

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF INDIANA  
HAMMOND DIVISION

UNITED STATES OF AMERICA, )

Plaintiff, )

and )

THE STATE OF INDIANA, )

STATE OF OHIO, and the NORTHWEST )

AIR POLLUTION AUTHORITY, )

WASHINGTON, )

Plaintiff-Intervenors, )

v. )

BP EXPLORATION & OIL CO., AMOCO )

OIL COMPANY, and ATLANTIC )

RICHFIELD COMPANY )

Defendants. )

Civil No. 2:96 CV 095 RL

Magistrate Judge Rodovich

CONSENT DECREE

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## CONSENT DECREE

WHEREAS, plaintiff the United States of America ("Plaintiff" or "the United States"), by the authority of the Attorney General of the United States and through its undersigned counsel, acting at the request and on behalf of the United States Environmental Protection Agency ("EPA"), alleges that defendant BP Exploration & Oil Co ("BPX&O") has violated and continues to violate the requirements of the Clean Air Act and the regulations promulgated thereunder at its petroleum refinery at Toledo, Ohio;

WHEREAS, the United States further alleges that defendant Amoco Oil Company ("Amoco") has violated and continues to violate the requirements of the Clean Air Act and the regulations promulgated thereunder at the petroleum refineries it owns and operates at Mandan, North Dakota; Salt Lake City, Utah; Texas City, Texas; Whiting, Indiana; and Yorktown, Virginia;

WHEREAS, the United States further alleges that Atlantic Richfield Company ("Arco") has violated and continues to violate the requirements of the Clean Air Act and the regulations promulgated thereunder at the petroleum refineries it owns and operates at Cherry Point, Washington and Carson, California;

WHEREAS, the United States alleges that BPX&O, Amoco, and Arco, violated and continue to violate the following statutory and regulatory provisions:

- 1) Prevention of Significant Deterioration ("PSD") requirements at Part C of Subchapter I of the Clean Air Act (the "Act"), 42 U.S.C. §§ 7470-7492, and the regulations promulgated thereunder at 40 C.F.R. § 52.21 (the "PSD Rules"), and "Plan Requirements for Non-Attainment Areas" at Part D of Subchapter I of the Act, 42 U.S.C. §§ 7501-7515, and the regulations promulgated thereunder at 40 C.F.R. § 51.165, Part 51, Appendix S, and § 52.24 ("PSD/NSR Regulations") for fuel gas combustion devices and fluid catalytic cracking unit catalyst regenerators for NO<sub>x</sub>, SO<sub>2</sub>, sulfur bearing compounds, CO and PM;

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

3) Leak Detection and Repair ("LDAR") regulations found at 40 C.F.R. Part 60 Subparts VV and GGG, under Section 111 of the Act, and 40 C.F.R. Part 63, Subparts F, H, and CC, under Section 112(d) of the Act ("LDAR Regulations"); and

4) National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Benzene Waste, 40 C.F.R. Part 61, Subpart FF, and Section 112(q) of the Act ("Benzene Waste NESHAP Regulations").

WHEREAS, the United States also alleges with respect to the refineries identified above that BPX&O, Amoco, and Arco ("hereinafter collectively referred to as "BP"), been, and continue to be, in violation of the state implementation plans ("SIPs") and other state rules adopted by the states in which the aforementioned refineries are located to the extent that such plans or rules that implement, adopt or incorporate the above-described federal requirements;

WHEREAS, the United States further alleges that Amoco has violated and continues to violate the Resource Conservation and Recovery Act ("RCRA") Permitting, Closure, Post-Closure and Financial Assurance requirements at its Whiting, Indiana refinery for the spent bender catalyst waste pile set forth at 40 C.F.R. Part 264, Subparts G, H, L which are incorporated by reference in 329 IAC 3.1-9-1, and Part 270 which are incorporated by reference in 329 IAC 3.1-13-1. In addition, the United States further alleges that Amoco has failed to make an adequate waste determination of the spent treating clay waste at its Whiting refinery in violation of 40 C.F.R. § 262.11 and 329 IAC 3.1-7-2-1;

WHEREAS, pursuant to Section 325(c)(1) of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. § 11045(c)(1), and Section 109(c) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.

S. C. § 9609(c), the United States alleges upon information and belief, that BP violated Section 313 of EPCRA, 42 U.S.C. § 11023, and Section 103(a) of CERCLA, 42 U.S.C. § 9603(a), and the regulations promulgated thereunder;

WHEREAS, the United States specifically alleges that Amoco has failed to timely submit a Form R for Ammonia at its Whiting refinery in violation of Section 313 of EPCRA, 42 U.S.C. § 11023;

WHEREAS, State of Ohio, State of Indiana, and the Northwest Air Pollution Authority, Washington ("Plaintiff-Intervenors") have sought to intervene in this matter alleging violations of their respective applicable SIP provisions and other state rules incorporating and implementing the foregoing federal requirements;

WHEREAS, the Texas Natural Resource Conservation Commission ("TNRCC") has expressed general approval of the terms of the Consent Decree;

WHEREAS, the United States and BP agree that the injunctive relief and environmental projects (or measures) identified in the Consent Decree will reduce: 1) nitrogen oxide emissions from the covered petroleum refineries by approximately of 22,000 tons annually; 2) sulfur dioxide emissions from the covered refineries by approximately 27,300 tons annually; and 3) emissions of volatile organic compounds and particulate matter ("PM");

WHEREAS, with respect to the provisions of Paragraph 22 of this Consent Decree, EPA maintains that "[i]t is the intent of the proposed standard [40 C.F.R. § 60.104] that hydrogen-sulfide-rich gases exiting the amine regenerator be directed to an appropriate recovery facility, such as a Claus sulfur plant," see Information for Proposed New Source Performance Standards: Asphalt Concrete Plants, Petroleum Refineries, Storage Vessels, Secondary Lead Smelters and Refineries, Brass or Bronze Ingot Production Plants, Iron and Steel Plants, Sewage Treatment Plants, Vol. 1, Main Text at 28;

WHEREAS, EPA further maintains that the failure to direct hydrogen-sulfide-rich gases to an appropriate recovery facility -- and instead to flare such gases under circumstances that are

not sudden or infrequent or that are reasonably preventable -- circumvents the purposes and intentions of the standards at 40 C.F.R. Part 60, Subpart J;

WHEREAS, the United States recognizes that Malfunctions, as defined in 40 C.F.R. § 60.2, of SRUs or of Upstream Process Units may result in Flaring of Acid Gas or Sour Water Stripper Gas on occasion, and that such Flaring does not violate 40 C.F.R. § 60.11(d) if the owner or operator, to the extent practicable, maintains and operates these Units in a manner consistent with good air pollution control practice for minimizing emissions during these periods;

WHEREAS, the United States recognizes that the combustion in a flare subject to 40 C.F.R. § 60.104(a)(1) of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions does not violate 40 C.F.R. § 60.104(a)(1);

WHEREAS, with respect to Paragraph 22 of the Consent Decree, BP maintains that:

(i) Flaring is not regulated with respect to sulfur dioxide emissions except for flares subject to 40 C.F.R. § 60.104(a)(1); and (ii) 40 C.F.R. § 60.104(a)(1) applies only to flares that are otherwise subject to NSPS and that are maintained to combust Acid Gases or Sour Water Stripper Gases on a continuous basis as a part of normal refinery operations;

WHEREAS, by entering into this Consent Decree BP is committed to pro-actively resolving environmental concerns related to its operations;

WHEREAS, consistent with this pro-active environmental commitment, and notwithstanding its belief that many of the United States' claims lacked a basis in law or fact, representatives of BP agreed to discuss with the United States achieving, without resort to litigation, a responsible, environmentally beneficial, cost-effective and comprehensive resolution of all the United States' claims at the aforementioned refineries;

WHEREAS, these discussions have resulted in the settlement embodied in the Consent Decree;



WHEREAS, BPX&O, Amoco, and Arco, waived any applicable Federal or state requirements of statutory notice of the alleged violations;

WHEREAS, it is the intent of the Parties to resolve through this Consent Decree the matters set forth in Paragraph 73 of the Consent Decree ("Effect of Settlement");

WHEREAS, by agreeing to entry of the Consent Decree, neither BPX&O, Amoco, nor Arco, makes any admission of law or fact with respect to any of the allegations set forth in the Consent Decree or the amended complaint filed herewith and each defendant denies any violation by such defendant of any law or regulation identified herein;

WHEREAS, notwithstanding the foregoing reservations, BPX&O, Amoco, and Arco, the United States, and the Plaintiff-Intervenor States agree that: a) settlement of the matters set forth in the amended complaint filed herewith in accordance with the Consent Decree is in the best interests of the Parties and the public; and b) entry of the Consent Decree without litigation is the most appropriate means of resolving this matter;

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

NOW THEREFORE, with respect to the matters set forth in Paragraph 73 of the Consent Decree ("Effect of Settlement"), and before the taking of any testimony, without adjudication of any issue of fact or law, and upon the consent and agreement of the Parties to the Consent Decree, it is hereby ORDERED, ADJUDGED and DECREED as follows:

## I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action and over the Parties pursuant to 28 U.S.C. §§ 1331, 1345 and 1355. In addition, this Court has jurisdiction over the subject matter of this action pursuant to Section 113(b) and 167 of the CAA, 42 U.S.C. § 7413(b) and 7477. BPX&O, Amoco, and Arco consent to the personal jurisdiction of this Court and waive any objections to venue in this District. The United States' complaint states a claim upon which relief may be granted for injunctive relief and civil penalties against BP these same provisions of the CAA. Further, the United States and BP agree that this Court has jurisdiction over the RCRA Whiting claims under Sections 3004 and 3005 of RCRA, 42 U.S.C. §§ 6924 and 6925, and of the alleged EPCRA claims under Sections 325(a), (b), and (c) of EPCRA, 42 U.S.C. § 11045(a), (b), and (c). Authority to bring this suit is vested in the United States Department of Justice by 28 U.S.C. §§ 516 and 519, Section 305 of the CAA, 42 U.S.C. § 7605, Section 325 of EPCRA, 42 U.S.C. § 11045, and Section 109(c) of CERCLA, 42 U.S.C. § 9609(c). Venue is proper in the Northern District of Indiana pursuant to Section 113(b) of the CAA, 42 U.S.C. § 7413(b), Section 3008(a) of RCRA, 42 U.S.C. § 6928(a), and 28 U.S.C. §§ 1391(b) and (c), and 1395(a).

2. Notice of the commencement of this action has been given to: a) State of Washington, State of California, State of North Dakota, State of Utah, State of Ohio, State of Indiana, the Commonwealth of Virginia, and State of Texas, as required by Section 113(b) of the CAA, 42 U.S.C. § 7413(b); and b) the State of Indiana as required by Section 3008(a)(2) of RCRA, 42 U.S.C. § 6928(a)(2).

3. Arco is a corporation doing business at Cherry Point, Washington and Carson, California. Amoco is a corporation doing business at Mandan, North Dakota; Salt Lake City, Utah; Texas City, Texas; Whiting, Indiana; and Yorktown, Virginia. BPX&O is a corporation doing business at Toledo, Ohio. BPX&O, Amoco, and Arco operate petroleum refineries at each

of these eight locations. BPX&O, Amoco, and Arco have their principal operating offices in Chicago, Illinois.

4. Each company is a "person" within the meaning of Section 302(e) of the CAA, 42 U.S.C. § 7602(e), and Section 329(7) of EPCRA, 42 U.S.C. § 11049(7). Amoco is also a "person" within the meaning of Section 1003(15) of RCRA, 42 U.S.C. § 6902(15).

5. For purposes of the Consent Decree, BPX&O, Amoco, and Arco waive all objections to jurisdiction and venue.

## II. APPLICABILITY

6. The provisions of the Consent Decree shall apply to, and be binding upon (a) Amoco, with respect to the Mandan Facility, the Salt Lake City Facility, the Texas City Facility, the Whiting Facility, and the Yorktown Facility; (b) Arco, with respect to the Carson Facility and the Cherry Point Facility; and (c) BPX&O, with respect to the Toledo Facility. In addition, with respect to each such Facility, the Consent Decree shall be binding upon each such company's respective officers, directors, successors, and assigns, and upon the United States, and the particular States that execute this Consent Decree. BP shall condition any transfer, in whole or in part, of ownership of, operation of, or other interest (exclusive of any non-controlling non-operational shareholder interest) in any of the refineries that are subject of the Consent Decree upon the execution by the transferee of a modification to the Consent Decree, making the terms and conditions of the Consent Decree that apply to such refinery applicable to the transferee. The Parties shall file that modification with the Court promptly upon such transfer. In the event of any such transfer of ownership or other interest in any refinery, BP shall be released from the obligations and liabilities of this Consent Decree provided that, at the time of such transfer, the transferee has the financial and technical ability to assume and has contractually agreed to assume these obligations and liabilities.

7. Defendants agree to be bound by this Consent Decree and not to contest its validity in any subsequent proceeding to implement or enforce its terms.

8. Effective from the Date of Entry of the Consent Decree until its termination, BP agrees that its refineries identified above are covered by this Consent Decree. Effective from the Date of Lodging of the Consent Decree, BP shall give written notice of the Consent Decree to any successors in interest prior to transfer of ownership or operation of any portion of any petroleum refinery that is the subject of the Consent Decree and shall provide a copy of the Consent Decree to any successor in interest. BP shall notify the United States in accordance with the notice provisions set forth in Paragraph 83, of any successor in interest at least thirty (30) days prior to any such transfer.

9. The undersigned representatives certify that they are fully authorized to enter into the Consent Decree on behalf of the Parties, and to execute and to bind such Parties to the Consent Decree.

10. Each defendant shall provide a copy of the Consent Decree to each consulting firm and contracting firm that it retains to perform the work, or any material portion thereof, described in the Consent Decree, upon execution of any contract relating to such work, and shall provide a copy to each consulting firm and contracting firm that the defendant has already retained no later than thirty (30) days after the Date of Entry of the Consent Decree. In addition, each defendant shall provide a copy of all relevant and applicable schedules for implementation of the provisions of this Consent Decree to the vendor(s) supplying the control technology systems and emissions reducing additives required by this Consent Decree.

### **III. OBJECTIVES**

11. It is the purpose of the Parties in entering this Consent Decree to further the objectives of the CAA as described at Section 101 of CAA, 42 U.S.C. § 7401, Sections 301-330 of EPCRA, 42 U.S.C. §§ 11001-11050, and Section 103(a) of CERCLA, 42 U.S.C. § 9603(a), and with respect to the Whiting Facility, it is the intention of Amoco and the United States to further the purposes of RCRA, as described at Section 1002 of RCRA, 42 U.S.C. § 6902.

#### **IV. DEFINITIONS**

12. Unless otherwise defined herein, terms used in the Consent Decree shall have the meaning given to those terms in the CAA, and the regulations promulgated thereunder. In addition, terms used in the Consent Decree in the provisions that relate specifically to obligations under RCRA, EPCRA, and CERCLA shall have the meaning given to those statutes and implementing regulations promulgated thereunder.

13. The following terms used in the Consent Decree shall be defined for purposes of the Consent Decree and the reports and documents submitted pursuant thereto as follows:

A. "Acid Gas" shall mean any gas that contains hydrogen sulfide and is generated at a refinery by the regeneration of an amine scrubber solution.

B. "Air Quality Control Region" shall mean an area designated under Section 107(c) of the Clean Air Act as necessary or appropriate for the attainment and maintenance of ambient air quality standards.

C. [Reserved]

D. "BP" shall mean:

i. With respect to the Mandan, Salt Lake City, Texas City, Whiting and Yorktown Facilities, Amoco Oil Company ("Amoco"), its successors and assigns, and its officers, directors, and employees in their capacities as such;

ii. With respect to the Carson and Cherry Point Facilities, Atlantic Richfield Company ("Arco"), its successors and assigns, and its officers, directors, and employees in their capacities as such; and

iii. With respect to the Toledo Facility, BP Exploration and Oil, Inc. ("BPX&O"), its successors and assigns, and its officers, directors, and employees in their capacities as such.

For the sake of convenience, the foregoing companies are, at times, referred to either separately or collectively as "BP" in this Decree; however, neither that fact, nor any other aspect

of this Decree is intended, nor shall it be construed, to affect or alter in any way the existing corporate structure of each company, or of its relationship(s) to its respective or collective parent(s), co-subidiaries, or subsidiaries.

E. "Calendar quarter" shall mean the three month period ending on March 31st, June 30th, September 30th, and December 31st.

F. "Carson Facility" shall mean the facility owned and operated by Arco at Carson, California.

G. "CEMS" shall mean continuous emissions monitoring system.

H. "Cherry Point Facility" shall mean the facility owned and operated by Arco at Cherry Point, Washington.

I. "Consent Decree" or "Decree" shall mean this Consent Decree, including any and all appendices attached to the Consent Decree.

J. "CO" shall mean the pollutant carbon monoxide.

K. "Current generation" ultra low-NOx burner shall mean those burners currently on the market that are designed to achieve a NOx emission rate of 0.03 to 0.04 lb/mmBTU with consideration given for variations in specific heater operating conditions such as air preheat, fuel composition and bridgewall temperature.

L. "Date of Lodging of the Consent Decree" shall mean the date the Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the Northern District of Indiana.

M. "Date of Entry of the Consent Decree" shall mean the date the Consent Decree is approved or signed by the United States District Court Judge.

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

O. "FCCU" or "FCU" as used herein shall mean a fluidized catalytic cracking unit.

P. "Fuel Oil" shall mean any non-gaseous fossil fuel.

Q. "Flaring" shall mean, for purposes of this Consent Decree, the combustion of Acid Gas or Sour Water Stripper Gas in a Flaring Device. Nothing in this definition shall be construed to modify, limit, or affect EPA's authority to regulate the flaring of gases that do not fall within the definitions contained in this Decree of Acid Gas or Sour Water Stripper Gas.

R. "Flaring Device" shall mean any device at the refineries which are the subject of this Consent Decree that is used for the purpose of combusting Acid Gas and/or Sour Water Stripper Gas, except facilities in which gases are combusted to produce sulfur or sulfuric acid. The Flaring Devices currently in service at the refineries have been identified in the Appendix G to the Consent Decree. To the extent that, during the duration of the Consent Decree, any covered refinery utilizes Flaring Devices other than those specified herein for the purpose of combusting Acid Gas and/or Sour Water Stripper Gas, those Flaring Devices shall be covered under this Consent Decree.

S. "Flaring Incident" shall mean the continuous or intermittent combustion of Acid Gas and/or Sour Water Stripper Gas that results in the emission of sulfur dioxide equal to, or in excess of, five-hundred (500) pounds in any twenty-four (24) hour period; provided, however, that if five-hundred (500) pounds or more of sulfur dioxide have been emitted in a twenty-four (24) hour period and Flaring continues into subsequent, contiguous, non-overlapping twenty-four (24) hour period(s), each period of which results in emissions equal to, or in excess of five-hundred (500) pounds of sulfur dioxide, then only one Flaring Incident shall have occurred. Subsequent, contiguous, non-overlapping periods are measured from the initial commencement of Flaring within the Flaring Incident. Appendix D to the Consent Decree provides examples of the application of this definition.

T. "Hydrocarbon Flaring" shall mean the combustion, in a Hydrocarbon Flaring Device of refinery process gases other than Acid Gas, Sour Water Stripper Gas, or Tail Gas.

U. "Hydrocarbon Flaring Device" shall mean a flare device used to safely control (through combustion) any excess volume of a refinery process gas other than Acid Gas, Sour Water Stripper Gas, and/or Tail Gas.

V. "Malfunction" shall mean any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

W. "Mandan Facility" shall mean the facility owned and operated by Amoco at Mandan, North Dakota.

X. "Next Generation" ultra low-NOx burner shall mean those burners new to the market that are designed to achieve a NOx emission rate of 0.012 to 0.015 lb/mmBTU, with consideration given for variations in specific heater operating conditions such as air preheat, fuel composition and bridgewall temperature.

Y. "NOx" shall mean the pollutant nitrogen oxides.

Z. "NOx adsorbing catalyst" shall mean an FCCU additive that is commercially available and substantially equivalent in cost and effectiveness to the catalyst currently being developed and marketed as "DeNOx Catalyst" by Grace-Davison, Inc.

AA. "Paragraph" shall mean a portion of this Consent Decree identified by an arabic numeral.

BB. "PM" shall mean the pollutant particulate matter.

CC. "Parties" shall mean each of the signatories to the Consent Decree.

DD. "Root Cause" shall mean the primary cause of a Flaring Incident as determined through a process of investigation; provided, however, that if a Flaring Incident encompasses multiple releases of sulfur dioxide, the "Root Cause" may encompass multiple primary causes.

EE. "Salt Lake Facility" shall mean the facility owned and operated by Amoco at Salt Lake City, Utah.



FF. "Scheduled Maintenance" shall mean any shutdown of any emission unit or control equipment that BP schedules at least fourteen (14) days in advance of the shutdown for the purpose of undertaking maintenance of such unit or control equipment.

GG. "Shutdown" shall mean the cessation of operation of an affected facility for any purpose.

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

II. "Startup" shall mean the setting in operation of an affected facility for any purpose.

JJ. "SO<sub>2</sub>" shall mean the pollutant sulfur dioxide.

KK. "Sulfur Recovery Plant" shall mean a process unit which recovers sulfur from hydrogen sulfide by a vapor-phase catalytic reaction of sulfur dioxide and hydrogen sulfide. The SRPs currently in service at the refineries (except Toledo) are identified in Appendix G to the Consent Decree.

LL. "Tail Gas Unit" ("TGU") shall mean an oxidation control system followed by incineration, a reduction control system whether or not followed by incineration, and any other alternative technology for reducing emissions of sulfur compounds from an SRP.

MM. "Texas City Facility" shall mean the facility owned and operated by Amoco at \_\_\_\_\_  
Texas City, Texas.

NN. "Toledo Facility" shall mean the facility owned and operated by BPX&O at Toledo, Ohio.

OO. [Reserved]

PP. "Upstream Process Units" shall mean all amine contractors, amine scrubbers, and sour water strippers at the refineries that are subject to the Consent Decree, as well as all process units at these refineries that produce gaseous or aqueous waste streams that are processed at amine contractors, amine scrubbers, or sour water strippers.

QQ. "Whiting Facility" shall mean the facility owned and operated by Amoco at Whiting, Indiana.

RR. "Yorktown Facility" shall mean the facility owned and operated by Amoco at Yorktown, Virginia.

**V. AFFIRMATIVE RELIEF/ENVIRONMENTAL PROJECTS (OR MEASURES)**

**14. NOx Emission Reductions from FCCUs and CO:** BP shall install control technologies and demonstrate the use of additives to reduce and control NOx emissions from its FCCUs, as set forth below:

**A. Installation of Selective Catalytic Reduction ("SCR"):**

**i. Texas City Facility's FCCU 2:**

a. BP shall complete installation and begin operation of an SCR system at its Texas City Facility's FCCU 2 no later than December 31, 2005. BP shall design the system to reduce emissions of NOx from the FCCU as much as feasible in a manner consistent with standards of good engineering practice. Consistent with the foregoing, the SCR system for the Texas City Facility FCCU 2 shall be designed to achieve a NOx concentration of 20 parts per million by volume, dry basis ("ppmvd") (at 0% oxygen) or lower.

b. BP shall submit to EPA the process design specifications for the SCR system at Texas City FCCU 2 no later than 18 months prior to December 31, 2005. BP and EPA agree to consult on development of the proposed process design specifications for each SCR system prior to submission of BP's proposed process design specifications. The proposed design shall, at a minimum, consider the design parameters identified in Appendix E to the Consent Decree, which is incorporated as if fully set forth herein. Within sixty (60) days of receipt of EPA's comments on the proposed design, BP shall modify the proposed design to address EPA's comments, and submit the design to EPA for final approval. Upon receipt of EPA's final approval of the design, BP shall implement the design.

c. BP will demonstrate the performance of the SCR system over a six-month period. The six-month demonstration shall begin no later than three (3) months after the completion of the installation of the SCR for Texas City Facility FCCU 2 in 2005. During the demonstration period, BP shall optimize the performance of the SCR system and shall consider the effect of the operating considerations identified in Appendix E to the Consent Decree. No later than sixty (60) days after the completion of the demonstration, BP shall report to EPA the results of the six-month demonstration as required by Paragraph 14.F of this Consent Decree. In its report, BP may propose a final NOx emissions limit based on a 3-hour rolling average and a 365-day rolling average. EPA will use this information, CEMS data collected during the demonstration, the information identified in Paragraph 14.F, and all other available and relevant information to establish representative NOx emissions limits for the Texas City Facility FCCU 2 in accordance with Paragraph 14.F.ii. EPA may set a limit less stringent than 20 ppmvd (at 0% oxygen) if it determines that 20 ppmvd (at 0% oxygen) is not achievable in practice based on its review of data and information of the actual performance of the Texas City Facility FCCU 2 and consideration of the factors listed in Paragraph 14.F. Should BP reduce NOx emissions at this unit below 20 ppmvd (at 0% oxygen), EPA may establish an emissions limit more stringent than the 20 ppmvd (at 0% oxygen). BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than December 31, 2005, BP shall use a NOx CEMS to monitor performance of FCCU 2 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

d. For the period June 30, 2001 until the commencement of operation of the SCR system, BP shall reduce NOx emissions from the Texas City Facility FCCU 2 by use of low-NOx combustion promoter (if and when CO promoter is used) and NOx adsorbing catalyst additive in accordance with Appendix F to achieve an interim concentration-based limit to be set by EPA in accordance with Paragraph 14.F.ii. BP will demonstrate the performance of the catalyst additives at the optimized rate over a twelve-month period. The twelve-month demonstration at the optimized rate shall begin no later than September 30, 2001. Prior to beginning the twelve-month demonstration, BP shall notify EPA of the optimized catalyst addition rate. During the demonstration, BP shall add catalyst additive according to the requirements of Paragraph 14.E of this Consent Decree. No later than sixty (60) days after the completion of the twelve-month demonstration, BP shall report to EPA the results of the demonstration as specified in Paragraph 14.F of this Consent Decree. In its report, BP may propose an interim NOx emissions limit based on a 3-hour rolling average and a 365-day rolling average. From and after the date this report is submitted to EPA, BP shall comply with its proposed emissions limit until EPA sets a final interim limit. EPA will use the information provided by BP in its report, CEMS data collected during the demonstration, and all other available and relevant information to establish representative NOx interim emissions limits for the Texas City Facility FCCU 2 in accordance with Paragraph 14.F.ii. Beginning no later than June 30, 2001, BP shall use a NOx CEMS to monitor performance of FCCU 2 and to report compliance with the terms and conditions of the Consent Decree. BP shall comply with the final interim emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the final interim emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than forty-five (45) days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period.

e. BP shall comply with the final interim limit set by EPA under this Paragraph 14.A.i.d until such time as BP proposes an emissions limit under Paragraph 14.A.i.c, at which time the final

interim emissions limit or the emissions limit proposed by BP under Paragraph 14.A.i.c, whichever is more stringent, shall apply until such time as BP is required to comply with the emissions limit set by EPA under Paragraph 14.A.i.c.

ii. Whiting Facility's FCU 600:

a. BP shall complete installation and begin operation of an SCR system at its Whiting Facility's FCU 600 no later than the turnaround in calendar year 2003. BP shall design the system to reduce emissions of NOx from the FCCU regenerator as much as feasible in a manner consistent with good engineering practices. Consistent with the foregoing, the SCR system for the Whiting Facility's FCU 600 shall be designed to achieve a NOx concentration of 20 ppmvd (at 0% oxygen) or lower.

b. BP shall submit to EPA the process design specifications for the SCR system at Whiting Facility's FCU 600 no later than 18 months prior to the turnaround in calendar year 2003. BP and EPA agree to consult on development of the proposed process design specifications for each SCR system prior to submission of BP's proposed process design specifications. The proposed design shall, at a minimum, consider the design parameters identified in Appendix E to the Consent Decree, which is incorporated as if fully set forth herein. Within sixty (60) days of receipt of EPA's comments on the proposed design, BP shall modify the proposed design to address EPA's comments, and submit the design to EPA for final approval. Upon receipt of EPA's final approval of the design BP shall implement the design.

c. BP will demonstrate the performance of the SCR system over a six-month period. The six month demonstration shall begin no later than three (3) months after the completion of the installation of the SCR for Whiting Facility's FCU 600. During the demonstration period, BP shall optimize the performance of the SCR system and shall consider the effect of the operating considerations identified in Appendix E to the Consent Decree. No later than sixty (60) days after the completion of the demonstration, BP shall report to EPA the results of the six month demonstration as required by Paragraph 14.F of this Consent Decree. In its report, BP may propose

a final NOx emissions limit based on a 3-hour rolling average and a 365-day rolling average. EPA will use this information, CEMS data collected during the demonstration, the information identified in Paragraph 14.F, and all other available and relevant information to establish representative NOx emissions limits for the Whiting Facility's FCU 600 in accordance with Paragraph 14.F.ii. EPA may set a limit less stringent than 20 ppmvd (at 0% oxygen) if it determines that 20 ppmvd (at 0% oxygen) is not achievable in practice based on its review of data and information of the actual performance of the Whiting Facility's FCU 600 and consideration of the factors listed in Paragraph 14.F. Should BP reduce NOx emissions at this unit below 20 ppmvd (at 0% oxygen), EPA may establish an emissions limit more stringent than 20 ppmvd (at 0% oxygen). BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than the turnaround in calendar year 2003, BP shall use a NOx CEMS to monitor performance of Whiting FCU 600 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

