



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

FEB 11 2010

REPLY TO THE ATTENTION OF:

AE-17J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Nick Spencer
Business Unit Leader
BP Products North America, Inc.
2815 Indianapolis Boulevard
Whiting, Indiana 46394

Re: Finding of Violation

Dear Mr. Spencer:

This is to advise you that the U.S. Environmental Protection Agency has determined that BP Products North America, Inc. facility at 2815 Indianapolis Boulevard, Whiting, Indiana (BP or you) is in violation of the Clean Air Act (CAA). A list of the requirements violated is provided below. A Finding of Violation (FOV) for these violations is being issued and is enclosed for your review.

The CAA requires that major sources of air toxic, or hazardous air pollutant emissions comply with standards appropriate for the source's category. These National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories are required by Section 112 of the CAA, 42 U.S.C. § 7412, with implementing regulations found at 40 CFR Part 63. The NESHAP for Petroleum Refineries are found at 40 CFR § 63.640 and 63.1560 and specify control of, among other things, process vents and equipment leaks. Facilities subject to an individual NESHAP subpart are also subject to certain NESHAP general provisions found in Subpart A.

Section 111(b)(1)(A) of the CAA, 42 U.S.C. § 7411(b)(1)(A), required EPA to establish and publish a list of stationary source categories which "cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." Pursuant to Section 111(b)(1)(B) of the Act, EPA has established technology-based standards, termed New Source Performance Standards (NSPS), for 68 new source categories. Two standards, Subparts VV and GGG, found at 40 CFR §§ 60.480 and 60.592, respectively, apply to Equipment Leaks of Volatile Organic Compounds (VOC). Facilities subject to an individual NSPS subpart are also subject to certain NSPS general provisions found in Subpart A.

The purpose of these requirements is to reduce emissions that can compromise public health and welfare. Specifically, these requirements ensure that volatile organic compounds and hazardous air pollutants are being controlled to reduce the potential harm to the human respiratory system and reduce the risk of cancer.

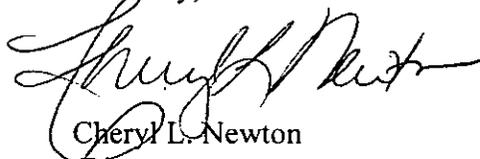
EPA finds that BP has violated the NESHAP for Petroleum Refineries and the NSPS for Equipment Leaks of VOC as those standards apply to flares. EPA also finds that BP has violated the related NESHAP general provisions found at 40 CFR §§ 63.6(e) and 63.11(b), and related NSPS general provisions found at 40 CFR §§ 60.11(d) and 60.18(b).

Section 113 of the CAA gives EPA several enforcement options to resolve these violations, including: issuing an administrative compliance order, issuing an administrative penalty order, bringing a judicial civil action, and bringing a judicial criminal action.

We are offering you the opportunity to request a conference with us about the violations alleged in the FOV. A conference should be requested within 10 days following receipt of this notice. A conference should be held within 30 days following receipt of this notice. This conference will provide you a chance to present information on the identified violations, any efforts you have taken to comply and the steps you will take to prevent future violations. Please plan for your facility's technical and management personnel to take part in these discussions. You may have an attorney represent and accompany you at this conference.

The EPA contacts in this matter are Mark Ackerman, and Brian Dickens. You may call Mark Ackerman at (312) 353-4145, or Brian Dickens at (312) 886-6073 if you wish to request a conference. EPA hopes that this FOV will encourage BP Whiting to comply with the requirements of the Clean Air Act.

Sincerely,



Cheryl L. Newton
Director

Air and Radiation Division

Enclosure

cc: Phil Perry, Chief
Compliance and Enforcement Branch
Office of Air Quality
Indiana Department of Environmental Management

standard bcc's: official file copy w/attachment(s)
originating organization reading file w/attachment(s)

other bcc's: William Wagner, C-14J
Mary Mcauliffe, C-14J
Brian Dickens, AE-17J

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United States Environmental Protection Agency
Region 5

IN THE MATTER OF:)	
)	
BP Products North America, Inc.)	
Whiting, Indiana)	FINDING OF VIOLATION
)	
)	EPA-5-10-04-IN
Proceedings Pursuant to)	
the Clean Air Act,)	
42 U.S.C. §§ 7401 et seq.)	

