

United States v. Marathon Petroleum Company, LP, et al.
Case No. 1:12-cv-11544 (E.D. Mich.)

FIRST AMENDMENT TO CONSENT DECREE

Redline/Strikeout of First Amendment
(showing changes from original Consent Decree)

followed by

Clean Copy of First Amendment
(accepting the changes shown in the redline/strikeout)

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

_____)	
UNITED STATES OF AMERICA,)	
)	
Plaintiff,)	
)	
v.)	No. 2:12-cv-11544-DML-MJH
)	
MARATHON PETROLEUM COMPANY LP, and)	
CATLETTSBURG REFINING, LLC,)	
)	
Defendants.)	
_____)	

FIRST AMENDMENT TO CONSENT DECREE

WHEREAS, on April 5, 2012, Plaintiff, the United States of America (“United States”), on behalf of the Environmental Protection Agency (“EPA”), filed a complaint in this action against, and concurrently lodged a Consent Decree with, Marathon Petroleum Company LP and Catlettsburg Refining, LLC (collectively “MPC”) for alleged Clean Air Act (“CAA”) violations at six MPC refineries located in Canton, Ohio; Catlettsburg, Kentucky; Detroit, Michigan; Garyville, Louisiana; Robinson, Illinois; and Texas City, Texas (“Covered Refineries”);

WHEREAS, on August 30, 2012, this Court entered the Consent Decree, which fully resolved the claims in the Complaint;

WHEREAS, during Consent Decree negotiations and after Consent Decree entry, MPC installed and operated state-of-the-art pollution controls on twenty-two combustion devices known as flares (“Covered Flares”) for the purpose of ensuring that volatile organic compounds

(“VOCs”), including hazardous air pollutants (“HAPs”), in waste gases sent to flares were combusted with a high efficiency;

WHEREAS, pursuant to the Consent Decree, MPC also implemented measures to minimize flaring by reducing or eliminating the generation of waste gases at their source;

WHEREAS, as a result of the injunctive relief in the Consent Decree, EPA estimates that emissions from the Covered Flares have been reduced as follows: VOCs, including HAPs, by 4,936 tons per year (“TPY”) and sulfur dioxide (“SO₂”) by 270 TPY;

WHEREAS, in part as a result of knowledge and data arising out of the negotiation and implementation of the flare efficiency requirements of the Consent Decree, EPA recently finalized a new, industry-wide rule for flare controls as part of EPA’s Petroleum Refinery Sector Risk and Technology Review Rule or “RTR Rule.” 40 C.F.R. §§ 63.670–671, 80 Fed. Reg. 75,177, 75,258–268 (Dec. 1, 2015);

WHEREAS MPC will be required to comply with the RTR Rule on and after January 30, 2019, at the Covered Flares by virtue of the requirements of the RTR Rule;

WHEREAS, pursuant to this First Amendment, on and after January 30, 2019, MPC’s original obligations to comply with certain of the flare efficiency requirements of the Consent Decree will be replaced by obligations to comply with the RTR Rule;

WHEREAS, on May 14, 2007, EPA proposed an amendment to the New Source Performance Standards (“NSPS”) for Petroleum Refineries, found at Subpart J of 40 C.F.R. Part 60. 72 Fed. Reg. 27,178 (May 14, 2007);

WHEREAS the proposed NSPS amendment was termed “Subpart Ja”;

WHEREAS, on September 26, 2008, EPA issued a stay of certain Subpart Ja provisions, including those related to flares, 73 Fed. Reg. 55751 (Sept. 26, 2008), and those provisions had not yet been finalized at the time of the negotiation, lodging, and entry of the Consent Decree;

WHEREAS, in expectation of EPA's eventual finalization of the Subpart Ja provisions related to flares, the Consent Decree at Appendix 2.1 requires MPC to comply with Subpart Ja flare provisions by the deadlines set forth therein;

WHEREAS, pursuant to this First Amendment and in order to achieve compliance with a hydrogen sulfide ("H₂S") limit in Subpart Ja, MPC will install and operate seven state-of-the-art liquid ring flare gas recovery systems ("FGRSs") at five of the Covered Refineries;

WHEREAS EPA estimates that the installation of these seven FGRSs will result in VOC emission reductions of 469 TPY, SO₂ emissions reductions of 258 TPY, and nitrogen oxide ("NO_x") emissions reductions of 169 TPY;

WHEREAS MPC estimates that the installation of the seven FGRSs will cost approximately \$319 million;

WHEREAS the FGRSs cannot be fully installed and operational until all or the part of the Covered Refinery that utilizes the associated flare(s) is shut down for a "Turnaround," which is a planned period of maintenance, inspection, and system upgrades or overhauls;

WHEREAS Turnarounds at the refineries occur infrequently (once every three to six years) in order to minimize disruption to ongoing operations and are scheduled years in advance because of the need for extensive planning and careful coordination of labor and materials;

WHEREAS MPC has requested an extension of the Consent Decree's Subpart Ja compliance deadlines for certain Covered Flares at four of the Covered Refineries—Canton, Ohio; Detroit, Michigan; Garyville, Louisiana; and Robinson, Illinois—because the Turnarounds

related to those Covered Flares do not correspond to the dates in Appendix 2.1 of the Consent Decree;

WHEREAS EPA estimates that these Subpart Ja compliance extensions will result in *one time* (not continuous “tons per year”) additional SO₂ emissions as follows: Canton, 24.3 tons; Detroit, 3.4 tons; Garyville, 6 tons; and Robinson, 19.1 tons;

WHEREAS, pursuant to this First Amendment, MPC will undertake the following mitigation measures that EPA estimates will result in ongoing emission reductions of SO₂, VOCs, and NO_x that, in the first year alone, will more than offset the projected, one-time SO₂ emissions increases:

- operate and maintain the seven FGRSs with “uptime” requirements that are longer than any uptime requirements EPA previously had secured in other settlements
- install and operate ultra-low NO_x burners on a vacuum heater (4-4-B-1) at the crude unit at the Canton Refinery at a cost of \$6.3 million
- continue to operate ultra-low NO_x burners on the Garyville Refinery’s Heavy Gas Oil Reactor Heater No. 15-1401 that were installed during First Amendment negotiations at a cost of \$3.25 million
- permanently shut down the CP Flare at the Detroit Refinery at a cost of \$6 million;

WHEREAS two copies of this First Amendment to the Consent Decree are being filed with the Court: a redline/strikeout copy and a clean copy. The redline/strikeout copy shows the additions to and deletions from the affected provisions of the Consent Decree: all items in black print are from the Consent Decree; all items in red print, without strikethrough, are additions to the Consent Decree through this First Amendment; all items in red, with strikethrough, are deletions from the Consent Decree. The clean copy “accepts” all of the changes shown on the redline/strikeout copy;

WHEREAS the Parties recognize, and the Court by entering this First Amendment finds, that this First Amendment has been negotiated at arm’s length and in good faith and that this First Amendment is fair, reasonable, and in the public interest;

NOW THEREFORE, before the taking of any testimony, without adjudication of any issue of fact or law, and upon the consent and agreement of the Parties, it is hereby ORDERED, ADJUDGED, and DECREED as follows:

AMENDED AND RESTATED SECTIONS

II. APPLICABILITY

4A. This copy of the First Amendment is the redline/strikeout copy.

4B. The Consent Decree shall remain in full force and effect in accordance with its terms, except that the following Paragraphs and Appendices of the Consent Decree are revised and the following Paragraphs and Appendices are added:

TABLE 1

Revised Paragraphs/Appendices	New Paragraphs/Appendix
12.dd, 18, 27, 32, 38, 39, 40, 44, 46, 47, 59, 61, 69, 70, App. 2.1	4A, 4B, 12.e.(1), 12.(e)(2), 12.i.(1), 12.r.(1), 12.x.(1), 12.x.(2), 12.x.(3), 12.cc.(1), 12.dd.(1), 12.ff.(1), 12.ii.(1), 12.jj.(1), 12.vv.(1), 12.ddd.(1), 2.fff.(1), 12.sss.(1), 15A, 29A, 38A, 38B, 38C, 38D, 38E, 39A, 57A, 59A, 59B, 70A, 77.t–77.bb, 135A

III. DEFINITIONS

12.e.(1). “Available for Operation” shall mean, with respect to a Compressor within a Flare Gas Recovery System, that the Compressor is capable of commencing the recovery of

Potentially Recoverable Gas as soon as practicable but not more than one hour after the Need for the Compressor to Operate arises. The period of time, not to exceed one hour, allowed by this definition for the startup of a Compressor shall be included in the amount of the time that a compressor is Available for Operation.

12.e.(2). “Barrels per day” or “bpd” shall mean barrels per calendar day.

12.i.(1). “Capable of Receiving Sweep, Supplemental, and/or Waste Gas” shall mean, for a Flare, that the flow of Sweep, Supplemental, and/or Waste Gas is/are not prevented from being directed to the Flare by means of closed valves and/or blinds.

12.r.(1). “Compressor” shall mean, with respect to a Flare Gas Recovery System, a mechanical device designed and installed to recover gas from a flare header. Types of Flare Gas Recovery System compressors include reciprocating compressors, centrifugal compressors, liquid ring compressors and liquid jet ejectors.

12.x.(1). “Detroit Coker Flare” shall mean the elevated Flare, identified as No. 76ME801, that serves as a Flare for the Coker unit at the Detroit Refinery.

12.x.(2) “Detroit Cracking Plant Flare” or “Detroit CP Flare” shall mean the elevated Flare, identified as No. 25FS-1, located on the fence line of the Detroit Refinery that serves as a Flare for Complexes 3 and 4 which includes the Fluidized Catalytic Cracking Unit, Gas Con Unit, Continuous Catalytic Reformer Unit, Propylene Unit, Treater Naphtha Hydrotreater, and Kerosene Hydrotreater.

12.x.(3). “Detroit Cracking Plant/Coker FGRS” shall mean the Flare Gas Recovery System that shall result, pursuant to Paragraph 38C of this First Amendment, from the consolidation of the Existing Detroit Coker FGRS with the to-be-installed FGRS identified in Table 2 as the “Detroit Cracking Plant” FGRS. The Detroit Cracking Plant/Coker FGRS will recover gas from the Cracking Plant and Coker of the Detroit Refinery.

12.cc.(1) “Existing Detroit Coker FGRS” shall mean the Flare Gas Recovery System that was installed in 2012 in accordance with Permit No. 63-08D, with two 30 kscfh Compressors and a total capacity of 60 kscfh that recovers gas from the Coker unit at the Detroit Refinery.

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

12.dd.(1). “Five Covered Refineries” shall mean the Canton, Catlettsburg, Detroit, Garyville, and Robinson Refineries.

12.ff.(1) “Flare Gas Recovery System” or “FGRS” shall mean a system of one or more compressors, piping, and associated water seal, rupture disk, or similar device used to divert gas from a Flare and direct the gas to a fuel gas system, to a combustion device other than the Flare, or to a product, co product, by product, or raw material recovery system.

12.ii.(1) “In Operation” or “Being In Operation” or “Operating,” with respect to a Flare, shall mean any and all times that Sweep, Supplemental, and/or Waste Gas is or may be vented to a Flare. A Flare that is In Operation is Capable of Receiving Sweep, Supplemental, and/or Waste Gas unless all Sweep, Supplemental, and Waste Gas flow is prevented by means of closed valves and/or blinds.

12.jj.(1) “KSCFH” or “kscfh” shall mean thousand standard cubic feet per hour.

