Vent gas constituents:</u> Hydrogen Nitric Oxide Nitrous Oxide Nitrogen Dioxide Nitrogen Nat. gas (methane) All flows to flare are accounted for. There are no regulations or permit conditions that require the plant to measure and/or monitor the hourly average net heating value. Data provided is calculated based on flow rates and component net heating values.
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2b	Hourly average concentration of each constituent of the vent gas for the period beginning 4 mo. prior to the date of receipt of this request.		
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.		
2	If hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	

Request Item No.	Request	Response	Interpretive Assumptions
2	If requested data is not measured or otherwise monitored, use best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at response. Methods of calculation/estimation include, but not limited to, use of calculations from an online, intermittent, or continuous gas chromatograph (whether at flare or upstream of flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
2	If requested data was not measured or can't be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance), provide explanation of why no data is available and why the data cannot be calculated or estimated.	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
3	For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.	Because the flare is not steam assisted, the Plant determined that this question is not applicable.	For safety--during start-ups only, steam is injected upstream into header for cooling to prevent ammonium nitrate formation to reduce explosion risk.
4	For each flare, describe how pilot flame is monitored and how the monitoring data is recorded. Provide monitoring data for the flare pilot flame for period beginning 4 months prior to date of receipt of request.	There are three pilots at bottom of flare can, each of which is monitored with a thermocouple. Thermocouple data sent to DCS and historized in PIMS (production information management system). Please see documents entitled: F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003018.pdf F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003592.xlsx	

Request Item No.	Request	Response	Interpretive Assumptions
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	Please see document entitled: F08Q05_Operating_Parameters_BASFFP114-003493.pdf	Note: the minimum 95% DRE is pursuant to NSR permit, Special Condition 25. Please see document entitled: F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, flare operation and maintenance, including but not limited to: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, facility operating procedures, facility monitoring procedures, and flare performance testing.	Please see documents entitled: F08Q06_Pre-Startup_Process_BASFFP114-003494.pdf F08Q06_Start-up_BASFFP114-003508.pdf F06Q06_F07Q06_F08Q06_F09Q06_ShutdownProcess_BASFFP114-003205.pdf	This flare was designed by BASF and there are no standard flare manuals.
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	Please see documents entitled: F08Q07_Operating_Log_BASFFP114-003518.pdf	
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	30 TAC 111.111(a)	Fl-171 is a Texas-only regulated flare. There are no federal regulations that govern its operation.

Request Item No.	Request	Response	Interpretive Assumptions
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F06Q09_F07Q09_F08Q09_F09Q09_FOP01926_BASFFP114-003254.pdf F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf	
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	No, the flare does not receive gases from a pressure relief device.	

Request Item No.	Request	Response	Interpretive Assumptions
1	**Provide the following information for each flare at the Facility:**		
1a	Unique identification numbers and names used in permit;	FL-241 Ammonia Flare - emission point number 12-1-46	
1b	Date of installation	Installed June of 1994.	
1c	Manufacturer and model number;	John Zink Model EEF-U-24	
1d	Purpose (e.g. emergency only, routine, intermittent process waste gas);	Relief of high ammonia system pressure from off-gases, condensers, upset vents, and equipment or pipeline clearing for planned maintenance	
1e	General design type (e.g., ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate if flare is steam, air, or pressure assisted);	Elevated, non-assist. Please see document entitled: F09Q01_Flare_Specifications_BASFFP114-003531.pdf	
1f	Minimum assist steam (in lbs/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (e.g. valve, bypass orifice)	FL-241 is not steam-assisted FL-241 is not air-assisted	

Request Item No.	Request	Response	Interpretive Assumptions
1g	Describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored;	Ammonia waste gas: Total flow of ammonia and carryover nitrogen is measured by thermal mass flowmeter in waste gas header Methane purge gas: Triggers on flow, minimum is 18 lb/hr, and is measured by: Primary flowmeter--orifice plate Pilots flowmeter--orifice plate Pilot methane flow 50--75 scf/hr If ammonia flow is greater than 100 lbs/hr, the methane valve fully opens and methane becomes 'supplemental gas' to destroy ammonia.	
1hi	Provide a diagram that shows locations of each: Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration;	Please see document entitled: F09Q01_Diagram_BASFFP114-003530.pdf	In diagram: F = flowmeter DA = detonation arrestor PCV = pressure control valve FCV = flow control valve PSV = pressure relief valve
1hii	Provide diagram that shows locations of each: knockout drum and water seal;	The flare is not associated with a knockout drum or water seal.	
1hiii	Provide a diagram that shows locations of each: Injection point for purge gas, sweep gas, and supplemental gas.	Please see document entitled: F09Q01_Diagram_BASFFP114-003530.pdf	Nitrogen and methane are injected into header well upstream of the FL-241 flare-can.

