IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF INDIANA
EVANSVILLE DIVISION

UNITED STATES OF AMERICA and STATE OF INDIANA, Plaintiffs, v. COUNTRYMARK REFINING AND LOGISTICS, LLC, Defendant.	Civil Action No. 3:13-CV-30-RLY-WGH

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WHEREAS Plaintiff the United States of America ("United States"), by the authority of the Attorney General of the United States and through its undersigned counsel, acting at the request and on behalf of the United States Environmental Protection Agency ("EPA"), and Co-Plaintiff the State of Indiana ("Indiana" or "Co-Plaintiff"), on behalf of the Indiana Department of Environmental Management ("IDEM"), have contemporaneously filed a Complaint and lodged this Consent Decree against defendant Countrymark Refining and Logistics, LLC ("CountryMark" or "Defendant") for alleged environmental violations at CountryMark's petroleum refinery located in Mount Vernon, Indiana ("Refinery" or "Mt. Vernon Refinery");

WHEREAS the United States alleges, upon information and belief, that CountryMark has violated and/or continues to violate the following statutory and regulatory provisions:

a. Prevention of Significant Deterioration ("PSD") requirements found at Part C of Subchapter I of the Clean Air Act (the "Act" or "CAA"), 42 U.S.C. §§ 7475, and the regulations promulgated thereunder at 40 C.F.R. § 52.21 (the "PSD Rules") for heaters and boilers and fluid catalytic cracking units for nitrogen oxide ("NOx") and sulfur dioxide ("SO_2");

b. New Source Performance Standards ("NSPS") found at 40 C.F.R. Part 60, Subparts A and J, under Section 111 of the Act, 42 U.S.C. § 7411 ("Refinery NSPS Regulations"), for fuel gas combustion devices and fluid catalytic cracking unit catalyst regenerators; and

c. Leak Detection and Repair ("LDAR") requirements promulgated pursuant to Sections 111 and 112 of the Act, and found at 40 C.F.R. Part 60 Subparts VV and GGG; 40 C.F.R. Part 61, Subparts J and V; and 40 C.F.R. Part 63, Subparts F, H, and CC ("LDAR Regulations").

WHEREAS the United States also specifically alleges with respect to the Refinery that, upon information and belief, CountryMark has been and/or continues to be in violation of the state implementation plan ("SIP") and other state rules and regulations adopted by the State of

Indiana to the extent that such plans, rules, or regulations implement, adopt or incorporate the above-described federal requirements;

WHEREAS the United States alleges, upon information and belief, that CountryMark has violated and/or continues to violate at the Refinery's Main Flare, the following statutory and regulatory provisions:

a. The Prevention of Significant Deterioration ("PSD") requirements found in 42 U.S.C. § 7475 and 40 C.F.R. §§ 52.21(a)(2)(iii) and 52.21(j)–52.21(r)(5);

b. The federally enforceable Minor New Source Review ("Minor NSR") requirements adopted and implemented by Indiana in its SIP pursuant to 42 U.S.C. § 7410(a)(2)(C) and 40 C.F.R. §§ 51.160–51.164;

c. The New Source Performance Standards ("NSPS") promulgated at 40 C.F.R. Part 60, Subparts A, J, VV, VVa, GGG, and GGGa, pursuant to Section 111 of the CAA, 42 U.S.C. § 7411;

d. The National Emission Standards for Hazardous Air Pollutants ("NESHAPs") promulgated at 40 C.F.R. Part 63, Subparts A, CC, and UUU, pursuant to Section 112 of the CAA, 42 U.S.C. § 7412;

e. The requirements of Title V of the CAA found at 42 U.S.C. §§ 7661a(a), 7661b(c), 7661c(a); and 40 C.F.R. §§ 70.1(b), 70.5(a) and (b), 70.6(a) and (c), and 70.7(b);

f. The portions of the Title V permits for the Covered Refineries that adopt, incorporate, or implement the provisions cited in a–d and g;

g. The federally enforceable SIP for Indiana that incorporates, adopts, and/or implements the federal requirements listed in a and c–d;

WHEREAS the State of Indiana has joined in this matter alleging violations of its respective applicable SIP provisions and/or other state rules and regulations incorporating and/or implementing the foregoing federal requirements;

WHEREAS CountryMark denies that it has violated the foregoing statutory, regulatory, and SIP provisions and the state and/or local rules and regulations incorporating and

implementing the foregoing federal requirements, and maintains that it has been and remains in compliance with all applicable statutes, regulations and permits and is not liable for civil penalties and injunctive relief as alleged in the Complaint;

WHEREAS the United States is engaged in a federal strategy for achieving cooperative agreements with petroleum refineries in the United States to achieve across-the-board reductions in emissions;

WHEREAS CountryMark is a cooperative refinery that processes approximately 27,100 barrels of crude oil per day, is owned by over 100,000 farmers, and serves primarily production agriculture in the states of Indiana, Illinois and Ohio;

WHEREAS, prior to the Lodging of this Consent Decree, CountryMark undertook a number of measures intended to reduce air pollution emissions, including but not limited to: (i) developing a written enhanced LDAR program and implementing it; (ii) introducing SO_2 reducing catalyst additives into the FCCU; (iii) introducing Low NOx Combustion Promoter into the FCCU; (iv) designing and routing the sulfur tank vent to the Sulfur Recovery Plant's Tail Gas incinerator; (v) reducing fuel gas H_2S content in its fuel gas; (vi) installing a Continuous Opacity Monitoring System ("COMS") to monitor opacity from the FCCU; (vii) terminating fuel oil combustion in heaters and boilers; and (viii) shutting down a boiler;

WHEREAS CountryMark has indicated that it remains committed to proactively addressing environmental issues relating to its operations;

WHEREAS CountryMark estimates that, including expenditures it already has made, it will spend a total of approximately $18 million to comply with the requirements of this Consent Decree.

WHEREAS, the United States anticipates that the affirmative relief in Section V of this Consent Decree will reduce emissions of the following pollutants by the following amounts, in tons per year ("tpy"):

Nitrogen Oxides ("NO_x")	208
Sulfur Dioxide ("SO_2")	777
Volatile Organic Compounds ("VOCs")	51
Particulate Matter ("PM")	29
Hazardous Air Pollutants ("HAPs")	5

The United States also anticipates reductions of carbon monoxide and greenhouse gases.

WHEREAS discussions between the Parties have resulted in the settlement embodied in the Consent Decree;

WHEREAS CountryMark has waived any applicable federal or state requirements of statutory notice of the alleged violations;

WHEREAS, notwithstanding the foregoing reservations, the Parties agree that settlement of the matters set forth in the Complaint (filed herewith) is in the best interests of the Parties and the public, and entry of the Consent Decree without litigation is the most appropriate means of resolving this matter;

WHEREAS the Parties recognize, and the Court by entering the Consent Decree finds, that the Consent Decree has been negotiated at arms length and in good faith and that the Consent Decree is fair, reasonable, and in the public interest;

NOW THEREFORE, with respect to the matters set forth in the Complaint and in Section XV of the Consent Decree ("Effect of Settlement"), and before the taking of any testimony, without adjudication of any issue of fact or law, and upon the consent and agreement of the Parties to the Consent Decree, it is hereby ORDERED, ADJUDGED and DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action and over the Parties pursuant to 28 U.S.C. §§ 1331, 1345, 1355, and 1367(a). In addition, this Court has jurisdiction over the subject matter of this action pursuant to Sections 113(b), 167, and 304(a) of the CAA, 42 U.S.C. §§ 7413(b), 7477, and 7604(a). The Complaint states a claim upon which relief may be granted for injunctive relief and civil penalties against CountryMark under the Clean Air Act. The authority of the United States to bring this suit is vested in the United States Department of Justice pursuant to Sections 113(b) and 305 of the CAA, 42 U.S.C. §§ 7413(b) and 7605, and pursuant to 28 U.S.C. §§ 516 and 519, and in the State of Indiana pursuant to Section 304(a) of the CAA, 42 U.S.C. § 7604.

2. Venue is proper in the United States District Court for the Southern District of Indiana pursuant to Sections 113(b) and 304(c) of the CAA, 42 U.S.C. §§ 7413(b) and 7604(c), and 28 U.S.C. §§ 1391(b) and (c), and 1395(a). CountryMark consents to the personal jurisdiction of this Court and waives any objections to venue in this District.

3. The State of Indiana has actual notice of the commencement of this action in accordance with the requirements of CAA Sections 113(a)(1) and 113(b), 42 U.S.C. §§ 7413(a)(1) and 7413(b).

II. APPLICABILITY AND BINDING EFFECT

4. The provisions of the Consent Decree shall apply to the Refinery. The provisions of the Consent Decree shall be binding upon the United States, Indiana, and CountryMark, including CountryMark's successors, assigns, and other entities or persons otherwise bound by law.

5. Subject to Paragraph 212 (Public Notice and Comment), the Parties agree not to contest the validity of the Consent Decree in any subsequent proceeding to implement or enforce its terms.

6. Effective from the Date of Entry of the Consent Decree until its termination, CountryMark agrees that the Refinery is covered by this Consent Decree. Effective from the Date of Lodging of the Consent Decree, CountryMark shall give written notice of the Consent Decree to any successors in interest prior to the transfer of ownership or operation of any portion of the Refinery and shall provide a copy of the Consent Decree to any successor in interest. CountryMark shall notify the United States and Indiana in accordance with the notice provisions set forth in Section XI (Notice), of any successor in interest at least thirty (30) days prior to any such transfer.

7. CountryMark will condition any transfer, in whole or in part, of ownership of, operation of, or other interest (exclusive of any non-controlling non-operational shareholder interest) in, the Refinery upon the execution by the transferee of a modification to the Consent Decree which makes the terms and conditions of the Consent Decree applicable to the transferee. As soon as possible prior to the transfer, CountryMark shall notify the United States and Indiana of the proposed transfer. Simultaneously, CountryMark shall provide a certification from the transferee that the transferee has the financial and technical ability to assume the obligations and liabilities under this Consent Decree. By no later than sixty (60) days after the transferee executes a document agreeing to substitute itself for CountryMark for all terms and conditions of this Consent Decree, the United States, Indiana, CountryMark, and the transferee shall jointly file with the Court a motion requesting the Court to substitute the transferee as the Defendant. If CountryMark does not secure the agreement of the United States and Indiana to a Joint Motion

within sixty (60) days, then CountryMark and the transferee may file a motion without the agreement of the United States and Indiana. The United States and Indiana thereafter may file an opposition to the motion. CountryMark will not be released from the obligations and liabilities of any provision of this Consent Decree unless and until the Court grants the motion substituting the transferee as the Defendant to those provisions.

8. Except as provided in Paragraph 7, CountryMark shall be solely responsible for ensuring that performance of the work required under this Consent Decree is undertaken in accordance with the deadlines and requirements contained in this Consent Decree and the Appendices. CountryMark shall provide a copy of the applicable provisions of this Consent Decree to each consulting or contracting firm that is retained to perform work required under Section V and/or Appendix B of this Consent Decree, upon execution of any contract relating to such work. No later than thirty (30) days after the Date of Entry of the Consent Decree, CountryMark also shall provide a copy of the applicable provisions of this Consent Decree to each consulting or contracting firm that CountryMark already has retained to perform the work required under Section V and/or Appendix B of this Consent Decree. Copies of the Consent Decree do not need to be supplied to firms who are retained to supply materials or equipment to satisfy requirements under this Consent Decree.

III. OBJECTIVES

9. It is the purpose of the Parties in this Consent Decree to further the objectives of the federal Clean Air Act, the Indiana air pollution control laws, and the rules and regulations promulgated under these statutes.

IV. DEFINITIONS

10. Unless otherwise defined herein, terms used in the Consent Decree shall have the meaning given to those terms in the Clean Air Act and the implementing regulations promulgated thereunder. The following terms used in the Consent Decree will be defined for purposes of the Consent Decree and the reports and documents submitted pursuant thereto as follows:

a. "7-day rolling average" shall mean the average daily emission rate or concentration during the preceding 7 days. For purposes of clarity, the first day used in a 7-day rolling average compliance period is the first day on which the emissions limit is effective and the first complete 7-day average compliance period is 7 days later (*e.g.*, for a limit effective on January 1, the first day in the period is January 1 and the first complete 7-day period is January 1 through January 7).

b. "365-day rolling average" shall mean the average daily emission rate or concentration during the preceding 365 days. For purposes of clarity, the first day used in a 365-day rolling average compliance period is the first day on which the emissions limit is effective and the first complete 365-day average compliance period is 365 days later (*e.g.*, for a limit effective on January 1, the first day in the period is January 1 and the first complete 365-day period is January 1 through December 31).

c. "12-month rolling average" shall mean the sum of the average rate or concentration of the pollutant in question for the most recent complete calendar month and each of the previous 11 calendar months, divided by 12. A new 12-month rolling average shall be calculated for each new complete month. For purposes of clarity, the first month used in a 12-month rolling average compliance period is the first full calendar month in which the

emission limits is effective, and the first complete 12-month rolling average compliance period is 12 calendar months later (*e.g.*, for a limit effective on December 31, the first month in the period is January and the first complete 12-month period is January through the following December).

d. "Calendar Quarter" shall mean any one of the three month periods ending on March 31st, June 30th, September 30th, and December 31st.

e. "CEMS" shall mean a continuous emissions monitoring system.

f. "CO" shall mean carbon monoxide.

g. "Combustion Units" shall mean the heaters and boilers at the Refinery that are listed in Appendix A.

h. "Consent Decree" or "Decree" or "CD" shall mean this Consent Decree, including any and all Appendices attached to the body of this Consent Decree.

i. "Co-Plaintiff" or "Indiana" shall mean the State of Indiana on behalf of the Indiana Department of Environmental Management.

j. "CountryMark" shall mean Countrymark Refining and Logistics, LLC, and its successors and assigns.

k. "Current Generation Ultra-Low NOx Burners" shall mean those burners that are designed to achieve a NOx emission rate of 0.020 to 0.040 lb NOx/mmBTU (HHV) when firing natural gas at 3% stack oxygen at full design load without air preheat, even if upon installation actual emissions exceed 0.040 lb NOx/mmBTU (HHV).

l. "Date of Entry of the Consent Decree" or "Date of Entry" shall mean the date the Consent Decree is entered by the United States District Court for the Southern District of Indiana.

m. "Date of Lodging of the Consent Decree" or "Date of Lodging" or "DOL" shall mean the date the Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the Southern District of Indiana.

n. "Day" or "Days" as used herein shall mean a calendar day or days.

o. "EPA" shall mean the United States Environmental Protection Agency and any of its successors departments or agencies.

p. "FCCU" shall mean the fluidized catalytic cracking unit and its regenerator that CountryMark owns and/or operates at the Mt. Vernon Refinery.

q. "Fuel Oil" shall mean any liquid fossil fuel with a sulfur content of greater than 0.05% by weight.

r. "IDEM" shall mean the Indiana Department of Environmental Management and any successor departments or agencies of the State of Indiana.

s. "Malfunction" shall mean, as specified in 40 C.F.R. Part 60.2, "any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Malfunctions."

t. "Month":

i. Whenever this Consent Decree requires compliance "within" or "by no later than" a certain number of "Months" after a specific date or event, the compliance obligation commences on the anniversary of the numerical date of that specific date or event. For example, if compliance is required by no later than six Months after the Effective Date of this Decree, and if the Effective Date of this Decree is December 6, 2012, then the compliance obligation commences on June 6, 2013.

ii. "Month" or "monthly" for any purpose other than that identified in Subparagraph 10.t.i shall mean calendar month.

u. "Natural Gas Curtailment" shall mean a restriction imposed by a natural gas supplier limiting CountryMark's ability to obtain or use natural gas.

v. "Next Generation Ultra-Low NOx Burners" or "Next Generation ULNBs" shall mean those burners that are designed to achieve a NOx emission rate of less than or equal to 0.020 lb NOx/mmBTU (HHV) when firing natural gas at 3% stack oxygen at full design load without air preheat, even if upon installation actual emissions exceed 0.020 lb NOx/mmBTU (HHV).

w. "NO_x" shall mean nitrogen oxides.

x. "Paragraph" shall mean a portion of this Consent Decree identified by an Arabic numeral.

y. "Parties" shall mean the United States, Indiana, and CountryMark.

z. "PM" shall mean particulate matter as measured by 40 CFR Part 60, Appendix A, Method 5B or 5F.

aa. "Refinery" or "Mt. Vernon Refinery" shall mean the Refinery owned and operated by CountryMark in Mt. Vernon, Indiana, which is subject to the requirements of this Consent Decree.

bb. "Selective Catalytic Reduction" or "SCR" shall mean an air pollution control device consisting of ammonia injection and a catalyst bed to selectively catalyze the reduction of NO_x with ammonia to nitrogen and water.

cc. "Selective Non-Catalytic Reduction" or "SNCR" shall mean an air pollution control device consisting of a reactant injection system using ammonia or urea to selectively reduce NO_x to nitrogen and water and may include an enhanced reactant such as hydrogen.

dd. "Shutdown," as specified in 40 C.F.R. Section 60.2, shall mean the cessation of operation of an affected facility for any purpose.

ee. "SO_2" shall mean sulfur dioxide.

ff. "Startup," as specified in 40 C.F.R. Section 60.2, shall mean the setting in operation of an affected facility for any purpose.

gg. "Sulfur Recovery Plant" or "SRP" shall mean a process unit that recovers sulfur from hydrogen sulfide by a vapor phase catalytic reaction of sulfur dioxide and hydrogen sulfide.

hh. "Sulfur Recovery Unit" or "SRU" shall mean a single component of a Sulfur Recovery Plant, commonly referred to as a Claus train.

ii. "Tail Gas" shall mean exhaust gas from the Claus trains and the tail gas unit ("TGU") section of the SRP.

jj. "Tail Gas Unit" or "TGU" shall mean a control system utilizing a technology for reducing emissions of sulfur compounds from a Sulfur Recovery Plant.

kk. "Torch Oil" shall mean FCCU feedstock or cycle oils that are combusted in the FCC regenerator to assist in starting up or restarting the FCCU, to allow hot standby of the FCCU, or to maintain regenerator heat balance in the FCCU.

ll. "Upstream Process Units" shall mean all amine contactors, amine regenerators, and sour water strippers at the Refinery, as well as all process units at the Refinery that produce gaseous or aqueous waste streams that are processed at amine contactors, amine scrubbers, or sour water strippers.

V. AFFIRMATIVE RELIEF

A. NO_x Emissions Reductions from the FCCU

11. Emission Limits. By no later than the Date of Entry, CountryMark shall comply with the following NOx emission limits at the FCCU:

a. Short-term: 50 ppmvd @ 0% O_2 on a 7-day rolling average basis

b. Long-term: 30 ppmvd @ 0% O_2 on a 365-day rolling average basis

12. Effect of Startup, Shutdown, and Malfunction on NOx Emission Limits. NOx emissions during periods of Startup, Shutdown, or Malfunction of the FCCU or during periods of Malfunction of the FCCU's catalyst additive system shall not be used in determining compliance with the short-term limit in Subparagraph 11.a, provided that during such periods, CountryMark implements good air pollution control practices as required by 40 C.F.R. § 60.11(d) to minimize NOx emissions. NOx emissions during periods of Startup, Shutdown, or Malfunction shall be used in determining compliance with the long-term limit in Subparagraph 11.b. Nothing in this Paragraph shall be construed to relieve CountryMark of any obligation under any federal, state, or local law, regulation, or permit to report emissions during periods of Startup, Shutdown, or Malfunction; to comply with emissions limits applicable during periods of Startup, Shutdown, or Malfunction; or to document the occurrence and/or cause of a Startup, Shutdown, or Malfunction event. Emissions during any such period of Startup, Shutdown, or Malfunction shall be monitored with a CEMS as provided by Paragraph 13.

13. Demonstrating Compliance with FCCU NO_x Emission Limits. Prior to the Date of Lodging, CountryMark installed NOx and O_2 CEMS. Beginning no later than the Date of Entry, CountryMark shall use the NOx and O_2 CEMS to demonstrate compliance with the NOx emission limits established pursuant to Paragraph 11. CountryMark shall make CEMS data

available to EPA and IDEM upon demand as soon as practicable. CountryMark shall certify, calibrate, maintain, and operate the CEMS required by this Paragraph in accordance with the provisions of 40 C.F.R. § 60.13 that are applicable to CEMS (excluding those provisions applicable only to Continuous Opacity Monitoring Systems) and Part 60 Appendices A and F, and the applicable performance specification test of 40 C.F.R. Part 60 Appendix B. However, unless Appendix F is required by the NSPS, state law or regulation, or a permit or approval, in lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3, and 5.1.4, CountryMark may conduct: (1) either a Relative Accuracy Audit ("RAA") or a Relative Accuracy Test Audit ("RATA") once every three (3) years; and (2) a Cylinder Gas Audit ("CGA") each calendar quarter in which a RAA or RATA is not performed. If the CEMS must be moved because of the installation of control equipment, CountryMark shall promptly reinstall, re-calibrate, and re-certify the CEMS.

B. SO_2 Emissions Reductions from the FCCU

14. Emission Limits. By no later than the Date of Entry, CountryMark shall comply with the following SO_2 emission limits at the FCCU:

a. Short-term: 50 ppmvd @ 0% O_2 on a 7-day rolling average basis.

b. Long-term: 25 ppmvd @ 0% O_2 on a 365-day rolling average basis.

15. Effect of Malfunction on SO_2 Emission Limits. SO_2 emissions during periods of Malfunction of the FCCU catalyst additive system shall not be used in determining compliance with the short-term limit in Subparagraph 14.a, provided that during such periods, CountryMark implements good air pollution control practices as required by 40 C.F.R. § 60.11(d) to minimize SO_2 emissions. SO_2 emissions during periods of Startup, Shutdown, or Malfunction shall be used in determining compliance with the long-term limit in Subparagraph 14.b. Nothing in this

Paragraph shall be construed to relieve CountryMark of any obligation under any federal, state, or local law, regulation, or permit to report emissions during periods of Malfunction, to comply with emissions limits applicable during periods of Malfunction, or to document the occurrence and/or cause of a Malfunction. Emissions during any such period of Malfunction shall be monitored with CEMS as provided by Paragraph 16.

16. Demonstrating Compliance with FCCU SO_2 Emission Limits. Prior to the Date of Lodging, CountryMark installed SO_2 and O_2 CEMS. Beginning no later than the Date of Entry, CountryMark shall use the SO_2 and O_2 CEMS to demonstrate compliance with the SO_2 emission limits established pursuant to Paragraph 14. CountryMark shall make CEMS data available to EPA and IDEM upon demand as soon as practicable. CountryMark shall certify, calibrate, maintain, and operate the CEMS required by this Paragraph in accordance with the provisions of 40 C.F.R. § 60.13 that are applicable to CEMS (excluding those provisions applicable only to Continuous Opacity Monitoring Systems) and Part 60 Appendices A and F, and the applicable performance specification test of 40 C.F.R. Part 60 Appendix B. However, unless Appendix F is required by the NSPS, state law or regulation, or a permit or approval, in lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3, and 5.1.4, CountryMark may conduct: (1) either a Relative Accuracy Audit ("RAA") or a Relative Accuracy Test Audit ("RATA") once every three (3) years; and (2) a Cylinder Gas Audit ("CGA") each calendar quarter in which a RAA or RATA is not performed. If the CEMS must be moved because of the installation of control equipment, CountryMark shall promptly reinstall, re-calibrate, and re-certify the CEMS.

C. NSPS Applicability of the FCCU Catalyst Regenerator

17. NSPS Subparts A and J Applicability Dates.

a. Sulfur Dioxide and Carbon Monoxide. By no later than the Date of Entry, with respect to SO_2 and CO, the FCCU catalyst regenerator shall be an "affected facility" as that term is used in the Standards of Performance for New Stationary Sources ("NSPS") found at 40 C.F.R. Part 60, Subparts A and J, and shall be subject to and comply with the requirements in Subparts A and J, including all monitoring, recordkeeping, reporting, and operating requirements.

b. Particulate Matter.

i. Notice to EPA. By no later than June 30, 2014, CountryMark shall notify EPA of one of the following: *(1)* its decision to continue to operate the current FCCU; *(2)* its decision to cease operating the current FCCU and not replace it with another FCCU; or *(3)* its decision to partially or wholly replace or revamp the current FCCU.

ii. Consequences of CountryMark's Decision.

(1) If CountryMark notifies EPA of *(1)*, then by no later than December 31, 2016, with respect to particulate matter ("PM"), the FCCU catalyst regenerator shall be an "affected facility" as that term is used in the NSPS and shall be subject to and comply with the requirements in Subparts A and J, including all monitoring, recordkeeping, reporting, and operating requirements;

(2) If CountryMark notifies EPA of *(2)*, then by no later than December 31, 2017, CountryMark shall cease operating the FCCU. CountryMark shall surrender to the State of Indiana all permits that deal exclusively with the FCCU. For all permits that deal with units in addition to the FCCU, CountryMark shall seek from the State of Indiana a modification of these permits that eliminates authorization to operate the FCCU.

(3) If CountryMark notifies EPA of *(3)*, then by no later than December 31, 2017, the FCCU catalyst regenerator that is

operational at the Refinery on that date shall be an "affected facility" as that term is used in the NSPS and shall be subject to and comply with the requirements in Subparts A and J, including all monitoring, recordkeeping, reporting, and operating requirements.

18. Consequences of an FCCU Modification or Reconstruction During Pendency of this Consent Decree.

a. FCCU Modification. If prior to the termination of this Consent Decree, the FCCU becomes subject to 40 C.F.R. Part 60, Subpart Ja, for a particular pollutant due to a "modification" (as that term is defined in NSPS Subpart A), the modified affected facility shall be subject to and comply with Subpart Ja, in lieu of Subpart J, for that regulated pollutant to which a standard applies as a result of the modification.

b. FCCU Reconstruction. If prior to the termination of this Consent Decree, the FCCU becomes subject to 40 C.F.R. Part 60, Subpart Ja, due to a "reconstruction" (as that term is defined in NSPS Subpart A), the reconstructed FCCU shall be subject to and comply with Subpart Ja for all pollutants in lieu of Subpart J.

19. Optional PM Limit Under NSR/PSD Requirements. At any time during the term of the Consent Decree, CountryMark may accept a final PM limit of 0.5 pounds of PM per 1000 pounds of coke burned on a 3-hour average basis. If CountryMark accepts such a limitation, liability for potential Prevention of Significant Deterioration violations for PM emissions from the FCCU shall be resolved pursuant to Paragraph 187, provided that such limits are incorporated into an appropriate permit under Paragraph 108.

20. Effect of Startup, Shutdown, and Malfunction on PM Emission Limits. PM emissions during periods of Startup, Shutdown, or Malfunction of the FCCU or during periods of Malfunction of the PM control device, will not be used in determining compliance with the emission limit of 1.0 pound of PM per 1000 pounds of coke burned on a 3-hour average basis,

or, if elected pursuant to Paragraph 19, an emission limit of 0.5 pound of PM per 1000 pounds of coke burned on a 3-hour average basis, provided that during such periods CountryMark implements good air pollution control practices to minimize PM emissions. Nothing in this Paragraph shall be construed to relieve CountryMark of any obligation under any federal, state, or local law, regulation, or permit to report emissions during periods of Startup, Shutdown, or Malfunction; to comply with emissions limits applicable during periods of Startup, Shutdown, or Malfunction; or to document the occurrence and/or cause of a Startup, Shutdown, or Malfunction event.

21. Effect of Startup, Shutdown, and Malfunction on CO Emission Limits. CO emissions during periods of Startup, Shutdown, or Malfunction of the FCCU will not be used in determining compliance with the emission limit of 500 ppmvd CO at 0% O2 on a 1-hour average basis, provided that during such periods CountryMark implements good air pollution control practices to minimize CO emissions. Nothing in this Paragraph shall be construed to relieve CountryMark of any obligation under any federal, state, or local law, regulation, or permit to report emissions during periods of Startup, Shutdown, or Malfunction; to comply with emissions limits applicable during periods of Startup, Shutdown, or Malfunction; or to document the occurrence and/or cause of a Startup, Shutdown, or Malfunction event.

22. Demonstrating Compliance with PM Emission Limits. CountryMark shall follow the test protocol specified in 40 C.F.R. § 60.106(b)(2) to measure PM emissions from the FCCU. CountryMark shall propose and submit the test protocol to EPA for approval, with a copy to Co-Plaintiff, by no later than three months after the PM limit becomes effective. CountryMark shall conduct the first test no later than six months after the PM limit becomes effective. Thereafter, CountryMark shall conduct annual stack tests by December 31 of each calendar year

and will submit the results of each test in the first report due under Section VIII (Reporting and Recordkeeping) that is at least three months after the test. Upon demonstrating through at least three (3) annual tests that the PM limit is not being exceeded at the Refinery FCCU, CountryMark may request EPA approval to conduct tests under this Consent Decree less frequently than annually. Such approval will not be unreasonably withheld. At the termination of this Consent Decree, the frequency of testing then in effect shall be incorporated into the relevant permit, in accordance with Subsection V.J of this Decree. After termination, IDEM may require more or less frequent testing as it deems appropriate.

23. Demonstrating Compliance with CO Emission Limits. Prior to the Date of Lodging, CountryMark installed CO and O_2 CEMS. Beginning no later than the Date of Entry, CountryMark shall use the CO and O_2 CEMS to demonstrate compliance with the NSPS CO emission limit applicable as set forth in Paragraph 17. CountryMark shall make CEMS data available to EPA and IDEM upon demand as soon as practicable. CountryMark shall certify, calibrate, maintain, and operate the CEMS required by this Paragraph in accordance with the provisions of 40 C.F.R. § 60.13 that are applicable to CEMS (excluding those provisions applicable only to Continuous Opacity Monitoring Systems) and Part 60 Appendices A and F, and the applicable performance specification test of 40 C.F.R. Part 60 Appendix B. However, unless Appendix F is required by the NSPS, state law or regulation, or a permit or approval, in lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3, and 5.1.4, CountryMark may conduct: (1) either a Relative Accuracy Audit ("RAA") or a Relative Accuracy Test Audit ("RATA") once every three (3) years; and (2) a Cylinder Gas Audit ("CGA") each calendar quarter in which a RAA or RATA is not performed. If the CEMS must

be moved because of the installation of control equipment, CountryMark shall promptly reinstall, re-calibrate, and re-certify the CEMS.

24. Opacity Monitoring at the FCCU. Prior to the Date of Lodging, CountryMark installed a Continuous Opacity Monitoring System ("COMS") to monitor opacity at the FCCU. Beginning no later than the Date of Entry, CountryMark shall use the COMS to demonstrate compliance with the NSPS opacity limit at 40 C.F.R. § 60.102(a)(2). CountryMark shall make COMS data available to EPA and IDEM upon demand as soon as practicable. CountryMark shall certify, calibrate, maintain, and operate the COMS required by this Consent Decree in accordance with 40 C.F.R. §§ 60.11, 60.13 and Part 60, Appendix A, and the applicable performance specification test of 40 C.F.R. Part 60, Appendix B.

25. Entry of this Consent Decree Satisfies Certain NSPS Requirements. Entry of this Consent Decree and compliance with the relevant monitoring requirements of this Consent Decree for the FCCU shall satisfy the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

D. NOx Emissions Reductions from Combustion Units

26. Installation of Qualifying Controls for NOx Emissions from Combustion Units. The following serve as "Qualifying Controls" to satisfy the requirements of Paragraphs 27 and 30:

a. SCR or SNCR;

b. Current Generation or Next Generation Ultra-Low NOx Burners;

c. Other technologies that CountryMark demonstrates to EPA's satisfaction will reduce NOx emissions to 0.040 lb/mmBTU or lower; or

d. Permanent shutdown of a Combustion Unit with surrender of its operating permit.

27. NOx Reductions Required. On or before December 31, 2017, CountryMark shall use Qualifying Controls to reduce NOx emissions from the Combustion Units listed in Appendix A by at least 68 tons per year so as to satisfy the following inequality:

$$\sum_{i=1}^{n} [(E_{actual})_i - (E_{allowable})_i] \geq 68 \text{ tons of NOx per year}$$

Where:

$(E_{allowable})_i$	=	[(The permitted allowable pounds of NOx per million BTU for Combustion Unit i/(2000 pounds per ton)] x [(the lower of permitted or maximum heat input rate capacity in million BTU per hour for Combustion Unit i) x (the lower of 8760 or permitted hours per year)];
$(E_{Actual})_i$	=	The tons of NOx per year prior actual emissions during the refinery baseline years (unless prior actual emissions exceed allowable emissions, then use allowable) as shown in Appendix A for each Combustion Unit listed in Appendix A; and
n	=	The number of Combustion Units with Qualifying Controls from those listed in Appendix A that are selected by CountryMark to satisfy the requirements of the equation set forth in this Paragraph of this Consent Decree.

Pursuant to Subsection V.J of this Consent Decree, CountryMark shall apply for federally enforceable permits that incorporate emission limits (in lbs/mmBTU) for Combustion Units required under this Paragraph, to ensure that the NOx emission reduction requirements imposed by this Subsection V.D shall survive the termination of this Consent Decree. Permit limits established to implement this Paragraph may use a 365-day rolling average for Combustion Units that use a CEMS to monitor compliance. For Combustion Units that do not use a CEMS, the permit limit averaging period must be no longer than the averaging period of the reference test method.

28. Baseline Information. Appendix A to this Consent Decree lists the Combustion Units at the Refinery that are greater than 40mmBTU/hr and provides the following information about each of them:

a. The maximum physical heat input capacity in mmBTU/hr (HHV);

b. The allowable heat input capacity in mmBTU/hr (HHV), if different from the maximum physical heat input capacity;

c. The baseline emissions rate for the agreed-upon baseline calendar years in lb/mmBTU (HHV) and tons per year;

d. The type of data used to derive the emissions estimate (i.e., emission factor, stack test, or CEMS data); and

e. The utilization rate in annual average mmBTU/hr (HHV) for 2007/2008.

29. NOx Control Plan. Prior to the Date of Lodging, CountryMark submitted a detailed NOx control plan ("NOx Control Plan") to EPA for review and comment. CountryMark shall update its NOx Control Plan on an annual basis in the semi-annual report due under Section VIII of this Decree on July 31 of each year, commencing in 2013 and continuing until termination of this Consent Decree. The update shall cover the prior calendar year. The updates will describe the achieved and anticipated progress of the NOx emissions reductions program for the Combustion Units and will contain the following information for each Combustion Unit that CountryMark plans to use to satisfy the requirements of Paragraphs 27 and 30:

a. All of the information in Appendix A;

b. Identification of the type of Qualifying Controls installed or planned with date installed or planned (including identification of the Combustion Units to be permanently shut down);

c. To the extent limits exist or are planned, the allowable NOx emission rates (in lbs/mmBTU (HHV), with averaging period) and allowable heat input rate (in mmBTU/hr (HHV)) obtained or planned with dates obtained or planned;

d. The results of emissions tests conducted and, if applicable, annual average CEMS data collected (reported in ppmvd corrected to 3% O_2, lbs/mmBTU and in tons per year), pursuant to Paragraph 31; and

e. The amount in tons per year applied to or to be applied toward satisfying Paragraph 27.

Appendix A and the NOx Control Plan updates required by this Paragraph will be for informational purposes only and may contain estimates. They will not be used to develop permit requirements or other operating restrictions. CountryMark may change any projections, plans, or information that is included in the Control Plan updates. Nothing in this Paragraph will affect any requirements for the development or submission of a NOx control plan pursuant to otherwise applicable state or local law.

30. By December 31, 2014, CountryMark will install sufficient Qualifying Controls and have applied for emission limits from IDEM sufficient to achieve two-thirds of the NOx emission reductions required by Paragraph 27. In the semi-annual report due on July 31, 2015, CountryMark will provide EPA and IDEM with a report showing how it satisfied the requirements of this Paragraph.

31. Except for any Combustion Unit for which the Qualifying Control is a permanent shutdown as identified in Subparagraph 26.d, beginning no later than one-hundred eighty (180) days after installing Qualifying Controls on and commencing operation of a Combustion Unit that will be used to satisfy the requirements of Paragraph 27, CountryMark will monitor the Combustion Units as follows:

a. For Combustion Units with a maximum physical capacity greater than 100 mmBTU/hr (HHV), install or continue to operate a NOx CEMS;

b. For Combustion Units with a maximum physical capacity of less than or equal to 100 mmBTU/hr (HHV), conduct an initial performance test and any periodic tests that may be required by EPA or by IDEM under other

applicable regulatory authority. The results of the initial performance testing will be reported to EPA and IDEM.

CountryMark will use Method 7E of 40 C.F.R. Part 60, Appendix A-4 (or a test method made applicable by a future, final EPA regulation) to conduct initial performance testing for NOx emissions required by Subparagraph 31.b. Units with Qualifying Controls installed before the Date of Entry that are subject to this Paragraph will comply with this Paragraph by no later than July 31, 2013.

32. CountryMark will certify, calibrate, maintain, and operate any NOx CEMS required by Paragraph 31.a in accordance with the provisions of 40 C.F.R. § 60.13 that are applicable to CEMS (excluding those provisions applicable only to Continuous Opacity Monitoring Systems) and Part 60 Appendices A and F, and the applicable performance specification test of 40 C.F.R. Part 60 Appendix B. However, unless Appendix F is required by the NSPS, state law or regulation, or a permit or approval, in lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3, and 5.1.4, CountryMark may conduct: (1) either a Relative Accuracy Audit ("RAA") or a Relative Accuracy Test Audit ("RATA") once every three (3) years; and (2) a Cylinder Gas Audit ("CGA") each calendar quarter in which a RAA or RATA is not performed. If the CEMS must be moved because of the installation of control equipment, CountryMark shall promptly reinstall, re-calibrate, and re-certify the CEMS.

33. The requirements of this Section V.D. do not exempt CountryMark from complying with any and all federal, state, regional, and local requirements that may require technology, equipment, monitoring, or other upgrades based on actions or activities occurring after the Date of Lodging of this Consent Decree, or based upon new or modified regulatory, statutory, or permit requirements.

34. CountryMark will retain all records required to support its reporting requirements under this Section V.D. until termination of the Consent Decree. CountryMark will submit such records to EPA and IDEM upon request.

E. SO_2 Emissions Reductions from and NSPS Applicability to Heaters and Boilers

35. NSPS Applicability. By no later than December 31, 2014, all heaters and boilers at the Refinery shall be "affected facilities" as that term is used in the NSPS at 40 C.F.R. Part 60, Subparts A and J, and shall be subject to and comply with the requirements of Subparts A and J for fuel gas combustion devices, including all monitoring, recordkeeping, reporting, and operating requirements.

36. Consequences of a Modification or Reconstruction During Pendency of this Consent Decree.

a. Modification of a heater or boiler. If prior to the termination of this Consent Decree, a heater or boiler becomes subject to 40 C.F.R. Part 60, Subpart Ja, for SO_2 due to a "modification" (as that term is defined in NSPS Subpart A), the modified affected facility shall be subject to and comply with Subpart Ja, in lieu of Subpart J, for SO_2.

b. Reconstruction of a heater or boiler. If prior to the termination of this Consent Decree, a heater or boiler becomes subject to 40 C.F.R. Part 60, Subpart Ja, due to a "reconstruction" (as that term is defined in NSPS Subpart A), the reconstructed affected facility shall be subject to and comply with Subpart Ja for all pollutants in lieu of Subpart J.

37. Entry of this Consent Decree Satisfies Certain NSPS Requirements. Entry of this Consent Decree and compliance with the relevant monitoring requirements of this Consent Decree for the heaters and boilers shall satisfy the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

38. Elimination of Fuel Oil Burning.

a. Existing Combustion Devices. By no later than the Date of Entry, CountryMark shall not burn Fuel Oil in any existing combustion device at the Refinery except during periods of Natural Gas Curtailment, Test Runs, or operator training. Nothing in this prohibition limits CountryMark's ability to burn Torch Oil in an FCCU regenerator to assist in starting, restarting, maintaining hot standby, or maintaining regenerator heat balance.

b. Combustion Devices Constructed After Lodging. After the Date of Lodging, CountryMark will not construct any new combustion device at the Refinery that burns Fuel Oil unless the air pollution control equipment controlling the combustion device either: (i) has an SO_2 control efficiency of 90% or greater; or (ii) achieves an SO_2 concentration of 20 ppm or less at 0% O_2 on a 3-hour rolling average basis. Nothing in this Paragraph will exempt CountryMark from securing all necessary permits before constructing a new combustion device.

F. NSPS Applicability to the Sulfur Recovery Plant

39. NSPS Applicability. By no later than June 30, 2013, the Refinery's Sulfur Recovery Plant ("SRP") shall be an "affected facility" as that term is used in the NSPS at 40 C.F.R. Part 60, Subparts A and Ja, and shall be subject to and comply with the requirements of Subparts A and Ja, including all monitoring, recordkeeping, reporting, and operating requirements.

40. Compliance with NSPS Emission Limits. On and after the date of NSPS applicability for the Refinery's SRP, CountryMark shall, for all periods of operation of the SRP, comply with 40 C.F.R. § 60.102a(f)(2)(i), except during periods of Startup, Shutdown or Malfunction of the SRP or Malfunction of the Tail Gas Unit.

41. Compliance with NSPS Operation and Maintenance Requirements. At all times on and after the date of NSPS applicability for the SRP, including periods of Startup, Shutdown, and Malfunction, CountryMark shall, to the extent practicable, operate and maintain the SRP and associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions pursuant to 40 C.F.R. § 60.11(d).

42. Elimination, Control, and/or Inclusion in Monitoring of Sulfur Tank Emissions. By no later than the Date of Entry, for the Refinery's SRP, CountryMark will either eliminate, control, and/or include and monitor as part of a the SRP's emissions, all sulfur tank emissions at the Refinery.

43. Monitoring all Emissions Points and Installing CEMS. By no later than the Date of Entry, CountryMark will monitor all Tail Gas emission points (stacks) to the atmosphere from the Refinery's SRP and will install and operate an NSPS-compliant CEMS in accordance with NSPS Subpart Ja.

44. Entry of this Consent Decree Satisfies Certain NSPS Requirements. Entry of this Consent Decree and compliance with the relevant monitoring requirements of this Consent Decree for the SRP shall satisfy the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

45. Preventive Maintenance and Operation Plans for SRP, TGU, other control devices, and Upstream Process Units. By no later than one year after the Date of Entry of the Consent Decree, CountryMark shall submit to EPA and IDEM, a Plan for Maintenance and Operation ("PMO") of its SRP, the associated Tail Gas Unit ("TGU"), any supplemental control devices, and the Upstream Process Units for the Refinery. The Plan shall identify actions to promote continuous operation of the SRP between scheduled maintenance turnarounds for

minimization of emissions from the SRP. Such Plan shall include, but not be limited to sulfur shedding procedures, Startup and Shutdown procedures, hot standby procedures, emergency procedures, and schedules to coordinate maintenance turnarounds of its SRP Claus train and TGU to coincide with scheduled turnarounds of major Upstream Process Units. CountryMark shall comply with the PMO at all times, including periods of Startup, Shutdown, and Malfunction of the SRP or Malfunction of the TGU. CountryMark will modify the PMO as needed to continue to enhance operation and maintenance of the SRP, TGU, supplemental control devices, and Upstream Process Units as new equipment is installed, changes/improvements in procedures to minimize Acid Gas Flaring Incidents and/or SO_2 emissions are identified, and/or other changes occur at the Refinery. Any modifications made by CountryMark to the PMO will be identified in each January 31 report due under Section VIII of this Decree.