12.vv.(1) “Need for a Compressor to Operate” shall mean:

- i. For a situation in which no Compressor within the FGRS is recovering gas: When a Potentially Recoverable Gas flow rate (determined on a five-minute block average) to the Covered Flare(s) serviced by the Flare Gas Recovery System exists; or
- ii. For a situation in which one or more Compressors within the FGRS already is(are) recovering gas: When the Potentially Recoverable Gas flow rate (determined on a five minute block average) exceeds the capacity of the operating Compressor(s).

12.ddd.(1) “Non-Recoverable Gases” shall mean the following specific gases that are not recoverable by a Flare Gas Recovery System:

- i. Supplemental and Purge Gas introduced between a Flare’s water seal and a Flare’s tip;
- ii. Hydrogen vented from a pressure swing absorber, steam methane reformer (hydrogen plant), or catalytic reformer;
- iii. Hydrogen that must bypass an FGRS in order to reestablish hydrogen balance in the event that hydrogen demand declines or stops rapidly;
- iv. Excess fuel gas and excess gases generated during the process of Shutdown, in turnaround, or during the process of Startup, caused

by a gas imbalance that cannot be consumed by fuel gas consumers in the refinery because there is not a sufficient demand for the gas, provided that, when the excess gas is routed around an FGRS, no natural gas in excess of that needed in order to maintain adequate gas pressure to prevent burners from pressure tripping is being supplied to the fuel gas mix drum;

- v. Nitrogen vented from purges of process units that are in the process of Shutdown, are in turnaround, or are in the process of Startup;
- vi. Nitrogen vented from purges of operating process units that are in a partial refinery turnaround scenario that causes the NHV of the fuel gas at the exit of the mix drum to fall below 740 BTU/scf; and
- vii. Gases vented during ultraformer catalyst regeneration.

12.fff.(1) “Potentially Recoverable Gases” shall mean the Sweep, Supplemental (unless introduced after an FGRS’ water seal) and/or Waste Gas ((including hydrogen, nitrogen, oxygen, carbon dioxide, carbon monoxide, and/or water) directed to a Covered Flare’s or group of Covered Flares’ FGRS and that does not meet the definition of “Non-Recoverable Gases.”

12.sss.(1) “Subpart Ja” shall mean 40 C.F.R. Part 60, Subpart Ja. 40 C.F.R. § 60.100a–60.109a.

IV. CIVIL PENALTY

15A. By no later than 30 days after the Effective Date of this First Amendment, MPC shall pay the sum of \$326,500 as a civil penalty. MPC shall pay this civil penalty in accordance with the requirements of Paragraph 13.

V. **COMPLIANCE REQUIREMENTS**

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

- a. Continuously measure and calculate 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 dual channel measurement at each point of Vent Gas flow measurement; and~~
- dc. 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.

27. Instrumentation and Monitoring Systems: Recording and Averaging Times. The instrumentation and monitoring systems identified in Paragraphs 18–20 and 22–24 shall be able to produce and record data measurements and calculations for each parameter at the following time intervals.

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

Nothing in this Paragraph is intended to prohibit MPC from setting up process control logic that uses different averaging times from those in this table provided that the recording and averaging times in this table are available and used for determining compliance with this Consent Decree.

29A. Taking the Detroit CP Flare Permanently Out of Service. By no later than December 31, 2018, MPC shall take the Detroit CP Flare out of service by physically removing piping in the Flare header or physically isolating the piping with a welded blind so as to eliminate direct piping to the Flare. By no later than January 31, 2019, MPC shall submit a written request to the Michigan Department of Environmental Quality (“DEQ”) to revoke all authorizations to operate the CP Flare contained in all Michigan DEQ permits, which request shall state the specific date that the CP Flare ceased operating.

32. Subsequent Updates to Waste Gas Minimization Plan. In the first semi-annual report required under Section VIII of this Decree (Reporting Requirements) that is due in July of the year that is one year after the submission of the First Updated WGMP, MPC shall submit a Second Updated WGMP. ~~On an annual basis thereafter until termination of the Decree, MPC shall submit an updated WGMP as part of the July semi-annual report. Each update~~ The Second Updated WGMP shall update, if and as necessary, the information required in Subparagraphs 30.a–30.f, 31.a, and 31.b. To the extent that MPC proposes to extend any schedule set forth in a previous WGMP, MPC may do so only with good cause. ~~By no later than six months after the Effective Date of this First Amendment, MPC shall comply with the Flare Management Plan requirements of 40 C.F.R. § 60.103a(a) (Subpart Ja) for each Covered Flare. MPC shall include~~

in each July semi-annual report required under Section VIII the documents that MPC prepares in compliance with 40 C.F.R. § 60.103a(a).

38. Overlapping Requirements.

a. Root Cause Analysis and Corrective Action Requirements under MPC's PRI Consent Decree. To the extent that a Reportable Flaring Incident that is triggered solely by the SO₂ threshold in the definition of "Reportable Flaring Incident" also constitutes an Acid Gas or Hydrocarbon Flaring Incident under MPC's PRI Consent Decree, MPC shall follow the provisions of MPC's PRI Consent Decree, and not the provisions of this Decree, for addressing the incident, for as long as MPC's PRI Consent Decree is in effect.

b. Root Cause Analysis and Corrective Action Provisions of NSPS Subpart Ja. ~~To the extent that currently stayed provisions of Subpart Ja of the New Source Performance Standards ("NSPS") that affect the applicability of requirements to undertake root cause analyses and corrective actions, 73 Fed. Reg. 78,522, 78,539 (Dec. 22, 2008), 40 C.F.R. §§ 60.103a(b),(c), are finalized after the Date of Lodging of this Consent Decree, and to the extent that compliance with those provisions overlaps with compliance with Paragraphs 35 and 37, By no later than six months after the Effective Date of this First Amendment, MPC shall comply with the root cause analysis ("RCA") and corrective action ("CA") requirements of 40 C.F.R. §§ 60.103a(c) and (d) the finalized Subpart Ja and also comply with each requirement in in lieu of compliance with Paragraphs 35 and 37. that is not inconsistent with the requirements of a finalized Subpart Ja.~~ In each semi-annual report required by Section VIII that is submitted after commencing compliance with 40 C.F.R. §§ 60.103a(c) and (d), MPC shall include a summary of the RCAs and CAs undertaken in the six-month period covered by the semi-annual report.

c. Flare Management Plan Provisions of NSPS Subpart Ja. By no later than six months after the Effective Date of this First Amendment, MPC shall comply with the Flare Management Plan requirements of 40 C.F.R. 60.103a(a) (Subpart Ja) for each Covered Flare. ~~To the extent that currently stayed provisions of Subpart Ja of the NSPS that affect the applicability of requirements to develop and implement flare management plans, 73 Fed. Reg. 78,522, 78,538-39 (Dec. 22, 2008), 40 C.F.R. § 60.103a(a), are finalized after the Date of Lodging of this Consent Decree, and to the extent that compliance with those provisions overlaps with compliance with Paragraphs 30-33, MPC shall comply with the requirements of the finalized Subpart Ja and also comply with each requirement in Paragraphs 30-33 that is not inconsistent with the requirements of a finalized Subpart Ja.~~ In each semi-annual report required by Section VIII that is submitted after commencing compliance with 40 C.F.R. §§ 60.103a(a), MPC shall include the documents that MPC prepared during the six-month period covered by the semi-annual report to demonstrate compliance with 40 C.F.R. § 60.103a(a).

38A. Determining Whether a Covered Flare that has a Water Seal is Not Receiving Potentially Recoverable Gas Flow. For a Covered Flare that has a water seal, if all of the following conditions are met, then the Covered Flare is not receiving Potentially Recoverable Gas flow:

- a. For the water seal drum associated with the respective Covered Flare, the pressure difference between the inlet pressure and the outlet pressure is less than the water seal pressure as set by the static head of water between the opening of the dip tube in the drum and the level setting weir in the drum;
- b. For the water seal drum associated with the respective Covered Flare, the water level in the drum is at the level of the weir for a horizontal drum or at the overflow pipe for a vertical drum; and
- c. Downstream of the seal drum, there is no flow of Non-Recoverable Gas directed to the Covered Flare.

38B. Flare Gas Recovery Systems: Capacity and Start-Up Dates. By no later than the following dates for the following Covered Flares, MPC shall complete installation and commence operation of the following liquid-ring-based Flare Gas Recovery Systems:

TABLE 2

Refinery	Covered Flares	Total No. of Compressors	Capacity of each Compressor (kscfh) (at suction)	FGRS Total Capacity (kscfh) (at suction)	Date
Canton	Canton	2	95	190	11.1.2018
Catlettsburg	NNA&Alky	2	120	240	6.30.2016
Catlettsburg	Lube	2	120	240	6.30.2016
Detroit	Unifiner	2	95	190	6.30.2016
Detroit	Cracking Plant ¹	2	95	190	12.31.2018
Garyville	North and South Elevated and Ground	6	120	723	4.30.2017
Robinson	1, 5, 6	2	120	240	12.31.2017

38C. Flare Gas Recovery Systems: Consolidating the Detroit Cracking Plant FGRS with the Existing Detroit Coker FGRS. By no later than December 31, 2018, MPC shall consolidate the Detroit Cracking Plant FGRS identified in Table 2 in Paragraph 38B with the Existing Detroit Coker FGRS. This consolidated system shall be called the “Detroit Cracking Plant/Coker FGRS.” The Detroit Cracking Plant/Coker FGRS shall be comprised of four Compressors (two existing and two new) and shall have a Total Capacity of 250 kscfh. Any references to the “FGRSs in Table 2 in Paragraph 38B” shall mean, with respect to the “Detroit Cracking Plant FGRS,” the four-Compressor, 250 kscfh capacity “Detroit Cracking Plant/Coker FGRS.”

¹ The capacity listed for the Detroit Cracking Plant Flare is for the two new Compressors that MPC will install by the date in this Table 2 in Paragraph 38B, and not for the two existing compressors already installed as part of the Existing Detroit Coker FGRS.

38D. Flare Gas Recovery Systems: Operation

a. General. MPC shall operate each FGRS in Table 2 in Paragraph 38B in a manner to minimize Waste Gas to the respective Covered Flares while ensuring safe refinery operations. MPC also shall operate each FGRS consistent with good engineering and maintenance practices and in accordance with its design and the manufacturer's specifications.

b. Requirements Related to Compressors Being Available for Operation and/or in Operation. By no later than 180 days after the dates set forth in Table 2 in Paragraph 38B, MPC shall comply with the following requirements when Potentially Recoverable Gas is being generated:

- i. Two-Compressor Systems (Canton, Catlettsburg NNA/Alky, Catlettsburg Lube, Detroit Unifiner, and Robinson 1,5,6): MPC shall have one Compressor Available for Operation and/or in operation 98% of the time and two Compressors Available for Operation and/or in operation 96% of the time.
- ii. More than Two-Compressor Systems.
 - (1) Detroit Cracking Plant/Coker Flare Gas Recovery System (four Compressor system): MPC shall have three Compressors Available for Operation and/or in operation 96% of the time and two Compressors Available for Operation and/or in operation at all times.
 - (2) Garyville Flare Gas Recovery System (six Compressor system): MPC shall have five Compressors Available for Operation and/or in operation 96% of the time and four Compressors Available for Operation and/or in operation at all times.
 - (3) "At all times" Requirement. The following periods may be included in the amount of time that a Compressor is Available for Operation when determining compliance with the requirement to have two Compressors (for the Detroit Cracking Plant/Coker FGRS) and four Compressors (for the Garyville FGRS) Available for Operation and/or in operation "at all times": Periods in which the two (for Detroit) or the four (for Garyville) Compressors are shut

down (including the subsequent restart) due to operating conditions (such as high temperatures or large quantities of entrained liquid in the Vent Gas) outside the design operating range of the FGRSs, including the associated knock-out drum(s), such that the outage is necessary for safety and/or to preserve the mechanical integrity of the FGRS. By no later than 45 days after any such period of unplanned outage, MPC shall investigate the root cause and all contributing causes of the outage and shall implement, as expeditiously as practicable, corrective action, if any, to prevent a recurrence of the cause(s). In the reports due under Section VIII of this Decree, MPC shall describe each outage that occurred under the conditions identified in this Subparagraph, including the date, duration, cause(s), corrective action, and the status of the implementation of corrective action.