**B. Installation of Selective Non-Catalytic Reduction ("SNCR") - Toledo, Ohio**

**Toledo, Ohio FCCU:**

i. BP shall install and begin operation of an SNCR system no later than the turnaround of the Toledo FCCU in calendar year 2003. The SNCR system for the Toledo Facility shall be designed to reduce NOx emissions as much as feasible in a manner consistent with good engineering practices. Consistent with the foregoing, the SNCR system for the Toledo FCCU shall be designed to achieve a NOx concentration in the exhaust from the FCCU regenerator of 20 ppmvd

(0% oxygen) or lower. The SNCR system for the Toledo FCCU shall be operated by BP in an effort to achieve 20 ppmvd (at 0% oxygen).

ii. BP shall submit to EPA the process design specifications for the SNCR system at Toledo no later than 18 months prior to the turnaround of the Toledo FCCU in calendar year 2003. BP and EPA agree to consult on development of the proposed process design specifications for the SNCR system prior to submission of BP's final proposed process design specifications. The proposed design shall, at a minimum, consider the design parameters identified in Appendix E to the Consent Decree, which is incorporated as if fully set forth herein. Within sixty (60) days of receipt of EPA's comments on the proposed design, BP shall modify the proposed design to address EPA's comments, and submit the design to EPA for final approval. Upon receipt of EPA's final approval of the design BP shall implement the design.

iii. BP will demonstrate the performance of the SNCR system over a six-month period. The six-month demonstration shall begin no later than three (3) months after the completion of the installation of the SNCR for Toledo FCCU. During the demonstration period, BP shall optimize the performance of the SNCR system and shall consider the effect of the operating considerations identified in Appendix E to the Consent Decree. No later than sixty (60) days after the completion of the demonstration, BP shall report to EPA the results of the six-month demonstration as specified in Paragraph 14.F of this Consent Decree. In its report, BP may propose a final NOx emissions limit based on a 3-hour rolling average and a 365-day rolling average. EPA will use this information, CEMS data collected during the demonstration, the information identified in Paragraph 14.F, and all other available and relevant information to establish representative NOx emissions limits for the Toledo FCCU in accordance with Paragraph 14.F.ii. EPA may set a limit less stringent than 20 ppmvd (at 0% oxygen) if it determines that 20 ppmvd (at 0% oxygen) is not achievable in practice based on its review of data and information on the actual performance of the Toledo FCCU and consideration of the factors listed in Paragraph 14.F. Should BP reduce NOx emissions at this unit below 20 ppmvd (at 0% oxygen), EPA may establish an emissions limit more

stringent than 20 ppmvd (at 0% oxygen). BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than the turnaround in calendar year 2003, BP shall use a NOx CEMS to monitor performance of the Toledo FCCU and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

C. **Applications of Use of Low NOx Combustion Promoter and NOx Adsorbing Catalyst Additive**

i. **Carson, California FCCU**: No later than December 31, 2002, BP shall begin to add low-NOx combustion promoter (if and when CO promoter is used) and NOx adsorbing catalyst additive to the Carson FCCU in accordance with Appendix F. BP will demonstrate the performance of the catalyst additives at an optimized addition rate over a twelve-month period to yield the lowest NOx concentration feasible at that optimized rate. The twelve-month demonstration at the optimized rate shall begin no later than March 30, 2003. Prior to beginning the twelve-month demonstration, BP shall notify EPA of the optimized additive addition rate. During the demonstration, BP shall add catalyst in accordance with the requirements of Paragraph 14. E of the Consent Decree. During the demonstration, BP shall continue to use SO<sub>2</sub> adsorbing catalyst additive. In addition, during the demonstration, BP shall use NOx adsorbing catalyst additive without low-NOx combustion promoter (if and when CO promoter is used), to separately quantify the emission reducing affect of the low NOx combustion promoter (if and when CO promoter is used) and the NOx adsorbing catalyst. No later than sixty (60) days after the completion of the twelve-month demonstration, BP shall report to EPA the results of the demonstration as required by Paragraph 14.F of this Consent Decree. In its report, BP may propose a NOx emissions limit based on a 3-hour rolling average and



a 365-day rolling average. From and after the date this report is submitted to EPA, BP shall comply with its proposed respective emissions limit for the Carson FCCU unit until EPA sets a final limit. EPA will use actual performance data from the demonstration, the information in BP's report, CEMS data collected during the demonstration, the information identified in Paragraph 14.F, and all other available and relevant information to establish representative NOx emissions limits for the Carson FCCU. EPA will set such limits in accordance with Paragraph 14.F.ii. BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than December 31, 2002, BP shall use a NOx CEMS to monitor performance of the Carson FCCU and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

ii. Texas City FCCU 1 and FCCU 3, and the Whiting FCU 500: BP shall begin adding NOx adsorbing catalyst in conjunction with low-NOx combustion promoter (if and when CO promoter is used) in accordance with Appendix F at the following FCCUs by no later than the dates indicated: 1) December 31, 2001 for Texas City FCCU 3; 2) March 31, 2002 for Whiting FCU 500; and 3) The end of the turnaround in 2003 for Texas City FCCU 1. For each FCCU, BP will demonstrate the performance of the catalyst additives at the optimized rate over a twelve-month period to yield the lowest NOx concentration feasible at that optimized rate. Each twelve-month demonstration of the optimized catalyst addition rates shall begin no later than three (3) months after the respective dates specified above. Prior to beginning each twelve-month demonstration at the aforementioned FCCU/FCUs, BP shall notify EPA of the optimized additive addition rate for each of them. During each demonstration, BP shall add catalyst in accordance with the

requirements of Paragraph 14. E of the Consent Decree. No later than sixty (60) days after the completion of each twelve-month demonstration, BP shall report to EPA the results of that demonstration as required by Paragraph 14.F of this Consent Decree. In its reports, BP may propose a NOx emissions limit for the covered FCCU/FCU based on a 3-hour rolling average and a 365-day rolling average. From and after the date its reports is submitted to EPA for each FCCU/FCU units, BP shall comply with its proposed emissions limits for that FCCU/FCU until EPA sets a final limit for that FCCU/FCU. EPA will use the FCCU/FCU's actual performance data from the demonstration, the information in BP's reports, CEMS data collected during the demonstrations, the information identified in Paragraph 14.F, and all other available and relevant information to establish representative NOx emissions limits for each FCCU/FCU. EPA will set such limits in accordance with Paragraph 14.F.ii. BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than the dates specified above for beginning addition of additives at each FCCU/FCU, BP shall use a NOx CEMS to monitor performance of the respective FCCU/FCU during the life of the Consent Decree and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

**D. SCR and SNCR Design and Optimization During Demonstration - Proposed** designs of SCR and SNCR systems under this Consent Decree shall, at a minimum, consider the parameters listed in Appendix E to the Consent Decree, which is incorporated into this document as if fully set forth herein. BP shall at all times optimize the operation of the SCR and SNCR systems it is required to install under the terms of the Consent Decree.

**E. Rates for Low-NOx Combustion Promoter Substitution and NOx Adsorbing**

**Catalyst Addition:** The amounts of low-NOx combustion promoter and NOx adsorbing catalyst additives that will be added to the FCCUs under the programs referenced in Paragraphs 14.B and 14.C will be determined in accordance with Appendix F.

**F. Demonstration Reporting and Emission Limit Determination:**

i. As required by Paragraphs 14.A, 14.B, and 14.C, BP shall report the results of the demonstrations to EPA for its review and approval. Each report shall include, in addition to the information required specifically in Paragraphs 14.A, 14.B, and 14.C, hourly average NOx and O<sub>2</sub> concentrations at the point of either emission to the atmosphere or compliance monitoring, regenerator flue gas temperature and flow rate, coke make rate, FCCU feed rate, total fresh catalyst addition rate, and NOx adsorbing catalyst addition rate (if any). With respect to installation of SCR and SNCR systems, BP also shall provide flue gas temperature and NOx and O<sub>2</sub> concentrations at the inlet to the control device, reductant addition rate, and flow rate. The NOx and O<sub>2</sub> concentrations at the inlet to the SCR or SNCR systems may be determined by process analyzer(s) calibrated in accordance with the manufacturer's recommendations. In addition, to the extent available BP shall also provide information on the NOx and O<sub>2</sub> concentrations after the regenerator, and, where there is a CO boiler, before and after the CO boiler. The obligation to collect data on NOx and O<sub>2</sub> concentrations at points upstream of the point of emission to the atmosphere shall terminate upon completion of the demonstrations. The data or measurements required by this Paragraph shall be reported to EPA in both electronic and hard copy format.

ii. EPA, in consultation with BP and the appropriate state agency, will determine the NOx concentration limits based on the level of demonstrated performance during the test period, expected process variability, reasonable certainty of compliance, and any other available pertinent information (e.g., catalyst life).

**G. CEMS:** All CEMS installed and operated pursuant to this agreement will be installed, certified, calibrated, maintained, and operated in accordance with the applicable requirements of 40

C.F.R. § 60.11, § 60.13, and Part 60 Appendix F. These CEMS will be used to demonstrate compliance with emission limits.

H. **CO Emissions Control:** BP shall limit carbon monoxide ("CO") emissions from the FCCUs subject to this Consent Decree in accordance with this Paragraph 14.H:

i. By no later than the Date of Entry of the Consent Decree, the Salt Lake City FCCU and the Texas City FCCU 1 shall comply with all applicable requirements of 40 C.F.R. Subpart A and J as those requirements relate to CO emissions from FCCUs.

ii. By no later than December 31, 2001, the Carson FCCU, the Mandan FCCU, the Texas City FCCUs 2 and 3, the Toledo FCCU, the Whiting FCUs 500 and 600, and the Yorktown FCCU shall measure and record hourly average CO concentrations. Process analysers calibrated in accordance with manufacturer's recommendations may be used for this purpose.

iii. By no later than December 31, 2001, the Mandan FCCU, the Toledo FCCU, and the Yorktown FCCU shall limit CO emissions to 500 ppmvd one-hour average.

iv. BP shall limit CO emissions from the Carson FCCU, Texas City FCCU 2 and FCCU 3, and Whiting FCU 500, and Whiting FCU 600 to 500 ppmvd, one-hour average on the schedules set forth below:

- a. Texas City FCCU 2 and the Whiting FCU 600 By no later than the date on which each FCCU is required to comply with the final NOx limit established by EPA pursuant to Paragraph 14. F. above, BP shall limit CO emissions from that FCCU to 500 ppm, 1-hour average. The NOx emission limitation established for each of these FCCUs pursuant to Paragraph 14.F. shall not be set at a level that would cause that FCCU to either exceed the 500 ppm CO limit or to have to install additional controls to meet that CO limit.
- b. Carson FCCU and Whiting FCU 500: By no later than the date on which each FCCU is required to comply with the NOx limit established by EPA pursuant to Paragraph 14. F. above, BP shall, at a minimum, limit CO emissions from that

FCCU to 500 ppmvd, 24-hour average and shall make an effort to limit CO emissions to 500 ppmvd, 1-hour average. In all events, BP shall limit CO emissions to 500 ppmvd, 1-hr average by no later than December 31, 2004. The NOx emission limitation established for each of these FCCUs pursuant to Paragraph 14.F. shall not be set at a level that would cause that FCCU to exceed, or to have to install additional controls in order to meet, either the interim or final CO limits.

- c. Texas City FCCU 3: By no later than December 31, 2004, BP shall limit CO emissions from Texas City FCCU 3 to 500 ppmvd, 1-hour average. The NOx emission limitation established for this FCCU pursuant to Paragraph 14.F. shall not be set at a level that would cause an increase in CO emissions above the 500 ppmvd, 1-hour average.

v. The CO limits established pursuant to this Paragraph 14.H. shall not apply during periods of startup, shutdown or malfunction of the FCCUs or the CO control equipment, if any, provided that during startup, shutdown or malfunction BP shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to EPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

**15. NOx Emissions Reductions from Heaters and Boilers:**

A. BP shall install NOx emission control technology on certain specified heaters and boilers at its eight refineries. The heaters and boilers proposed for control by BP shall be selected in accordance with the requirements of this Paragraph.

B. No later than the fourth anniversary of the Date of Lodging of the Consent Decree, BP shall complete installation of controls on at least two-thirds (2/3) of the heat input capacity of the universe of its heaters and boilers that are to be controlled under the terms of Paragraph 15.C

through 15.E of the Consent Decree. No later than the fourth anniversary of the Date of Lodging of the Consent Decree, BP shall propose a schedule for installation of the controls for the remaining one-third (1/3) of the heat input capacity of the heaters and boilers that are required to be controlled under Paragraphs 15.C through 15.E.

C. BP shall select the heaters and boilers that shall be controlled at each of its eight refineries. The heaters and boilers selected by BP for future control, together with the heaters and boilers on which controls identified in Paragraph 15.D have already been installed, must represent a minimum of 59.5% of BP's system-wide heater and boiler heat input capacity in mmBTU/hr for those heaters and boilers greater than 40 mmBTU/hr, which for purposes of this Consent Decree is represented by BP to be approximately 38,391 mmBTU/hr across the eight refineries. Further, not less than 30% of the heater and boiler heat input capacity for heaters and boilers greater than 40 mmBTU/hr at any individual refinery must be controlled in accordance with Paragraph 15.D. Where BP affirmatively demonstrates to EPA's satisfaction that it is technically infeasible to install NOx controls for heaters/boilers to meet the 30% minimum requirement for any of its petroleum refineries, BP shall make up any shortfall by achieving NOx reductions corresponding to the shortfall from other sources at the refinery where the infeasibility was demonstrated, which may include external credit purchases in the same Air Quality Control Region.

D. BP shall select one or any combination of the following methods for control of NOx emissions from individual heaters or boilers selected by BP pursuant to Paragraph 15.C:

- i. SCR or SNCR;
- ii. "current generation" or "next generation" ultra-low NOx burners;
- iii. other technologies which BP demonstrates to EPA's satisfaction will reduce NOx emissions to .04 lbs. per mmBTU or lower;
- iv. permanent shut down of heaters and boilers with revocation of all operating permits; or
- v. modification of operating permits to include federally enforceable requirements limiting operations to emergency situations (e.g., failure or inability of First Energy to supply steam to the Toledo refinery), provided, however, that, any heater or boiler

controlled under this provision shall not be counted toward satisfaction of the requirements of Paragraph 15.C above, but shall be counted in determining whether the requirements of Paragraph 15.E are satisfied.

E. Following installation of all controls required by Paragraph 15.C, BP shall demonstrate that the allowable emissions from the controlled heaters and boilers at the eight refineries owned by BP satisfy the following inequality:

$$\sum_{i=1}^n (E_{Final})_i \leq \sum_{i=1}^n (E_{Baseline})_i - 9,632 \text{ tons}$$

Where:

$(E_{Final})_i$  = Permit allowable pounds of NOx per million Btu for heater or boiler i times the lower of permitted or maximum rated capacity in million Btu per hour for heater or boiler i:

and

$(E_{Baseline})_i$  = The ton per year actual emissions shown in Appendix A for controlled heater or boiler i.

F. BP shall receive a premium of 1.5 times the mmBTU/hr for each of the heaters and boiler for which it elects to install next generation ultra-low NOx burners to meet the 59.5% requirements of Paragraphs 15.C.

G. i. Appendix A to this Consent Decree provides the following information for each of the eight refineries subject to this Consent Decree: (a) a listing of all heaters and boilers with firing capacities greater than 40 mmBTU/hr; (b) the baseline actual emission rate in lbs/mmBTU, tons per year, and (c) BP's initial identification of the heaters and boilers that are either already controlled or are likely to be controlled in accordance with Paragraph 15. C.

ii. Within ninety (90) days of the Date of Lodging, BP shall provide EPA with an updated version of Appendix A identifying the heaters and boilers that are expected to be controlled in calendar year 2001. To the extent known at the time, this update shall also include, for each heater or boiler expected to be controlled during calendar year 2001, the following information:

- a. The baseline actual emission rate in lbs/mmBTU, and the basis for that estimate,
- b. The actual firing rate used in the baseline calculation and the averaging period used to determine that firing rate;
- c. The proposed NOx emission control technology to be installed on each such heater or boiler;
- d. The projected allowable emission rate in lbs/mmBTU, tons per year, and the basis for that projection.

BP shall expeditiously begin installation of controls on the heaters and boilers identified in this update.

iii. On or before December 31, 2001, and on or before December 31 of each subsequent year until all controls required by Paragraph 15.C. have been installed, BP shall provide EPA with further updates of Appendix A ("the Annual Heater and Boiler Update Report"). Each such Annual Heater and Boiler Update Report shall include the following:

- a. For each heater and boiler on which controls specified in Paragraph 15.D. have already been installed, the NOx emission control technology installed, the measured NOx emission rate in lbs/mmBTU, and the method by which that emission rate was determined;
- b. An identification of the additional heaters and boilers on which controls meeting the requirements of Paragraph 15.D. are expected to be installed in the next calendar year, and, insofar as known at the time the report is prepared, the proposed NOx emission control technology to be installed on each such heater or boiler, the projected emission rate in lbs/mmBTU, and the basis for that projection;
- c. The additional heaters and boilers on which controls are expected to be installed in future years in order to meet the requirements of Paragraph 15.C.;
- d. A demonstration that control of the heaters and boiler identified pursuant to subparagraphs (a) - (c) above meet the requirements of Paragraph 15.C; and



- e. An estimate of annual emissions, demonstrated through statistically significant random sampling, of the remaining heaters and boilers identified on Appendix A that are not anticipated to be controlled pursuant to the requirements of this Paragraph.

H. Within ninety (90) days of the date of installation of each control technology for which BP seeks recognition under Paragraphs 15.C. and E, BP shall conduct an initial performance test for NO<sub>x</sub> and CO. In addition, BP shall install, operate, and calibrate a NO<sub>x</sub> CEMS on BP's largest 35 heaters/boilers being controlled under this paragraph that do not have NO<sub>x</sub> CEMS as of the Date of Entry of the Consent Decree.

I. No later than ninety (90) days after the Date of Entry of the Consent Decree, BP shall propose to EPA for its review and approval a plan for accurately and reliably monitoring the performance of its heaters and boilers greater than 100 mmBTU/hr at which such defendant elects to install controls pursuant to Paragraph 15.C and at which there is no NO<sub>x</sub> CEMS. The monitoring addressed by each plan shall include, at a minimum, excess air or combustion O<sub>2</sub>, air preheat temperature where applicable, and burner preventive maintenance monitoring. Within thirty (30) days of receipt of EPA's comments on the proposal(s), BP shall modify the proposals to address EPA's comments, and submit the proposal to EPA for final approval. Upon receipt of EPA's final approval of the proposal BP shall implement the proposal, upon installation of controls at each of the heaters and boilers controlled under Paragraph 15.C but not equipped with CEMs.

J. BP shall demonstrate "next generation" ultra low-NO<sub>x</sub> burners so as to achieve 10 ppmvd (at 0% oxygen) NO<sub>x</sub> levels on Coker B-203 heater at the Texas City Facility. BP shall demonstrate next generation ultra low-NO<sub>x</sub> burners, as defined above, for a six (6) month demonstration period beginning no later than six (6) months after the Date of Lodging of the Consent Decree. BP shall operate the new burners to achieve the lowest feasible emissions of NO<sub>x</sub>. BP shall monitor performance of the heater with next generation technology by use of a CEMS, and shall report emissions results on a monthly basis no later than thirty (30) days following the month in which the monitoring occurred. BP shall prepare a written evaluation of the next generation low-NO<sub>x</sub> burner

demonstration, which shall include a discussion of effectiveness, economic and technical feasibility, and identification of the cost of installation. BP shall submit its report to EPA no later than sixty (60) days after completion of the six-month demonstration. BP shall not submit a claim of "Confidential Business Information" covering any aspect of the report, and acknowledges that the information in the report, and perhaps the report itself, will be made available for public distribution.

K. The requirements of this Section do not exempt BP from complying with any and all Federal, state and local requirements which may require technology upgrade based on actions or activities occurring after the Date of Lodging of the Consent Decree.

L. If BP proposes to transfer ownership of any refinery subject to Paragraphs 15. C. and E. before the requirements of those paragraphs have been met, BP shall notify EPA of that transfer and shall submit a proposed allocation to that refinery of its share of control percentage and tonnage reduction requirements of those Paragraphs that will apply individually to that refinery after such transfer. EPA shall approve that allocation so long as it ensures that the overall requirements of Paragraphs 15.C., 15.D, and 15.E will be met.

16. **SO<sub>2</sub> Emission Reductions from FCCUs:** BP shall install technologies and demonstrate the use of additives to reduce and control SO<sub>2</sub> emissions from the FCCUs at its eight refineries covered by this Consent Decree as follows:

A. **Installation of Wet Gas Scrubbers ("WGS")**

i. **Whiting FCU 500:**

a. BP shall complete installation and begin operation of a WGS technology (or alternative control) at its Whiting FCU 500 no later than the turnaround in calendar year 2006. Except as provided in Paragraph 16.C.ii., the WGS system for the Whiting FCU 500 shall be designed to achieve a SO<sub>2</sub> concentration of 25 ppmvd (at 0% oxygen) or lower on a 365-day rolling average basis and 50 ppmvd (at 0% oxygen) on a 7 day rolling average basis.

b. BP shall submit to EPA the process design specifications for the WGS system at Whiting FCU 500 no later than 18 months prior to the turnaround in calendar year 2006. BP and EPA agree to consult on the development of the proposed process design specifications for each WGS system prior to submission of BP's final proposed process design specifications. The proposed design shall, at a minimum, consider the design parameters identified in Appendix E to the Consent Decree, which is incorporated as if fully set forth herein. Within sixty (60) days of receipt of EPA's comments on the proposed design, BP shall modify the proposed design to address EPA's comments, and submit the design to EPA for final approval. Upon receipt of EPA's final approval of the design BP shall implement the design.

c. BP will demonstrate the performance of the WGS system over a six-month period. The six-month demonstration shall begin no later than three (3) months after the completion of the installation of the WGS for Whiting FCU 500 during the turnaround in calendar year 2006. During the demonstration period, BP shall optimize the performance of the WGS system, and consider the effect of the operating considerations identified in Appendix E to the Consent Decree. No later than sixty (60) days after the completion of the demonstration, BP shall report to EPA the results of the six-month demonstration as specified in Paragraph 16.E of this Consent Decree. In its report, BP may propose a final emissions limit for SO<sub>2</sub> based on a 7-day rolling average and a 365-day rolling average. EPA will use this information, CEMS data collected during the demonstration, the information identified in Paragraph 16.E, and all other available and relevant information to establish representative SO<sub>2</sub> emissions limits for the Whiting FCU 500 in accordance with Paragraph 16.E.ii. EPA may set a limit less stringent than 25 ppmvd (at 0% oxygen) if it determines that such limit is not achievable in practice based on its review of data and information of the actual performance of the Whiting FCU 500 and consideration of the factors listed in Paragraph 16.E. Should BP reduce SO<sub>2</sub> emissions at this unit below 25 ppmvd (at 0% oxygen), EPA may establish an emissions limit more stringent than 25 ppmvd (at 0% oxygen). BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA,

provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than September 30, 2001, BP shall use a SO<sub>2</sub> CEMS at all times to monitor performance of Whiting FCCU 500 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

d. For the from period December 31, 2001 until commencement of operation of the WGS system, BP shall reduce SO<sub>2</sub> emissions from the Whiting FCU 500 by use of SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F. BP will demonstrate performance of the SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F over a 12-month period. The 12-month demonstration shall begin no later than December 31, 2001. No later than sixty (60) days after the completion of the 12-month demonstration, BP shall report to EPA the results of the demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall either agree to an interim SO<sub>2</sub> limit of 117 ppmvd (at 0% oxygen) on a 365-day rolling average basis or propose an alternative 365-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration and is consistent with the provisions of Paragraph 16.E.ii and Appendix F. From and after the date this report is submitted, BP shall comply with its proposed emission limit until EPA sets a final interim limit. EPA will use the information provided by BP in its report, CEMS data collected during the demonstration, and all other available and relevant information to establish representative SO<sub>2</sub> interim emission limits for the Whiting FCU 500 in accordance with Paragraph 16.E.ii and Appendix F, provided however, that this limit may not be more stringent than 117 ppm (at 0% O<sub>2</sub>) on a 365-day rolling average. BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more

stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. At all times during the demonstration period, BP shall optimize the levels of catalyst addition rates according to the criteria identified in Paragraph 16.G, below. BP shall monitor SO<sub>2</sub> emissions and demonstrate compliance during this interim period at the Whiting FCU 500 through use of a CEMS.

e. BP shall comply with the final interim limit set by EPA under Paragraph 16.A.i.d until such time as BP proposes an emissions limit under Paragraph 16.A.i.c, at which time the final interim emissions limit or the emissions limit proposed by BP under Paragraph 16.A.i.c, whichever is more stringent, shall apply until such time as BP is required to comply with the emissions limit set by EPA under Paragraph 16.A.i.c.

ii. Texas City FCCU 3:

a. BP shall complete installation and begin operation of a WGS technology (or alternative control) at its Texas City FCCU 3 no later than the turnaround in calendar year 2006. Except as provided in Paragraph 16.C.ii, the WGS system for the Texas City FCCU 3 shall be designed to achieve a SO<sub>2</sub> concentration of 25 ppmvd (at 0% oxygen) or lower on a 365-day rolling average basis and 50 ppmvd (at 0% oxygen) on a 7-day rolling average basis.

b. BP shall submit to EPA the process design specifications for the WGS system at Texas City FCCU 3 no later than 18 months prior to the turnaround in calendar year 2006. BP and EPA agree to consult on the development of the proposed process design specifications for each WGS system prior to submission of BP's final proposed process design specifications. The proposed design shall, at a minimum, consider the design parameters identified in Appendix E to the Consent Decree, which is incorporated as if fully set forth herein. Within sixty (60) days of receipt of EPA's comments on the proposed design, BP shall modify the proposed design to address EPA's comments, and submit the design to EPA for final approval. Upon receipt of EPA's final approval of the design BP shall implement the design.

c. BP will demonstrate the performance of the WGS system over a six-month period. The six-month demonstration shall begin no later than three (3) months after the completion of the installation of the WGS for Texas City FCCU 3 during the turnaround in calendar year 2006. During the demonstration period, BP shall optimize the performance of the WGS system, and shall consider the effect of the operating considerations identified in Appendix E to the Consent Decree. No later than sixty (60) days after the completion of the demonstration, BP shall report to EPA the results of the six-month demonstration as specified in Paragraph 16.E of this Consent Decree. In its report, BP may propose a final emissions limit for SO<sub>2</sub> based on a 7-day rolling average and a 365-day rolling average. EPA will use this information, CEMS data collected during the demonstration, the information identified in Paragraph 16.E, and all other available and relevant information to establish representative SO<sub>2</sub> emissions limits for the Texas City FCCU 3 in accordance with Paragraph 16.E.ii. EPA may set a limit less stringent than 25 ppmvd (at 0% oxygen) if it determines that such limit is not achievable in practice based on its review of data and information of the actual performance of the Texas City FCCU 3 and consideration of the factors listed in Paragraph 16.E. Should BP reduce SO<sub>2</sub> emissions at this unit below 25 ppmvd (at 0% oxygen), EPA may establish an emissions limit more stringent than 25 ppmvd (at 0% oxygen). BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than June 30, 2001, BP shall use a SO<sub>2</sub> CEMS to monitor performance of FCCU 3 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

d. For the period June 30, 2001 until commencement of operation of the WGS system, BP shall reduce SO<sub>2</sub> emissions from the Texas City FCCU 3 by use of SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F. BP will demonstrate performance of the SO<sub>2</sub> adsorbing catalyst additive at the addition rate determined in accordance with Appendix F over a 12-month period. The 12-month demonstration shall begin no later than June 30, 2001. No later than sixty (60) days after the completion of the 12-month demonstration, BP shall report to EPA the results of the demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall either agree to an interim SO<sub>2</sub> limit of 117 ppmvd (at 0% oxygen) on a 365-day rolling average basis or propose an alternative 365-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration and is consistent with the provisions of Paragraph 16.E.ii. and Appendix F. From and after the date this report is submitted, BP shall comply with its proposed emission limit until EPA sets a final interim limit. EPA will use the information provided by BP in its report, CEMS data collected during the demonstration, and all other available and relevant information to establish representative SO<sub>2</sub> interim emission limits for Texas City FCCU 3 in accordance with Paragraph 16.E.ii and Appendix F, provided however, that this limit may not be more stringent than 117 ppm (at 0% O<sub>2</sub>) on a 365-day rolling average. BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. At all times during the demonstration period, BP shall optimize the levels of catalyst addition rates according to the criteria identified in Paragraph 16.G, below. BP shall monitor SO<sub>2</sub> emissions and demonstrate compliance during this interim period at the Texas City FCCU 3 through use of a CEMS.