46. EPA and IDEM do not, by their review of the PMO Plan and/or by their failure to comment on the PMO Plan, warrant or aver in any manner that any of the actions that CountryMark may take pursuant to the PMO Plan will result in compliance with the provisions of the Clean Air Act or any other applicable federal, state, regional, or local law or regulations. Notwithstanding the review of the PMO Plan by the EPA and IDEM, CountryMark will remain solely responsible for compliance with the Clean Air Act, the applicable state/local acts, and such other laws and regulations.

G. Emission Reductions from Flares and Control of Flaring Events

47. CountryMark shall comply with the requirements of Appendix B to reduce emissions from flares and control flaring events.

H. Benzene Waste Operations NESHAP Program Enhancements

48. In addition to continuing to comply with all applicable requirements of 40 C.F.R. Part 61, Subpart FF ("Benzene Waste Operations NESHAP" or "BWON" or "Subpart FF"), CountryMark agrees to undertake, at the Refinery, the measures set forth in this Section V.H. to ensure continuing compliance with Subpart FF and to minimize or eliminate fugitive benzene waste emissions.

49. Current Compliance Status. CountryMark has reported a Total Annual Benzene ("TAB") of less than 10 Mg/yr at the Refinery.

50. Refinery Compliance Status Changes. If at any time from the Date of Entry of the Consent Decree through its termination, the Refinery is determined to have a TAB equal to or greater than 10 Mg/yr, CountryMark shall utilize the compliance option known as "6 BQ" found at 40 C.F.R. § 61.342(e). CountryMark shall consult with EPA and IDEM before making any change in compliance strategy. All changes must be undertaken in accordance with the regulatory provisions of the Benzene Waste Operations NESHAP.

51. One-Time Review and Verification of the Refinery's TAB: Phase One of the Review and Verification Process. By no later than one year after the Date of Entry of the Consent Decree, CountryMark will complete a review and verification of the Refinery's TAB and Subpart FF compliance. CountryMark's Phase One review and verification process shall include, but not be limited to:

a. An identification of each waste stream that is required to be included in the Refinery's TAB (e.g., slop oil, tank water draws, spent caustic, desalter rag layer dumps, desalter vessel process sampling points, other sample wastes, maintenance wastes, and turnaround wastes (that meet the definition of waste under Subpart FF));

b. A review and identification of the calculations and/or measurements used to determine the flows of each waste stream for the purpose of ensuring the accuracy of the annual waste quantity for each waste stream;

c. An identification of the benzene concentration in each waste stream, including sampling for benzene concentration at no less than ten (10) waste streams, consistent with the requirements of 40 C.F.R. § 61.355(c)(1) and (3); provided however, that previous analytical data or documented knowledge of waste streams may be used in accordance with 40 C.F.R. § 61.355(c)(2), for streams not sampled; and

d. An identification of whether or not the stream is controlled consistent with the requirements of Subpart FF.

52. By no later than two (2) months after the completion of the Phase One review and verification process, CountryMark shall submit to EPA and IDEM a Benzene Waste Operations NESHAP Compliance Review and Verification Report ("BWON Compliance Review and Verification Report") for the Refinery that sets forth the results of Phase One, including but not limited to the items identified in Subparagraphs 51.a–51.d.

53. One-Time Review and Verification of the Refinery's TAB: Phase Two of the Review and Verification Process. Based on EPA's review of the BWON Compliance Review and Verification Reports, EPA may select up to twenty (20) additional waste streams at the Refinery for sampling for benzene concentration. CountryMark shall conduct the required sampling and submit the results to EPA within two (2) months of receipt of EPA's request, if any. CountryMark shall use the results of this additional sampling to reevaluate the TAB and the uncontrolled benzene quantity and to amend the BWON Compliance Review and Verification Report, if and as needed. To the extent that EPA requires CountryMark to sample a waste stream as part of the Phase Two review that CountryMark sampled and included as part of its Phase One review, CountryMark may average the results of such sampling. CountryMark shall submit an amended BWON Compliance Review and Verification Report within four (4) months

following the date of the completion of the required Phase Two sampling, if Phase Two sampling is required by EPA. This amended BWON Compliance Review and Verification Report will supersede and replace the originally-submitted BWON Compliance Review and Verification Report. If EPA notifies CountryMark that Phase Two sampling is not required, or if EPA fails to seek additional sampling within four (4) months of EPA's receipt of the originally-submitted BWON Compliance Review and Verification Report, the originally-submitted BWON Compliance Review and Verification Report will constitute the final report.

54. Amended TAB Reports. If the results of the BWON Compliance Review and Verification Report indicate that the Refinery's most recently-filed TAB report does not satisfy the requirements of Subpart FF, CountryMark shall submit, by no later than four (4) months after completion of the BWON Compliance Review and Verification Report, an amended TAB report to IDEM. CountryMark's BWON Compliance Review and Verification Report will be deemed an amended TAB report for purposes of Subpart FF reporting to EPA.

55. Implementation of Actions Necessary to Correct Non-Compliance. If the results of the BWON Compliance Review and Verification Report indicate that the Refinery has a TAB of over 10 Mg/yr, CountryMark shall submit to EPA and IDEM, by no later than six (6) months after completion of the BWON Compliance Review and Verification Report, a plan that identifies with specificity: (a) the actions it will take to ensure that the Refinery's TAB remains below 10 Mg/yr for each calendar year thereafter; or (b) a compliance strategy and schedule that CountryMark will implement to ensure that the Refinery complies with the 6 BQ compliance option as soon as practicable but by no later than one year after submission of the plan.

56. Implementation of Actions Necessary to Correct Non-Compliance: Review and Approval of Plans. Any plans submitted pursuant to Paragraph 55 shall be subject to the

approval of, disapproval of, or modification by EPA. Within two (2) months after receiving any notification of disapproval or request for modification from EPA, CountryMark shall submit to EPA and IDEM a revised plan that responds to all identified deficiencies. Unless EPA responds to CountryMark's revised plan within two (2) months, CountryMark shall implement its proposed plan.

57. Implementation of Actions Necessary to Correct Non-Compliance: Certification of Compliance. By no later than two (2) months after completion of the implementation of all actions, if any, required pursuant to Paragraphs 55–56 to come into compliance with the applicable compliance option, CountryMark shall submit a certification and a report to EPA and IDEM that states that the Refinery complies with the Benzene Waste Operations NESHAP.

58. Annual Review. By no later than two (2) months after the Date of Entry, CountryMark shall develop a program to annually review process and project information for the Refinery, including but not limited to construction projects, to ensure that all new benzene waste streams are included in the Refinery's waste stream inventory.

59. CountryMark shall only use laboratories that are EPA accredited under EPA's National Environmental Laboratory Accreditation Program (NELAP) and certified under NELAP to perform analyses of CountryMark's benzene waste NESHAP samples to ensure that proper analytical and quality assurance/quality control procedures are followed.

60. Benzene Spills. Beginning no later than Date of Entry, CountryMark shall review spills to determine whether more than ten (10) pounds of aqueous benzene waste was generated in any twenty-hour (24) hour period at the Refinery. CountryMark shall include the benzene generated by such spills in the TAB for the Refinery.

61. Training. By no later than two (2) months after the Date of Entry, CountryMark will develop and begin implementation of annual (i.e., once each calendar year) training for all employees asked to draw benzene waste samples at the Refinery.

62. Additional Training.

a. CountryMark shall comply with the provisions of Subparagraph 62.b if and when the Refinery becomes subject to the 6 BQ compliance option.

b. CountryMark shall propose a schedule for training at the same time that CountryMark proposes a plan, pursuant to Paragraph 55, that identifies the compliance strategy and schedule that CountryMark will implement to come into compliance with the 6 BQ compliance option. CountryMark shall complete the development of standard operating procedures for all control equipment used to comply with the Benzene Waste Operations NESHAP. Additionally, within three (3) months after the Refinery becomes subject to the 6 BQ compliance option, CountryMark shall complete an initial training program regarding these procedures for all operators assigned to this equipment. Comparable training will also be provided to any persons who subsequently become operators, prior to their assumption of this duty. Until termination of this Decree, "refresher" training in these procedures shall be performed at a minimum on a three (3) year cycle.

63. Training: Contractors. As part of CountryMark's training program, CountryMark must ensure that the employees of any contractors hired to perform the requirements of this Subsection V.H. are properly trained to implement all applicable provisions of this Subsection.

64. Waste/Slop/Off-Spec Oil Management: Schematics. By no later than two (2) months after the Date of Entry, CountryMark shall submit to EPA and IDEM schematics for the Refinery that: (a) depict the waste management units (including sewers) that handle, store, and

transfer waste, slop, or off-spec oil streams; (b) identify the control status of each waste management unit; and (c) show how such oil is transferred within the Refinery. CountryMark shall include with the schematics a quantification of all uncontrolled waste, slop, or off-spec oil movements at the Refinery. If requested by EPA, CountryMark shall submit to EPA and IDEM within three (3) months of the request, revised schematics regarding the characterization of these waste, slop, off-spec oil streams and the appropriate control standards.

65. Waste/Slop/Off-Spec Oil Management: Non-Aqueous Benzene Waste Streams. All waste management units handling non-exempt, non-aqueous benzene wastes, as defined in Subpart FF, will meet the applicable control standards of Subpart FF, if the TAB equals or exceeds 10 Mg/yr.

66. Waste/Slop/Off-Spec Oil Management: Aqueous Benzene Waste Streams. For purposes of calculating the Refinery's TAB pursuant to the requirements of 40 C.F.R. § 61.342(a), CountryMark shall include all waste/slop/off-spec oil streams that become "aqueous" until such streams are recycled to a process or put into a process feed tank (unless the tank is used primarily for the storage of wastes). Appropriate adjustments will be made to such calculations to avoid the double-counting of benzene.

67. Benzene Waste Operations Sampling Plans: General. By no later than two (2) months after the BWON Compliance Review and Verification Report becomes final, CountryMark shall submit to EPA and IDEM a benzene waste operations sampling plan designed to describe the sampling of benzene waste streams that CountryMark will undertake to estimate quarterly and annual TABs for the Refinery.

68. Benzene Waste Operations Sampling Plans: Content Requirements.

a. Refinery's TAB is under 10 Mg/yr. So long as the Refinery's TAB is under 10 Mg/yr, the sampling plan shall identify:

i. All waste streams that contributed 0.05 Mg/yr or more at the point of generation in the previous year's TAB calculations; and

ii. The proposed sampling locations and methods for flow calculations to be used in calculating projected quarterly and annual TAB calculations under the terms of Paragraph 71.

CountryMark shall take and have analyzed at least three representative samples according to the following schedule: annually for all waste streams identified in Subparagraph 68.a.i; once per calendar quarter for all locations identified in Subparagraph 68.a.ii.

b. Refinery's TAB reaches or exceeds 10 Mg/yr. If the Refinery's TAB reaches or exceeds 10 Mg/yr—requiring CountryMark to implement the 6 BQ option under Paragraph 50—the sampling plan shall identify:

i. All uncontrolled waste streams that count toward the 6 BQ calculations and contain greater than 0.05 Mg/yr of benzene at the point of waste generation; and

ii. The proposed sampling locations and methods for flow calculations to be used in calculating projected quarterly and annual uncontrolled benzene quantities under the terms of Paragraph 71.

CountryMark shall take, and have analyzed, in each calendar quarter, at least three representative samples from all waste streams identified in Subparagraph 68.b.i and all locations identified in Subparagraph 68.b.ii.

c. Compliance Plan under Paragraph 55. If CountryMark must implement a compliance plan under Paragraph 55, CountryMark may submit a proposed sampling plan that does not include sampling points in locations within the Refinery that are subject to changes

proposed in the compliance plan. To the extent that CountryMark believes that such sampling will not be effective until CountryMark completes implementation of the compliance plan and by no later than two (2) months prior to the due date for the submission of the sampling plan, CountryMark may request EPA approval for postponing its submitting a sampling plan and commencing sampling until the compliance plan is completed. EPA will not unreasonably withhold its approval. Unless EPA provides its approval, CountryMark shall submit a plan by the due date in Paragraph 67.

69. Benzene Waste Operations Sampling Plans: Timing for Implementation. CountryMark shall implement the sampling required under each sampling plan during the first full calendar quarter after CountryMark submits the plan for the Refinery. CountryMark shall continue to implement the sampling plan (i) unless and until EPA disapproves the plan; or (ii) unless and until CountryMark modifies the plan, with EPA's approval, under Paragraph 70.

70. Benzene Waste Operations Sampling Plans: Modifications.

a. Changes in Processes, Operations, or Other Factors. If changes in processes, operations, or other factors lead CountryMark to conclude that a sampling plan for the Refinery may no longer provide an accurate basis for estimating the refinery's quarterly or annual TABs or benzene quantities under Paragraph 71, then by no later than three (3) months after CountryMark determines that the plan no longer provides an accurate measure, CountryMark shall submit to EPA and IDEM a revised plan for EPA approval. In the first full calendar quarter after submitting the revised plan, CountryMark shall implement the revised plan. CountryMark shall continue to implement the revised plan unless and until EPA disapproves the revised plan.

b. Requests for Modifications. After two (2) years of implementing a sampling plan, CountryMark may submit a request to EPA for approval, with a copy to IDEM, to revise the Refinery's sampling plan, including sampling frequency. EPA will not unreasonably withhold its approval. CountryMark shall not implement any proposed revisions under this Subparagraph until EPA provides its approval.

71. Quarterly and Annual Estimations of TABs and Uncontrolled Benzene Quantities.

a. For as long as the Refinery's TAB remains below 10 Mg/yr, at the end of each calendar quarter and based on sampling results and approved flow calculations, CountryMark shall calculate a quarterly and projected annual TAB for the Refinery.

b. To the extent that the Refinery's TAB ever reaches or exceeds 10 Mg/yr, CountryMark shall calculate a quarterly and annual uncontrolled benzene quantity for the Refinery.

In making one or the other of these calculations, CountryMark shall use the average of the three samples collected at each sampling location. If these calculations do not identify any potential violations of the benzene waste operations NESHAP, CountryMark shall submit these calculations in the reports due under Section VIII of this Decree.

72. Corrective Measures: Basis. Except as set forth in Paragraph 73:

a. For as long as the Refinery's TAB remains below 10 Mg/yr, CountryMark shall implement corrective measures at the Refinery if the quarterly TAB, calculated pursuant to Subparagraph 71.a, equals or exceeds 2.5 Mg, or the projected annual TAB, calculated pursuant to Subparagraph 71.a, equals or exceeds 10 Mg for the then-current compliance year; or

b. To the extent that the Refinery's TAB ever reaches or exceeds 10 Mg/yr, CountryMark shall implement corrective measures at the Refinery if the quarterly uncontrolled benzene quantity, calculated pursuant to Subparagraph 71.b, equals or exceeds 1.5 Mg or the projected annual uncontrolled benzene quantity, calculated pursuant to Subparagraph 71.b, equals or exceeds 6 Mg for the then-current compliance year.

73. Exception to Implementing Corrective Measures. If CountryMark can identify the reason(s) in any particular calendar quarter that the quarterly and projected annual calculations result in benzene quantities in excess of those identified in Paragraph 72 and states that it does not expect such reason or reasons to recur, then CountryMark may exclude the benzene quantity attributable to the identified reason(s) from the projected calendar year quantity. If that exclusion results in no potential violation of the Benzene Waste Operation NESHAP, CountryMark will not be required to implement corrective measures under Paragraph 72, and CountryMark may exclude the benzene attributable to the identified reason(s) in determining the applicability of Paragraph 75. At any time that CountryMark proceeds under this Paragraph, CountryMark shall describe how it satisfied the conditions in this Paragraph in the reports due under Section VIII of this Decree.

74. Compliance Assurance Plan. If CountryMark meets one or more conditions in Paragraph 72 (except as provided under Paragraph 73), then by no later than two (2) months after the end of the calendar quarter in which one or more of the conditions were met, CountryMark shall submit a compliance assurance plan to EPA for approval, with a copy to IDEM. In that compliance assurance plan, CountryMark will identify the cause(s) of the potentially-elevated benzene quantities, all corrective actions that CountryMark has taken or plans to take to ensure that the cause(s) will not recur, and the schedule of actions that CountryMark will take to ensure that the Refinery complies with the Benzene Waste Operations NESHAP for the calendar compliance year. CountryMark shall implement the plan unless and until EPA disapproves.

75. Third-Party Assistance. If at least one of the conditions in Subparagraph 72.a or Subparagraph 72.b (as applicable) exists at the Refinery in two consecutive quarters, then CountryMark shall retain a third-party contractor during the following quarter to undertake a

TAB study and compliance review at the Refinery. By no later than thirty (30) days after CountryMark receives the results of the third-party TAB study and compliance review, CountryMark shall submit such results and a plan and schedule for remedying any deficiencies identified in the third-party study and compliance review to EPA and IDEM. CountryMark will implement its proposed plan unless and until EPA disapproves after an opportunity for consultation with IDEM.

76. Miscellaneous Measures. To the extent that the Refinery's TAB ever reaches or exceeds 10 Mg/yr, CountryMark shall implement the following measures from the time CountryMark implements a strategy to comply with the 6 BQ compliance option until termination of this Consent Decree:

a. Conduct monthly visual inspections of all Subpart FF water traps within the Refinery's individual drain systems;

b. Identify and mark all area drains that are segregated stormwater drains;

c. On a weekly basis, visually inspect all Subpart FF conservation vents on process sewers for detectable leaks; reset any vents where leaks are detected; and record the results of the inspections. After two (2) years of weekly inspections, and based upon an evaluation of the recorded results, CountryMark may submit a request to EPA Region 5 to modify the frequency of the inspections. EPA shall not unreasonably withhold its approval. Nothing in this Subparagraph 76.c will require CountryMark to monitor conservation vents on fixed roof tanks. Alternatively, for conservation vents with indicators that identify whether flow has occurred, CountryMark may elect to visually inspect such indicators on a monthly basis and, if flow is then detected, CountryMark will then visually inspect that indicator on a weekly basis for four (4) weeks. If flow is detected during any two (2) of those four (4) weeks, CountryMark shall install a carbon canister on that vent until appropriate corrective action(s) can be implemented to prevent such flow.

d. Conduct quarterly monitoring of the controlled oil-water separators in benzene service in accordance with the "no detectable emissions" provision in 40 C.F.R. §61.347; and

e. Manage all groundwater remediation wastes that are covered by Subpart FF at the Refinery in appropriate waste management units under and as required by the Benzene Waste Operations NESHAP.

77. Reporting Requirements for this Subsection V.H: Outside of the Reports Required under 40 C.F.R. § 61.357 or in the Semi-Annual Reports Required in Section VIII (Recordkeeping and Reporting). At the times specified in the applicable provisions of this Subsection V.H, CountryMark shall submit, as and to the extent required, the following reports to EPA and IDEM:

a. BWON Compliance Review and Verification Report (Paragraph 52), as amended, if necessary (Paragraph 53);

b. Amended TAB Report, if necessary (Paragraph 54);

c. Plan for the Refinery to come into compliance with the 6 BQ compliance option upon discovering that its TAB equals or exceeds 10 Mg/yr through the BWON Compliance Review and Verification Report (Paragraph 55), or through sampling (Paragraph 58);

d. Compliance certification, if necessary (Paragraph 57);

e. Schematics of waste/slop/off-spec oil movements (Paragraph 64), as revised, if necessary;

f. Sampling Plan (Paragraph 68), and revised Sampling Plan, if necessary (Paragraph 70);

g. Compliance Assurance Plan (Paragraph 74).

78. Recordkeeping and Reporting Requirements for this Subsection V.H: As Part of the Semi-Annual Reports Required in Section VIII (Recordkeeping and Reporting). CountryMark shall submit the following information in the reports due pursuant to Section VIII of this Decree:

a. Sampling Results under Paragraphs 69 and 70. The report shall include a list of all waste streams sampled, the results of the benzene analysis for each sample, and the computation of the quarterly and projected calendar

year TAB and the quarterly and projected calendar year uncontrolled benzene quantity;

b. Training. Initial and/or subsequent training conducted in accordance with Paragraphs 61–63.

79. At any time after two (2) years of reporting pursuant to the requirements of Paragraph 78, CountryMark may submit a request to EPA to modify the reporting frequency for the reporting categories of Paragraph 78. This request may include a request to report the previous year's projected calendar year TAB and uncontrolled benzene quantity in the Section VIII report due on January 31 of each year, rather than semi-annually on January 31 and July 31 of each year. CountryMark shall not change the due dates for its reports under Paragraph 77 unless and until EPA approves CountryMark's request. EPA will not unreasonably withhold its approval.

80. Certifications Required in this Subsection V.H. Certifications required under this Subsection V.H shall be made in accordance with the provisions of Section VIII.

I. Leak Detection and Repair ("LDAR") Program Enhancements

81. In order to minimize or eliminate fugitive emissions of volatile organic compounds ("VOCs"), benzene, volatile hazardous air pollutants ("VHAPs"), and organic hazardous air pollutants ("HAPs") from equipment in light liquid and/or in gas/vapor service, CountryMark shall implement at the Refinery the enhancements at Paragraph 82 through Paragraph 106 to the Refinery's LDAR program under Title 40 of the Code of Federal Regulations, Part 60, Subpart GGG; Part 61, Subparts J and V; and Part 63, Subparts F, H, and CC. The terms "equipment," "in light liquid service" and "in gas/vapor service" shall have the definitions set forth in the applicable provisions of Title 40 of the Code of Federal Regulations,

Part 60, Subparts VV and GGG; Part 61, Subparts J and V; and Part 63, Subparts F, H and CC; and applicable state LDAR regulations.

82. Written Refinery-Wide LDAR Program. By no later than nine (9) months after the Date of Entry of the Consent Decree, CountryMark shall develop a written description of a Refinery-wide program designed to achieve and maintain compliance with all applicable federal and state LDAR regulations, as well as the enhanced requirements that are set forth herein. CountryMark shall implement this program on a Refinery-wide basis and update such program as may be necessary to ensure continuing compliance through and after termination. By no later than nine (9) months after the Date of Entry of the Consent Decree, CountryMark shall submit copies of its enhanced LDAR program descriptions to EPA and IDEM. The Refinery-wide enhanced LDAR program shall include at a minimum:

a. A set of Refinery-specific leak rate goals that will be a target for achievement on a process-unit-by-process-unit basis;

b. An identification of all equipment in light liquid and/or in gas/vapor service that has the potential to leak VOCs, HAPs, VHAPs, and benzene within process units that are owned and maintained at the Refinery;

c. Procedures for identifying leaking equipment within process units in the Refinery;

d. Procedures for repairing and keeping track of leaking equipment;

e. Procedures for identifying and including new equipment in the LDAR program, including procedures designed to ensure that components subject to LDAR requirements that are added to the Refinery during scheduled maintenance and construction activities are integrated into the enhanced LDAR program;

f. A process for evaluating new and replacement equipment subject to LDAR that includes active consideration of equipment or techniques that will minimize leaks and/or eliminate chronic leakers; and

g. A designation of the "LDAR Personnel" who are responsible for implementing the enhanced LDAR program at the Refinery.

83. Training. By no later than one year after the Date of Entry of the Consent Decree, CountryMark shall implement a training program that includes the following features at the Refinery:

a. Any person assigned LDAR program responsibilities at the Refinery shall be given initial training before performing any LDAR work;

b. For any employees assigned LDAR responsibilities as a primary job function (such as monitoring technicians, database users, QA/QC personnel, and the LDAR Coordinator) initial LDAR training and refresher training shall be conducted every two years after the initial training; and

c. For all other personnel, such as operators and mechanics performing valve packing and designated unit supervisors reviewing for delay of repair work, CountryMark shall provide initial training and refresher training as specified in Subparagraph 83.b on aspects of LDAR that are relevant to the person's duties.

Nothing in this Paragraph shall prevent CountryMark from retaining a contractor to undertake the LDAR training required herein. If CountryMark uses a contractor to provide LDAR training, CountryMark shall require that the LDAR contractor provide and submit documentation that training has been conducted, current and to standard. If contract employees are performing LDAR work, CountryMark shall maintain all training records for the contract employees.

84. LDAR Audits. CountryMark shall implement a LDAR audit program as set forth in Paragraphs 84–89 to ensure the Refinery's compliance with all applicable LDAR requirements and this Consent Decree.

85. Initial LDAR Compliance Audit. By no later than one year after the Date of Entry, CountryMark shall ensure that a third-party contractor with expertise in LDAR program requirements has completed a Refinery-wide initial audit of CountryMark's compliance with all applicable LDAR requirements at the Refinery, which shall include, at a minimum:

a. Performing comparative monitoring;

b. Reviewing records to ensure that monitoring and repairs have been completed in the required timeframes;

c. Reviewing component identification procedures and data management procedures;

d. Observing LDAR technicians' calibration and monitoring techniques;

e. Reviewing regulations potentially applicable to CountryMark process units.

Within three (3) months after completing the Initial LDAR Compliance Audit, CountryMark shall submit to EPA and IDEM an Initial LDAR Compliance Audit Report which shall describe the results of the audit, disclose all areas of identified non-compliance, identify all steps taken to remedy the identified non-compliance, and certify CountryMark's full compliance with all applicable LDAR requirements as of the date of the Report.

86. Third-Party Audits. CountryMark shall retain a contractor(s) with expertise in LDAR program requirements to perform a third-party audit of the Refinery's LDAR contractor and program at least once every four (4) years.

87. Internal Audits. CountryMark shall conduct an internal audit of the Refinery's LDAR program by designated personnel familiar with the LDAR program and its requirements. CountryMark shall complete the first internal LDAR audit by no later than two years from the date of the completion of the initial third-party audit described in Paragraph 85. Internal audits of the Refinery shall be conducted at least once every four years thereafter. CountryMark's LDAR audits shall include, at a minimum, the same activities listed under Paragraph 85 for the third-party audits.

88. Audit Every Two Years. To ensure that an audit of the Refinery occurs every two (2) years, third-party and internal audits shall be separated by approximately two (2) years, with the audit performed in the same calendar quarter.

89. Open Ended Line Audits. CountryMark shall perform audits of open ended lines at least two times a year to ensure that caps, plugs, blind flanges and second valves are in place and properly seal open ended lines.

90. Management Review Meetings. CountryMark will review the LDAR program with Refinery management at least one time per year. Review of program shall include, among other things, leak history, leak repairs and delay of repairs.

91. Implementation of Actions Necessary to Correct Non-Compliance. If the results of any of the audits conducted pursuant to Paragraphs 84–89 identify any areas of non-compliance, CountryMark shall implement, as soon as practicable, all steps necessary to correct the area(s) of non-compliance and to prevent a recurrence of the cause of the non-compliance. CountryMark shall retain the audit reports for all audits conducted and maintain a written record of the corrective actions for a minimum of five years.

92. Internal Leak Definition for Valves and Pumps. By no later than one year after the Date of Entry of this Consent Decree, CountryMark shall utilize the following internal leak definitions for valves and pumps in light liquid and/or gas/vapor service, unless other permit(s), regulations, or laws require the use of lower leak definitions.

a. Leak Definition for Valves. CountryMark shall utilize an internal leak definition of 500 ppm VOCs for all the Refinery valves, excluding pressure relief devices.

b. Leak Definition for Pumps. CountryMark shall utilize an internal leak definition of 2,000 ppm VOCs for the Refinery's pumps.

93. Reporting, Recording, Tracking, Repairing and Re-Monitoring Leaks of Valves and Pumps Based on the Internal Leak Definitions.

a. Reporting. For regulatory reporting purposes, CountryMark may continue to report leak rates in valves and pumps against the applicable regulatory leak definition, or may use the lower, internal leak definitions specified in Paragraph 92.

b. Recording, tracking, repairing and re-monitoring Leaks. CountryMark shall record, track, repair, and re-monitor all leaks above the internal leak definitions in Paragraph 92 when those definitions become effective. For any component leaking above the applicable regulatory leak rate, CountryMark shall repair and re-monitor the component or place the component on a "delay of repair" list as required by the applicable regulations. For any component leaking above the internal leak definitions specified by Paragraph 92 but below the applicable regulatory leak rate, CountryMark shall make an initial attempt at repair and remonitor of the component within five calendar days, and shall complete repairs and re-monitor the component or place the component on a "delay of repair" list within 30 calendar days.

94. LDAR Monitoring Frequency.

a. Pumps. By no later than the date the internal leak definitions under Paragraph 92 become effective, CountryMark shall monitor pumps at the internal leak definition established by Paragraph 92 on a monthly basis, unless more frequent monitoring is required by a federal, state, or local regulation.

b. Valves. By no later than the date the internal leak definitions under Paragraph 92 become effective, CountryMark shall implement a program to monitor valves at the internal leak definition established by Paragraph 92 on a quarterly basis, unless more frequent monitoring is required by a federal, state, or local regulation.

95. Initial Attempt at Repair of Valves. Beginning no later than three (3) months after the Date of Entry, CountryMark shall make an "initial attempt" at repair on any valve that has a reading greater than 200 ppm of VOCs, excluding control valves and other valves that LDAR personnel are not authorized to repair. CountryMark, or its designated contractor, shall re-monitor the leaking valve within five (5) days of identification. If the re-monitored leak

reading is below 500 ppm, no further action will be necessary. If the re-monitored leak reading is greater than 500 ppm, CountryMark shall repair the leaking valve according to the requirements under Paragraph 93. All records of repairs, repair attempts, and remonitoring shall be maintained for the life of the Consent Decree. If CountryMark can demonstrate with sufficient monitoring and repair data that this "initial attempt" at repair requirement at 200 ppm does not reduce emissions, CountryMark may, after 2 years of implementing the "initial attempt" requirement, request that the United States reconsider or amend this requirement. The United States shall not unreasonably withhold its consent.

96. Monitoring after Turnaround or Maintenance. CountryMark will have the option of monitoring LDAR-regulated valves and pumps within process unit(s) after completing a documented maintenance, startup, or shutdown activity without having leaks detected at concentrations greater than the leak definitions required by this Consent Decree but less than regulatory leak definitions count as a scheduled monitoring activity, provided that CountryMark monitors according to the following schedule:

a. For events involving 250 or fewer valves and pumps, monitor within 15 days of the documented maintenance, startup or shutdown activity;

b. For events involving greater than 250 but fewer than 500 valves and pumps, monitor within 20 days of the documented maintenance, startup, or shutdown activity; and

c. For events involving greater than 500 and up to 1000 valves and pumps, monitor within 30 days of the documented maintenance, startup, or shutdown activity.

97. Electronic Monitoring, Storing and Reporting of LDAR Data. CountryMark shall implement an electronic LDAR Data Monitoring System as follows:

a. Electronic Storing and Reporting of LDAR Data. By no later than the Date of Entry of the Consent Decree, CountryMark shall maintain an electronic database for storing and reporting LDAR data.

b. Electronic Data Collection During LDAR Monitoring and Transfer Thereafter. By no later than the Date of Entry of the Consent Decree, CountryMark shall use dataloggers and/or electronic data collection devices during LDAR monitoring. CountryMark shall ensure that the responsible CountryMark employees and/or contractor personnel shall use best efforts to transfer all data immediately following the monitoring activities. For all monitoring events, the collected monitoring data shall include an accurate time and date stamp for each monitoring event, the monitoring reading, and identifying information on the operator and the instrument used in the monitored event.

98. QA/QC of LDAR Data. By no later than nine (9) months after Date of Entry of the Consent Decree, CountryMark shall develop and implement a procedure at the Refinery to ensure a quality assurance/quality control ("QA/QC") review of all data generated by LDAR monitoring technicians. CountryMark shall ensure that monitoring data provided by monitoring technicians is reviewed daily for QA/QC. At least once per calendar quarter, CountryMark shall perform a QA/QC review of the monitoring data collected during the quarter. The review shall include, but not be limited to, a review of: (i) the number of components monitored per technician; (ii) the time between monitoring events; and (iii) abnormal data patterns.

99. LDAR Personnel. By no later than six (6) months after the Date of Entry of this Consent Decree, CountryMark shall designate a person or position at the Refinery (not a contractor) that is responsible for LDAR management, with the authority to implement improvements ("LDAR Coordinator").

100. Adding New Valves and Pumps. By no later than three (3) months after the Date of Entry, CountryMark shall establish a tracking program for maintenance records (e.g., a Management of Change program) to ensure that valves and pumps added to the Refinery during maintenance and construction are integrated into the LDAR program.

101. Newly-Installed Valves. By no later than nine (9) months after the Date of Entry, CountryMark shall ensure all newly installed valves are fitted, prior to installation, with packing or valve technology which is guaranteed, certified or warranted by the manufacturer or installer to prevent leaks above 100 ppm for a period of at least 5 years after installation.

102. Calibration/Calibration Drift Assessment.

a. Calibration. By no later than three (3) months after the Date of Entry of the Consent Decree, CountryMark shall require written verification from all contractors that all calibrations of LDAR monitoring equipment has been done in accordance with 40 C.F.R. Part 60, EPA Reference Test Method 21.

b. Calibration Drift Assessment. By no later than three (3) months after the Date of Entry of the Consent Decree, CountryMark shall either by itself or through a contractor conduct calibration drift assessments of LDAR monitoring equipment at the end of each monitoring shift, and submit a written summary containing at a minimum: (1) The calibration gas corresponding to the applicable leak threshold; and (2) Calibration drift assessment. If any calibration drift assessment after the initial calibration shows a negative drift of more than 10% from the previous calibration, CountryMark and/or the contractor shall re-monitor all valves that were monitored since the last calibration that had a reading greater than 100 ppm and shall re-monitor all pumps that were monitored since the last calibration that had a reading greater than 500 ppm.

c. CountryMark shall maintain records of all instrument calibrations for a period of five (5) years after performing the calibrations.

103. Delay of Repair and Required Repairs. Within 30 days of submittal of the enhanced LDAR program description described in Paragraph 82, CountryMark shall comply with the provisions set forth below.

a. Delay of Repair. For any equipment that CountryMark is allowed under the applicable regulations to place on the "delay of repair" list for repair, CountryMark shall:

i. Require sign-off by the unit supervisor or a person of comparable authority that the piece of equipment is technically infeasible to repair without a process unit shutdown before the component is eligible for inclusion on the "delay of repair" list.

ii. Include any valve or pump that is placed on the "delay of repair" list in CountryMark's regular LDAR monitoring.

b. Drill and Tap. For valves, other than control valves, leaking at a rate of 10,000 ppm or greater and which cannot be repaired using traditional techniques, CountryMark shall use the "drill and tap" or similarly effective method to repair the leaking valve, before placing the valve on the "delay of repair" list, unless CountryMark can demonstrate that there is a safety, mechanical, or major environmental concern posed by repairing the leak in that manner. If a valve cannot be repaired within fifteen (15) days by traditional means, CountryMark shall make the first "drill and tap" or similarly effective repair attempt within an additional fifteen (15) days. CountryMark shall have 45 days after the leak was identified to complete the repair attempts including one "drill and tap" attempt (with a second injection of an appropriate sealing material if the first injection is unsuccessful at repairing the leak) before placing the valve on the "delay of repair" list.

104. Chronic Leaker Program. CountryMark shall replace, repack, or perform similarly effective repairs on all "chronic leaker" non-control valves during the process unit turnaround that follows the monitoring event that resulted in the designation of a "chronic leaker." A chronic leaker shall be defined as any component which leaks above 10,000 ppm in any two quarters between refinery turnarounds during the life of the Consent Decree.

105. Recordkeeping and Reporting Requirements for Semi-Annual Reports.

a. In the semi-annual reports submitted by CountryMark pursuant to Section VIII (Reporting and Recordkeeping) CountryMark shall include the following information in the report for the period in which the identified activity occurred:

i. A copy of the written Refinery-wide LDAR Program required by Paragraph 82;

ii. A certification of the implementation of the training program required by Paragraph 83;

iii. A certification of the implementation of the internal leak definition and monitoring frequency procedures under Paragraphs 92 and 94;

iv. A certification of the implementation of the "first attempt at repair" program under Paragraph 95;

v. A certification of the implementation of QA/QC procedures for review of data generated by LDAR technicians as required by Paragraph 98;

vi. An identification of Refinery personnel responsible for LDAR performance as required by Paragraph 99;

vii. A certification of the implementation of the calibration drift assessment procedures of Paragraph 102.b;

viii. A certification of the implementation of the "delay of repair" procedures of Paragraph 103; and

ix. A certification of the implementation of the "chronic leaker" program of Paragraph 104.

b. Special Requirement for Initial Semi-Annual Report Each Year. As part of the first Semi-Annual Report submitted each year pursuant to Section VIII, CountryMark shall identify each LDAR Audit that was conducted pursuant to the requirements of Paragraphs 84–89 in the previous calendar year, including an identification of the auditors, a summary of the audit

results, and the actions that CountryMark took or intends to take to correct identified deficiencies.

106. Recordkeeping and Reporting Requirements to be Included in Periodic Reports due under 40 C.F.R. § 63.654. In each semi-annual report due under 40 C.F.R. § 63.654, CountryMark shall include the following information on LDAR monitoring:

a. A list of the process units monitored during the quarter;

b. The number of valves and pumps present in each process unit and the number monitored in each process unit;

c. An explanation for missed monitoring if the number of valves and pumps present in the process unit exceeds the number of valves and pumps monitored;

d. The number of valves and pumps found leaking.

e. The number of "difficult to monitor" pieces of equipment monitored;

f. The number of all chronic leakers and the schedule for when they will be repaired;

g. A list of all equipment currently on the "delay of repair" list and the date each component was placed on the list;

h. The number of repair attempts not completed according to the timeframes in Paragraph 93; and

i. The number of "initial" attempt at repair of valves leaking greater than 200 ppm under Paragraph 95 for which the remonitoring showed readings of above 500 ppm.

J. Incorporation of Consent Decree Requirements into Federally-Enforceable Permits

107. Permits Needed to Meet Compliance Obligations. If any compliance obligations under this Section V require CountryMark to obtain a federal, state, or local permit of approval, including any preconstruction, construction, or operating permits, CountryMark shall submit timely and complete applications and take all other actions necessary to obtain all such permits

or approvals. CountryMark may seek relief under the provisions of Section XIII of this Decree (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation if CountryMark has submitted timely and complete applications to IDEM and has fully cooperated with IDEM, including but not limited to, promptly submitting to IDEM all information that IDEM seeks following its receipt of the permit application.

108. Obtaining Permit Limits for Consent Decree Emission Limits and Standards. To ensure that the emission limits and standards identified in Paragraph 109 survive termination of this Consent Decree, CountryMark shall submit to IDEM (which has a consolidated Title V construction and operating permit program) on the following dates, appropriate applications, amendments, and/or supplements to incorporate as "applicable requirements" the limits and standards listed in Paragraph 109:

a. For emission limits and standards that are effective prior to or as of the Date of Entry of the Consent Decree, as soon as practicable, but in no event later than six (6) months after the Date of Entry;

b. For emission limits and standards identified in Paragraph 109.a that become effective after the Date of Entry, as soon as practicable, but in no event later than six (6) months after the effective date or establishment of the emission limits and standards; and

c. For emission limits and standards identified in Paragraph 109.b that become effective after the Date of Entry, prior to the termination of this Consent Decree.

Following submission of the complete application, amendment, and/or supplement, CountryMark will cooperate with IDEM by promptly submitting to IDEM all information that IDEM seeks. In conjunction with such permitting, CountryMark will file any documents necessary to incorporate the requirements into the Title V permit of the Mt. Vernon Refinery.

109. Consent Decree Limits and Standards that Must be Incorporated into Permits. The limits and standards imposed by the following Paragraphs must be incorporated into a federally-enforceable permit:

a. From the body of the Consent Decree: Paragraphs 11–17.a, 17.b.ii *(1)* or *(3)* (whichever, if either, is applicable), 19 (if applicable), 20–24, the limits CountryMark takes in order to satisfy the inequality in Paragraph 27, Paragraphs 31.a or b (whichever is applicable), 32 (if applicable), 35, and 38–43.

b. From Appendix B: Paragraphs B5–B11, B13–B15 (except for language related to stipulated penalties), B20–B22, B25–B30, B31.b, B32.b–c, B33.a, and B34–B40.

110. Mechanism for Title V Incorporation. The Parties agree that the incorporation of any emission limits or other standards into the Title V permits for the Refinery as required by Paragraph 108 will be in accordance with the applicable state Title V rules. The Parties agree that incorporation of the requirements of this Decree may be by "amendment" under 40 C.F.R. § 70.7(d) and analogous state Title V rules, where allowed by state law.

VI. EMISSION CREDIT GENERATION

111. Prohibition.

a. Definition. "CD Emissions Reductions" shall mean any NOx, SO_2, H_2S, PM, PM_{TOTAL}, PM_{10}, $PM_{2.5}$, VOC, or CO emissions reductions that result from any projects conducted or controls used to comply with this Consent Decree.

b. Prohibitions.

i. CountryMark shall neither generate nor use any CD Emissions Reductions: as netting reductions; as emissions offsets; to apply for, obtain, trade, or sell any emission reduction credits; or in determining whether a project would result in a significant emissions increase or significant net emissions increase in any PSD, major non-attainment, and/or minor New Source Review permit or permit proceeding. Baseline actual emissions during any 24-month period selected by CountryMark shall be adjusted

downward to exclude any portion of the baseline emissions that would have been eliminated as CD Emissions Reductions had CountryMark been complying with this Consent Decree during that 24-month period.

ii. Any CD Emissions Reductions that result from the Waste Gas minimization requirements of Paragraphs B16–B18 of Appendix B may not be used as netting reductions, as emissions offsets, or in determining whether a project is "major" in any PSD, major non-attainment, and/or minor New Source Review permit or permit proceeding even if those Reductions result in emissions lower than the allowable level under the flaring limitations in Paragraph B20 of Appendix B. Baseline actual emissions during any 24-month period selected by CountryMark shall be adjusted downward to exclude any portion of the baseline emissions that would have been eliminated as Waste Gas minimization-related CD Emissions Reductions had CountryMark previously achieved the reductions during that 24-month period.

iii. Except as provided in Subparagraph 112.c, CountryMark shall not apply for, obtain, trade, or sell any emission reduction credits that result from CD Emissions Reductions.

112. Outside the Scope of the Prohibition. Nothing in this Section VI is intended to prohibit CountryMark from seeking to:

a. Use or generate netting reductions or emission offset credits from refinery units that are covered by this Consent Decree to the extent that the proposed netting reductions or emission offset credits represent the difference between the emissions limitations set forth in this Consent Decree for these refinery units and the more stringent emissions limitations that CountryMark may elect to accept for these refinery units in a permitting process, except as provided in Subparagraph 111.b.ii; or

b. Use or generate netting reductions or emission offset credits for refinery units that are not subject to an emission limitation pursuant to this Consent Decree; or

c. Use CD Emission Reductions for the Refinery's compliance with any rules or regulations designed to address regional haze or the non-attainment status of any area (excluding PSD and Non-Attainment New Source Review rules that apply to the Refinery). Notwithstanding the preceding sentence, CountryMark shall not trade or sell any CD Emissions Reductions.