- c. Period to be Used for Computing Percentage of Time. For purposes of calculating compliance with the 96% and the 98% of time that a Compressor or group of Compressors must be Available for Operation and/or in operation, as required by Subparagraphs 38D.b.i–ii, the period to be used shall be an 8760-hour rolling sum, rolled hourly, using only hours when Potentially Recoverable Gas was generated during all or part of the hour but excluding hours for flows that could not have been prevented through reasonable planning and were in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss. When no Potentially Recoverable Gas was generated during an entire hour, then that hour shall not be used in computing the 8760 hour rolling sum. The rolling sum shall include only the prior 8760 1-hour periods when Potentially Recoverable Gas was generated during all or part of the hour, provided that the Potentially Recoverable Gas was not generated by flows that could not have been prevented through reasonable planning and were in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss.

38E. Maintaining for Delivery and Operation a 95 kscfh Liquid Ring Compressor and a 120 kscfh Liquid Ring Compressor. By no later than December 31, 2017, MPC will maintain one 95 kscfh liquid ring Compressor and one 120 kscfh liquid ring Compressor at a location where these Compressors can be delivered to the Five Covered Refineries within 24 hours of notification of need. Each of these Compressors shall be interchangeable with the comparably-sized Compressors identified in Table 2 in Paragraph 38B. MPC shall make each

delivered Compressor Available for Operation by no later than 48 hours after the Compressor's delivery at the Covered Refinery's front gate. In each semi-annual report due under Section VIII, MPC shall identify the dates and times that either or both of these Compressors were requested; the dates and times that it/they were delivered; and the times and dates that they became Available for Operation. Nothing in this Paragraph will prohibit MPC from switching out a Compressor previously-used in an initial FGRS installation for use pursuant to this Paragraph provided that the total number and capacity of each FGRS in Table 2 in Paragraph 38B is not reduced.

39. Limitations on Flaring. By no later than the dates set forth in Column I of Appendix 2.1, the following limitations on flaring shall be in effect:

Refinery (A)	No. of Covered Flares (B)	30-day Rolling Average Waste Gas Flow Limit (scfd) (C)	Refinery-Wide, 365-day Rolling Average Waste Gas Flow Limit (scfd) (D)(C)
Canton	1	500,000	432,500
Catlettsburg	4	250,000 per Flare	1,200,000
Detroit	5	250,000 per Flare	550,000
Garyville	4	1,100,000 consolidated Waste Gas Flow — to North and South Ground Flares; 1,000,000 consolidated Waste Gas Flow — to North and South Elevated Flares	1,700,000
Robinson	6	500,000 consolidated Waste Gas Flow — to F1, F5, and F6; 500,000 consolidated Waste Gas Flow to — F2 and F3 250,000 to F4	1,000,000
Texas City	2	250,000 per Flare	417,500

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.

39A. Limitation on Flaring: Requesting an Increase in the Limit.

a. MPC Request. Once per calendar year commencing no sooner than January 1, 2017, MPC may submit a request to EPA to increase the Waste Gas Limitation (“WGL”) set forth in Paragraph 39 for a particular Covered Refinery. MPC may request an increase in the limitation, and EPA will approve such an increase, only if the request is based on changes in crude capacity and/or Nelson Complexity Index (“NCI”) after April 5, 2012, that are or will be permitted by the applicable state air permitting authority and only if either the:

- i. *Covered Refinery’s New Crude Capacity \geq 120% Covered Refinery’s 2011 crude capacity; or*
- ii. *Covered Refinery’s New NCI \geq 120% Covered Refinery’s 2011 NCI*

b. Equations for New Limitations.

- i. If Condition 39A.a.i applies, then MPC shall propose a new limitation based on the following equation:

$$\text{New WGL} = \text{Current WGL} \times \frac{\text{Covered Refinery’s New Crude Capacity}}{\text{Covered Refinery’s 2011 Crude Capacity}}$$

- ii. If Condition 39A.a.ii applies, then MPC shall propose new limitations based on the following equation:

$$\text{New WGL} = \text{Current WGL} \times \frac{\text{Covered Refinery’s New NCI}}{\text{Covered Refinery’s 2011 NCI}}$$

- iii. If both conditions 39A.b.i and 39A.b.ii apply, the equation that results in the higher limit shall apply.

c. For purposes of Paragraph 39A.a and 39A.b, the following shall apply:

- i. The *Covered Refinery’s New Crude Capacity* shall be the Atmospheric Crude Oil Distillation Capacity, in barrels per calendar day, that the Covered Refinery reported under “Total Operable” capacity on Part 5, Code 401, of the Form EIA 820 that MPC filed most recently before seeking a request for an increase in the flaring limitation for that Covered Refinery.
- ii. The *Covered Refinery’s 2011 Crude Capacity* and the *Covered Refinery’s 2011 NCI* shall be the following for the particular Covered Refinery that is the subject of the request:

	2011 Crude Capacity	2011 NCI
Canton	78,000	8.9
Catlettsburg	212,000	12.1
Detroit	106,000	7.7
Garyville	464,000	11.3
Robinson	206,000	9.8
Texas City	76,000	8.3

- iii. The *Covered Refinery's New NCI* shall be the Covered Refinery's Nelson Complexity Index as published in the Oil & Gas Journal in the December of the year that most recently preceded MPC's request for an increase in the flaring limitation for that Covered Refinery.
- iv. The *Current WGL* shall be either: (1) the Waste Gas Limitation set forth in Column C of the Table in Paragraph 39; or (2) if new Waste Gas Limitation has been previously requested and approved pursuant to this Paragraph, the most recently approved new Waste Gas Limitation.

d. EPA Response to Request. EPA shall evaluate any request under Subparagraph 39A.a on the basis of consistency with the requirements of this Paragraph. If EPA does not act on MPC's request within 60 days of submission, MPC may invoke the dispute resolution provisions of the Consent Decree.

e. The New Waste Gas Limitation shall take effect, if ever, beginning on the later of the date that EPA approves the request or a dispute is resolved in MPC's favor.

f. Nothing in this Paragraph or First Amendment shall be construed to relieve MPC of an obligation to evaluate, under applicable Prevention of Significant Deterioration and Nonattainment New Source Review requirements, any increase in a Waste Gas Limitation at any Covered Refinery.

40. Limitation on Flaring: Meaning of "Waste Gas" in Paragraph 39. For purposes of the meaning of "Waste Gas" in Paragraph 39, the following shall apply:

- a. [Unchanged.]
- b. Waste Gas 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 Covered Refinery), except those described in the next sentence, shall be included. Flows that could not be prevented through reasonable planning and are in anticipation of or caused by a natural disaster, act of

war or terrorism, or External **Power Utility** Loss are the only flows that may be excluded from the calculation of flow rate.

- c. [Unchanged.]

44. Exception to Part of the Work Practice Standards in Subparagraphs 43.a and 43.b.

MPC manually may override the operation of the Automatic Control System required in Subparagraph 43.a (for control of Supplemental Gas flow rate) and 43.b (for control of Total Steam Volumetric Flow Rate) if the exception in Paragraph 50 applies, and/or during Startup, Shutdown, or Malfunction of a process unit that feeds the Covered Flare, and/or to achieve the following:

- a. Stop Smoke Emissions that are occurring;
- b. Meet the Net Heating Value requirements of Paragraph 46;
- c. Prevent extinguishing the Flare;
- d. Protect personnel safety; and/or
- e. Stop Discontinuous Wake Dominated Flow

46. Net Heating Value Standards for each Covered Flare

- a. Net Heating Value of Vent Gas (NHV_{vg}). [Unchanged.]
- b. Net Heating Value of Combustion Zone Gas (NHV_{cz}).
 - i. [Unchanged]
 - ii. Interim Combustion Efficiency (CE) Multipliers. Between the dates set forth in Column H of Appendix 2.1 and **the later of:**
 - (i) the date of the installation of an FGRS on the respective Covered Flare as shown in Table 2 in Paragraph 38B or
 - (ii) June 30, 2017, MPC may use the following Table of CE Multipliers instead of the CE Multipliers in Table 2 of Appendix

1.3 provided that MPC complies with the conditions in Subparagraph 46.b.iii:

Minimum Steam for Covered Flare	VOC Vent Gas Concentration	A	B*	
			Cond. X	Cond. 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%	6.45	4.0	0.0
> 1000 lb/hr	> 20.0%	6.85	4.0	0.0

*The B Multiplier used depends on the relationship of hydrogen (H₂) and propylene in the Vent Gas as follows:

Condition X: $3 \leq H_2\% \leq 8$ and $Propylene\% \geq H_2\%$ (all percents are volume or mole percents)

Condition Y: Any condition not meeting the requirements for Condition X.

iii. Conditions for the Use of Interim CE Multipliers. [Unchanged.]

iv. Final CE Multipliers. [Unchanged.]

47. *S/VG_{mass}* and *S/VG_{vol}* Standards (Total-Steam-Volumetric-Flow-Rate-to-Vent-Gas-Volumetric-Flow-Rate Ratio Standards).

a. Interim Period. [Unchanged.]

b. After Interim Period. [Unchanged.]

c. Adjustment at the Texas City Main Flare Based on Steam Contribution

Factor.

i. [Unchanged.]

ii. ~~Other Covered Flares.— At any time after the Date of Lodging, for any Covered Flare, MPC may submit a request to EPA for an adjustment of the Total Steam Mass Flow Rate and Total Steam Volumetric Flow Rate at that Covered Flare based on the Steam Contribution Factor at that Covered Flare. In any such request, MPC must demonstrate and justify the equation it proposes to use to calculate the Non-Mixing Total Steam at the Covered Flare that is the subject of the request.~~

Termination of Adjustment at the Texas City Main Flare. The adjustment allowed under Paragraph 47.c.i shall no longer be allowed or in effect on and after January 30, 2019.

57A. Compliance with 40 C.F.R. Part 63, Subpart CC. By no later than January 30, 2019, each Covered Flare shall be subject to and comply with the requirements of 40 C.F.R. §§ 63.670 and 63.671 and MPC no longer shall be required to comply with Paragraphs 41–57 of the Consent Decree.

59. NSPS Subparts A and Ja. Notwithstanding the dates in 40 C.F.R. § 60.103a(f), ~~E~~each 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 ~~no later than the later of:~~ ~~(i) the dates in Column J of Appendix 2.1. ; or (ii) the 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 “the dates in Column J of Appendix 2.1,” then Subpart Ja, and not Subpart J, is the applicable Subpart on and after the dates in Column J of Appendix 2.1.~~

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 the dates in Column J of Appendix 2.1 and the applicable date(s) of Subpart Ja. Thereafter, only Subpart Ja is applicable.~~

e. ~~— On and after the date(s) that each Covered Flare is subject to Subpart Ja, Subpart J no longer is applicable to that Covered Flare.~~

59A. Continued Operation and Maintenance of Ultra-Low NOx Burners on Garyville Refinery’s Heavy Gas Oil Reactor. MPC shall continue to operate and maintain the ultra-low NOx burners that it installed at the Garyville Refinery in 2014 on that Refinery’s Heavy Gas Oil Reactor Heater No. 15-1401. MPC shall be permanently subject to the prohibition in Paragraph 63 of the Consent Decree on the use of any emission reductions resulting from this installation and operation.