FINDING OF VIOLATION

The U.S. Environmental Protection Agency finds that BP Products North America, Inc. (BP or you) is violating certain provisions of the New Source Performance Standards, 40 C.F.R. Part 60 (NSPS), and the National Emission Standards for Hazardous Air Pollutants for Source Categories, 40 C.F.R. Part 63 (NESHAP for Source Categories), including, but not limited to: 40 C.F.R. § 60.11(d); 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. § 63.11(b). These violations arise out of BP's improper operation of four of its refinery flares.

Statutory and Regulatory Authority

This Finding of Violation is based on the following statutory and regulatory provisions:

New Source Performance Standards (NSPS)

1. Section 111(b)(1)(A) of the Act, 42 U.S.C. § 7411(b)(1)(A), required EPA to establish and publish a list of stationary source categories which "cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." Pursuant to Section 111(b)(1)(B) of the Act, EPA has established technology-based standards for 68 new source categories. General NSPS provisions applying to source categories are set forth at 40 C.F.R. Part 60, Subpart A, §§ 60.1-60.19. NSPS general provisions apply to all NSPS source categories unless explicitly exempted in a specific subpart.

40 C.F.R. § 60.11(d): Good Air Pollution Control Practices

2. The general NSPS provision at Section 60.11(d) provides as follows: At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility

including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

40 C.F.R. § 60.18(b): General Requirements for Flares

3. NSPS subparts that require or allow the use of a flare as a control device reference 40 C.F.R. § 60.18(b) for the applicable compliance parameters for the operation and maintenance of flares. Section 60.18(b) references specific provisions in Section 60.18 (c)-(f), which set forth flaring requirements. Section 60.18(c)(1) provides that “[f]lares shall be designed for and operated with no visible emissions” Section 60.18(c)(3)(ii) provides that flares shall be used only with the net heating value of the gas being combusted at 300 BTU or greater if the flare is steam-assisted. Section 60.18(c)(4) provides that steam-assisted flares “shall be designed for and operated with an exit velocity . . . less than . . . 60 feet/sec” Section 60.18(d) provides that “[o]wners and operators of flares used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.”

40 C.F.R. Part 60, Subpart VV: NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

4. Certain subparts under NSPS and NESHAP for source categories (40 C.F.R. Part 63) which regulate equipment leaks of volatile organic chemicals (VOC) require compliance with 40 C.F.R. Part 60, Subpart VV. Under Subpart VV, the group of all equipment within a process unit is an affected facility. 40 C.F.R. § 60.480(a)(2). Equipment includes each valve, pump, compressor, pressure relief device, sampling system, and open-ended line in VOC service. 40 C.F.R. § 60.481.
5. The Subpart VV regulation includes requirements for control devices, including flares, used in conjunction with control of equipment leaks. Section 60.482-10 sets forth standards for closed vent systems and control devices used to comply with the provisions of Subpart VV. Section 60.482-10(d) provides that flares used to comply with Subpart VV must comply with Section 60.18 of Part 60, Subpart A, General Provisions. Section 60.482-10(e) provides that owners of control devices, including flares, that are used to comply with the requirements of Subpart VV, “shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.”

40 C.F.R. Part 60, Subpart GGG: NSPS Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries

6. EPA promulgated the final standards of performance for equipment leaks of volatile organic compounds (VOC) in the petroleum refining industry on May 30,

1984. 49 Fed. Reg. 22598. An affected facility under Subpart GGG includes “all the equipment within a process unit” of a refinery. Under Subpart GGG, equipment includes each valve, pump, pressure relief device, open-ended valve or line or other connector within VOC service (that is, contain at least 10% VOC by weight; 49 Fed. Reg. at 22598). Pursuant to 40 C.F.R. § 60.592(a), each owner or operator subject to Subpart GGG is directed to comply with the Standards of 40 C.F.R. Part 60, Subpart VV, at §§ 60.482-1 to 60.482-10. Further, because Subpart GGG is a NSPS subpart, all of the general provisions under Subpart A apply to sources subject to Part 60, Subpart GGG. Therefore, Section 60.11(d), which requires compliance with good air pollution control practices for minimizing emissions, applies to sources subject to Subpart GGG.