113. [Intentionally left blank.]

VII. SUPPLEMENTAL ENVIRONMENTAL PROJECTS

114. State of Indiana Supplemental Environmental Project. Prior to the Lodging of this Consent Decree, CountryMark made a contribution in the amount of $111,666.00 to the Indiana Finance Authority to be used to fund the removal of Regulated Asbestos Containing Material from the Old Grain Elevator in downtown Mt. Vernon, Posey County, Indiana ("Indiana SEP"). Staff from IDEM's Office of Land Quality, Brownfields Section, let the necessary contracts and monitored the progress and quality of the work. The project is now complete and CountryMark has satisfactorily completed the Indiana SEP.

115. United States Supplemental Environmental Project

a. CountryMark shall spend no less than $70,000 to implement a Supplemental Environmental Project ("SEP") designed to reduce diesel emissions from school buses and/or non-school bus publicly owned vehicles in the area of the Mt. Vernon Refinery ("U.S. SEP") in accordance with this Paragraph 115 and the criteria, terms and procedures specified in Appendix C. No SEP funds shall be used for testing or demonstration. CountryMark shall complete implementation of the SEP by no later than 18 months after the Date of Entry.

b. CountryMark certifies under penalty of law that it would have agreed to perform a comparably valued, alternative project other than a diesel emissions reduction Supplemental Environmental Project if EPA were precluded by law from accepting a diesel emissions reduction Supplemental Environmental Project.

c. CountryMark is responsible for the satisfactory completion of the project required in this Paragraph.

116. By signing this Consent Decree, CountryMark certifies that it is not required, and has no liability under any federal, state, regional or local law or regulation or pursuant to any agreements or orders of any court, to perform or develop the projects identified in this Section VII. CountryMark further certifies that it has not applied for or received, and will not in the future apply for or receive: (1) credit as a Supplemental Environmental Project or other penalty offset in any other enforcement action for the projects set forth in this Section VII; (2) credit for any emissions reductions resulting from the projects set forth in this Section VII in any federal, state, regional or local emissions trading or early reduction program.

117. For federal, state, regional or local income tax purposes, CountryMark agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the projects in this Section VII.

118. CountryMark will clearly indicate that these projects are being undertaken as part of the settlement of an enforcement action for alleged violations of the Clean Air Act and corollary state statutes in this case in any public statements, oral or written, in print, film, or other media, made by CountryMark regarding these projects.

119. Cost Report. Upon completion of the U.S. SEP required in Paragraph 115, CountryMark will submit to EPA a cost report certified as accurate under penalty of perjury by a responsible corporate official. If CountryMark does not expend the entire projected cost of the U.S. SEP as set forth in Paragraph 115, CountryMark will pay the difference between the amount expended as demonstrated in the certified cost report(s) and the projected cost. The difference will be paid as provided in Paragraph 160 of the Consent Decree.

120. SEP Completion Report. CountryMark will include in each report required by Section VIII a description of its progress in implementing the U.S. SEP. In addition, in the

report required by Section VIII of this Consent Decree for the period in which the U.S. SEP is completed, CountryMark will include the following information regarding the project set forth in Paragraph 115:

a. A detailed description of the project as implemented, which shall include, for each retrofit, the following information:

i. Vehicle owner with contact name and phone number;

ii. Vehicle type (e.g., mass transit bus, school bus);

iii. Model year;

iv. Engine Manufacturer;

v. Actual, or if not known, estimated or projected, annual miles or hours of operation;

vi. Retrofit type (e.g., oxidation catalyst, particulate filter);

vii. Retrofit cost per vehicle (separate out installation costs);

viii. Actual, or if not known, estimated or projected, annual fuel usage (gal/yr);

ix. Actual, or if not known, estimated or projected, annual emissions reductions (PM, HC, CO);

x. Copy of invoices for purchase of control technology;

xi. Name of the technology installed as identified on the EPA or CARB webpages:

http://www.epa.gov/otaq/retrofit/verif-list.htm

http://www.epa.gov/otaq/smartway/transport/what-smartway/verified-technologies.htm#idle

http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm

b. A brief description of any significant operating problems encountered, including any that had an impact on the environment, and the solutions for each problem;

c. A certification that the project has been fully implemented pursuant to the provisions of this Consent Decree; and

d. A description of the environmental and public health benefits resulting from implementation of each project (including, as set forth above and if feasible, quantification of the benefits and pollutant reductions).

121. Disputes concerning the satisfactory performance of the U.S. SEP and the amount of eligible SEP costs may be resolved under Section XIV (Retention of Jurisdiction/Dispute Resolution) of this Consent Decree. No other disputes arising under this Section VII shall be subject to dispute resolution.

VIII. REPORTING AND RECORDKEEPING

122. CountryMark shall submit to EPA and IDEM semi-annual reports no later than July 31 of each year (covering the period from January 1 to June 30) and January 31 of each year (covering the period from July 1 to December 31). The first Semi-Annual Report shall be due on the first reporting date (July 31 or January 31) after the Entry Date, unless the Entry Date falls 60 or fewer days before June 30 or December 31, in which case the first semi-annual report shall be due on the next reporting due date.

123. All of CountryMark's semi-annual reports shall contain, at a minimum, the following information:

a. a progress report on the implementation of the requirements of Section V (Affirmative Relief) and Appendix B at the Refinery;

b. a summary of the emissions data that is specifically required by the reporting requirements of Section V of this Consent Decree for the six (6) month period covered by the report;

c. a description of any problems anticipated with respect to meeting the requirements of Section V and Appendix B of this Consent Decree at the Refinery;

d. the requirements set forth in Paragraphs B50–B52 of Appendix B;

e. any additional items required by any other Paragraph of this Consent Decree to be submitted with a semi-annual report; and

f. any such additional matters that CountryMark believes should be brought to the attention of EPA or IDEM.

124. Emissions Data. In each semi-annual report required to be submitted on July 31 of each year, CountryMark shall provide a summary of annual emissions data at the Refinery for the prior calendar year. The summary shall include estimates of the following:

a. NOx, SO_2, CO, and PM emissions in tons per year for each heater and boiler greater than 40 mmBTU/hr maximum fired duty;

b. NOx, SO_2, CO, and PM emissions in tons per year as a sum for all heaters and boilers less than 40 mmBTU/hr maximum fired duty;

c. NOx, SO_2, CO, and PM emissions from the FCCU in tons per year;

d. SO_2 emissions from the Sulfur Recovery Plant in tons per year;

e. SO_2 emissions from all Acid Gas and Tail Gas Flaring Incidents broken down by either the Main Flare or the Sulfur Flare in tons per year;

f. NOx, SO_2, PM, and CO emissions in tons per year as a sum for the Refinery for all emissions units not identified in (a) through (e), above, that are required to be included in the Refinery's annual emissions summary; and

g. For each of the estimates in a–f above, the basis for the emissions estimate or calculation (i.e. stack tests, CEMS, emission factor, etc.).

To the extent that the required emissions summary data is available in other reports generated by CountryMark, such other reports can be attached or the appropriate information can be extracted from such other reports and attached to the semi-annual report to satisfy the requirement.

125. Exceedances of Emission Limits. In each semi-annual report, CountryMark shall identify each exceedance of an emission limit required or established by this Consent Decree that occurred during the previous semi-annual period, and, for any emission unit subject to a limit required or established by this Consent Decree that is monitored by a CEMS, any periods of

CEMS downtime that occurred during the prior semi-annual period. For each exceedance and/or each period of CEMS downtime, CountryMark shall include the following information:

a. For emissions units monitored with CEMS:

i. the total period where the emissions limit was exceeded, if applicable, expressed as a percentage of operating time for each calendar quarter;

ii. where the operating unit has exceeded the emissions limit more than 1% of the total time of the calendar quarter, identification of each averaging period that exceeded the limit by time and date, the actual emissions of that averaging period (in the units of the limit), and any identified cause for the exceedance (including startup, shutdown, maintenance or malfunction), and, if it was a malfunction, an explanation and any corrective actions taken;

iii. total downtime of the CEMS expressed as a percentage of operating time for the calendar quarter;

iv. where the CEMS downtime is greater than 5% of the total time in a calendar quarter for a unit, identify the periods of downtime by time and date, and any identified cause of the downtime (including maintenance or malfunction), and, if it was a malfunction, an explanation and any corrective action taken.

v. if a report filed pursuant to another applicable legal requirement contains all of the information required by this Subparagraph 125.a in similar or same format, the requirements of this Subparagraph 125.a may be satisfied by attaching a copy of such report.

b. For emissions units monitored through stack testing:

i. a summary of the results of stack test;

ii. a copy of the full stack test report in which the exceedance occurred; and

iii. to the extent that CountryMark has already submitted the stack test results, CountryMark need not resubmit them, but may instead reference the submission in the report (*e.g.*, date, addressee, reason for submission).

126. Certification. Each report shall be certified by either the person responsible for environmental management at the Refinery or by a person responsible for overseeing implementation of this Decree as follows:

> I certify under penalty of law that this information was prepared under my direction or supervision by personnel qualified to properly gather and evaluate the information submitted. Based on my directions and after reasonable inquiry of the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

IX. CIVIL PENALTY

127. By no later than 30 days after the Date of Entry of this Consent Decree, CountryMark shall pay to the United States the sum of $167,000 as a civil penalty. CountryMark shall pay the civil penalty by FedWire Electronic Funds Transfer ("EFT") to the U.S. Department of Justice in accordance with written instructions to be provided to CountryMark, following lodging of the Consent Decree, by the Financial Litigation Unit of the U.S. Attorney's Office for the Southern District of Indiana, 10 West Market St., Suite 2100, Indianapolis, Indiana 46204. At the time of payment, CountryMark shall send a copy of the EFT authorization form, the EFT transaction record, and a transmittal letter: (i) to the United States in the manner set forth in Section XI of this Decree (Notices); (ii) by email to acctsreceivable.CINWD@epa.gov; and (iii) by mail to:

> EPA Cincinnati Finance Office
> 26 Martin Luther King Drive
> Cincinnati, Ohio 45268

The transmittal letter shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in United States, et al. v. Countrymark Refining and Logistics, LLC, and shall reference the civil action number, USAO File Number 2012V01241, and DOJ case number 90-5-2-1-09311.

128. If any portion of the civil penalty due to the United States is not paid when due, CountryMark shall pay interest on the amount past due, accruing from the Date of Entry through the date of payment, at the rate specified in 28 U.S.C. § 1961. Interest payment under this Paragraph shall be in addition to any stipulated penalty due.

129. CountryMark shall not deduct any penalties paid under this Decree pursuant to this Section or Section X (Stipulated Penalties) in calculating its federal income tax.

130. Upon the Date of Entry of the Consent Decree, the Consent Decree shall constitute an enforceable judgment for purposes of post-judgment collection in accordance with Federal Rule of Civil Procedure 69, the Federal Debt Collection Procedure Act, 28 U.S.C. §§ 3001-3308, and other applicable federal authority. The United States will be deemed a judgment creditor for purposes of collecting any unpaid amounts of the civil and stipulated penalties and interest.

X. STIPULATED PENALTIES

131. Generally.

a. CountryMark shall pay stipulated penalties to the United States and Indiana for each failure by CountryMark to comply with the terms of this Consent Decree as provided herein. Stipulated penalties shall be calculated in the amounts specified in this Section X.

b. For those provisions where a stipulated penalty of either a fixed amount or 1.2 times the economic benefit of non-compliance is available, the decision as to which alternative will be sought rests exclusively within the discretion of the United States.

c. Where a single event triggers more than one stipulated penalties provision in this Consent Decree, only the provision providing for the higher stipulated penalty shall apply.

A. Requirements for NOx Emission Reductions from the FCCU

132. For each failure to meet an emissions limit for NOx set forth in Paragraph 11, per day: $500 for each calendar day in a calendar quarter on which the 7-day rolling average exceeds the limit; and $1,500 for each calendar day in a calendar quarter on which the 365-day rolling average exceeds the limit.

133. For each failure to install, certify, calibrate, maintain, and/or operate a NOx and O_2 CEMS, as required under Paragraph 13, per monitored parameter per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$300
31st through 60th day after deadline	$600
Beyond 60th day after deadline	$1,200 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

B. Requirements for SO_2 Emission Reductions from the FCCU

134. For each failure to meet an emissions limit for SO_2 set forth in Paragraph 14, per day: $500 for each calendar day in a calendar quarter on which the 7-day rolling average exceeds the limit; and $1,500 for each calendar day in a calendar quarter on which the 365-day rolling average exceeds the limit.

135. For each failure to install, certify, calibrate, maintain, and/or operate an SO_2 and O_2 CEMS, as required under Paragraph 16, per monitored parameter per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$300
31st through 60th day after deadline	$600
Beyond 60th day after deadline	$1,200 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

C. Requirements for PM Emission Reductions from the FCCU

136. For each failure to meet the NSPS emission limit for PM required by Paragraph 17, or, if applicable, the PM limit required by Paragraph 19, per day: $750 for each calendar day in a calendar quarter in which the Refinery exceeds the emission limit.

137. For each failure to comply with any requirement specified in Paragraph 22 for demonstrating compliance with PM emissions limits, per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$200
31st through 60th day after deadline	$500
Beyond 60th day after deadline	$1,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

138. For each failure to install, certify, calibrate, maintain, and/or operate a COMS, as required under Paragraph 24, per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$300
31st through 60th day after deadline	$600
Beyond 60th day after deadline	$1,200 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

D. Requirements for CO Emission Reductions from the FCCU

139. For each failure to meet the NSPS emission limit for CO required by Paragraph 17, per day: $500 for each calendar day in a calendar quarter on which the specified one-hour rolling average exceeds the limit; and $1,500 for each calendar day in a calendar quarter on which the specified 365-day rolling average exceeds the limit.

140. For each failure to install, certify, calibrate, maintain, and/or operate a CO and O_2 CEMS, as required under Paragraph 23, per monitored parameter per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$300
31st through 60th day after deadline	$600
Beyond 60th day after deadline	$1,200 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

E. Requirements for NOx Emission Reductions from Combustion Units

141. For each failure to install selected Qualifying Controls on Combustion Units as required by Paragraphs 27 or 30, or to submit the permit application(s) required by Paragraph 27, per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$ 625
31st through 60th day after deadline	$ 1,500
Beyond 60th day after deadline	$ 2,500, or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

142. For each failure to comply with the applicable monitoring requirement in Paragraph 31, per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$200
31st through 60th day after deadline	$500
Beyond 60th day after deadline	$1,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

143. For each failure to meet NOx emission limits proposed by CountryMark pursuant to Paragraph 27, per day, per unit: $500 for each calendar day in a calendar quarter on which the emissions exceed the applicable limit.

F. Requirements for SO_2 Emissions Reductions from Heaters and Boilers

144. For each failure to comply with the NSPS Subpart J emission limit for a heater or boiler after the date on which the respective heater or boiler becomes an "affected facility" subject to NSPS Subpart J, per event, per day in a calendar quarter:

Period Non-Compliance	Penalty per day
1st through 30th day	$500
31st through 60th day	$1,000
Beyond 60th day	$2,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

145. For burning Fuel Oil in a manner inconsistent with the requirements of Paragraph 38:

Period of Non-Compliance	Penalty per day
1st through 30th day	$1,750
Beyond 30th day	$5,000

G. Requirements for Sulfur Recovery Plant and Sulfur Tank

146. For each failure to comply with the NSPS Subpart Ja emission limits at the SRP, pursuant to Paragraphs 39 and 40, per day in a calendar quarter:

Period of Non-Compliance	Penalty per day
1st through 30th day	$500
31st through 60th day	$1,000
Beyond 60th day	$2,000

147. For each failure to eliminate, control, and/or include and monitor all sulfur tank emissions in accordance with the requirements of Paragraph 42, per day:

Period Non-Compliance	Penalty per day
1st through 30th day	$1,000
31st through 60th day	$1,750
Beyond 60th day	$4,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

148. For each failure to install, certify, calibrate, maintain, and/or operate a CEMS for the Sulfur Recovery Plant, as required under Paragraph 43, per day:

Period of Delay	Penalty per day
1st through 30th day after deadline	$300
31st through 60th day after deadline	$600
Beyond 60th day after deadline	$1,200 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

149. For each failure to develop or comply with the Preventative Maintenance and Operation Plan as required under Paragraph 45, per day:

Period of Non-Compliance	Penalty per day
1st through 30th day	$500
31st through 60th day	$1,000
Beyond 60th day	$2,000

H. Requirements for Flares and Flaring Events

150. The stipulated penalties applicable to a failure to comply with the requirements in Appendix B are set forth in Subsection B-V of Appendix B.

I. Requirements for Benzene Waste Operations NESHAP

151. The following stipulated penalties are applicable to failures to comply with the requirements in Subsection V.H:

a. For failure to comply with the requirements of Paragraph 50 related to a compliance status change, per day:

Period of Non-Compliance	Penalty per day
1st through 30th day	$1,000
31st through 60th day	$2,000
Beyond 60th day	$3,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

b. For failure to complete the BWON Compliance Review and Verification Reports as required by Paragraphs 51 and 52 and, if necessary, 53 and 54: $5,000 per month.

c. For failure to submit a plan that provides for actions necessary to correct non-compliance as required by Paragraph 55 or for failure to implement the actions necessary to correct non-compliance and to certify compliance as required by Paragraphs 56 and 57.

Period of Delay	Penalty per day
1st through 30th day after deadline	$750
31st through 60th day after deadline	$2,000
Beyond 60th day	$3,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

d. For failure to establish an annual review program to identify new benzene waste streams as required by Paragraph 58: $2,500 per month.

e. For failure to only use laboratories designated in Paragraph 59: $2,500 per month.

f. For failure to implement the training requirements as set forth in Paragraphs 61–63: $5,000 per quarter.

g. For failure to meet the applicable control standards of Subpart FF for waste management units handling non-exempt, non-aqueous wastes as required by Paragraph 65: $10,000 per month per waste management unit.

h. For failure to submit any plans or other deliverables required by Paragraphs 67–74 or for failure to comply with the requirements of Paragraph 75, when applicable, for retaining third-party assistance: $5,000 per month.

i. For failure to conduct sampling in accordance with the sampling plans required by Paragraph 68–70: $ 250 per week, per waste stream, or $15,000 per quarter, per waste stream, whichever is greater, but not to exceed $75,000 per quarter.

j. If and when required:

i. For failure to conduct monthly visual inspections of all Subpart FF water traps within the Refinery's drain system pursuant to Paragraph 76.a: $500 per drain not inspected.

ii. For failure to identify/mark segregated stormwater drains as required in Paragraph 76.b: $1,000 per week, per drain.

iii. For failure to monitor Subpart FF conservation vents as required by Paragraph 76.c: $500 per vent not monitored.

iv. For failure to conduct monitoring of the controlled oil-water separators in benzene service as required by Paragraph 76.d: $1,000 per month, per unit.

k. For failure to submit the written deliverables required by Paragraphs 77–78: $1,000 per week, per deliverable.

l. If it is determined through federal or state investigation that CountryMark has failed to include all benzene waste streams in its TAB calculation submitted pursuant to

Paragraphs 51–54, or in the annual report required by the Benzene Waste Operations NESHAP, CountryMark shall pay the following, per waste stream:

Waste Stream	Penalty
for waste streams < 0.03 Mg/yr	$250
for waste streams between 0.03 and 0.1 Mg/yr	$1,000
for waste streams between 0.1 and 0.5 Mg/yr	$5,000
for waste streams > 0.5 Mg/yr	$10,000

J. Requirements for Leak Detection and Repair

152. The following stipulated penalties are applicable to failures to comply with the requirements in Subsection V.I:

a. For failure to develop the LDAR Program as required by Paragraph 82: $3,500 per week.

b. For failure to implement the training programs specified in Subparagraphs 83.a–83.c: $10,000 per month, per program.

c. For failure to conduct any of the audits required by Paragraphs 84–89: $5,000 per month, per audit.

d. For failure to implement any actions necessary to correct non-compliance, as required by Paragraph 91:

Period of Delay	Penalty per day
1st through 30th day after deadline	$1,250
31st through 60th day after deadline	$3,000
Beyond 60th day	$5,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

e. For failure to perform the monitoring required by Paragraph 94 utilizing the lower internal leak definitions specified in Paragraph 92: $100 per component, but not greater than $10,000 per month, per process unit.

f. For failure to record, track, repair and re-monitor leaks, as required by Subparagraph 93.b, in excess of the lower leak definitions specified in Paragraph 92: $500 per component, but not greater than $10,000 per month, per process unit.

g. For failure to implement the "initial attempt" repair program in Paragraph 95: $100 per valve, but not greater than $10,000 per month, per process unit.

h. For failure to implement and comply with the LDAR monitoring program required by Paragraph 96: $100 per component, but not greater than $10,000 per month, per process unit.

i. For failure to use dataloggers or maintain electronic data as required by Paragraph 97: $5,000 per month.

j. For failure to implement the QA/QC procedures described in Paragraph 98: $1,000 per incident, but not greater than $10,000 per month.

k. For failure to designate and/or maintain an individual as accountable for LDAR performance as required in Paragraph 99 or for failure to implement the maintenance tracking program in Paragraph 100: $3,750 per week.

l. For each failure to install a certified low-leaking valve when required pursuant to Paragraph 101: $2,500 per valve.

m. For failure to conduct the calibration drift assessments or remonitor valves and pumps based on calibration drift assessments in Paragraph 102: $100 per missed event.

n. For failure to comply with the requirements for repair set forth at Paragraph 103: $ 2,500 per valve or pump, per incident of non-compliance.

o. For failure to comply with the requirement for chronic leakers set forth in Paragraph 104: $ 2,500 per valve.

p. For failure to submit any written deliverables required by Paragraphs 105 and 106: $1,000 per week, per report.

q. If it is determined through a federal, state, regional, or local investigation, after the Initial Compliance Audit required by Paragraph 85, that CountryMark has failed to include any valves or pumps in its LDAR program, CountryMark shall pay $350 per component that it failed to include. If CountryMark discovers that it failed to include all of the components after the Initial Compliance Audit, CountryMark shall pay $100 per component.

K. Requirements for Incorporation of Consent Decree Requirements into Permits

153. For each failure to submit an application to incorporate Consent Decree requirements into relevant federal, state, and/or local permits as required by Paragraph 108:

Period of Delay	Penalty per day
1st through 30th day	$500
31st through 60th day	$1000
Beyond 60th day	$2,000

L. U.S. SEP Requirements

154. For failure to timely complete implementation of the U.S. SEP required in Paragraph 115:

Period of Delay	Penalty per day
1st through 30th day	$500
31st through 60th day	$1,000
Beyond 60th day	$2,000

M. Requirements for Reports and Deliverables

155. Unless covered by a more specific stipulated penalty, for failure to submit deliverables required by Section V or reports required by Section VIII, per deliverable or report, per day:

Period of Delay	Penalty per day
1st through 30th day	$300
31st through 60th day	$500
Beyond 60th day	$1,000

N. Requirements for Payment of Civil Penalties

156. For failure to pay the civil penalty required pursuant to Paragraph 126, CountryMark shall be liable for $1000 per day late.

O. General Provisions Related to Stipulated Penalties

157. Demand for Stipulated Penalties. CountryMark shall pay stipulated penalties upon written demand by the United States. A demand for the payment of stipulated penalties shall identify the particular violation(s) to which the stipulated penalty relates, the stipulated penalty amount that the United States is demanding for each violation (as can be best estimated), the calculation method underlying the demand, and the grounds upon which the demand is based.

158. Waiver of Payment. The United States may, in its unreviewable discretion, waive payment of any portion of stipulated penalties that may accrue under this Consent Decree.

159. Timing of Payment of Stipulated Penalties. CountryMark shall pay stipulated penalties with 60 days of receiving a written demand for payment unless CountryMark invokes dispute resolution pursuant to Section XIV.

160. Manner of Payment of Stipulated Penalties. Stipulated penalties owed by CountryMark shall be paid 70% to the United States and 30% to Indiana.

a. Stipulated penalties owing to the United States of under $10,000 shall be paid by check and made payable to "U.S. Department of Justice," referencing DOJ Case Number 90-5-2-1-09311, USAO File Number 2012V01241, and the civil action case name, and delivered to the U.S. Attorney's Office in the Southern District of Indiana, 10 West Market St., Suite 2100, Indianapolis, Indiana 46204. Stipulated penalties owing to the United States of $10,000 or more shall be paid in the manner set forth in Section IX of this Consent Decree. CountryMark shall include transmittal correspondence with its payment that shall state that the payment is for stipulated penalties pursuant to the Consent Decree in United States, et al. v. Countrymark Refining and Logistics, LLC, shall identify the violations to which the payment relates, and shall include the civil action number, USAO File Number 2012V01241, and DOJ case number 90-5-2-1-09311.

b. Stipulated penalties owing to Indiana shall be made by certified check or checks or cashier's checks made payable to "Environmental Management Special Fund" referencing the name and address of the party making payment, and the civil action number. CountryMark shall send the check(s) to:

Indiana Department of Environmental Management
Cashier - MC 50-10C
100 North Senate Avenue
Indianapolis, IN 46204-2251

161. Stipulated Penalties Accrual. Stipulated penalties shall begin to accrue on the day after performance is due or the day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

162. Stipulated Penalties Dispute. By no later than sixty (60) days after receipt of a written demand for stipulated penalties, CountryMark may dispute liability for any or all of the

stipulated penalty by invoking the dispute resolution provisions of this Decree and, if the disputed amount is greater than $25,000, by placing the disputed amount in a commercial escrow account with interest. If the dispute thereafter is resolved in CountryMark's favor, the escrowed amount plus accrued interest will be returned to CountryMark; otherwise, the United States and the Indiana will be entitled to the amount that was determined to be due by the Court, plus the interest that has accrued in the escrow account on such amount.

163. Subject to the provisions of Section XV of this Decree (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Decree shall be in addition to any other rights, remedies, or sanctions available to the United States and Indiana for a violation of this Consent Decree or applicable law. In addition to injunctive relief or stipulated penalties, the United States and Indiana may seek mitigating emissions reductions equal to or greater than the excess amounts emitted if the violations result in excess emissions. CountryMark reserves the right to oppose the request for mitigating emission reductions.

164. Where a violation of this Consent Decree is also a violation of the Clean Air Act, its regulations, or a federally-enforceable state law, regulation, or permit, the United States shall not seek civil penalties where it already has demanded and secured stipulated penalties from CountryMark for the same violations nor shall the United States demand stipulated penalties from CountryMark for a Consent Decree violation if the United States has commenced litigation under the Clean Air Act for the same violations. Where a violation of this Consent Decree is also a violation of state law, regulation or a permit, Indiana shall not seek civil penalties where it already has demanded and/or secured stipulated penalties from CountryMark for the same violations, nor shall Indiana demand stipulated penalties from CountryMark for a Consent

Decree violation if Indiana has commenced litigation under the Clean Air Act for the same violations.

XI. NOTICE

165. Unless otherwise provided herein, notifications to or communications between the Parties will be deemed submitted on the date they are postmarked and sent by U.S. Mail, postage pre-paid, except for notices under Section XIII (Force Majeure) and Section XIV (Retention Jurisdiction/Dispute Resolution), which will be sent either by overnight mail or by certified or registered mail, return receipt requested. If the date for submission of a report, study, notification or other communication falls on a Saturday, Sunday or legal holiday, the report, study, notification or other communication will be deemed timely if it is submitted the next business day. Submission by U.S. mail or courier shall be sufficient to comply with the notice requirements of this Consent Decree. The email addresses listed below are to permit the submission of courtesy copies. Each report, study, notification or other communication shall be addressed to the following and for submission to EPA, the submission will be made to both EPA Headquarters and EPA Region 5:

As to the United States:

Chief
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, DC 20044-7611
Reference Case No. 90-5-2-1-09311

As to EPA Headquarters:

Director, Air Enforcement Division
Office of Civil Enforcement
U.S. Environmental Protection Agency
Mail Code 2242-A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460-0001

and

Director, Air Enforcement Division
Office of Civil Enforcement
c/o Matrix New World Engineering Inc.
120 Eagle Rock Avenue
Suite 207
East Hanover, NJ 07936-3159

With an electronic copy to:
csullivan@matrixneworld.com
foley.patrick@epa.gov

As to EPA Region 5:

Air Program Director
U.S. EPA Region 5
77 W. Jackson Blvd.
(AE-17J)
Chicago, IL 60604
Attn: Compliance Tracker

and

Office of Regional Counsel
U.S. EPA Region 5
77 W. Jackson Blvd.
(AE-14J)
Chicago, IL 60604

With an electronic copy to:
Downey.Shannon@epamail.epa.gov
Schnieders.Kathleen@epamail.epa.gov

As to Co-Plaintiff:

Office of the Indiana Attorney General
Environmental Litigation Division
Indiana Government Center South- Fifth Floor
302 West Washington Street
Indianapolis, IN 46204

Chief, Air Compliance and Enforcement Branch
Indiana Department of Environmental Management
100 North Senate Avenue
MC 61-53, IGCN 1003
Indianapolis, IN 46204-2251

As to CountryMark:

Vice President, Operations
Countrymark Refining and Logistics, LLC
1200 Refinery Road
Mt. Vernon, Indiana 47620

Anthony C. Sullivan
Barnes & Thornburg LLP
11 South Meridian Street
Indianapolis, Indiana 46204

With an electronic copy to:

pat.ward@countrymark.com
jim.pankey@countrymark.com
tony.sullivan@btlaw.com

Any party may change either the notice recipient or the address for providing notices to it by serving all other parties with a notice setting forth such new notice recipient or address. In addition, the nature and frequency of reports required by the Consent Decree may be modified by mutual consent of the Parties. The consent of the United States to such modification must be in the form of a written notification from EPA, but need not be filed with the Court to be effective.

XII. INFORMATION COLLECTION AND RETENTION

166A. The United States, Indiana, and their representatives, employees, contractors, and consultants shall have the right of entry into the Refinery, at all reasonable times, upon presentation of credentials and any other documentation required by law, to:

a. monitor the progress of activities required under this Consent Decree;

b. verify any data or information submitted to the United States or Indiana in accordance with the terms of this Consent Decree;

c. obtain documentary evidence, including photographs and similar data, relevant to compliance with the terms of this Consent Decree; and

d. assess CountryMark's compliance with this Consent Decree.

166B. Except for data recorded by any video camera that is required pursuant to Paragraph B11 of Appendix B, until one year after termination of this Consent Decree, CountryMark shall retain, and shall instruct its contractors and agents to preserve, all documents, records, or other information, regardless of storage medium (*e.g.*, paper or electronic) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that directly relate to CountryMark's performance of its obligations under this Consent Decree. This information retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, the United States may request copies of any documents, records, or other information required to be maintained under this Paragraph. CountryMark shall retain the data recorded by any video camera required pursuant to Paragraph B11 of Appendix B for six months from the date of recording except that CountryMark shall keep any such video record until one year after termination if CountryMark was required to keep the record pursuant to Subparagraph B37.c of Appendix B.

166C. Except for emissions data, CountryMark may assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that CountryMark seeks to protect as CBI, CountryMark shall follow the procedures set forth in 40 C.F.R. Part 2, where applicable.

166D. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or Indiana pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of CountryMark to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XIII. FORCE MAJEURE

167. "Force Majeure," for purposes of this Consent Decree, is defined as any event beyond the control of CountryMark, its contractors, or any entity controlled by CountryMark that delays the performance of any obligation under this Consent Decree despite CountryMark's best efforts to fulfill the obligation. The requirement that CountryMark exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential Force Majeure event and best efforts: (i) to address the effects of any such event as it is occurring; and (b) to prevent or minimize any resulting delay after the event has occurred.

168. "Force Majeure" does not include CountryMark's financial inability to perform any obligation under this Consent Decree. Unanticipated or increased costs or expenses associated with the performance of CountryMark's obligations under this Consent Decree shall not constitute circumstances beyond CountryMark's control nor serve as the basis for an extension of time under this Section XIII.

169. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, CountryMark shall notify EPA and IDEM in writing not later than fifteen (15) calendar days after the time CountryMark first knew or should have known by the exercise of due diligence that the event might cause a delay. In the written notice, CountryMark shall specifically reference this Paragraph 169 of the Consent Decree and shall provide an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; CountryMark's rationale for attributing such delay to a Force Majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of CountryMark, such event may cause or contribute to an endangerment to public health, welfare, or the environment. CountryMark shall be deemed to know of any circumstance of which CountryMark, any entity controlled by CountryMark, or CountryMark's contractors knew or should have known. CountryMark shall include with any notice all available documentation supporting the claim that the delay was attributable to a Force Majeure. The written notice required by this Paragraph shall be effective upon the mailing of the same by overnight mail or by certified mail, return receipt requested, to EPA in the manner set forth in Section XI of this Decree (Notices).

170. Failure by CountryMark to comply with the requirements in Paragraph 169 shall preclude CountryMark from asserting any claim of Force Majeure for the event for the period of time of such failure to comply, and for any additional delay caused by such failure.

171. If EPA, after consultation with IDEM, agrees that the delay or anticipated delay is attributable to a Force Majeure event, the time for performance of the obligations under this

Consent Decree that are affected by the Force Majeure event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the Force Majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify CountryMark in writing of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event.

172. If EPA, after consultation with IDEM, does not agree that the delay or anticipated delay has been or will be caused by a Force Majeure event, or if the EPA, after consultation with IDEM, and CountryMark fail to agree on the length of the delay attributable to the Force Majeure event, EPA will notify CountryMark of its decision.

173. If CountryMark elects to invoke the dispute resolution procedures set forth in Section XIV of this Decree (Dispute Resolution), it shall do so no later than 45 days after receipt of EPA's notice. In any such proceeding, CountryMark shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that CountryMark complied with the requirements of Paragraphs 167 and 169. If CountryMark carries this burden, the delay at issue shall be deemed not to be a violation by CountryMark of the affected obligation of this Consent Decree identified to EPA and the Court.

174. Notwithstanding any other provision of this Consent Decree, the Parties do not intend that CountryMark's serving of a Force Majeure notice or the Parties' inability to reach agreement shall cause this Court to draw any inferences nor establish any presumptions adverse to any Party.

XIV. RETENTION OF JURISDICTION/DISPUTE RESOLUTION

175. This Court shall retain jurisdiction of this matter for the purposes of implementing and enforcing the terms and conditions of the Consent Decree and for the purpose of adjudicating all disputes of the Consent Decree between the United States and Indiana and CountryMark that may arise under the provisions of the Consent Decree, until the Consent Decree terminates in accordance with Section XVII (Termination) of this Consent Decree.

176. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree.

177. Informal Dispute Resolution. The first stage of dispute resolution shall consist of informal negotiations. The dispute shall be considered to have arisen when one Party sends the other Party a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed sixty (60) days after the Notice of Dispute, unless that period is modified by written agreement. If the Parties cannot resolve the dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless within forty-five (45) days after the conclusion of the informal negotiation period, CountryMark invokes formal dispute resolution procedures set forth below.

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

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

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

181. The United States shall respond to CountryMark's motion within the time period allowed by the Local Rules of this Court for responses to dispositive motions. CountryMark may file a reply memorandum, to the extent permitted by the Local Rules.

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

183. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of CountryMark under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall accrue in accordance with Paragraph 161, but payment shall be stayed pending resolution of the dispute.

XV. EFFECT OF SETTLEMENT

184. Definitions. For purposes of this Section XV, the following definitions apply:

a. "Benzene Waste NESHAP Requirements" shall mean the requirements imposed by the National Emission Standard for Benzene Waste Operations, 40 C.F.R. Part 61, Subpart FF, and any applicable state, regional, or local regulations that implement, adopt, or incorporate the Benzene Waste NESHAP.

b. "BTU/scf Flared Gas Requirements" shall mean the requirements found in the following regulations:

i. 40 C.F.R. § 60.18(c)(3)(ii);

ii. 40 C.F.R. § 63.11(b)(6)(ii);

iii. 40 C.F.R. §§ 60.482-10(d), 60.482-10a(d), but only to the extent that these provisions require compliance with 40 C.F.R. § 60.18(c)(3)(ii);

iv. 40 C.F.R. §§ 60.592(a), 60.592a(a), but only to the extent that these provisions: *(1)* relate to flares; and *(2)* require compliance with 40 C.F.R. § 60.18(c)(3)(ii);

v. 40 C.F.R. § 63.643(a)(1), but only to the extent that this provision requires compliance with 40 C.F.R. § 63.11(b)(6)(ii);

vi. 40 C.F.R. § 63.648(a), but only to the extent that this provision: *(1)* relates to flares; and *(2)* requires compliance with 40 C.F.R. § 60.18(c)(3)(ii); and

vii. 40 C.F.R. § 63.1566(a)(1)(i) and Table 15, but only to the extent that these provisions: *(1)* relate to flares; and *(2)* require compliance with 40 C.F.R. § 63.11(b)(6)(ii).

c. "General Flare Requirements" shall mean the requirements found in the following regulations:

i. 40 C.F.R. § 60.18(c)(1) and
40 C.F.R. § 63.11(b)(4)
(both relate to a prohibition on visible emissions);

ii. 40 C.F.R. § 60.18(c)(2) and
40 C.F.R. § 63.11(b)(5)
(both relate to flame presence);

iii. 40 C.F.R. § 60.18(c)(4) and
40 C.F.R. § 63.11(b)(7)
(both relate to exit velocity requirements for steam-assisted flares);

iv. 40 C.F.R. § 60.18(e) and
40 C.F.R. § 63.11(b)(3)
(both relate to operation during emissions venting).

d. "Good Air Pollution Control Practice Requirements" shall mean the requirements found in the following regulations:

i. 40 C.F.R. § 60.11(d);

ii. 40 C.F.R. § 63.6(e)(1)(i);

iii. 40 C.F.R. Part 63, Subpart CC, Table 6, but only to the extent that Table 6 requires compliance with 40 C.F.R. § 63.6(e)(1)(i); and

iv. 40 C.F.R. Part 63, Subpart UUU, Table 44, but only to the extent that Table 44 requires compliance with 40 C.F.R. § 63.6(e)(1).

e. "LDAR Requirements" shall mean the requirements relating to equipment in light liquid service and gas and/or vapor service set forth at 40 C.F.R. Part 60, Subpart GGG; 40 C.F.R. Part 61, Subparts J and V; and 40 C.F.R. Part 63, Subparts F, H, and CC; and any applicable state, regional, or local regulations or State Implementation Plan requirements that implement, adopt or incorporate those federal regulations or set similar standards.

f. "Post-Lodging Compliance Dates" shall mean any dates in this Section XV after the Date of Lodging;

g. "NSPS Subparts A and J Requirements" shall mean the standards, monitoring, testing, reporting and recordkeeping requirements, found at 40 C.F.R. §§ 60.100 through 60.109 (Subpart J), relating to a particular pollutant and a particular affected facility, and the corollary general

requirements found at 40 C.F.R. §§ 60.1 through 60.19 (Subpart A) that are applicable to any affected facility covered by Subpart J.

h. "NSPS Subparts A and Ja Requirements" shall mean the standards, monitoring, testing, reporting and recordkeeping requirements, found at 40 C.F.R. §§ 60.100a through 60.115a (Subpart Ja) (as in effect on November 13, 2012), relating to a particular pollutant and a particular affected facility, and the corollary general requirements found at 40 C.F.R. §§ 60.1 through 60.19 (Subpart A) that are applicable to any affected facility covered by Subpart Ja.

i. [Intentionally left blank.]

j. "PSD Requirements" shall mean the Prevention of Significant Deterioration requirements found in the following:

i. 42 U.S.C. § 7475;

ii. 40 C.F.R. §§ 52.21(a)(2)(iii) and 52.21(j)–52.21(r)(5);

iii. any applicable, federally enforceable state or local regulation that implements, adopts, or incorporates the federal provisions cited in Subparagraphs 184.j.i–ii; and

iv. any Title V permit requirement that implements, adopts, or incorporates the federal, or federally enforceable state, provisions cited in Subparagraphs 184.j.i–iii;

k. "Requirements Related to Monitoring, Operation, and Maintenance According to Flare Design" shall mean the requirements found in the following regulations:

i. 40 C.F.R. § 60.18(d);

ii. 40 C.F.R. § 63.11(b)(1);

iii. 40 C.F.R. §§ 60.482-10(d), 60.482-10a(d), but only to the extent that these provisions require compliance with 40 C.F.R. § 60.18(d);

iv. 40 C.F.R. §§ 60.482-10(e), 60.482-10a(e), but only to the extent that these provisions relate to flares;

v. 40 C.F.R. §§ 60.592(a), 60.592a(a), but only to the extent that these provisions: *(1)* relate to flares; and *(2)* require compliance with 40 C.F.R. § 60.18(d);

vi. 40 C.F.R. § 63.643(a)(1), but only to the extent that this provision requires compliance with 40 C.F.R. § 63.11(b)(1);

vii. 40 C.F.R. § 63.648(a), but only to the extent that this provision: *(1)* relates to flares; and *(2)* requires compliance with 40 C.F.R. § 60.18(d); and

viii. 40 C.F.R. § 63.1566(a)(1)(i) and Table 15 but only to the extent that this provision: *(1)* relates to flares; and *(2)* requires compliance with 40 C.F.R. § 63.11(b)(1).

185. Entry of this Consent Decree shall resolve the civil claims of the United States and Indiana for the violations alleged in the Complaint filed in this action through the Date of Lodging.

186. Resolution of Claims for Violations of PSD Requirements at Units other than Flares. With respect to emissions of the following pollutants from the following units, entry of this Consent Decree shall resolve all civil liability of CountryMark to the United States and Indiana for violations of the PSD Requirements resulting from construction or modification from the date of the pre-Lodging construction or modification up through the following dates:

Unit	Pollutants	Date
FCCU	NOx	Date of Entry
	SO_2	Date of Entry
All Combustion Units listed in Appendix A on which Qualifying Controls are installed and that are used to satisfy the requirements of ¶ 27	NOx	The later of Date of Lodging or the date of the installation of Qualifying Controls
All other heaters and boilers	NOx	Date of Lodging
All heaters and boilers	SO_2	Date of Lodging

187. Contingent Resolution of Claims for Violations of PSD Requirements at the FCCU Related to PM. If and when, pursuant to Paragraph 19, CountryMark accepts an emission

limit of 0.5 pound PM per 1000 pounds of coke burned on a 3-hour average basis and demonstrates compliance by conducting a 3-hour performance test representative of normal operating conditions for PM emissions at the Refinery's FCCU, then all civil liability of CountryMark to the United States and Indiana shall be resolved for violations of the PSD Requirements relating to PM emissions resulting from construction or modification of the FCCU that occurred prior to the Date of Lodging of the Consent Decree that either ceased prior to the Date of Lodging of the Consent Decree or continued up to the date on which CountryMark demonstrates compliance with such PM emission limit for the FCCU.

188. Resolution of Claims for Violating PSD Requirements at the Covered Flare. With respect to emissions of H_2S, SO_2, VOCs, and CO, entry of this Consent Decree shall resolve the civil claims of the United States and Indiana against CountryMark for violations of the PSD Requirements resulting from construction or modification from the date of the pre-Lodging construction or modification through December 31, 2015.