59B. Installation and Operation of Ultra-Low NOx Burners on the Canton Refinery's Crude Unit Vacuum Heater. By no later than December 31, 2018, MPC shall install on the Canton Refinery's Crude Unit vacuum heater (No. 4-4-B-1) ultra-Low NOx burners and shall commence compliance with a NOx emission rate of less than or equal to 0.060 pounds of NOx per MMBtu high heating value ("HHV") at 0% stack O₂ on a 30-day rolling average, rolled daily, when firing natural gas at full design load with air preheat. Compliance shall be determined by an initial performance test pursuant to 40 C.F.R. Part 60, Appendix A, Method 7E in conjunction with either EPA Method 19 or EPA Methods 1, 2, 3 and 4, or an EPA-approved alternative test method. The results of this testing shall be reported based on the average of three one hour testing runs. MPC shall conduct performance tests at least once every five (5) years thereafter.

61. Permits to Ensure Survival of Consent Decree Limits and Standards after Termination of Consent Decree.

a. [Unchanged.]

b. The limits and standards imposed by the following Paragraphs of this Consent Decree ~~and this First Amendment~~ shall survive termination: 17–22, ~~23~~, 24 (if required), ~~26–28~~, 38A, 38D, 39, 39A, 40, 57A, ~~41–45~~, ~~46.b.i~~, ~~46.b.iv~~, ~~47.b–d~~, ~~48.e–f~~, ~~49–51~~, 55, ~~56.e (if applicable)~~, ~~56.d (if applicable)~~, ~~and 58–59~~, and 59B. ~~At the time of submission of the documents necessary to ensure survival of the limits and standards identified in this Subparagraph, MPC may elect, at any Covered Flare, to cease recording both S/VG_{mass} and S/VG_{vol} and instead may identify the S/VG basis (i.e., volume or mass) that it elects to comply with going forward and record S/VG only on that basis.~~

c. If, as of the Effective Date of the First Amendment, MPC already has incorporated into either an underlying non-Title V, federally enforceable permit and/or a Title V operating permit any of the provisions of the Consent Decree that, pursuant to this First Amendment, no longer are required to survive termination of the Consent Decree, MPC may submit to the applicable permitting authority a copy of this First Amendment and other documentation (if any) to demonstrate that the provision no longer is required to be included in either an underlying non-Title V, federally enforceable permit or a Title V operating permit.

69. Semi-Annual Reports. On the dates and for the time periods set forth in Paragraph 72, MPC shall submit to EPA in the manner set forth in Section XV (Notices) the following information:

- a-c. [Unchanged.]
- d. Monitoring equipment/instrument downtime, override of Automatic Control System (“ASC”), ~~and~~ exceedances of emission standards, ~~and compliance with Compressor availability requirements~~, as described in Paragraph 70 ~~and 70A~~;
- e-g [Unchanged.]

70. Monitoring Instrument/Equipment Downtime; Override of ACS; and Emissions Exceedances. On and after the date of applicability of any work practice or standard, MPC shall provide a summary of the following, per 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 18–20, 22–23, and, if applicable, 24, expressed as both an absolute number and a percentage of time the Covered Flare ~~that the instrument/equipment monitors is available for~~ was In ~~o~~Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas;

- b. Monitoring Instrument/Equipment Downtime. [Unchanged];
- c. Override of Automatic Control System. The total number of hours in which MPC overrode the ACS required in Paragraph 43, expressed both an absolute number of hours and a percentage of time the Covered Flare was ~~In available for~~ ~~Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas~~; 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 of the exceptions identified in Paragraph 44, a statement of which exception; or (ii) if the total number of hours in which the ACS was overrode ~~did not exceed was less than~~ 110 hours and was caused by one or more of the exceptions identified in Paragraph 50, a statement to that effect;
- d. Override of Automatic Control System. [Unchanged];
- e. Inapplicability of Emissions Standards. The total number of hours in which the requirements of Paragraphs 46–49 were not applicable because the only gas or gases being vented was/were Pilot Gas and/or Purge Gas, expressed as both an absolute number of hours and a percentage of time the Covered Flare was ~~available for In~~ ~~Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas~~; for purposes of Subparagraphs 70.f. and 70.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 Subparagraphs 46.b, 47.b, 48.c, 48.d, and 49, expressed as both an absolute number of hours and a percentage of time the Covered Flare was ~~available for In~~ ~~Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas~~; provided however, that if the exceedance of these standards ~~was less than did not exceed~~ 110 hours in the calendar quarter and was due to one or more of the exceptions set forth in Paragraph 50, the report shall so note;
- g. Exceedances of Emissions Standards. [Unchanged];
- h. Flaring Limitations Exceedances. [Unchanged].

70A. Compressor Availability Requirements. For the Five Covered Refineries, in each semi-annual report due after the dates in Column J of Appendix 2.1, MPC shall provide sufficient information to document compliance with the FGRS operational requirements set forth in Paragraph 38D. MPC also shall include the information required to be included in the

semi-annual reports set forth in Paragraph 38E. For any periods of non-compliance, MPC shall identify the date, cause, and corrective action.

77. Failure to Meet all Other Consent Decree Obligations. MPC shall be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below unless excused under Section IX of this Decree (Force Majeure). For those provisions where a stipulated penalty of either a fixed amount or 1.2 times the economic benefit of delayed compliance is available, the decision of which alternative to seek rests exclusively within the discretion of the United States.

Violation	Stipulated Penalty	
[Para. 77.a to 77.s unchanged]		
77.t. <u>Violation of Paragraph 29A.</u> Failure to permanently take the Detroit CP Flare out of service by December 31, 2018	<u>Period of delay or noncompliance</u> Days 1–30 Days 31–60 Days 30 and later	<u>Penalty per day</u> \$ 1,250 \$ 3,000 \$ 5,000 or an amount equal to 1.2 times the economic benefit of delayed compliance, whichever is greater
77.u. <u>Violation of the Request Requirement of Paragraph 29A.</u> Failure to submit a written request, by January 31, 2019, to Michigan DEQ to revoke all authorizations to operate the CP Flare; provided however, that if MPC is required to pay a stipulated penalty under Subparagraph 77.t, no additional penalty under this Subparagraph 77.u shall be assessed.	<u>Period of delay or noncompliance</u> Days 1–30 Days 31–60 Days 30 and later	<u>Penalty per day</u> \$ 200 \$ 300 \$ 400

<p>77.v. <u>Violation of Paragraph 38B.</u> Failure to timely install, in accordance with Paragraph 38B, Flare Gas Recovery Systems that conform to the requirements of Paragraph 38B</p>	<p><u>Period of delay or noncompliance, per FGRS</u></p> <p>Days 1–30 Days 31–60 Days 61 and later</p>	<p><u>Penalty per day per FGRS</u></p> <p>\$ 1,250 \$ 3,000 \$ 5,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater</p>
<p>77.w. <u>Violation of Paragraph 38C.</u> Failure to consolidate the Detroit Cracking Plant FGRS with the Existing Detroit Coker FGRS by December 31, 2018, in accordance with the requirements of Paragraph 38C.</p>	<p><u>Period of delay or noncompliance</u></p> <p>Days 1–30 Days 31–60 Days 60 and later</p>	<p><u>Penalty per day</u></p> <p>\$ 1,250 \$ 3,000 \$ 5,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater</p>
<p>77.x. <u>Special Provision for Detroit Refinery.</u> With respect to Subparagraphs 77.t, 77.u, and 77.w, if the Detroit Refinery violates two or three of the three underlying substantive provisions (<i>i.e.</i>, Paragraph 29A, 38B, and/or 38C), the stipulated penalties of this Subparagraph shall apply, not the cumulative stipulated penalties of Subparagraphs 77.t, 77.u, and 77.w</p>	<p><u>Period of delay or noncompliance</u></p> <p>Days 1–30 Days 31–60 Days 60 and later</p>	<p><u>Penalty per day</u></p> <p>\$ 1,750 \$ 4,000 \$ 6,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater</p>
<p>77.y. <u>Violation of certain Subparagraph 38D.b.ii(1) or (2) requirements.</u> Failure to comply with the Subparagraph 38D.b.ii(1) requirement to have two Compressors Available for Operation and/or in operation “at all times” or failure to comply with the Subparagraph 38D.b.ii(2) requirement to have four Compressors Available for Operation and/or in operation “at all times”</p>	<p>Per FGRS, per hour or fraction thereof: \$750; provided however, that stipulated penalties shall not apply for any hour in which a Compressor’s unavailability did not result in flaring.</p>	

<p>77.z. Violation of certain Subparagraph 38D.b.i, 38D.b.ii(1), or (2) requirements. Failure to comply with the following requirements of Subparagraphs 38D.b.i and 38D.b.ii(1) and (2):</p> <p>(1) Subparagraph 38D.b.i's requirement to have one Compressor Available for Operation and/or in operation 98% of the time; or</p> <p>(2) Subparagraph 38D.B.i's requirement to have two Compressors Available for Operation and/or in operation 96% of the time;</p> <p>(3) Subparagraph 38D.B.ii(1)'s requirement to have three Compressors Available for Operation and/or in operation 96% of the time; and</p> <p>(4) Subparagraph 38D.B.ii(2)'s requirement to have five Compressors Available for Operation and/or in operation 96% of the time</p>	<p>Per FGRS, the number of hours or fraction thereof—over the allowed percentage—in a rolling 8760-hour period that a Compressor required to be Available for Operation and/or in operation is not: \$750; provided however, that stipulated penalties shall not apply for any hour in which a Compressor's unavailability did not result in flaring.</p>								
<p>77.aa. <u>Violation of Paragraph 38E.</u> Failure to maintain for delivery and installation the Compressors required in Paragraph 38E in accordance with the requirements of Paragraph 38E.</p>	<table border="0"> <thead> <tr> <th style="text-align: left;"><u>Period of delay or noncompliance per Compressor</u></th> <th style="text-align: right;"><u>Penalty per day per Compressor</u></th> </tr> </thead> <tbody> <tr> <td>Days 1–30</td> <td style="text-align: right;">\$ 150</td> </tr> <tr> <td>Days 31–60</td> <td style="text-align: right;">\$ 250</td> </tr> <tr> <td>Days 61 and later</td> <td style="text-align: right;">\$ 500</td> </tr> </tbody> </table> <p>Provided however, that stipulated penalties shall not apply for any day of violation in which no flaring occurred during any delays beyond the allowed 72 hours for delivery and installation</p>	<u>Period of delay or noncompliance per Compressor</u>	<u>Penalty per day per Compressor</u>	Days 1–30	\$ 150	Days 31–60	\$ 250	Days 61 and later	\$ 500
<u>Period of delay or noncompliance per Compressor</u>	<u>Penalty per day per Compressor</u>								
Days 1–30	\$ 150								
Days 31–60	\$ 250								
Days 61 and later	\$ 500								

77.bb. <u>Violation of Paragraph 59B.</u> For failure to timely install the ultra low-NOx burners required in Paragraph 59B in accordance with the requirements of Paragraph 59B or for failure to comply with the NOx emission limit set forth in Paragraph 59B.	<u>Period of delay or noncompliance</u>	<u>Penalty per day</u>
	Days 1–30	\$ 500
	Days 31–60	\$ 1,000
	Days 61 and later	\$ 2,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater

135A. This First Amendment shall be lodged with the Court for a period of not less than 30 days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the First Amendment disclose facts or considerations indicating that the First Amendment is inappropriate, improper, or inadequate. MPC consents to entry of this First Amendment without further notice and agrees not to withdraw from or oppose entry of this First Amendment by the Court or to challenge any provision of the First Amendment unless the United States has notified MPC in writing that it no longer supports entry of this First Amendment.