e. BP shall comply with the final interim limit set by EPA under Paragraph 16.A.ii.d until such time as BP proposes an emissions limit under Paragraph 16.A.ii.c, at which time the final interim emissions limit or the emissions limit proposed by BP under Paragraph 16.A.ii.c, whichever is more stringent, shall apply until such time as BP is required to comply with the emissions limit set by EPA under Paragraph 16.A.ii.c.

iii. Mandan FCCU:

a. BP shall complete installation and begin operation of a WGS technology (or alternative control) at its Mandan FCCU no later than December 31, 2006, unless BP makes the election in Paragraph 16.A.iv.f, in which case BP shall complete installation and begin operation of a WGS technology (or alternative control) at its Mandan FCCU no later than December 31, 2004. Except as provided in Paragraph 16.C.ii., the WGS system for the Mandan FCCU shall be designed to achieve a SO<sub>2</sub> concentration of 25 ppmvd (at 0% oxygen) or lower on a 365-day rolling average basis, and 50 ppmvd (at 0% oxygen) on a 7-day rolling average basis.

b. BP shall submit to EPA the process design specifications for the WGS system at Mandan FCCU no later than 18 months prior to the date installation is required. BP and EPA agree to consult on the development of the proposed process design specifications for each WGS system prior to submission of BP's final proposed process design specifications. The proposed design shall, at a minimum, consider the design parameters identified in Appendix E to the Consent Decree, which is incorporated as if fully set forth herein. Within sixty (60) days of receipt of EPA's comments on the proposed design, BP shall modify the proposed design to address EPA's comments, and submit the design to EPA for final approval. Upon receipt of EPA's final approval of the design BP shall implement the design.

c. BP will demonstrate the performance of the WGS system over a six-month period. The six-month demonstration shall begin no later than three (3) months after the completion of the installation of the WGS for Mandan FCCU. During the demonstration period, BP shall optimize the performance of the WGS system, and shall consider the effect of the operating considerations



identified in Appendix E to the Consent Decree. No later than sixty (60) days after the completion of the demonstration, BP shall report to EPA the results of the six-month demonstration as specified in Paragraph 16.E of this Consent Decree. In its report, BP may propose a final emissions limit for SO<sub>2</sub> based on a 7-day rolling average and a 365-day rolling average. EPA will use this information, CEMS data collected during the demonstration, the information identified in Paragraph 16.E, and all other available and relevant information to establish representative SO<sub>2</sub> emissions limits for the Mandan FCCU in accordance with Paragraph 16.E.ii. EPA may set a limit less stringent than 25 ppmvd (at 0% oxygen) if it determines that 25 ppmvd (at 0% oxygen) is not achievable in practice based on its review of data and information of the actual performance of the Mandan FCCU and consideration of the factors listed in Paragraph 16.E. Should BP reduce SO<sub>2</sub> emissions at this unit below 25 ppmvd (at 0% oxygen), EPA may establish an emissions limit more stringent than 25 ppmvd (at 0% oxygen). BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than June 30, 2002, BP shall use a SO<sub>2</sub> CEMS to monitor performance of the Mandan FCCU and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

d. For the period June 30, 2002 until commencement of operation of the WGS system, BP shall reduce SO<sub>2</sub> emissions from the Mandan FCCU by use of SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F. BP will demonstrate performance of the SO<sub>2</sub> adsorbing catalyst additive at the addition rate determined in accordance with Appendix F over a 12-month period. The 12-month demonstration shall begin no later than June 30, 2002. No later than sixty (60) days after the completion of the 12-month demonstration, BP shall report to EPA the results of the

demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall propose a 365-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration and is consistent with the provisions of Paragraph 16.E.ii. and Appendix F. In such report, BP also shall propose a 7-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration and is consistent with the provisions of Paragraph 16.E.ii and Appendix F. From and after the date this report is submitted, BP shall comply with its proposed emission limit until EPA sets a final interim limit. EPA will use the information provided by BP in its report, CEMS data collected during the demonstration, and all other available and relevant information to establish representative SO<sub>2</sub> interim emission limits for the Mandan FCCU in accordance with Paragraph 16.E.ii and Appendix F. At all times during the demonstration period, BP shall optimize the levels of catalyst addition rates according to the criteria identified in Paragraph 16.E, below. BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. BP shall monitor SO<sub>2</sub> emissions and demonstrate compliance during this interim period at the Mandan FCCU through use of a CEMS.

e. BP shall comply with the final interim limit set by EPA under Paragraph 16.A.iii.d until such time as BP proposes an emissions limit under Paragraph 16.A.iii.c, at which time the final interim emissions limit or the emissions limit proposed by BP under Paragraph 16.A.iii.c, whichever is more stringent, shall apply until such time as BP is required to comply with the emissions limit set by EPA under Paragraph 16.A.iii.c.

f. If BP elects to install and commence operating the WGS system required by Paragraph 16.A.iii.a. by no later than December 31, 2004, the provisions of Paragraph 16.A.iii.d. and e. regarding interim usage of SO<sub>2</sub> adsorbing catalyst additive shall not apply.

**B. Use of SO<sub>2</sub> Adsorbing Catalyst Additive and/or Hydro-Treatment:**

i. Salt Lake City: By no later than the Date of Entry of the Consent Decree, BP shall maintain sulfur oxides emissions calculated as sulfur dioxide to the atmosphere less than or equal to 9.8 kg/1,000 kg coke burn-off on a 7-day rolling average basis in accordance with 40 C.F.R. § 60.104(b)(2).

ii. Whiting FCU 600 and Yorktown FCCU: BP shall initiate twelve-month demonstrations of SO<sub>2</sub> adsorbing catalyst additive by no later than June 30, 2003 for Whiting FCU 600 and by no later than December 31, 2001 for Yorktown FCCU. BP will demonstrate performance of the SO<sub>2</sub> adsorbing catalyst for each FCCU at the addition rate determined for each FCCU in accordance with Appendix F over a 12-month period. No later than sixty (60) days after the completion of each 12-month demonstration, BP shall report to EPA the results of the demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall propose a 365-day rolling average concentration-based emission limit for each FCCU that is consistent with Paragraph 16.E.ii and the applicable provisions of Appendix F. In such report, BP also shall propose a 7-day rolling average concentration-based SO<sub>2</sub> emission limit for each FCCU that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration for each FCCU and is consistent with the provisions of Paragraph 16.E.ii and Appendix F. From and after the date each this report is submitted, BP shall comply with its proposed emission limit for the covered FCCU until EPA sets a final interim limit. At all times during the demonstration periods, BP shall optimize the levels of catalyst addition rates according to Paragraph 16.D, below. Beginning no later than June 30, 2003, for Whiting FCU 600 and no later than September 30, 2001, for Yorktown, BP shall use SO<sub>2</sub> CEMS to monitor performance of each FCCU and to report compliance with the terms and conditions of the Consent Decree. EPA will use the information provided by BP in its reports, CEMS data

collected during the demonstration, the information BP is required to submit in Paragraph 16.E, and all other available and relevant information to establish representative SO<sub>2</sub> emission limits for Whiting FCCU 600 and Yorktown FCCU in accordance with Paragraph 16.E.ii and Appendix F, provided however, that these limits may not be more stringent than 25 ppmvd (at 0% O<sub>2</sub>) on a 365-day rolling average. BP shall comply with the emissions limits set by EPA at the time such emissions limits are set by EPA, provided that if the emissions limit established by EPA for a particular FCCU is more stringent than the limit proposed by BP for that FCCU, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period.

iii. Carson FCCU, Texas City FCCU 2, and Toledo FCCU: BP shall initiate 12-month demonstrations of SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F and in conjunction with continued hydrotreatment of FCCU feed at existing levels by no later than June 30, 2001 for Carson FCCU; by no later than December 31, 2001 for Texas City FCCU 2; and by no later than June 30, 2001 for Toledo FCCU. For each FCCU, BP will demonstrate performance of the combination of FCCU feed hydrotreatment and SO<sub>2</sub> adsorbing catalyst additive at the addition rate determined in accordance with Appendix F over a 12-month period. No later than sixty (60) after the completion of each 12-month demonstration, BP shall report to EPA the results of that demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall propose a 365-day rolling average concentration-based emission limit for the covered FCCU that is consistent with Paragraph 16.E.ii and the applicable provisions of Appendix F. In such report, BP also shall propose a 7-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration for that FCCU and is consistent with the provisions of Paragraph 16.E.ii and Appendix F. From and after the date each report is submitted, BP shall comply with its proposed emission limit for the FCCU covered by that report until EPA sets a final interim limit for that FCCU. During the demonstration periods,

BP shall optimize the levels of catalyst additive addition rates according to Paragraph 16.D, below. EPA will use the information provided by BP in its reports, CEMS data collected during the demonstration, the information BP is required to submit in Paragraph 16.E, and all other available and relevant information to establish representative SO<sub>2</sub> emission limits for Carson FCCU, Texas City FCCU 2, and Toledo FCCU in accordance with Paragraph 16.E.ii and Appendix F, provided however, that these limits may not be more stringent than 25 ppm (at 0% O<sub>2</sub>) on a 365-day rolling average. BP shall comply with the emissions limits set by EPA at the time such emissions limits are set by EPA, provided that if the emissions limit established by EPA for a particular FCCU is more stringent than the limit proposed by BP for that FCCU, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period. Beginning no later than June 30, 2001, for Toledo and Carson and no later than September 30, 2001, for Texas City FCCU 2, BP shall use SO<sub>2</sub> CEMS to monitor performance of each FCCU and to report compliance with the terms and conditions of the Consent Decree.

iv. Texas City FCCU 1: BP shall continue to reduce SO<sub>2</sub> emissions from FCCU 1 by continued hydrotreatment of feed at existing levels and shall demonstrate the reductions through operation of a CEMS. After a six-month demonstration project designed to demonstrate the emission reductions being achieved by existing levels of hydrotreatment, EPA will determine the SO<sub>2</sub> emission limits for the Texas City FCCU 1 in accordance with Paragraph 16.E.ii. The demonstration project shall commence no later than June 2001. BP shall comply with the emissions limit set by EPA at the time such emissions limit is set by EPA, provided that if the emissions limit established by EPA is more stringent than the limit proposed by BP, BP shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If BP disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period.

**C. WGS Design**

i. Except as provided in Paragraph 16.C.ii., BP shall design the WGS controls to achieve the concentration-based SO<sub>2</sub> emissions limits identified in this Paragraph 16.A. The proposed process designs shall, at a minimum, consider the parameters listed in Appendix E to the Consent Decree, which is incorporated into this document as if fully set forth herein. The process designs approved by EPA shall become fully enforceable through this Consent Decree as if set forth fully herein.

ii. Where BP can demonstrate that for a particular FCCU the total installed cost for a WGS designed to achieve 25 ppmvd (at 0% oxygen) measured as a 365-day rolling average is more than 5% above the then-current baseline cost for a WGS designed to achieve 90% removal of SO<sub>2</sub>, it may propose an alternative to the 25 ppmvd (at 0% oxygen) design target emission level. The alternative design target emission level shall be the design emission level that is expected to be achieved by a WGS having a total installed cost of 5% above the total installed cost of a WGS designed to achieve 90% removal of SO<sub>2</sub>, but no lower than 90% removal. Upon EPA's approval of the alternative design emission level, BP shall proceed with the preparation of process design specifications for WGS systems or an alternative control technology designed to meet the new alternative design emission level and shall submit those design specifications to EPA for approval in accordance with and on the schedules provided for in the applicable subparagraph of Paragraph 16.A.

**D. WGS Optimization:** For the six-month period immediately following installation and start-up, BP agrees to optimize the performance of the WGS (or alternative controls) at Mandan, Texas City FCCU 3, and Whiting FCU 500, and shall consider the operating considerations identified in Appendix E to the Consent Decree ("optimization study"). The results of the optimization study will be used by EPA, among other things, to determine the final SO<sub>2</sub> emission limits for the respective FCCUs. As part of each optimization study, BP shall conduct performance testing and monitoring for each of its FCU/FCCUs. BP shall submit the results of such testing and

monitoring to EPA in an optimization study report. Each report shall identify operational requirements related to maximum reductions in SO<sub>2</sub> concentrations in the regenerator flue gas at the scrubber outlets of each FCCU/FCCU. In addition, each report may include a proposed emission limit that is based on performance of the control system and is consistent with the provisions of Paragraph 16.E.ii. of the Consent Decree. Should BP reduce the SO<sub>2</sub> emissions at these units below 25 ppmvd (at 0% oxygen), BP shall agree to the more stringent emission limits and shall reduce emissions to the performance levels demonstrated by the optimization studies. If an alternative control technology is installed, in lieu of a wet gas scrubber, the design emission level determined in Paragraph 16.C.ii cannot be relaxed, but can be made more stringent based on actual performance of the control technology during the demonstration and the considerations outlined in Appendix E.

**E. Demonstration and Emissions Limit Determination:**

i. BP shall report the results of the demonstrations required by this Paragraph to EPA for its review and approval. Each report(s) shall include, at a minimum, regenerator flue gas temperature and flow rate, coke make rate, FCCU feed rate, total fresh catalyst addition rate, SO<sub>2</sub> adsorbing catalyst additive addition rate, and hourly average SO<sub>2</sub> and O<sub>2</sub> concentrations at the point of emission to the atmosphere, and where a WGS or alternative add-on control technology has been installed, at the inlet to that WGS or alternative control technology. The SO<sub>2</sub> and O<sub>2</sub> concentrations at the point of emission to the atmosphere shall be determined by CEMS. The SO<sub>2</sub> and O<sub>2</sub> concentrations at the inlet to the WGS or alternative add-on control technology may be determined by process analyzer(s) calibrated in accordance with the manufacturer's recommendations; provided, however, that BP's obligation to monitor SO<sub>2</sub> and O<sub>2</sub> concentrations at the inlet to the WGS or alternative add-on control technology shall terminate upon completion of the optimization studies required by Paragraph 16.D. In addition to the foregoing, BP shall also include the following information in its reports to the extent that it is available: FCCU feed sulfur content pre- and post-hydrotreatment, percent of feed that is hydrotreated, SO<sub>2</sub> and O<sub>2</sub> concentrations after the

FCCU regenerator and where there is a CO Boiler, after the CO Boiler. The data or measurements required by this Paragraph shall be reported to EPA in both electronic and hard copy format. BP shall submit the reports required by this Paragraph no later than sixty (60) days after completion of the demonstrations. EPA will use this information as well as CEMS emissions data collected during the demonstration to determine SO<sub>2</sub> emission limits.

ii. EPA, in consultation with BP and the appropriate state agency will determine the SO<sub>2</sub> concentration limits and averaging times for each FCCU subject to this Paragraph based on the level of demonstrated performance during the test period, expected process variability, reasonable certainty of compliance, and any other available pertinent information.

F. **SO<sub>2</sub> Adsorbing Catalyst Additive:** The amounts of SO<sub>2</sub> adsorbing catalyst additive to be added to the FCCUs under the programs referenced in Paragraphs 16.B shall be determined in reference to the criteria set forth in Appendix F.

G. **CEMS:** All CEMS installed and operated pursuant to this agreement will be installed, certified, calibrated, maintained, and operated in accordance with the applicable requirements of 40 C.F.R. §§ 60.11, 60.13 and Part 60 Appendix F. These CEMS will be used to demonstrate compliance with emission limits.

17. **SO<sub>2</sub> Emissions Reductions from Heaters and Boilers:** BP shall undertake the following measures to reduce SO<sub>2</sub> emissions from refinery heaters and boilers by eliminating or minimizing the burning of fuel oil and restricting H<sub>2</sub>S in refinery fuel gas as follows:

A. **Elimination of Oil Burning in Heaters and Boilers**

i. **Mandan Facility:** As expeditiously as possible, but in no event later than March 31, 2001, BP shall eliminate all fuel oil burning at the heaters and boilers located at its Mandan refinery, except:

- a. during periods of documented natural gas curtailment;
- b. as necessary to ensure that the Mandan Facility can use fuel oil during periods of natural gas curtailment; and



c. in connection with firing acid soluble oil at the Alkylation Unit.

ii. Yorktown Facility: On or before June 1, 2001, BP shall eliminate all fuel oil burning at the heaters and boilers located at its Yorktown refinery.

iii. Salt Lake City Facility: On or before June 1, 2002, BP shall eliminate all fuel oil burning at the heaters and boilers located at its Salt Lake City refinery.

iv. Whiting Facility: On or before June 1, 2003, BP shall eliminate all fuel oil burning at the heaters and boilers located at its Whiting refinery.

B. Annual Report: No later than by June 30<sup>th</sup> of each year, BP shall submit an annual report certifying and verifying its compliance with this Paragraph 17.A. The report shall include, at a minimum, the amounts and sulfur content of oil burned in any refinery heater and boiler.

C. NSPS Applicability To Heaters and Boilers:

i. By no later than the Date of Entry of the Consent Decree, all heaters and boilers at the Carson, Salt Lake City, Texas City, and Yorktown Facilities shall be considered affected facilities for purposes of 40 C.F.R. Part 60, Subpart J, and shall comply with all requirements of 40 C.F.R. Part 60, Subparts A and J as those Subparts apply to fuel gas combustion devices.

ii. By no later than December 31, 2001, all heaters and boilers at the Whiting Facility shall be considered affected facilities for purposes of 40 C.F.R. Part 60, Subpart J, and shall comply with all requirements of 40 C.F.R. Part 60, Subparts A and J as those Subparts apply to fuel gas combustion devices.

iii. By no later than September 30, 2003, all heaters and boilers at the Mandan and Toledo Facilities shall be considered affected facilities for purposes of 40 C.F.R. Part 60, Subpart J, and shall comply with all requirements of 40 C.F.R. Part 60, Subparts A and J as those Subparts apply to fuel gas combustion devices.

iv. By no later than September 30, 2005, all heaters and boilers at the Cherry Point Facility shall be considered affected facilities for purposes of 40 C.F.R. Part 60, Subpart J, and shall comply

with all requirements of 40 C.F.R. Part 60, Subparts A and J as those Subparts apply to fuel gas combustion devices.

v. In the interim period between December 31, 2001, and the dates on which NSPS becomes applicable to the heaters and boilers at the Cherry Point, Mandan, and Toledo Facilities pursuant to Paragraphs 17.C.iii, and iv above, BP shall not burn in any heater or boiler at the those facilities any refinery fuel gas that has a volume weighted, rolling 3-hour average H<sub>2</sub>S concentration greater than 0.10 grains per dry standard cubic foot, except during periods of startup, shutdown or malfunction of the refinery fuel gas amine systems provided that BP shall to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions.

Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to EPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source

The following gas streams shall be excluded from the requirements of this Paragraph 17.C.v:

a. For Cherry Point: vacuum tower vent gas burned at the crude unit heater;

b. For Mandan: 1). fuel gas from the Ultraformer D-13 fuel gas drum, and 2) fuel gas from the Alkylation Unit D-10 depropanizer overhead accumulator drum;

c. For Toledo: vacuum 2 vent gas currently burned in the crude vac 2 furnace; and

vii. Beginning no later than December 31, 2001, except for the fuel gas streams identified in Paragraph 17.C.vi.a-c, BP shall monitor the H<sub>2</sub>S content of all fuel gas streams burned in any heater and boiler at each of the refineries the subject of this Consent Décree.

viii. All CEMS installed and operated pursuant to this agreement will be installed, certified, calibrated, maintained, and operated in accordance with the applicable requirements of 40 C.F.R. §§ 60.11, 60.13 and Part 60 Appendix F. These CEMS will be used to demonstrate compliance with emission limits.

**D. Incinerators:**

i. By no later than twenty-four (24) months after the Date of Entry of the Consent Decree, BP shall measure or calculate the concentrations of H<sub>2</sub>S in any fuel gas to be burned in, and the quantity and concentrations of SO<sub>2</sub> emissions from, the following incinerators:

- a. Truck and marine loading vapor recovery incinerators at each of BP's refineries as of the Date of Lodging of the Consent Decree;
- b. Groundwater remediation incinerator at Whiting;
- c. Wastewater treatment plant NESHAP control incinerator at Texas City; and
- d. RCRA hazardous waste management incinerator at Whiting.

ii. By no later than the scheduled turnaround of the TGU in 2003 for the Carson Facility identified in Paragraph 21.B.i of the Consent Decree, BP shall measure or calculate the concentrations of H<sub>2</sub>S in, and the quantity and concentrations of SO<sub>2</sub> emissions from the combustion of, the sulfur truck loading rack off gases and foul air gas waste streams in the Carson SRP's Thermal Oxidizer identified in Appendix G, Part B.1(f) as "Process 13:Sulfur Recovery - System 6: Thermal Oxidizers."

iii. BP shall report the results of the quantification required by Paragraph 17.D.i to EPA by no later than twenty-four months from the Date of Entry of the Consent Decree. The report submitted by BP shall demonstrate that the sampling and analysis conducted by BP pursuant to this Paragraph 17.D is representative of the fuel gas burned in, and the SO<sub>2</sub> emissions from, the aforementioned identified incinerators during the preceding twenty-four (24) month period. After reviewing the data, EPA may determine whether additional monitoring and controls are required under the NSPS, 40 C.F.R. Part 60, Subparts A and J. In making such determination, EPA will consider whether monitoring or control requirements under other applicable provisions of Federal law are adequate.

iv. BP shall report the results of the quantification required by Paragraph 17.D.ii to EPA by no later than the end of the scheduled TGU turnaround in 2003 at the Carson Facility identified in

Paragraph 21.B.i. The report submitted by BP shall demonstrate that the sampling and analysis conducted by BP pursuant to this Paragraph 17.D.ii is representative of the fuel gas in, and the SO<sub>2</sub> emissions associated with, the wastestreams identified in Paragraph 17.D.ii during the period from the Date of Lodging of the Consent Decree to the end of the scheduled TGU turnaround in 2003 at the Carson Facility identified in Paragraph 21.B.i. After reviewing the data, EPA may determine whether additional monitoring and controls are required under the NSPS, 40 C.F.R. Part 60, Subparts A and J. In making such determination, EPA will consider whether monitoring or control requirements under other applicable provisions of Federal law are adequate.

v. Notwithstanding any other provision of this Consent Decree, the United States and BP reserve their respective rights and interpretations as to the applicability of 40 C.F.R. Part 60, Subparts A and J, to the incinerators and wastestreams identified in this Paragraph 17.D. The United States' position as to the applicability of NSPS Subparts A and J to fuel gas combustion devices ("FGCDs") and/or flares is contained, in part, in a Letter to Phillip E. Guillemette, Koch Refining Company from Ken Gigliello, U.S. EPA, dated December 2, 1999 (the "Koch letter"). BP reserves its arguments with respect to the applicability of the Koch letter and reserves its right to appeal or contest those interpretations in any forum.

vi. With respect to the incinerators identified in this Paragraph 17.D.i, BP agrees that it will not, and can not, use Paragraph 73 of this Consent Decree as a defense to a claim that such incinerators are an NSPS "affected facility." Likewise, with respect to the wastestreams identified in this Paragraph 17.D.ii, BP agrees that it will not, and can not, use Paragraph 73 of this Consent Decree as a defense to a claim that NSPS applies to those wastestreams or the units associated with such wastestreams.

**18. Particulate Matter Controls (Yorktown and Toledo) and Hydrocarbon Flaring**

**A. Yorktown - Particulate Emissions - FCCU:** BP shall reduce total particulate emissions at the Yorktown FCCU to 1 pound per 1,000 pounds of coke burned. BP shall achieve

these reductions through installation of an electrostatic precipitator. BP shall meet this limit by no later than six months after the planned 2006 shutdown.

**B. Toledo - Particulate Emissions:** BP shall reduce total particulate emissions at the Toledo FCCU to 1 pound per 1,000 pounds of coke burned. BP shall achieve these reductions through installation of an electrostatic precipitator. BP shall meet this limit by no later than six months after the planned 2007 shutdown.

**C. Hydrocarbon Flaring:**

i. BP shall prepare and submit as expeditiously as possible to EPA for review Hydrocarbon Flaring Pollutant Minimization Plans ("HCFPMP") for each refinery that are intended to reduce the number, duration and quantity of pollutants emitted through Hydrocarbon Flaring. Such plans shall be implemented no later than two (2) years following the Date of Lodging of this Consent Decree. Each such HCFPMP shall include, but not be limited to, the following:

a. An identification and date (where practicable) of planned activities (including start-up, shut-down, scheduled maintenance, turnarounds, and other events outside the day-to-day operation of the refinery). Such plans shall take into account past experience with such activities at the refinery;

b. Where practicable, an estimate of the expected duration of such events, and their estimated impact on releases of SO<sub>2</sub> and other pollutants from hydrocarbon flaring;

c. Procedures to minimize the likelihood of hydrocarbon flaring and the resulting emissions of SO<sub>2</sub> and other pollutants from such events;

ii. BP will provide EPA with an annual report identifying specific actions taken to implement and comply with the plan's requirements. In addition, BP agrees to report the release of any SO<sub>2</sub> that exceeds the reportable quantity under CERCLA and EPCRA that is associated with such events, and to comply with all other applicable reporting requirements under federal, state or local law. BP agrees to cooperate with EPA when requested to verify emissions of SO<sub>2</sub> and other pollutants from scheduled activities covered by the HCFPMP.

iii. Nothing in Paragraph 18.C shall be interpreted to be a statement as to the applicability of NSPS Subparts A and J, 40 C.F.R. Part 60, to BP's FGCDs or flares. Likewise, nothing in Paragraph 18.C shall be interpreted to either be an indication that BP's FGCDs or flares are currently in compliance with Subparts A and J, or that by complying with the terms of Paragraph 18.C, BP's FGCDs or flares will be in compliance with Subparts A and J. The United States' position as to the applicability of NSPS Subparts A and J to FGCDs and/or flares is contained, in part, in the "Koch Letter. BP reserves its arguments with respect to the applicability of the Koch letter and reserves its right to appeal or contest those interpretations in any forum.

19. **Benzene Waste NESHAP:** BP shall undertake the following measures to minimize or eliminate fugitive benzene waste emissions at each of the refineries that are the subject of the Consent Decree. Unless otherwise stated, all actions shall commence during calendar year 2001.

A. **Facility Current Compliance Status:** In addition to the provisions of the enhanced program set forth in this Paragraph 19 of the Consent Decree, BP shall comply with the compliance options specified below:

i. BP's Carson Facility, Cherry Point Facility, Texas City Facility, and Yorktown Facility shall comply with the compliance option set forth at 40 C.F.R. § 61.342(c), utilizing the exemptions set forth in 40 C.F.R. § 61.342(c)(2) and (c)(3)(ii) (herein referred to as the "2Mg compliance option").

ii. BP's Whiting Facility and Toledo Facility shall comply with the compliance option set forth at 40 C.F.R. § 61.342(e) ("6BQ compliance option").

B. **Facility Compliance Status Changes:** During the effective life of the Consent Decree, BP shall not change the compliance status of any facility from the 6BQ compliance option to the 2Mg compliance option. Any change in compliance strategy not expressly prohibited by this Paragraph 19.B must be accomplished in accordance with the regulatory provisions set forth in the Benzene Waste NESHAP.

C. If at any time from the Date of Lodging of the Consent Decree to its termination date the Salt Lake City or Mandan facilities are determined to have total annual benzene quantities ("TABs") greater than 10 Mg/yr, BP shall not utilize the 2 Mg compliance option.

D. **Waste Streams Audits:** BP shall conduct an audit of each facility's waste stream inventory and TAB calculation. The audit shall include, but not be limited to: i) an accounting of each waste stream at each facility (i.e., slop oil, tank water draws, spent caustic, desalter rag layer dumps, desalter vessel process sampling points, other sample wastes, maintenance wastes, and turnaround wastes); and ii) a review of the methods used to determine annual waste quantities. Sampling of the waste streams is not required for this audit; previous analytical data or documented knowledge of waste streams may be used, 40 C.F.R. § 61.355 (c)(2).

E. **Schedule for Waste Streams Audits:** The audits required by Paragraph 19.D, above, shall be conducted pursuant to the following schedule:

i. No later than 180 days from the Date of Lodging of the Consent Decree, BP shall conduct the first phase of the audits at each of its refineries. This shall include, but not be limited to, a review of each facility's waste operations to ensure all waste streams are accounted for, and a review of flow calculation and/or measurements for each waste stream.

ii. No later than thirty (30) days after completion of the first phase of each audit, BP shall submit the preliminary audit report(s) to EPA.

iii. Based on EPA's review of each preliminary audit report, EPA will submit to BP a list of up to twenty (20) waste streams per facility for sampling for benzene concentration.

iv. BP shall sample all waste streams identified by EPA no later than ninety (90) days from the date of receipt of EPA's list of waste streams for sampling.

v. The results of the sampling conducted pursuant to paragraphs iii and iv., above, shall be used by BP to calculate the TAB or uncontrolled benzene quantities for each of defendant's respective facilities subject to this Consent Decree. The final results of this audit, including the

final TAB calculations shall be submitted to EPA no later than ninety (90) days after the date of completion of the sampling.