189. Exclusions from Release Coverage Regarding PSD Requirements: Construction and/or Modification Not Covered by Paragraphs 186–188. Notwithstanding the resolution of liability in Paragraphs 186–188, nothing in this Consent Decree precludes the United States or Indiana from seeking from CountryMark injunctive relief, penalties, or other appropriate relief for violations by CountryMark of the PSD Requirements resulting from construction or modification that: (i) commenced prior to or commences after the Date of Lodging of the Consent Decree for pollutants or units not covered by the Consent Decree; or (ii) commences after the Date of Lodging of the Consent Decree for pollutants and units covered by this Consent Decree.

190. Evaluation of PSD Requirements Must Occur. Increases in emissions from units covered by this Consent Decree, where the increases result from the Post-Lodging construction or modification of any units within the Refinery, are beyond the scope of the release in Paragraphs 186–188, and CountryMark must evaluate any such increases in accordance with the PSD Requirements, and if and when ever applicable, Non-Attainment New Source Review requirements.

191. Resolution of Claims for Violating NSPS Subparts A and J at Certain Units. Entry of this Consent Decree shall resolve all civil liability of CountryMark to the United States and Indiana for violations of NSPS Subparts A and J Requirements, arising from emissions of the following pollutants from the following units, from the date that the Pre-Lodging claims of the United States and Indiana accrued through the following dates:

Unit	Pollutants	Date
FCCU	SO_2, CO, Opacity PM	Date of Entry December 31, 2016, if CountryMark notifies EPA of Option *(1)* under Subparagraph 17.b.i or December 31, 2017, if Countrymark notifies EPA of Options *(2)* or *(3)* under Subparagraph 17.b.i
All heaters and boilers	SO_2	December 31, 2014
Covered Flare	SO_2	March 31, 2013
Sulfur Flare	SO_2	March 31, 2013

192. Resolution of Claims for Violating NSPS Subparts A and Ja at the Covered Flare. Entry of this Consent Decree shall resolve the civil claims of the United States and Indiana against CountryMark for violations of NSPS Subparts A and Ja Requirements at the Covered Flare from November 13, 2012, through the later of: (i) March 31, 2013; or (ii) the earliest

date(s) by which a "modified" flare (within the meaning of Subpart Ja) must comply with the requirements of Subpart Ja.

193. Resolution of Claims for Violating NSPS Subparts A and Ja at the Sulfur Recovery Plant. Entry of this Consent Decree shall resolve all civil liability of CountryMark to the United States and Indiana for violations of NSPS Subparts A and Ja Requirements relating to and arising from emissions of SO_2 from the Sulfur Recovery Plant from September 26, 2008, through the Date of Lodging.

194. Resolution of Pre-Lodging Claims at the Covered Flare for Failing to Comply with: (a) BTU/scf Flared Gas Requirements; (b) General Flare Requirements; (c) Good Air Pollution Control Practice Requirements; and (d) Requirements Related to Monitoring, Operation, and Maintenance According to Flare Design. With respect to emissions of the following pollutants from the Covered Flare, entry of this Consent Decree shall resolve the civil claims of the United States and Indiana against CountryMark for violations of the following requirements from the date those claims accrued through the Date of Lodging:

Pollutant(s)	**Requirement/Regulation**
VOCs and HAPs	BTU/scf Flared Gas Requirements
VOCs and HAPs	General Flare Requirements
VOCs and HAPs	Good Air Pollution Control Practice Requirements
VOCs and HAPs	Requirements Related to Monitoring, Operation, and Maintenance According to Flare Design

195. Resolution of Claims Continuing Post-Lodging at the Covered Flare for Failing to Comply with Requirements Related to Monitoring, Operation, and Maintenance According to Flare Design. With respect to emissions of VOCs and HAPs from the Covered Flare, entry of

this Consent decree shall resolve the civil claims of the United States and Indiana against CountryMark for violations that occurred from the Date of Lodging through June 30, 2014, of Requirements Related to Monitoring, Operation, and Maintenance According to Flare Design, but only to the extent that the claims are based on CountryMark's use of too much steam in relation to Vent Gas flow.

196. Resolution of Title V Violations. Entry of this Consent Decree shall resolve the civil claims of the United States and Indiana against CountryMark for the violations of Sections 502(a), 503(c), and 504(a) of the CAA, 42 U.S.C. §§ 7661a(a), 7661b(c), 7661c(a), and of 40 C.F.R. §§ 70.1(b), 70.5(a) and (b), 70.6(a) and (c), and 70.7(b), that are based upon the violations resolved by Paragraphs 188, 191 (for Covered Flare only), 192, 194, and 195 for the time frames set forth in those Paragraphs.

197. Reservation of Rights: Resolution of Liability in Paragraphs 186, 187 (if it becomes applicable), 188, 191, 192, 195, and 196 for the Post-Lodging Period can be Rendered Void. Notwithstanding the resolution of liability in Paragraphs 186, 187 (if it becomes applicable), 188, 191, 192, 195, and 196 for the period of time between the Date of Lodging and the Post-Lodging Compliance Dates, those resolutions of liability shall be rendered void if CountryMark materially fails to comply with any of the obligations and requirements of Sections V and VI of this Decree (Compliance Requirements and Emission Credit Generation). However, the resolutions of liability in Paragraphs 186, 187 (if it becomes applicable), 188, 191, 192, 195, 196 for the Post-Lodging Period shall not be rendered void if CountryMark, as expeditiously as practicable, remedies such material failure and pays all stipulated penalties due as a result of such material failure.

198. Prior NSPS Applicability Determinations. Nothing in this Consent Decree shall render void a previous determination, if any, that any unit at the Refinery was/were subject to NSPS.

199. Resolution of Liability Regarding Benzene Waste NESHAP Requirements. Entry of this Consent Decree shall resolve all civil liability of CountryMark to the United States and Indiana for alleged violations of Benzene Waste NESHAP Requirements at the Refinery that either: (i) commenced and ceased prior to the Date of Entry; or (ii) commenced prior to the Date of Entry and continued past the Date of Entry, provided that the events giving rise to post-Entry violations are identified in the BWON Compliance Review and Verification Report required under Paragraph 52 and are corrected pursuant to the requirements of Paragraph 55.

200. Resolution of Liability Regarding LDAR Requirements. Entry of this Consent Decree shall resolve the civil liability of CountryMark to the United States and Indiana for alleged violations of LDAR Requirements at the Refinery that either: (i) commenced and ceased prior to the Date of Entry; or (ii) commenced prior to the Date of Entry and continued past the Date of Entry, provided that the events giving rise to post-Entry violations are identified in the Initial LDAR Compliance Audit Report required under Paragraph 85 and are corrected pursuant to the requirements of Paragraph 91.

201. Reservation of Rights Regarding Benzene Waste NESHAP and LDAR Requirements. Notwithstanding the resolution of liability in Paragraphs 199 and 200, nothing in this Consent Decree precludes the United States or Indiana from seeking from CountryMark civil penalties and/or injunctive relief and/or other equitable relief for violations by CountryMark for a violation of Benzene Waste NESHAP Requirements or of LDAR Requirements that:

(i) commenced after the Date of Entry; or

(ii) commenced prior to the Date of Entry and continued after the Entry Date:

a. if CountryMark fails to identify any such violation of Benzene Waste NESHAP Requirements in its BWON Compliance Review and Verification Report under Paragraph 52 and correct such violation as required by Paragraph 55;

b. if CountryMark fails to identify any such violation of LDAR Requirements in its LDAR Initial Audit Report required under Paragraph 85 and correct such violation as required by Paragraph 91.

202. Claim/Issue Preclusion. In any subsequent administrative or judicial proceeding initiated by the United States or Indiana for injunctive relief, penalties, or other appropriate relief relating to CountryMark for alleged violations of the PSD/NSR, NSPS, NESHAP, and/or LDAR, requirements, not identified in this Section XV of the Consent Decree and/or the Complaint:

a. CountryMark shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, or claim-splitting. Nor may CountryMark assert, or maintain, any other defenses based upon any contention that the claims raised by the United States or Indiana in the subsequent proceeding were or should have been brought in the instant case. Nothing in the preceding sentences is intended to affect the ability of CountryMark to assert that the claims are deemed resolved by virtue of this Section XV of the Consent Decree.

b. The United States and Indiana may not assert or maintain that this Consent Decree constitutes a waiver or determination of, or otherwise obviates, any claim or defense whatsoever, or that this Consent Decree constitutes acceptance by CountryMark of any interpretation or guidance issued by EPA related to the matters addressed in this Consent Decree.

203. Imminent and Substantial Endangerment. Nothing in this Consent Decree shall be construed to limit the authority of the United States and Indiana to undertake any action against any person, including CountryMark, to abate or correct conditions which may present an imminent and substantial endangerment to the public health, welfare, or the environment.

XVI. GENERAL PROVISIONS

204. Other Laws. Except as specifically provided by this Consent Decree, nothing in this Consent Decree shall relieve CountryMark of its obligations to comply with all applicable federal, state and local laws and regulations. Subject to Section XV (Effect of Settlement), nothing contained in this Consent Decree shall be construed to prevent or limit the rights of the United States to seek or obtain other remedies or sanctions available under other federal, state or local statutes or regulations, by virtue of CountryMark's violation of the Consent Decree or of the statutes and regulations upon which the Consent Decree is based, or for CountryMark's violations of any applicable provision of law, other than the specific matters resolved herein. This shall include the right of the United States to invoke the authority of the Court to order CountryMark's compliance with this Consent Decree in a subsequent contempt action.

205. Post-Permit Violations. Nothing in this Consent Decree shall be construed to prevent or limit the right of the United States to seek injunctive or monetary relief for violations of limits that have been incorporated into permits pursuant to this Consent Decree; provided, however, that with respect to monetary relief, the United States must elect between filing a new action for such monetary relief or seeking stipulated penalties under this Consent Decree, if stipulated penalties also are available for the alleged violation(s).

206. Startup, Shutdown, Malfunction. Notwithstanding the provisions of this Consent Decree regarding Startup, Shutdown, and Malfunction, this Consent Decree does not exempt

CountryMark from the requirements of federal or state laws and regulations or from the requirements of any permits or plan approvals issued to CountryMark, as these laws, regulations, permits, and/or plan approvals may apply to Startups, Shutdowns, and Malfunctions at the Refinery.

207. Failure of Compliance. The United States does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that CountryMark's complete compliance with the Consent Decree will result in future compliance with the provisions of the Clean Air Act or any other applicable federal, state, or local law or regulation. Notwithstanding the review or approval by the United States and/or state agencies of any plans, reports, policies or procedures formulated pursuant to the Consent Decree, CountryMark shall remain responsible for compliance with the terms of the Consent Decree, all applicable permits, and all applicable federal, state and local laws and regulations, except as provided in Section XIII (Force Majeure).

208. Service of Process. CountryMark hereby agrees to accept service of process by mail with respect to all matters arising under or relating to the Consent Decree and to waive the formal service requirements set forth in Rules 4 or 5 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including but not limited to, service of a summons. The persons identified by CountryMark at Section XI (Notice) are authorized to accept service of process with respect to all matters arising under or relating to the Consent Decree.

209. Post-Lodging/Pre-Entry Obligations. Obligations of CountryMark under this Consent Decree to perform duties scheduled to occur after the Date of Lodging of the Consent Decree, but prior to the Date of Entry, shall be legally enforceable on and after the Date of Entry. Liability for stipulated penalties, if applicable, shall accrue for violation of such obligations and payment of such stipulated penalties may be demanded by the United States as provided in this

Consent Decree, provided that stipulated penalties that may have accrued between the Date of Lodging of the Consent Decree and the Entry Date may not be collected unless and until this Consent Decree is entered by the Court.

210. Costs. Each Party to this action shall bear their own costs of this action, including attorneys' fees, except the United States and the Co-plaintiff shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by CountryMark.

211. Public Documents. All information and documents submitted by CountryMark to EPA and IDEM pursuant to this Consent Decree will be subject to public inspection in accordance with the respective statutes and regulations that are applicable to EPA and IDEM, unless subject to legal privileges or protection or identified and supported as trade secrets or business confidential in accordance with the respective state or federal statutes or regulations.

212. Public Notice and Comment. The Parties agree to the Consent Decree and agree that the Consent Decree may be entered upon compliance with the public notice procedures set forth at 28 C.F.R. § 50.7, and upon notice to this Court from the United States Department of Justice requesting entry of the Consent Decree. The United States reserves the right to withdraw or withhold its consent to the Consent Decree if public comments disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate.

213. Approvals. All EPA approvals or comments required under this Consent Decree shall be made in writing.

214. Opportunity for Comment by IDEM. For all provisions of Section V (Affirmative Relief) and Appendix B where EPA approval is required, IDEM is entitled to provide comments to EPA and to consult with EPA regarding the issue in question.

215. Paperwork Reduction Act. The information required to be maintained or submitted pursuant to this Consent Decree is not subject to the Paperwork Reduction Act of 1980, 44 U.S.C. §§ 3501 et seq.

216. Integration. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to this Decree, no other document, and no other representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

217. Consent Decree Modifications. Non-material modifications to this Consent Decree shall be in writing and shall be effective when signed by the United States and CountryMark. The United States will file non-material modifications with the Court on a periodic basis. For the purpose of this Paragraph, non-material modifications include, but are not be limited to: (i) any modifications to the frequency of reporting obligations; and (ii) any modifications to schedules that do not extend the date for compliance with emissions limitations following the installation of control equipment. Material modifications to this Consent Decree shall be in writing, signed by the United States, Indiana, and CountryMark, and shall be effective upon approval by the Court.

218. Effect of Shutdown. Except as provided in Subsection V.D (NOx Emissions Reductions from Combustion Units), the permanent shutdown of a unit and the surrender of all permits for that unit will be deemed to satisfy all requirements of this Consent Decree applicable to that unit on and after the later of: (i) the date of the shutdown of the unit; or (ii) the date of the

surrender of all permits. The permanent shutdown of the Refinery and the surrender of all air permits for the Refinery will be deemed to satisfy all requirements of this Consent Decree on and after the later of: (i) the date of the shutdown of the Refinery; or (ii) the date of the surrender of all permits.

XVII. TERMINATION

219. Termination: Conditions Precedent. This Consent Decree shall be subject to termination upon motion by the Parties or upon motion by CountryMark acting alone (pursuant to Paragraph 220). Prior to seeking termination, CountryMark must have completed and satisfied all of the following requirements of this Consent Decree:

a. Installation of control technology systems as specified in this Consent Decree;

b. Compliance with all provisions contained in this Consent Decree;

c. Payment of all penalties and other monetary obligations due under the terms of the Consent Decree; no penalties or other monetary obligations due hereunder can be outstanding or owed to the United States or Indiana;

d. Application for and receipt of permits incorporating the surviving emission limits and standards established under Subsection V.J; and

e. Operation for at least one year of each unit in compliance with the emission limits established herein, and certification of such compliance for each unit within the first six (6) month period progress report following the conclusion of the compliance period.

220. Termination: Procedure. At such time as CountryMark believes that it has satisfied the requirements for termination set forth in Paragraph 219, CountryMark shall submit documentation sufficient to establish satisfaction of the conditions and shall certify such compliance and completion to the United States and Indiana. Unless either the United States or Indiana objects in writing with specific reasons within one-hundred and twenty (120) days of receipt of CountryMark's submissions and certification under this Paragraph, CountryMark may

move this Court for an order that this Consent Decree be terminated. If either the United States or Indiana objects to the certification by CountryMark, then the matter shall be submitted to the Court for resolution under Section XIV (Retention of Jurisdiction/Dispute Resolution). In such case, CountryMark shall bear the burden of proving that this Consent Decree should be terminated.

XVIII. SIGNATORIES

221. The undersigned representatives of CountryMark and Indiana and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

222. CountryMark agrees not to oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified CountryMark in writing that it no longer supports entry of the Decree.

XIX. FINAL JUDGMENT

223. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court in this action as to the United States, Indiana and CountryMark. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

DATED this _____ day of _____ 2013.

_____
United States District Judge

We hereby consent to the entry of the Consent Decree in the matter of United States, *et al.* v. Countrymark Refining and Logistics, LLC (S.D. Ind.), subject to public notice and comment.

FOR THE UNITED STATES OF AMERICA

s/Ignacia S. Moreno
IGNACIA S. MORENO
Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice

s/Annette M. Lang
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We hereby consent to the entry of the Consent Decree in the matter of United States, *et al.* v. Countrymark Refining and Logistics, LLC (S.D. Ind.), subject to public notice and comment.

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

s/Cynthia Giles***
CYNTHIA J. GILES
Assistant Administrator
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency
Washington, DC

s/Susan Shinkman***
SUSAN SHINKMAN
Director, Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency
Washington, DC

s/Phillip A. Brooks***
PHILLIP A. BROOKS
Director, Air Enforcement Division
Office of Civil Enforcement
United States Environmental Protection Agency
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s/Virginia Sorrell***
VIRGINIA SORRELL
Attorney Adviser, Air Enforcement Division
Office of Civil Enforcement
United States Environmental Protection Agency
Washington, DC

*** Signed with permission.

We hereby consent to the entry of the Consent Decree in the matter of United States, *et al.* v. Countrymark Refining and Logistics, LLC (S.D. Ind.), subject to public notice and comment.

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

s/Susan Hedman***
SUSAN HEDMAN
Regional Administrator
U.S. Environmental Protection Agency
Region 5
Chicago, IL

s/ Robert A. Kaplan***
ROBERT A. KAPLAN
Regional Counsel
U.S. Environmental Protection Agency
Region 5
Chicago, IL

*** Signed with permission.

We hereby consent to the entry of the Consent Decree in the matter of United States, *et al.* v. Countrymark Refining and Logistics, LLC (S.D. Ind.).

FOR THE STATE OF INDIANA

GREGORY F. ZOELLER
Indiana Attorney General

s/Justin D. Barrett***
JUSTIN D. BARRETT
Deputy Attorney General
Office of the Attorney General
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402 West Washington St.
Indianapolis, IN 46204

s/Thomas W. Easterly***
THOMAS W. EASTERLY
Commissioner
Indiana Department of Environmental Management

*** Signed with permission.

We hereby consent to the entry of the Consent Decree in the matter of United States, *et al.* v. Countrymark Refining and Logistics, LLC (S.D. Ind.).

FOR COUNTRYMARK REFINING AND LOGISTICS, LLC

s/Charles E. Smith***
CHARLES E. SMITH
President & CEO
Countrymark Cooperative Holding Corp.
225 S. East St., Suite 144
Indianapolis, IN 46202

*** Signed with permission.

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APPENDIX A

SOURCE	2007 NOx Emission Rate Ref. Fuel Gas lb/MMBtu (HHV)	2007 NOx Emission Rate Slurry Oil lb/MMBtu (HHV)	2007 Ref Fuel Gas and Slurry Oil Calculated combined NOx Emission Rate lb/MMBtu (HHV)	2007 NOx Emissions Ref. Fuel Gas tons/year	2007 NOx Emissions Slurry Oil tons/year	2007 NOx Emissions tons/year	2008 Utilization Rate Ref. Fuel Gas MMBtu/hr (HHV)	2008 Utilization Rate Slurry Oil MMBtu/hr (HHV)	2008 Utilization Rate MMBtu/hr (HHV)	2008 NOx Emission Rate Ref. Fuel Gas lb/MMBtu (HHV)	2008 NOx Emission Rate Slurry Oil lb/MMBtu (HHV)	2008 Ref Fuel Gas and Slurry Oil Calculated combined NOx Emission Rate lb/MMBtu (HHV)	2008 NOx Emissions Ref. Fuel Gas tons/year	2008 NOx Emissions Slurry Oil tons/year	2008 NOx Emissions tons/year	2007/2008 Average NOx Emissions tons/year	2007/2008 Average Combined Utilization MMBtu/hr	2007/2008 Average NOx Emission Rate lb/MMBtu	Type of Data Used to Derive Emission Estimate (i.e., emission factor, stack test, or CEMS data)
Crude Heater	0.0478		0.0478	19.4		19.4	72.9	0.0	72.9	0.0478		0.0478	14.7		14.7	17.1	83.8	0.04780	Stack Test (2010)
CCR Platformer Heater	0.0358		0.0358	8.1		8.1	48.9	0.0	48.9	0.0358		0.0358	7.6		7.6	7.8	50.5	0.03580	Stack Test (2010)
No. 4 Boiler	0.1538		0.1538	21.5		21.5	29.0	0.0	29.0	0.1538		0.1538	18.3		18.3	19.9	31.5	0.15380	Stack Test (2010)
No. 2 Boiler	0.1566	0.3787	0.2590	13.1	27.2	40.3	17.4	19.8	37.2	0.1566	0.3787	0.2749	11.2	30.9	42.1	41.2	37.5	0.2669	Stack Test (2010)
No. 1 Boiler	0.1799	0.3422	0.2906	5.0	20.6	25.6	5.8	16.6	22.4	0.1799	0.3422	0.3002	4.3	23.4	27.7	26.6	21.9	0.1799	Stack Test (2010)
No. 3 Boiler	0.1799	0.3422	0.2906	5.0	20.6	25.6	5.8	16.6	22.4	0.1799	0.3422	0.3002	4.3	23.4	27.7	26.6	21.9	0.2955	Stack Test (2010)
Totals						**140.489**			**232.7**						**138.1**	**139.3**	**247.0**		

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APPENDIX B

APPENDIX B

B-I. FACTUAL BACKGROUND

B1. The flare at the CountryMark Refinery that is covered by Subsections B-III.A through B-III.D of this Appendix (the "Covered Flare") is an elevated, steam-assisted flare that has only Upper Steam; it does not have Center Steam or Lower Steam.

B2. CountryMark does not have staged flares at the Refinery.

B-II. DEFINITIONS

B3. Terms used in this Appendix that are defined in the CAA or in federal and state regulations promulgated pursuant to the CAA shall have the meaning assigned to them in the CAA or such regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Appendix, the following definitions shall apply:

a. "Acid Gas" shall mean any gas that contains hydrogen sulfide and is generated at a refinery by the regeneration of an amine scrubber solution, but does not include Tail Gas.

b. "Acid Gas Flaring" or "AG Flaring" shall mean the combustion of Acid Gas and/or Sour Water Stripper Gas in one or more Acid Gas Flaring Device(s).

c. "Acid Gas Flare" or "AG Flare" shall mean a Flare that is used for the purpose of combusting Acid Gas and/or Sour Water Stripper Gas, except facilities in which gases are combusted to produce sulfur or sulfuric acid. CountryMark currently operates a Flare it has designated as the "Sulfur Flare" as a dedicated Acid Gas Flare at the Refinery. To the extent that, during the duration of this Consent Decree, CountryMark commences operation of an Acid Gas Flare other than or in addition to the Sulfur Flare for the purpose of combusting Acid Gas

and/or Sour Water Stripper Gas, that or those Acid Gas Flare(s) shall be covered to the extent that the Sulfur Flare is covered by this Appendix.

d. "Acid Gas Flaring Incident" or "AG Flaring Incident" shall mean the continuous or intermittent combustion of Acid Gas and/or Sour Water Stripper Gas in an AG Flare that results in the emission of SO_2 equal to, or in excess of, 500 pounds in any 24-hour period; provided, however, that if 500 pounds or more of sulfur dioxide has been emitted in a 24-hour period and AG Flaring continues into subsequent, contiguous, non-overlapping 24-hour period(s), each period of which results in emissions equal to, or in excess of, 500 pounds of SO_2, then only one AG Flaring Incident shall have occurred. Subsequent, contiguous, non-overlapping periods are measured from the initial commencement of flaring within the AG Flaring Incident. If, at any time during the term of this Consent Decree, the Refinery has more than one AG Flare, and if AG Flaring occurs within a 24 hour period at more than one such AG Flare, the quantity of sulfur dioxide attributable to AG Flaring emitted from each such AG Flare shall be added together for purposes of determining whether there is one AG Flaring Incident, unless the root causes of the flaring at the various AG Flares are not related to each other.

e. "Ambient Air" or "air" shall mean that portion of the atmosphere, external to buildings, to which persons have access.

f. "Automatic Control System" shall mean a system that utilizes programming logic to automate the operation of the instrumentation and systems required in Paragraphs B6–B11 of this Appendix so as to produce the operational results required in Paragraphs B28, B31–B32.

g. "Baseload Waste Gas Flow Rate" shall mean, for the Covered Flare, the daily average flow rate, in scfd, to the Flare, excluding all flows during periods of Startup, Shutdown, and Malfunction. The flow rate data period that shall be used to determine Baseload Waste Gas Flow Rate for the Covered Flare is set forth in Subparagraph B16.b.ii. The Baseload Waste Gas Flow Rate shall be identified in the Initial Waste Gas Minimization Plan due under Subparagraph B16.b.ii and may be updated in the First Updated Waste Gas Minimization Plan due under Paragraph B17.

h. "BTU/scf" shall mean British Thermal Unit per standard cubic feet.

i. "Calendar Quarter" shall mean a three-month period ending on March 31, June 30, September 30, or December 31.

j. "Center Steam" or "S_{cen}" shall mean steam piped into the center of a Flare stack or center of the lower part of the Flare tip where it mixes directly with Vent Gas without entraining air. Diagrams illustrating the meaning and location of Center, Lower, and Upper Steam are set forth in Appendix 1.1 of this Appendix.

k. "Combustion Efficiency" or "*CE*" shall mean a Flare's efficiency in converting the organic carbon compounds found in Vent Gas to carbon dioxide. Combustion Efficiency shall be determined as set forth in Equation 1 in Appendix 1.2 of this Appendix.

l. "Combustion Efficiency Multipliers" or "*CE* Multipliers" shall mean empirically-derived factors that are used as multipliers of the Net Heating Value of the Vent Gas at its Lower Flammability Limit to ensure an acceptable Combustion Efficiency. The *CE* Multipliers are set forth in Table 2 of Appendix 1.3 of this Appendix.

APPENDIX B

m. "Combustion Zone" shall mean the area of the Flare flame where the combustion of Combustion Zone Gas occurs.

n. "Combustion Zone Gas" shall mean the mixture of all gases and steam found just after a Flare tip. This gas includes all Vent Gas, all Pilot Gas, all Total Steam (if the Flare is Steam-Assisted), and all Assist Air (if the Flare is Air-Assisted).

o. "Covered Flare" shall mean the Main Flare at the Refinery; the Main Flare is an Elevated, Steam-Assisted Flare utilizing only Upper Steam.

p. "Discontinuous Wake Dominated Flow" shall mean gas flow exiting a Flare tip that is identified visually by:

i. The presence of a flame that is: *(1)* immediately adjacent to the exterior of the Flare tip body; and *(2)* below the exit plane of the Flare tip; and

ii. A discontinuous flame, such that pockets of flame that are detached from the portion of the flame that is immediately adjacent to the exterior of the Flare tip body.

Representations of Discontinuous Wake Dominated Flow are set forth in Appendix 1.12 to this Appendix.

q. "Elevated Flare" shall mean a Flare that supports combustion at a tip that is situated at the upper end of a vertical conveyance (*e.g.*, pipe, duct); the combustion zone is elevated in order to separate the heat generated by combustion from people, equipment, or structures at grade level.

r. "Exit Velocity," for purposes of the Covered Flare in this Appendix (which does not have Center Steam), shall mean the velocity ("*v*"), in feet per second, of the Vent Gas as it exits the flare tip. Exit Velocity shall be calculated by dividing the Vent Gas Volumetric Flow Rate by the Unobstructed Cross Sectional Area of the Flare Tip.

s. "External Utility Loss" shall mean a loss in the supply of electrical power or other third-party utility to the Refinery that is caused by events occurring outside the boundaries of the Refinery, excluding utility losses due to an interruptible utility service agreement.

t. "First Updated Waste Gas Minimization Plan" or "First Updated WGMP" shall mean the document submitted pursuant to Paragraph B17 as the first update to the Initial WGMP.

u. "Flare" shall mean a combustion device that uses an uncontrolled volume of ambient air to burn gases.

v. "Hydrocarbon Flaring" or "HC Flaring" shall mean the combustion of refinery-generated gases, except for Acid Gas, Sour Water Stripper Gas, and/or Tail Gas, in a Hydrocarbon Flare.

w. "Hydrocarbon Flare" or "HC Flare" shall mean a Flare used to combust any refinery-generated gas other than Acid Gas and/or Sour Water Stripper Gas and/or Tail Gas. The Hydrocarbon Flare that CountryMark operates at the Refinery is the Covered Flare. To the extent that, during the duration of the Consent Decree, CountryMark commences operation of any HC Flaring Devices other than or in addition to the Covered Flare for the purposes of combusting any excess of a refinery-generated gas other than Acid Gas and/or Sour Water Stripper Gas and/or Tail Gas, then it shall be covered by Subsection B-III.G of this Appendix and, to the extent that any such flare is Steam-Assisted, it shall be covered by Subsections B-III.A through B-III.D of this Appendix. Compliance with the applicable requirements shall commence on the first date of that any such new flare receives Waste Gas from the Refinery.

APPENDIX B

x. "Hydrocarbon Flaring Incident" or "HC Flaring Incident" shall mean either of the following:

i. "HC Flaring Incident – Trigger 1": the continuous or intermittent combustion of refinery-generated gases, except for Acid Gas, Sour Water Stripper Gas, or Tail Gas, at a Hydrocarbon Flare that results in the emission of sulfur dioxide equal to or greater than five-hundred (500) pounds in any 24-hour period; provided, however, that if 500 pounds or more of sulfur dioxide has been emitted in any 24-hour period and flaring continues into subsequent, contiguous, non-overlapping 24-hour period(s), each period of which results in emissions equal to, or in excess of, 500 pounds of sulfur dioxide, then only one HC Flaring Incident shall have occurred. Subsequent, contiguous, non-overlapping periods are measured from the initial commencement of Flaring within the HC Flaring Incident; If, at any time during the term of this Consent Decree, the Refinery has more than one HC Flare, and if HC Flaring occurs within a 24 hour period at more than one such HC Flare, the quantity of sulfur dioxide attributable to HC Flaring emitted from each such HC Flare shall be added together for purposes of determining whether there is one HC Flaring Incident, unless the root causes of the flaring at the various HC Flares are not related to each other or

ii. "HC Flaring Incident – Trigger 2": the combustion of 500,000 standard cubic feet or more of Waste Gas (excluding Acid Gas, Sour Water Stripper Gas, and Tail Gas) within a 24-hour period at a Hydrocarbon Flare. For purposes of calculating Waste Gas flow rate, the following flows may be excluded: (i) the pro-rated Baseload Waste Gas Flow Rate (pro-rated on the basis of the duration of the Flaring Incident); and (ii) if CountryMark has instrumentation capable of measuring the volumetric flow rate of hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or steam in the Waste Gas, the contribution of all measured flows of any of these elements/compounds. Subsequent, contiguous, non-overlapping periods are measured from the initial commencement of Flaring within the HC Flaring Incident. If, at any time during the term of this Consent Decree, the Refinery has more than one HC Flare, and if HC Flaring occurs within a 24-hour period at more than one HC Flare, the volume of Waste Gas attributable to HC Flaring emitted from each HC Flare shall be added together for purposes of determining whether there is one HC Flaring Incident, unless the root causes of the flaring at the various HC Flaring Devices are not related to each other.

y. "Initial Waste Gas Minimization Plan" or "Initial WGMP" shall mean the document submitted pursuant to Paragraph B16.

APPENDIX B

z. "Lower Flammability Limit" or "*LFL*" shall mean the lowest volumetric concentration of a combustible gas in air that, at a given temperature and pressure, will still combust.

aa. "Lower Flammability Limit of Vent Gas" or "LFL_{vg}" shall mean the weighted average of the LFLs of each of the individual compounds in Vent Gas, weighted by their volume percent in the Vent Gas. LFL_{vg} is represented by and shall be calculated according to Equation 1 in Appendix 1.3 of this Appendix.

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

cc. "Lower Steam" shall mean steam piped to an exterior annular ring near the lower part of a Flare tip, which entrains Air which flows through tubes to the Flare tip, and ultimately exits the tubes at the Flare tip. Diagrams illustrating the meaning and location of Center, Lower, and Upper Steam are set forth in Appendix 1.1 to this Appendix.

dd. "Malfunction" shall mean any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Malfunctions. In any action under this Appendix involving this definition, CountryMark shall have the burden of proving a Malfunction and, in interpreting this definition, the ten requirements for a "malfunction" set forth in Section II ("*Affirmative Defenses for*

Malfunctions") of EPA's Policy on Excess Emissions during Malfunctions, Startup, and Shutdown shall apply. This Policy is attached as Appendix 1.4 to this Appendix.

ee. "Net Heating Value" shall mean Lower Heating Value.

ff. "Net Heating Value of Combustion Zone Gas" or "NHV_{cz}" shall mean the Lower Heating Value, in BTU/scf, of the Combustion Zone Gas in a Flare. NHV_{cz} is represented by Equation 5.a or 5.b in Appendix 1.3 to this Appendix and shall be calculated in accordance with Equations 5–8 of Appendix 1.3.

gg. "Net Heating Value of the Combustion Zone Gas Limit" or "$NHV_{cz\text{-}limit}$" shall mean the minimum Net Heating Value that the Combustion Zone Gas must have to ensure an acceptable Combustion Efficiency. $NHV_{cz\text{-}limit}$ shall be calculated no less than one time every 15 minutes through the use of Equation 4 in Appendix 1.3 of this Appendix.

hh. "Net Heating Value of Hydrogen as Adjusted" or "$NHV_{H2\text{-}adj}$" shall mean 1212 BTU/scf. $NHV_{H2\text{-}adj}$ represents an adjustment to hydrogen's actual Net Heating Value for use, consistent with Step 3 of Appendix 1.3, in the calculation of the Net Heating Value of Vent Gas.

ii. "Net Heating Value of Vent Gas" or "NHV_{vg}" shall mean the Lower Heating Value, in BTU/scf, of the Vent Gas directed to a Flare. NHV_{vg} is calculated as set forth in Equation 2 in Appendix 1.3 of this Appendix.

jj. "Net Heating Value of Vent Gas at its Lower Flammability Limit" or "$NHV_{vg\text{-}LFL}$" shall mean the Lower Heating Value, in BTU/scf, of the Vent Gas at its LFL. $NHV_{vg\text{-}LFL}$ is represented by and shall be calculated in accordance with Equation 3 of Appendix 1.3 of this Appendix.

APPENDIX B

kk. "Pilot Gas" shall mean all gas introduced through the pilot tip of a Flare to maintain a flame.

ll. "Portable Flare" shall mean a Flare that receives Waste Gas that has been redirected to it from the Covered Flare but is not permanently installed.

mm. "Prevention Measure" shall mean an instrument, device, piece of equipment, system, process change, physical change to process equipment, procedure, or program to minimize or eliminate flaring.

nn. "Purge Gas" shall mean the minimum amount of gas introduced between a Flare header's water seal and the Flare tip to prevent oxygen infiltration (backflow) into the Flare tip. For a Flare with no water seal, the function of Purge Gas is performed by Sweep Gas, and therefore, by definition, such a Flare has no Purge Gas. The Covered Flare at the CountryMark Refinery has no water seal and therefore has no Purge Gas; it has only Sweep Gas.

oo. "Reportable Flaring Incident" shall mean each of the following: Acid Gas Flaring Incident; Tail Gas Incident; and Hydrocarbon Flaring Incident.

pp. "Root Cause Analysis" shall mean the primary and any contributing causes of a Reportable Flaring Incident as determined through a process of investigation.

qq. "SCFD" or "scfd" shall mean standard cubic feet per day.

rr. "SCFM" or "scfm" shall mean standard cubic feet per minute.

ss. "Sour Water Stripper Gas" or "SWS Gas" shall mean the gas produced by the process of stripping refinery sour water.

tt. "Smoke Emissions" shall have the definition set forth in Section 3.5 of Method 22 of 40 C.F.R. Part 60, Appendix A. Smoke Emissions may be documented by either a person certified pursuant to Method 22 or by a video camera.

uu. "Sulfur Flare" shall mean the Elevated Flare associated with the Sulfur Recovery Unit at the Refinery that CountryMark designates as 520-H-163.

vv. "Standard Conditions" shall mean a temperature of 68 degrees Fahrenheit and a pressure of 1 atmosphere. Unless otherwise expressly set forth in this Appendix or the Appendices to this Appendix, Standard Conditions shall apply.

ww. "Steam-Assisted Flare" shall mean a Flare that utilizes steam piped to a Flare tip to assist in combustion. A Flare that utilizes a Minimum Steam Reduction System is a Steam-Assisted, not an Air-Assisted, Flare.

xx. "Supplemental Gas" shall mean all gas introduced to a Flare to comply with the net heating value requirements of 40 C.F.R. § 60.18(b), 40 C.F.R. § 63.11(b), and/or Paragraph B31 of this Appendix.

yy. "S/VG_{mass}" or "Total-Steam-Mass-Flow-Rate-to-Vent-Gas-Mass-Flow-Rate Ratio" shall mean the ratio of the Total Steam Mass Flow Rate to the Vent Gas Mass Flow Rate.

zz. "Sweep Gas" shall mean, for a Flare without a water seal, the minimum amount of gas introduced into a Flare header in order to: *(a)* prevent oxygen buildup, corrosion, and/or freezing in the Flare header; *(b)* maintain a safe flow of gas through the Flare heater; and *(c)* prevent oxygen infiltration (backflow) into the Flare tip. The Covered Flare in this Appendix does not have a water seal.

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aaa. "Tail Gas" shall mean the exhaust gas from the Claus train(s) of a sulfur recovery plant and/or from the Tail Gas Unit.

bbb. "Tail Gas Incident" shall mean either of the following:

i. "Tail Gas Incident – Trigger 1": Tail Gas that is combusted in a flare and results in excess emissions of 500 pounds or more of SO_2 in any 24-hour period; or

ii. "Tail Gas Incident – Trigger 2": Tail Gas that is combusted in a thermal incinerator and results in excess emissions of 500 pounds or more of SO_2 emissions in any twenty-four (24) hour period. Only emissions which are in excess of a SO_2 concentration of 2500 ppm (rolling twelve-hour average) shall be used to determine the amount of excess SO_2 emissions from the incinerator.

Tail Gas Incidents may include, but are not limited to, any of the following: a TGU Shutdown, a TGU bypass, and a scheduled or unscheduled Shutdown of a sulfur recovery plant. For Tail Gas Incidents – Trigger 2, CountryMark shall use good engineering judgment and/or other monitoring data to calculate emissions during periods in which the SO_2 continuous emission analyzer has exceeded the range of the instrument or the instrument is out of service.

ccc. "Tail Gas Unit" or "TGU" shall mean a control system utilizing a technology for reducing emissions of sulfur compounds from a sulfur recovery plant.

ddd. "Total Steam" or "*S*" shall mean the total of all steam that intentionally is introduced into a Steam-Assisted Flare to assist in combustion. Total Steam includes, but is not limited to, Lower Steam, Center Steam, and Upper Steam.

eee. "Total Steam Volumetric Flow Rate" or "Q_s" shall mean the volumetric flow rate of Total Steam supplied to a Flare, in scfm as measured on a 5-minute block average.

fff. "Total Steam Mass Flow Rate" or "$\dot{m}_s$" shall mean the mass flow rate of Total Steam supplied to a Flare, in pounds per hour as calculated on a 5-minute block average. Total Steam Mass Flow Rate shall be calculated as set forth in Equation 3 in Appendix 1.2 of this Appendix.

ggg. "Unobstructed Cross Sectional Area of the Flare Tip" or "$A_{tip\text{-}unob}$" shall mean the open, unobstructed area of a Flare tip through which Vent Gas and, if applicable, Center Steam, passes. Diagrams of four common flare types are set forth in Appendix 1.6 together with the equations for calculating the $A_{tip\text{-}unob}$ of these four types.

hhh. "Upper Steam," sometimes called Ring Steam, shall mean steam piped to nozzles located on the exterior perimeter of the upper end of a Flare tip. Diagrams illustrating the meaning and location of Center, Lower, and Upper Steam are set forth in Appendix 1.1 to this Appendix.

iii. "Vent Gas" shall mean the mixture of all gases found prior to the Flare tip. This gas includes all Waste Gas, Sweep Gas, Purge Gas, and Supplemental Gas, but does not include Pilot Gas, Total Steam, or Assist Air.

jjj. "Vent Gas Volumetric Flow Rate" or "Q_{vg}" shall mean the volumetric flow rate of Vent Gas directed to a Covered Flare, in wet scfm, on a 5-minute block average basis.

kkk. "Vent Gas Mass Flow Rate" or "$\dot{m}_{vg}$" shall mean the mass flow rate of Vent Gas directed to a Covered Flare, in pounds per hour on a 5-minute block average. Vent Gas Mass Flow Rate shall be calculated as set forth in Equation 4 in Appendix 1.2.

lll. "Vent Gas Molecular Weight" or "MW_{vg}" shall mean the Molecular Weight, in pounds per pound-mole, of the Vent Gas, on a 5-minute block average.

mmm. "Visible Emissions" shall mean five minutes or more of Smoke Emissions during any two consecutive hours. For purposes of this Appendix, Visible Emissions may be documented by either a person certified pursuant to Method 22 or by a video camera.

nnn. "VOC" or "Volatile Organic Compounds" shall have the definition set forth in 40 C.F.R. Section 51.100(s).

ooo. "VOC Vent Gas Concentration" shall mean the volumetric concentration of VOCs in the Vent Gas and shall be calculated as set forth in Equation 15 of Table 2 of Appendix 1.3 of this Appendix.

ppp. "Waste Gas" shall mean the mixture of all gases from facility operations that is directed to a flare for the purpose of disposing of the gas. "Waste Gas" does not include gas introduced to a flare exclusively to make it operate safely and as intended; therefore, "Waste Gas" does not include Pilot Gas, Total Steam, Assist Air, or the minimum amount of Sweep Gas and Purge Gas that is necessary to perform the functions of Sweep Gas and Purge Gas. "Waste Gas" also does not include gas introduced to a flare to comply with regulatory requirements; therefore, "Waste Gas" does not include Supplemental Gas. Depending upon the instrumentation that measures Waste Gas, certain compounds (hydrogen, nitrogen, oxygen, carbon dioxide, carbon monoxide, and/or water (steam)) that are directed to a Flare for the purpose of disposing of these compounds may be excluded from calculations relating to Waste Gas flow; in the substantive provisions of this Appendix, the circumstances in which such exclusions are permitted are specifically identified. Appendix 1.7 to this Appendix depicts the meaning of "Waste Gas," together with its relation to other gases associated with Flares.

APPENDIX B

B-III. CONTROL OF FLARES AND FLARING EVENTS

A. Instrumentation and Monitoring Systems for Covered Flares

B4. Flare Data and Monitoring Systems and Protocol Report ("Flare Data and Monitoring Systems and Protocol Report"). By no later than June 30, 2013, CountryMark shall submit to EPA and IDEM, a report regarding the Covered Flare, consistent with the requirements in Appendix 1.8, that includes the following:

a. The information, diagrams, and drawings specified in Paragraphs 1–8 of Appendix 1.8;

b. A detailed description of each instrument and piece of monitoring equipment, including the specific model and manufacturer, that CountryMark has installed or will install in compliance with Paragraphs B6–B11 of this Appendix B (Paragraph 9 of Appendix 1.8);

c. A narrative description of the monitoring methods, calculations, and control logic that CountryMark shall use to comply with the requirements of Paragraphs B31–B32 (Paragraph 10 of Appendix 1.8); and

d. The identification of the calibration gases to be used to comply with Subparagraph V.B.1 of Appendix 1.10 (Paragraph 11 of Appendix 1.8).