DATED this _____ day of _____ 2016.

United States District Judge
Eastern District of Michigan

We hereby consent to the entry of the First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.), subject to public notice and comment.

FOR THE UNITED STATES OF AMERICA

s/ John C. Cruden
JOHN C. CRUDEN
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 First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.), subject to public notice and comment.

FOR THE UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

s/ with consent of Cynthia Giles

CYNTHIA GILES

Assistant Administrator

Office of Enforcement and Compliance Assurance

United States Environmental Protection Agency

Washington, DC

We hereby consent to the entry of the First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.).

FOR MARATHON PETROLEUM COMPANY LP,
BY MPC INVESTMENT LLC, its General Partner

s/ with consent of Ray Brooks

RAY BROOKS

Senior Vice President

Marathon Petroleum Company LP

539 South Main St.

Findlay, Ohio 45840

Phone: 419 421-2967

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rlbrooks@marathonpetroleum.com

We hereby consent to the entry of the First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.).

FOR CATLETTSBURG REFINING, LLC

s/ with consent of Ray Brooks

RAY BROOKS

President of Catlettsburg Refining, LLC

Marathon Petroleum Company LP

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United States v. Marathon Petroleum Company, LP, et al.
Case No. 1:12-cv-11544 (E.D. Mich.)

Clean Copy of First Amendment
(accepting the changes shown in the redline/strikeout)

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

_____)	
UNITED STATES OF AMERICA,)	
)	
Plaintiff,)	
)	
v.)	No. 2:12-cv-11544-DML-MJH
)	
MARATHON PETROLEUM COMPANY LP, and)	
CATLETTSBURG REFINING, LLC,)	
)	
Defendants.)	
_____)	

FIRST AMENDMENT TO CONSENT DECREE

WHEREAS, on April 5, 2012, Plaintiff, the United States of America (“United States”), on behalf of the Environmental Protection Agency (“EPA”), filed a complaint in this action against, and concurrently lodged a Consent Decree with, Marathon Petroleum Company LP and Catlettsburg Refining, LLC (collectively “MPC”) for alleged Clean Air Act (“CAA”) violations at six MPC refineries located in Canton, Ohio; Catlettsburg, Kentucky; Detroit, Michigan; Garyville, Louisiana; Robinson, Illinois; and Texas City, Texas (“Covered Refineries”);

WHEREAS, on August 30, 2012, this Court entered the Consent Decree, which fully resolved the claims in the Complaint;

WHEREAS, during Consent Decree negotiations and after Consent Decree entry, MPC installed and operated state-of-the-art pollution controls on twenty-two combustion devices known as flares (“Covered Flares”) for the purpose of ensuring that volatile organic compounds

(“VOCs”), including hazardous air pollutants (“HAPs”), in waste gases sent to flares were combusted with a high efficiency;

WHEREAS, pursuant to the Consent Decree, MPC also implemented measures to minimize flaring by reducing or eliminating the generation of waste gases at their source;

WHEREAS, as a result of the injunctive relief in the Consent Decree, EPA estimates that emissions from the Covered Flares have been reduced as follows: VOCs, including HAPs, by 4,936 tons per year (“TPY”) and sulfur dioxide (“SO₂”) by 270 TPY;

WHEREAS, in part as a result of knowledge and data arising out of the negotiation and implementation of the flare efficiency requirements of the Consent Decree, EPA recently finalized a new, industry-wide rule for flare controls as part of EPA’s Petroleum Refinery Sector Risk and Technology Review Rule or “RTR Rule.” 40 C.F.R. §§ 63.670–671, 80 Fed. Reg. 75,177, 75,258–268 (Dec. 1, 2015);

WHEREAS MPC will be required to comply with the RTR Rule on and after January 30, 2019, at the Covered Flares by virtue of the requirements of the RTR Rule;

WHEREAS, pursuant to this First Amendment, on and after January 30, 2019, MPC’s original obligations to comply with certain of the flare efficiency requirements of the Consent Decree will be replaced by obligations to comply with the RTR Rule;

WHEREAS, on May 14, 2007, EPA proposed an amendment to the New Source Performance Standards (“NSPS”) for Petroleum Refineries, found at Subpart J of 40 C.F.R. Part 60. 72 Fed. Reg. 27,178 (May 14, 2007);

WHEREAS the proposed NSPS amendment was termed “Subpart Ja”;

WHEREAS, on September 26, 2008, EPA issued a stay of certain Subpart Ja provisions, including those related to flares, 73 Fed. Reg. 55751 (Sept. 26, 2008), and those provisions had not yet been finalized at the time of the negotiation, lodging, and entry of the Consent Decree;

WHEREAS, in expectation of EPA's eventual finalization of the Subpart Ja provisions related to flares, the Consent Decree at Appendix 2.1 requires MPC to comply with Subpart Ja flare provisions by the deadlines set forth therein;

WHEREAS, pursuant to this First Amendment and in order to achieve compliance with a hydrogen sulfide ("H₂S") limit in Subpart Ja, MPC will install and operate seven state-of-the-art liquid ring flare gas recovery systems ("FGRSs") at five of the Covered Refineries;

WHEREAS EPA estimates that the installation of these seven FGRSs will result in VOC emission reductions of 469 TPY, SO₂ emissions reductions of 258 TPY, and nitrogen oxide ("NO_x") emissions reductions of 169 TPY;

WHEREAS MPC estimates that the installation of the seven FGRSs will cost approximately \$319 million;

WHEREAS the FGRSs cannot be fully installed and operational until all or the part of the Covered Refinery that utilizes the associated flare(s) is shut down for a "Turnaround," which is a planned period of maintenance, inspection, and system upgrades or overhauls;

WHEREAS Turnarounds at the refineries occur infrequently (once every three to six years) in order to minimize disruption to ongoing operations and are scheduled years in advance because of the need for extensive planning and careful coordination of labor and materials;

WHEREAS MPC has requested an extension of the Consent Decree's Subpart Ja compliance deadlines for certain Covered Flares at four of the Covered Refineries—Canton, Ohio; Detroit, Michigan; Garyville, Louisiana; and Robinson, Illinois—because the Turnarounds

related to those Covered Flares do not correspond to the dates in Appendix 2.1 of the Consent Decree;

WHEREAS EPA estimates that these Subpart Ja compliance extensions will result in *one time* (not continuous “tons per year”) additional SO₂ emissions as follows: Canton, 24.3 tons; Detroit, 3.4 tons; Garyville, 6 tons; and Robinson, 19.1 tons;

WHEREAS, pursuant to this First Amendment, MPC will undertake the following mitigation measures that EPA estimates will result in ongoing emission reductions of SO₂, VOCs, and NO_x that, in the first year alone, will more than offset the projected, one-time SO₂ emissions increases:

- operate and maintain the seven FGRSs with “uptime” requirements that are longer than any uptime requirements EPA previously had secured in other settlements
- install and operate ultra-low NO_x burners on a vacuum heater (4-4-B-1) at the crude unit at the Canton Refinery at a cost of \$6.3 million
- continue to operate ultra-low NO_x burners on the Garyville Refinery’s Heavy Gas Oil Reactor Heater No. 15-1401 that were installed during First Amendment negotiations at a cost of \$3.25 million
- permanently shut down the CP Flare at the Detroit Refinery at a cost of \$6 million;

WHEREAS two copies of this First Amendment to the Consent Decree are being filed with the Court: a redline/strikeout copy and a clean copy. The redline/strikeout copy shows the additions to and deletions from the affected provisions of the Consent Decree: all items in black print are from the Consent Decree; all items in red print, without strikethrough, are additions to the Consent Decree through this First Amendment; all items in red, with strikethrough, are deletions from the Consent Decree. The clean copy “accepts” all of the changes shown on the redline/strikeout copy;

WHEREAS the Parties recognize, and the Court by entering this First Amendment finds, that this First Amendment has been negotiated at arm’s length and in good faith and that this First Amendment is fair, reasonable, and in the public interest;

NOW THEREFORE, before the taking of any testimony, without adjudication of any issue of fact or law, and upon the consent and agreement of the Parties, it is hereby ORDERED, ADJUDGED, and DECREED as follows:

AMENDED AND RESTATED SECTIONS

II. APPLICABILITY

4A. This copy of the First Amendment is the clean copy.

4B. The Consent Decree shall remain in full force and effect in accordance with its terms, except that the following Paragraphs and Appendix of the Consent Decree are revised and the following Paragraphs are added:

TABLE 1

Revised Paragraphs/Appendices	New Paragraphs/Appendix
12.dd, 18, 27, 32, 38, 39, 40, 44, 46, 47, 59, 61, 69, 70, App. 2.1	4A, 4B, 12.e.(1), 12.(e)(2), 12.i.(1), 12.r.(1), 12.x.(1), 12.x.(2), 12.x.(3), 12.cc.(1), 12.dd.(1), 12.ff.(1), 12.ii.(1), 12.jj.(1), 12.vv.(1), 12.ddd.(1), 2.fff.(1), 12.sss.(1), 15A, 29A, 38A, 38B, 38C, 38D, 38E, 39A, 57A, 59A, 59B, 70A, 77.t–77.bb, 135A

III. DEFINITIONS

12.e.(1). “Available for Operation” shall mean, with respect to a Compressor within a Flare Gas Recovery System, that the Compressor is capable of commencing the recovery of

Potentially Recoverable Gas as soon as practicable but not more than one hour after the Need for the Compressor to Operate arises. The period of time, not to exceed one hour, allowed by this definition for the startup of a Compressor shall be included in the amount of the time that a compressor is Available for Operation.

12.e.(2). “Barrels per day” or “bpd” shall mean barrels per calendar day.

12.i.(1). “Capable of Receiving Sweep, Supplemental, and/or Waste Gas” shall mean, for a Flare, that the flow of Sweep, Supplemental, and/or Waste Gas is/are not prevented from being directed to the Flare by means of closed valves and/or blinds.

12.r.(1). “Compressor” shall mean, with respect to a Flare Gas Recovery System, a mechanical device designed and installed to recover gas from a flare header. Types of Flare Gas Recovery System compressors include reciprocating compressors, centrifugal compressors, liquid ring compressors and liquid jet ejectors.

12.x.(1). “Detroit Coker Flare” shall mean the elevated Flare, identified as No. 76ME801, that serves as a Flare for the Coker unit at the Detroit Refinery.

12.x.(2) “Detroit Cracking Plant Flare” or “Detroit CP Flare” shall mean the elevated Flare, identified as No. 25FS-1, located on the fence line of the Detroit Refinery that serves as a Flare for Complexes 3 and 4 which includes the Fluidized Catalytic Cracking Unit, Gas Con Unit, Continuous Catalytic Reformer Unit, Propylene Unit, Treater Naphtha Hydrotreater, and Kerosene Hydrotreater.