Request Item No.	Request	Response	Interpretive Assumptions
2	For all periods waste gas is sent to the flare, provide the following information for each flare in searchable and editable electronic format (spreadsheet):	Measured data for 2a--2d is included in attached spreadsheet. Any discrete hourly data that is not available is explained in comment column of spreadsheet. Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx For explanation of how net heating value and waste gas constituents were calculated, please see document entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_DataCalcs_BASFFP114-002745.pdf	Fl-241 vent gas constituents while flaring are 75%--99% methane, and 1%--25% ammonia depending on equipment being cleared. All flows to flare accounted for. There are no regulations or permit conditions that require the plant to measure and/or monitor the hourly average net heating value. Data provided is calculated based on flow rates and component net heating values.
2a	The hourly average net heating value, in British thermal units per standard cubic foot (Btu/scf), of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2b	The hourly average concentration of each constituent of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2c	The hourly average mass flow rate, in lbs/hr, of the vent gas for the period beginning 4 months prior to the date of receipt of this request.		
2d	The hourly average rate at which assist steam and/or assist air was added to the flare, in lbs/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 4 months prior to the date of receipt of this request.	No steam assist nor air assist is utilized.	
2	If hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (e.g., flare not is service, instrumentation malfunction, etc.).	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	

Request Item No.	Request	Response	Interpretive Assumptions
2	If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at response. Such methods of calculation/estimation include, but are not limited to, use of calculations from an online, intermittent, or continuous gas chromatograph (whether at flare or upstream of flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
2	If the requested data was not measured or can't be calculated or estimated (e.g., lack of equipment, equipment malfunction, and/or maintenance), provide explanation of why no data is available and why the data cannot be calculated or estimated.	Please see documents entitled: F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-002750.pdf F06Q02_F07Q02_F08Q02_F09Q02_HourlyAvg_EmissionsData_BASFFP114-003591.xlsx	
3	For each flare, provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 4 months prior to the date of receipt of this request. If the rate at which steam added is not measured, use best means available to estimate it. Provide a narrative explanation, with considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation	There is no steam assist, therefore the Plant determined that this question is not applicable.	

Request Item No.	Request	Response	Interpretive Assumptions
4	For each flare, describe how the pilot flame is monitored and how monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 4 months prior to the date of receipt of this request.	There are three pilots at the top of the flare can, each of which is monitored with a thermocouple. The thermocouple data is sent to DCS and historized in PIMS (production information management system). Please see documents entitled: F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003018.pdf F06Q04_F07Q04_F08Q04_F09Q04_PilotMonitoringData_BASFFP114-003592.xlsx	
5	For each flare, provide copies of all documents in your possession, custody, or control that prescribe or recommend the amount of steam or air to be added to each flare. Provide a copy of the entire document if, within the document, it states the maximum steam or air rate, minimum steam or air rate, steam or air addition rate associated with a vent scenario, general steam-to-vent gas or air-to organic gas/vent gas ratio, or any other reference to steam addition.	No steam assist or air assist is utilized, therefore the Plant determined that this question was not applicable.	
6	For each flare, provide copies of all documents in your possession, custody, or control pertaining to flare design specifications, and flare operation and maintenance, including but not limited to: flare manufacturer design information and diagrams, flare engineering studies, flare manufacturer operational and monitoring procedures or recommendations, facility operating procedures, facility monitoring procedures, and flare performance testing.	Please see documents entitled: F09Q06_Operation_Maintenance_Manual_BASFFP114-003532.pdf F09Q06_Pre-startup_Process_BASFFP114-003551.pdf F09Q06_Startup_Process_BASFFP114-003562.pdf F06Q06_F07Q06_F08Q06_F09Q06_ShutdownProcess_BASFFP114-003205.pdf	

Request Item No.	Request	Response	Interpretive Assumptions
7	For each flare, provide copies of flare operation and maintenance logs, including operator logbooks, for the period beginning 4 months prior to the date of receipt of this request.	Please see document entitled: F09Q07_MSS_Log_BASFFP114-003570.pdf	
8	State specifically which, if any, federal and/or state regulations apply to each flare, including any and all documents that include determinations, engineering assessments, and/or associated explanations made regarding CAA applicability to each flare.	40 CFR 60.18 30 TAC. 111.111(a)	
9	For each flare, provide copies of permits issued under federal or state regulations where the flare is listed or flare operation is authorized.	Please see documents entitled: F06Q09_F07Q09_F08Q09_F09Q09_FOP01926_BASFFP114-003254.pdf F06Q09_F07Q010509_F08Q010509_F09Q09_NSRPermit1733A_BASFFP114-003405.pdf	
10	For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.	No, the flare does not receive gases from a pressure relief device.	