For any H_2S CEMS required pursuant to 40 C.F.R. Part 60 Subpart J or Subpart Ja, this report shall satisfy the notification requirements of 40 C.F.R. § 60.7(a)(5).

B5. Installation and Operation of Monitoring Systems. By no later than June 30, 2013, for the Covered Flare, CountryMark shall have completed the installation and commenced the operation of the instrumentation, controls, and monitoring systems set forth in Paragraphs B6–B11.

B6. Vent Gas Flow Monitoring System. This system shall:

a. Continuously measure the total flow, in scfm and pounds per hour, of all Vent Gas;

b. Continuously analyze pressure and temperature at each point of Vent Gas flow measurement; and

c. Have retractable or removable sensors at each point of Vent Gas flow measurement to ensure that the Vent Gas Flow Monitoring System is maintainable online.

B7. Vent Gas Average Molecular Weight Analyzer. This instrument or system shall continuously analyze the average molecular weight of all Vent Gas. This analysis may be performed by an instrument that also serves as part of a Vent Gas Flow Monitoring System.

B8. Total Steam Flow Monitoring System. This system shall:

a. Continuously measure the flow, in scfm and pounds per hour, of the Total Steam to the Covered Flare; and

b. Continuously analyze the pressure and temperature of steam at a representative point of steam flow measurement.

B9. Steam Control Equipment. This equipment, including, as necessary, main and trim control valves and piping, shall enable CountryMark to control steam flow in a manner sufficient to ensure compliance with this Decree.

B10. Gas Chromatograph ("GC"). This instrument shall be capable of speciating the Vent Gas constituents set forth in Appendix 1.9 and determining the Net Heating Value of the Vent Gas. For all constituents except Hydrogen Sulfide ("H_2S"), the GC shall measure the concentration on a mole percent ("mol/mol%") basis; for H_2S, the GC shall measure the concentration on a parts per million volume basis ("ppmv"). The sample extraction point of the Gas Chromatograph may be located upstream of the introduction of Supplemental and/or Sweep and/or Purge Gas if the composition and flow rate of any such Supplemental and/or Sweep and/or Purge Gas is a known constant and if this constant then is used in the calculation of the volume percent of all gas constituents of the Vent Gas.

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B11. Video Camera. This instrument shall record, in digital format, the flame of, and any Smoke Emissions and/or Discontinuous Wake Dominated Flow from the Covered Flare.

B12. Instrumentation and Monitoring Systems: Optional Equipment for the Covered Flare. At its option, CountryMark may elect to install (if not already installed) and continuously measure the flow, in scfm and pounds per hour, of all Pilot Gas to a Covered Flare. CountryMark may utilize the data generated by this system as part of the calculation of the Net Heating Value of the Combustion Zone Gas.

B13. Instrumentation and Monitoring Systems: Specifications. The instrumentation and monitoring systems identified in Paragraphs B6–B8 and B10 shall meet or exceed the specifications set forth in Appendix 1.10.

B14. Instrumentation and Monitoring Systems: Recording and Averaging Times. The instrumentation and monitoring systems identified in Paragraphs B6–B8 and B10–B11 shall be able to produce and record data measurements and calculations for each parameter at the following time intervals:

Instrumentation and Monitoring System	Recording and Averaging Times
Vent Gas Flow; Vent Gas Average Molecular Weight; Total Steam Flow; Pilot Gas Flow (if installed)	Measure continuously and record 5 minute block averages
Gas Chromatograph	Measure no less than once every 15 minutes and record that value
Video Camera	Record at a rate of no less than 4 frames per minute

Nothing in this Paragraph is intended to prohibit CountryMark from setting up process control logic that uses different averaging times from those in this table provided that the recording and

averaging times in this table are available and used for determining compliance with this Appendix B.

B15. Instrumentation and Monitoring Systems: Operation and Maintenance. CountryMark shall operate each of the instruments and monitoring systems required in Paragraphs B6–B8 and B10–B11 on a continuous basis except for the following periods:

a. Malfunction of an instrument;

b. Maintenance following instrument Malfunction;

c. Scheduled maintenance of an instrument in accordance with the manufacturer's recommended schedule;

d. Quality Assurance/Quality Control activities; and/or

e. When the Covered Flare that the instrument or monitoring system is associated with is not in service.

In no event, however, shall the excepted activities in Subparagraphs B15.a–B15.d for any instrument exceed 110 hours in any calendar quarter. The calculation of instrument downtime shall be made in accordance with 40 C.F.R. § 60.13(h)(2) and Paragraph VI of Appendix 1.10. If the excepted activities in Subparagraphs B15.a–B15.d for any instrument exceed 110 hours in any calendar quarter, EPA shall be entitled to seek stipulated penalties under Paragraph B53.e and CountryMark shall be entitled to assert that the period of instrumentation and monitoring system downtime was justified under the circumstances. Nothing in this Paragraph is intended to prevent CountryMark from claiming a *force majeure* defense to any period of instrumentation and/or monitoring system downtime. Nothing in this Paragraph supersedes or replaces the monitoring requirements, including operation, maintenance, and quality assurance/quality control requirements, of 40 C.F.R. Part 60, Subparts J and Ja at such time as those requirements become

applicable pursuant to Paragraphs B39 and B40. All such requirements shall apply in accordance with the terms set forth in Subparts J and Ja.

B. Waste Gas Minimization

B16. Initial Waste Gas Minimization Plan ("Initial WGMP"). By no later than January 31, 2014, CountryMark shall submit to EPA and IDEM, an Initial Waste Gas Minimization Plan for the Covered Flare that discusses and evaluates flaring Prevention Measures both Refinery-wide and on a Flare-specific basis. The Initial WGMP shall include but not be limited to:

a. Updates. CountryMark shall submit updates, if and as necessary, to the information, diagrams, and drawings provided in the Flare Data and Monitoring Systems and Protocol Report required under Paragraph B4.

b. Waste Gas Characterization and Mapping. CountryMark shall undertake to characterize the Waste Gas being disposed of at each Covered Flare and determine its source as follows:

i. Volumetric (in scfm) and mass (in pounds) flow rate. CountryMark shall identify the volumetric flow of Waste Gas, in scfm on a 30-day rolling average, and the mass flow rate, in pounds per hour on a 30-day rolling average, vented to the Covered Flare between January 1, 2013, and December 31, 2013. This applies only to the total volume and mass of flow to the Covered Flare, not the volume or mass of flow in any process unit headers (sometimes called "subheaders"). To the extent that, for the Covered Flare, CountryMark has instrumentation capable of measuring the volumetric and mass flow rate of hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or steam in the Waste Gas, CountryMark may break down the volumetric and mass flow as between: (i) All Waste Gas flows excluding hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or water (steam); and (ii) hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or water (steam) flows in the Waste Gas. CountryMark may use either an engineering evaluation or

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measurements from monitoring or a combination to determine flow rate. In determining flow rate, flows during all periods (including but not limited to normal operations and periods of Startup, Shutdown, Malfunction, process upsets, relief valve leakages, power losses due to an interruptible power service agreement, and emergencies arising from events within the boundaries of the Refinery), except those described in the next sentence, shall be included. Flows that could not be prevented through reasonable planning and are caused by a natural disaster, act of war or terrorism, or External Utility Loss are the only flows that shall be excluded from the calculation of flow rate. CountryMark shall specifically describe the date, time, and nature of the event that results in the exclusion of any flows from the calculation.

ii. Baseload Waste Gas Flow Rates. CountryMark shall utilize flow rate data for the calendar year 2013 to determine the Baseload Waste Gas Flow Rate, in scfd, to the Covered Flare. The Baseload Waste Gas Flow Rate shall not include flows during periods of Startup, Shutdown, and Malfunction.

iii. Identification of Constituent Gases. CountryMark shall use best efforts to identify the constituent gases within the Covered Flare's Waste Gas and the percentage contribution of each such constituent during baseload conditions. CountryMark may use either an engineering evaluation or measurements from monitoring or a combination to determine Waste Gas constituents.

iv. Waste Gas Mapping. Using instrumentation, isotopic tracing, and/or engineering calculations, CountryMark shall identify and estimate the flow from each process unit header (*i.e.*, subheader) to the main header(s) servicing the Covered Flare. Using that information and all other available information, CountryMark shall complete an identification of each Waste Gas tie-in to the main header(s) and process unit header(s), as applicable, consistent with Appendix 1.11. Temporary connections to a the main header(s) of the Covered Flare and/or process unit header(s) are not required to be included in the mapping.

c. Reductions previously realized. CountryMark shall describe the equipment, processes and procedures installed or implemented since January 2010 to reduce flaring. The description shall specify the date of installation or implementation and the amount of reductions realized.

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d. Planned reductions. CountryMark shall describe the equipment, processes, or procedures that CountryMark plans to install or implement to eliminate or reduce flaring. The description shall specify a schedule for expeditious installation and commencement of operation and a projection of the amount of reductions to be realized. In formulating this plan, CountryMark specifically shall review and evaluate the results of the Waste Gas Mapping required by Subparagraph B16.b.iv.

e. Taking a Covered Flare out of Service. CountryMark shall identify if it intends to take the Covered Flare out of service, including the date for completion of the decommissioning. Taking a Covered Flare "out of service" means physically removing piping in the Flare header or physically isolating the piping with a welded blind so as to eliminate direct piping to the Covered Flare.

f. Prevention Measures. CountryMark shall describe and evaluate all Prevention Measures, including a schedule for the expeditious implementation and commencement of operation of all prevention measures, to address the following:

i. Flaring that has occurred or may reasonably be expected to occur during planned maintenance activities, including Startup and Shutdown. The evaluation shall include a review of flaring that has occurred during these activities since January 2010 and shall consider the feasibility of performing these activities without flaring.

ii. Flaring that may reasonably be expected to occur due to issues of gas quantity and quality. The evaluation shall include a general audit of the flare gas recovery capacity of the Covered Flare, the storage capacity available for excess Waste Gases, and the scrubbing capacity available for Waste Gases including any limitations associated with scrubbing Waste Gases for use as fuel.

iii. Flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation shall consider the adequacy of

existing maintenance schedules and protocols for such equipment. A failure is "recurrent" if it occurs more than twice during any five year period as a result of the same root cause.

B17. First Updated Waste Gas Minimization Plan. By no later than January 31, 2015, CountryMark shall submit to EPA and IDEM a First Updated WGMP for the Covered Flare, which shall update for the calendar year 2014, if and as necessary, the information required in Subparagraphs B16.a–B16.f and shall also include the following:

a. Updated Waste Gas Mapping. CountryMark shall update the Waste Gas mapping as more information becomes available. CountryMark shall use this updated mapping to plan reductions;

b. Reductions based on Root Cause Analysis. CountryMark shall review all of the Root Cause Analysis reports prepared pursuant to Paragraph B44 to determine if reductions in addition to the reductions achieved through any corrective action under Paragraph B45 can be realized; and

c. Revised Schedule. To the extent that CountryMark proposes to extend any schedule set forth in the Initial WGMP, CountryMark shall do so only with good cause.

B18. Waste Gas Minimization Plan: Implementation. By no later than the dates specified in the Initial or First Updated WGMP, CountryMark shall implement the actions described therein. If (i) no implementation date and/or (ii) no completion date for actions that do not require ongoing implementation (such as the installation of a piece of a equipment) is (are) set forth in the WGMP, the implementation and/or completion date shall be deemed the date of the submission of the WGMP.

B19. Waste Gas Minimization Plan: Enforceability. The terms of the Initial and First Updated WGMP submitted under this Appendix are specifically enforceable.

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C. Limitations on Flaring

B20. Limitations on Flaring: Initial Limit.

a. By no later than December 31, 2015, CountryMark shall comply with the following limitations on flaring from the Covered Flare at the Refinery:

i. Refinery-wide short-term limit: 203,250 scfd of Waste Gas on a 30-day rolling average basis, rolled daily

ii. Refinery-wide long-term limit: 135,500 scfd of Waste Gas on a 365-day rolling average basis, rolled daily

Each exceedance of the 30-day rolling average limit or each exceedance of the 365-day rolling average limit shall constitute one day of violation. An exceedance of either or both of the limits shall not prohibit ongoing refinery operations.

b. The limitations set forth in Subparagraph B20.a were calculated using the following equations:

i. For the Refinery-wide, 30-day rolling average limit:

$$\text{Refinery Flaring} \leq 750{,}000 \text{ scfd} \times \frac{\textit{CountryMark Crude Cap.}}{100{,}000 \text{ bpd}}$$

ii. For the Refinery-wide, 365-day rolling average limit:

$$\text{Refinery Flaring} \leq 500{,}000 \text{ scfd} \times \frac{\textit{CountryMark Crude Cap.}}{100{,}000 \text{ bpd}}$$

c. The "*CountryMark Crude Cap*." was 27,100 barrels per calendar day, taken from CountryMark's Form EIA-820, Annual Refinery Report to the Energy Information Agency ("EIA"), Report Year 2013, at Part 5, "Total Operable" capacity (Code 401), Atmospheric Crude Oil Distillation Capacity, in barrels per calendar day. A copy of CountryMark's Form EIA-820 for Report Year 2013 is attached as Appendix 2.1.

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B21. Calculating the Rolling Averages set forth in Paragraph B20. The "rolling averages" in Paragraph B20 shall include all periods when the Covered Flare is in operation. The Covered Flare is "in operation" when any of the Waste Gas flow to the Covered Flare is not prevented by means of closed valves, blinds, or any other means of preventing Waste Gas flow to the Covered Flare. The averaging period shall include only the prior 30 or 365 days, as applicable, when the Covered Flare was in operation.

B22. Limitations on Flaring: Meaning and Calculation of "Waste Gas" Flow for Purposes of the Limitation on Flaring. For purposes of the meaning and calculation of "Waste Gas" flow in the limitations on flaring in Paragraph B20 and any revised limitations on flaring developed pursuant to Paragraph B23, the following shall apply:

a. To the extent that CountryMark has instrumentation capable of measuring the volumetric flow rate of hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or water (steam) in the Waste Gas, the contribution of all measured flows of any of these elements/compounds may be excluded from the Waste Gas flow rate calculation.

b. Flows during all periods (including but not limited to normal operations and periods of Startup, Shutdown, Malfunction, process upsets, relief valve leakages, power losses due to an interruptible power service agreement, and emergencies arising from events within the boundaries of the Refinery), except those expressly described the next sentence shall be included. Waste Gas flows that could not be prevented through reasonable planning and are in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss may be excluded from the calculation of flow rate.

c. Except for hydrogen, nitrogen, oxygen, carbon monoxide, carbon dioxide, and/or water (steam) contributions to the flow rate that are excluded by virtue of instrumentation measuring these flows, for any flow that CountryMark does not include in a computation, CountryMark shall submit the following information in the semi-annual report due under Section VIII of the main body of this Consent Decree: a description of the event that resulted in the exclusion; the date(s) and duration(s) of the flows caused by the event; the estimated VOC and SO_2 emissions during the event; whether flows from the event are anticipated to persist after the

notice, and if so, for how long; and the measures taken or to be taken to prevent or minimize the flows including, for future anticipated flow, the schedule by which those measures will be implemented.

B23. Limitations on Flaring: Requesting an Increase in the Limit during the Pendency of this Consent Decree.

a. CountryMark Request. During the pendency of this Consent Decree, once per calendar year commencing no sooner than January 2015, CountryMark may submit a request to EPA to increase the limitations on flaring from the Covered Flare set forth in Subparagraphs B20.a and/or B20.b. CountryMark may request an increase in the limit(s), and EPA may approve such an increase, only if the request is based on post-Lodging changes in crude capacity and/or complexity that are or will be permitted by IDEM and only if the changes in crude capacity and/or complexity will result in new limit(s) that are higher by at least 20% than the limits set forth in Subparagraphs B20.a and/or B20.b. In any such request, CountryMark shall propose (a) new limit(s) based upon the following equations:

i. For the Refinery-wide, 30-day rolling average limit:

$$\text{Refinery Flaring} \leq 750{,}000 \text{ scfd} \times \frac{\textit{CountryMark Crude Cap.}}{100{,}000 \text{ bpd}} \times \frac{\textit{CountryMark Complexity}}{\textit{Industry Avg Complexity}}$$

ii. For the Refinery-wide, 365-day rolling average limit:

$$\text{Refinery Flaring} \leq 500{,}000 \text{ scfd} \times \frac{\textit{CountryMark Crude Cap.}}{100{,}000 \text{ bpd}} \times \frac{\textit{CountryMark Complexity}}{\textit{Industry Avg Complexity}}$$

Nothing in this Appendix B or the Consent Decree shall be construed to relieve CountryMark of an obligation to evaluate, under applicable Prevention of Significant Deterioration and Nonattainment New Source Review requirements, any increase in a Refinery-wide limit on flaring.

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b. For purposes of Subparagraph B23.a, the following shall apply:

i. The items in italics are variables that will change over time.

ii. The *CountryMark Crude Capacity* shall be determined as follows:

(1) If the post-Lodging modification does not affect the crude capacity, the Atmospheric Crude Oil Distillation Capacity, in barrels per calendar day, that CountryMark reported under "Total Operable" capacity on Part 5, Code 401, of the most recent EIA Form-820 that CountryMark submitted to the Energy Information Agency prior to CountryMark's request under Subparagraph B23.a; to the extent that the "Parts" or "Codes" on Form EIA-820 change in the future, the intent of the Parties is that the "Parts" and "Codes" of future forms that correspond most closely to those found on the Form EIA-820 that is attached hereto as Appendix 2.1 will be used; or

(2) If the post-Lodging modification does affect crude capacity, the projected, new capacity CountryMark sets forth in the air permit application(s) for the post-Lodging modification.

iii. The *CountryMark Complexity* shall be calculated in accordance with Equation 1 of Appendix 1.14. CountryMark shall certify the accuracy of the projected crude capacity and/or process unit capacities used to support the calculations.

iv. The *Industry Average Complexity* shall be calculated in accordance with Equation 2 of Appendix 1.14.

c. EPA Response to Request. EPA shall evaluate any request under Subparagraph B23.a on the basis of consistency with Subparagraphs B23.a and B23.b. If EPA does not act on CountryMark's request within 90 days of submission, CountryMark may invoke the dispute resolution provisions of this Decree.

d. The new limit(s) shall take effect, if ever, beginning on the later of the date that EPA approves the request or a dispute is resolved in CountryMark's favor or the date(s) specified in the modification permit(s).

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e. In the event that CountryMark amends, modifies or withdraws the air permit application(s) that is/are the basis for the new limit(s) requested pursuant to Subparagraph B23.a in a manner that affects the limit(s) calculation(s), CountryMark shall, within 15 days of amending, modifying, or withdrawing its air permit application(s), revise or withdraw its request under Subparagraph B23.a. To the extent that CountryMark revises, rather than withdraws, its request under Subparagraph B23.a, the 90-day deadline under Subparagraph B23.c for EPA's response to the revised request shall commence upon the date of EPA's receipt of CountryMark's revised request.

f. Consequences of a Mistake in Projected Capacities.

i. By no later than 30 days after the Startup of the permitted modification(s), CountryMark shall determine whether the projected "CountryMark Ref. Crude Capacity" or the projected capacities for new or modified units that CountryMark relied upon pursuant to Subparagraphs B23.b.ii and/or b.iii were or are different from the actual capacities that CountryMark has or will report to the EIA after the Startup of the permitted modification. If there are differences, CountryMark shall re-calculate the flaring limitation(s) using the actual capacities that CountryMark has or will report to the EIA.

ii. If the projected refinery capacity and/or projected unit capacity(ies) that CountryMark relied upon in seeking an increase in the limitations(s) result(s) in (a) flaring limitation(s) that is(are) less than the limitation(s) re-calculated under the last sentence of Subparagraph B23.f.i, then no further action is required.

iii. If the projected refinery capacity and/or projected unit capacity(ies) that CountryMark relied upon in seeking an increase in the limitations(s) result(s) in (a) flaring limitation(s) that is(are) greater than the limitation(s) re-calculated under the last sentence of Subparagraph B23.f.i, then by no later than 30 days after the Startup of the permitted modifications, CountryMark shall: (a) commence complying with the lower, recalculated limitation(s); and (b) submit the revised recalculated limitations to EPA. After submission to EPA, CountryMark shall consult with EPA about the new, lower limitation(s) and secure EPA's approval. As soon as

practicable thereafter, CountryMark shall submit an application to IDEM that reflects the new lower limitation(s).

iv. Stipulated Penalties. If Subparagraph B23.f.iii applies, then by no later than 60 days after the Startup of the permitted modifications, the lower limitation(s) identified in Subparagraph B23.f.iii(a) shall apply and form the basis for determining compliance for purposes of the stipulated penalty provisions of Subparagraphs B53.f and B53.g.

B24. Limitations on Flaring: Requesting an Increase in the Limit after Termination of this Consent Decree. After termination of this Consent Decree, any changes that CountryMark may seek in its then-current limitations on flaring shall be done through normal state permitting procedures.

D. Flare Combustion Efficiency Requirements for the Covered Flare

B25. Emission Standards and Work Practices Applicable to the Covered Flare upon the Date of Entry. By no later than the Date of Entry, CountryMark shall comply with the following requirements at the Covered Flare:

a. Operation during Emissions Venting. CountryMark shall operate the Covered Flare at all times when emissions may be vented to it.

b. No Visible Emissions. Except for periods of Startup, Shutdown, and/or Malfunction of the Covered Flare, CountryMark shall operate the Covered Flare with no Visible Emissions. Method 22 in 40 C.F.R. Part 60, Appendix A, shall be used to determine compliance with this standard. However, for purposes of this Appendix, Visible Emissions may be determined by either a person certified pursuant to Method 22 or by a video camera.

c. Flame Presence. Except for periods of Malfunction of the Flare, CountryMark shall operate each Covered Flare with a flame present at all times. CountryMark

shall monitor the presence of the pilot flame using a thermocouple or any other equivalent device to detect the presence of the pilot flame.

d. Monitoring According to Applicable Provisions. CountryMark shall comply with all applicable Subparts of 40 C.F.R. Parts 60, 61, or 63 that state how a particular Covered Flare must be monitored.

e. Good Air Pollution Control Practices. At all times, including during periods of Startup, Shutdown, and/or Malfunction, CountryMark shall implement good air pollution control practices to minimize emissions from the Covered Flare; provided however, that CountryMark shall not be in violation of this requirement for any practice that this Appendix requires CountryMark to implement after the Date of Entry for the period between the Date of Entry and the implementation date or compliance date (whichever is applicable) for the particular practice.

B26. Exit Velocity. By no later than June 30, 2013, except for periods of Startup, Shutdown, and/or Malfunction of the Covered Flare, CountryMark shall operate the Covered Flare with an Exit Velocity less than 18.3 m/sec (60 ft/sec) on a one-hour block average; provided however, that:

i. If the Covered Flare combusts Vent Gas with a Net Heating Value of greater than 1000 BTU/scf, CountryMark may operate the Covered Flare with an Exit Velocity equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) on a one-hour block average; and

ii. If the Covered Flare has a maximum permitted velocity (V_{max}), CountryMark may operate the Covered Flare with an Exit Velocity less than V_{max} provided that it also operates the applicable Flare with an Exit Velocity of less than 122 m/sec (400 ft/sec) on a one-hour block average.

V_{max} shall be calculated in accordance with 40 C.F.R. § 60.18(f)(5). The Unobstructed Cross Sectional Area of the Flare Tip shall be calculated consistent with Appendix 1.6.

B27. Revisions to 40 C.F.R. §§ 60.18(b)–(f) and/or 63.11(b). To the extent that, from the Date of Lodging of this Consent Decree until its termination, revisions to 40 C.F.R. §§ 60.18(b)–(f) and/or 63.11(b) that are applicable to CountryMark are final and effective but are inconsistent with any of the requirements in Paragraphs B25(a)–(d) or B26, then CountryMark shall comply with the final, effective regulations and any requirements in Paragraphs B25(a)–(d) and/or B26 that are not inconsistent with these final, effective regulations. As used in this Paragraph, "inconsistent" mean that compliance with both provisions is not possible.

B28. Work Practice Standards for the Covered Flare. By no later than July 31, 2013, utilizing the instrumentation and controls required to be installed pursuant to Paragraphs B6–B11, CountryMark shall install and operate on the Covered Flare an Automatic Control System that shall:

a. Automate the control of the Supplemental Gas flow rate to the Covered Flare; and

b. Automate the control of the Total Steam Mass Flow Rate to the Covered Flare.

B29. Exception to Work Practice Standards in Paragraph B28. CountryMark manually may override the operation of the Automatic Control System required in Paragraph B28 if the exception in Paragraph B35 applies and/or during Startup, Shutdown, or Malfunction of a process unit that feeds the Covered Flare and/or in order to achieve the following:

a. Stop Smoke Emissions that are occurring;

b. Meet the Net Heating Value requirements of Paragraph B31;

c. Prevent extinguishing the Flare;

APPENDIX B

d. Protect personnel safety; and/or

e. Stop Discontinuous Wake Dominated Flow.

B30. Operation According to Design. By no later than June 30, 2014, CountryMark shall operate and maintain the Covered Flare in accordance with its design, except if, and only to the extent that, operation and maintenance of the Covered Flare in conformance with its design conflicts with compliance with one or more of the requirements of this Appendix.

B31. Net Heating Value Standards for the Covered Flare

a. Net Heating Value of the Vent Gas (NHV_{vg}). Beginning on the Date of Entry and continuing until the earlier of: (i) termination of this Consent Decree; or (ii) the requirements in 40 C.F.R. §§ 60.18(c)(3)(ii) and 63.11(b)(6)(ii) related to the NHV_{vg} are modified, CountryMark shall operate each Covered Flare with an NHV_{vg} of greater than or equal to 300 BTU/scf, except as provided in Paragraph B35.

b. Net Heating Value of Combustion Zone Gas ($NHV_{cz\text{-}limit}$). By no later than June 30, 2014, and except as provided in Paragraph B35, CountryMark shall calculate an $NHV_{cz\text{-}limit}$ at the Covered Flare no less than every fifteen minutes. Except as provided in Paragraph B35, CountryMark shall operate the Covered Flare so as to ensure that the Covered Flare's NHV_{cz}, on a three-hour rolling average basis, rolled every fifteen minutes, is greater than or equal to its $NHV_{cz\text{-}limit}$ on a three-hour rolling average basis, rolled every fifteen minutes. CountryMark shall utilize the equations and directives set forth in Appendix 1.3 to meet the requirements of this Subparagraph.

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B32. *S/VG*$_{mass}$ (Total-Steam-Mass-Flow-Rate-to-Vent-Gas-Mass-Flow-Rate) Standards

a. Interim Period. Beginning on the Date of Entry and continuing until June 30, 2014, and except as provided in Subparagraph B32.c and Paragraph B35, CountryMark shall use best efforts to operate the Covered Flare so as to minimize that Flare's S/VG$_{mass}$.

b. After Interim Period. By no later than June 30, 2014, except as provided in Subparagraph B32.c and Paragraph B35, CountryMark shall operate the Covered Flare at less than or equal to an *S/VG*$_{mass}$ of 3.0 on a one-hour rolling average, rolled every five minutes.

c. Exceptions. Notwithstanding the requirements of Subparagraphs B32.a and B32.b, CountryMark is not subject to the emissions standards in those Subparagraphs if the exception in Paragraph B35 applies and/or in order to achieve the following:

i. Stop Smoke Emissions that are occurring;

ii. Meet the Net Heating Value requirements of Paragraph B31;

iii. Prevent extinguishing the Flare; and/or

iv. Protect personnel safety.

B33. Prohibition on Discontinuous Wake Dominated Flow

a. By no later than June 30, 2014, CountryMark shall not operate the Covered Flare with Discontinuous Wake Dominated Flow, except for periods not to exceed a total of five minutes during any two consecutive hours. CountryMark shall add Supplemental Gas as necessary to prevent such instances of Discontinuous Wake Dominated Flow at the Covered Flare. Notwithstanding the previous sentence, CountryMark shall not be required to add Supplemental Gas at any time that the wind speed at the Refinery is greater than or equal to 35 mph on a 60 minute rolling average basis, rolled every 5 minutes, and/or if the exception in Paragraph B35 applies.

b. Prior to the effective date of the prohibition in Subparagraph B33.a, for all operators and supervisors with responsibility and/or oversight for the operation of the Covered Flare, CountryMark shall complete training on the meaning and prevention of Discontinuous Wake Dominated Flow. After the effective date of the prohibition, operators shall monitor the operation of each Covered Flare at intervals appropriate for the weather conditions and service of the Covered Flare in order to comply with the prohibition in Subparagraph B33.a.

B34. 98% Combustion Efficiency. By no later than June 30, 2014, CountryMark shall operate the Covered Flare with a minimum of a 98% Combustion Efficiency at all times when Waste Gases are vented to it. To demonstrate continuous compliance with the 98% Combustion Efficiency, CountryMark shall operate each Covered Flare within the range of operating parameters set forth in Paragraphs B31–B32 and in compliance with the prohibition in Paragraph B33.a.

B35. Exception for Instrument Downtime. A failure to comply with the work practices or standards in Paragraphs B28.a, B28.b, B31.a, B31.b, B32.a, B32.b, or B33.a shall not constitute a violation of such work practice or standard if the noncompliance results from downtime of instruments or equipment due to the following:

a. Malfunction of an instrument, for an instrument needed to meet the requirement(s);

b. Maintenance following instrument Malfunction, for an instrument needed to meet the requirement(s);

c. Scheduled maintenance of an instrument in accordance with the manufacturer's recommended schedule, for an instrument needed to meet the requirement(s); and/or

d. Quality Assurance/Quality Control activities on an instrument needed to meet the requirement(s).

This exception shall no longer be applicable if the activities in Subparagraphs B35.a–B35.d exceed 110 hours in any calendar quarter for any instrument. The calculation of instrument downtime shall be made in accordance with 40 C.F.R. § 60.13(h)(2) and Paragraph VI of Appendix 1.10.

B36. Inapplicability of Paragraphs B31–B34. The requirements of Paragraphs B31–B34 are not applicable to the Covered Flare when the only gas or gases being vented to the Covered Flare is Pilot Gas.

B37. Recordkeeping: Timing and Substance. CountryMark shall comply with the following recordkeeping requirements:

a. By no later than September 30, 2013, CountryMark shall calculate and record each of the following parameters:

i. Total Steam Volumetric Flow Rate (in scfm) and Total Steam Mass Flow Rate (in lb/hr) (in accordance with the recording and averaging times required in Paragraph B14)

ii. Vent Gas Volumetric Flow Rate (in scfm) and Vent Gas Volumetric Mass Rate (in lb/hour) (in accordance with the recording and averaging times required in Paragraph B14)

iii. S/VG_{mass} (in lb steam/lb Vent Gas) (in accordance with the averaging times in Paragraph B32)

iv. NHV_{vg} (in BTU/scf) (in accordance with the averaging times in Paragraph B31.a)

v. NHV_{cz} (in BTU/scf) (in accordance with the averaging times in Paragraph B31.b)

vi. $NHV_{cz\text{-}limit}$ (in BTU/scf) (in accordance with the averaging times in Paragraph B31.b)

b. By no later than December 31, 2013, commencing if and when the excepted activities in Subparagraphs B15.a–d for any instrument subject to Paragraph B15

exceed 110 hours in any calendar quarter, CountryMark shall record the duration of the deviation, an explanation of the cause(s) of the deviation, and a description of the corrective action(s) that CountryMark took.

c. By no later than July 31, 2013: (i) CountryMark shall record each time it manually overrides its Automatic Control System, including the date, time, duration, reason for the override, and corrective actions that CountryMark took; and (ii) where the reason for the override was to stop Smoke Emissions that were occurring, CountryMark shall include a copy of the digital video record (with a time stamp) of the Covered Flare during the period of the manual override.

d. At any time that CountryMark deviates from the standards in Paragraphs B28, B31–B34, after the effective date of those standards, CountryMark shall record the duration of the deviation, an explanation of the cause(s) of the deviation, and a description of the corrective action(s) that CountryMark took.

E. NSPS Subparts A, J, and Ja Applicability

B38. NSPS Subparts A and J and for Sulfur Flare. By no later than March 31, 2013, the Sulfur Flare shall be an "affected facility" as that term is used in the NSPS at Subparts A and J, and shall be subject to and comply with the requirements of Subparts A and J, including all monitoring, recordkeeping, reporting and operating requirements. Consistent with language in 40 C.F.R. § 60.104(a)(1) at the time of the Lodging of this Decree, the combustion in the Sulfur Flare of process upset gases or fuel gas that is released to the Sulfur Flare as a result of relief valve leakage or other emergency malfunctions is exempt from the emissions limit in 40 C.F.R. § 60.104(a)(1). To the extent that the exemption in 40 C.F.R. § 60.104(a)(1) identified in the preceding sentence is amended at any time during the duration of this Consent Decree, the

amended language shall apply and not the language in the preceding sentence. In lieu of a monitoring by means of a CEMS, CountryMark, prior to the Lodging of this Consent Decree, submitted an Alternative Monitoring Plan to EPA Region 5 for approval. EPA approved the AMP.

B39. NSPS Subparts A and J for the Covered Flare. Beginning on March 31, 2013, and continuing until, pursuant to Paragraph B40, the Covered Flare becomes subject to 40 C.F.R. Part 60, Subpart Ja, the Covered Flare shall be an "affected facility" as that term is used in the NSPS at Subparts A and J, and shall be subject to and comply with the requirements of Subparts A and J, including all monitoring, recordkeeping, reporting and operating requirements.

B40. NSPS Subpart Ja. The Covered Flare shall be an "affected facility" within the meaning of Subparts A and Ja of 40 C.F.R. Part 60, and shall comply with the requirements of Subparts A and Ja, including all monitoring, recordkeeping, reporting, and operating requirements, by the later of: (i) March 31, 2013; or (ii) the earliest date(s) by which a "modified" flare (within the meaning of Subpart Ja) must comply with the requirements of Subpart Ja.

a. To the extent that the later of the two possible dates is March 31, 2013, then Subpart Ja, and not Subpart J, is the applicable Subpart on and after March 31, 2013.

b. To the extent that the later of the two possible dates is "the earliest date by which a 'modified' flare (within the meaning of Subpart Ja) must comply with the requirements of Subpart Ja," then Subpart J is applicable between March 31, 2013, and the applicable date(s) of Subpart Ja. Thereafter, only Subpart Ja is applicable.

c. On and after the date(s) that the Covered Flare is subject to Subpart Ja, Subpart J no longer is applicable to that Covered Flare.

F. Miscellaneous

B41. Portable Flares.

a. Applicability. The provisions of this Paragraph shall apply to Portable Flares.

b. Distinction between Planned and Unplanned Outages of the Covered Flare. For purposes of this Paragraph, a "planned" outage of the Covered Flare shall mean an outage that is scheduled 30 days or more in advance of the outage. An "unplanned" outage is an outage that either is scheduled less than 30 days in advance or is unscheduled.

c. 504 hours or less. For any planned or unplanned outage of the Covered Flare that CountryMark knows or reasonably anticipates will result in 504 hours or less of downtime on a rolling 1095 day average period, CountryMark shall make good faith efforts to ensure that the Portable Flare that replaces the Covered Flare complies with all of the requirements of this Appendix that are applicable to the Covered Flare.

d. More than 504 hours.

i. Planned. For any planned outage of the Covered Flare that CountryMark knows or reasonably can anticipate will last 504 hours or more on a rolling three-year average period, CountryMark shall ensure that the Portable Flare complies with all of the requirements of this Appendix related to the Covered Flare as of the date that the Portable Flare is placed into service.

ii. Unplanned. For any unplanned outage of the Covered Flare that, in advance of the outage, CountryMark cannot reasonably anticipate will last longer than 504 hours, CountryMark shall ensure that the Portable Flare complies with all of the requirements of this

Appendix related to the Covered Flare by no later than 30 days after the date that CountryMark knows or reasonably should have known that the outage would last 504 hours or more.

e. Recordkeeping. CountryMark shall keep records sufficient to document compliance with the requirements of this Paragraph any time it uses a Portable Flare.

G. Control of Reportable Flaring Incidents

B42. Flares Subject to Subsection B-III.G. The Covered Flare and the Sulfur Flare are subject to the requirements of Subsection B-III.G.

B43. Dates of Applicability of the Requirements in Subsection B-III.G. The requirements of Subsection B-III.G shall apply to Reportable Flaring Incidents that occur on and after the following dates:

Type of Reportable Flaring Incident	Applicability Date
AG Flaring Incident	Date of Entry
Tail Gas Incident (Triggers 1 and 2)	Date of Entry
HC Flaring Incident – Trigger 1	Date of Entry
HC Flaring Incident – Trigger 2	December 31, 2014

B44. Root Cause Analysis, Internal Reporting, and Recordkeeping. Except as expressly provided in Paragraph B45, by no later than 45 days following the end of a Reportable Flaring Incident, CountryMark shall conduct an investigation into the Root Cause(s) of the Incident and prepare and keep as a record an internal report that shall include, at a minimum, the following:

a. The date and time that the Reportable Flaring Incident started and ended. To the extent that the Reportable Flaring Incident involved multiple releases either within a twenty-four (24) hour period or within subsequent, contiguous, non-overlapping twenty-four (24) hour periods, CountryMark shall set forth the starting and ending dates and times of each release;

b. An estimate of the volume of gases flared (or combusted, for Tail Gas Incidents – Trigger 2), the quantity of SO_2 and VOCs emitted, and the calculations that were used to determine these values;

c. The steps, if any, that CountryMark took to limit the duration of the Reportable Flaring Incident, the volume of gas flared or combusted, and the quantity of SO_2 and VOC emissions associated therewith;

d. A detailed analysis that sets forth the Root Cause, including all contributing causes, of the Reportable Flaring Incident, to the extent determinable;

e. An analysis of the measures, if any, that are available to reduce the likelihood of a recurrence of a Reportable Flaring Incident resulting from the same Root Cause, or contributing causes, in the future. The analysis shall discuss all reasonable alternatives, if any, that are available, and the probable effectiveness and cost of the alternatives. Possible design and operation and maintenance changes shall be evaluated. If CountryMark concludes that corrective action(s) is/are available, the report will include a description of the action(s) and, if not already completed, a schedule for its (their) implementation, including proposed commencement and completion dates. If CountryMark concludes that corrective action is not available, the report will explain the basis for that conclusion;

f. To the extent that the investigation of the causes and/or possible corrective actions still are underway 45 days after the end of a Reportable Flaring Incident, a statement of the anticipated date by which a follow-up report fully conforming to the requirements of this Paragraph will be completed; provided however, that if the investigation of the causes and/or possible corrective actions still are underway 90 days after the end of a Reportable Flaring Incident and if CountryMark has not sought by that time an extension of time to complete the

investigation, stipulated penalties for failing to timely complete the investigation shall apply but CountryMark shall retain the right to dispute, under the dispute resolution provisions of this Consent Decree, any demand for stipulated penalties that was issued as a result of CountryMark's failure to timely complete the investigation. Nothing in this Subparagraph shall be deemed to excuse CountryMark from its investigation, reporting, recordkeeping, and corrective action obligations of this Subsection B-III.G for any Reportable Flaring Incident that occurs after a Reportable Flaring Incident for which CountryMark has requested an extension of time;

g. To the extent that completion of the implementation of corrective action(s), if any, is not finalized by 45 days after the end of a Reportable Flaring Incident, then CountryMark will include in each semi-annual report due under Section VIII of the body of this Decree, an identification of the corrective action(s) taken or still to be taken and the dates of commencement and completion, or proposed completion, of implementation.

h. For Acid Gas and Tail Gas Incidents only: A statement that: (i) specifically identifies each of the grounds for stipulated penalties in Paragraphs B58, B69, and B60, of this Appendix and describes whether the Acid Gas Flaring or Tail Gas Incident falls under any of those grounds; (ii) if an Acid Gas Flaring or Tail Gas Incident falls under Paragraph B60 of this Decree, describes which Subparagraph—B60.a or B60.b—applies and why; and (iii) if an Acid Gas Flaring or Tail Gas Incident falls under either Paragraph B59 or B60.b, states whether or not CountryMark asserts a defense, and if so, a description of the defense. CountryMark shall not be required to comply with the requirements of this Subparagraph if CountryMark chooses, instead, to submit a payment of stipulated penalties in the nature of settlement at the time that it submits the semi-annual report, *see* Paragraph B47, that

includes the report completed under this Paragraph. Such payment of stipulated penalties shall not constitute an admission of liability, nor shall it raise any presumption whatsoever about the nature, existence or strength of CountryMark's potential defenses.

B45. Corrective Action Implementation.

a. In response to any Reportable Flaring Incident, CountryMark shall take, as expeditiously as practicable, such interim and/or long-term corrective actions, if any, as are consistent with good engineering practice to minimize the likelihood of a recurrence of the Root Cause, including all contributing causes, of that Reportable Flaring Incident.

b. EPA does not, by its agreement to the entry of this Consent Decree or by its failure to object to any corrective action that CountryMark may take in the future, warrant or aver in any manner that any of CountryMark's corrective actions in the future will result in compliance with the provisions of the Clean Air Act or its implementing regulations. Notwithstanding EPA's review of any plans, reports, corrective actions or procedures under this Subsection B-III.G, CountryMark shall remain solely responsible for non-compliance with the Clean Air Act and its implementing regulations. Nothing in this Paragraph shall be construed as a waiver of EPA's rights under the Clean Air Act and its regulations for future violations of the Act or its regulations.

c. After a review of any report required by Paragraph B44 and submitted as required by Paragraph B47, EPA shall notify CountryMark in writing of: (i) any deficiencies in the corrective actions listed in the findings; and/or (ii) any objections to the schedules of implementation of the corrective actions and explain the basis for EPA's objections. If CountryMark has not commenced a corrective action that EPA has identified as deficient, CountryMark will implement an alternative or revised corrective action or implementation

schedule based on EPA's comments. If a corrective action that EPA has identified as deficient has already commenced or is already completed, then CountryMark is not obligated to implement corrective action identified by EPA for that Reportable Flaring Incident provided that CountryMark completes the corrective action that it has identified and commenced.

d. For purposes of Paragraph B45.c, "commenced" means CountryMark has: (i) commenced actual physical construction on the corrective action; or (ii) completed the engineering design for the corrective action and has purchased or entered into a binding contractual obligation (with adverse consequences from its breach) to purchase equipment necessary to implement the corrective action. However, CountryMark will be put on notice that such corrective action is deficient and not acceptable for remedying any subsequent, similar Root Cause(s) of any Reportable Flaring Incident. If EPA and CountryMark cannot agree on the appropriate corrective action(s) or implementation schedule(s), if any, to be taken in response to a Root Cause, either party may invoke the Dispute Resolution provisions of Section XIV of the Consent Decree.

e. Nothing in this Subsection B-III.G shall be construed to limit the right of CountryMark to take such corrective actions as it deems necessary and appropriate immediately following an Reportable Flaring Incident or in the period during preparation and review of any reports required under this Paragraph.