12.x.(3). “Detroit Cracking Plant/Coker FGRS” shall mean the Flare Gas Recovery System that shall result, pursuant to Paragraph 38C of this First Amendment, from the consolidation of the Existing Detroit Coker FGRS with the to-be-installed FGRS identified in Table 2 as the “Detroit Cracking Plant” FGRS. The Detroit Cracking Plant/Coker FGRS will recover gas from the Cracking Plant and Coker of the Detroit Refinery.

12.cc.(1) “Existing Detroit Coker FGRS” shall mean the Flare Gas Recovery System that was installed in 2012 in accordance with Permit No. 63-08D, with two 30 kscfh Compressors and a total capacity of 60 kscfh that recovers gas from the Coker unit at the Detroit Refinery.

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

12.dd.(1). “Five Covered Refineries” shall mean the Canton, Catlettsburg, Detroit, Garyville, and Robinson Refineries.

12.ff.(1) “Flare Gas Recovery System” or “FGRS” shall mean a system of one or more compressors, piping, and associated water seal, rupture disk, or similar device used to divert gas from a Flare and direct the gas to a fuel gas system, to a combustion device other than the Flare, or to a product, co product, by product, or raw material recovery system.

12.ii.(1) “In Operation” or “Being In Operation” or “Operating,” with respect to a Flare, shall mean any and all times that Sweep, Supplemental, and/or Waste Gas is or may be vented to a Flare. A Flare that is In Operation is Capable of Receiving Sweep, Supplemental, and/or Waste Gas unless all Sweep, Supplemental, and Waste Gas flow is prevented by means of closed valves and/or blinds.

12.jj.(1) “KSCFH” or “kscfh” shall mean thousand standard cubic feet per hour.

12.vv.(1) “Need for a Compressor to Operate” shall mean:

- i. For a situation in which no Compressor within the FGRS is recovering gas: When a Potentially Recoverable Gas flow rate (determined on a five-minute block average) to the Covered Flare(s) serviced by the Flare Gas Recovery System exists; or
- ii. For a situation in which one or more Compressors within the FGRS already is(are) recovering gas: When the Potentially Recoverable Gas flow rate (determined on a five minute block average) exceeds the capacity of the operating Compressor(s).

12.ddd.(1) “Non-Recoverable Gases” shall mean the following specific gases that are not recoverable by a Flare Gas Recovery System:

- i. Supplemental and Purge Gas introduced between a Flare’s water seal and a Flare’s tip;
- ii. Hydrogen vented from a pressure swing absorber, steam methane reformer (hydrogen plant), or catalytic reformer;
- iii. Hydrogen that must bypass an FGRS in order to reestablish hydrogen balance in the event that hydrogen demand declines or stops rapidly;
- iv. Excess fuel gas and excess gases generated during the process of Shutdown, in turnaround, or during the process of Startup, caused

by a gas imbalance that cannot be consumed by fuel gas consumers in the refinery because there is not a sufficient demand for the gas, provided that, when the excess gas is routed around an FGRS, no natural gas in excess of that needed in order to maintain adequate gas pressure to prevent burners from pressure tripping is being supplied to the fuel gas mix drum;

- v. Nitrogen vented from purges of process units that are in the process of Shutdown, are in turnaround, or are in the process of Startup;
- vi. Nitrogen vented from purges of operating process units that are in a partial refinery turnaround scenario that causes the NHV of the fuel gas at the exit of the mix drum to fall below 740 BTU/scf; and
- vii. Gases vented during ultraformer catalyst regeneration.

12.fff.(1) “Potentially Recoverable Gases” shall mean the Sweep, Supplemental (unless introduced after an FGRS’ water seal) and/or Waste Gas ((including hydrogen, nitrogen, oxygen, carbon dioxide, carbon monoxide, and/or water) directed to a Covered Flare’s or group of Covered Flares’ FGRS and that does not meet the definition of “Non-Recoverable Gases.”

12.sss.(1) “Subpart Ja” shall mean 40 C.F.R. Part 60, Subpart Ja. 40 C.F.R. § 60.100a–60.109a.

IV. CIVIL PENALTY

15A. By no later than 30 days after the Effective Date of this First Amendment, MPC shall pay the sum of \$326,500 as a civil penalty. MPC shall pay this civil penalty in accordance with the requirements of Paragraph 13.

V. COMPLIANCE REQUIREMENTS

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

- a. Continuously measure and calculate 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.

27. Instrumentation and Monitoring Systems: Recording and Averaging Times. The instrumentation and monitoring systems identified in Paragraphs 18–20 and 22–24 shall be able to produce and record data measurements and calculations for each parameter at the following time intervals.

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

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

averaging times in this table are available and used for determining compliance with this Consent Decree.

29A. Taking the Detroit CP Flare Permanently Out of Service. By no later than December 31, 2018, MPC shall take the Detroit CP Flare out of service by physically removing piping in the Flare header or physically isolating the piping with a welded blind so as to eliminate direct piping to the Flare. By no later than January 31, 2019, MPC shall submit a written request to the Michigan Department of Environmental Quality (“DEQ”) to revoke all authorizations to operate the CP Flare contained in all Michigan DEQ permits, which request shall state the specific date that the CP Flare ceased operating.

32. Subsequent Updates to Waste Gas Minimization Plan. In the first semi-annual report required under Section VIII of this Decree (Reporting Requirements) that is due in July of the year that is one year after the submission of the First Updated WGMP, MPC shall submit a Second Updated WGMP. The Second Updated WGMP shall update, if and as necessary, the information required in Subparagraphs 30.a–30.f, 31.a, and 31.b. To the extent that MPC proposes to extend any schedule set forth in a previous WGMP, MPC may do so only with good cause. By no later than six months after the Effective Date of this First Amendment, MPC shall comply with the Flare Management Plan requirements of 40 C.F.R. § 60.103a(a) (Subpart Ja) for each Covered Flare. MPC shall include in each July semi-annual report required under Section VIII the documents that MPC prepares in compliance with 40 C.F.R. § 60.103a(a).

38. Overlapping Requirements.

a. Root Cause Analysis and Corrective Action Requirements under MPC's PRI Consent Decree. To the extent that a Reportable Flaring Incident that is triggered solely by the SO₂ threshold in the definition of "Reportable Flaring Incident" also constitutes an Acid Gas or Hydrocarbon Flaring Incident under MPC's PRI Consent Decree, MPC shall follow the provisions of MPC's PRI Consent Decree, and not the provisions of this Decree, for addressing the incident, for as long as MPC's PRI Consent Decree is in effect.

b. Root Cause Analysis and Corrective Action Provisions of NSPS Subpart Ja. By no later than six months after the Effective Date of this First Amendment, MPC shall comply with the root cause analysis ("RCA") and corrective action ("CA") requirements of 40 C.F.R. §§ 60.103a(c) and (d) in lieu of compliance with Paragraphs 35 and 37. In each semi-annual report required by Section VIII that is submitted after commencing compliance with 40 C.F.R. §§ 60.103a(c) and (d), MPC shall include a summary of the RCAs and CAs undertaken in the six-month period covered by the semi-annual report.

c. Flare Management Plan Provisions of NSPS Subpart Ja. By no later than six months after the Effective Date of this First Amendment, MPC shall comply with the Flare Management Plan requirements of 40 C.F.R. 60.103a(a) (Subpart Ja) for each Covered Flare. In each semi-annual report required by Section VIII that is submitted after commencing compliance with 40 C.F.R. §§ 60.103a(a), MPC shall include the documents that MPC prepared during the six-month period covered by the semi-annual report to demonstrate compliance with 40 C.F.R. § 60.103a(a).

38A. Determining Whether a Covered Flare that has a Water Seal is Not Receiving Potentially Recoverable Gas Flow. For a Covered Flare that has a water seal, if all of the

following conditions are met, then the Covered Flare is not receiving Potentially Recoverable Gas flow:

- a. For the water seal drum associated with the respective Covered Flare, the pressure difference between the inlet pressure and the outlet pressure is less than the water seal pressure as set by the static head of water between the opening of the dip tube in the drum and the level setting weir in the drum;
- b. For the water seal drum associated with the respective Covered Flare, the water level in the drum is at the level of the weir for a horizontal drum or at the overflow pipe for a vertical drum; and
- c. Downstream of the seal drum, there is no flow of Non-Recoverable Gas directed to the Covered Flare.

38B. Flare Gas Recovery Systems: Capacity and Start-Up Dates. By no later than the following dates for the following Covered Flares, MPC shall complete installation and commence operation of the following liquid-ring-based Flare Gas Recovery Systems:

TABLE 2

Refinery	Covered Flares	Total No. of Compressors	Capacity of each Compressor (kscfh) (at suction)	FGRS Total Capacity (kscfh) (at suction)	Date
Canton	Canton	2	95	190	11.1.2018
Catlettsburg	NNA&Alky	2	120	240	6.30.2016
Catlettsburg	Lube	2	120	240	6.30.2016
Detroit	Unifiner	2	95	190	6.30.2016
Detroit	Cracking Plant ²	2	95	190	12.31.2018
Garyville	North and South Elevated and Ground	6	120	723	4.30.2017
Robinson	1, 5, 6	2	120	240	12.31.2017

² The capacity listed for the Detroit Cracking Plant Flare is for the two new Compressors that MPC will install by the date in this Table 2 in Paragraph 38B, and not for the two existing compressors already installed as part of the Existing Detroit Coker FGRS.

38C. Flare Gas Recovery Systems: Consolidating the Detroit Cracking Plant FGRS with the Existing Detroit Coker FGRS. By no later than December 31, 2018, MPC shall consolidate the Detroit Cracking Plant FGRS identified in Table 2 in Paragraph 38B with the Existing Detroit Coker FGRS. This consolidated system shall be called the “Detroit Cracking Plant/Coker FGRS.” The Detroit Cracking Plant/Coker FGRS shall be comprised of four Compressors (two existing and two new) and shall have a Total Capacity of 250 kscfh. Any references to the “FGRSs in Table 2 in Paragraph 38B” shall mean, with respect to the “Detroit Cracking Plant FGRS,” the four-Compressor, 250 kscfh capacity “Detroit Cracking Plant/Coker FGRS.”

38D. Flare Gas Recovery Systems: Operation

a. General. MPC shall operate each FGRS in Table 2 in Paragraph 38B in a manner to minimize Waste Gas to the respective Covered Flares while ensuring safe refinery operations. MPC also shall operate each FGRS consistent with good engineering and maintenance practices and in accordance with its design and the manufacturer’s specifications.

b. Requirements Related to Compressors Being Available for Operation and/or in Operation. By no later than 180 days after the dates set forth in Table 2 in Paragraph 38B, MPC shall comply with the following requirements when Potentially Recoverable Gas is being generated:

i. Two-Compressor Systems (Canton, Catlettsburg NNA/Alky, Catlettsburg Lube, Detroit Unifiner, and Robinson 1,5,6): MPC shall have one Compressor Available for Operation and/or in operation 98% of the time and two Compressors Available for Operation and/or in operation 96% of the time.

ii. More than Two-Compressor Systems.

(1) Detroit Cracking Plant/Coker Flare Gas Recovery System (four Compressor system): MPC shall have three

Compressors Available for Operation and/or in operation 96% of the time and two Compressors Available for Operation and/or in operation at all times.