F. **Carbon Canisters:** BP shall comply with either Paragraph 19.F.i, or Paragraph 19.F.ii, below, at all locations at such defendant's refineries which are the subject of this Consent Decree where a carbon canister(s) is utilized as the control device under the Benzene Waste NESHAP. BP shall notify EPA within ninety (90) days of the Date of Lodging of the Consent Decree which option it chooses to implement for each carbon canister:

i. Installation of primary and secondary carbon canisters:

- a. By the end of the first full calendar year after the Date of Lodging of the Consent Decree, BP shall install primary and secondary carbon canisters and operate them in series.
- b. Beginning no later than the Date of Lodging of the Consent Decree, BP shall monitor for breakthrough between the primary and secondary carbon canisters at times when there is actual flow to the carbon canister, in accordance with the frequency specified in 40 C.F.R. § 61.354(d).
- c. BP shall replace the secondary carbon canisters with fresh carbon canisters immediately when VOC breakthrough of 50 ppm is detected. The original secondary carbon canister or a new carbon canister will be used as the new primary carbon canister. For this subparagraph, immediately means within twenty-four (24) hours.
- d. BP shall maintain a supply of fresh carbon canisters at each facility at all times.
- e. Until installation of the second carbon canister all monitoring shall be conducted as specified in Paragraph 19.F.ii.

ii. Utilizing single carbon canisters

- a. Beginning no later than the Date of Lodging of the Consent Decree, BP shall monitor for breakthrough from the carbon canisters at times when there is actual



flow to the carbon canister, in accordance with the frequency specified in 40 C.F.R. § 61.354(d).

- b. For the single canister option, canisters will be replaced immediately when breakthrough is determined as follows:
    - i. For canisters less than or equal to 55 gallon drum size, breakthrough is any reading of VOC above background;
    - ii. For canisters larger than 55 gallons, breakthrough is defined as either:
      - 1. 50 ppm VOC; or
      - 2. 1 ppm benzene. To use 1 ppm benzene, canisters must be monitored for VOC. When a reading of 10 ppm VOC is detected, monitoring for benzene must be conducted on the following schedule:  
Daily if the historical replacement interval is two weeks or less, or Monday, Wednesday and Friday, if the historical replacement interval is greater than two weeks.
  - c. For purposes of this Subparagraph 19.F.(ii), the term immediately shall be defined to mean: Within eight (8) hours for canisters with historical replacement intervals of two weeks or less; or Within twenty-four (24) hours for canisters with a historical replacement interval of more than two weeks.
  - d. BP shall maintain a supply of fresh carbon canisters at each facility at all times.
  - e. Single carbon canisters can be replaced with a dual system at any time provided EPA is notified and single canister monitoring is continued until the second canister is installed. BP shall notify EPA of such replacement in its next quarterly report submitted pursuant to Section VIII of the Consent Decree.
- iii. Records for 19.F.i and 19.F.ii shall be maintained in accordance with 40 C.F.R. §

61.356(j)(10).

**G. Annual Program:** BP shall establish an annual program of reviewing process information for each facility that is the subject of this Consent Decree, including but not limited to construction projects, to ensure that all new benzene waste streams are included in each facility's waste stream inventory.

**H. Laboratory Audits:** BP shall conduct audits of all laboratories that perform analysis of its benzene waste NESHAP samples to ensure that proper analytical and quality assurance procedures are followed. No later than 180 days after the Date of Lodging of the Consent Decree, BP shall conduct the audit(s) of the laboratories used by 2 of its refineries. BP shall complete audits of the laboratories used by the remaining refineries within twelve (12) months of the Date of Lodging of the Consent Decree. During the life of the Consent Decree, BP shall conduct subsequent laboratory audits for each refinery every two (2) years, or prior to using a new lab for analysis of benzene samples.

**I. Benzene Spills:** BP shall review all CERCLA reportable spills within each facility that is the subject of the Consent Decree to determine if benzene waste was generated. BP shall account for all benzene wastes generated through such spills in its respective TAB calculation. For any facility that is the subject of the Consent Decree with TABs greater than or equal to 10 Mg/yr, BP shall account for all benzene wastes generated through such spills that are not managed solely in controlled waste management units in its respective 2 Mg/yr or 6 Mg/yr calculation, as appropriate.

**J. Training:** For each facility that is the subject of the Consent Decree, BP shall:

- i. Develop and implement annual training for all employees required to take benzene waste samples;
- ii. Establish standard operating procedures for all control equipment used to comply with the Benzene Waste NESHAP and include them in annual training for operators assigned to this equipment; and

iii. Ensure that employees with companies hired to perform the requirements of this Paragraph 19 of the Consent Decree are properly trained to implement the provisions of this Paragraph.

K. Waste/Slop Oil Management: Within six (6) months of the Date of Lodging of the Consent Decree, BP shall maintain records of waste/slop oil movements for waste streams (organic or aqueous) which are not controlled, as identified in the plan prepared by each refinery. EPA may review the plan and recommend revisions to add uncontrolled waste streams resulting from waste/slop oil movements, in accordance with the provisions of 40 C.F.R. Part 61, Subpart FF.

L. Sampling (less than 10 Mg/yr): For refineries with TABs that are less than 10 Mg/yr, BP shall:

i. Conduct annual sampling of all waste streams that contributed 0.05 Mg/yr or more to the previous year's TAB calculation; and

ii. Conduct a quarterly "end of the line" benzene determination. No later than three (3) months after the Date of Lodging of the Consent Decree, BP shall submit a plan to EPA for approval that contains proposed sampling locations and methods for flow calculations to be used in the quarterly benzene determination. The sampling shall begin during the first full calendar quarter after BP receives written approval from EPA of the BP sampling plan required by this Paragraph.

iii. A preliminary evaluation to identify potential sample locations, determine "end of the line" benzene sample locations, and review available oil movement transfer documentation will be conducted jointly with BP and EPA personnel at the Salt Lake City Facility within sixty (60) days of the Date of Lodging of this Consent Decree.

M. Sampling (2 Mg/yr): For any refinery that is subject to this Consent Decree and is complying with the 2 Mg/yr compliance option (40 C.F.R. § 61.342(c)(3)(ii)), BP shall:

i. Include in the annual benzene waste NESHAPs report, a list of all uncontrolled waste streams at the facility, the benzene content of each of these streams, and the annual flow;

ii. Conduct a quarterly "end of the line" benzene determination. Within four (4) months after the Date of Lodging of the Consent Decree, BP shall submit a plan to EPA for approval that contains proposed sampling locations and methods for flow calculations to be used in the quarterly benzene determination. The sampling shall begin during the first full calendar quarter after BP receives written approval from EPA of its submitted sampling plan.

iii. Sample all uncontrolled waste streams that count toward the 2 Mg/yr calculation and contain greater than 0.05 Mg/yr of benzene on a quarterly basis. This sampling shall begin during the first full calendar quarter after the Date of Lodging of the Consent Decree. After two years, EPA will evaluate the quarterly sampling results to determine the appropriateness of an alternative sampling frequency; and

iv. Measure quarterly the concentration of all waste streams that qualify for the 10 ppm exemption (see 40 C.F.R. § 61.342(c)(2)) and contain greater than 0.1 Mg/yr of benzene. This sampling shall begin during the first full calendar quarter after the Date of Lodging of the Consent Decree. After two years, EPA will evaluate the quarterly sampling results to determine the appropriateness of less frequent sampling.

N. Sampling (6 Mg/yr): For refineries that are complying with the 6 Mg/yr compliance option (40 C.F.R. § 61.342(e)), BP shall:

i. Conduct a quarterly "end of the line" benzene determination. Within four (4) months after the Date of Lodging of the Consent Decree, BP shall submit a plan to EPA for approval that contains proposed sampling locations and methods for flow calculations to be used in the quarterly benzene determination. The sampling shall begin during the first full calendar quarter after BP receives written approval from EPA of the sampling plans required by this Paragraph; and

ii. Sample all uncontrolled waste streams that count toward the 6 Mg/yr calculation and contain greater than 0.05 Mg/yr of benzene on an annual basis. This sampling shall begin during the first full calendar year after the Date of Lodging of this Consent Decree.

O. **Groundwater Conveyance Systems:** BP shall manage all groundwater conveyance systems located at each refinery that is the subject to this Paragraph in accordance with, and to the extent required by, 40 C.F.R. § 61.342(a).

P. **Miscellaneous Measures:** BP shall implement the following compliance measures in Paragraphs 19.P.i, 19.P.iii, 19.P.iv, and 19.P.v at all refineries that have a TAB greater than 10 Mg/yr, and shall implement compliance measure in Paragraph 19.P.ii at each Facility subject to the Consent Decree:

i. BP shall conduct monthly visual inspections of all water traps within its individual drain systems that are subject to the Benzene Waste NESHAP;

ii. BP shall identify/mark all area drains that are segregated stormwater drains;

iii. BP shall monitor all conservation vents on process sewers for detectable leaks on a weekly basis; and

iv. BP shall conduct quarterly monitoring of oil/water separators in benzene service in accordance with the "no detectable leaks" provision in 40 C.F.R. § 61.347.

v. BP shall account for and include in the TAB all slop oil recovered from its oil/water separators or sewer system until recycled or put into a feed tank, in accordance with 40 C.F.R. § 61.342(a). All tanks handling waste benzene shall meet the control standards specified in 40 C.F.R. § 61.343 or § 61.351, provided that tanks designated P1 and P2 at the Whiting Facility shall meet the tank control standard at 40 C.F.R. § 61.343; installation of controls shall be completed for one tank within twenty-four (24) months of the Date of Lodging of the Consent Decree, and for the second tank within thirty (30) months of the Date of Lodging of this Consent Decree.

Q. **Projects/Investigations:** By no later than the end of the first full calendar year after the Date of Lodging of the Consent Decree, BP shall evaluate the following at each facility that is the subject of the Consent Decree, including, but not limited to, each project's feasibility and estimated cost for implementation:

i. Installation of closed loop sampling devices on all waste and process streams that are greater than 10 ppm benzene and contain greater than 0.01 megagrams per year (Mg/yr) benzene; and

ii. Installation of new sample points at all locations where routine process sampling points are not easily accessible.

iii. BP shall submit a report for each of its facilities summarizing the results of the evaluations of the projects identified in Paragraph 19.Q.i and ii above, within sixty (60) days after the date of completion of each study. These reports shall include at a minimum, the feasibility of each project, the estimated cost of completion, BP's decision as to whether or not to implement each project at each facility, and the basis for deciding not to implement the project at each facility, as appropriate.

R. **Progress Reports:** BP shall submit for each of its facilities subject to this Paragraph progress reports to EPA in accordance with the requirements specified in Section VIII of the Consent Decree (Recordkeeping and Reporting) detailing the steps it has taken to install secondary carbon canisters as required by Paragraph 19.F, if this option is chosen by any of the refineries, and the initial laboratory audits required by Paragraph 19.H.

S. **Reports Re: Canisters:** For any refinery subject to this Consent Decree for which BP initially chooses to install secondary carbon canisters pursuant to paragraph 19.F.i, above, BP shall submit a project completion report to EPA within thirty (30) days of completing the installation of all of the secondary carbon canisters at each facility. This report shall include a list of all locations within the facility where secondary canisters were installed, the installation date of each secondary canister, and the date that each secondary canister was put into operation. For each refinery subject to this Consent Decree for which BP chooses to comply with Paragraph 19.F.ii, above, BP shall submit quarterly reports to EPA detailing the results of breakthrough monitoring and carbon canister change-out. This report shall include for each carbon canister: i) the date(s) and

approximate time when breakthrough was first detected; and ii) for each breakthrough event, the date and time when carbon canister change-out occurred.

T. Reports Re: Audits: No later than thirty (30) days after the date of completion of the initial lab audits for each facility specified in paragraph 19.H, BP shall submit for each such facility a report to EPA summarizing the results. This report shall include, but not be limited to, identification of all labs audited, a description the methods used in the audit, and the results of the audit.

U. Reports Re: Training: No later than (60) days after the Date of Lodging of the Consent Decree, BP shall submit a report to EPA detailing the training that will be implemented at each such facility pursuant to Paragraph 19.J, above.

V. Quarterly Report: Beginning no later than the first full calendar quarter after the Date of Lodging of the Consent Decree, BP shall submit a report to EPA that includes the following information for each Facility subject to this Consent Decree. This report shall be due no later than forty-five (45) days after the end of each calendar quarter.

i. For refineries complying with the 2Mg compliance option, the results of the quarterly sampling conducted pursuant to Paragraphs 19.M.iii and 19.M.iv, above. This shall include a list of all waste streams sampled and all results of benzene analysis for each waste stream.

ii. For each refinery, the results of the quarterly end of the line sampling conducted pursuant to Paragraphs 19.L.ii, 19.M.ii, and 19.N.i, above.

iii. BP shall use all sampling results and approved flow calculation methods pursuant to paragraphs 19.L.ii, 19.M.ii, and 19.N.i, above, to calculate and report a quarterly and a rolling calendar year value for each refinery against the 10 Mg TAB (for refineries whose TAB is less than 10 Mg/yr historically), or the 2Mg or 6BQ compliance options. Rolling calendar year values cannot be calculated until four quarterly sampling events have been completed.

iv. If the quarterly calculation for a facility made pursuant to this Paragraph 19.V.iii, above, exceeds: a) 2.5 Mg for refineries with TABs historically less than 10 Mg/yr, b) 0.5 Mg for refineries

complying with the 2 Mg compliance option, or, c) 1.5 Mg for refineries complying with the 6 BQ compliance option, then BP shall include for each such refinery a summary and schedule of the activities planned to minimize benzene wastes at such facility for the rest of the calendar year to ensure that the calendar year calculation complies with the 10 Mg TAB calculation, or the 2Mg or 6BQ compliance options.

v. If any rolling annual calculation for any facility made pursuant to Paragraph 19.V.iii, above, exceeds (1) 10 Mg for refineries with TABs historically less than 10 Mg/yr, (2) 2 Mg for refineries complying with the 2 Mg compliance option, or (3) 6 Mg for refineries complying with the 6 BQ compliance option, then BP shall include for each such refinery a summary and schedule of the activities planned to minimize benzene wastes at such facility to ensure that the calendar year calculation complies with the Benzene Waste NESHAP.

vi. For a refinery complying with the 6 Mg compliance option, the results of the annual sampling conducted pursuant to Paragraph 19.N.ii, above, shall be included with the report submitted for the fourth calendar quarter each year. These results shall include a list of all waste streams sampled and all results of benzene analysis for each waste stream

vii. BP shall identify all labs used during the quarter for analysis of benzene waste samples collected from its refineries pursuant to this Paragraph and provide the date of the most recent audit of each lab.

20. **Leak Detection and Repair ("LDAR")**: Pursuant to this Paragraph, BP shall undertake at each Facility subject to this Consent Decree the following measures to minimize or eliminate fugitive emissions from certain equipment at its refineries in accordance with the schedule set forth below.

A. **Written Facility-Wide Program**: No later than 120 days from the Date of Lodging of this Consent Decree, BP shall develop and maintain a written facility-wide program for LDAR compliance at its refineries. Each facility-wide program shall include at a minimum: an overall facility-wide leak rate goal that will be achieved on a process unit-by-process unit basis,



identification of all valves and pumps that have the potential to leak volatile organic compounds or hazardous organic pollutants, in accordance with 40 C.F.R. Part 60, Subpart GGG, and 40 C.F.R. Part 63, Subpart CC, within process areas that are owned and maintained by each facility; procedures for identifying leaking pumps and valves within process areas that are owned and maintained by each facility; procedures for identifying leaking components; procedures for identifying and including new valves and pumps in the LDAR program; and standards for new equipment that it intends to install to minimize leaks or replace chronic leakers. BP shall implement this program on a facility-wide basis.

**B. Training:** No later than one year from the Date of Lodging of the Consent Decree, BP shall implement the following training programs at each facility subject to this Paragraph:

i. For new LDAR personnel, BP shall provide and require LDAR training prior to each employee beginning work in the LDAR group;

ii. For all LDAR personnel, BP shall provide and require completion of annual LDAR training; and

iii. For all other applicable facility operations personnel, BP shall provide and require annual review courses including relevant aspects of LDAR monitoring.

**C. LDAR Audits:** Beginning immediately upon the Date of Lodging of the Consent Decree, BP shall implement at each of the facilities subject to this Paragraph, the following audit programs focusing on comparative monitoring, records review, tagging, data management, and observation of the actual LDAR technicians' calibration and monitoring techniques:

i. BP shall conduct a third party audit of each Facility's LDAR program at least once every four (4) years. The first third party audit for half of the facilities shall be conducted no later than one year from the Date of Lodging of the Consent Decree. The remaining Facilities shall be audited within two years of the Date of Lodging of the Consent Decree.

ii. BP shall conduct internal audits of each Facility's LDAR program according to the broad framework approved by EPA. These audits shall be conducted by sending the personnel familiar

with the LDAR Program and its requirements from one or more BP facilities to audit another BP Facility. The first of these internal LDAR audits shall be conducted no later than two years from the date of the initial third-party audit required in Paragraph C.i. above, and conducted every four years thereafter for the length of the Decree.

iii. To ensure that audits occur every two years, third-party and internal audits shall be separated by two years.

**D. Leak Definition:** BP shall utilize the following internal leak definitions, unless permit(s) or other regulations require use of lower leak definitions:

i. No later than two (2) years after the Date of Lodging of the Consent Decree, BP shall utilize an internal leak definition of 500 ppm for all block valves (i.e., any non-control valves). BP may continue to report leak rates against the applicable regulatory leak definition, or use the lower leak rate definition for reporting purposes. BP shall record, track, repair, and remonitor all leaks at each facility subject to this Paragraph above this internal leak definition, but will have thirty (30) days to make repairs on and remonitor leaks that are greater than the internal leak definitions set in this Paragraph and less than the applicable regulatory leak definition.

ii. No later than two (2) years from the Date of Lodging of the Consent Decree, BP shall utilize an internal leak definition of 500 ppm for control valves. For a period of at least three (3) years following the utilization of this internal leak definition of 500 ppm for control valves, BP shall record, track, remonitor, and repair all leaks at each facility subject to this Paragraph above this internal leak definition, but will have thirty (30) days to make repairs on and remonitor leaks that are greater than the internal leak definition set in this Paragraph and less than the applicable regulatory leak definition.

**E. Reevaluation of Internal Leak Definition for Control Valves:** No later than thirty (30) months from the date the control valve monitoring at 500 ppm commences, BP shall submit a report to EPA that quantifies emissions, emission reductions, leak rate trends, and costs related to this leak

definition. Following review of such report, EPA will determine whether to continue to require BP to use the above-referenced internal leak definition for control valves.

F. Monitoring of Pumps: No later than 120 days after the Date of Lodging of the Consent Decree, BP shall record actual readings from monitoring of all pumps at the facilities subject to this Paragraph for a period of at least three (3) calendar years, using an internal leak definition of 2,000 ppm. No later than thirty (30) months after BP begins recording and monitoring all pumps, BP shall submit a report to EPA for the facilities subject to this Paragraph that quantifies projected repair costs, estimated emission reduction and trends. After reviewing the report, EPA will determine if pumps will be monitored and repaired at the 2000 ppm leak definition.

G. First Attempt at Repairs on Valves: Beginning no later than ninety (90) days after the Date of Lodging of the Consent Decree, BP shall make a "first attempt" at repair on any valve that is subject to monitoring pursuant to this Paragraph that has a reading greater than 100 ppm of volatile organic compounds, excluding control valves and other valves and pumps that LDAR personnel are not authorized to repair. BP shall record, track and remonitor leaks above the internal leak definitions as specified above in Paragraph 20.D. However, BP shall immediately re-monitor all valves that LDAR personnel attempted to repair to ensure that the leaks have not been made worse. After two years, EPA will reassess this program to determine if continuing this first attempt at repair is appropriate.

H. LDAR Monitoring Frequency: No later than two (2) years from the Date of Lodging of the Consent Decree, BP shall implement more frequent monitoring of all valves by choosing one of the following options on a process unit by process unit basis:

- i. Quarterly monitoring with no ability to skip periods. This option cannot be chosen for process units subject to the HON or the modified-HON option in the Refinery MACT.
- ii. Sustainable skip period program (see attached Appendix H);
- iii. For process units complying with the sustainable skip period program set forth in Paragraph 20.H.ii, above, EPA, the State or local agency may require BP to implement more

frequent monitoring of valves if the leak rate determined during an EPA, State or local inspection demonstrates that more frequent monitoring is appropriate. In evaluating whether the leak rate demonstrates that more frequent monitoring of valves is appropriate, EPA or the State will determine the leak rate based on the total number of valves in the process unit, rather than the total number of valves monitored during the inspection.

iv. Previous process unit monitoring results may be used to determine the initial skip period interval provided that each valve has been monitored using the 500 ppm leak definition.

v. Process units monitored in the skip period alternative method may not revert to quarterly monitoring if the most recent monitoring period demonstrates that more than two percent of the valves were found leaking under the internal leak definition.

I. **Dataloggers:** No later than two (2) years from the Date of Lodging of the Consent Decree, BP shall use dataloggers and/or electronic data storage for LDAR monitoring required under this Paragraph for such defendant's facilities, in accordance with operational specifications to be separately proposed by BP and approved by EPA. BP will have the ability to use paper logs where necessary or more feasible (i.e., small rounds, remonitoring, or when dataloggers are not available or broken). BP shall create (if not already created) and maintain an electronic database for storage and reporting of data collected pursuant to this Paragraph. BP shall ensure for each of its facilities that such collected monitoring data includes a time/date stamp for all monitoring events.

J. **Subcontracted Programs:** Beginning from no later than the Date of Lodging of the Consent Decree, if BP subcontracts its LDAR monitoring program at a facility, BP shall require its LDAR contractors to conduct a quality assurance/quality control ("QA/QC") review of all data before turning it over to the facility and to provide the facility with daily reports of its monitoring activity.

K. **LDAR Personnel:** No later than the Date of Lodging of the Consent Decree, BP shall establish a program that will hold LDAR personnel accountable for LDAR performance and

provide incentives for leak rate improvements. BP shall maintain a position within each facility (or under contract) responsible for LDAR coordination, with the authority to implement improvements.

L. Adding New Valves and Pumps: No later than sixty (60) days from the Date of Lodging of the Consent Decree, BP shall establish a tracking program for maintenance records to ensure that valves and pumps added to each facility during maintenance/construction are integrated into the LDAR program.

M. Monitoring After Turnaround or Maintenance: BP shall have the option of monitoring affected valves and pumps within process units after completing a documented maintenance, startup, or shutdown activity without having the results of the monitoring count as a scheduled monitoring activity, provided that BP monitor according to the following schedule:

- i. Event involving 1000 or fewer affected valves and pumps -- monitor within one (1) week of the documented maintenance, start-up, or shutdown activity;
- ii. Event involving greater than 1000 but fewer than 5000 affected valves and pumps -- monitor within two (2) weeks of the documented maintenance, start-up, or shutdown activity; and
- iii. Event involving greater than 5000 affected valves and pumps -- monitor within four (4) weeks of the documented maintenance, start-up, or shutdown activity.

N. Calibration Drift Assessment: Beginning no later than the Date of Lodging of the Consent Decree, BP shall conduct calibration drift assessments of the LDAR monitoring equipment in accordance with 40 C.F.R. Part 60, EPA Reference Test Method 21, at a minimum, at the end of each monitoring shift. BP agrees that if any calibration drift assessment after the initial calibration shows a drift of more than 10%, BP shall re-monitor all valves and pumps that were monitored since the last calibration and that had readings greater than 100 ppm.

O. Delay of Repair: Beginning no later than the Date of Lodging of the Consent Decree, for any valve BP is required under the applicable regulations to place on the "delay of repair" list for repair, BP shall:

i. Require sign-off by the unit supervisor that the component is technically infeasible to repair without process unit shutdown before the component is eligible for inclusion on the "delay of repair" list;

ii. Establish a leak level of 50,000 ppm at which it will undertake extraordinary efforts to fix the leak of greater than 50,000 ppm, rather than put the component on the "delay of repair" list, unless there is a safety or major environmental concern posed by repairing the leak in this manner. For valves, extraordinary efforts/ repairs shall be defined as non-routine repair methods, such as the drill and tap;

iii. Include valves and pumps that are placed on the "delay of repair" list in its regular LDAR monitoring, and make extraordinary efforts to repair the component if the leak reaches 50,000 ppm; and

iv. Undertake extraordinary efforts to repair valves and pumps that have been on the "delay of repair" list for a period of 3 years and leaking at a rate of 10,000 ppm, unless there is a safety or major environmental concern posed by repairing the leak in this manner.

P. **Completion Reports:** No later than 120 days from the Date of Lodging of the Consent Decree, BP for each Facility subject to this Consent Decree, shall submit a report to EPA certifying that Paragraphs 20.G., 20.J., 20.K., 20.L., 20.N., and 20.O have been implemented. No later than 150 days from the Date of Lodging of the Consent Decree, BP shall submit a report to EPA certifying that Paragraph 20.A has been completed. This report shall also include a description of the accountability/incentive programs that are developed pursuant to Paragraph 20.K.

Q. **Reports Re: Training:** Within thirty (30) days after implementing the training programs pursuant to paragraph 20.B. above, BP shall submit to EPA a certification for each Facility subject to this Consent Decree that the training has been implemented. Such certification shall include a description of the different training programs implemented.

R. **Reports Re: Audits:** BP shall submit annual reports to EPA for each Facility subject to this Consent Decree with the results of the audits conducted pursuant to Paragraph 20.C. These

reports shall include a description of changes BP plans to implement based on the results of the audits. The initial annual report shall be due by January 31 of the year following the first calendar year during which such defendant has conducted monitoring for at least three calendar quarters pursuant to this paragraph. Subsequent annual reports shall be due on January 31 of each subsequent year during the life of this Consent Decree.

**S. Quarterly Reports:** BP shall submit quarterly monitoring reports to EPA with the results of the LDAR monitoring performed for each of its facilities. This report shall include for such facility a list of the process units monitored during the quarter, whether each process unit is complying with quarterly monitoring or the sustainable skip period program, the number of valves and pumps monitored in each unit, the number of valves and pumps found leaking, and the projected date of the next monitoring event. This report shall also include for such facility a list of all valves and pumps currently on the delay of repair list and the date each component was put on such list.

**21. NSPS Applicability Re: Sulfur Recovery Plant:** Beginning no later than the Date of Lodging of the Consent Decree, BP agrees that the Sulfur Recovery Plants ("SRP") at Cherry Point, Carson, Texas City, Toledo, Whiting, and Yorktown shall be subject to NSPS Subpart J as affected facilities and shall comply with all requirements of 40 C.F.R. Subparts A and J, except as provided below. Furthermore, NSPS Subparts A and J shall apply in accordance with 21.B.iii.h and 21.B.iv.h, respectively to either the Mandan or Salt Lake City SRPs in the event that the sulfur input to either SRP exceeds 20 long tons in any calendar day. BP reserves the right to assert that the data showing that the sulfur input to the SRP exceeds 20 long tons in any twenty-four hour averaging period is neither accurate nor reliable.

**A. Sulfur Pit Emissions:** BP shall re-route all NSPS SRP sulfur pit emissions for the Cherry Point, Carson, Texas City, Toledo, Whiting, and Yorktown Facilities such that they are treated, monitored, and included as part of the SRP's emissions subject to the NSPS Subpart J limit for SO<sub>2</sub>, 40 C.F.R. § 60.104(a)(2), by no later than the first turnaround of the applicable Claus train

that occurs more than six (6) months after the Date of Lodging of the Consent Decree. BP agrees to control the sulfur pit emissions at Mandan and Salt Lake City by continuing to route sulfur pit emissions to their respective incinerators at the Mandan and Salt Lake City SRPs.