National Emission Standards for Hazardous Air Pollutants for Source Categories, 40 C.F.R. Part 63 (NESHAP for Source Categories)

7. The Clean Air Act Amendments of 1990 amended Section 112 of the Act to implement a technology-based approach to the control of hazardous air pollutants based upon the control of categories of sources which emit the greatest amount of HAPs. Section 112(b) of the Act lists 188 HAPs that cause adverse health or environmental effects. Section 112(d) of the Act requires the Administrator to promulgate regulations establishing emissions standards for each category or subcategory of major and area sources of HAPs. The General Provisions for the Part 63 NESHAP standards are set forth at 40 C.F.R. Part 63, Subpart A, §§ 63.1 - 63.15.

40 C.F.R. § 63.6(e)(1)(i): Good Air Pollution Control Practice

8. The NESHAP for Source Categories general provision at Section 63.6(e)(1)(i) provides as follows:

Operation and maintenance requirements. (1)(i) At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emissions levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved.

40 C.F.R. § 63.11(b): Flare Requirements

9. 40 C.F.R. § 63.11 addresses requirements pertaining to the operation of flares. These requirements include, Section 63.11(b)(4), which provides that “[f]lares shall be designed for and operated with no visible emissions . . .”; Section 63.11(b)(6)(ii), which provides that steam-assisted flares “shall be used only with the net heating value of the gas being combusted at . . . 300 BTU/scf or greater . . .”; and, Section 63.11(b)(7)(i), which provides that steam-assisted flares “shall be designed and operated with an exit velocity less than . . . 60 ft/sec . . .” Further, Section 63.11(b)(1) provides that “[o]wners or operators using flares to comply with the provisions of this part shall monitor these control devices to assure that they are operated and maintained in conformance with their designs.”

40 C.F.R. Part 63, Subpart CC: National Emission Standards for Hazardous Air Pollutants: Petroleum Refineries

10. EPA promulgated the NESHAP for petroleum refineries on August 18, 1995, based on EPA’s determination that petroleum refineries are major sources of HAP emissions. 60 Fed Reg. 43244. Subpart CC applies to petroleum refining process units and to related emission points. Section 63.640(c) provides that for “the purposes of this subpart, the affected source shall comprise all emission points, in combination,” listed at Section 63.640(c)(1) through (c)(7). These emission points include miscellaneous process vents and all equipment leaks. 40 C.F.R. §§ 63.640(a) and (c)(1) and (4).
11. Section 63.643 sets forth requirements for Group 1 miscellaneous process vents. A Group 1 miscellaneous process vent means a process vent for which the total organic HAP concentration is greater than or equal to 20 parts per million by volume and the total VOC emissions are greater than 33 kilograms per day for existing sources or 6.8 kilograms per day for new sources. 40 C.F.R. § 63.641. Owners or operators of Group 1 miscellaneous process vents have two control options under Section 63.643(a) (1) and (2). The pertinent control option in this matter is 40 C.F.R. § 63.643(a)(1), which requires the reduction of emission of organic HAP’s using a flare that meets the requirements of Part 60, Subpart A, Section 63.11(b). These requirements include 40 C.F.R. § 63.11(b)(1), which requires that flares are operated in conformance with their designs.
12. Section 63.648 sets forth requirements for equipment leaks. 40 C.F.R. § 63.648(a) provides that “[e]ach owner or operator of an existing source subject to the provisions of this subpart shall comply with the provisions of 40 C.F.R. part 60 subpart VV....” As stated above, Section 60.482-10(e) of 40 C.F.R. Part 60, Subpart VV, requires that owners of flares that are used to comply with the requirements of Subpart VV “shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.”
13. Table 6 to 40 C.F.R. Part 63, Subpart CC, titled “General Provisions Applicability to Subpart CC,” specifically provides that Section 63.6(e) of the General

Provisions applies to affected sources under Subpart CC (except for “Group 2 emission points”). Table 6 further provides that 40 C.F.R. § 63.11(b) applies to all affected sources regulated by Subpart CC. As stated above, 40 C.F.R. § 63.6(e)(1) is the good air pollution control practice provision for NESHAPs for source categories and 40 C.F.R. § 63.11 sets forth operating and maintenance parameters (including compliance with design) for flares.