- (2) Garyville Flare Gas Recovery System (six Compressor system): MPC shall have five Compressors Available for Operation and/or in operation 96% of the time and four Compressors Available for Operation and/or in operation at all times.
 - (3) “At all times” Requirement. The following periods may be included in the amount of time that a Compressor is Available for Operation when determining compliance with the requirement to have two Compressors (for the Detroit Cracking Plant/Coker FGRS) and four Compressors (for the Garyville FGRS) Available for Operation and/or in operation “at all times”: Periods in which the two (for Detroit) or the four (for Garyville) Compressors are shut down (including the subsequent restart) due to operating conditions (such as high temperatures or large quantities of entrained liquid in the Vent Gas) outside the design operating range of the FGRSs, including the associated knock-out drum(s), such that the outage is necessary for safety and/or to preserve the mechanical integrity of the FGRS. By no later than 45 days after any such period of unplanned outage, MPC shall investigate the root cause and all contributing causes of the outage and shall implement, as expeditiously as practicable, corrective action, if any, to prevent a recurrence of the cause(s). In the reports due under Section VIII of this Decree, MPC shall describe each outage that occurred under the conditions identified in this Subparagraph, including the date, duration, cause(s), corrective action, and the status of the implementation of corrective action.
- c. Period to be Used for Computing Percentage of Time. For purposes of calculating compliance with the 96% and the 98% of time that a Compressor or group of Compressors must be Available for Operation and/or in operation, as required by Subparagraphs 38D.b.i–ii, the period to be used shall be an 8760-hour rolling sum, rolled hourly, using only hours when Potentially Recoverable Gas was generated during all or part of the hour but excluding hours for flows that could not have been prevented through reasonable planning and were in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss. When no Potentially Recoverable Gas was generated during an entire hour, then that hour shall not be used in computing the 8760 hour rolling sum. The

rolling sum shall include only the prior 8760 1-hour periods when Potentially Recoverable Gas was generated during all or part of the hour, provided that the Potentially Recoverable Gas was not generated by flows that could not have been prevented through reasonable planning and were in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss.

38E. Maintaining for Delivery and Operation a 95 kscfh Liquid Ring Compressor and a 120 kscfh Liquid Ring Compressor. By no later than December 31, 2017, MPC will maintain one 95 kscfh liquid ring Compressor and one 120 kscfh liquid ring Compressor at a location where these Compressors can be delivered to the Five Covered Refineries within 24 hours of notification of need. Each of these Compressors shall be interchangeable with the comparably-sized Compressors identified in Table 2 in Paragraph 38B. MPC shall make each delivered Compressor Available for Operation by no later than 48 hours after the Compressor's delivery at the Covered Refinery's front gate. In each semi-annual report due under Section VIII, MPC shall identify the dates and times that either or both of these Compressors were requested; the dates and times that it/they were delivered; and the times and dates that they became Available for Operation. Nothing in this Paragraph will prohibit MPC from switching out a Compressor previously-used in an initial FGRS installation for use pursuant to this Paragraph provided that the total number and capacity of each FGRS in Table 2 in Paragraph 38B is not reduced.

39. Limitations on Flaring. By no later than the dates set forth in Column I of Appendix 2.1, the following limitations on flaring shall be in effect:

Refinery (A)	No. of Covered Flares (B)	Refinery-Wide, 365-day Rolling Average Waste Gas Flow Limit (scfd) (C)
Canton	1	432,500
Catlettsburg	4	1,200,000
Detroit	5	550,000
Garyville	4	1,700,000
Robinson	6	1,000,000
Texas City	2	417,500

Each exceedance of the 365-day rolling average limit shall constitute one day of violation. An exceedance of the limit shall not prohibit ongoing refinery operations.

39A. Limitation on Flaring: Requesting an Increase in the Limit.

a. MPC Request. Once per calendar year commencing no sooner than January 1, 2017, MPC may submit a request to EPA to increase the Waste Gas Limitation (“WGL”) set forth in Paragraph 39 for a particular Covered Refinery. MPC may request an increase in the limitation, and EPA will approve such an increase, only if the request is based on changes in crude capacity and/or Nelson Complexity Index (“NCI”) after April 5, 2012, that are or will be permitted by the applicable state air permitting authority and only if either the:

- i. *Covered Refinery’s New Crude Capacity \geq 120% Covered Refinery’s 2011 crude capacity; or*
- ii. *Covered Refinery’s New NCI \geq 120% Covered Refinery’s 2011 NCI*

b. Equations for New Limitations.

- i. If Condition 39A.a.i applies, then MPC shall propose a new limitation based on the following equation:

$$\text{New WGL} = \text{Current WGL} \times \frac{\text{Covered Refinery's New Crude Capacity}}{\text{Covered Refinery's 2011 Crude Capacity}}$$

- ii. If Condition 39A.a.ii applies, then MPC shall propose new limitations based on the following equation:

$$\text{New WGL} = \text{Current WGL} \times \frac{\text{Covered Refinery's New NCI}}{\text{Covered Refinery's 2011 NCI}}$$

iii. If both conditions 39A.b.i and 39A.b.ii apply, the equation that results in the higher limit shall apply.

c. For purposes of Paragraph 39A.a and 39A.b, the following shall apply:

- i. The *Covered Refinery's New Crude Capacity* shall be the Atmospheric Crude Oil Distillation Capacity, in barrels per calendar day, that the Covered Refinery reported under "Total Operable" capacity on Part 5, Code 401, of the Form EIA 820 that MPC filed most recently before seeking a request for an increase in the flaring limitation for that Covered Refinery.
- ii. The *Covered Refinery's 2011 Crude Capacity* and the *Covered Refinery's 2011 NCI* shall be the following for the particular Covered Refinery that is the subject of the request:

	2011 Crude Capacity	2011 NCI
Canton	78,000	8.9
Catlettsburg	212,000	12.1
Detroit	106,000	7.7
Garyville	464,000	11.3
Robinson	206,000	9.8
Texas City	76,000	8.3

- iii. The *Covered Refinery's New NCI* shall be the Covered Refinery's Nelson Complexity Index as published in the Oil & Gas Journal in the December of the year that most recently preceded MPC's request for an increase in the flaring limitation for that Covered Refinery.
- iv. The *Current WGL* shall be either: (1) the Waste Gas Limitation set forth in Column C of the Table in Paragraph 39; or (2) if new Waste Gas Limitation has been previously requested and approved pursuant to this Paragraph, the most recently approved new Waste Gas Limitation.

d. EPA Response to Request. EPA shall evaluate any request under Subparagraph 39A.a on the basis of consistency with the requirements of this Paragraph. If EPA does not act on MPC's request within 60 days of submission, MPC may invoke the dispute resolution provisions of the Consent Decree.

e. The New Waste Gas Limitation shall take effect, if ever, beginning on the later of the date that EPA approves the request or a dispute is resolved in MPC's favor.

f. Nothing in this Paragraph or First Amendment shall be construed to relieve MPC of an obligation to evaluate, under applicable Prevention of Significant Deterioration and Nonattainment New Source Review requirements, any increase in a Waste Gas Limitation at any Covered Refinery.

40. Limitation on Flaring: Meaning of “Waste Gas” in Paragraph 39. For purposes of the meaning of “Waste Gas” in Paragraph 39, the following shall apply:

- a. [Unchanged.]
- b. Waste Gas 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 Covered Refinery), except those described in the next sentence, shall be included. Flows that could not be prevented through reasonable planning and are in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss are the only flows that may be excluded from the calculation of flow rate.
- c. [Unchanged.]

44. Exception to Part of the Work Practice Standards in Subparagraphs 43.a and 43.b.
MPC manually may override the operation of the Automatic Control System required in Subparagraph 43.a (for control of Supplemental Gas flow rate) and 43.b (for control of Total Steam Volumetric Flow Rate) if the exception in Paragraph 50 applies, and/or during Startup, Shutdown, or Malfunction of a process unit that feeds the Covered Flare, and/or to achieve the following:

- a. Stop Smoke Emissions that are occurring;
- b. Meet the Net Heating Value requirements of Paragraph 46;
- c. Prevent extinguishing the Flare;
- d. Protect personnel safety; and/or
- e. Stop Discontinuous Wake Dominated Flow

46. Net Heating Value Standards for each Covered Flare

- a. Net Heating Value of Vent Gas (NHV_{vg}). [Unchanged.]
- b. Net Heating Value of Combustion Zone Gas (NHV_{cz}).
- i. [Unchanged]
- ii. Interim Combustion Efficiency (CE) Multipliers. Between the dates set forth in Column H of Appendix 2.1 and the later of:
 (i) the date of the installation of an FGRS on the respective Covered Flare as shown in Table 2 in Paragraph 38B or
 (ii) June 30, 2017, MPC may use the following Table of CE Multipliers instead of the CE Multipliers in Table 2 of Appendix 1.3 provided that MPC complies with the conditions in Subparagraph 46.b.iii:

Minimum Steam for Covered Flare	VOC Vent Gas Concentration	A	B*	
			Cond. X	Cond. Y
≤ 1000 lb/hr	$\leq 20.0\%$	6.45	4.0	0.0
≤ 1000 lb/hr	$>20.0\%$	6.85	4.0	0.0
> 1000 lb/hr	$\leq 20.0\%$	6.45	4.0	0.0
> 1000 lb/hr	$> 20.0\%$	6.85	4.0	0.0

*The B Multiplier used depends on the relationship of hydrogen (H_2) and propylene in the Vent Gas as follows:

Condition X: $3 \leq H_2\% \leq 8$ and Propylene% $\geq H_2\%$ (all percents are volume or mole percents)

Condition Y: Any condition not meeting the requirements for Condition X.

- iii. Conditions for the Use of Interim CE Multipliers. [Unchanged.]
- iv. Final CE Multipliers. [Unchanged.]

47. S/VG_{mass} and S/VG_{vol} Standards (Total-Steam-Volumetric-Flow-Rate-to-Vent-Gas-Volumetric-Flow-Rate Ratio Standards).

- a. Interim Period. [Unchanged.]
- b. After Interim Period. [Unchanged.]

c. Adjustment at the Texas City Main Flare Based on Steam Contribution Factor.

i. [Unchanged.]

ii. Termination of Adjustment at the Texas City Main Flare. The adjustment allowed under Paragraph 47.c.i shall no longer be allowed or in effect on and after January 30, 2019.

57A. Compliance with 40 C.F.R. Part 63, Subpart CC. By no later than January 30, 2019, each Covered Flare shall be subject to and comply with the requirements of 40 C.F.R. §§ 63.670 and 63.671 and MPC no longer shall be required to comply with Paragraphs 41–57 of the Consent Decree.

59. NSPS Subparts A and Ja. Notwithstanding the dates in 40 C.F.R. § 60.103a(f), each 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 no later than the dates in Column J of Appendix 2.1. On and after the date(s) that each Covered Flare is subject to Subpart Ja, Subpart J no longer is applicable to that Covered Flare.

59A. Continued Operation and Maintenance of Ultra-Low NOx Burners on Garyville Refinery’s Heavy Gas Oil Reactor. MPC shall continue to operate and maintain the ultra-low NOx burners that it installed at the Garyville Refinery in 2014 on that Refinery’s Heavy Gas Oil Reactor Heater No. 15-1401. MPC shall be permanently subject to the prohibition in Paragraph 63 of the Consent Decree on the use of any emission reductions resulting from this installation and operation.