**B. Sulfur Recovery Plants ("SRP"):**

**i. Carson**

a. By no later than the Date of Lodging of the Consent Decree, BP shall, for all periods of operation of the SRP, comply with 40 C.F.R. § 60.104(a)(2), except during periods of startup, shutdown or malfunction of the SRP or malfunction of the TGU and as provided in Paragraph 21.B.i.e. and f.

b. By no later than the Date of Lodging of the Consent Decree, BP shall comply with all other applicable SRP NSPS requirements including applicable monitoring, record keeping, reporting and operating requirements of the SRP NSPS regulations.

c. At all times, including periods of startup, shutdown, and malfunction, BP shall, to the extent practicable, operate and maintain its SRP, its TGUs, and any supplemental control devices in accordance with its obligation to minimize emissions through implementation of good air pollution control practices as required in 40 C.F.R. § 60.11(d).

d. By no later than sixty (60) days from the Date of Lodging of the Consent Decree, BP shall submit to EPA for EPA's approval, a Plan for Maintenance and Operation of its SRP, TGU, Supplemental Control Devices, and Upstream Process Units in Accordance with Good Air Pollution Control Practices for Minimizing Emissions (Operation and Scheduled Maintenance Plan). The Plan shall provide for continuous operation between scheduled maintenance turnarounds for minimization of emissions from the SRP. Such Plan shall include, but not be limited to, sulfur shedding procedures, and schedules to coordinate maintenance turnarounds of its SRP Claus trains, TGU, and any supplemental control device to coincide with scheduled turnarounds of major upstream sulfur producing units. Upon EPA's approval, BP shall comply with the Operation and Scheduled Maintenance Plan at all times, including periods of start up, shut down, and malfunction



of the SRP. BP may make reasonable modifications to the Operation and Scheduled Maintenance Plan approved under this Paragraph, provided that BP provides EPA with a copy of the modification. EPA need not approve a proposed modification made in good faith. The requirements of Paragraph 21.B.i.d. shall apply until the completion of the scheduled turnaround in 2003.

e. For purposes of this Consent Decree, BP will not be in violation of the provisions of Paragraph 21.B.i.a. if, during the period from the Date of Lodging of the Consent Decree to the scheduled TGU turnaround in 2003, the SO<sub>2</sub> emissions from each incinerator stack do not exceed 250 ppm on a rolling 12-hour average for greater than 7.5 % of the operating time for the SRP (8749 12-hour periods in a year) for any rolling 12-month period. If, however, prior to 2003, BP re-routes the emissions from its three uncontrolled sulfur pits to its incinerators and continues to route the currently controlled sulfur pit emissions to its incinerator, then BP will not be in violation of the provisions of Paragraph 21.B.i.a. during the period from the completion of that re-routing to the scheduled TGU turnaround in 2003 if the SO<sub>2</sub> emissions from each incinerator stack do not exceed 300 ppm on a rolling 12-hour average for greater than 7.5 % of the operating time for the SRP for any rolling 12-month period. Excess emissions attributed to startup, shutdown and malfunction shall not be counted as exceedances, and excess emissions occurring at both TGU Incinerator stacks during the same 12-hour period shall be counted as one exceedance. In no event shall the foregoing be read to excuse BP from complying with the terms of Paragraph 21.B.i.a. by the completion of the scheduled TGU turnaround in 2003.

f. For purposes of this Consent Decree, BP will not be in violation of the provisions of Paragraphs 21.B.i.a. during one scheduled 21-day turnaround of the TGU No. 2 during the period from the Date of Entry of the Consent Decree to the end of the scheduled turnaround in 2003, if BP demonstrates full compliance with the provisions of the Operation and Scheduled Maintenance Plan required by Paragraph 21.B.i.d., and does not exceed a sulfur dioxide emission limit of 500 ppm on a rolling 12-hour basis from the TGU No. 1 incinerator stack.

g. During the period from the Date of Lodging of the Consent Decree to the completion of the scheduled turnaround in 2003, BP shall implement a program to investigate the cause of all sulfur dioxide emission limit exceedances from the incinerator stack(s) where the sulfur dioxide emissions exceed 250 ppm on a rolling 12-hour average (or 300 ppm in the event that BP re-routes all emissions from all four sulfur pits to its incinerators, as set forth in Paragraph 21.B.i.e.) for 12 consecutive hours as determined from any combination of 12-hour periods in excess of the limit from either incinerator stack. By no later than thirty (30) days following the end of a 12 consecutive hour sulfur dioxide emission limit exceedance from the incinerator stack(s), BP shall submit to EPA's Air and Radiation Division for Regions 5 and 9, a report that sets forth the following:

1. The date and time that the emission limit exceedance started and ended;
2. An estimate of the quantity of sulfur dioxide that was emitted and the calculations that were used to determine that quantity;
3. The steps, if any, that BP took to limit the duration and/or quantity of sulfur dioxide emissions;
4. A detailed analysis that sets forth the cause of the emission limit exceedance, to the extent determinable;
5. An analysis of the measures, if any, that are available to reduce the likelihood of a recurrence of an emission limit exceedance from the same cause or contributing causes in the future. The analysis shall discuss the alternatives, if any, that are available, the probable effectiveness and cost of the alternatives, and whether or not an outside consultant should be retained to assist in the analysis. Possible design, operational, and maintenance changes shall be evaluated. If BP concludes that corrective action(s) is (are) required under this paragraph, the report shall include a description of the action(s) and, if not already completed, a schedule for its (their) implementation, including proposed commencement and completion dates. If BP concludes that corrective action is not required under this paragraph, the report shall explain the basis for that conclusion;
6. To the extent that investigations of the causes and/or possible corrective actions still are underway on the due date of the report, a statement of the anticipated date by which a follow-up report fully conforming to the requirements of this paragraph shall be submitted; provided, however, that if BP has not submitted a report or a series of reports containing the information required to be submitted under this paragraph within 45 days (or such additional time as U.S. EPA may allow) after the due date for the initial report for the Flaring Incident, stipulated penalties shall apply;

7. To the extent that completion of the implementation of corrective action(s), if any, is not finalized at the time of the submission of the report required under this Subparagraph, then, by no later than thirty (30) days after completion of the implementation of corrective action(s), BP shall submit a report identifying the corrective action(s) taken and the dates of commencement and completion of implementation.

ii. Cherry Point:

a. By no later than the Date of Lodging of the Consent Decree, BP shall, for all periods of operation of the SRP, comply with 40 C.F.R. § 60.104(a)(2), except during periods of startup, shutdown or malfunction of the SRP or malfunction of the TGU and as provided in Paragraph 21.B.ii.f., g. and h.

b. By no later than the Date of Lodging of the Consent Decree, BP shall comply with all other applicable SRP NSPS requirements including applicable monitoring, record keeping, reporting and operating requirements of the SRP NSPS regulations.

c. BP shall install a second TGU or equivalent control technology to ensure continuous compliance with the NSPS emission standards by no later than the planned refinery turnaround in 2006. In addition, BP shall reroute the vent from the sour water stripper tank from the SRP incinerator to some other point upstream of the SRP by no later than eighteen (18) months from the Date of Lodging of the Consent Decree.

d. At all times, including periods of startup, shutdown, and malfunction, BP shall, to the extent practicable, operate and maintain its SRP, its TGU and any supplemental control devices in accordance with its obligation to minimize emissions through implementation of good air pollution control practices as required in 40 C.F.R. § 60.11(d).

e. By no later than sixty (60) days from the Date of Lodging of the Consent Decree, BP shall submit to EPA for EPA's approval, a Plan for Maintenance and Operation of its SRP, TGU, Supplemental Control Devices, and Upstream Process Units in Accordance with Good Air Pollution Control Practices for Minimizing Emissions (Operation and Scheduled Maintenance Plan). The Plan shall provide for continuous operation of its SRP and TGU between scheduled maintenance

turnarounds for minimization of emissions. Such Plan shall include, but not be limited to, sulfur shedding procedures, and schedules to coordinate maintenance turnarounds of its SRP Claus trains, TGU, and any supplemental control device to coincide with scheduled turnarounds of major upstream sulfur producing units. Upon EPA's approval, BP shall comply with the Operation and Scheduled Maintenance Plan at all times, including periods of start up, shut down, and malfunction of the SRP. BP may make reasonable modifications to the Operation and Scheduled Maintenance Plan approved under this Paragraph, provided that BP provides EPA with a copy of the modification. EPA need not approve a proposed modification made in good faith. The requirements of Paragraph 21.B.ii.e. shall apply until BP completes the activities required by Paragraph 21.B.ii.c.

f. During the 24-month period commencing from the Date of Lodging of the Consent Decree, BP will not be in violation of the provisions of Paragraph 21.B.ii.a. if the emissions from the TGU do not exceed 550 ppm of SO<sub>2</sub> (at 0% oxygen) based on a rolling 12-hour average. If, during the last six months of the 24-month period, BP demonstrates that the refinery is unable to limit its emissions from its TGU to 250 ppm or less of SO<sub>2</sub> (at 0% oxygen) based on a rolling 12-hour average, when operating in full compliance with its Operation and Scheduled Maintenance Plan and its obligation to minimize emissions through implementation of good air pollution control practices as required in 40 C.F.R. § 60.11(d), EPA may adjust the emission limit to reflect an emission limit that BP can reasonably meet under such operating and maintenance conditions, but in no event shall that limit be greater than 550 ppm of SO<sub>2</sub>. If EPA adjusts the emission limit by notifying BP in writing, then BP will not be in violation of the provisions of Paragraph 21.B.iii.a. if the emissions from the TGU do not exceed that adjusted limit during the period commencing from 24 months after the Date of Lodging of the Consent Decree to the date of installation of the second TGU or equivalent control technology, but no later than the planned refinery turnaround in 2006. In no event shall the foregoing be read to excuse BP from complying with the terms of Paragraph 21.B.ii.a by the planned refinery turnaround in 2006.

g. For purposes of this Consent Decree, BP will not be in violation of the provisions of Paragraphs 21.B.ii.a. or d. during a scheduled turnaround of the TGU during the period from the Date of Lodging of the Consent Decree to the installation of the second TGU as scheduled in the Consent Decree, if BP demonstrates compliance with the provisions of the Operation and Scheduled Maintenance Plan required by Paragraph 21.B.ii.e., and the Root Cause of the excess emissions is due to the performance of the scheduled maintenance.

h. For purposes of this Consent Decree, BP will not be in violation of the provisions of Paragraphs 21.B.ii.a. during a twenty-one (21) day scheduled turnaround of the sour water flash drum tank in or around April 2001, if the sulfur dioxide emissions from the TGU do not exceed 1000 ppm based on a rolling 12-hour average.

iii. Mandan:

a. BP shall comply with a 95% recovery efficiency requirement for all periods of operation except during periods of startup, shutdown, or malfunction of the SRP. In addition, BP shall not exceed a sulfur dioxide emission limit of 2.11 tons/day from the SRP except during periods of startup, shutdown, or malfunction of the SRP. The 95% recovery efficiency will be determined on a daily basis; however, compliance will be determined on a rolling 30-day average basis. BP shall determine the percent recovery by measuring the flow rate and concentration of hydrogen sulfide in the feed streams going to the SRU and by measuring the sulfur dioxide emissions with the CEMS at the SRU incinerator. The flow rate will be determined continuously; the hydrogen sulfide concentration will be determined quarterly for the first 6 quarters from the Date of Lodging of the Consent Decree and at least semiannually thereafter (samples may be collected as manual grabs or through remote monitoring). The flow rate and hydrogen sulfide concentration values will be used to determine the daily feed rate. BP shall install and commence operation of the CEMS at the SRU incinerator no later than July 31, 2001.

b. BP shall complete an SRP optimization study at Mandan no later than one hundred twenty (120) days after the Date of Lodging of the Consent Decree. (For purposes of Paragraphs

21.B. and C. only, the "SRP" includes the amine unit, the sour water stripper, the SRU and the SRU tail gas incinerator.) The optimization study shall meet the requirements set forth at Paragraph 21.C. BP shall submit a copy of the optimization study report and a schedule for implementing the recommendations in the report to EPA Region 8 and the State of North Dakota. BP shall implement the physical improvements and operating parameters recommended in the study to optimize performance of the SRP in accordance with the proposed schedule.

c. BP shall operate the Mandan SRP at all times in accordance with the good engineering management practices as recommended in the optimization study to ensure compliance with the 95% efficiency requirement and the emission limit.

d. No later than six (6) months after the date of completion of the optimization study, BP shall conduct a test to demonstrate compliance with the 95% recovery efficiency and the emission limit requirements. BP shall submit a copy of the test protocol to EPA Region 8 and the State of North Dakota for review and comment not less than 30 days before the scheduled test date.

e. Beginning with the calendar quarter in which BP installs the CEMS on the SRU incinerator, BP shall submit a quarterly report to Region 8 and the State of North Dakota showing all daily percent sulfur recovery values, the rolling 30-day sulfur recovery average, all daily emissions (tons/day) as recorded by a CEMS, the operating parameters established in the SRP optimization study, and the daily feed (calculated from daily flow rate and quarterly hydrogen sulfide concentration) to the SRU.

f. By no later than sixty (60) days from the Date of Lodging of the Consent Decree, BP shall submit to EPA for EPA's approval, a Plan for Maintenance and Operation of its SRP and Upstream Process Units in Accordance with Good Air Pollution Control Practices for Minimizing Emissions (Operation and Scheduled Maintenance Plan). The Plan shall provide for continuous operation between scheduled maintenance turnarounds for minimization of emissions from the SRP. Such Plan shall include, but not be limited to, sulfur shedding procedures, and schedules to coordinate maintenance turnarounds of its SRP Claus train to coincide with scheduled turnarounds

of major upstream sulfur producing units. Upon EPA's approval, BP shall comply with the Operation and Scheduled Maintenance Plan at all times, including periods of start up, shut down, and malfunction of the SRP. BP may make reasonable modifications to the Operation and Scheduled Maintenance Plan approved under this Paragraph, provided that BP provides EPA with a copy of the modification. EPA need not approve a proposed modification made in good faith. The requirements of Paragraph 21.B.iii.f. shall apply for the life of the Consent Decree.

g. For purposes of this Consent Decree, BP will not be in violation of the provisions of Paragraphs 21.B.iii.a. or c. during defined periods of scheduled maintenance of the SRP, if BP demonstrates compliance with the requirements of the optimization study set forth in Paragraphs 21.B.iii.b. and C. and the Operation and Scheduled Maintenance Plan required by Paragraph 21.B.iii.f., and the Root Cause of the excess emissions is due to the performance of the scheduled maintenance.

h. No later than one hundred and twenty (120) days from the date the sulfur input to the Mandan SRP exceeds twenty (20) long tons in any calendar day, BP shall submit to EPA a proposed schedule to comply with all applicable NSPS provisions, including the installation of a Tail Gas Unit. Any schedule proposed by BP shall require BP to be in compliance with all applicable NSPS regulatory requirements no later than thirty (30) months from the date the sulfur input to that SRP exceeded twenty (20) long tons in any calendar day; provided, however that BP and the United States agree that if there is a dispute as to the accuracy or reliability of the data indicating that the sulfur input to the Mandan SRP exceeded the twenty (20) long tons per day, then the deadlines for submission of the compliance schedule and achieving compliance with the NSPS shall be extended by the period of the dispute. BP shall notify EPA in writing if during any calendar day monitoring of the sulfur input to the Mandan SRP indicates that the sulfur input to the SRP exceeds twenty (20) long tons for that calendar day. The notice required by the preceding sentence shall include such monitoring data. To the extent that BP believes that such monitoring

data is neither accurate nor reliable BP shall so notify the United States and provide the basis(es) for such an assertion.

iv. Salt Lake City:

a. BP shall comply with a 95% recovery efficiency requirement for all periods of operation except during periods of startup, shutdown, or malfunction of the SRP. In addition, BP shall not exceed a sulfur dioxide emission limit of 1.68 tons/day from the SRP except during periods of startup, shutdown, or malfunction of the SRP. The 95% recovery efficiency will be determined on a daily basis; however, compliance will be determined on a rolling 30-day average basis. BP shall determine the percent recovery by measuring the flow rate and concentration of hydrogen sulfide in the feed streams going to the SRU and by measuring the sulfur dioxide emissions with the CEMS at the SRU incinerator. The flow rate will be determined continuously; the hydrogen sulfide concentration will be determined quarterly for the first 6 quarters from the Date of Lodging of the Consent Decree and at least semiannually thereafter (samples may be collected as manual grabs or through remote monitoring). The flow rate and hydrogen sulfide concentration values will be used to determine the daily feed rate.

b. BP shall complete an SRP optimization study at Salt Lake City no later than ninety (90) days after the Date of Lodging of the Consent Decree. (For purposes of Paragraphs 21.B and C only, the "SRP" includes the amine unit, the sour water stripper, the SRU and the SRU tail gas incinerator.) The optimization study shall meet the requirements set forth in Paragraph 21.C. BP shall submit a copy of the optimization study report and a schedule for implementing the recommendations in the report to EPA Region 8 and the State of Utah. BP shall implement the physical improvements and operating parameters recommended in the study to optimize performance of the SRP in accordance with the proposed schedule.

c. BP shall operate the Salt Lake City SRP at all times in accordance with the good engineering management practices recommended in the optimization study to ensure compliance with the 95% efficiency requirement and the emission limit.



d. No later than six (6) months after the date of completion of the optimization study, BP shall conduct a test to demonstrate compliance with the 95% recovery efficiency and emission limit requirements. BP shall submit a copy of the test protocol to EPA Region 8 and the State of Utah for review and comment not less than 30 days before the scheduled test date.

e. BP shall submit a quarterly report to Region 8 and the State of Utah showing all daily percent sulfur recovery values, the rolling 30-day sulfur recovery average, all daily emissions (tons/day) as recorded by a CEMS, the operating parameters established in the optimization operating study, and the daily feed (calculated from daily flow rate and quarterly hydrogen sulfide concentration) to the SRU.

f. By no later than sixty (60) days from the Date of Lodging of the Consent Decree, BP shall submit to EPA for EPA's approval, a Plan for Maintenance and Operation of its SRP and Upstream Process Units in Accordance with Good Air Pollution Control Practices for Minimizing Emissions (Operation and Scheduled Maintenance Plan). The Plan shall provide for continuous operation between scheduled maintenance turnarounds for minimization of emissions from the SRP. Such Plan shall include, but not be limited to, sulfur shedding procedures, and schedules to coordinate maintenance turnarounds of its SRP Claus train to coincide with scheduled turnarounds of major upstream sulfur producing units. Upon EPA's approval, BP shall comply with the Operation and Scheduled Maintenance Plan at all times, including periods of start up, shut down, and malfunction of the SRP. BP may make reasonable modifications to the Operation and Scheduled Maintenance Plan approved under this Paragraph, provided that BP provides EPA with a copy of the modification. EPA need not approve a proposed modification made in good faith. The requirements of Paragraph 21.B.iv.f. shall apply for the life of the Consent Decree.

g. For purposes of this Consent Decree, BP will not be in violation of the provisions of Paragraphs 21.B.iv.a. or c. during defined periods of scheduled maintenance of the SRP, if BP demonstrates compliance with the requirements of the optimization study set forth in Paragraphs 21.B.iv.b. and C. and the Operation and Scheduled Maintenance Plan required by Paragraph

21.B.iv.f., and the Root Cause of the excess emissions is due to the performance of the scheduled maintenance.

h. No later than one hundred and twenty (120) days from the date the sulfur input to the Salt Lake City SRP exceeds twenty (20) long tons in any calendar day, BP shall submit to EPA a proposed schedule to comply with all applicable NSPS provisions, including the installation of Tail Gas Unit. Any schedule proposed by BP shall require BP to be in compliance with all applicable NSPS regulatory requirements no later than thirty (30) months from the date the sulfur input to that SRP exceeded twenty (20) long tons in any calendar day; provided, however that BP and the United States agree that if there is a dispute as to the accuracy or reliability of the data indicating that the sulfur input to the Mandan SRP exceeded the twenty (20) long tons per day, then the deadlines for submission of the compliance schedule and achieving compliance with the NSPS shall be extended by the period of the dispute. BP shall notify EPA in writing if during any calendar day monitoring of the sulfur input to the Salt Lake City SRP indicates that the sulfur input to the SRP exceeds twenty (20) long tons for that calendar day. The notice required by the preceding sentence shall include such monitoring data. To the extent that BP believes that such monitoring data is neither accurate nor reliable, BP shall so notify the United States and provide the basis(es) for such an assertion.

v. Texas City

a. By no later than the Date of Lodging of the Consent Decree, BP shall, for all periods of operation of the SRP, comply with 40 C.F.R. § 60.104(a)(2), except during periods of startup, shutdown or malfunction of the SRP or malfunction of the TGU, and with all applicable SRP NSPS requirements including applicable monitoring, record keeping, reporting and operating requirements of the SRP NSPS regulations.

b. At all times, including periods of startup, shutdown, and malfunction, BP shall, to the extent practicable, operate and maintain its SRP, its TGU, and any supplemental control devices in

accordance with its obligation to minimize emissions through implementation of good air pollution control practices as required in 40 C.F.R. § 60.11(d).

vi. Whiting /

a. By no later than the Date of Lodging of the Consent Decree:

1. BP shall comply with 40 C.F.R. § 60.104(a)(2) during all periods of operation of the SRP other than periods of startup, shutdown or malfunction of the SRP or malfunction of the TGU.

2. Notwithstanding subparagraph (1) above, for the interim period between the Date of Lodging of the Consent Decree and the applicable deadline under subparagraph b. below, BP shall be permitted to schedule and perform maintenance on the TGU without shutting down the SRP or the refinery processes that produce feed to the SRP if BP satisfies all of the following conditions:

(i.) BP will be permitted to perform maintenance on the TGU for a period not to exceed twenty-one (21) days;

(ii.) BP will complete the necessary connections for the supplemental TGU during the time period that BP is performing maintenance on the TGU. If it is technically infeasible for BP to complete the necessary connections for the supplemental TGU during the scheduled maintenance on the TGU, BP will complete the necessary connections at a later time, provided, however, that BP must complete both the maintenance on the TGU and the necessary connections for the supplemental TGU within a total of twenty-one (21) days;

(iii.) BP shall provide EPA with written notice at least fourteen (14) days prior to the scheduled maintenance on the TGU. The notice shall be sent by overnight mail to Region V at the address set forth in Section XVI. The notice shall state the reasons for the maintenance; shall indicate that BP has implemented preventive measures in accordance with Subparagraph d. below and Appendix J ("Whiting Refinery Good Engineering Practices to Increase Reliability of Existing TGU"); and shall indicate that BP has and will implement good air pollution control practices in accordance with its plan for minimizing emissions as submitted and approved pursuant to Paragraph 21.vi.4.c;

(iv.) BP agrees that it will complete the scheduled maintenance on the TGU and the necessary connections for the supplemental TGU within twenty-one (21) days. Stipulated penalties will not be assessed during this time period; however, stipulated penalties, as set for in Paragraph 45.B of this Consent Decree will apply if BP exceeds the twenty-one day time period; and

(v.) During the scheduled maintenance on the TGU BP shall comply with its plan for ensuring good air pollution control practices for minimizing emissions.

3. At all times, including periods of startup, shutdown, and malfunction, BP shall, to the extent practicable, operate and maintain the Whiting SRP, its TGU and any supplemental control devices on the SRP in accordance with its obligation to minimize emissions through implementation of good air pollution control practices as required by 40 C.F.R. § 60.11(d); and

4. BP shall comply with all applicable monitoring, record keeping, reporting, operating, and emission limit requirements of the NSPS SRP regulations. With respect to monitoring emissions from the standby incinerator, BP shall immediately comply with an alternative monitoring protocol once it is approved by EPA. If EPA disapproves of BP's proposed alternative monitoring protocol, BP shall install and operate a CEMS on the standby incinerator within one hundred eighty (180) days of receiving notice of EPA's disapproval, or entry of the consent decree, whichever is later. If BP uses the standby incinerator during the life of this Consent Decree, BP shall submit to EPA and the State of Indiana reports detailing the length of time that the standby incinerator was used, the amount of sulfur dioxide emissions emitted into the atmosphere during such time, the reasons for the use of the standby incinerator, and the corrective actions taken to minimize sulfur dioxide emissions from the standby incinerator. These reports shall comply with all the requirements of 40 C.F.R. §§ 60.7(c) and 60.105(e)(4).

b. By no later than March 2002, BP shall install on the SRP a supplemental TGU or alternative control technology to ensure continuous compliance with the NSPS emission standard at all times other than periods of startup, shutdown or malfunction of the SRP or malfunction of the TGU.

c. By no later than sixty (60) days from the Date of Lodging of the Consent Decree, BP shall submit to EPA for EPA's approval, a Plan for Maintenance and Operation of its SRP and Upstream Process Units in Accordance with Good Air Pollution Control Practices for Minimizing Emissions (Operation and Scheduled Maintenance Plan). The Plan shall provide for continuous operation between scheduled maintenance turnarounds for minimization of emissions from the SRP. Such Plan shall include, but not be limited to, sulfur shedding procedures, and schedules to coordinate maintenance turnarounds of its SRP Claus train to coincide with scheduled turnarounds of major upstream sulfur producing units. Upon EPA's approval, BP shall comply with the Operation and Scheduled Maintenance Plan at all times, including periods of start up, shut down, and malfunction of the SRP. BP may make reasonable modifications to the Operation and Scheduled Maintenance Plan approved under this Paragraph, provided that BP provides EPA with a copy of the modification. EPA need not approve a proposed modification made in good faith. The requirements of Paragraph 21.B.vi.c. shall apply for the life of the Consent Decree.

d. BP shall implement preventive measures to ensure reliability of the TGU. These measures may include regular caustic washing to prevent plugging of the reactor tower, continuous liquid injection of Stretford catalyst and filtering of the circulating solution to prevent solids buildup.

vii. Yorktown

a. By no later than the Date of Lodging of the Consent Decree, BP shall, for all periods of operation of the SRP, comply with 40 C.F.R. § 60.104(a)(2), except during periods of startup, shutdown or malfunction of the SRP or malfunction of the TGU and as provided in Paragraph 21.B.vii.f., and with all applicable SRP NSPS requirements including monitoring, record keeping, reporting and operating requirements of the SRP NSPS regulations.

b. BP shall install a TGU or equivalent control technology to ensure continuous compliance with the NSPS emission standards by no later than the planned refinery turnaround in 2006.

c. At all times, including periods of startup, shutdown, and malfunction, BP shall, to the extent practicable, operate and maintain its SRP, its TGU, and any supplemental control devices in accordance with its obligation to minimize emissions through implementation of good air pollution control practices as required in 40 C.F.R. § 60.11(d).

d. BP shall complete an SRP optimization study at Yorktown no later than ninety (90) days after the Date of Lodging of the Consent Decree, for the purpose of ensuring that the 3-stage Claus sulfur recovery train, at its present turn down ratio, achieves a maximum sulfur recovery rate. The optimization study shall meet the requirements set forth in Paragraph 21.C. BP shall submit a copy of the optimization study report and a schedule for implementing the recommendations in the report to EPA Region 3 and the State of Virginia. BP shall implement the physical improvements and operating parameters recommended in the study to optimize performance of the SRP in accordance with the proposed schedule.

e. By no later than sixty (60) days from the Date of Lodging of the Consent Decree, BP shall submit to EPA for EPA's approval, a Plan for Maintenance and Operation of its SRP, the planned TGU, Supplemental Control Devices, and Upstream Process Units in Accordance with Good Air Pollution Control Practices for Minimizing Emissions (Operation and Scheduled Maintenance Plan). The Plan shall provide for continuous operation between scheduled maintenance turnarounds for minimization of emissions from the SRP. Such Plan shall include, but not be limited to, sulfur shedding procedures, and schedules to coordinate maintenance turnarounds of its SRP Claus trains, TGU, and any supplemental control device to coincide with scheduled turnarounds of major upstream sulfur producing units. Upon EPA's approval, BP shall comply with the Operation and Scheduled Maintenance Plan at all times, including periods of start up, shut down, and malfunction of the SRP. BP may make reasonable modifications to the Operation and Scheduled Maintenance Plan approved under this Paragraph, provided that BP provides EPA with a copy of the modification. EPA need not approve a proposed modification made in good faith. The requirements of Paragraph 21.B.vii.e. shall apply for the life of the Consent Decree.

f. For purposes of this Consent Decree, BP will not be in violation of the provisions of Paragraph 21.B.vii.a., during the period from the Date of Lodging of the Consent Decree to the installation of the TGU, if BP demonstrates compliance with the requirements of the optimization study set forth in Paragraph 21.B.vii.d. and Paragraph 21.C. and the Operation and Scheduled Maintenance Plan required by Paragraph 21.B.vii.e. Furthermore, BP will not be in violation of the provisions of Paragraphs 21.B.vii.a. and Paragraph 21.B.vii.d. during scheduled maintenance of the SRP, if BP demonstrates full compliance with the requirements of the optimization study set forth in Paragraphs 21.B.vii.d. and C. and the Operation and Scheduled Maintenance Plan required by Paragraph 21.B.vii.e., and where the Root Cause of the excess emissions is due to the performance of scheduled maintenance of the SRP. Prior to installation of the TGU, BP will submit quarterly reports to EPA Region 3 of its SO<sub>2</sub> emissions as monitored by its current monitoring equipment.

**C. Optimization Studies:** The optimization studies required for Mandan, Salt Lake City, and Yorktown shall meet the following requirements:

- i. A detailed evaluation of plant design and capacity, operating parameters and efficiencies - including catalytic activity, and material balances;
- ii. An analysis of the composition of the acid gas and sour water stripper gas resulting from the processing of crude slate actually used, or expected to be used, in the SRP;
- iii. A thorough review of each critical piece of process equipment and instrumentation within the Claus train that is designed to correct deficiencies or problems that prevent the Claus train from achieving its optimal sulfur recovery efficiency and expanded periods of operation;
- iv. Establishment of baseline data through testing and measurement of key parameters throughout the Claus train;
- v. Establishment of a thermodynamic process model of the Claus train;

vi. For any key parameters that have been determined to be at less than optimal levels, initiation of logical, sequential, or stepwise changes designed to move such parameters toward their optimal values;

vii. Verification through testing, analysis of continuous emission monitoring data or other means, of incremental and cumulative improvements in sulfur recovery efficiency, if any;

viii. Establishment of new operating procedures for long term efficient operation; and

ix. Each study shall be conducted to optimize the performance of the Claus trains in light of the actual characteristics of the feeds to the SRUs.

**22. Acid and Sour Water Stripper Gas Flaring:** For all BP refineries subject to this Consent Decree not including the Toledo Facility, BP agrees to implement a program to investigate the cause of Flaring Incidents, correct the conditions that have caused or contributed to such Flaring Incidents, and minimize the flaring of acid and sour water stripper gases from each of the covered refineries, as set forth below.