40 C.F.R. Part 63, Subpart UUU: National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units (CCU), Catalytic Reforming Units (CRU), and Sulfur Recovery Units (SRU).

14. EPA promulgated Part 63, Subpart UUU, known as the Refinery MACT II, on April 11, 2002. 67 Fed. Reg. 17762. Subpart UUU was subsequently amended by a direct final rule on February 9, 2005. 70 Fed. Reg. 6930. The NESHAP establishes emission limits for HAPs emitted from vents on the following types of process units: catalytic cracking units, catalytic reforming units, or sulfur recovery units. Section 63.1562(a), provides that Subpart UUU applies to each new, reconstructed, or existing affected source at a petroleum refinery. Section 63.1562(b) provides that an affected source under Subpart UUU includes process vents on catalytic reforming units that are associated with the regeneration of catalyst.
15. Section 63.1566 sets forth requirements for organic HAP emissions from catalytic reforming units. Specifically, 40 C.F.R. § 63.1566(a)(1)(i), which is one of two options available to control vent emissions of total organic compounds (TOC), provides that the TOC be directed to a flare meeting the control device requirements of 40 C.F.R. § 63.11(b). Further, the section references Table 15 to Subpart UUU, which affirms the applicability of Section 63.11(b).
16. Table 44 to Subpart UUU provides that certain General Provisions from 40 C.F.R. Part 63, Subpart A, apply to affected sources regulated under Subpart UUU. These include 40 C.F.R. § 63.6(e)(1)-(2) and 40 C.F.R. § 63.11. As stated above, 40 C.F.R. § 63.6(e)(1) is the good air pollution control practice provision for NESHAPs for source categories and 40 C.F.R. § 63.11 sets forth operating and maintenance parameters (including compliance with design) for flares.

Factual Allegations and Explanation of Violations

17. BP Products North America, Inc. (BP or you) owns and operates a refinery at 2815 Indianapolis Boulevard, Whiting, Indiana.
18. The Title V permit for BP at Section D.35 page 1, provides a table listing all of the refinery flares, and the process units that are normally controlled by the flare systems. The following flares and the process units they control are the subject of this FOV and are as follows:

- a. FCU flare normally controls Fluid Catalytic Cracking Unit 600 (FCU 600);
 - b. UIU flare normally controls the Isomerization Unit (ISOM), Ultraformer No. 3 (3UF), No. 2 Treatment Plant (2TP), and Catalytic Refining Unit (CRU);
 - c. Alky flare normally controls the Propylene Concentration Unit (PCU), and the Alkylation unit;
 - d. DDU flare normally controls the Distillate Desulfurizer Unit (DDU), Hydrogen Unit (HU), Coker, and Distillate Hydrotreating Unit (DHT).
19. The Title V permit for BP at Section D.22.4, and D.22.5, provides that FCU 600 is subject to: 40 C.F.R. Part 63, Subpart CC, 40 C.F.R. Part 63, Subpart UUU respectively. Therefore, FCU 600 is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 20. The Title V permit for BP at section D.9.4, and D.9.5, provides that the ISOM unit is subject to 40 C.F.R. Part 63, Subpart CC. Therefore, the ISOM unit is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 21. The Title V permit for BP at section D.15.4, D.15.5, and D.15.7, provides that 3UF is subject to: 40 C.F.R. Part 63, Subpart CC, 40 C.F.R. Part 63, Subpart UUU respectively. Therefore, 3UF is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 22. The Title V permit for BP at section D.12.1, provides that 2TP is subject to 40 C.F.R. Part 63, Subpart CC. Therefore, 2TP is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 23. The Title V permit for BP at section D.20.4, provides that the CRU is subject to 40 C.F.R. Part 60, Subpart GGG, and 40 C.F.R. Part 63, Subpart CC. Therefore, the CRU is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.11(d); 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 24. The Title V permit for BP at section D.8.1, provides that the PCU is subject to 40 C.F.R. Part 63, Subpart CC. Therefore, the PCU is subject to, among other things, the good air pollution control practices provisions and the flare operation