B46. Exceptions to the Requirements in Paragraphs B44 and B45 for Certain HC Flaring Incidents. The requirements of Paragraphs B44 and B45 shall not apply to a Hydrocarbon Flaring Incident where CountryMark previously had analyzed the Root Cause and had attributed it to the Startup or Shutdown of a unit; in such cases, CountryMark may rely upon and cross-reference the prior analysis.

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B47. Submitting the Internal Flaring Incident Reports to EPA and IDEM. In each semi-annual report due under Section VIII of this Consent Decree, CountryMark shall include copies of each Reportable Flaring Incident report that CountryMark was required to prepare in compliance with Paragraph B44 during the six month period that the semi-annual report covers. Each semi-annual report also shall include summary of each of the Incidents including the following:

a. Date;

b. Duration;

c. Amount of SO_2 and VOC released;

d. Root Cause(s);

e. Corrective Action(s) completed;

f. Corrective Action(s) still outstanding;

g. Stipulated penalties, if any, due

h. An analysis of any trends identified by CountryMark in terms of the number of Incidents, the Root Causes, or the types of Corrective Action

B48. Calculating SO_2 Emissions. The equations for calculating sulfur dioxide emissions from Reportable Flaring Incidents are set forth in Appendix 1.15.

B49. CountryMark no longer shall be required to comply with Subsections B-III.G, B-V.B, and B-V.C with respect to the Covered Flare and the Sulfur Flare on and after November 11, 2015.

B-IV. REPORTING

B50. On the dates and for the time periods set forth in Section VIII of the Consent Decree, Countrymark shall include in the semi-annual reports the following information:

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a. Monitoring equipment/instrument downtime, override of Automatic Control System ("ASC"), and exceedances of emission standards, as described in Paragraph B51;

b. For the semi-annual report due on July 31 of each year, annual emissions data, as described in Paragraph B52;

B51. Monitoring Instrument/Equipment Downtime; Override of ACS; and Emissions Exceedances. On and after the date of applicability of any work practice or standard, CountryMark shall provide a summary of the following, for the Covered Flare per calendar quarter (hours shall be rounded to the nearest tenth):

a. Monitoring Instrument/Equipment Downtime. The total number of hours of downtime of each monitoring instrument/equipment required pursuant to Paragraphs B6–B8 and B10–B11, expressed as both an absolute number and a percentage of time the Covered Flare that the instrument/equipment monitors is available for operation;

b. Monitoring Instrument/Equipment Downtime. If the total number of hours of downtime of any monitoring instrument/equipment required pursuant to Paragraphs B6–B8 and B10–B11 exceeds 110 hours in any calendar quarter, an identification of the periods of downtime by date, time, cause (including Malfunction or maintenance), and, if the cause is asserted to be a Malfunction, the corrective action taken;

c. Override of Automatic Control System. The total number of hours in which CountryMark overrode the ACS required in Paragraph B28, expressed both an absolute number of hours and a percentage of time the Covered Flare was available for operation; provided however, that for any hour identified, the report shall describe either or both of the following: (i) if the reason for the override was one the exceptions identified in Paragraph B29, a statement of which exception; or (ii) if the total number of hours in which the ACS was overrode was less than 110 hours and was caused by one or more of the exceptions identified in Paragraph B29, a statement to that effect;

d. Override of Automatic Control System. If the reason for the override was not one of the exceptions set forth in Paragraph B29 or if the total number of hours in which the ACS was overrode exceeds 110 hours in any calendar quarter, an identification of the periods of override by the date, time, duration, reason for the override, and corrective actions taken;

e. Inapplicability of Emissions Standards. The total number of hours in which the requirements of Paragraphs B31–B34 were not applicable because the only gas or gases being vented was Pilot Gas, expressed as both an absolute number of hours and a percentage of time the Covered Flare was available for operation; for purposes of Subparagraphs B51.f. and B51.g, all remaining hours shall be termed "Hours of Applicability";

f. Exceedances of Emissions Standards. During the Hours of Applicability, the total number of hours of exceedances of the emissions standards in Paragraphs B31.b, B32.b, B33.a, and B34, expressed as both an absolute number of hours and a percentage of time the Covered Flare was available for operation; provided however, that if the exceedance of these standards was less than 110 hours in the calendar quarter and was due to one or more of the exceptions set forth in Paragraph B35, the report shall so note;

g. Exceedances of Emissions Standards. During the Hours of Applicability, if the exceedance of the emissions standards in Paragraphs B31.b, B32.b, B33.a, or B34 was not due to one of the exceptions in Paragraph B35, or if the exceedance was due to one or more of the exceptions in Paragraph B35 but the total number of hours caused by the exceptions in Paragraph B35 was greater than 110, an identification of each averaging period that exceeded the standard, by time and date; the cause of the exceedance (including Startup, Shutdown, maintenance, or Malfunction), and if the cause is asserted to be a Malfunction, an explanation and any corrective actions taken; and

h. Flaring Limitations Exceedances.

i. For any Waste Gas flows that are excluded from the calculation of flow rate because they are asserted to be based on one or more of the excludible events identified in Paragraph B22.b, the information required in Paragraph B22.c;

ii. An identification of each calendar day in which the limitations on flaring set forth in Paragraph B20 were violated;

iii. The cause of the exceedance;

iv. If the cause is asserted to be a Malfunction, an explanation and any corrective actions taken;

v. A quantification of the total excess VOC and SO_2 emissions calculated pursuant to Appendix 1.13, as well as the calculations that support that quantification.

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B52. Emissions Data. In the semi-annual report that is submitted on July 31 of each year, CountryMark shall provide, for the Covered Flare, for the prior calendar year, the amount of emissions of the following compounds (in tons per year): VOCs, SO_2, H_2S, CO_2, methane, and ethane.

B-V. STIPULATED PENALTIES

A. For Violations of Subsections B-III.A through B-III.F of this Appendix B

B53. Countrymark shall be liable for stipulated penalties for violations of Subsections B-III.A through B-III.D as set forth below:

Violation	Stipulated Penalty	
B53.a. Violation of Paragraph B4. Failure to timely submit a report (¶ B4) that conforms to the requirements of that Paragraph	Period of delay or noncompliance	Penalty per day
	Days 1–30	$ 150
	Days 31–60	$ 200
	Days 61 and later	$ 250
B53.b. Violation of Paragraph B16 or B17. Failure to timely submit a plan (¶¶ B16 or B17) that conforms to the requirements of the respective Paragraph	Period of delay or noncompliance	Penalty per day
	Days 1–30	$ 250
	Days 31–60	$ 375
	Days 61 and later	$ 500
B53.c. Violation of Paragraph B5, B6, B7, B8, B9, B10, B11, B13, or B14. Failure to timely install the equipment and monitoring systems required by Paragraphs B6–B11 in accordance with the respective, applicable technical specifications in those Paragraphs, Paragraph B14, and Appendix 1.10 (except for the requirements of Appendix 1.10 found in Subparagraphs I.g, III.e, IV, or V.B,: those are QA/QC requirements covered in Subparagraph B53.d below)	Period of delay or noncompliance, per monitoring system	Penalty per day per monitoring system
	Days 1–30	$ 375
	Days 31–60	$ 625
	Days 61 and later	$ 1000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater

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<table>
<tr>
<td>B53.d. Violation of the QA/QC requirements in Appendix 1.10. Failure to comply with the QA/QC requirements in Appendix 1.10 at Subparagraphs I.g, III.e, IV, or V.B</td>
<td>Violation of a:

Daily requirement
Quarterly requirement
Annual requirement</td>
<td>Penalty

$ 50
$ 100 per day late
$ 250 per day late</td>
</tr>
<tr>
<td>B53.e. Violation of Paragraph B15. After June 30, 2013, except for 110 hours per calendar quarter, failure to operate the monitoring systems in Paragraphs B6–B8, B10, or B11; provided however, that CountryMark shall not be liable for a stipulated penalty for violation of Paragraph B15 if, during the period of instrument downtime, the only gas(es) being sent to the Covered Flare in question is Pilot Gas</td>
<td>Per monitoring system, number of hours per calendar quarter of downtime over 110

0.25–50.0
50.25–100.0
Over 100.0</td>
<td>Penalty per hour per monitoring system

$ 125
$ 250
$ 500</td>
</tr>
<tr>
<td>B53.f. Violation of Paragraph B20.a. Failure to comply with the 30-day rolling average limit on flaring</td>
<td>Pollutant

SO_2
VOC in attainment area
VOC in nonattainment area

The amount of excess emissions during the event(s) which precipitate(s) the exceedance(s) of the 30-day rolling average limit is not the sole basis for calculating the stipulated penalty due. Instead, each day on which the 30-day rolling average limit is violated —which violations most likely continue even though the precipitating event and the excess emissions do not — counts as a separate day. CountryMark shall comply with Appendix 1.13 to calculate the stipulated penalties resulting from violating the flaring limitation in Paragraph B20.a.</td>
<td>Penalty per day per ton

$ 100
$ 200
$ 300</td>
</tr>
</table>

APPENDIX B

B53.g. Violation of Paragraph B20.b. Failure to comply with the refinery-wide 365-day rolling average limit on flaring	Pollutant / Penalty per day per ton SO_2 $ 10 VOC in attainment area $ 20 VOC in nonattainment area $ 30 The amount of excess emissions during the event(s) which precipitate(s) the exceedance(s) of the 365-day rolling average limit is not the sole basis for calculating the stipulated penalty due. Instead, each day on which the 365-day rolling average limit is violated—which violations most likely continue even though the precipitating event and the excess emissions do not—counts as a separate day. CountryMark shall comply with Appendix 1.13 to calculate the stipulated penalties resulting from violating the flaring limitation in Paragraph B20.b.
B53.h. Violation of Paragraph B28. Failure to timely install and operate the Automatic Control System required by Paragraph B28	Penalty per day: $250
B53.i. Violation of Subparagraph B31.b. For each Covered Flare, failure to comply with the Net Heating Value in the Combustion Zone Gas ("NHV_{cz}") standard in Subparagraph B31.b.	Hours per calendar quarter in noncompliance / Penalty per hour or fraction thereof Hours 0.25–50.0 $ 25 Hours 50.25–100.0 $ 50 Hours over 100.0 $ 100 For purposes of calculating the number of hours of noncompliance with the NHV_{cz} standard, all 15-minute periods of violation shall be added together to determine the total.

APPENDIX B

B53.j. Violation of Subparagraph B32.a. Between the Date of Lodging and June 30, 2014, failure to use best efforts to minimize the S/VG ratio at each Covered Flare; provided, however, that CountryMark shall not be liable for a stipulated penalty for violation of Subparagraph B32.a if, at the Covered Flare, CountryMark can demonstrate that it is complying with the requirements of Subparagraph B31.b during the period of applicability of this stipulated penalty.	Penalty per day or fraction thereof: $ 750
B53.k. Violation of Subparagraph B33.a. Failure to comply with the prohibition on Discontinuous Wake Dominated Flow	Flare Tip Size (inches) — Penalty per hour or fraction thereof 1.0–24.0 — $ 150 24.1–48.0 — $ 225 Over 48.0 — $ 525
B53.l. Violation of Paragraph B37. Failure to record any information required to be recorded pursuant to Subparagraphs B37.a, b, c, or d	$75 per day
B53.m. Violation of Paragraph B39 or B40. Failure to comply with the H_2S emission limit at the Covered Flare after the Covered Flare is required to comply with 40 C.F.R. Part 60, Subpart J or 40 C.F.R. Part 60, Subpart Ja	Hours (on a three-hour rolling average basis) per calendar quarter in noncompliance — Penalty per Hour Hours 1–50.0 — $ 50 Hours 51–100.0 — $ 75 Hours over 100.0 — $ 150 For purposes of calculating the number of hours of noncompliance with the H_2S limit, all one-hour periods of violation shall be added together to determine the total. The averaging period for this standard is a three-hour rolling average.
B53.n. Violation of Subparagraph B41.d. Failure to ensure that a Portable Flare that falls under the conditions of Subparagraph B41.d.i or B41.d.ii complies with the requirements of those Subparagraphs	Number of days Temporary-Use Flare did not comply — Penalty per day Days 1–7 — $ 500 Days 8–15 — $ 1250 Days 16 and later — $ 2500

APPENDIX B

B54. Demand for Stipulated Penalties (except for Stipulated Penalties Under Subparagraph B53.f or B53.g). Except for demands under Subparagraph B53.f or B53.g for violations of the flaring limitations in Paragraph B20, a written demand for the payment of stipulated penalties will identify the particular violation(s) to which the stipulated penalty relates; the stipulated penalty amount (as can be best estimated) that the United States is demanding for each violation; the calculation method underlying the demand; and the grounds upon which the demand is based. Prior to issuing a written demand for stipulated penalties, the United States may, in its unreviewable discretion, contact CountryMark for informal discussion of matters that the United States believes may merit stipulated penalties.

B55. Stipulated Penalties under Subparagraph B53.f or B53.g.

a. If CountryMark violates any of the flaring limitations in Subparagraph B20.a or B20.b, CountryMark shall provide in the semi-annual report due under Section VIII of this Decree (Reporting Requirements) for the period in which the violation(s) first commenced, the information required in Subparagraph B51.h. If, as of the last day that is covered by the semi-annual report:

i. The event(s) precipitating the violation(s) has(have) not ceased, CountryMark also shall identify any corrective measures that it took and is taking to limit the duration of the event(s) and an estimate of the expected duration of the event(s) and the violation(s);

ii. The event precipitating the violation(s) has(have) ceased but the violation(s) has(have) not ceased because of the averaging periods involved, CountryMark also shall provide an estimate of the expected duration of the violation(s); or

iii. Both the event precipitating the violation(s) and the violations has(have) ceased, CountryMark also shall provide a calculation of the amount of stipulated penalties due.

b. If Subparagraph B55.a.i or B55.a.ii applies, in the first semi-annual report in which both the event precipitating the violation(s) and the violations has(have) ceased, CountryMark shall provide a calculation of the amount of stipulated penalties due.

c. After receipt of a semi-annual report that provides a calculation of the amount of stipulated penalties due for violation of the flaring limitations in Subparagraph B20.a or B20.b, the United States may issue a written demand for stipulated penalties. Prior to issuing a written demand, the United States may, in its unreviewable discretion, contact CountryMark for informal discussion of the matter.

B. For Violations of Subsection B-III.G of this Appendix B

B56. Violation of Paragraph B44 or B47. For failure to timely develop a report that conforms to the requirements in Paragraph B44; or failure to keep it as an internal record; or failure to timely submit a summary of the flaring incident reports that conforms to the requirements in Paragraph B47:

Period of delay or noncompliance	Penalty per day
Days 1 – 30	$ 400
Days 31 – 60	$ 800
Days 61 and later	$ 1,500

B57. Violation of Paragraph B45. Failure to complete any corrective action under Paragraph B45 in accordance with the schedule for corrective action agreed to by CountryMark or imposed on CountryMark pursuant to the dispute resolution provisions of this Decree (with any such extensions thereto as to which EPA and CountryMark may agree in writing):

APPENDIX B

Period of delay or Noncompliance	Penalty per day
Days 1 – 30	$ 500
Days 31 – 60	$ 1,000
Days 61 and later	$ 2,500

C. Stipulated Penalties for Acid Gas Flaring or Tail Gas Incidents

B58. The stipulated penalties in Paragraph B63 of this Appendix shall apply to each Acid Gas Flaring or Tail Gas Incident for which the Root Cause is one or more of the following acts, omissions, or events:

a. Error resulting from careless operation by the personnel charge with responsibility for the sulfur recovery plant, the Tail Gas Unit, or process units upstream of the sulfur recovery plant;

b. Failure to follow written procedures;

c. A failure of equipment that is due to a failure by CountryMark to operate and maintain that equipment in a manner consistent with good engineering practice; or

d. Breaking of the Claus blower belt.

B59. If the Root Cause of the Acid Gas Flaring or Tail Gas Incident is not identified in Paragraph B58, then, except as provided in Paragraph B61, stipulated penalties in Paragraph B63 of this Appendix shall apply if the Acid Gas Flaring or Tail Gas Incident:

a. Results in emissions of SO_2 at a rate greater than twenty (20.0) pounds per hour continuously for three (3) consecutive hours or more and CountryMark failed to take any action during the Acid Gas Flaring Incident to limit the duration and/or quantity of SO_2 emissions associated with such incident; or

b. Causes the total number of Acid Gas Flaring Incidents in a rolling twelve (12) month period to exceed five (5).

B60. With respect to any Acid Gas Flaring or Tail Gas Incident that does not fall under either Paragraph B58 or B59, the following provisions shall apply:

a. First Time: If the Root Cause of the Acid Gas Flaring or Tail Gas Incident was not a recurrence of the same Root Cause that resulted in a previous Acid Gas Flaring or Tail Gas Incident that occurred since the Date of Entry, then:

i. If the Root Cause of the Acid Gas Flaring or Tail Gas Incident was sudden, infrequent, and not reasonably preventable through the exercise of good engineering practice, then that cause shall be designated as an agreed-upon Malfunction for purposes of reviewing subsequent Acid Gas Flaring and Tail Gas Incidents; the stipulated penalty provisions of Paragraph B63 shall not apply.

ii. If the Root Cause of the Acid Gas Flaring Incident was sudden and infrequent, but was reasonably preventable through the exercise of good engineering practice, then CountryMark shall implement corrective action(s) pursuant to Paragraph B45, but the stipulated penalty provisions of Paragraph B63 shall not apply.

b. Recurrence: If the Root Cause is a recurrence of the same Root Cause that resulted in a previous Acid Gas Flaring or Tail Gas Incident that occurred since the Date of Entry, then CountryMark shall be liable for stipulated penalties under Paragraph B63 unless:

i. The AG Flaring or Tail Gas Incident resulted from a Malfunction or other defense that CountryMark successfully asserts; or

ii. The Root Cause previously was designated as an agreed-upon Malfunction under Paragraph B60.a.i; or

iii. The Acid Gas Flaring or Tail Gas Incident had as its Root Cause the recurrence of a Root Cause for which CountryMark had previously developed, or was in the process of developing, a corrective action plan and for which CountryMark had not yet completed implementation.

B61. Defenses. By definition, the Root Causes identified in Paragraph B58 are not Malfunctions or Force Majeure events, and therefore, CountryMark shall have not have a Malfunction or Force Majeure defense to a demand for stipulated penalties that is based on the Root Causes identified in Paragraph B58. For Incidents under Paragraphs B59–B60, CountryMark may assert a Malfunction or Force Majeure defense. In addition, in any dispute

under Paragraphs B59 and B60, CountryMark may also assert a Startup and/or Shutdown defense, but the United States shall be entitled to assert that such defenses are not available.

B62. If no Acid Gas Flaring Incident (other than ones caused by a Malfunction or Force Majeure) and no Tail Gas Incident (other than ones caused by a Malfunction or Force Majeure) occurs for a rolling 36-month period, then the stipulated penalty provisions of Paragraph B63 shall no longer apply. EPA may elect to reinstate the stipulated penalty provisions if the Refinery has an Acid Gas Flaring Incident which would otherwise be subject to stipulated penalties. EPA's decision shall not be subject to dispute resolution. Once reinstated, the stipulated penalty provision shall thereafter apply to future Acid Gas Flaring and Tail Gas Incidents and shall continue for the remaining life of this Consent Decree.

B63. Stipulated Penalty Table for Acid Gas Flaring and Tail Gas Incidents

a. The following table shall be used to calculate stipulated penalties that become due under Paragraphs B58–B61:

APPENDIX B

Tons of SO_2 Emitted in Acid Gas Flaring Incident	Length of Time from Commencement of Flaring within the Acid Gas Flaring Incident to Termination of Flaring within the Acid Gas Flaring Incident is 3 hours or less	Length of Time from Commencement of Flaring within the Acid Gas Flaring Incident to Termination of Flaring within the Acid Gas Flaring Incident is greater than 3 hours but less than or equal to 24 hours	Length of Time from Commencement of Flaring within the Acid Gas Flaring Incident to Termination of Flaring within the Acid Gas Flaring Incident is greater than 24 hours
5 Tons or Less	$500 per ton	$750 per ton	$1000 per ton
Greater than 5 tons, but less than or equal to 15 tons	$1,200 per ton	$1,800 per ton	$2,300 per ton, up to, but not exceeding, $32,500 in any one calendar day
Greater than 15 tons	$1,800 per ton, up to, but not exceeding, $32,500 in any one calendar day	$2,300 per ton, up to, but not exceeding, $32,500 in any one calendar day	$32,500 in any one calendar day

b. For purposes of calculating stipulated penalties pursuant to this Paragraph, only one cell within the matrix shall apply. Thus, for example, for an Acid Gas Flaring Incident in which the Acid Gas Flaring starts at 1:00 p.m. and ends at 3:00 p.m., and for which 14.5 tons of SO_2 are emitted, the penalty would be $17,400 (14.5 x $1,200); the penalty would not be $13,900 [(5 x $500) + (9.5 x $1200)].

c. For purposes of determining which column in the table applies under circumstances in which Acid Gas Flaring occurs intermittently during an Acid Gas Flaring Incident, the Acid Gas Flaring shall be deemed to commence at the time that the Acid Gas Flaring that triggers the initiation of an Acid Gas Flaring Incident commences, and shall be deemed to terminate at the time of the termination of the last episode of Acid Gas Flaring within the Acid Gas Flaring Incident. Thus, for example, for Acid Gas Flaring within an Acid Gas Flaring Incident that (i) starts at 1:00 p.m. on Day 1 and ends at 1:30 p.m. on Day 1; (ii)

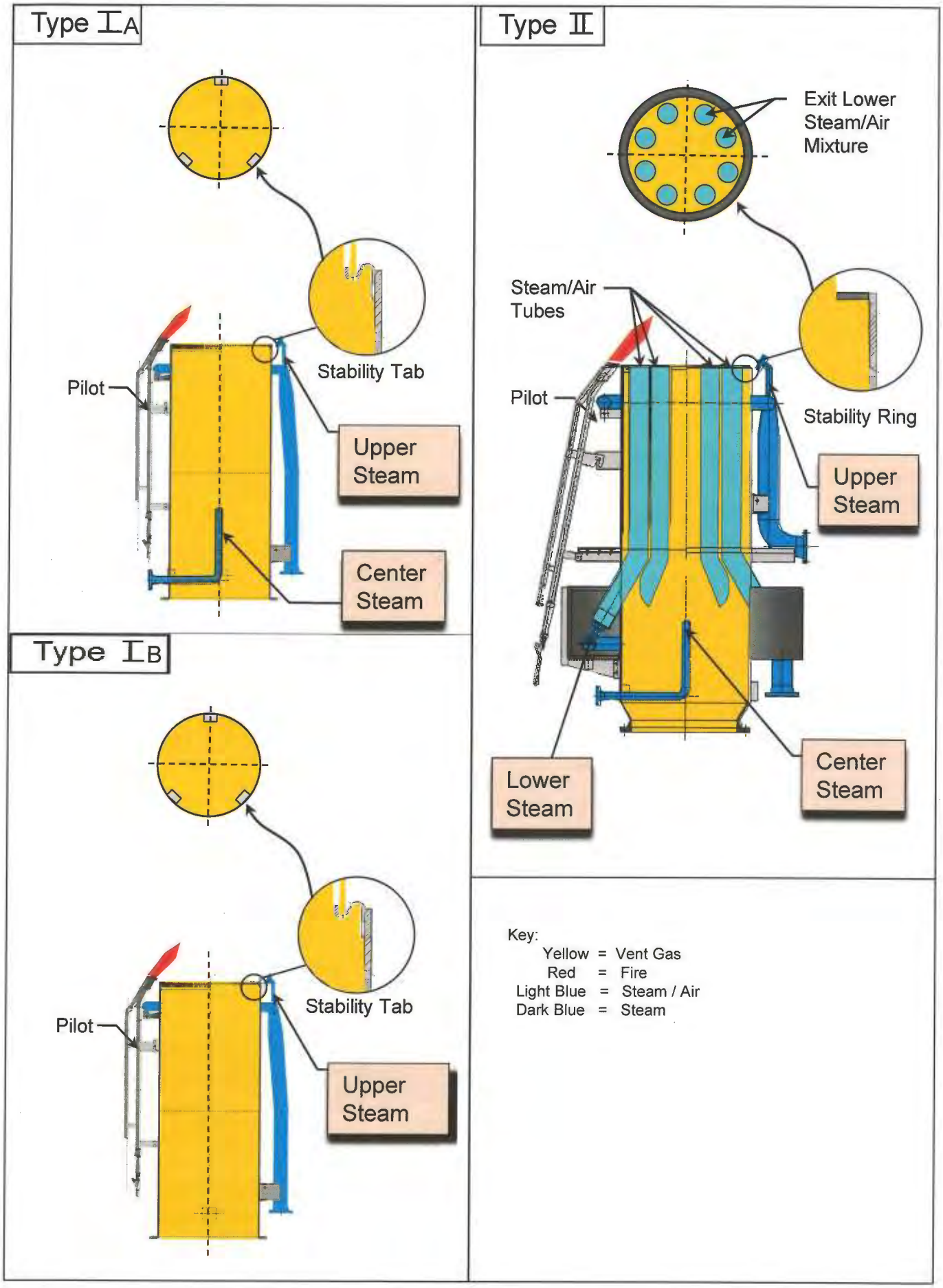
recommences at 4:00 p.m. on Day 1 and ends at 4:30 p.m. on Day 1; (iii) recommences at 1:00 a.m. on Day 2 and ends at 1:30 a.m. on Day 2; and (iv) no further Acid Gas Flaring occurs within the Acid Gas Flaring Incident, the AG Flaring within the AG Flaring Incident shall be deemed to last 12.5 hours – not 1.5 hours – and the column for Acid Gas Flaring of "greater than 3 hours but less than or equal to 24 hours" shall apply.

D. Other

B64. Paragraph 131 ("Stipulated Penalties—Generally") and Subsection X.O ("General Provisions Related to Stipulated Penalties") of the main body of the Consent Decree apply.

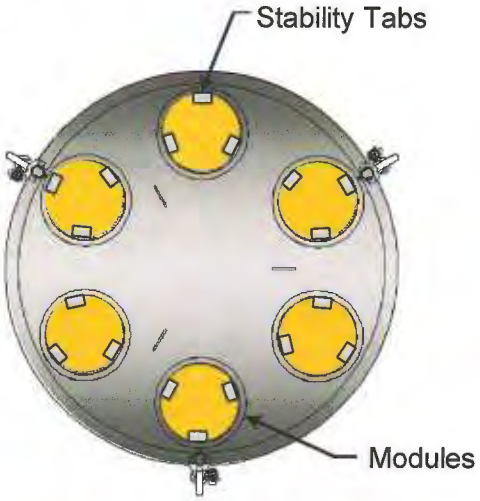
APPENDIX 1.1

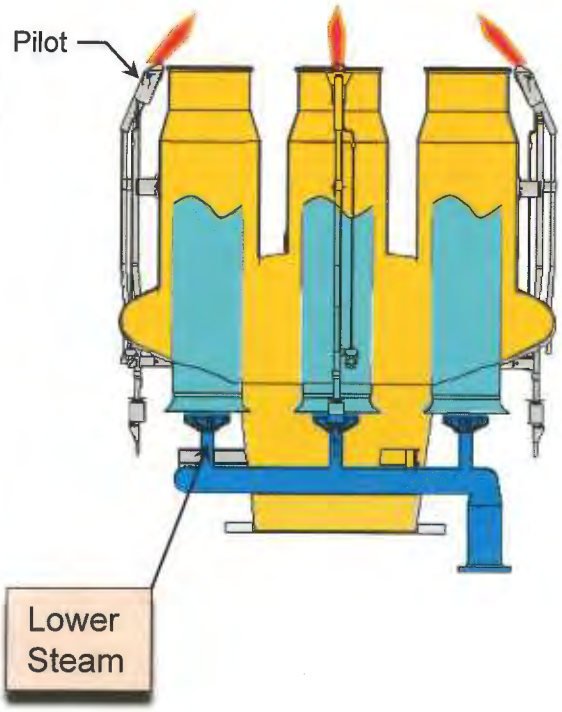
Appendix 1.1


Type IA
Pilot
Stability Tab
Upper Steam
Center Steam
Type IB
Pilot
Stability Tab
Upper Steam
Type II
Exit Lower Steam/Air Mixture
Steam/Air Tubes
Pilot
Stability Ring
Upper Steam
Lower Steam
Center Steam
Key:
Yellow = Vent Gas
Red = Fire
Light Blue = Steam / Air
Dark Blue = Steam

Appendix 1.1

Type III





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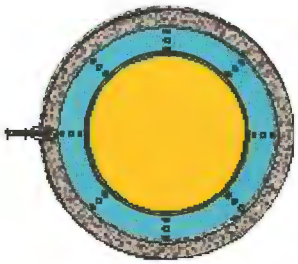

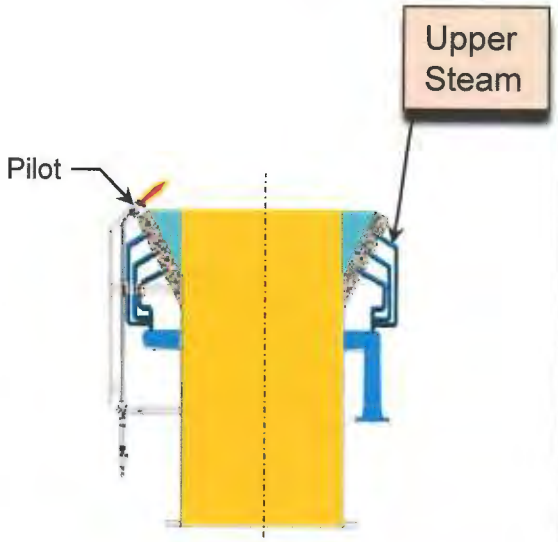

Key:

Yellow	=	Vent Gas
Red	=	Fire
Light Blue	=	Steam / Air
Dark Blue	=	Steam

APPENDIX 1.2

APPENDIX 1.2

GENERAL EQUATIONS

Equation 1: ***"Combustion Efficiency" or "CE":***

$CE = [CO_2]/([CO_2] + [CO] + [OC])$

where:

$[CO_2]$ = Concentration in volume percent or ppm-meters of carbon dioxide in the combusted gas immediately above the Combustion Zone

$[CO]$ = Concentration in volume percent or ppm-meters of carbon monoxide in the combusted gas immediately above the Combustion Zone

$[OC]$ = Concentration in volume percent or ppm-meters of the sum of all organic carbon compounds in the combusted gas immediately above the Combustion Zone, counting each carbon molecule separately where the concentration of each individual compound is multiplied by the number of carbon atoms it contains before summing (*e.g.*, 0.1 volume percent ethane shall count as 0.2 percent OC because ethane has two carbon atoms)

For purposes of using the *CE* equation, the unit of measurement for CO_2, CO, and OC must be the same; that is, if "volume percent" is used for one compound, it must be used for all compounds. "Volume percent" cannot be used for one or more compounds and "ppm-meters" for the remainder.

Equation 2: ***"Center Steam Mass Flow Rate" or "$\dot{m}_{s\text{-}cen}$":***

$\dot{m}_{s\text{-}cen} = Q_{s\text{-}cen} \times (18/385.5)$

where:

$Q_{s\text{-}cen}$ = Center Steam Volumetric Flow Rate

Equation 3: ***"Total Steam Mass Flow Rate" or "$\dot{m}_s$":***

$\dot{m}_s = Q_s \times (18/385.5)$

where:

Q_s = Total Steam Volumetric Flow Rate

APPENDIX 1.2

Equation 4: ***"Vent Gas Mass Flow Rate"* or "$\dot{m}_{vg}$":**

$\dot{m}_{vg} = Q_{vg} \times (MW_{vg}/385.5)$

where:

Q_{vg} = Vent Gas Volumetric Flow Rate

MW_{vg} = Molecular Weight, in pounds per pound-mole, of the Vent Gas, as measured by the Vent Gas Average Molecular Weight Analyzer described in Paragraph 19 of this Consent Decree

[End of Appendix 1.2]

APPENDIX 1.3

APPENDIX 1.3

CALCULATING $NHV_{cz\text{-}limit}$ AND NHV_{cz} FOR STEAM-ASSISTED FLARES

All abbreviations, constants, and variables are defined in the Key on Page 6 of this Appendix.

Steps in the Calculations

Step 1: Determine the Lower Flammability Limit ("LFL") of Each Individual Vent Gas Compound

Take the LFL values of each individual Vent Gas compound from Table 1 in this Appendix.

Step 2: Calculate the LFL of the vent gas mixture

The average lower flammability limit of the vent gas is calculated by Le Chatelier's equation shown below as Equation 1. This calculation uses the weighted average of the LFLs of the individual compounds weighted by their volume fraction of the vent gas. All inerts, including nitrogen, are assumed to have an infinite lower flammability limit (e.g. $LFL_{N2} = \infty$).

$$LFL_{vg} = \frac{1}{\sum_{i=1}^{n}\left(\frac{x_i}{LFL_i}\right)} \qquad \textit{Equation 1}$$

Step 3: Determine the Net Heating Value of the Vent Gas (NHV_{vg})

If a Gas Chromatograph is used: The net heating value of the vent gas is calculated and reported from the GC at the conclusion of each analytical cycle (~10-15 minutes). Equation 2 is used by the GC to calculate the vent gas net heating value from each individual compound net heating value. Individual compound volume fractions, except for water, are measured directly by the GC. A company is not required to measure water in Vent Gas. If a company chooses to measure water, then: (i) if the water measurement is taken upstream of a knock-out drum, then water does not have to be included in the calculation of NHV_{vg}; (ii) if no knock-out drum exists or if the water measurement is taken after the knock-out drum, then the company must include water in the calculation of NHV_{vg} and adjust the concentration of the compounds measured by the GC to a wet basis. Individual compound net heating values, including water, are listed in Table 1 of this Appendix.

$$NHV_{vg} = \sum_{i=1}^{n}(x_i \cdot NHV_i) \qquad \textit{Equation 2}$$

If a Net Heating Value Analyzer/Calculator is used: Use the measured value.

NOTE: Table 1 includes two alternative values for the Net Heating Value of hydrogen: the actual NHV of hydrogen (274 BTU/scf) and an "adjusted" NHV of hydrogen (1212 BTU/scf).

APPENDIX 1.3

Companies have the option of using either in calculating NHV_{vg}; however, whichever option is selected also must be used in calculating NHV_{cz}.

Step 4: Calculate the NHV_{vg} at its LFL ($NHV_{vg\text{-}LFL}$)

Using LFL_{vg} from Equation 1 and NHV_{vg} from Equation 2, the $NHV_{vg\text{-}LFL}$ is calculated by Equation 3.

$$NHV_{vg-LFL} = NHV_{vg} \cdot LFL_{vg} \qquad \textit{Equation 3}$$

Step 5: Multiply $NHV_{vg\text{-}LFL}$ by the Combustion Efficiency Multipliers to calculate the $NHV_{cz\text{-}limit}$

The Net Heating Value of the Gases in the Combustion Zone (NHV_{cz}) of a Flare that is needed to ensure an acceptable Combustion Efficiency is determined by multiplying $NHV_{vg\text{-}LFL}$ by Combustion Efficiency Multipliers appropriate to the flare category and the volume percent of hydrogen in the Vent Gas as defined in Table 2.

The Net Heating Value of Combustion Zone Gas Limit is calculated as follows:

$$NHV_{cz-limit} = (A + B \cdot x_{propylene}) \cdot NHV_{vg-LFL} \qquad \textit{Equation 4}$$

Step 6: Calculate the Net Heating Value of the Combustion Zone Gas (NHV_{cz})

The NHV in the combustion zone (NHV_{cz}) combines the NHVs of the Vent Gas, pilot gas, and steam and is calculated by Equation 5a (based on mass flow measurement) or 5b (based on volumetric flow measurement). These two equations are equivalent for combustion zone conditions, as shown in Addendum A to this Appendix. The NHV of steam is assumed to be zero. Vent Gas flow rate ($\dot{m}_{vg}$ or Q_{vg}) and steam flow rate ($\dot{m}_s$ or Q_s) are measured by on-line flow meters. The pilot gas flow rate ($\dot{m}_{pg}$ or Q_{pg}) is constant for each flare and set by an orifice.

$$NHV_{cz} = \frac{\left(\frac{\dot{m}_{vg} \cdot NHV_{vg}}{MW_{vg}}\right) + \left(\frac{\dot{m}_{pg} \cdot NHV_{pg}}{MW_{pg}}\right)}{\left(\frac{\dot{m}_{vg}}{MW_{vg}}\right) + \left(\frac{\dot{m}_{pg}}{MW_{pg}}\right) + \left(\frac{\dot{m}_{s}}{MW_{H_2O}}\right) + \left(\frac{\dot{m}_{air}}{MW_{air}}\right)} \qquad \textit{Equation 5a}$$

OR

$$NHV_{cz} = \frac{(Q_{vg} * NHV_{vg}) + (Q_{pg} * NHV_{pg})}{Q_{vg} + Q_{pg} + Q_s + Q_{air}} \qquad \textit{Equation 5b}$$

APPENDIX 1.3

The values for $\dot{m}_s$, $\dot{m}_{air}$, Q_s and Q_{air} are determined as follows based on the type of flare:

Steam-Assisted Flare without a Minimum Steam Reduction System ("MSRS")

$\dot{m}_s$ *or* $Q_s = measured\ value$

$\dot{m}_{air}$ *or* $Q_{air} = 0$

Steam-Assisted Flare with MSRS

$\dot{m}_s$ *or* $Q_s = measured\ value$

$\dot{m}_{air}$ *or* $Q_{air} = result\ from\ Equation\ 13\ in\ Step\ 6a$

OR

$\dot{m}_{air}$ *or* $Q_{air} = 0$ *with vendor certification that the MSRS equipment installed on the flare is not capable (even at minimum vent gas flow) of inspirating more than twice the stoichiometric volume of air into the vent gas.*

The molecular weight of the vent gas (MW_{vg}) is calculated by the GC using Equation 6. An on-line ultrasonic flow meter may also be used to calculate MW_{vg}. Individual compound molecular weights are listed in Table 1 of this Appendix.

$$MW_{vg} = \sum_{i=1}^{n} (x_i \cdot MW_i) \qquad \textit{Equation 6}$$

The NHV of the pilot gas (NHV_{pg}) and MW of the pilot gas (MW_{pg}) are calculated using Equations 7 and 8, respectively. These calculations are similar to the vent gas calculations, except the individual compound volume fractions are that of the pilot gas and not the vent gas. Individual compound volume fractions are measured by laboratory analysis of a pilot gas sample, or may be taken from the natural gas supplier's laboratory certificate of analysis.

$$NHV_{pg} = \sum_{i=1}^{n} (pg_i \cdot NHV_i) \qquad \textit{Equation 7}$$

$$MW_{pg} = \sum_{i=1}^{n} (pg_i \cdot MW_i) \qquad \textit{Equation 8}$$

APPENDIX 1.3

Step 6a: Calculation of air mass flow rate for flares equipped with MSRS.

The complete combustion of an organic compound comprised of a combination of carbon and hydrogen atoms is shown in Equation 9:

$$C_xH_y + \left(x + \frac{y}{4}\right) O_2 \rightarrow xCO_2 + \left(\frac{y}{2}\right) H_2O \qquad \textit{Equation 9}$$

Note: x and y values for each compound are found in Table 1 of this Appendix.

Therefore, the stoichiometric oxygen molar flow rate (moles/hr) for any given combustible compound flow is defined by Equation 10a (mass basis) or Equation 10b (volumetric basis):

$$\dot{n}_{O2-stoich} = x_j \left(\frac{\dot{m}_{vg}}{MW_{vg}}\right)\left(x + \frac{y}{4}\right) \qquad \textit{Equation 10a}$$

OR

$$\dot{n}_{O2-stoich} = x_j \left(\frac{Q_{vg}}{385.5}\right)\left(x + \frac{y}{4}\right) \qquad \textit{Equation 10b}$$

The stoichiometric oxygen mass flow rate for the vent gas (lb/hr) or stoichiometric oxygen volumetric flow rate for the vent gas (scfh) is given by Equation 11a (mass basis) or 11b (volumetric basis).

$$\dot{m}_{O2-stoich-vg} = MW_{O_2} * \sum_{j=1}^{n} \dot{n}_{O2-stoich_j} \qquad \textit{Equation 11a}$$

OR

$$Q_{O2-stoich-vg} = 385.5 * \sum_{j=1}^{n} \dot{n}_{O2-stoich_j} \qquad \textit{Equation 11b}$$

The stoichiometric air mass flow rate (lb/hr) or stoichiometric air volumetric flow rate (scfh) for the vent gas is given by Equation 12a (mass basis) or Equation 12b (volumetric basis).

$$\dot{m}_{air-stoich-vg} = \frac{MW_{air}}{0.21 \cdot MW_{O_2}} * \dot{m}_{O2-stoich-vg} \qquad \textit{Equation 12a}$$

OR

$$Q_{air-stoich-vg} = \frac{Q_{O2-stoich-vg}}{0.21} \qquad \textit{Equation 12b}$$

APPENDIX 1.3

The air mass flow (lb/hour) or air volumetric flow (scfh) used in Equation 5a or 5b is given by subtracting two times the stoichiometric air from the total air provided by the MSRS. This is shown in Equation 13a and 13.b.

$$\dot{m}_{air} = \dot{m}_{air-MSRS} - (2 * \dot{m}_{air-stoich-vg}) \qquad \textit{Equation 13a}$$

OR

$$Q_{air} = Q_{air-MSRS} - (2 * Q_{air-stoich-vg}) \qquad \textit{Equation 13b}$$

The equation for $\dot{m}_{air-MSRS}$ or $Q_{air-MSRS}$ is specific to the MSRS installed and must be provided by the MSRS vendor. The factor of 2 used in Equation 13 is based on the best information available as of the Date of Lodging. If new information becomes available thereafter, the parties may modify that factor; any such modification does not constitute a material modification to the Consent Decree.