**A. Investigation and Reporting**

i. No later than thirty (30) days following the end of a Flaring Incident, BP (not including the Toledo Facility) shall submit to EPA's Air and Radiation Division of Region 5, the Air and Radiation Division of the EPA regional office in which the facility is located, and the appropriate State office, a report that sets forth the following:

- a. The date and time that the Flaring Incident started and ended. To the extent that the Flaring Incident involved multiple releases either within a twenty-four (24) hour period or within subsequent, contiguous, non-overlapping twenty-four (24) hour periods, BP shall set forth the starting and ending dates and times of each release;
- b. An estimate of the quantity of sulfur dioxide that was emitted and the calculations that were used to determine that quantity;
- c. The steps, if any, that BP took to limit the duration and/or quantity of sulfur dioxide emissions associated with the Flaring Incident;
- d. A detailed analysis that sets forth the Root Cause and all contributing causes of that Flaring Incident, to the extent determinable;



- e. An analysis of the measures, if any, that are available to reduce the likelihood of a recurrence of a Flaring Incident resulting from the same Root Cause or contributing causes in the future. The analysis shall discuss the alternatives, if any, that are available, the probable effectiveness and cost of the alternatives, and whether or not an outside consultant should be retained to assist in the analysis. Possible design, operational, and maintenance changes shall be evaluated. If BP concludes that corrective action(s) is (are) required under Subparagraph 22.B, the report shall include a description of the action(s) and, if not already completed, a schedule for its (their) implementation, including proposed commencement and completion dates. If BP concludes that corrective action is not required under Subparagraph 22.B, the report shall explain the basis for that conclusion;
- f. A statement that: (i) specifically identifies each of the grounds for stipulated penalties in Subparagraphs 22.C.i.a and 22.C.i.b of this Decree and describes whether or not the Flaring Incident falls under any of those grounds; (ii) if a Flaring Incident falls under Subparagraph 22.C.i.c of this Decree, describes which Subparagraph (22.C.i.c.1 or 22.C.i.c.2) applies and why; and (iii) if a Flaring Incident falls under either Subparagraph 22.C.i.b or Subparagraph 22.C.i.c.2, states whether or not BP asserts a defense to the Flaring Incident, and if so, a description of the defense; and
- g. To the extent that investigations of the causes and/or possible corrective actions still are underway on the due date of the report, a statement of the anticipated date by which a follow-up report fully conforming to the requirements of this Subparagraph 22.A.i.d and 22.A.i.e shall be submitted; provided, however, that if BP has not submitted a report or a series of reports containing the information required to be submitted under this Subparagraph within 45 days (or such additional time as U.S. EPA may allow) after the due date for the initial report for the Flaring Incident, the stipulated penalty provisions of Paragraph 47 shall apply, but BP shall retain the right to dispute, under the Dispute Resolution Section of this Decree, any demand for stipulated penalties that was issued as a result of BP's failure to submit the report required under this Subparagraph within the time frame set forth. Nothing in this Subparagraph shall be deemed to excuse BP from its investigation, reporting, and corrective action obligations under this Section for any Flaring Incident which occurs after a Flaring Incident for which BP has requested an extension of time under this Subparagraph.
- h. To the extent that completion of the implementation of corrective action(s), if any, is not finalized at the time of the submission of the report required under this Subparagraph, then, by no later than thirty (30) days after completion of the implementation of corrective action(s), BP shall submit a report identifying the corrective action(s) taken and the dates of commencement and completion of implementation.
- i. The requirements of Paragraphs 22.A.i.e. to h of this Paragraph do not apply to Flaring Incidents that occur at the Yorktown, Mandan, or Salt Lake City Facilities during periods of scheduled maintenance of the SRPs at those facilities (and during the shut downs and start-ups associated with scheduled maintenance) if, and to the extent that, BP demonstrates, in the report required by this Paragraph 22.A., that no root cause other than the shutdown contributed more than 500 pounds of SO<sub>2</sub> in any 24-hour period (as provided in the definition of "Flaring Incident") to the Flaring

Incident and that the Facility was complying with the applicable Operation and Scheduled Maintenance Plan required by Paragraphs 21.B.iii.f., 21.B.iv.f., and 21.B.vii.f., respectively, during such periods of scheduled maintenance and the associated shut down and start-up of such SRPs. The requirements of Paragraphs 22.A.i.e. to h of this Paragraph do apply to the portion of any Flaring Incident that occurs at the Yorktown, Mandan, or Salt Lake City Facilities during periods of scheduled maintenance of the SRPs at those facilities (and during the shut downs and start-ups associated with scheduled maintenance) if, and to the extent, that a root cause other than the shutdown of the SRP during scheduled maintenance contributes more than 500 pounds of SO<sub>2</sub> in any 24-hour period (as provided in the definition of "Flaring Incident") to the Flaring Incident.

**B. Corrective Action**

i. In response to any Flaring Incident, other than those excepted in Paragraph 22.A.i.i, above, BP (not including the Toledo Facility) as expeditiously as practicable, shall take such interim and/or long-term corrective actions, if any, as are consistent with good engineering practice to minimize the likelihood of a recurrence of the Root Cause and all contributing causes of that Flaring Incident.

ii. If EPA does not notify BP in writing within sixty (60) days of receipt of the report(s) required by Subparagraph 22.A.i that it objects to one or more aspects of BP's proposed corrective action(s), if any, and schedule(s) of implementation, if any, then that (those) action(s) and schedule(s) shall be deemed acceptable for purposes of BP's compliance with Subparagraph 22.B.i of this Decree. EPA does not, however, by its consent to the entry of this Consent Decree or by its failure to object to any corrective action that BP may take in the future, warrant or aver in any manner that any of BP's corrective actions in the future shall result in compliance with the provisions of the Clean Air Act or its implementing regulations. Notwithstanding EPA's review of any plans, reports, corrective measures or procedures under this Paragraph 22, BP shall remain solely responsible for non-compliance with the Clean Air Act and its implementing regulations. Nothing in this Paragraph 22 shall be construed as a waiver of EPA's rights under the Clean Air Act and its regulations for future violations of the Act or its regulations.

iii. If EPA does object, in whole or in part, to BP's proposed corrective action(s) and/or its schedule(s) of implementation, or, where applicable, to the absence of such proposal(s) and/or

schedule(s), it shall notify BP of that fact within sixty (60) days following receipt of the report(s) required by Subparagraph 22.A.i above. If BP and EPA cannot agree on the appropriate corrective action(s), if any, to be taken in response to a particular Flaring Incident, either Party may invoke the Dispute Resolution provisions of Section XIV of the Consent Decree.

iv. Nothing in Paragraph 22 shall be construed to limit BP's right to take such corrective actions as it deems necessary and appropriate immediately following a Flaring Incident or in the period during preparation and review of any reports required under this Section.

**C. Stipulated Penalties**

i. The provisions of this Paragraph 22.C.i.a-c shall apply to each Facility subject to the Consent Decree except for the Toledo Facility. The provisions of Paragraph 22.C.ii.a-c are intended to implement the process outlined in the logic diagram attached hereto as Appendix D to this Consent Decree. These provisions shall be interpreted and construed, to the maximum extent feasible, to be consistent with that Attachment. However, in the event of a conflict between the language of Paragraph 22 and Appendix D, the language of this Paragraph shall control.

a. The stipulated penalty provisions of Paragraph 47 shall apply to any Flaring Incident for which the Root Cause was one or more of the following acts, omissions, or events:

1. Error resulting from careless operation by the personnel charged with the responsibility for the SRPs, TGUs, or Upstream Process Units;
2. A failure of equipment that is due to a failure by BP to operate and maintain that equipment in a manner consistent with good engineering practice; or
3. For BP's Yorktown Facility:
  - i. Hotspots in SRU during startup or shutdown due to fluctuating heating value of fuel used in the reactor;
  - ii. Corrosion of existing expansion joints;
  - iii. Upsets of existing V-4 SRP tower.
4. For BP's Mandan Facility:
  - i. Pressure surges due to high flow from the sour water stripper;
  - ii. Training deficiencies.
5. For BP's Salt Lake Facility:

i. Flame out due to existing air ratio controller failure.

Except for a force majeure event, BP shall have no defenses to a demand for stipulated penalties for a Flaring Incident falling under this Subparagraph 22.C.i.a.

b. The stipulated penalty provisions of Paragraph 47 shall apply to any Flaring Incident that either:

1. Results in emissions of sulfur dioxide at a rate greater than twenty (20.0) pounds per hour continuously for three (3) consecutive hours or more; or
2. Causes the total number of Flaring Incidents in a rolling twelve (12) month period to exceed five (5).

In response to a demand by the United States for stipulated penalties, the United States and BP both agree that BP shall be entitled to assert a Malfunction defense with respect to any Flaring Incident falling under this Subparagraph. In the event that a dispute arising under this Subparagraph is brought to the Court pursuant to the Dispute Resolution provisions of this Decree, nothing in this Subparagraph is intended or shall be construed to stop BP from asserting that, in addition to the Malfunction Defense, Startup, Shutdown, and upset defenses are available for Acid Gas or Sour Water Stripper Gas Flaring Incidents under 40 C.F.R. § 60.104(a)(1), nor to stop the United States from asserting its view that such defenses are not available. In the event that a Flaring Incident falls under both Paragraph 22.C.i.a and Paragraph 22.C.i.b, then Paragraph 22.C.i.a shall apply.

c. With respect to any Flaring Incident other than those identified in Paragraphs 22.C.i.a and 22.C.i.b, the following provisions shall apply:

1. First Time: If the Root Cause of the Flaring Incident was not a recurrence of the same Root Cause that resulted in a previous Flaring Incident that occurred since the effective date of this Decree, then:
  - i. If the Root Cause of the Flaring Incident was sudden, infrequent, and not reasonably preventable through the exercise of good engineering practice, then that cause shall be designated as an agreed-upon malfunction for purposes of reviewing subsequent Flaring Incidents;
  - ii. If the Root Cause of the Flaring Incident was not sudden and infrequent, and was reasonably preventable through the exercise of

good engineering practice, then BP shall implement corrective action(s) pursuant to Paragraph 22.B.i. Subsection B of this Section.

2. **Recurrence:** If the Root Cause is a recurrence of the same Root Cause that resulted in a previous Flaring Incident that occurred since the Effective Date of this Consent Decree, then BP shall be liable for stipulated penalties under Paragraph 47 of the Consent Decree unless:

- i. the Flaring Incident resulted from a Malfunction, or
- ii. the Root Cause previously was designated as an agreed-upon malfunction under Subparagraph 22.C.i.e.1.(i); provided, however, that in the event that a dispute arising under this Subparagraph is brought to the Court pursuant to the Dispute Resolution provisions of this Decree, nothing in this Subparagraph is intended or shall be construed to stop BP from asserting its view that, in addition to a Malfunction Defense, Startup, Shutdown, and upset defenses are available for Acid Gas or Sour Water Stripper Gas Flaring Incidents under 40 C.F.R. § 60.104(a)(1), nor to stop the United States from asserting its view that such defenses are not available.

d. Other than for a Malfunction or Force Majeure, if no acid gas Flaring Incident or violation of the final emission limit for that refinery established under Paragraph 21 occurs at a refinery for a rolling 36 month period, then the stipulated penalty provisions of Paragraph 47 no longer apply at that refinery. EPA may elect to reinstate the stipulated penalty provision if BP has a Flaring Incident which would otherwise be subject to stipulated penalties. EPA's decision shall not be subject to dispute resolution. Once reinstated, the stipulated penalty provision shall continue for the remaining life of this Consent Decree for that refinery.

e. The provisions of this Paragraph 22.C.i, and the stipulated penalty provisions of Paragraph 47 shall not apply to the Flaring Incidents excepted in Paragraph 22.A.i.i of this Consent Decree.

**D. Miscellaneous**

i. **Calculation of the Quantity of Sulfur Dioxide Emissions Resulting from Flaring.** For purposes of Paragraph 22 of this Consent Decree, the quantity of sulfur dioxide emissions resulting from Flaring shall be calculated by the following formula: Tons of Sulfur Dioxide =  $[FR][TD][ConcH_2S][8.44 \times 10^{-3}]$ . The quantity of Sulfur Dioxide emitted shall be rounded to one

decimal point. (Thus, for example, for a calculation that results in a number equal to 10.050 tons, the quantity of Sulfur Dioxide emitted shall be rounded to 10.1 tons.) For purposes of determining the occurrence of, or the total quantity of Sulfur Dioxide emissions resulting from, a Flaring Incident that is comprised of intermittent Flaring, the quantity of Sulfur Dioxide emitted shall be equal to the sum of the quantities of sulfur dioxide flared during each such period of intermittent Flaring.

ii. **Calculation of the Rate of Sulfur Dioxide Emissions During Flaring.** For purposes of Paragraph 22 of this Consent Decree, the rate of sulfur dioxide emissions resulting from Flaring shall be expressed in terms of pounds per hour, and shall be calculated by the following formula:  $ER = [FR][ConcH_2S][0.169]$ . The emission rate shall be rounded to one decimal point. (Thus, for example, for a calculation that results in an emission rate of 19.95 pounds of sulfur dioxide per hour, the emission rate shall be rounded to 20.0 pounds of sulfur dioxide per hour; for a calculation that results in an emission rate of 20.05 pounds of sulfur dioxide per hour, the emission rate shall be rounded to 20.1.)

iii. **Meaning of Variables and Derivation of Multipliers used in the Equations in Subparagraphs 22.D.i and 22.D.ii:**

ER	=	Emission Rate in pounds of Sulfur Dioxide per hour
FR	=	Average Flow Rate to Flaring Device(s) during Flaring, in standard cubic feet per hour
TD	=	Total Duration of Flaring in hours
ConcH <sub>2</sub> S	=	Average Concentration of Hydrogen Sulfide in gas during Flaring (or immediately prior to Flaring if all gas is being flared) expressed as a volume fraction (scf H <sub>2</sub> S/scf gas)

$$8.44 \times 10^{-5} = \frac{[\text{lb mole H}_2\text{S}/379 \text{ scf H}_2\text{S}][64 \text{ lbs SO}_2/\text{lb mole H}_2\text{S}][\text{Ton}/2000 \text{ lbs}]}{}$$

$$0.169 = \frac{[\text{lb mole H}_2\text{S}/379 \text{ scf H}_2\text{S}][1.0 \text{ lb mole SO}_2/1 \text{ lb mole H}_2\text{S}][64 \text{ lb SO}_2/1.0 \text{ lb mole SO}_2]}{}$$

The flow of gas to the Flaring Device(s) -- that is, "FR" -- shall be as measured by the relevant flow meter. Hydrogen sulfide concentration -- that is, "ConcH<sub>2</sub>S" -- shall be determined from the SRP feed gas analyzer. In the event that either of these data points is unavailable or inaccurate, the missing data point(s) shall be estimated according to best engineering judgment. The report required under Subparagraph 22.A.i shall include the data used in the calculation and an explanation of the basis for any estimates of missing data points.

iv. Any disputes under the provisions of this Paragraph 22 shall be resolved in accordance with the Dispute Resolution section of the Consent Decree.

**23. RCRA Injunctive Measures for Whiting Facility:**

BP agrees to implement the RCRA compliance measures specified in this Paragraph 23, and certifies that the Whiting Facility is now otherwise in compliance with the requirements of RCRA set forth in the Complaint.

A. BP shall immediately upon the effective date of this Consent Decree (except as otherwise specified in this Decree), cease any treatment, storage, or disposal of any hazardous waste at the Whiting Facility except such treatment, storage, or disposal that is in compliance with the schedule, procedures, interim plans or requirements specified in this Decree; the applicable standards for hazardous waste treatment, storage, and disposal facilities; and/or permits issued by IDEM and/or EPA for the Facility.

B. BP agrees to close, and provide post-closure care, as appropriate, for the following unit at the Whiting Facility: the former spent bender catalyst waste pile area located in the Lake Berry tank field ("Management Unit"). The approximate location, size and shape of the Management Unit is shown on the map attached to this Consent Decree as Appendix I. The closure and post-closure

activities shall be in accordance with all of the relevant requirements of Title 329 Indiana Administrative Code 3.1-9-1, (40 C.F.R. Part 264) Subparts G and H, and any other relevant requirements applicable to closure and post closure activities, unless specified otherwise in this Section.

C. In closing the Management Unit, BP may, to the extent allowed by IDEM:

- 1) incorporate work that BP is otherwise required to perform under this Consent Decree; and
- 2) incorporate these closure activities into the Remedial Measures that are being undertaken at the Facility pursuant to the IDEM Consent Order with Amoco dated December 4, 1995 (IDEM Consent Order). It is the intention of the parties that the activities performed pursuant to this Consent Decree shall be coordinated with activities under the IDEM Consent Order to prevent duplicative, conflicting or overlapping requirements to the extent practicable and allowed by law; provided, however, that nothing in this Paragraph shall be construed to modify any schedule set forth in this Consent Decree or attachments, or to limit the authority of EPA under this Consent Decree to require BP to timely complete all activities.

D. Within sixty (60) days of entry of this Consent Decree, BP shall submit to IDEM for review pursuant to the Indiana Hazardous Waste Program a RCRA closure plan and contingent post-closure plan (Closure Plans) for the Management Unit. BP shall concurrently submit a copy of the Closure Plans to EPA. The Closure Plans shall comply with applicable requirements of Title 329 IAC 3.1-9-1, and shall contain an enforceable work plan and schedule for the project completion. BP may incorporate into the Closure Plans sampling information from its previous removal action in the affected area.

E. Subject to the approval of IDEM, BP's Closure Plans may provide that completion of closure of the Management Unit may be incorporated into the Remedial Measures set out in the IDEM Consent Order.



F. The Closure Plans shall be subject to approval, disapproval, or modification by IDEM in accordance with Title 329 IAC 3.1-9-1, (40 C.F.R. Part 264) Subpart G. Within sixty (60) days after receiving any notification of disapproval from IDEM, BP shall submit to IDEM revised plans which respond to all identified deficiencies. Upon receipt of approval or approval with modification, BP shall implement the terms of the Closure Plans in accordance with the requirements and the schedule contained therein, and with Title 329 IAC 3.1-9-1. BP shall submit a copy of the approved Closure Plans to EPA within five (5) days of receipt.

G. Within sixty (60) days of completion of closure of the Management Unit, BP shall submit to IDEM, with a copy to EPA, a certification, in accordance with Title 329 IAC 3.1-9-1, that the closure was completed in accordance with the approved Closure Plans.

H. Within sixty (60) days of entry of this Consent Decree, BP shall submit to IDEM, with a copy to EPA, certification that it has established financial assurance mechanisms for closure and any post-closure care for the Management Unit, and that those mechanisms meet all the requirements of Title 329 IAC 3.1-9-1. The certification shall include a description of the financial assurance mechanism(s).

I. Within sixty (60) days of entry of this Consent Decree, BP shall demonstrate and certify to IDEM and EPA adequate financial liability coverage for bodily injury and property damage to third parties caused by sudden and non-sudden accidental occurrences arising from the operation of the Management Unit, and management of hazardous waste and hazardous constituents in connection with the Whiting Facility. The financial liability coverage shall meet all the requirements of Title 329 IAC 3.1-9-1, 3.1-9-2(9), and 3.1-15. The certification shall include a description of the financial liability coverage mechanism(s).

J. Nothing in this Consent Decree shall be construed to limit the right of BP under Indiana law to contest IDEM's determinations regarding any plan or certification submitted pursuant to this Consent Decree.

K. All reports, plans, submissions, and notifications to EPA required by this Section of the Consent Decree shall be submitted to the persons at U.S. EPA, Region 5, IDEM and Respondent at the addresses specified in Paragraph 82 of this Consent Decree.

L. For the sampling and analysis of the spent treating clay at the Number 4C Treating Plant, BP shall continue to comply with the terms of "Solid Waste Sampling Guideline - Sampling Bender Process Clay for Lead Content Determination" as revised 9/97, or a subsequent revision approved by IDEM.

M. If any required action has not been taken or completed in accordance with any requirement of this Paragraph of the Consent Decree, within ten (10) calendar days after the due date, BP shall notify EPA of the failure, the reason for the failure, and the proposed date for compliance.

N. Stipulated Penalties shall apply as provided in Paragraph 48 of this Consent Decree.

O. Notwithstanding any other provision of this Consent Decree, an enforcement action may be brought pursuant to Section 7003 of RCRA or other statutory authority where the handling, storage, treatment, transportation or disposal of solid or hazardous waste at this Facility may present an imminent and substantial endangerment to human health or the environment.

#### 24. EPCRA Audits

A. Each Facility subject to this Consent Decree may elect to perform an audit of its compliance with the statutory and regulatory obligations of Section 103(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9603(a), and Sections 304, 311, 312 and 313 of EPCRA, 42 U.S.C. §§ 11004, 11021, 11022, and 11023. By no later than sixty (60) days from the Date of Entry of this Decree, each Facility electing to perform an audit pursuant to this Paragraph shall so notify EPA in writing.

B. Audits performed pursuant to this Paragraph may cover all potential CERCLA 103(a) and EPCRA Section 304, 311, 312 and 313 obligations from reporting year 1996 through, and including, the reporting year 2000. Reporting obligations under EPCRA and CERCLA include, but

are not limited to: 1) potential failures to make required release reporting notifications to appropriate authorities under CERCLA 103 and EPCRA 304; 2) potential failures to submit EPCRA Section 311, 312, and 313 reports; and 3) potential failures to submit accurate and timely EPCRA Section 311, 312, and 313 reports.

C. The audits may be performed by either an outside contractor or qualified internal staff. BP may, where appropriate, consult with EPA regarding the scope of the proposed audit for any of the refineries which BP has chosen to audit.

D. Each Facility electing to conduct an audit under this Paragraph shall submit a final Audit Report by no later than six months from the Date of Entry of the Consent Decree to:

Tom Marvin  
United States Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20004

The Audit Report shall describe the processes, procedures, and methodology used to conduct the audit; clearly identify any CERCLA 103 and EPCRA Section 304, 311, 312 and 313 violations or potential violations discovered at the Facility through the audit; and, describe any and all measures taken to correct the disclosed violations and prevent repeated violations. In the event that the Facility elects to conduct a comprehensive facility-wide review of all its EPCRA and CERCLA reporting obligations it may have up to twelve (12) months to submit its final Audit Report to EPA.

E. The Audit Report shall be signed by an appropriate company official and the following certification shall directly precede such signature:

I certify that the facilities identified in this Final Audit Report are currently in full compliance with Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9603, and Sections 304, 311, 312 and 313, of the EPCRA, 42 U.S.C. §§ 11004, 11021, 11022, and 11023, and their respective implementing regulations.

F. Violations and potential violations reported in an audit conducted in accordance with this Paragraph and corrected by the date of the Audit Report shall be deemed to satisfy the requirements.

of EPA's Audit Policy. Once EPA has made the determination that an audit conducted by BP was consistent with the requirements of this Paragraph, EPA will notify BP in writing. BP shall thereupon be released from past civil liability for all violations or potential violations disclosed and corrected in accordance with this Paragraph 24, and contained in EPA's notification.

G. BP agrees to cooperate as required by EPA to determine that the requirements of this Paragraph 24 have been met.

H. The following violations are not eligible for disclosure under this Paragraph:

- i. Possible violations at BP's Whiting refinery relating to events surrounding the release of coker gas oil from the Whiting refinery on February 23, 1999;
- ii. Possible violations at BP's Cherry Point refinery relating to violations and possible violations identified during EPA's July 1999 multi-media compliance inspection of that facility;
- iii. Any violation that was the subject of a citizen suit filed before the Date of Entry of this Consent Decree;
- iv. Any violation of a requirement in an existing Federal or state consent decree;
- v. Any violation that resulted in serious harm or imminent and substantial endangerment to the environment or public health; and
- vi. Any criminal violation.

## **VI. PERMITTING**

25. **Construction:** BP agrees to obtain all appropriate federally enforceable permits for the construction of the pollution control technology or installation of equipment to be installed required to meet the above pollution reductions.

26. **Operation:** As soon as practicable following the Date of Lodging of the Consent Decree, but in no event later than twelve (12) months following the Date of Lodging, BP shall submit applications to incorporate the emission limits and schedules set out in Paragraphs 14 - 18 and 21 of this Consent Decree into minor or major new source review permits or other permits

(other than Title V permits) which are federally enforceable and, upon issuance of such permits shall file any applications necessary to incorporate the requirements of those permits into the Facility's Title V permit. As soon as practicable, but in no event later than thirty (30) days after the establishment of any emission limitations under Paragraphs 14, 15, 16, and 21 of the Consent Decree, BP shall submit applications to incorporate those emission limitations into minor or major new source review permits or other permits (other than Title V permits) which are federally enforceable and, upon issuance of such permits shall file any applications necessary to incorporate the requirements of those permits into the Facility's Title V permit. The Parties agree that incorporation of the requirements of this Decree into Title V permits may be by "administrative amendment" under 40 C.F.R. 70.7(d) and analogous state Title V rules.

**27. PSD and Major Non-Attainment Credits**

A. This Paragraph 27 sets forth the exclusive process for generating and using the NO<sub>x</sub> and SO<sub>2</sub> emissions reductions required by this Decree as credits for PSD netting and major non-attainment offsets. The provisions of this Paragraph are for purposes of this Consent Decree only and, except as hereinafter provided, may not be used or relied upon by BP or any other entity, including any party to this Consent Decree, for any purpose other than as set forth herein. Except as provided in this Paragraph, BP will neither generate nor use any NO<sub>x</sub> and/or SO<sub>2</sub> emission reductions resulting from any projects conducted pursuant to this Consent Decree as credits or offsets in any PSD, major nonattainment and/or minor NSR permit or permit proceeding. However, nothing in this Paragraph of the Consent Decree shall be construed to limit the generation and use of emissions credits respecting NO<sub>x</sub> and/or SO<sub>2</sub> emission reductions that are either more stringent than the emissions limits established under the Consent Decree or achieved from sources not covered under the Consent Decree, as well as reductions of any other pollutant at any source (e.g., CO). Such emission reductions are outside the scope of this Paragraph and may be used for netting and offset credit in determining PSD/NSR applicability, as implemented by the appropriate permitting authority or EPA. Furthermore, nothing in this Paragraph is intended to obviate BP's

obligations to comply with 40 C.F.R. Parts 51 and 52, (or 40 C.F.R. §§ 51.165 and 52.21), including rules pertaining to PSD netting and major non-attainment offsets, or to comply with any relevant SIP approved PSD or major non-attainment NSR program.

**B. Generating NOx and SO<sub>2</sub> Emission Credits**

i. For purposes of this Consent Decree, emissions credits for PSD netting and major non-attainment offsets may only be generated as follows: (1) by a unit which is a "netting/offset generating unit", as defined in Paragraph 27.B.ii, on or before December 31, 2003; or (2) by cessation of oil burning as set forth in Paragraph 27.C.ii.b. Such credits may be applied and used only at the refinery where they were generated.

ii. For purposes of this Consent Decree, the term "netting/offset generating unit" shall mean: for FCCU's - for NOx, compliance with a NOx emission limitation of 20 ppm, at 0% oxygen (365-day rolling average); for SO<sub>2</sub>, compliance with a SO<sub>2</sub> emission limitation of 25 ppm at 0% oxygen (365-day rolling average); and for Heaters and Boilers - for NOx, compliance with a NOx emission limitation of 0.04 lbs per mmBTU (three hour average where no NOx CEMS and a 365-day rolling average where there are CEMS); for SO<sub>2</sub>, compliance with a SO<sub>2</sub> emission limitation of 160 ppm H<sub>2</sub>S in fuel gas (three hour average) and no oil burning at such unit. In addition, and notwithstanding the foregoing, the Carson FCCU, Texas City FCCU 2, Toledo FCCU, Whiting FCU 600, and Yorktown FCCU shall each be deemed to be a netting/offset generating units with regard to SO<sub>2</sub> regardless of the SO<sub>2</sub> emission level achieved pursuant to Paragraph 16.B.

iii. Emissions reduction credits generated by each netting/offset generating unit shall be the difference between such unit's baseline actual emissions for a representative two year period prior to implementation of the controls required by this Consent Decree, and its allowable emissions at the time the reductions are proposed to be used for netting or offset purposes as limited by the percentages expressed and the limitations on use set forth in Paragraph 27.C.

iv. To be applied or used under this Paragraph, BP must make any such emissions reduction federally enforceable. Such emissions reductions are creditable for five years from their date of generation and shall survive the termination of this Consent Decree.

**C. Using NOx and SO<sub>2</sub> Emission Credits and Offsets**

**i. NOx-Specific Requirements and Limitations:**

BP may use no more than ten percent (10%) of the NOx emission reduction credits generated by NOx netting/offset generating units for netting and/or offsets of any increases in NOx emissions that result from installing or modifying Lower Sulfur Fuels units and/or from installing or modifying units not otherwise subject to the terms of the Consent Decree, provided such new or modified unit meets the standards for a netting/offset generating unit as specified in Paragraph 27.B.ii. If necessary, BP may use up to an additional ten percent (10%) of the NOx emission reduction credits generated by NOx netting/offset generating units exclusively for netting and/or offsets of any increases in NOx emissions that result from the construction or modification of Lower Sulfur Fuels units, provided that (a) such new or modified unit meets the standards for a netting/offset generating unit as specified in Paragraph 27.B.ii., and (b) cleaner fuels will be produced prior to the applicable compliance dates for Tier II and low sulfur diesel fuel at such refinery and EPA determines that the refinery has adequate capacity (e.g., in amine units, at sulfur recovery plants, and through tail gas units) to treat any sulfur that is generated in meeting the Tier II and low sulfur diesel fuel standards.