- and maintenance provisions at: 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
25. The Title V permit for BP at section D.7.2, provides that the Alky is subject to 40 C.F.R. Part 63, Subpart CC. Therefore, the Alky is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 26. The Title V permit for BP at section D.18.5, provides that the DDU is subject to 40 C.F.R. Part 60, Subpart GGG, and 40 C.F.R. Part 63, Subpart CC. Therefore, the DDU is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.11(d); 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 27. The Title V permit for BP at section D.17.5, provides that the HU is subject to 40 C.F.R. Part 60, Subpart GGG, and 40 C.F.R. Part 63, Subpart CC. Therefore, the HU is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.11(d), 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 28. The Title V permit for BP at section D.2.4, provides that the Coker is subject to 40 C.F.R. Part 60, Subpart GGG, and 40 C.F.R. Part 63, Subpart CC. Therefore, the Coker is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.11(d); 40 C.F.R. § 60.18(b), 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 29. The Title V permit for BP at section D.37.3, provides that the DHT unit is subject to 40 C.F.R. Part 63, Subpart CC. Therefore, the DHT unit is subject to, among other things, the good air pollution control practices provisions and the flare operation and maintenance provisions at: 40 C.F.R. § 60.18(b); 40 C.F.R. § 63.6(e)(1)(i); 40 C.F.R. §63.11(b).
 30. BP uses the FCU, UIU, Alky, and DDU flares to control emission from process units, including emissions resulting from malfunctions and pressure relief episodes.
 31. The FCU, UIU, Alky, and DDU flares are steam assisted, which means that steam is added to the waste, or vent gas stream to enhance combustion and prevent the formation of smoke. Steam is added in proportion to the amount of vent gas, and it is common practice to measure to the amount of steam as a ratio of the mass of steam per unit mass of vent gas (lb/lb).
 32. On August 27, 2009, BP provided information to EPA in response to an EPA information request, including operating data on the FCU, UIU, Alky, and DDU flares for the period from July 1, 2006 through July 28, 2009, and flare design documents.

33. BP's Instruction Manual for the FCU flare, written by NAO, Inc., the flares' manufacturer, states that "the amount of steam needs to be regulated in relation to the amount of relief gas," and sets forth the design vent gas flow rate and associated steam flow rate. Specifically, it states that the flare's design flowrates are 42,000 lb/hr of steam and 110,000 lb/hr of vent gas. These flow rates result in a steam-to-vent gas ratio of approximately 0.4 lb steam/lb vent gas at these design conditions.
34. BP's Instruction Manual for the UIU flare, written by NAO, Inc., the flares' manufacturer, states that "the steam level is adjusted so that is sufficient to suppress any smoking," and sets forth the design vent gas flow rate and associated steam flow rate. Specifically, it states that the flare's design flowrates are 23,500 lb/hr of steam and 58,750 lb/hr of vent gas. These flow rates result in a steam-to-vent gas ratio of approximately 0.4 lb steam/lb vent gas at these design conditions.
35. BP's Instruction Manual for the Alky flare, written by NAO, Inc., the flares' manufacturer, states that "the amount of steam needs to be regulated in relation to the amount of relief gas," and sets forth the design vent gas flow rate and associated steam flow rate. Specifically, it states that the flare's design flowrates are 33,750 lb/hr of steam and 75,000 lb/hr of vent gas. These flow rates result in a steam-to-vent gas ratio of approximately 0.4 lb steam/lb vent gas at these design conditions.
36. BP's Instruction Manual for the DDU flare, written by Callidus Technologies, LLC, the flares' manufacturer, sets forth the design vent gas flow rate and associated steam flow rate. Specifically, it states that the flare's design flowrates are 63,000 lb/hr of steam and 220,000 lb/hr of vent gas. These flow rates result in a steam-to-vent gas ratio of approximately 0.3 lb steam/lb vent gas at these design conditions.
37. The steam-to-vent gas ratio set forth in the Instruction Manual for the flares is consistent with good engineering practice as set forth in industry, academic, and government publications concerning the operation of flares, e.g.:
 - a. In March 1997, the American Petroleum Institute (API) released a report entitled "Guide for Pressure-Relieving and Depressuring Systems." The document discusses proper practices for venting organic material. With respect to smoke suppression at steam-assisted flares, the authors of the document state, "the amount of steam required is primarily a function of the gas composition, flow rate and steam pressure and flare tip design and is normally in the range of 0.25 to 1.0. [lb/lb]".
 - b. In July 1983, EPA released report EPA 600/2-83-052, titled Flare Efficiency Study. This study, partially funded by EPA and the Chemical Manufacturers Association (CMA), included various tests to determine the combustion efficiency and hydrocarbon destruction efficiency of flares