If $\dot{m}_{air} < 0$ then $\dot{m}_{air} = 0$
OR
If $Q_{air} < 0$ *then* $Q_{air} = 0$

Step 7: Ensure that during flare operation, $NHV_{cz} \geq NHV_{cz\text{-}limit}$

The flare must be operated to ensure that NHV_{cz} is equal to or above $NHV_{cz\text{-}limit}$ to ensure acceptable combustion efficiency. Equation 14 shows this relationship.

$$NHV_{cz} \geq NHV_{cz-limit} \qquad \textit{Equation 14}$$

APPENDIX 1.3

Key to the Abbreviations:

$0.21 = mole\ fraction\ of\ oxygen\ in\ air (0.21\ lb-mol\ O_2/lb-mol\ air)$
$385.5 = conversion\ from\ pound\ moles\ to\ standard\ cubic\ feet\ (385.5\ scf/lb\text{-}mol)$
$A = overall\ combustion\ efficiency\ multiplier\ for\ NHV_{vg-LFL}\ (unitless)$
$B = propylene\ combustion\ efficiency\ multiplier\ for\ NHV_{vg-LFL}\ (unitless)$
$C_{vg} = concentration\ of\ VOC\ in\ the\ vent\ gas\ (vol\ \%)$
$i = individual\ numbered\ compound\ from\ column\ i\ in\ Table\ 1\ (unitless)$
$j = individual\ numbered\ compound\ from\ column\ j\ in\ Table\ 1\ (unitless)$
$k = individual\ gaseous\ component\ of\ the\ combustion\ zone\ (unitless)$
$LFL_i = lower\ flammability\ limit\ of\ individual\ compound\ (vol\ \%)$
$LFL_{vg} = lower\ flammability\ limit\ of\ vent\ gas\ (vol\ \%)$
$\dot{m}_{air} = mass\ flow\ rate\ of\ air\ (lb/hr)$
$\dot{m}_{air-MSRS} = total\ mass\ flow\ rate\ of\ air\ introduced\ by\ an\ MSRS\ (lb/hr)$
$\dot{m}_{air-stoich-vg} = stoichiometric\ air\ mass\ flow\ for\ the\ vent\ gas (lb/hr)$
$\dot{m}_k = mass\ flow\ rate\ of\ individual\ combustion\ zone\ gas\ component\ (lb/hr)$
$\dot{m}_{O2-stoich-vg} = stoichiometric\ oxygen\ mass\ flow\ for\ the\ vent\ gas\ (lb/hr)$
$\dot{m}_{pg} = mass\ flow\ rate\ of\ pilot\ gas\ (lb/hr)$
$\dot{m}_s = mass\ flow\ rate\ of\ total\ steam\ (lb/hr)$
$\dot{m}_{vg} = mass\ flow\ rate\ of\ vent\ gas\ (lb/hr)$
$\dot{n}_{O2-stoich} = stoichiometric\ oxygen\ molar\ flow\ for\ an\ individual\ compound\ (mol/hr)$
$MW_{H_2O} = molecular\ weight\ of\ water\ (18.02\ lb/lb\text{-}mol)$
$MW_i = molecular\ weight\ of\ individual\ compound\ (lb/lb\text{-}mol)$
$MW_k = molecular\ weight\ of\ individual\ combustion\ zone\ gas\ component (lb/lb\text{-}mol)$
$MW_{O_2} = molecular\ weight\ of\ oxygen\ (32.0\ lb/lb\text{-}mol)$
$MW_{air} = molecular\ weight\ of\ air\ (28.9\ lb/lb\text{-}mol)$
$MW_{pg} = molecular\ weight\ of\ pilot\ gas\ (lb/lb\text{-}mol)$
$MW_{vg} = molecular\ weight\ of\ vent\ gas\ (lb/lb\text{-}mol)$
$n = list\ of\ individual\ compounds\ from\ Table\ 1\ (unitless)$
$NHV_{cz} = net\ heating\ value\ of\ the\ combustion\ zone\ (BTU/scf)$
$NHV_i = net\ heating\ value\ of\ individual\ compound\ (BTU/scf)$
$NHV_{vg-LFL} = net\ heating\ value\ vent\ gas\ at\ lower\ flammability\ limit\ (BTU/scf)$
$NHV_{cz-limit} = limit\ net\ heating\ value\ of\ the\ combustion\ zone\ (BTU/scf)$
$NHV_{pg} = net\ heating\ value\ of\ pilot\ gas\ (BTU/scf)$
$NHV_{vg} = net\ heating\ value\ of\ vent\ gas\ (BTU/scf)$
$P_{cz} = pressure\ of\ combustion\ zone\ gas\ (psia)$
$P_{std} = ambent\ pressure\ at\ standard\ condtions\ (14.696\ psi)$
$pg_i = individual\ compound\ volume\ fraction\ in\ pilot\ gas\ (vol\ fraction)$
$Q_{air-MSRS} = total\ volumetric\ flow\ rate\ of\ air\ introduced\ by\ an\ MSRS\ (scfh)$
$Q_{air-stoich-vg} = stoichiometric\ air\ volumetric\ flow\ for\ the\ vent\ gas\ (scfh)$
$Q_k = individual\ vent\ gas\ component\ volumetric\ flow\ rate\ (scfh)$
$Q_{k,acf} = individual\ vent\ gas\ component\ volumetric\ flow\ rate\ (ft^3/hr)$
$Q_{O2-stoich-vg} = stoichiometric\ oxygen\ volumetric\ flow\ for\ the\ vent\ gas\ (scfh)$
$Q_{vg} = vent\ gas\ volumetric\ flow\ rate\ (scfh)$
$Q_{pg} = pilot\ gas\ volumetric\ flow\ rate\ (scfh)$
$Q_s = steam\ volumetric\ flow\ rate\ (scfh)$
$Q_{air} = air\ volumetric\ flow\ rate\ (scfh)$
$R = gas\ constant\ (10.73\ ft^3 \cdot psi/lb-mol \cdot R)$
$T_{cz} = absolute\ temperature\ of\ combustion\ zone\ gas\ (°R)$
$T_{std} = absolute\ temperature\ at\ standard\ conditions (528°R)$
$x = moles\ of\ carbon\ per\ mole\ of\ C_xH_y\ (mol/mol)$
$x_i = individual\ compound\ volume\ fraction\ in\ the\ vent\ gas\ (vol\ fraction)$
$x_j = individual\ combustible\ compound\ volume\ fraction\ in\ the\ vent\ gas\ (vol\ fraction)$
$x_{propylene} = volume\ fraction\ of\ propylene\ in\ the\ vent\ gas\ (vol\ fraction)$
$y = moles\ of\ hydrogen\ per\ mole\ of\ C_xH_y\ (mol/mol)$

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Table 1
Individual Compound Properties

$i^{(1)}$	j	Compound	NHV_i (Btu/scf)	MW_i (lb/lbmol)	LFL_i (vol fraction)	C_x	H_y
1	1	Hydrogen	274 or 1212[(2)]	2.02	0.040	0	2
2	-	Oxygen	0	32.00	∞	n/a	n/a
3	-	Nitrogen	0	28.01	∞	n/a	n/a
4	-	CO_2	0	44.01	∞	n/a	n/a
5	-	CO	316	28.01	0.125	n/a	n/a
6	2	Methane	896	16.04	0.050	1	4
7	3	Ethane	1595	30.07	0.030	2	6
8	4	Ethylene	1477	28.05	0.027	2	4
9	5	Acetylene	1404	26.04	0.025	2	2
10	6	Propane	2281	44.10	0.021	3	8
11	7	Propylene	2150	42.08	0.024	3	6
12	8	iso-Butane	2957	58.12	0.018	4	10
13	9	n-Butane	2968	58.12	0.018	4	10
14	10	iso-Butene	2928	56.11	0.018	4	8
15	11	trans-Butene	2826	56.11	0.017	4	8
16	12	cis-Butene	2830	56.11	0.016	4	8
17	13	1,3-Butadiene	2690	54.09	0.020	4	6
18	14	Pentane+ (C_5+)	3655	72.15	0.014	5	12
19	-	Water[(3)]	0	18.02	∞	n/a	n/a

[1] i=all compounds, j=organic compounds and hydrogen

[2] If using an H_2-adjusted NHV_{vg} and NHV_{cz}, then use 1212 BTU/scf for hydrogen.

[3] A GC does not measure water. If water is measured by means of another instrument, the properties of water listed in this row shall be used.

Note: Benzene is not required to be speciated by the Gas Chromatograph for this refinery settlement (*see* Appendix 1.9) because benzene is present in the Vent Gas only in *de minimis* quantities. Because benzene speciation is not required, it is not listed in Table 1of this Appendix. The Vent Gas composition involved in other future settlements should be evaluated on a case-by-case basis to determine if benzene speciation should be required.

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Table 2
Combustion Efficiency Multipliers for Steam-Assisted Flares: Variables Based on Minimum Steam Requirements and VOC Concentration in the Vent Gas

Minimum Steam	VOC Vent Gas Concentration	A Multiplier	B Multiplier*	
			Condition X	Condition Y
≤ 1000 lb/hr	≤ 20.0%	6.45	4.0	0.0
≤ 1000 lb/hr	> 20.0%	6.85	4.0	0.0
> 1000 lb/hr	≤ 20.0%	7.1	4.0	0.0
> 1000 lb/hr	> 20.0%	7.4	4.0	0.0

*The B Multiplier used depends on the relationship of hydrogen and propylene in the vent gas as follows:
Condition X: $3 \leq H_2\% \leq 8$ and Propylene% $\geq H_2\%$ (all percentages are volume or mole percentages)
Condition Y: Any condition not meeting the requirements for Condition X.

Note: The specifications for Condition X are based on the best information available as of the Date of Lodging. If new information becomes available thereafter, the parties may modify these conditions; any such modification does not constitute a material modification to the Consent Decree.

The "VOC Vent Gas Concentration" shall be calculated on an annual average basis as follows:

$$C_{vg} = \sum_{j=4}^{n} x_j * 100 \qquad \textit{Equation 15}$$

Note: The summation does not include methane or ethane.

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Addendum A
Verification of Equation 5a and Equation 5b Equivalency

In this Appendix, all gaseous flows (i.e, vent gas, steam, pilot gas, and air) may be measured on either a mass basis (lb/hr) or a volumetric basis (scfh). Depending on which measurement methodology is used, different versions of some equations must be used. These versions are designated with an "a" or "b" (e.g. Equation 5a or 5b). In all cases, these equations are equivalent. This Addendum demonstrates the equivalence of the two methods for calculating NHVcz.

Equation 5b uses volumetric flow rates for the calculation of NHV_{cz}:

$$NHV_{cz} = \frac{(Q_{vg} * NHV_{vg}) + (Q_{pg} * NHV_{pg})}{Q_{vg} + Q_{pg} + Q_s + Q_{air}} \qquad \textit{Equation 5b}$$

The ideal gas law provides a method for determining volumetric flow rate of a specific gas, *k*, in the combustion zone at standard conditions:

$$Q_k = Q_{k,acf} * \frac{P_{cz}}{P_{std}} * \frac{T_{std}}{T_{cz}} \qquad \textit{Equation A1}$$

$$Q_{k,acf} = \frac{\dot{m}_k R T_{cz}}{MW_k P_{cz}} \qquad \textit{Equation A2}$$

$$Q_k = \frac{\dot{m}_k R T_{cz}}{MW_k P_{cz}} * \frac{P_{cz}}{P_{std}} * \frac{T_{std}}{T_{cz}} = \frac{\dot{m}_k R T_{std}}{MW_k P_{std}} \qquad \textit{Equation A3}$$

$$Q_k = \frac{\dot{m}_k * 10.73 * 528}{MW_k * 14.696} = 385.5 \frac{\dot{m}_k}{MW_k} \qquad \textit{Equation A4}$$

Substitution of this expression into Equation 5b gives NHV_{cz} in terms of mass flow:

$$NHV_{cz} = \frac{\left(385.5 \frac{\dot{m}_{vg}}{MW_{vg}} * NHV_{vg}\right) + \left(385.5 \frac{\dot{m}_{pg}}{MW_{pg}} * NHV_{pg}\right)}{385.5 \frac{\dot{m}_{vg}}{MW_{vg}} + 385.5 \frac{\dot{m}_{pg}}{MW_{pg}} + 385.5 \frac{\dot{m}_s}{MW_{H_2O}} + 385.5 \frac{\dot{m}_{air}}{MW_{air}}} \qquad \textit{Equation A5}$$

Because the combustion zone is well-mixed, each gaseous component of the combustion zone is at the same temperature and pressure. Thus, the last expression reduces to Equation 5a:

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$$NHV_{cz} = \frac{\left(\frac{\dot{m}_{vg} \cdot NHV_{vg}}{MW_{vg}}\right) + \left(\frac{\dot{m}_{pg} \cdot NHV_{pg}}{MW_{pg}}\right)}{\left(\frac{\dot{m}_{vg}}{MW_{vg}}\right) + \left(\frac{\dot{m}_{pg}}{MW_{pg}}\right) + \left(\frac{\dot{m}_{s}}{MW_{H_2O}}\right) + \left(\frac{\dot{m}_{air}}{MW_{air}}\right)} \qquad \textit{Equation 5a}$$

This demonstrates the equivalence of Equations 5a and 5b.

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POLICY ON EXCESS EMISSIONS DURING MALFUNCTIONS, STARTUP, AND SHUTDOWN

Introduction

This policy specifies when and in what manner state implementation plans (SIPs) may provide for defenses to violations caused by periods of excess emissions due to malfunctions,[1] startup, or shutdown. Generally, since SIPs must provide for attainment and maintenance of the national ambient air quality standards and the achievement of PSD increments, all periods of excess emissions must be considered violations. Accordingly, any provision that allows for an automatic exemption[2] for excess emissions is prohibited.

However, the imposition of a penalty for excess emissions during malfunctions caused by circumstances entirely beyond the control of the owner or operator may not be appropriate. States may, therefore, as an exercise of their inherent enforcement discretion, choose not to penalize a source that has produced excess emissions under such circumstances.

This policy provides an alternative approach to enforcement discretion for areas and pollutants where the respective contributions of individual sources to pollutant concentrations in ambient air are such that no single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments. Where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, as is often the case for sulfur dioxide and lead,[3] EPA believes approaches other than enforcement discretion are not appropriate. In such cases, any excess emissions may have a significant chance of causing an exceedance or violation of the applicable standard or PSD increment.

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[1]The term excess emission means an air emission level which exceeds any applicable emission limitation. Malfunction means a sudden and unavoidable breakdown of process or control equipment.

[2]The term automatic exemption means a generally applicable provision in a SIP that would provide that if certain conditions existed during a period of excess emissions, then those exceedances would not be considered violations.

[3]This policy also does not apply for purposes of PM2.5 NAAQS. In American Trucking Association v. EPA, 175 F. 3d 1027 (D.C. Circ., 1999), the court remanded the PM2.5 NAAQS to the EPA. The Agency has not determined whether this policy is appropriate for PM2.5 NAAQS.

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Except where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, states may include in their SIPs affirmative defenses[4] for excess emissions, as long as the SIP establishes limitations consistent with those set out below. If approved into a SIP, an affirmative defense would be available to sources in an enforcement action seeking penalties brought by the state, EPA, or citizens. However, a determination by the state not to take an enforcement action would not bar EPA or citizen action.[5]

In addition, in certain limited circumstances, it may be appropriate for the State to build into a source-specific or source-category-specific emission standard a provision stating that the otherwise applicable emission limitations do not apply during narrowly defined startup and shutdown periods.

I. AUTOMATIC EXEMPTIONS AND ENFORCEMENT DISCRETION

If a SIP contains a provision addressing excess emissions, it cannot be the type that provides for automatic exemptions. Automatic exemptions might aggravate ambient air quality by excusing excess emissions that cause or contribute to a violation of an ambient air quality standard. Additional grounds for disapproving a SIP that includes the automatic exemption approach are discussed in more detail at 42 Fed. Reg. 58171 (November 8, 1977) and 42 Fed. Reg. 21372 (April 27, 1977). As a result, EPA will not approve any SIP revisions that provide automatic exemptions for periods of excess emissions.

The best assurance that excess emissions will not interfere with NAAQS attainment, maintenance, or increments is to address excess emissions through enforcement discretion. This policy provides alternative means for addressing excess emissions of criteria pollutants. However, this policy does not apply where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments. Moreover,

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[4]The term affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

[5]Because all periods of excess emissions are violations and because affirmative defense provisions may not apply in actions for injunctive relief, under no circumstances would EPA consider periods of excess emissions, even if covered by an affirmative defense, to be "federally permitted releases" under EPCRA or CERCLA.

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nothing in this guidance should be construed as requiring States to include affirmative defense provisions in their SIPs.

II. AFFIRMATIVE DEFENSES FOR MALFUNCTIONS

The EPA can approve a SIP revision that creates an affirmative defense to claims for penalties in enforcement actions regarding excess emissions caused by malfunctions as long as the defense does not apply to SIP provisions that derive from federally promulgated performance standards or emission limits, such as new source performance standards (NSPS) and national emissions standards for hazardous air pollutants (NESHAPS).[6] In addition, affirmative defenses are not appropriate for areas and pollutants where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments. Furthermore, affirmative defenses to claims for injunctive relief are not allowed. To be approved, an affirmative defense provision must provide that the defendant has the burden of proof of demonstrating that:

1. The excess emissions were caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;

2. The excess emissions (a) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (b) could not have been avoided by better operation and maintenance practices;

3. To the maximum extent practicable the air pollution control equipment or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;

4. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;

5. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;

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[6]To the extent a State includes NSPS or NESHAPS in its SIP, the standards should not deviate from those that were federally promulgated. Because EPA set these standards taking into account technological limitations, additional exemptions would be inappropriate.

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6. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;

7. All emission monitoring systems were kept in operation if at all possible;

8. The owner or operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence;

9. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

10. The owner or operator properly and promptly notified the appropriate regulatory authority.

The EPA interprets these criteria narrowly. Only those malfunctions that are sudden, unavoidable, and unpredictable in nature qualify for the defense. For example, a single instance of a burst pipe that meets the above criteria may qualify under an affirmative defense. The defense would not be available, however, if the facility had a history of similar failures because of improper design, improper maintenance, or poor operating practices. Furthermore, a source must have taken all available measures to compensate for and resolve the malfunction. If a facility has a baghouse fire that leads to excess emissions, the affirmative defense would be appropriate only for the period of time necessary to modify or curtail operations to come into compliance. The fire should not be used to excuse excess emissions generated during an extended period of time while the operator orders and installs new bags, and relevant SIP language must limit applicability of the affirmative defense accordingly.

III. EXCESS EMISSIONS DURING STARTUP AND SHUTDOWN

In general, startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the planning, design, and implementation of operating procedures for the process and control equipment. Accordingly, it is reasonable to expect that careful and prudent planning and design will eliminate violations of emission limitations during such periods.

A. SOURCE CATEGORY SPECIFIC RULES FOR STARTUP AND SHUTDOWN

For some source categories, given the types of control technologies available, there may exist short periods of emissions during startup and shutdown when, despite best efforts regarding planning, design, and operating procedures, the

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otherwise applicable emission limitation cannot be met. Accordingly, except in the case where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, it may be appropriate, in consultation with EPA, to create narrowly-tailored SIP revisions that take these technological limitations into account and state that the otherwise applicable emissions limitations do not apply during narrowly defined startup and shutdown periods. To be approved, these revisions should meet the following requirements:

1. The revision must be limited to specific, narrowly-defined source categories using specific control strategies (e.g., cogeneration facilities burning natural gas and using selective catalytic reduction);

2. Use of the control strategy for this source category must be technically infeasible during startup or shutdown periods;

3. The frequency and duration of operation in startup or shutdown mode must be minimized to the maximum extent practicable;

4. As part of its justification of the SIP revision, the state should analyze the potential worst-case emissions that could occur during startup and shutdown;

5. All possible steps must be taken to minimize the impact of emissions during startup and shutdown on ambient air quality;

6. At all times, the facility must be operated in a manner consistent with good practice for minimizing emissions, and the source must have used best efforts regarding planning, design, and operating procedures to meet the otherwise applicable emission limitation; and

7. The owner or operator's actions during startup and shutdown periods must be documented by properly signed, contemporaneous operating logs, or other relevant evidence.

B. GENERAL AFFIRMATIVE DEFENSE PROVISIONS RELATING TO STARTUP AND SHUTDOWN

In addition to the approach outlined in Section II(A) above, States may address the problem of excess emissions occurring during startup and shutdown periods through an enforcement discretion approach. Further, except in the case where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, States may also adopt for their SIPs an affirmative defense approach. Using this

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approach, all periods of excess emissions arising during startup and shutdown must be treated as violations, and the affirmative defense provision must not be available for claims for injunctive relief. Furthermore, to be approved, such a provision must provide that the defendant has the burden of proof of demonstrating that:

1. The periods of excess emissions that occurred during startup and shutdown were short and infrequent and could not have been prevented through careful planning and design;

2. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

3. If the excess emissions were caused by a bypass (an intentional diversion of control equipment), then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

4. At all times, the facility was operated in a manner consistent with good practice for minimizing emissions;

5. The frequency and duration of operation in startup or shutdown mode was minimized to the maximum extent practicable;

6. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;

7. All emission monitoring systems were kept in operation if at all possible;

8. The owner or operator's actions during the period of excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence; and

9. The owner or operator properly and promptly notified the appropriate regulatory authority.

If excess emissions occur during routine startup or shutdown periods due to a malfunction, then those instances should be treated as other malfunctions that are subject to the malfunction provisions of this policy. (Reference Part I above).

APPENDIX 1.6

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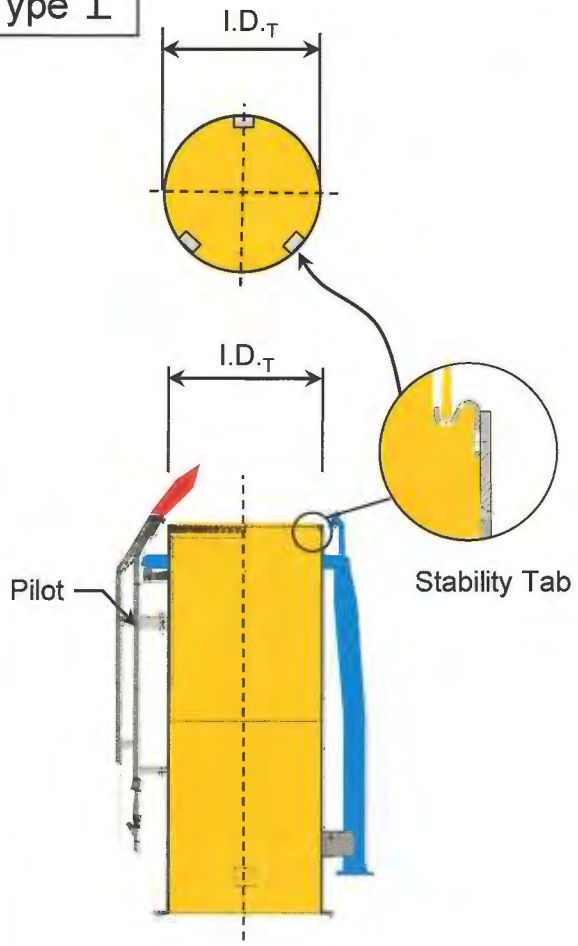
Type I



$$A_{tip\text{-}unob} = \pi(I.D._T)^2/4 - (X_T * A_{ST})$$

Where:

- $A_{tip\text{-}unob}$ = Unobstructed Cross Sectional Area of Flare Tip
- $I.D._T$ = Inside Diameter Flare Tip
- X_T = Number of Stability Tabs
- A_{ST} = Area of a Stability Tab

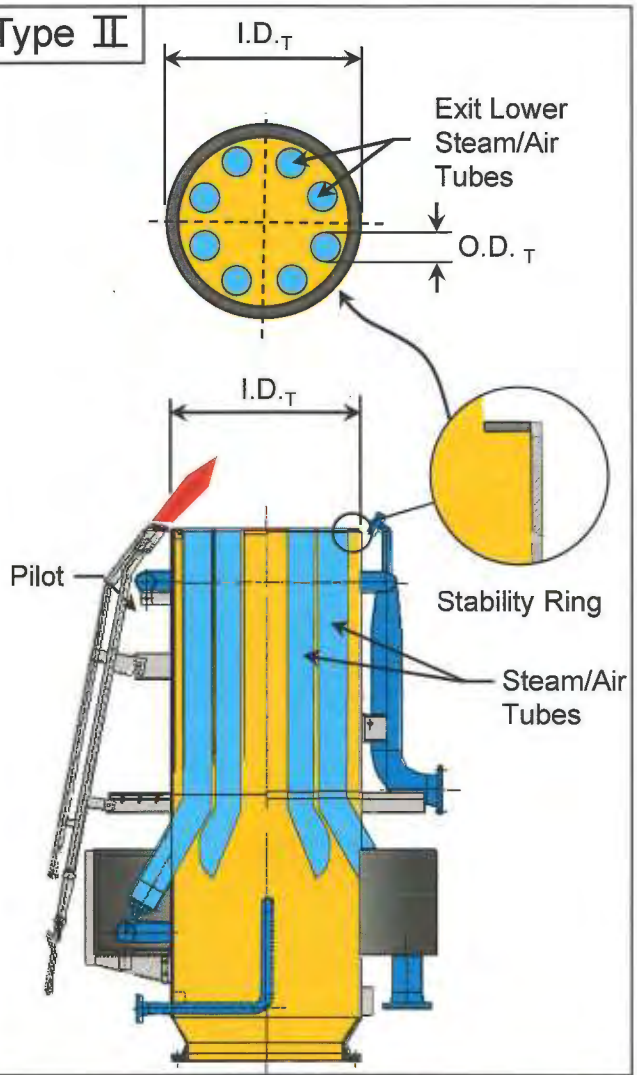
Example:

- $I.D._T$ = 41.5 inches
- X_T = 3
- A_{ST} = 3 Sq. inches

$A_{tip\text{-}unob} = \pi(41.5)^2/4 - (3 * 3)$

$A_{tip\text{-}unob}$ = 1344 Sq. inches

Type II



$$A_{tip\text{-}unob} = \pi(I.D._T)^2/4 - A_{ST} - N_T * \pi * (O.D._T)^2/4$$

Where:

- $A_{tip\text{-}unob}$ = Unobstructed Cross Sectional Area of Flare Tip
- $I.D._T$ = Inside Diameter Flare Tip
- A_{ST} = Area of Stability Ring
- $O.D._T$ = Outside Diameter of Steam/Air Tubes
- N_T = Number of Steam/Air Tubes

Example:

- $I.D._T$ = 47.5 inches
- A_{ST} = 100 Sq. inches
- $O.D._T$ = 6.5 inches
- N_T = 8

$A_{tip\text{-}unob} = \pi (47.5)^2/4 - 100 - 8 * \pi * (6.5)^2/4$

$A_{tip\text{-}unob}$ = 1322 Sq. inches

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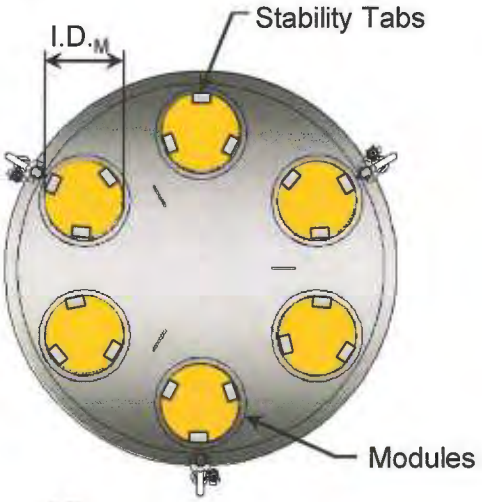
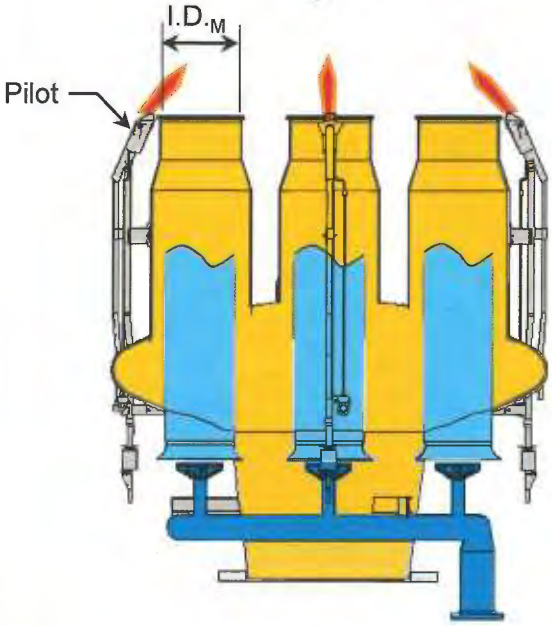
Type III





$$A_{tip\text{-}unob} = N_M * (\pi*(I.D._M)^2/4 - X_T * A_{ST})$$

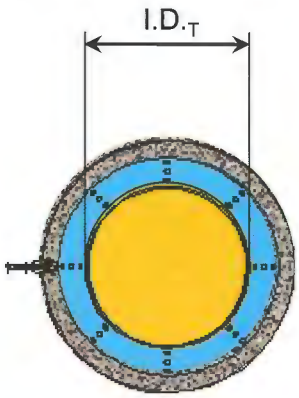
Where:
- $A_{tip\text{-}unob}$ = Unobstructed Cross Sectional Area of Flare Tip
- $I.D._M$ = Inside Diameter of One Tip Module
- N_M = Number of Modules
- X_T = Number of Stability Tabs per Module
- A_{ST} = Area of a Stability Tab

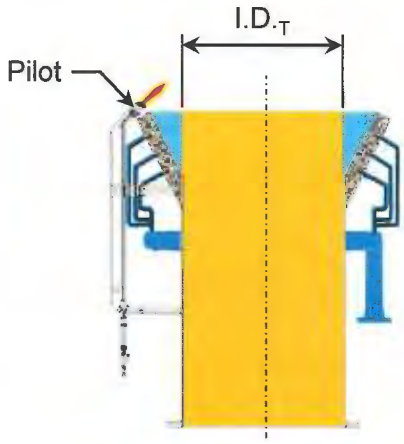
Example:
- $I.D._M$ = 17 inches
- N_M = 6
- X_T = 3
- A_{ST} = 3 Sq. inches

$$A_{tip\text{-}unob} = 6 * (\pi*(17)^2/4 - 3 * 3)$$

$$A_{tip\text{-}unob} = 1308 \text{ Sq. inches}$$

Type IV





$$A_{tip\text{-}unob} = \pi(I.D._T)^2/4$$

Where:
- $A_{tip\text{-}unob}$ = Unobstructed Cross Sectional Area of Flare Tip
- $I.D._T$ = Inside Diameter of Flare Tip

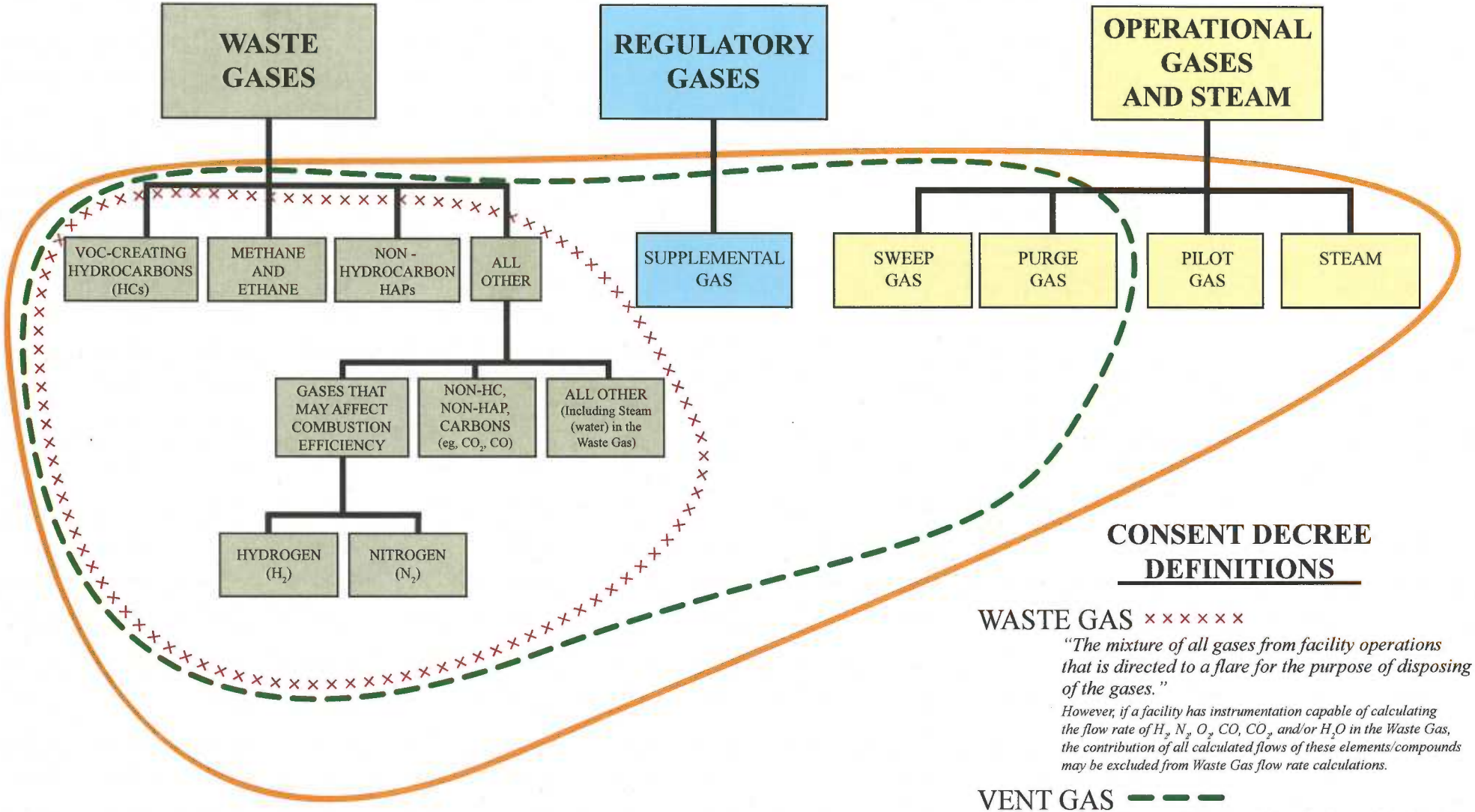
Example:
- $I.D._T$ = 41.5 inches

$$A_{tip\text{-}unob} = \pi (41.5)^2/4$$

$$A_{tip\text{-}unob} = 1353 \text{ Sq. inches}$$

APPENDIX 1.7

DEPICTION OF GASES ASSOCIATED WITH STEAM-ASSISTED FLARES



CONSENT DECREE DEFINITIONS

WASTE GAS ××××××

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

However, if a facility has instrumentation capable of calculating the flow rate of H_2, N_2, O_2, CO, CO_2, and/or H_2O in the Waste Gas, the contribution of all calculated flows of these elements/compounds may be excluded from Waste Gas flow rate calculations.

VENT GAS – – –

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

COMBUSTION ZONE GAS ——

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

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APPENDIX 1.8

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

1. Facility-Wide

   1.1 Facility plot plan showing the location of each flare in relation to the general plant layout

2. General Description of Flare

   2.1 Ground or elevated
   2.2 Type of assist system
   2.3 Simple or integrated (*e.g.*, sequential, staged)
   2.4 Date first installed
   2.5 History of any physical changes to the Flare
   2.6 Whether the Flare is a Temporary-Use Flare, and if so, the duration and time periods of use
   2.7 Flare Gas Recovery System ("FGRS"), if any, and date first installed

3. Flare Components: Complete description of each major component of the Flare, except the Flare Gas Recovery System (*see* Part 5), including but not limited to:

   3.1 Flare stack (for elevated flares)
   3.2 Flare tip
      3.1.2.1 Date installed
      3.1.2.2 Manufacturer
      3.1.2.3 Tip Size
      3.1.2.4 Tip Drawing
   3.3 Knockout or surge drum(s) or pot(s), including dimensions and design capacities
   3.4 Water seal(s), including dimensions and design parameters
   3.5 Flare header(s)
   3.6 Sweep Gas system
   3.7 Purge gas system
   3.8 Pilot gas system
   3.9 Supplemental gas system
   3.10 Assist system
   3.11 Ignition system

4. Simplified process diagram(s) showing the configuration of the components listed in Paragraph 3

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5. Existing Flare Gas Recovery System ("FGRS")

   5.1 Complete description of each major component, including but not limited to:
      5.1.1 Compressor(s), including design capacities
      5.1.2 Water seal(s), rupture disk, or similar device to divert the flow
   5.2 Maximum actual past flow on an scfm basis and the annual average flow in scfm for the five years preceding Date of Lodging
   5.3 Simplified schematic showing the FGRS
   5.4 Process Flow Diagram that adds the FGRS to the PDF(s) in Part 4

6. Flare Design Parameters

   6.1 Maximum Vent Gas Flow Rate and/or Mass Rate
   6.2 Maximum Sweep Gas Flow Rate and/or Mass Rate
   6.3 Maximum Purge Gas Flow and/or Mass Rate, if applicable
   6.4 Maximum Pilot Gas Flow and/or Mass Rate
   6.5 Maximum Supplemental Gas Flow Rate and/or Mass Rate
   6.6 If steam-assisted, Minimum Total Steam Rate, including all available information on how that Rate was derived

7. Gases Venting to Flare

   7.1. Sweep Gas
      7.1.1 Type of gas used
      7.1.2 Actual set operating flow rate (in scfm)
      7.1.3 Average lower heating value expected for each type of gas used
   7.2 Purge Gas, if applicable
      7.2.1 Type of gas used
      7.2.2 Actual set operating flow rate (in scfm)
      7.2.3 Average lower heating value expected for each type of gas used
   7.3 Pilot Gas
      7.3.1 Type of gas used
      7.3.2 Actual set operating flow rate (in scfm)
      7.3.3 Average lower heating value expected for each type of gas used
   7.4 Supplemental Gas
      7.4.1 Type of gas used
      7.4.2 Average lower heating value expected for each type of gas used
   7.5 Steam (if applicable)
      7.5.1 Drawing showing points of introduction of Lower, Center, Upper, and any other steam
   7.6 Simplified flow diagram that depicts the points of introduction of all gases, including Waste Gases, at the Flare (in this diagram, the detailed drawings of 7.5.1 may be simplified; in addition, detailed Waste Gas mapping is not required; a simple identification of the header(s) that carries(y) the Waste Gas to the Flare

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

8. Existing Monitoring Systems

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

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

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

9. Monitoring Equipment to be installed to comply with Consent Decree

10. Narrative Description of the monitoring methods, calculations, and control logic that will be used to comply with the NHV_{CZ} and S/VG requirements in the Consent Decree

11. Identification of Calibration Gases to be used to comply with Appendix 1.10

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LIST OF COMPOUNDS A GAS CHROMATOGRAPH MUST BE CAPABLE OF SPECIATING

The gas chromatograph must be capable of speciating the Vent Gas into the following:

1. Hydrogen
2. Oxygen
3. Nitrogen
4. Carbon Dioxide
5. Carbon Monoxide
6. Methane
7. Ethane
8. Ethene (aka: Ethylene)
9. Propane
10. Propene (aka: Propylene)
11. 2-Methylpropane (aka: iso-Butane)
12. Butane (aka: n-Butane)
13. Pentane plus (aka: C_5 plus) (*i.e.*, all HCs with five Cs or more)
14. Hydrogen Sulfide

Outputs from the gas chromatograph shall be on a mole percent basis except for hydrogen sulfide which will be on a parts per million basis.

Benzene, acetylene, butene and its isomers (*i.e.*, iso-butene, cis-butene, trans-butene), and 1,3 butadiene are not required to be speciated by the gas chromatograph for this refinery settlement because CountryMark demonstrated that these constituents are present in the Vent Gas, if at all, only in *de minimis* quantities. The Vent Gas composition involved in other future settlements should be evaluated on a case-by-case basis to determine whether speciation of these compounds should be required.

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EQUIPMENT AND INSTRUMENTATION TECHICAL SPECIFICATIONS AND QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

I. VENT GAS FLOW METER

a. Velocity Range: 0.1–250 ft/sec

b. Repeatability: ± 1% of reading over the velocity range

c. Design Accuracy: ± 5% initially to 40%, 60%, and 90% of monitor full scale as certified by the manufacturer

d. Operational Accuracy: ± 20% of reading over the velocity range of 0.1–1 ft/s and ± 5% of reading over the velocity range of 1–250 ft/s

e. Installation: Applicable AGA, ANSI, API, or equivalent standard

f. Flow Rate Determination: Must be corrected to one atmosphere pressure and 68 °F

g. QA/QC: Annual calibration shall be conducted.

h. Pressure and Temperature Sensors: *See* Part IV below.

II. VENT GAS AVERAGE MOLECULAR WEIGHT ANALYZER (may be part of the Vent Gas Flow Meter)

a. Molecular Weight Range and Accuracy: 2 to 120 gr/grmol, ± 2%

III. STEAM FLOW METER

a. Repeatability: ± 1% of reading over the range of the instrument

b. Accuracy: +/- 1% from 100% to 15% of span
+/- 2% from 15% to 6% of span
+/- 3% from 6% to 4% of span

c. Installation: Applicable AGA, ANSI, API, or equivalent standard

d. Flow Rate Determination: Must be corrected to one atmosphere pressure and 68 °F

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e. QA/QC: Annual calibration shall be conducted.

f. Pressure and Temperature Sensors: *See* Part IV below.

IV. VENT GAS AND STEAM FLOW METERS: PRESSURE AND TEMPERATURE SENSORS

a. Temperature monitor must be calibrated annually to ± 5%.

b. Pressure monitor must be calibrated annually to within ± 5%.

V. GAS CHROMATOGRAPH ("GC")

A. General

a. Accuracy: The gas chromatography system shall be maintained to be accurate within 5% of full scale.

b. 8-Hour Repeatability:

± 0.5% of full scale for full scale ranges from 2-100%;
± 1% of full scale for full scale ranges from 0.05-2%;
± 2% of full scale for full scale ranges from 50-500 ppm;
± 3% of full scale for full scale ranges from 5-50 ppm;
± 5% of full scale for full scale ranges from 0.5-5 ppm;

c. The minimum sampling frequency shall be one sample every 15 minutes.

d. The GC shall be capable of speciating all gas constituents listed in Appendix 1.9.

e. The sampling system sample line shall be heat traced and maintained at no lower than 150 degrees Fahrenheit with no cold spots. The sampling cabinet shall be maintained at no lower than 110 degrees Fahrenheit. All system components shall be heated, including the probe external to the flare piping, calibration valve, sample lines, sampling loop (or sample introduction system), and GC oven.

f. Where technically feasible, the sampling location should be at least two equivalent duct diameters downstream from the nearest control device, point of pollutant generation, or other point at which a change in the pollutant concentration or emission rate occurs. The location should not be close to air in-leakages. Where technically feasible, the location should also be at least 0.5 diameters upstream from the exhaust or control device.

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B. Gas Chromatograph Calibration Standards

1. **Net Heating Value and Analyte Measurements**. For the Net Heating Value and Analyte measurements, the GC shall be operated and maintained in accordance with Performance Specification 9 ("PS9") of Appendix B of 40 C.F.R. Part 60 except:

   a. The daily mid-level validation procedure in Section 10.2 of PS9 shall be conducted on the calculated Net Heating Value of the certified calibration gas based upon the concentration of each analyte. The average instrument response shall not vary by more than 10 percent from the Net Heating Value of the certified calibration gas.

   b. The multi-point calibration error check procedure in Section 10.1 of PS9 shall be conducted quarterly for the limited set of analytes listed in Subparagraph V.B.1.c below. No calibrations will be required after routine maintenance or repair where such activities do not have the potential to alter the sampling or analysis of the gas. The GC must meet the calibration performance criteria in Sections 13.1 and 13.2 of PS9 for the listed analytes only, such that: (i) the average instrument response must not differ by more than 10 percent of the calibration gas value; and (ii) the precision and linearity check of each analyte listed below shall not deviate more than 5 percent from the average concentration measured.

   c. The analytes to be used are:

      i. Hydrogen
      ii. Nitrogen
      iii. Methane
      iv. Ethane
      v. Propane
      vi. Propylene
      vii. Ethylene

   d. The calibration gas mixtures may be set by the procedures identified in Section 7.1 of PS9 or may be within 10 percent of the concentration values listed in Table 1. The gases must be certified to ± 2 percent.