**ii. SO<sub>2</sub>-Specific Requirements and Limitations:** BP may use no more than ten percent (10%) of the SO<sub>2</sub> emission reduction credits generated by elimination or reduction in oil burning in accordance with Paragraph 17 or other sources identified in this Consent Decree for netting and/or offsets of any increases in SO<sub>2</sub> emissions that result from the construction or modification of Lower Sulfur Fuels units that meet the standards for a netting/offset generating unit as specified in Paragraph 27.B.ii. BP may use up to 10% of the SO<sub>2</sub> reduction credits generated by the Carson FCCU, Texas City FCCU 2, Toledo FCCU, Whiting FCU 600, and Yorktown FCCU for any

increases in SO<sub>2</sub> emissions that result from the construction or modification of any units that qualify as a netting/offset generating unit defined in Paragraph 27.B.ii

iii. BP will submit to EPA semi-annual reports regarding the generation and use of emission reduction credits under this Paragraph. The first such report will be submitted by January 31, 2002. Successive reports will be submitted on July 31, and January 31 of each year. Each such report shall contain the following information for each Facility subject to this Decree on a cumulative basis:

a. The quantity of credits generated since the Date of Entry of the Consent Decree and the emission unit(s) generating such credits, the date on which those credits were generated, and the basis for those determinations;

b. The quantity of credits used since the Date of Entry of the Consent Decree and the emission units to which those credits were applied;

c. To the extent known at the time the report is submitted, the additional units to which credits will be applied in the future and the estimated amount of such credits that will be used for each such unit; and

d. To the extent BP will seek to use the additional 10% of NO<sub>x</sub> credits provided for in the second sentence in Paragraph 24.C.i, the date by which clean fuels are expected to be produced at that Facility.

## **VII. ENVIRONMENTALLY BENEFICIAL PROJECTS**

28. **FCCU and Heater and Boiler Controls**: BP and the United States agree that measures to reduce NO<sub>x</sub> and SO<sub>2</sub> emissions from the FCCUs and heaters and boilers at the covered petroleum refineries, to the extent that they are not otherwise required by law, shall be considered environmentally beneficial projects for penalty mitigation pursuant to the Consent Decree.

29. **Pollution Reduction**: BP shall perform the following pollution reduction projects as Supplemental Environmental Projects ("SEPs") as set forth below:



A. On or before June 1, 2002, at Yorktown, BP shall reduce emissions of SO<sub>2</sub> by 1,000 tpy by re-routing its sour water stripper gas from the flare to the SRU;

B. On or before June 1, 2003, at Yorktown, BP shall reduce emissions of SO<sub>2</sub> by 100 tpy by controlling the vacuum tower vent gas currently routed to a flare;

C. On or before December 31, 2004, at Texas City, BP shall reduce emissions of NO<sub>x</sub> by 1,600 tpy by decommissioning its cogeneration facility;

D. On or before June 1, 2002, at Yorktown, BP shall reduce emissions of NO<sub>x</sub> by 3,000 tpy by routing its sour water stripper gas to the SRU; and

E. On or before June 1, 2001, at Mandan, BP shall reduce emissions of NO<sub>x</sub> by 435 tpy by routing its sour water stripper gas from the CO boiler to the SRU.

30. By signing this Consent Decree, BP certifies that it is not required, and has no liability under any federal, state or local law or regulation or pursuant to any agreements or orders of any court, to perform or develop any of the projects identified in Paragraph 29. BP further certifies that it has not applied for or received, and will not in the future apply for or receive (1) credit as a Supplemental Environmental Project or other penalty offset in any other enforcement action for such projects, or (2) credit for any emissions reductions resulting from such projects in any federal, state or local emissions trading or early reduction program.

31. The Calendar Quarterly Report required by Paragraph 33 of this Consent Decree for the calendar quarter in which each project identified in Paragraph 29 is completed shall contain the following information with respect to such projects:

- i. A detailed description of each project as implemented;
- ii. A brief description of any significant operating problems encountered, including any that had an impact on the environment, and the solutions for each problem;
- iii. Certification that each project has been fully implemented pursuant to the provisions of this Consent Decree; and
- iv. A description of the environmental and public health benefits resulting from implementation of each project (including quantification of the benefits and pollutant reductions, if feasible).

32. BP agrees that in any public statements regarding the funding of these SEPs, BP must clearly indicate that these projects are being undertaken as part of the settlement of an enforcement action for alleged Clean Air Act violations.

#### **VIII. REPORTING AND RECORDKEEPING**

33. Beginning with the first full calendar quarter after the Date of Entry of the Consent Decree, BP shall submit to EPA within thirty (30) days after the end of each calendar quarter during the life of this Consent Decree a calendar quarterly progress report ("calendar quarterly report") covering each refinery subject to this Consent Decree and that is owned and operated by BP as of the Date of Lodging of the Consent Decree. This calendar quarterly report shall contain, for each such Refinery, the following: progress report on the implementation of the requirements of Section V (Affirmative Relief/Environmental Projects (Measures)) above; a summary of the emissions data as required by Section V of this Consent Decree for the calendar quarter; a description of any problems anticipated with respect to meeting the requirements of Section V of this Consent Decree; and a description of all environmentally beneficial projects and SEP implementation activity in accordance with Paragraph 29 of the Consent Decree; and any such additional matters as BP believes should be brought to the attention of the United States or EPA.

34. Each portion of the calendar quarterly report which relates to a particular refinery shall be certified by either the person responsible for environmental management and compliance for that refinery, or by a person responsible for overseeing implementation of this Decree across BP, as follows:

I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my directions and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

## IX. CIVIL PENALTY

35. Within ten (10) days of the Date of Entry of the Consent Decree, BP shall pay a civil penalty of ten million dollars (\$10,000,000) as follows: 1) \$9.5 million of that civil penalty shall be paid to the United States by Electronic Funds Transfer ("EFT") to the United States Department of Justice, in accordance with current EFT procedures, referencing the USAO File Number and DOJ Case Number 90-5-2-1-07109, and the civil action case name and case number of the Northern District of Indiana. The costs of such EFT shall be BP's responsibility. Payment shall be made in accordance with instructions provided to BP by the Financial Litigation Unit of the U.S. Attorney's Office for the Northern District of Indiana. Any funds received after 11:00 a.m. (EST) shall be credited on the next business day. BP shall provide notice of payment, referencing the USAO File Number and DOJ Case Number 90-5-2-1-07109/1 and the civil action case name and case number, to the Department of Justice and to EPA, as provided in Paragraph 78 (Notice); and 2) Five Hundred Thousand Dollars (\$500,000.00) to the State of Indiana. Such penalty shall be paid by check to the Indiana Environmental Management Special Fund (as authorized and created in I.C. 13-14-1 et seq.). The check shall reference the civil action case name and case number of the Northern District of Indiana and should be mailed to:

Cashier  
Indiana Department of Environmental Management  
100 N. Senate Ave.  
P.O. Box 7060  
Indianapolis, Indiana 46207-7060

The civil penalty remitted to the State of Indiana shall only be used for the monitoring and reduction of volatile organic compounds in the Whiting, Indiana area.

36. The civil penalty set forth herein is a penalty within the meaning of Section 162(f) of the Internal Revenue Code, 26 U.S.C. § 162(f), and, therefore, BP shall not treat this penalty payment as tax deductible for purposes of federal, state, or local law.

37. Upon the Date of Entry of the Consent Decree, the Consent Decree shall constitute an enforceable judgment for purposes of post-judgment collection in accordance with Federal Rule of

Civil Procedure 69, the Federal Debt Collection Procedure Act, 28 U.S.C. § 3001-3308, and other applicable federal authority. The United States shall be deemed a judgment creditor for purposes of collection of any unpaid amounts of the civil and stipulated penalties and interest.

**X. STIPULATED PENALTIES**

38. BP shall pay stipulated penalties to the United States for each failure by BP to comply with the terms of this Consent Decree as provided herein. The stipulated penalties shall be calculated in the following amounts specified in Paragraphs 39 through 50.

**39. Paragraph 14 - Requirements for NOx Emission Reductions from FCCUs.**

A. For failure to install each application of SCR at Texas City FCCU 2 and Whiting FCU 600, as required by this Consent Decree, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$1250
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$3000
Beyond 60 <sup>th</sup> day	\$5000 or an amount equal to 1.2 times the economic benefit of BP's delayed compliance, whichever is greater;

B. For failure to install each application of SNCR on Toledo FCCU, as required by this Consent Decree, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$1250
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$3000
Beyond 60 <sup>th</sup> day	\$5000 or an amount equal to 1.2 times the economic benefit of BP's delayed compliance, whichever is greater;

C. For failure to use NOx additives during the demonstration period as required by Paragraph 14 and Appendix F of the Consent Decree, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$1000
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$1500

Beyond 60<sup>th</sup> day after deadline \$2000

D. For failure to meet the emission limits proposed by BP (final or interim) or established by EPA (final or interim) for NO<sub>x</sub> and CO pursuant to Paragraph 14, per day, per unit: \$2500 for each calendar day on which the specified rolling average exceeds the applicable limit.

E. For failure to prepare and/or submit written deliverables required by Paragraph 14, per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$200  
31<sup>st</sup> through 60<sup>th</sup> day after deadline \$500  
Beyond 60<sup>th</sup> day after deadline \$1000

F. For failure to install CEMS, per unit, per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$500  
31<sup>st</sup> through 60<sup>th</sup> day after deadline \$1000  
Beyond 60<sup>th</sup> day after deadline \$2000 or an amount equal to 1.2 times economic benefit of delayed compliance, whichever is greater.

**40. Paragraph 15 -- Requirements for NO<sub>x</sub> Emission Reductions Heaters/Boilers.**

A. For failure to install required control technologies by the dates specified in Paragraph 15:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$1500  
31<sup>st</sup> through 60<sup>th</sup> day after deadline \$2000  
Beyond 60<sup>th</sup> day after deadline \$3000

B. For failure to test emissions, per unit, per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$400  
31<sup>st</sup> through 60<sup>th</sup> day after deadline \$1000  
Beyond 60<sup>th</sup> day after deadline \$2000

C. For failure to install CEMS, per unit, per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$500

31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$1000
Beyond 60 <sup>th</sup> day after deadline	\$2000 or an amount equal to 1.2 times the economic benefit of delayed compliance whichever is greater.

D. For failure to submit the written deliverables required by Paragraph 15, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$200
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$500
Beyond 60 <sup>th</sup> day	\$1000

41. Paragraph 16 - Requirements for SO<sub>2</sub> Emission Reductions from FCCUs.

A. For failure to install each application of WGS Mandan FCCU, Texas City FCCU 3, and Whiting FCU 500, as required by this Consent Decree, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$1250
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$3000
Beyond 60 <sup>th</sup> day	\$5000 or an amount equal to 1.2 times the economic benefit of the delayed compliance whichever is greater

B. For failure to use SO<sub>2</sub> adsorbing catalyst additive and/or Hydrotreat during the demonstration period as required by Paragraph 16 and Appendix F of the Consent Decree, at each unit, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$1000
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$1500
Beyond 60 <sup>th</sup> day	\$2000

C. For failure to conduct optimization studies as required by this Consent Decree, per unit, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$500
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$1500

Beyond 60<sup>th</sup> day after deadline \$2000

D. For failure to meet emission limits proposed by BP (final or interim) or established by EPA (final or interim) pursuant to Paragraph 16, per day, per unit: \$3000 for each calendar day on which the specified rolling average exceeds the applicable limit.

**42. Paragraph 17 - Requirements for SO<sub>2</sub> Emission Reductions from Heaters and Boilers.**

A. For failure to cease fuel oil burning by each date specified in Paragraph 17.A of this Consent Decree, per refinery, per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$1750

Beyond 31<sup>st</sup> day \$5000

B. For burning any refinery fuel gas that contains hydrogen sulfide in excess of 0.1 grains per dry standard cubic foot on a 3-hour rolling average at any fuel gas combustion device as specified in Paragraph 17.C of this Consent Decree, per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$5,000

Beyond 31<sup>st</sup> day \$7,500

C. For failure to submit the written deliverables to EPA pursuant to this Paragraph 17 per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$200

31<sup>st</sup> through 60<sup>th</sup> day after deadline \$500

Beyond 60<sup>th</sup> day \$1000

**43. Paragraph 18 - Particulate Matter Control and Hydrocarbon Flaring**

A. For failure to install each ESP at Yorktown FCCU and Toledo FCCU as required by this Consent Decree, per day:

1<sup>st</sup> through 30<sup>th</sup> day after deadline \$1250

31<sup>st</sup> through 60<sup>th</sup> day after deadline \$3000

Beyond 60<sup>th</sup> day

\$5000 or an amount equal to 1.2 times the economic benefit of the delayed compliance whichever is greater

B. For failure to meet total particulate emissions for FCCU exhaust gas at each refinery, per day, per unit: \$3000

C. For failure to develop and comply with the HCFPMP as required by Paragraph 18.C, per refinery, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$500
Beyond 31 <sup>st</sup> day after deadline	\$1500
Beyond 60 <sup>th</sup> day after deadline	\$2000

D. For failure to report releases as required by Paragraph 18.D, per day of release: \$3500

**44. Paragraph 19 - Requirements for Benzene Waste NESHAP Program Enhancements**

For each violation in which a frequency is specified in Paragraph 19, the amounts identified below shall apply on the first day of violation, shall be calculated for each incremental period of violation (or portion thereof), and shall be doubled beginning on the fourth consecutive, continuing period of violation. For requirements where no frequency is specified, penalties will not be doubled.

A. For failure to complete the TAB audits required by Paragraph 19.D:

\$7,500 per month, per refinery

B. For refineries choosing to comply with Paragraph 19.F.i., failure to install or operate secondary carbon canisters:

\$5,000 per week, per carbon canister:



C. For failure to conduct required breakthrough monitoring on carbon canisters, or for failure to monitor for breakthrough on carbon canisters during actual flow:

\$1,000 per monitoring event, per refinery.

D. For failure to replace carbon canisters where both primary and secondary carbon canisters are utilized immediately upon detection of the breakthrough:

\$1,000 per day, per carbon canister

E. For failure to replace carbon canisters where only single carbon canisters are utilized immediately upon detection of the breakthrough:

\$2,750 per day, per carbon canister

F. For failure to conduct each lab audit required in Paragraph 19.H:

\$5,000 per month, per audit

G. For failure to implement the training requirements of Paragraph 19.J:

\$10,000 per quarter, per refinery

H. For failure to maintain any records required by Paragraph 19.F and 19.K of this Consent Decree:

\$2,000 per record

I. For failure to conduct sampling in accordance with the sampling plans required by Paragraphs 19.L., 19.M., or 19.N:

\$5,000 per week, per stream or \$30,000 per quarter, per stream, whichever is greater, but not to exceed \$150,000 per quarter per refinery

J. For failure to comply with the miscellaneous compliance measures set forth in Paragraph 19.P., as follows:

For P.i, monthly visual inspections: \$500 per drain not inspected;

For P.ii, identify/mark segregated stormwater drains: \$1,000 per week per drain;

For P.iii, weekly monitoring of vents: \$500 per vent not monitored;

For P.iv, quarterly monitoring of oil/water separators: \$5,000 per separator not monitored;

For P.v, if it is determined through an EPA, State, or local investigation that BP has failed to meet control standards in 40 C.F.R. §§ 61.343 or 61.351:

\$10,000 per month per tank

For P.v, tanks P1 and P2 must meet control standards in 40 C.F.R. § 61.343 under the schedule for installation in 19.P.v:

\$10,000 per week, per tank

K. For failure to complete either of the feasibility studies required by Paragraph 19.Q.:

\$2,000 per month per study

L. For failure to submit the written deliverables required by Paragraph 19:

\$1,000 per week, per report.

M. If it is determined through an EPA, State, or local investigation that BP has failed to comply with Paragraph 19.E. and has not included all benzene containing waste streams in its TAB calculation, BP shall pay the following per waste stream:

for waste streams < 0.03 Mg/yr	\$250
for waste streams between 0.03 and 0.1 Mg/yr	\$1000
for waste streams between 0.1 and 0.5 Mg/yr	\$5,000
for waste streams > 0.5 Mg/yr	\$10,000

**45. Paragraph 20 - Requirements for Leak Detection and Repair Program Enhancements.**

For each violation in which a frequency is specified in Paragraph 20, the amounts identified below shall apply on the first day of violation, shall be calculated for each incremental period of violation (or portion thereof), and shall be doubled beginning on the fourth consecutive, continuing period of violation. For requirements where no frequency is specified, penalties will not be doubled.

A. For failure to implement the training programs specified in Paragraph 20.B., above:

\$10,000 per month, per program, per refinery

B. For failure to conduct any of the audits described in Paragraph 20.C., above:

\$5,000 per month, per audit

C. For failure to initiate an internal leak rate definition as specified in Paragraph 20.D., above: \$10,000 per month per process unit

D. For failure to implement the first attempt repair program in Paragraph 20.G. or for failure to implement the new equipment standards described in Paragraph 20.J.

\$10,000 per month, per refinery

E. For failure to implement the more frequent monitoring program required by Paragraph 20.H.

\$10,000 per month, per unit

F. For failure to implement the accountability and incentives program in Paragraph 20.K. or for failure to implement the maintenance tracking program in Paragraph 20.L., or for failure to write a LDAR program that meets the requirements of Paragraph 20.A.: \$3,750 per week, per refinery

G. For failure to use dataloggers or maintain electronic data as required by Paragraph 20.I.:

\$5,000 per month, per refinery

H. For failure to conduct the calibration drift assessments or remonitor valves and pumps based on calibration drift assessments in Paragraph 20.N:

\$100 per missed event per refinery

I. For failure to repair valves and pumps based on the delay of repair standards in Paragraph 20.O:

\$5,000 per valve or pump

J. For failure to submit the written deliverables required by Paragraph 20:

\$1,000 per week per report

K. If it is determined through an EPA, State, or local investigation that BP has failed to include all valves and pumps in its LDAR program, BP shall pay \$175 per component that it had failed to include.

L. For failure to timely implement the monitoring program under Paragraph 20.H

\$5,000 per week, per unit

46. Paragraph 21 - Requirements for NSPS Applicability to SRPs, SRP Optimization and Operation and Scheduled Maintenance.

A. For failure to re-route all SRP sulfur pit emissions to the SRP, and failure to continue to route such emissions to incinerator for Mandan and Salt Lake City, per day, per SRP:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$1000
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$1750
Beyond 60 <sup>th</sup> day after deadline	\$4000 or an amount equal to 1.2 times the amount of delayed compliance whichever is greater

B. For failure to comply with: 1) the NSPS Subpart J emission limit or other emission limit in Paragraph 21 per SRP, per day on which the specified rolling average exceeds the applicable limit, 2) the requirement that BP propose a schedule for NSPS compliance pursuant to Paragraph 21.B.iii.h and 21.B.iv.h., and 3) the NSPS Subpart J emission limit for sulfur dioxide for Mandan and Salt Lake City, thirty (30) months after the sulfur input to the SRP exceeds twenty (20) long tons per day, per SRP:

1 <sup>st</sup> through 30 <sup>th</sup> day	\$1500
31 <sup>st</sup> through 60 <sup>th</sup> day	\$2000
Beyond 60 <sup>th</sup> day	\$2500

C. For failure to install TGU (or equivalent technology or practice), re-route tank vent gas, install CEMs, as specified in Paragraph 21.B at each refinery, per day, per unit:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$2000
Beyond 31 <sup>st</sup> day after deadline	\$3000
Beyond 60 <sup>th</sup> day after deadline	\$5000 or 1.2 times the

economic benefit of delayed  
compliance, whichever is greater;

D. For failure to conduct optimization studies as specified in Paragraphs 21.B. and C. at Mandan, Salt Lake City, and Yorktown refineries, per SRP, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$500
Beyond 31 <sup>st</sup> day after deadline	\$1500
Beyond 60 <sup>th</sup> day after deadline	\$2000

E. For failure to develop and comply with the Operation and Scheduled Maintenance Plans as specified in Paragraph 21.B., per SRP, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$500
Beyond 31 <sup>st</sup> day after deadline	\$1500
Beyond 60 <sup>th</sup> day after deadline	\$2000

F. For failure to submit written deliverables to EPA as specified in Paragraph 21.B. for Carson, Mandan, Salt Lake City, and Whiting, per refinery, per day:

1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$200
Beyond 31 <sup>st</sup> day after deadline	\$500
Beyond 60 <sup>th</sup> day after deadline	\$1000

**47. Paragraph 22 - Requirements for Flaring.** BP shall be liable for stipulated penalties for violations of the requirements of this Consent Decree as set forth in this paragraph.

A. For Flaring Incidents for which BP is liable under Paragraphs 22.C.i, 22.C.ii.:

Tons Emitted in Flaring Incident	Length of Time from Commencement of Flaring within the Flaring Incident to Termination of Flaring within the Flaring Incident is 3 hours or less	Length of Time from Commencement of Flaring within the Flaring Incident to Termination of Flaring within the Flaring Incident is greater than 3 hours but less than or equal to 24 hours	Length of Time of Flaring within the Flaring Incident is greater than 24 hours
5 Tons or less	\$500 per Ton	\$750 per Ton	\$1,000 per Ton
Greater than 5 Tons, but less than or equal to 15 Tons	\$1,200 per Ton	\$1,800 per Ton	\$2,300 per Ton, up to, but not exceeding, \$27,500 in any one calendar day
Greater than 15 Tons	\$1,800 per Ton, up to, but not exceeding, \$27,500 in any one calendar day	\$2,300 per Ton, up to, but not exceeding, \$27,500 in any one calendar day	\$27,500 per calendar day for each calendar day over which the Flaring Incident lasts

For purposes of calculating stipulated penalties pursuant to this Paragraph 48, only one cell within the matrix shall apply. Thus, for example, for a Flaring Incident in which the Flaring starts at 1:00 p.m. and ends at 3:00 p.m., and for which 14.5 tons of sulfur dioxide are emitted, the penalty would be \$17,400 (14.5 x \$1,200); the penalty would not be \$13,900 [(5 x \$500) + (9.5 x \$1200)]. For purposes of determining which column in the table set forth in this Subparagraph applies under circumstances in which Flaring occurs intermittently during a Flaring Incident, the Flaring shall be deemed to commence at the time that the Flaring that triggers the initiation of a Flaring Incident commences, and shall be deemed to terminate at the time of the termination of the last episode of Flaring within the Flaring Incident. Thus, for example, for Flaring within a Flaring Incident that (i) starts at 1:00 p.m. on Day 1 and ends at 1:30 p.m. on Day 1; (ii) recommences at 4:00 p.m. on Day 1 and ends at 4:30 p.m. on Day 1; (iii) recommences at 1:00 a.m. on Day 2 and ends at 1:30 a.m. on Day 2; and (iv) no further Flaring occurs within the Flaring Incident, the Flaring within the Flaring Incident shall be deemed to last 12.5 hours -- not 1.5 hours -- and the column for Flaring of "greater than 3 hours but less than or equal to 24 hours" shall apply.

B. For failure to timely submit any report required by Paragraph 22, or for submitting any report that does not conform to the requirements of Paragraph 22:

<u>Period of Delay</u>	<u>Penalty per day</u>
Days 1-30	\$800
Days 31-60	\$1,600
Over 60 days	\$3,000

C. For those corrective action(s) which BP: (i) agrees to undertake following receipt of an objection by U.S. EPA pursuant to Paragraph 22.B.iii; or (ii) is required to undertake following Dispute Resolution, then, from the date of U.S. EPA's receipt of BP's report under Paragraph 22.B of this Consent Decree until the date that either (i) a final agreement is reached between U.S. EPA and BP regarding the corrective action or (ii) a court order regarding the corrective action is entered, BP shall be liable for stipulated penalties as follows:

i.

<u>Period of Delay</u>	<u>Penalty per day</u>
Days 1-120	\$50
Days 121-180	\$100
Days 181 - 365	\$300
Over 365 Days	\$3,000

or

- ii. 1.2 times the economic benefit resulting from BP's failure to implement the corrective action(s).

The decision of whether to demand as a stipulated penalty Alternative (i) or Alternative (ii) shall rest exclusively within the discretion of the United States.

D. For failure to complete any corrective action under Paragraph 22.B.i of this Decree in accordance with the schedule for such corrective action agreed to by BP or imposed on BP pursuant to the Dispute Resolution provisions of this Decree (with any such extensions thereto as to which U.S. EPA and BP may agree in writing):

<u>Period of Delay</u>	<u>Penalty per day</u>
Days 1-30	\$ 1,000

Days 31-60           \$ 2,000

Over 60               \$ 5,000

**48. Paragraph 23 -- Requirements for RCRA Issues at Whiting**

BP shall be liable for stipulated penalties in the amounts set forth below to the United States for failure to comply with the RCRA requirements of this Consent Decree for the Whiting facility set forth in Paragraph 23, unless excused under Section XIII (Force Majeure). "Compliance" by BP shall include completion of the activities under this Consent Decree or any Work Plan or other plan or document approved under this Consent Decree in accordance with all applicable requirements of law, this Consent Decree, and any plans or other documents submitted to or approved by IDEM or EPA pursuant to this Consent Decree, and within the specified time schedules established by and approved under this Consent Decree. For noncompliance with any of the requirements of paragraph 23 identified below, the following stipulated penalties shall accrue per violation per day:

**A. For failure to submit closure plan and post-closure plan:**

1<sup>st</sup> through 30<sup>th</sup> day       \$1000

31<sup>st</sup> through 60<sup>th</sup> day       \$2500

Beyond 60<sup>th</sup> day           \$5000

**B. For failure to timely comply with closure plan requirements:**

1<sup>st</sup> through 30<sup>th</sup> day       \$1000

31<sup>st</sup> through 60<sup>th</sup> day       \$2500

Beyond 60<sup>th</sup> day           \$5000

**C. For failure to submit of certification of closure**

1<sup>st</sup> through 30<sup>th</sup> day       \$200

31<sup>st</sup> through 60<sup>th</sup> day       \$500

Beyond 60<sup>th</sup> day           \$1000

**D. For failure to provide financial assurances for closure, and post-closure care:**

1<sup>st</sup> through 30<sup>th</sup> day       \$500



31<sup>st</sup> through 60<sup>th</sup> day \$1250

Beyond 60<sup>th</sup> day \$2250

E. For failure to provide liability coverage:

1<sup>st</sup> through 30<sup>th</sup> day \$500

31<sup>st</sup> through 60<sup>th</sup> day \$1250

Beyond 60<sup>th</sup> day \$2250

F. For failure to conduct sampling and analysis of the spent treating clay in accordance with the sampling plan and as required by Paragraph 23.L: \$2000 per sampling event per roll-off container.

G. For failure to prepare and/or submit written deliverables required by Paragraph 23 per day, per deliverable:

1<sup>st</sup> through 30<sup>th</sup> day \$350

31<sup>st</sup> through 60<sup>th</sup> day \$750

Beyond 60<sup>th</sup> day \$1500

49. **Paragraph 29 - Requirements for SEPs:**

For BP's failure to perform any one of the SEPs identified in Paragraph 29 in accordance with the EPA-approved schedule, per day, per project:

<u>Period of Delay</u>	<u>Penalty per day</u>
1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$500
31 <sup>st</sup> through 60 <sup>th</sup> day after deadline	\$2000
Beyond 60 <sup>th</sup> day after deadline	\$2500

50. **Requirements for Reporting and Recordkeeping (Section VIII) - Report Required By Paragraph 50:**

For failure to report as required by Section VIII, per day:

<u>Period of Delay</u>	<u>Penalty per day</u>
1 <sup>st</sup> through 30 <sup>th</sup> day after deadline	\$300

31<sup>st</sup> through 60<sup>th</sup> day after deadline \$1100

Beyond 60<sup>th</sup> day \$2000

51. **Requirements to Escrow Stipulated Penalties.** For failure to pay the civil penalty as specified in Section IX of this Consent Decree, BP shall be liable for \$30,000 per day plus interest on the amount overdue at the rate specified in 28 U.S.C § 1961(a). For failure to escrow stipulated penalties as required by Paragraph 53 of this Consent Decree, BP shall be liable for \$2500 per day plus interest on the amount overdue at the rate specified in 28 U.S.C. § 1961(a).

52. **Payment:** BP shall pay stipulated penalties upon written demand by the United States no later than sixty (60) days after BP receives such demand. Stipulated penalties shall be paid to the United States in the manner set forth in Section IX (Civil Penalty) of this Consent Decree. EPA's demand for the payment of stipulated penalties will identify the particular violation(s) to which the stipulated penalty relates, the stipulated penalty amount EPA is demanding for each violation (as can be best estimated), the calculation method underlying the demand, and the grounds upon which the demand is based.