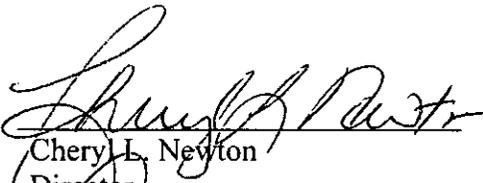
under a variety of operating conditions. The tests performed included a wide range of steam flows and steam-to-vent gas ratios. The data collected showed decreasing combustion efficiencies when the steam-to-vent gas ratio increased. The report's authors indicated they believed excessive steam-to-vent gas ratios caused steam quenching of the flame during the tests which resulted in lower combustion efficiency. The report on page 37 states "This data suggests that steam-to-relief gas ratios ranging from 0.4 to 1.5 yield the best combustion efficiencies." The report also states on page 28 that steam-to-vent gas ratios above 3.07, "are regarded as being higher than those that would represent good engineering practice."

38. BP occasionally provided steam to the FCU, UIU, DDU, and Alky flares in excess of their design steam-to-vent gas ratio. This excess steam resulted in steam-to-vent gas ratios that exceeded 10 lb/lb as three-hour averages.
39. This failure to adhere to the flare's design and good air pollution control practices resulted in excess steam being added to the FCU, UIU, DDU, and Alky flares on several days in 2006, 2007, 2008, and 2009, which likely reduced the combustion efficiency of the flares. The reduction in combustion efficiency resulted in increased emissions. BP's actions are violations of the good air pollution control practices provisions and the flare operation and maintenance provisions under NSPS and NESHAP, as well as the underlying violations of NSPS Subpart GGG and NESHAP Subparts CC and UUU.

Environmental Impact of Violations

40. These violations have caused or can cause excess emissions of VOCs and/or HAPs. VOC cause ground level ozone, which can irritate the human respiratory system and reduce lung function. The health effects from HAPs include birth defects, cancer, and respiratory ailments.

2/11/10
Date


Cheryl L. Newton
Director
Air and Radiation Division

CERTIFICATE OF MAILING

I, Betty Williams, certify that I sent a Notice and Finding of Violation, No. EPA-5-10-04-
IN, by Certified Mail, Return Receipt Requested, to:

Nick Spencer
Business Unit Leader
BP Products North America, Inc.
2815 Indianapolis Boulevard
Whiting, Indiana 46394

I also certify that I sent copies of the Finding of Violation and Notice of Violation by first
class mail to:

Phil Perry, Chief
Compliance and Enforcement Branch
Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue, Room IGCN 1003
Indianapolis, Indiana 46204-2251

on the 17th day of February, 2010.


Betty Williams
Administrative Program Assistant
AECAS, IL/IN

CERTIFIED MAIL RECEIPT NUMBER: 70091680000076665162