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Table 1: Calibration Gas Mixtures for Net Heating Value Calibrations/Validations[(1)]

Component	Daily Mid-Level Gas	Quarterly Low-Level Gas	Quarterly Mid-Level Gas	Quarterly High-Level Gas
Hydrogen	**30**	**8**	**30**	**12**
Nitrogen	**8**	**65**	**8**	**5**
Methane	**48**	**22**	**48**	**30**
Ethane	**3**	**2**	**3**	**30**
Propane	**2**	**1**	**2**	**15**
Propylene	**8**	**1**	**8**	**5**
Ethylene	**1**	**1**	**1**	**3**
NHV (Btu/scf) Unadjusted for H2	**793**	**310**	**793**	**1273**

(1) The individual analytes are in volume percent.

2. **H_2S Measurement**. For the H_2S measurement, the GC shall be operated and maintained in accordance with Performance Specification 7 of Appendix B of 40 C.F.R. Part 60. Quality assurance procedures set forth in Appendix F of 40 C.F.R. Part 60 shall be followed. The span shall be set at 300 ppmv H_2S or as required by NSPS Subpart Ja, if different.

VI. Calculation of Instrument Downtime

1. For purposes of calculating the 110 hours per calendar quarter of instrument downtime allowed pursuant to Paragraphs B15 and B35, the time used for GC calibration and validation activities required by Subparagraph V.B.1 of this Appendix may be excluded.

2. Any hour that meets the requirements of 40 C.F.R. § 60.13(h)(2) shall not be counted toward instrument downtime. Specifically:

   (i) For a full operating hour (any clock hour where the flare is available for operation for 60 minutes), if there are at least four valid data points to calculate the hourly average (that is, one data point in each of the 15-minute quadrants of the hour), then there is no period of instrument downtime;

   (ii) For a partial operating hour (any clock hour where the flare is available for operation for less than 60 minutes), if there is at least one valid data point in each 15-minute quadrant of the hour in which the flare is available for operation to calculate the hourly average, then there is no period of instrument downtime; and

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(iii) For any operating hour in which required maintenance or quality-assurance activities on the instruments or monitoring systems associated with the flare are performed:

(A) If the flare is available for operation in two or more quadrants of the hour and if there are at least two valid data points separated by at least 15 minutes to calculate the hourly average, then there is no period of instrument downtime; or

(B) If the flare is available for operation in only one quadrant of the hour and if there is at least one valid data point to calculate the hourly average, then there is no period of instrument downtime.

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

Purpose:

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

Waste Gas Mapping Criteria:

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

Waste Gas Mapping Submission Requirements:

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

1. Simplified Schematic consistent with the example schematic included on the second page of this Appendix.

2. Table of all sources connected to each flare main header and process unit header consistent with the Table included on the third page of this Appendix.

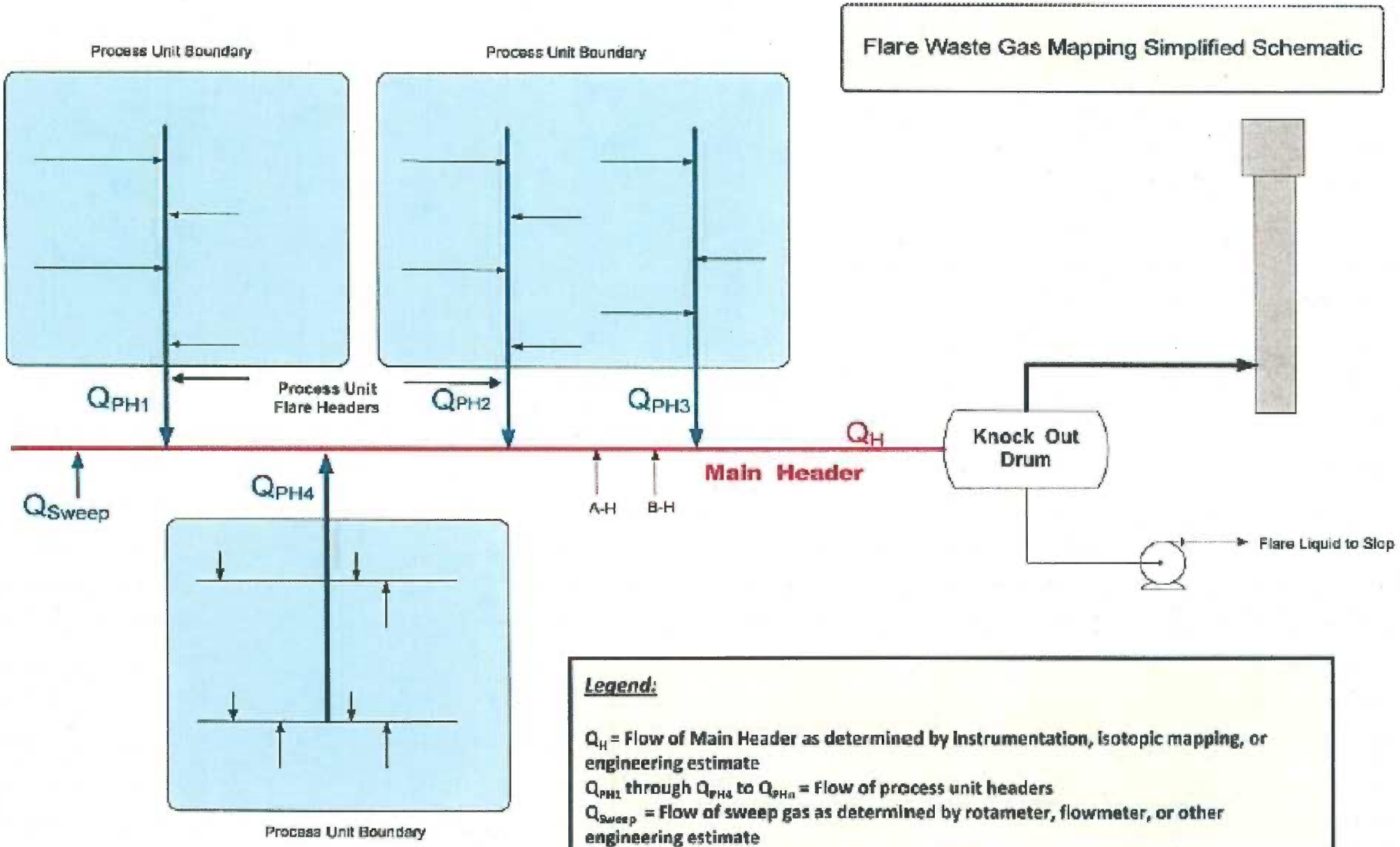

Table 1: Example of Flare Source Description Table

Process Unit Header	Sources	Detailed Source Description
Q_{PH1} (Ex: FCCU Gas Con Unit)	3 PSVs	PSV-14 on 110-D-5 Gas Con Absorber PSV-12 on 110-D-1 Amine Scrubber PSV-7 on 110-F-1 Batch Caustic Vessel
	2 Pump Seal Purges	110-G-1 LPG Pump 110-G-2 Rich Amine Pump
	1 Sample Station	110-S-1 LPG
	1 PSV	PSV 17 on 112-D-1 Main Column
	1 Pressure Control Valve	PCV 21 – Emergency Wet Gas Compressor
	1 PSV	PSV-21 on Flush Oil Drum
	1 Pump Seal Purge	110-G-23 Slurry Oil Pump
Q_{PH2} (Ex: Gas Oil Treater)	Continue same as PH1	Continue same as PH1
Q_{PH3}	Continue same as PH1	Continue same as PH1
Q_{PH4}	Continue same as PH1	Continue same as PH1
A-H	1 PSVs	PSV-17 on 109-E-42 Slurry Heat Exchanger
B-H	2 Pump Seal Purges	110-G-3 Gas Oil Feed 110-G-4 Main Column Reflux

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REPRESENTATIONS OF DISCONTINUOUS WAKE DOMINATED FLOW

Definition

"Discontinuous Wake Dominated Flow" shall mean gas flow exiting a Flare tip that is identified visually by:

i. The presence of a flame that is: (1) immediately adjacent to the exterior of the Flare tip body; and (2) below the exit plane of the Flare tip; and

ii. A discontinuous flame, such that pockets of flame are detached from the portion of the flame that is immediately adjacent to the exterior of the Flare tip body.

Background

The gases present just outside of the flare tip are influenced by several factors. All of these factors are present all of the time, but as process and environmental conditions change, the relative "strength" of each factor will change. The most dominant factors will dictate the flow of the Vent Gases, *i.e.*, will determine the size, shape, and direction of the flame. Some of the influences on the Vent Gases are:

- The low pressure region, or wake, that is downwind and next to the flare.
- The temperature gradient that causes the warm combustion gases to be buoyant, or rise.
- The inertia, or resistance to changes in speed and direction, of the Vent Gases as they exit the tip.

The regimes below show how a flame will appear when the most dominant influences are, respectively, the wake, the buoyancy due to temperature, and the inertia due to the gas's momentum.

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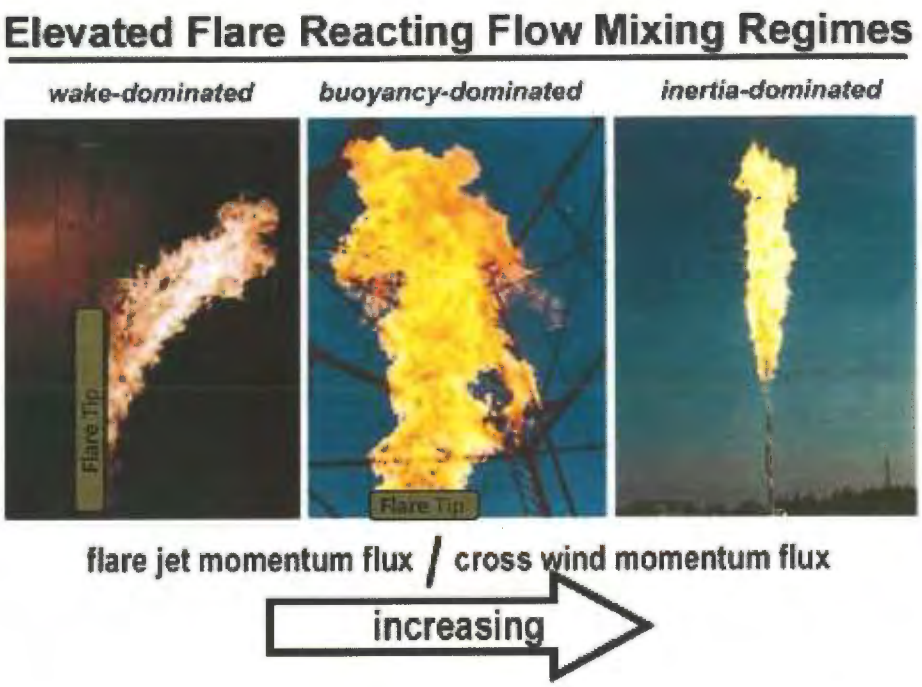

Images take from: Practical Implications of Prior Research on Today's Outstanding Flare Emissions Questions and a Research Program to Answer Them
James Seebold, ChevronTexaco (Retired)
Peter Gogolek, Natural Resources Canada
John Pohl, Virginia Polytechnic Institute and State University
Robert Schwartz, John Zink Company LLC

As a wake dominated flame becomes less stable, it becomes segmented, or discontinuous. The following is a representation of "Discontinuous Wake Dominated Flow." The red area is an artist's rendition of a flame.

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The following image represents a flame below the plane of the exit of the flare tip. However, since the flame is not discontinuous and not immediately adjacent to the tip, this image would not represent Discontinuous Wake Dominated Flow.

The following image represents a flame below the plane of the exit of the flare tip and attached to the tip. However, since the flame is not discontinuous, this image would not represent Discontinuous Wake Dominated Flow.

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In order for the flame to be deemed discontinuous, it should be segmented, and not merely possess small pockets of flame at the outer boundary of a single large cohesive flame. Furthermore, a discontinuous flame will normally appear thin relative to its length, and lack a single bulbous core. The following image represents a flame with a small pocket of flame only at the outer edges of the broad main flame. This would not represent a discontinuous flame, and therefore would not be Discontinuous Wake Dominated Flow.

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APPENDIX 1.13

CALCULATING THE AMOUNT OF STIPULATED PENALTIES DUE FOR VIOLATING LIMITATIONS ON FLARING WHEN THE STIPULATED PENALTIES ARE BASED ON EXCESS VOCs AND SO_2 EMITTED

I. Stipulated Penalties for Violating the 30-Day Rolling Average Limit. The following equation shall be used to calculate the amount of stipulated penalties due for violating the 30-day rolling average limit on flaring:

$$\text{Penalty due} = \sum_{i=1}^{n} [\$\$_{30d,VOC} \times EE_{30d,VOC}] + [\$\$_{30d,SO2} \times EE_{30d,SO2}] \quad \textbf{(Eq. 1)}$$

Where:

n	=	Each day the 30-day rolling average limit is exceeded
$\$\$_{30d,VOC}$	=	Dollars per ton of VOC for violating the 30-day limit ($200/ton in an ozone attainment area; $300/ton in an ozone nonattainment area)
$EE_{30d,VOC}$	=	30-day average VOC emissions above the flow limit on day limit is violated; *see* Equation 3.a
$\$\$_{30d,SO2}$	=	Dollars per ton of SO_2 for violating 30-day limit ($100/ton)
$EE_{30d,SO2}$	=	30-day average SO_2 emissions above the flow limit on day limit is violated; *see* Equation 4.a

II. Stipulated Penalties for Violating the 365-day Rolling Average Limit. The following equation shall be used to calculate the amount of stipulated penalties due for violating the 365-day rolling average limit on flaring:

$$\text{Penalty due} = \sum_{i=1}^{n} [\$\$_{365d,VOC} \times EE_{365d,VOC}] + [\$\$_{365d,SO2} \times EE_{365d,SO2}] \quad \textbf{(Eq. 2)}$$

Where:

n	=	Each day the 365-day rolling average limit is exceeded
$\$\$_{365d,VOC}$	=	Dollars per ton of VOC for violating 365-day limit ($20/ton in an ozone attainment area; $30/ton in an ozone nonattainment area)
$EE_{365d,VOC}$	=	365-day average VOC emissions above the flow limit on day limit is violated; *see* Equation 3.b
$\$\$_{365d,SO2}$	=	Dollars per ton of SO_2 for violating 30 day cap ($10/ton)
$EE_{365d,SO2}$	=	365-day average SO_2 emissions above the flow limit on day limit is violated; *see* Equation 4.b

APPENDIX 1.13

III. Calculating Average Emissions of VOCs Above the Flow Limit When Violating the 30-Day and 365-Day Rolling Average Limit

A. Violating the 30-day rolling average limit. The following equation shall be used to calculate the 30-day average VOC emissions above the flow limit for the day that the 30-day rolling average limit is violated:

$$EE_{30d,VOC} = [Q_{30d,actual} - Q_{30d,allowable}][VOC_{30d,vol\ fraction}]\ [.0026]\ [MW_{30d,VOC}]\ [.0005][1 - CE_{30d,as\ fraction}] \quad \textbf{(Eq. 3.a)}$$

Where:

$EE_{30d,VOC}$	=	30-day average VOC emissions above the flow limit on the day that the 30-day rolling average limit is violated, in tons per day
$Q_{30d,actual}$	=	Actual 30-day rolling average Waste Gas Flow Rate on the day that the 30-day rolling average limit is violated, in scfd
$Q_{30d,allowable}$	=	Allowable 30-day rolling average Waste Gas Flow Rate taken from the Consent Decree, in scfd
$VOC_{30d,vol\ fraction}$	=	30-day flow weighted rolling average VOC volume fraction in the Waste Gas on the day that the 30-day rolling average limit is violated. [NOTE: This is the VOC fraction in the Waste Gas, not the Vent Gas.] The daily flow weighted average VOC volume fraction shall be determined from an average of the hourly average VOC concentration weighted by waste gas flow. The 30-day flow weighted rolling average VOC volume fraction shall be determined from daily flow weighted CE and daily flow of waste gas.
.0026	=	1 lb-mole VOC/385.5 scf
$MW_{30d,VOC}$	=	30-day flow weighted rolling average Molecular Weight of VOCs on the day that the 30-day rolling average limit is violated, in lb/lb-mole. The daily flow weighted average molecular weight (MW) shall be determined from an average of the hourly average MW weighted by waste gas flow. The 30-day flow weighted rolling average MW shall be determined from daily flow weighted MW and daily flow of waste gas.
.0005	=	1 ton/2000 lb

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$CE_{30d,as\ fraction}$ = 30-day rolling average Combustion Efficiency ("CE") determined from the NHV_{cz} of the Combustion Zone Gas as follows:

NHV_{cz} (BTU/scf)	$CE_{as\ fraction}$
$NHV_{cz} < 96$	0.0
$96 <= NHV_{cz} < 300$	$[0.12*(-95+ NHV_{cz})]/[1+0.12*(-95+ NHV_{cz})]$
$300 <= NHV_{cz} < 350$	0.98
$350 <= NHV_{cz} < 425$	0.985
$425 <= NHV_{cz} < 500$	0.9875
$500 <= NHV_{cz} < 600$	0.99
$600 <= NHV_{cz}$	0.995

Combustion Efficiency shall be determined hourly from the hourly average NHV_{cz} using the table above. The daily flow weighted average CE shall be determined from an average of the hourly average CE values weighted by waste gas flow. The 30-day flow weighted rolling average CE shall be determined from daily flow weighted CE and daily flow of waste gas.

B. **Violating the 365-day rolling average limit**. To calculate the 365-day average VOC emissions above the flow limit for the day that the 365-day rolling average limit is violated:

Substitute "365" everywhere "30" appears in Equation 3.a **(Eq. 3.b)**

[Appendix continued on next page]

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IV. Calculating the Average Emissions of SO_2 Above the Flow Limit when Violating the 30-Day and 365-Day Rolling Average Limit

A. Violating the 30-day rolling average limit. The following equation shall be used to calculate the 30-day average SO_2 emissions above the flow limit for the day that the 30-day rolling average limit is violated:

$$EE_{30d,SO2} = [Q_{30d,actual} - Q_{30d,allowable}] [C_{30d,H2S}/1,000,000] [8.30 \times 10^{-5}] \quad \textbf{(Eq. 4.a)}$$

Where:

$EE_{30d,SO2}$	=	30-day average SO_2 emissions above the flow limit on the day that the 30-day rolling average limit is violated, in tons per day
$Q_{30d,actual}$	=	Actual 30-day rolling average Waste Gas Flow Rate on the day that the 30-day rolling average limit is violated, in scfd
$Q_{30d,allowable}$	=	Allowable 30-day rolling average Waste Gas Flow Rate taken from the Consent Decree, in scfd
$C_{30d,H2S}$	=	30-day rolling average concentration of H_2S in Waste Gas on the day that the that the 30-day rolling average limit is violated, in ppmv
8.30×10^{-5}	=	[1 lb-mole H_2S/385.5 scf] [64 lb SO_2/lb-mole H_2S] [Ton/2000 lb]

B. Violating the 365-day rolling average limit. To calculate the 365-day average emissions of SO_2 above the flow limit for the day the 365-day rolling average limit is violated:

Substitute "365" everywhere "30" appears in Equation 4.a **(Eq. 4.b)**

[End of Appendix]

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APPENDIX 1.14

DETERMINING REFINERY-SPECIFIC AND INDUSTRY-AVERAGE COMPLEXITY THROUGH USE OF THE NELSON COMPLEXITY INDEX

REFINERY COMPLEXITY. The complexity of the Refinery is to be calculated using the following formula:

Equation 1

$$Complexity = \sum_{n=1}^{i}\left(\frac{NCI_i \times CAP_i}{CAP_{Dist}}\right)$$

Where:

NCI_i	=	The 2011 Nelson Complexity Index Coefficient shown in Table 1 below for Process Unit i
CAP_i	=	The throughput capacity for Process Unit i, in barrels per calendar day, which shall be determined as follows: (a) for a Process Unit that is not new or modified, the capacity, in barrels per calendar day, that the Refinery reported for Process i on Part 6* of the most recent Form EIA-820 that the Refinery filed with the Energy Information Agency ("EIA") prior to requesting the increase; if the Refinery did not report the capacity of Process i in "barrels per calendar day," but instead reported it in "barrels per stream day," then "barrels per stream day" will be converted to "barrels per calendar day" by multiplying "barrels per stream day" by the following factors: 0.95 for a vacuum distillation unit and 0.9 for all other units; or (b) for a Process Unit that is new or modified, where the new or modified capacity was not reported in the most recent Form EIA-820, the new or modified unit capacity that is set forth in the air permit application(s) for the post-Lodging modification.
CAP_{DIST}	=	The Refinery's Atmospheric Crude Oil Distillation Capacity, in barrels per calendar day, which shall be determined as follows: (a) if the post-Lodging modification does not affect the crude capacity, the Atmospheric Crude Oil Distillation Capacity, in barrels per calendar day, that the Refinery reported under "Total Operable" capacity on Part 5, Code 401* of the most recent Form EIA-820 that the Refinery filed prior to requesting the increase; or (b) if the post-Lodging modification does affect crude capacity, the projected, new capacity set forth in the air permit application(s) for the post-Lodging modification

* The references to particular "Parts" or "Codes" of Form EIA-820 are to the Parts and Codes as they exist for the Form EIA-820 that was used for Reporting Year 2013. To the extent that the "Parts" or "Codes" on Form EIA-820 are changed in the future, the intent of the Parties is that the "Parts" and "Codes" of future forms that correspond most closely to those found on the Form EIA-820 for Reporting Year 2013 will be used. The Form EIA-820 that was used in computing the flaring limitations for the Refinery that is the subject of this Consent Decree is an Appendix to this Consent Decree. The identification number of that Appendix can be found in Table 2 of the Table of Appendices of this Consent Decree.

APPENDIX 1.14

INDUSTRY AVERAGE COMPLEXITY: The Industry Average Complexity is to be calculated using the following formula:

Equation 2

$$Industry\_Average\_Complexity = \sum_{n=1}^{i}\left(\frac{NCI_i \times ICAP_i}{ICAP_{Dist}}\right)$$

Where:

NCI_i	=	The 2011 Nelson Complexity Index Coefficient shown in Table 1 below for Process Unit i
$ICAP_i$	=	Total US throughput capacity, in barrels per calendar day, for Process Unit i which shall be determined as follows: (a) from the most recent annual release by the EIA of the "Number and Capacity of Petroleum Refineries" that is found, as of November of 2012, at http://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_nus_a.htm and is updated on approximately June 21 of each year, the total US capacity of Process Unit i in barrels per calendar day. For the total US capacity of those process units that the EIA lists only in "barrels per stream day" and not in "barrels per calendar day," the "barrels per stream day" shall be converted to "barrels per calendar day" by multiplying "barrels per stream day" by the following factors: 0.95 for a vacuum distillation unit and 0.9 for all other units.** (b) if and only if the most recent annual release of the "Number and Capacity of Petroleum Refineries" by the EIA does not list a process unit that the Refinery operates, then the total US throughput capacity for that process unit listed in the most recent Oil & Gas Journal annual survey.
$ICAP_{DIST}$	=	From the most recent release by the EIA of the "Number and Capacity of Petroleum Refineries" that is found as, of November of 2012, at http://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_nus_a.htm and is updated on approximately June 21 of each year, the total "Operable" US Atmospheric Crude Oil Distillation Capacity, in barrels per calendar day.**

** A printout of the relevant webpage for the information that the EIA released on June 22, 2012, is attached at the end of this Appendix. Using that webpage, by way of example for a catalytic reforming unit, the total US capacity of catalytic reforming for 2012 is 3,246,874 barrels per calendar day. No conversion would be necessary because the capacity is listed in "barrels per calendar day." By contrast, for a vacuum distillation unit, the total US capacity for 2012 is 8,679,643 barrels per stream day. This figure would be converted to 8,245,660 barrels per calendar day (8,679,643 x .95). Finally, determining $ICAP_{DIST}$ is straightforward: from the EIA information attached at the end of this Appendix, the total $ICAP_{DIST}$ is 17,322,178 barrels per calendar day.

APPENDIX 1.14

Table 1: 2011 Nelson Complexity Index Coefficients

Refining Process	NCI Coefficients
Distillation Capacity	1.00
Vacuum Distillation	1.30
Thermal Processes	2.75
Coking	7.50
Catalytic Cracking	6.00
Catalytic Reforming	5.00
Catalytic Hydrocracking	8.00
Catalytic Hydrorefining	2.50
Catalytic Hydrotreating	2.50
Alkylation	10.00
Polemerization	10.00
Aromatics	20.00
Isomerization	3.00
Lubes	60.00
Asphalt	1.50
Hydrogen (MCFD)	1.00
Oxygenates	10.00
Sulfur Extraction	240.00

APPENDIX 1.14

U.S. Energy Information Administration

PETROLEUM & OTHER LIQUIDS

Number and Capacity of Petroleum Refineries

Area: U.S. **Period:** Annual (as of January 1)

Show Data By: Data Series / Area	Graph Clear	2007	2008	2009	2010	2011	2012	View History
Number of Operable Refineries								
Total Number of Operable Refineries		149	150	150	148	148	144	1982-2012
Operating		145	146	141	137	137	134	1982-2012
Idle		4	4	9	11	11	10	1982-2012
Atmospheric Crude Oil Distillation Capacity								
Operable (Barrels per Calendar Day)		17,443,492	17,593,847	17,671,550	17,583,790	17,736,370	17,322,178	1982-2012
Operating		16,997,792	17,225,797	17,313,550	16,850,194	16,937,024	16,744,291	1982-2012
Idle		445,700	368,050	358,000	733,596	799,346	577,887	1982-2012
Operable (Barrels per Stream Day)		18,425,322	18,558,022	18,681,308	18,581,089	18,953,189	18,560,350	1982-2012
Operating		17,928,522	18,174,072	18,300,358	17,808,082	18,109,882	17,945,443	1982-2012
Idle		496,800	383,950	380,950	773,007	843,307	614,907	1982-2012
Downstream Charge Capacity (Barrels per Stream Day)								
Vacuum Distillation		8,251,451	8,420,501	8,542,281	8,542,643	8,650,243	8,679,643	1982-2012
Thermal Cracking		2,564,080	2,606,260	2,639,090	2,631,676	2,672,376	2,763,356	1982-2012
Total Coking		2,537,480	2,579,660	2,612,490	2,605,076	2,645,776	2,736,756	1987-2012
Delayed Coking		2,331,580	2,374,260	2,454,590	2,500,676	2,486,876	2,577,856	1987-2012
Fluid Coking		205,900	205,400	157,900	104,400	158,900	158,900	1987-2012
Visbreaking		16,000	16,000	16,000	16,000	16,000	16,000	1987-2012
Other (Including Gas Oil)		10,600	10,600	10,600	10,600	10,600	10,600	1987-2012
Catalytic Cracking - Fresh Feed		6,218,957	6,265,697	6,291,871	6,140,121	6,219,721	6,032,512	1982-2012
Catalytic Cracking - Recycle Feed		82,040	78,740	78,740	91,840	95,640	84,890	1982-2012
Catalytic Hydro-Cracking		1,790,682	1,770,325	1,743,300	1,819,700	1,855,600	1,879,600	1982-2012
Distillate		602,800	556,900	593,100	595,200	540,100	596,500	2004-2012
Gas Oil		987,482	1,004,425	1,010,200	1,079,500	1,170,500	1,161,100	2004-2012
Residual		200,400	209,000	140,000	145,000	145,000	122,000	2004-2012
Catalytic Reforming		3,907,510	3,891,938	3,829,338	3,700,463	3,720,613	3,641,813	1982-2012
Low Pressure		2,354,950	2,402,350	2,397,750	2,322,700	2,390,950	2,347,850	1987-2012
High Pressure		1,552,560	1,489,588	1,431,588	1,377,763	1,329,663	1,293,963	1987-2012
Catalytic Hydrotreating/Desulfurization		15,447,136	15,807,478	16,130,823	16,023,206	16,682,897	16,565,262	1982-2012
Naphtha/Reformer Feed		4,453,890	4,348,590	4,334,297	4,281,046	4,441,323	4,360,593	1987-2012
Gasoline		2,221,568	2,420,968	2,415,282	2,394,882	2,578,782	2,519,082	2004-2012
Heavy Gas Oil		2,578,840	2,672,440	2,735,538	2,796,798	2,809,298	2,877,138	1987-2012
Distillate Fuel Oil		5,212,387	5,462,649	5,622,252	5,676,032	6,113,846	6,063,001	1987-2012
Kerosene/Jet Fuel		1,009,450	1,137,010	1,160,110	1,339,150	1,484,850	1,489,750	2004-2012
Diesel Fuel		3,332,671	3,468,471	3,551,211	3,647,211	3,917,611	3,981,411	2004-2012

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Other Distillate	870,266	857,168	910,931	689,671	711,385	591,840	2004-2012
Residual Fuel Oil/Other	980,451	902,831	1,023,454	874,448	739,648	745,448	1987-2012
Residual Fuel Oil	331,420	251,200	316,400	246,200	241,000	246,000	2004-2012
Other	649,031	651,631	707,054	628,248	498,648	499,448	2004-2012
Fuels Solvent Deasphalting	379,290	378,350	380,950	383,250	382,750	374,550	1987-2012
Downstream Charge Capacity (Barrels per Calendar Day)							
Catalytic Reforming				3,378,841	3,346,457	3,246,874	2010-2012
Total Coking	2,359,318	2,390,223	2,428,961	2,387,896	2,396,787	2,499,293	1987-2012
Catalytic Cracking - Fresh Feed	5,830,486	5,853,656	5,847,130	5,675,830	5,794,214	5,611,191	1987-2012
Catalytic Hydro-Cracking	1,620,705	1,602,431	1,592,973	1,663,115	1,687,745	1,706,540	1987-2012

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Notes: Idle refineries represent refineries where distillation units were completely idle but not permanently shutdown as of January 1 of the year. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 6/22/2012
Next Release Date: 6/21/2013

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APPENDIX 1.15

APPENDIX 1.15

Calculating Sulfur Dioxide Emissions From Reportable Flaring Incidents

1. Calculating the Quantity of Sulfur Dioxide Emissions from Acid Gas and Hydrocarbon Flaring Incidents

a. The quantity of SO_2 emissions resulting from an AG and HC Flaring Incidents shall be calculated by the following equation:

Tons of SO_2 = [FR][TD][ConcH_2S][8.44 x 10-5] *(Equation 1)*

b. The meaning of the variables is set forth in Paragraph 3.

c. The quantity of SO_2 emitted shall be rounded to one decimal point. (Thus, for example, for a calculation that results in a number equal to 10.050 tons, the quantity of SO_2 emitted shall be rounded to 10.1 tons.)

d. For purposes of determining the occurrence of, or the total quantity of SO_2 emissions resulting from, an Acid Gas or Hydrocarbon Flaring Incident that is comprised of intermittent Flaring, the quantity of SO_2 emitted shall be equal to the sum of the quantities of SO_2 emitted during each 24-hour period starting when the gas was first flared.

2. Calculating the Rate of Sulfur Dioxide Emissions During Acid Gas or Hydrocarbon Flaring.

a. The rate of SO_2 emissions resulting from an Acid Gas or HC Flaring Incident shall be expressed in terms of pounds per hour and shall be calculated by the following formula:

ER = [FR][ConcH_2S][0.169] *(Equation 2)*

b. The meaning of the variables is set forth in Paragraph 3.

c. The emission rate shall be rounded to one decimal point. (Thus, for example, for a calculation that results in an emission rate of 19.95 pounds of SO2 per hour, the emission rate shall be rounded to 20.0 pounds of SO2 per hour; for a calculation that results in an emission rate of 20.05 pounds of SO2 per hour, the emission rate shall be rounded to 20.1.)

[Appendix 1.15 is continued on next page]

APPENDIX 1.15

3. Meaning of Variables and Derivation of Multipliers Used in the Equations 1 and 2:

ER	=	Emission Rate in pounds of SO_2 per hour
FR	=	Average Flow Rate during the Flaring Incident in standard cubic feet per hour
TD	=	Total Duration of Flaring Incident in hours
ConcH_2S	=	Average Concentration of Hydrogen Sulfide in gas during Flaring Incident (or immediately prior to Flaring Incident if all gas is being flared) expressed as a volume fraction (scf H_2S/scf gas)
8.44 x 10-5	=	[lb mole H_2S/379 scf H_2S][64 lb SO_2/lb mole H_2S][Ton/2000 lb]
0.169	=	[lb mole H_2S/379 scf H_2S][1.0 lb mole SO_2/lb mole H_2S] [64 lb SO_2/1.0 lb mole SO_2]

The flow of gas to the Flaring Device(s) ("FR") shall be as measured by the relevant flow meter or reliable flow estimation parameters. Hydrogen sulfide concentration ("ConcH_2S") shall be determined from the Sulfur Recovery Plant feed gas analyzer, from knowledge of the sulfur content of the process gas being flared, by direct measurement by tutwiler or draeger tube analysis, or by any other method approved by EPA or IDEM. In the event that any of these data points is unavailable or inaccurate, the missing data point(s) shall be estimated according to best engineering judgment. The internal report required to be prepared under Paragraph B44 shall include the data used in the calculation and an explanation of the basis for any estimates of missing data points.

4. Calculating the Quantity of Sulfur Dioxide Emissions from Tail Gas Incidents – Trigger 1. For Tail Gas Incidents – Trigger 1, where, by definition, the Tail Gas is combusted in a flare, the quantity of SO2 emissions is calculated using Equation 1.

[Appendix 1.15 is continued on next page]

APPENDIX 1.15

5. Calculating the Quantity of Sulfur Dioxide Emissions From Tail Gas Incidents – Trigger 2. For Tail Gas Incidents – Trigger 2, where, by definition the Tail Gas is combusted in a thermal incinerator, the quantity of SO2 emissions is calculated using the following equation [NOTE: this Equation is for use with small SRPs that, pursuant to Subpart Ja are subject to a 2500 ppm limit, not a 250 ppm limit]:

$$ER_{TGI} = TD_{TGI} \ddot{y} [FR_{Inc.}]_i [\text{Conc. } SO_2 - 2500]_i [0.169 \times 10^{-6}]_i [(20.9 - \%\ O_2)/20.9]_i \quad i = 1$$

(Equation 3)

Where:

ER_{TGI} = Emissions from Tail Gas at the incinerator, SO_2 lb per 24-hour period

TD_{TGI} = Total Duration (number of hours) when the incinerator CEMS exceeded 2500 ppmvd SO_2 corrected to 0% O_2 on a rolling twelve hour average, in each 24 hour period of the Incident

i = Each hourly average

$FR_{Inc.}$ = Incinerator Exhaust Gas Flow Rate (standard cubic feet per hour, dry basis) (actual stack monitor data or engineering estimate based on the acid gas feed rate to the SRP) for each hour of the Incident

Conc. SO_2 = Each actual 12 hour rolling average SO_2 concentration (CEMS data) that is greater than 2500 ppm in the incinerator exhaust gas, ppmvd corrected to 0% O_2, for each hour of the Incident.

% O_2 = O_2 concentration (CEMS data) in the incinerator exhaust gas in volume % on dry basis for each hour of the Incident

0.169×10^{-6} = [lb mole of SO_2 / 379 SO_2] [64 lbs SO_2 / lb mole SO_2] [1 x 10^{-6}]

Standard conditions = 68 degree F; 14.7 lb_{force}/sq.in. absolute

In the event the concentration SO_2 data point is inaccurate or not available or a flow meter for FR_{Inc} does not exist or is inoperable, then estimates based on best engineering judgment shall be used.

[End of Appendix 1.15]

APPENDIX 2.1

APPENDIX 2.1

U.S. Energy Information Administration

OMB No. 1905-0165
Expiration Date: 01/31/2013
Version No.:2010.02

FORM EIA-820
ANNUAL REFINERY REPORT
REPORT YEAR 2013

This report is **mandatory** under the Federal Energy Administration Act of 1974 (Public Law 93-275). Failure to comply may result in criminal fines, civil penalties and other sanctions as provided by law. For further information concerning sanctions and data protections see the provision on sanctions and the provision concerning the confidentiality of information in the instructions. **Title 18 USC 1001 makes it a criminal offense for any person knowingly and willingly makes to any Agency or Department of the United States any false, fictitious, or fraudulent statements as to any matter within its jurisdiction.**

PART 1. RESPONDENT IDENTIFICATION DATA

EIA ID NUMBER: 1176030101

If any Respondent Identification Data has changed since the last report, enter an "X" in the box: ☐

Company Name: Countrymark Refining and Logistics, LLC
Doing Business As:
Site Name:
Terminal Control Number (TCN):

Physical Address (e.g., Street Address, Building Number, Floor, Suite):
1200 Refinery Road
City Mt. Vernon State: IN Zip: 47620 -

Mailing Address of Contact (e.g., PO Box, RR): If the physical and mailing addresses are the same, only complete the physical address.

City State: Zip: -

Contact Name: Sam Nicotra
Phone No.: (812) 838-8123 Ext:
Fax No.: (812) 838-8186
Email address: sam.nicotra@countrymark.com

PART 2. SUBMISSION/RESUBMISSION INFORMATION

If this is a resubmission, enter an "X" in the box: ☐

A completed form must be received by February 15th of the designated report year.

Forms may be submitted using one of the following methods:

Email: OOG.SURVEYS@eia.gov

Fax: (202) 586-1076

Secure File Transfer:
https://signon.eia.doe.gov/upload/noticeoog.jsp

Questions? Call: 202-586-6281

Comments: Explain any unusual or substantially different aspects of your current year's operations that affect the data reported. For example, note new processing units, major modifications or retirement of processing units, sale of refinery, etc. (To separate one comment from another, press ALT+ENTER)

APPENDIX 2.1

eia Independent Statistics & Analysis
U.S. Energy Information Administration

OMB No. 1905-0165
Expiration Date: 01/31/2013
Version No.:2010.02

FORM EIA-820
ANNUAL REFINERY REPORT
REPORT YEAR 2013

EIA ID NUMBER: 1176030101 **RESUBMISSION:**

PART 3. FUEL, ELECTRICITY, AND STEAM PURCHASED & CONSUMED AT THE REFINERY DURING 2012

REDACTED

PART 5. ATMOSPHERIC CRUDE OIL DISTILLATION CAPACITY AS OF JANUARY 1

Atmospheric Crude Oil Distillation Capacity	Code	Barrel per Calendar Day[2]	Barrels per Stream Day
2013: Operating	399	27100	28200
Idle	400		
Total Operable	401	27100	28200
2014: Operable	501		28200

[2] Barrels per Calendar Day Operating, Idle and Total Operable Capacity (Codes 399, 400 and 401) **must match** the comparable capacity numbers reported on the Form EIA-810, "Monthly Refinery Report," filed for January 2013.

APPENDIX 2.1

Independent Statistics & Analysis
U.S. Energy Information Administration

OMB No. 1905-0165
Expiration Date: 01/31/2013
Version No.:2010.02

FORM EIA-820
ANNUAL REFINERY REPORT
REPORT YEAR 2013

EIA ID NUMBER: 1176030101 **RESUBMISSION:**

PART 6. DOWNSTREAM CHARGE CAPACITY AS OF JANUARY 1

Downstream Charge Capacity	Code	2013 Barrels per Calendar Day	2013 Barrels per Stream Day	2014 Barrels per Stream Day
Vacuum Distillation	402		14000	14000
Thermal Cracking:				
Visbreaking	403			
Fluid Coking (incl. Flexicoking)	404			
Delayed Coking	405			
Other (incl. Gas Oil)	406			
Catalytic Cracking:				
Fresh Feed	407	7500	7900	7900
Recycled	408		400	400
Catalytic Hydrocracking:				
Distillate	439			
Gas Oil	440			
Residual	441			
Desulfurization (including Catalytic Hydrotreating):				
Naphtha/Reformer Feed	426		10400	10400
Gasoline	420		5417	5417
Kerosene and Jet	421			
Diesel Fuel	422		12700	12700
Other Distillate	423			
Residual	424			
Heavy Gas Oil	413			
Other	425			
Catalytic Reforming:				
Low Pressure	430	5800	6500	6500
High Pressure	431			
Fuels Solvent Deasphalting	432			

PART 7. PRODUCTION CAPACITY AS OF JANUARY 1 (Barrels per Stream Day, Except Where Noted)

Production Capacity	Code	2013 Barrels per Stream Day	2014 Barrels per Stream Day
Alkylates	415	2200	2200
Aromatics	437		
Asphalt and Road Oil	931	3700	3700
Isobutane (C4)	644		
Isopentane (C5), Isohexane (C6)	438	3200	3200
Isooctane (C8)	635		
Lubricants	854		
Petroleum Coke - Marketable	021		
Hydrogen (million cubic ft. per day)	091		
Sulfur (short tons per day)	435	8	8

United States et al. v. Countrymark Refining and Logistics, LLC
(S.D. Ind.)

APPENDIX C

APPENDIX C

United States Supplemental Environmental Project

1. Countrymark shall implement a supplemental environmental project ("SEP") in accordance with the criteria, terms and procedures specified in this Appendix C and in Section VII (Supplemental Environmental Projects).

2. Countrymark may carry out its SEP responsibilities under the United States SEP directly or through contractors selected by Countrymark. Countrymark shall ensure that all contractor costs related to the SEP are reasonable and necessary for completion of the SEP.

3. Countrymark shall spend no less than Seventy Thousand Dollars ($70,000) to implement this SEP, which is to reduce diesel emissions from school buses and non-school bus publicly-owned vehicles in the area of Countrymark's refinery in Mt. Vernon, Indiana ("the Refinery").

4. All SEP funds shall be spent on the purchase and installation of United States Environmental Protection Agency ("EPA") and/or California Air Resources Board/CARB verified retrofit and idle reduction technologies. SEP funds creditable toward meeting the minimum $70,000 expenditure shall cover only the hardware and installation cost of retrofit and idle reduction technologies.

5. All SEP funds shall be spent for technologies to be installed on school buses or publicly owned vehicles located within 50 miles of the Refinery and, limited to, and in the order of, the following priorities:

(1) School buses in Posey County
(2) Non-school bus publicly owned vehicles in Posey County
(3) School buses in adjacent counties (Vanderburgh and Gibson Counties)
(4) Non-school bus publicly owned vehicles in adjacent counties (Vanderburgh and Gibson Counties)
(5) School buses in next ring of adjacent counties (Warrick, Knox, Pike, etc., Counties)
(6) Non-school bus publicly owned vehicles in next ring of adjacent counties (Warrick, Knox, Pike, etc., Counties)

6. Implementation of this SEP project shall be completed within eighteen (18) months after the Date of Lodging of this Consent Decree.

7. Countrymark shall seek to coordinate the selection of projects and the funding of projects with the Indiana Department of Environmental Management where possible, but Countrymark retains responsibility for performance of the SEP.

[End of Document.]