59B. Installation and Operation of Ultra-Low NOx Burners on the Canton Refinery's Crude Unit Vacuum Heater. By no later than December 31, 2018, MPC shall install on the Canton Refinery's Crude Unit vacuum heater (No. 4-4-B-1) ultra-Low NOx burners and shall commence compliance with a NOx emission rate of less than or equal to 0.060 pounds of NOx per MMBtu high heating value ("HHV") at 0% stack O₂ on a 30-day rolling average, rolled daily, when firing natural gas at full design load with air preheat. Compliance shall be determined by an initial performance test pursuant to 40 C.F.R. Part 60, Appendix A, Method 7E in conjunction with either EPA Method 19 or EPA Methods 1, 2, 3 and 4, or an EPA-approved alternative test method. The results of this testing shall be reported based on the average of three one hour testing runs. MPC shall conduct performance tests at least once every five (5) years thereafter.

61. Permits to Ensure Survival of Consent Decree Limits and Standards after Termination of Consent Decree.

- a. [Unchanged.]
- b. The limits and standards imposed by the following Paragraphs of this Consent Decree and this First Amendment shall survive termination: 17–22, 24 (if required), 38A, 38D, 39, 39A, 40, 57A, 59, and 59B.
- c. If, as of the Effective Date of the First Amendment, MPC already has incorporated into either an underlying non-Title V, federally enforceable permit and/or a Title V operating permit any of the provisions of the Consent Decree that, pursuant to this First Amendment, no longer are required to survive termination of the Consent Decree, MPC may submit to the applicable permitting authority a copy of this First Amendment and other

documentation (if any) to demonstrate that the provision no longer is required to be included in either an underlying non-Title V, federally enforceable permit or a Title V operating permit.

69. Semi-Annual Reports. On the dates and for the time periods set forth in Paragraph 72, MPC shall submit to EPA in the manner set forth in Section XV (Notices) the following information:

- a-c. [Unchanged.]
- d. Monitoring equipment/instrument downtime, override of Automatic Control System (“ASC”), exceedances of emission standards, and compliance with Compressor availability requirements, as described in Paragraph 70 and 70A;
- e-g [Unchanged.]

70. Monitoring Instrument/Equipment Downtime; Override of ACS; and Emissions Exceedances. On and after the date of applicability of any work practice or standard, MPC shall provide a summary of the following, per 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 18–20, 22–23, and, if applicable, 24, expressed as both an absolute number and a percentage of time the Covered Flare was In Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas;
- b. Monitoring Instrument/Equipment Downtime. [Unchanged];
- c. Override of Automatic Control System. The total number of hours in which MPC overrode the ACS required in Paragraph 43, expressed both an absolute number of hours and a percentage of time the Covered Flare was In Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas; 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 of the exceptions identified in Paragraph 44, a statement of which exception; or (ii) if the total number of hours in which the ACS was

overrode did not exceed 110 hours and was caused by one or more of the exceptions identified in Paragraph 50, a statement to that effect;

- d. Override of Automatic Control System. [Unchanged];
- e. Inapplicability of Emissions Standards. The total number of hours in which the requirements of Paragraphs 46–49 were not applicable because the only gas or gases being vented was/were Pilot Gas and/or Purge Gas, expressed as both an absolute number of hours and a percentage of time the Covered Flare was In Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas; for purposes of Subparagraphs 70.f. and 70.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 Subparagraphs 46.b, 47.b, 48.c, 48.d, and 49, expressed as both an absolute number of hours and a percentage of time the Covered Flare was In Operation and Capable of Receiving Sweep, Supplemental and/or Waste Gas; provided however, that if the exceedance of these standards did not exceed 110 hours in the calendar quarter and was due to one or more of the exceptions set forth in Paragraph 50, the report shall so note;
- g. Exceedances of Emissions Standards. [Unchanged];
- h. Flaring Limitations Exceedances. [Unchanged].

70A. Compressor Availability Requirements. For the Five Covered Refineries, in each semi-annual report due after the dates in Column J of Appendix 2.1, MPC shall provide sufficient information to document compliance with the FGRS operational requirements set forth in Paragraph 38D. MPC also shall include the information required to be included in the semi-annual reports set forth in Paragraph 38E. For any periods of non-compliance, MPC shall identify the date, cause, and corrective action.

77. Failure to Meet all Other Consent Decree Obligations. MPC shall be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below unless excused under Section IX of this Decree (Force Majeure). For those provisions where a

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

Violation	Stipulated Penalty	
[Para. 77.a to 77.s unchanged]		
77.t. <u>Violation of Paragraph 29A.</u> Failure to permanently take the Detroit CP Flare out of service by December 31, 2018	<u>Period of delay or noncompliance</u> Days 1–30 Days 31–60 Days 30 and later	<u>Penalty per day</u> \$ 1,250 \$ 3,000 \$ 5,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater
77.u. <u>Violation of the Request Requirement of Paragraph 29A.</u> Failure to submit a written request, by January 31, 2019, to Michigan DEQ to revoke all authorizations to operate the CP Flare; provided however, that if MPC is required to pay a stipulated penalty under Subparagraph 77.t, no additional penalty under this Subparagraph 77.u shall be assessed.	<u>Period of delay or noncompliance</u> Days 1–30 Days 31–60 Days 30 and later	<u>Penalty per day</u> \$ 200 \$ 300 \$ 400

<p>77.v. <u>Violation of Paragraph 38B.</u> Failure to timely install, in accordance with Paragraph 38B, Flare Gas Recovery Systems that conform to the requirements of Paragraph 38B</p>	<p>Period of delay or <u>noncompliance, per FGRS</u></p> <p>Days 1–30 Days 31–60 Days 61 and later</p>	<p>Penalty per day per <u>FGRS</u></p> <p>\$ 1,250 \$ 3,000 \$ 5,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater</p>
<p>77.w. <u>Violation of Paragraph 38C.</u> Failure to consolidate the Detroit Cracking Plant FGRS with the Existing Detroit Coker FGRS by December 31, 2018, in accordance with the requirements of Paragraph 38C.</p>	<p>Period of delay or <u>noncompliance</u></p> <p>Days 1–30 Days 31–60 Days 60 and later</p>	<p><u>Penalty per day</u></p> <p>\$ 1,250 \$ 3,000 \$ 5,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater</p>
<p>77.x. <u>Special Provision for Detroit Refinery.</u> With respect to Subparagraphs 77.t, 77.u, and 77.w, if the Detroit Refinery violates two or three of the three underlying substantive provisions (<i>i.e.</i>, Paragraph 29A, 38B, and/or 38C), the stipulated penalties of this Subparagraph shall apply, not the cumulative stipulated penalties of Subparagraphs 77.t, 77.u, and 77.w</p>	<p>Period of delay or <u>noncompliance</u></p> <p>Days 1–30 Days 31–60 Days 60 and later</p>	<p><u>Penalty per day</u></p> <p>\$ 1,750 \$ 4,000 \$ 6,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater</p>
<p>77.y. <u>Violation of certain Subparagraph 38D.b.ii(1) or (2) requirements.</u> Failure to comply with the Subparagraph 38D.b.ii(1) requirement to have two Compressors Available for Operation and/or in operation “at all times” or failure to comply with the Subparagraph 38D.b.ii(2) requirement to have four Compressors Available for Operation and/or in operation “at all times”</p>	<p>Per FGRS, per hour or fraction thereof: \$750; provided however, that stipulated penalties shall not apply for any hour in which a Compressor’s unavailability did not result in flaring.</p>	

<p>77.z. Violation of certain Subparagraph 38D.b.i, 38D.b.ii(1), or (2) requirements. Failure to comply with the following requirements of Subparagraphs 38D.b.i and 38D.b.ii(1) and (2):</p> <p>(1) Subparagraph 38D.b.i's requirement to have one Compressor Available for Operation and/or in operation 98% of the time; or</p> <p>(2) Subparagraph 38D.B.i's requirement to have two Compressors Available for Operation and/or in operation 96% of the time;</p> <p>(3) Subparagraph 38D.B.ii(1)'s requirement to have three Compressors Available for Operation and/or in operation 96% of the time; and</p> <p>(4) Subparagraph 38D.B.ii(2)'s requirement to have five Compressors Available for Operation and/or in operation 96% of the time</p>	<p>Per FGRS, the number of hours or fraction thereof—over the allowed percentage—in a rolling 8760-hour period that a Compressor required to be Available for Operation and/or in operation is not: \$750; provided however, that stipulated penalties shall not apply for any hour in which a Compressor's unavailability did not result in flaring.</p>								
<p>77.aa. <u>Violation of Paragraph 38E.</u> Failure to maintain for delivery and installation the Compressors required in Paragraph 38E in accordance with the requirements of Paragraph 38E.</p>	<table border="0"> <thead> <tr> <th style="text-align: left;"><u>Period of delay or noncompliance per Compressor</u></th> <th style="text-align: right;"><u>Penalty per day per Compressor</u></th> </tr> </thead> <tbody> <tr> <td>Days 1–30</td> <td style="text-align: right;">\$ 150</td> </tr> <tr> <td>Days 31–60</td> <td style="text-align: right;">\$ 250</td> </tr> <tr> <td>Days 61 and later</td> <td style="text-align: right;">\$ 500</td> </tr> </tbody> </table> <p>Provided however, that stipulated penalties shall not apply for any day of violation in which no flaring occurred during any delays beyond the allowed 72 hours for delivery and installation</p>	<u>Period of delay or noncompliance per Compressor</u>	<u>Penalty per day per Compressor</u>	Days 1–30	\$ 150	Days 31–60	\$ 250	Days 61 and later	\$ 500
<u>Period of delay or noncompliance per Compressor</u>	<u>Penalty per day per Compressor</u>								
Days 1–30	\$ 150								
Days 31–60	\$ 250								
Days 61 and later	\$ 500								

<p>77.bb. <u>Violation of Paragraph 59B.</u> For failure to timely install the ultra low-NOx burners required in Paragraph 59B in accordance with the requirements of Paragraph 59B or for failure to comply with the NOx emission limit set forth in Paragraph 59B.</p>	<p><u>Period of delay or noncompliance</u></p> <p>Days 1–30 Days 31–60 Days 61 and later</p>	<p><u>Penalty per day</u></p> <p>\$ 500 \$ 1,000 \$ 2,000 or an amount equal to 1.2 times the economic benefit of of delayed compliance, whichever is greater</p>
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135A. This First Amendment shall be lodged with the Court for a period of not less than 30 days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the First Amendment disclose facts or considerations indicating that the First Amendment is inappropriate, improper, or inadequate. MPC consents to entry of this First Amendment without further notice and agrees not to withdraw from or oppose entry of this First Amendment by the Court or to challenge any provision of the First Amendment unless the United States has notified MPC in writing that it no longer supports entry of this First Amendment.

DATED this _____ day of _____ 2016.

 United States District Judge
 Eastern District of Michigan

We hereby consent to the entry of the First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.), subject to public notice and comment.

FOR THE UNITED STATES OF AMERICA

s/ John C. Cruden
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United States Department of Justice

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We hereby consent to the entry of the First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.), subject to public notice and comment.

FOR THE UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

s/ with consent of Cynthia Giles

CYNTHIA GILES

Assistant Administrator

Office of Enforcement and Compliance Assurance

United States Environmental Protection Agency

Washington, DC

We hereby consent to the entry of the First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.).

FOR MARATHON PETROLEUM COMPANY LP,
BY MPC INVESTMENT LLC, its General Partner

s/ with consent of Ray Brooks

RAY BROOKS

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We hereby consent to the entry of the First Amendment to Consent Decree in the matter of United States v. Marathon Petroleum Company LP, et al., No. 2:12-cv-11544 (E.D. Mich.).

FOR CATLETTSBURG REFINING, LLC

s/ with consent of Ray Brooks

RAY BROOKS

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