53. **Stipulated Penalties Dispute:** Should BP dispute its obligation to pay part or all of a stipulated penalty, it may avoid the imposition of the stipulated penalty for failure to pay a penalty due to the United States, by placing the disputed amount demanded by the United States in a commercial escrow account pending resolution of the matter and by invoking the Dispute Resolution provisions of Section X within the time provided in this Paragraph 53 for payment of stipulated penalties. If the dispute is thereafter resolved in BP's favor, the escrowed amount plus accrued interest shall be returned to them, otherwise the United States shall be entitled to the escrowed amount that was determined to be due by the Court plus the interest that has accrued on such amount, with the balance, if any, returned to BP. The United States reserves the right to pursue any other non-monetary remedies to which it is entitled, including, but not limited to, additional injunctive relief for defendants' violations of this Consent Decree.

## **XI. INTEREST**

54. BP shall be liable for interest on the unpaid balance of the civil penalty specified in Section IX, and BP shall be liable for interest on any unpaid balance of stipulated penalties to be paid in accordance with Section X. All such interest shall accrue at the rate established pursuant to 28 U.S.C. § 1961(a) -- i.e., a rate equal to the coupon issue yield equivalent (as determined by the Secretary of Treasury) of the average accepted auction price for the last auction of 52-week U.S. Treasury bills settled prior to the Date of Lodging of the Consent Decree. Interest shall be computed daily and compounded annually. Interest shall be calculated from the date payment is due under the Consent Decree through the date of actual payment. For purposes of this Paragraph 54, interest pursuant to this Paragraph will cease to accrue on the amount of any penalty payment made into an interest bearing escrow account as contemplated by Sections IX and X of the Consent Decree. Monies timely paid into escrow shall not be considered to be an unpaid balance under this section.

## **XII. RIGHT OF ENTRY**

55. Any authorized representative of the EPA or an appropriate state agency, including independent contractors, upon presentation of credentials, shall have a right of entry upon the premises of the facilities of BP's facilities as identified herein, at any reasonable time for the purpose of monitoring compliance with the provisions of this Consent Decree, including inspecting plant equipment, and inspecting and copying all records maintained by BP required by this Consent Decree. BP shall retain such records for the period of the Consent Decree. Nothing in this Consent Decree shall limit the authority of EPA to conduct tests and inspections under Section 114 of the Act, 42 U.S.C. § 7414, or any other statutory or regulatory provision.

## **XIII. FORCE MAJEURE**

56. If any event occurs which causes or may cause a delay or impediment to performance in complying with any provision of this Consent Decree, BP shall notify the United States in writing as soon as practicable, but in any event within ten (10) business days of when such defendant first

knew of the event or should have known of the event by the exercise of due diligence. In this notice, BP shall specifically reference this Paragraph 56 of this Consent Decree and describe the anticipated length of time the delay may persist, the cause or causes of the delay, and the measures taken or to be taken by such defendant to prevent or minimize the delay and the schedule by which those measures shall be implemented. BP shall adopt all necessary measures to avoid or minimize such delays. The notice required by this section shall be effective upon the mailing of the same by certified mail, return receipt requested, to the appropriate EPA Regional Office as specified in Paragraph 82, Notice.

57. Failure by BP to substantially comply with the notice requirements of Paragraph 56 as specified above shall render this Section XIII voidable by the United States as to the specific event for which such defendant has failed to comply with such notice requirement, and, if voided, is of no effect as to the particular event involved.

58. The United States shall notify BP in writing regarding its claim of a delay or impediment to performance within thirty (30) days of receipt of the force majeure notice provided under Paragraph 56. If the United States agrees that the delay or impediment to performance has been or will be caused by circumstances beyond the control of BP including any entity controlled by BP and that BP could not have prevented the delay by the exercise of due diligence, the parties shall stipulate to an extension of the required deadline(s) for all requirement(s) affected by the delay by a period equivalent to the delay actually caused by such circumstances. Such stipulation shall be filed as a modification to the Consent Decree pursuant to the modification procedures established in this Consent Decree. BP shall not be liable for stipulated penalties for the period of any such delay.

59. If the United States does not accept BP's claim of a delay or impediment to performance, BP must submit the matter to the Court for resolution to avoid payment of stipulated penalties, by filing a petition for determination with the Court. Once BP has submitted this matter to the Court, the United States shall have twenty (20) business days to file its response to the petition. If the Court determines that the delay or impediment to performance has been or will be

caused by circumstances beyond the control of BP including any entity controlled by BP and that the delay could not have been prevented by BP by the exercise of due diligence, BP shall be excused as to that event(s) and delay (including stipulated penalties), for a period of time equivalent to the delay caused by such circumstances.

60. Each defendant asserting a claim of force majeure shall bear the burden of proving that any delay of any requirement(s) of this Consent Decree was caused by or will be caused by circumstances beyond its control, including any entity controlled by it, and that they could not have prevented the delay by the exercise of due diligence. The defendants shall also bear the burden of proving the duration and extent of any delay(s) attributable to such circumstances. An extension of one compliance date based on a particular event may, but does not necessarily, result in an extension of a subsequent compliance date or dates.

61. Unanticipated or increased costs or expenses associated with the performance of the defendant's obligations under this Consent Decree shall not constitute circumstances beyond its control, or serve as a basis for an extension of time under this Section XIII. However, failure of a permitting authority to issue a necessary permit in a timely fashion is an event of force majeure where the failure of the permitting authority to act is beyond the control of the defendant and the defendant has taken all steps available to it to obtain the necessary permit including but not limited to: submitting a complete permit application; responding to requests for additional information by the permitting authority in a timely fashion; accepting lawful permit terms and conditions; and prosecuting appeals of any unlawful terms and conditions imposed by the permitting authority in an expeditious fashion.

62. Notwithstanding any other provision of this Consent Decree, this Court shall not draw any inferences nor establish any presumptions adverse to either party as a result of BP serving a force majeure notice or the Parties' inability to reach agreement.

63. As part of the resolution of any matter submitted to this Court under this Section XIII, the Parties by agreement, or the Court, by order, may in appropriate circumstances extend or modify

the schedule for completion of work under the Consent Decree to account for the delay in the work that occurred as a result of any delay or impediment to performance agreed to by the United States or approved by this Court. BP shall be liable for stipulated penalties for its failure thereafter to complete the work in accordance with the extended or modified schedule.

#### **XIV. RETENTION OF JURISDICTION/DISPUTE RESOLUTION**

64. This Court shall retain jurisdiction of this matter for the purposes of implementing and enforcing the terms and conditions of the Consent Decree and for the purpose of adjudicating all disputes among the Parties that may arise under the provisions of the Consent Decree, and until the Consent Decree terminates in accordance with Paragraph 87 of this Consent Decree (Termination).

65. The dispute resolution procedure provided by this Section XIV shall be available to resolve all disputes arising under this Consent Decree, provided that the party making such application has made a good faith attempt to resolve the matter with the other party.

66. The dispute resolution procedure required herein shall be invoked upon the giving of written notice by one of the parties to this Consent Decree to another advising of a dispute pursuant to this Section XIV. The notice shall describe the nature of the dispute, and shall state the noticing party's position with regard to such dispute. The party receiving such a notice shall acknowledge receipt of the notice and the parties shall expeditiously schedule a meeting to discuss the dispute informally not later than fourteen (14) days from the receipt of such notice.

67. Disputes submitted to dispute resolution shall, in the first instance, be the subject of informal negotiations between the parties. Such period of informal negotiations shall not extend beyond thirty (30) calendar days from the date of the first meeting between representatives of the United States and BP, unless it is agreed that this period should be shortened or extended.

68. In the event that the parties are unable to reach agreement during such informal negotiation period, the United States shall provide BP with a written summary of its position regarding the dispute. The position advanced by the United States shall be considered binding unless, within forty-five (45) calendar days of BP's receipt of the written summary of the United

States' position, it files with the Court a petition which describes the nature of the dispute. The United States shall respond to the petition within forty-five (45) calendar days of filing.

69. Where the nature of the dispute is such that a more timely resolution of the issue is required, the time periods set out in this Section XIV may be shortened upon motion of one of the parties to the dispute.

70. Notwithstanding any other provision of this Consent Decree, in dispute resolution, the Court shall not draw any inferences nor establish any presumptions adverse to either party as a result of invocation of this Section XIV or the Parties' inability to reach agreement.

71. As part of the resolution of any dispute submitted to dispute resolution, the parties, by agreement, or this Court, by order, may, in appropriate circumstances, extend or modify the schedule for completion of work under this Consent Decree to account for the delay in the work that occurred as a result of dispute resolution. BP shall be liable for stipulated penalties for its failure thereafter to complete the work in accordance with the extended or modified schedule.

#### **XV. EFFECT OF SETTLEMENT**

72. This Consent Decree is not a permit; compliance with its terms does not guarantee compliance with any applicable federal, state or local laws or regulations. Nothing in this Consent Decree shall be construed to be a ruling on, or determination of, any issue related to any Federal, state or local permit.

73. A. Entry of this Consent Decree shall resolve all civil liability of BP to the United States and the Plaintiff-Intervenors for the violations of the statutory and regulatory requirements identified in Paragraph 73.A. that occurred prior to the Date of Entry of the Consent Decree, and for violations of the statutory and regulatory requirements identified in Paragraph 73.A. that occurred prior to the Date of Entry of the Consent Decree and continued after the Date of Entry of the Consent Decree:

i. With respect to the FCCUs, fuel gas combustion devices and sulfur recovery plants (exclusive of the associated incinerators which have been identified by BP in Appendix G, Part B)

at the eight refineries covered by this Consent Decree, violations of the following Federal and State "New Source Review" Rules and "New Source Performance Standards" for the units covered by this Consent Decree:

- a. PSD requirements at Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, and the regulations promulgated thereunder at 40 C.F.R. § 52.21, with respect to only NO<sub>x</sub>, SO<sub>2</sub>, SO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, total reduced sulfur compounds, H<sub>2</sub>S, PM, and CO;
- b. "Plan Requirements for Non-Attainment Areas" at Part D of Subchapter I of the Act, 42 U.S.C. §§ 7501-7515, and the regulations promulgated thereunder at 40 C.F.R. §§ 51.165 (a) and (b), Part 51, Subpart S, and § 52.24, with respect to only NO<sub>x</sub>, SO<sub>2</sub>, SO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, total reduced sulfur compounds, H<sub>2</sub>S, PM, and CO;
- c. The NSPS promulgated pursuant to Section 111 of the CAA, 42 U.S.C. § 7411, and codified at 40 C.F.R. Part 60, Subpart A ("General Provisions") and Subpart J ("Standards of Performance of Petroleum Refineries"); and
- d. Any regulations of the respective Plaintiff-Intervenors' SIPs, or other state rules that implement these CAA programs; and

ii. With respect to all units at the eight refineries subject to this Consent Decree:

- a. LDAR requirements promulgated under Sections 111 and 112 of the Clean Air Act, and codified at 40 C.F.R. Part 60, Subparts VV and GGG, 40 C.F.R. Part 61, Subparts J and V, and the LDAR requirements of 40 C.F.R. Part 63, Subparts F, H, and CC;
- b. NESHAP for Benzene Waste, 40 C.F.R. Part 61, Subpart FF promulgated pursuant to Section 112(q) of the Act, 42 U.S.C. § 7412(q); and
- c. Any applicable state regulations of the respective Plaintiff-Intervenors that implement, adopt, or incorporate the specific federal regulatory requirements identified above;



iii. As regards the claims pending in United States v. Amoco Oil Company, Civil No. 2:96 CV 095 RL (N.D. IN.) as alleged in the Amended Complaint dated June 30, 1998, and in the amended complaint filed herewith:

- a. The RCRA Permitting, Closure, Post-Closure and Financial Assurance requirements for the spent bender catalyst waste pile set forth at 40 C.F.R. Part 264, Subparts G, H, L, and Part 270; RCRA hazardous waste determination requirements for the spent treating clay waste at 40 C.F.R. Part 262;
- b. Section 313 of the EPCRA; and
- c. Any Indiana regulations incorporating or implementing the foregoing federal requirements.

iv. With respect to the sulfur recovery plant incinerators identified by BP in Appendix G, Part B, for those gas streams combusted in the sulfur recovery plant(s) or identified in Paragraph 21 of the Consent Decree for violation of the laws identified in Paragraph 73.A.i.a-d.

B. With respect to the incinerators identified in Paragraph 17.D.i of this Consent Decree, entry of this Consent Decree shall resolve the civil liability of BP to the United States and the Plaintiff-Intervenors for the violations of the statutory and regulatory requirements that occurred prior to the twenty-four (24) months after the Date of Entry of the Consent Decree for the following:

- a. PSD requirements at Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, and the regulations promulgated thereunder at 40 C.F.R. § 52.21, with respect to only NO<sub>x</sub>, SO<sub>2</sub>, SO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, total reduced sulfur compounds, H<sub>2</sub>S, PM, and CO;
- b. "Plan Requirements for Non-Attainment Areas" at Part D of Subchapter I of the Act, 42 U.S.C. §§ 7501-7515, and the regulations promulgated thereunder at 40 C.F.R. §§ 51.165 (a) and (b), Part 51, Subpart S, and § 52.24, with respect to only NO<sub>x</sub>, SO<sub>2</sub>, SO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, total reduced sulfur compounds, H<sub>2</sub>S, PM, and CO;

- c. The NSPS promulgated pursuant to Section 111 of the CAA, 42 U.S.C. § 7411, and codified at 40 C.F.R. Part 60, Subpart A ("General Provisions") and Subpart J ("Standards of Performance of Petroleum Refineries"); and
- d. Any regulations of the respective Plaintiff-Intervenors SIPs, or other state rules that implement these CAA programs.

C. With respect to the wastestreams identified in Paragraph 17.D.ii of this Consent Decree, entry of this Consent Decree shall resolve the civil liability of BP to the United States and the Plaintiff-Intervenors for the violations of the statutory and regulatory requirements that occurred prior to the scheduled TGU turnaround in 2003 for the Carson Facility for the following:

- a. PSD requirements at Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, and the regulations promulgated thereunder at 40 C.F.R. § 52.21, with respect to only NO<sub>x</sub>, SO<sub>2</sub>, SO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, total reduced sulfur compounds, H<sub>2</sub>S, PM, and CO;
- b. "Plan Requirements for Non-Attainment Areas" at Part D of Subchapter I of the Act, 42 U.S.C. §§ 7501-7515, and the regulations promulgated thereunder at 40 C.F.R. §§ 51.165 (a) and (b), Part 51, Subpart S, and § 52.24, with respect to only NO<sub>x</sub>, SO<sub>2</sub>, SO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, total reduced sulfur compounds, H<sub>2</sub>S, PM, and CO;
- c. The NSPS promulgated pursuant to Section 111 of the CAA, 42 U.S.C. § 7411, and codified at 40 C.F.R. Part 60, Subpart A ("General Provisions") and Subpart J ("Standards of Performance of Petroleum Refineries"); and
- d. Any regulations of the respective Plaintiff-Intervenors SIPs, or other state rules that implement these CAA programs.

D. EPCRA: Paragraph 24 of this Consent Decree shall govern the release by the United States of any claims brought pursuant to the provisions of EPCRA or Section 103(a) of CERCLA, 42 U.S.C. § 9603(a).

**E. Reservation re: Incinerators:** The terms of this Consent Decree shall apply to only those incinerators specifically identified in Paragraph 17.D and covered by Paragraph 73.B, and the incinerators identified in Appendix G, Part B and covered by Paragraph 73.A.iv.

**F. General Reservation of Rights:** Nothing in this Consent Decree precludes the United States from seeking from BP injunctive relief, penalties, or other appropriate relief for violations by such defendant of PSD/NSR and NSPS that: 1) pre-date the Date of Entry of the Consent Decree for units not covered by the Consent Decree; or 2) that arise after the Date of Entry of the Consent Decree for any units. Nothing in this Consent Decree precludes the United States from seeking from BP injunctive relief, penalties, or other appropriate relief for violations of NESHAP and/or LDAR requirements that post-date the Date of Entry of the Consent Decree for any units at its respective refineries.

**G. Reservation Re: NSPS Applicability:** Nothing in this Consent Decree shall affect the status of any FCCU, fuel gas combustion device, and sulfur recovery plant currently subject to NSPS as previously determined by any Federal, state, or local authority or any applicable permit. Any FCCU, fuel gas combustion devices, or sulfur recovery plant that is modified or re-constructed after the Date of Entry of the Consent Decree so as to qualify as an "affected facility" under 40 C.F.R. §§ 60.14 and 60.15, respectively, will be considered an "affected facility" for purposes of NSPS.

**H. Claim/Issue Preclusion:** In any subsequent administrative or judicial proceeding initiated by the United States or the States for injunctive relief, penalties, or other appropriate relief relating to BP for violations of the PSD/NSR, NSPS, NESHAP, and/or LDAR requirements:

i. BP shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the States in the subsequent proceeding were or should have been brought in the instant case. The United States' specifically reserves its position that NSPS Subparts A and J applies to the fuel gas combustion devices at the

defendants' refineries as described in, and covered by, the Koch Letter. Nothing in the preceding sentence is intended to modify the coverage of Paragraph 73.A.i.

ii. The United States and Plaintiff-Intervenor States may not assert or maintain, that this Consent Decree constitutes a waiver or determination of, or otherwise obviates, any claim or defense whatsoever, or constitutes acceptance by BP of any interpretation or guidance issued by EPA related to the matters addressed in this Consent Decree including, but not limited to, the interpretations contained in the Koch Letter, and BP specifically reserves any and all objections they may have with respect to any such guidance and interpretations.

#### **XVI. GENERAL PROVISIONS**

74. **Other Laws:** Except as specifically provided by this Consent Decree, nothing in this Consent Decree shall relieve BP of its obligation to comply with all applicable Federal, state and local laws and regulations. Subject to Paragraph 73, nothing contained in this Consent Decree shall be construed to prevent or limit the United States' rights to seek or obtain other remedies or sanctions available under other Federal, state or local statutes or regulations, by virtue of defendants' violation of the Consent Decree or of the statutes and regulations upon which the Consent Decree is based, or for defendants' violations of any applicable provision of law, other than the specific matters resolved herein. This shall include the United States' right to invoke the authority of the Court to order BP's compliance with this Consent Decree in a subsequent contempt action.

75. **Failure of Compliance:** The United States does not, by its consent to the entry of Consent Decree, warrant or aver in any manner that BP's complete compliance with the Consent Decree will result in compliance with the provisions of the CAA, 42 U.S.C. §§ 7401-7671q or RCRA, 42 U.S.C. §§ 6901-6992k. Notwithstanding EPA's review or approval by the United States of any plans, reports, policies or procedures formulated pursuant to the Consent Decree, BP shall remain solely responsible for compliance with the terms of the Consent Decree, all applicable permits, all applicable Federal, state and local regulations, and except as provided in Section XIII,

Force Majeure, shall not raise as a defense to any proceeding brought by the United States to enforce this Consent Decree any act or omission of the United States.

76. **Severability:** It is the intent of the Parties hereto that the clauses hereof are severable, and should any clause(s) be declared by a court of competent jurisdiction to be invalid and unenforceable, the remaining clauses shall remain in full force and effect.

77. **Service of Process:** BP hereby agrees to accept service of process by mail with respect to all matters arising under or relating to the Consent Decree and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including but not limited to, service of a summons. BP shall identify, on the attached signature page, the name and address of an agent who is authorized to accept service of process with respect to all matters arising under or relating to the Consent Decree.

78. **Post-Lodging/Pre-Entry Obligations:** Obligations of BP under the provisions of this Consent Decree to perform duties scheduled to occur after the Date of Lodging of the Consent Decree, but prior to the Date of Entry of the Consent Decree, shall be legally enforceable from the Date of Entry of the Consent Decree. Liability for stipulated penalties, if applicable, shall accrue for violation of such obligations and payment of such stipulated penalties may be demanded by the United States as provided in this Consent Decree, provided that stipulated penalties that may have accrued between the Date of Lodging of the Consent Decree and the Date of Entry of the Consent Decree may not be collected by the United States unless and until Consent Decree is entered by the Court.

79. **Costs:** Each party to this action shall bear its own costs and attorneys' fees.

80. **Public Documents:** All information and documents submitted by BP to the United States pursuant to this Consent Decree shall be subject to public inspection, unless subject to legal privileges or protection or identified and supported as business confidential by BP in accordance with 40 C.F.R. Part 2.

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

82. **Notice.** Unless otherwise provided herein, notifications to or communications with the United States or defendants shall be deemed submitted on the date they are postmarked and sent either by overnight receipt mail service or by certified or registered mail, return receipt requested. Except as otherwise provided herein, all reports, notifications, certifications, or other communications required or allowed under this Consent Decree to be submitted or delivered to the United States, EPA, the States, BP shall be addressed as follows:

**As to the United States:**

Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611, Ben Franklin Station  
Washington, DC 20044-7611

United States Attorney  
Northern District of Indiana  
Assistant United States Attorney  
1001 Main Street  
Suite A  
Dyer, Indiana 46311

**As to EPA:**

U.S. Environmental Protection Agency  
Director, Regulatory Enforcement  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Mail Code 2242-A  
Washington, DC 20460

**EPA Region 3:**

Director  
Air Protection Division  
U.S. Environmental Protection Agency, Region 3  
1650 Arch Street, 3AP00  
Philadelphia, PA 19103

**EPA Region 5:**

Air and Radiation Division  
U.S. EPA, Region 5  
77 West Jackson Blvd. (AE-17J)  
Chicago, IL 60604  
Attn: Compliance Tracker

and

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

**EPA Region 6:**

Director, Compliance Assurance and  
Enforcement Division  
Environmental Protection Agency, Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

**EPA Region 8:**

Technical Enforcement Program Air Director  
Mail Code ENF-T  
Office of Enforcement, Compliance and Environmental Justice  
U.S. Environmental Protection Agency  
999 18th Street, Suite 300  
Denver, CO 80202-2466

**EPA Region 9:**

Director, Air Division (Air-1)  
U.S. Environmental Protection Agency, Region 9  
75 Hawthorne Street  
San Francisco, CA 94105

**EPA Region 10:**

Director  
Air Division

U. S. Environmental Protection Agency  
Region 10  
1200 Sixth Avenue  
Seattle, WA 98101

**The State of Indiana:**

Felicia A. Robinson  
Assistant Commissioner  
Office of Enforcement  
Indiana Department of Environmental Management  
100 N. Senate  
P.O. Box 6015  
Indianapolis, IN 46206-6015

**Northwest Air Pollution Authority, Washington:**

Valerie Lagen  
Northwest Air Pollution Authority  
1600 South Second Street  
Mt. Vernon, WA 98273-5202

**The State of Ohio:**

Joseph P. Koncelik  
Deputy Director of Legal Affairs  
Ohio Environmental Protection Agency  
122 South Front Street, Columbus, Ohio 43215

**As to BP Corporation:**

Richard J. Glaser  
Director  
Project Sunshine  
BP Corporation  
2815 Indianapolis Boulevard  
Whiting, IN 46394-0710

and

David L. Bell  
Senior Counsel  
BP America, Inc.  
200 East Randolph St.  
Mail Code 2205  
Chicago, IL 60601

83. Any party may change either the notice recipient or the address for providing notices to it by serving all other parties with a notice setting forth such new notice recipient or address. In



addition, the nature and frequency of reports required by the Consent Decree may be modified by mutual consent of the parties. The consent of the United States to such modification must be in the form of a written notification from the Department of Justice.

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

85. Modification. The Consent Decree contains the entire agreement of the Parties and shall not be modified by any prior oral or written agreement, representation or understanding. Prior drafts of the Consent Decree shall not be used in any action involving the interpretation or enforcement of the Consent Decree. Except as specified in Paragraph 83, the Consent Decree may not be amended or modified except by written order of this Court. Any modification of the Consent Decree by the Parties shall be in writing and approved by the Court before it shall be deemed effective.

#### **XVII. TERMINATION**

86. When BP has met the requirements set forth below for termination of part or all of this Consent Decree, it may seek termination of part or all of the Consent Decree as applicable by certifying to the United States, that:

A. For Paragraphs 14 (FCCU NO<sub>x</sub> and CO), 16 (FCCU SO<sub>2</sub>), 17 (H&B SO<sub>2</sub>), and/or 18 A and B (ESPs):

- i. The controls required by the Paragraph have been installed;
- ii. The studies required by the Paragraph have been completed, submitted to EPA, and approved by EPA (to the extent EPA's approval is required);
- iii. The final emission limits prescribed by the Paragraph have been established and/or become effective and have been incorporated into major or minor new source review permits or other federally enforceable permits, as well as applications for incorporation into its Title V permit;

- iv. The Facility demonstrates that it has been in compliance with those emission limits for twelve consecutive months; and
- v. All stipulated penalties due from the Facility with respect to that Paragraph have been paid.

Certification made under this Paragraph 86.A may be made on a refinery-by-refinery, paragraph-by-paragraph basis.

**B. For Paragraph 15 (H&B NOx):**

- i. The Facility has installed controls meeting the requirements of Paragraph 15.C;
- ii. The Facility has completed reporting, testing, and monitoring to the extent required by Paragraphs 15.G and H, and demonstrates that it has been in compliance with applicable NOx emission limits for twelve consecutive months;
- iii. All stipulated penalties due from BP with respect to Paragraph 15 have been paid; and
- iv. BP demonstrates that it has met the system-wide requirements of Paragraphs 15.C. and 15.E.

**C. For Paragraphs 19 (BWN) and 20 (LDAR).** No earlier than December 31, 2008, for any facility covered by this Consent Decree provided that separately with respect to Paragraph 19 and Paragraph 20: 1) the defendant has demonstrated substantial compliance with the programs of the Paragraph for which the defendant is certifying compliance; and 2) all stipulated penalties due with respect to the Paragraph that the defendant is certifying compliance have been paid.

**D. For Paragraphs 18.C (HC Flaring):** No earlier than December 31, 2005, for any facility covered by this Consent Decree, provided that: 1) BP has demonstrated substantial compliance with the program in Paragraph 18.C; and 2) all stipulated penalties due with respect to Paragraph 18.C have been paid.

**E. For Paragraphs 21 (SRPs):** For any refinery covered by this Consent Decree, provided that the refinery has: 1) demonstrated compliance with all of the activities and requirements of Paragraph 21; 2) achieved the final emissions limit specified in Paragraph 21 at its SRP for twelve (12) consecutive months; 3) incorporated that limit into a major or minor NSR permit or other federally enforceable permit and has applied for incorporation into the Facility's Title V permit application and other applicable permits (including state operating permit); and 4) paid all stipulated penalties due from it with respect to Paragraph 21.

**F. For Paragraph 22 (AG Flaring):** No earlier than December 31, 2008, for any refinery covered by this Consent Decree provided that the refinery has: 1) demonstrated compliance with all of the activities and requirements (including reporting and corrective action) required by Paragraph 22; and 2) paid all stipulated penalties due from it with respect to Paragraph 22.

**G. For the Entire Consent Decree:** The Consent Decree shall terminate in its entirety with respect to a given Facility once the following have occurred:

- a. The Civil Penalty imposed by Section IX has been paid in full; and
- b. Any requirements applicable to the Facility under Paragraph 29 (SEPs) have been satisfied; and
- c. The requirements applicable to the Facility for termination of Paragraphs 14 through 22, as set forth above, have been satisfied.

87. If BP believes it has satisfied the requirements for termination of one or more Paragraphs referenced in Paragraph 86.A through D, above, it shall so certify to the United States, and unless the United States objects in writing with specific reasons within sixty (60) days of receipt of the certification, the United States shall move the Court to terminate the Consent Decree with respect to that/those Paragraphs. If the United States objects to the BP's certification, then the matter shall be submitted to the Court for resolution under Section XIII ("Dispute Resolution") of

this Consent Decree. In such case, BP shall bear the burden of proving that this Consent Decree should be terminated. Obligations under this Consent Decree may not terminate absent express written approval of the Court.

**XVIII. SIGNATORIES**

88. The undersigned representatives of BP certify that the below representatives are fully authorized to enter into the terms and conditions of the Consent Decree.


Dated and entered this \_\_\_\_\_ day of \_\_\_\_\_, 2001.

\_\_\_\_\_  
UNITED STATES DISTRICT JUDGE


WE HEREBY CONSENT to the entry of the Consent Decree in United States, et al. v. BP Exploration & Oil Co., et al., Civil No. 2:96-cv-095 PL, subject to the public notice and comment requirements of 28 C.F.R. § 50.7.

FOR PLAINTIFF THE UNITED STATES OF AMERICA:

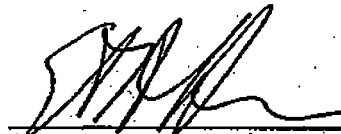
Date: 1/12/01

  
LOIS J. SCHIFFER  
Assistant Attorney General  
Environment and Natural Resources Division

Date: 1/17/01

  
ADAM M. KUSHNER  
Senior Counsel  
DIANNE SHAWLEY  
Senior Attorney  
FRANCES ZIZILA  
Trial Attorney  
Environmental Enforcement Section  
Environment and Natural Resources  
Division

Date: 1/17/91



**STEVEN A. HERMAN**  
Assistant Administrator for Enforcement and  
Compliance Assurance  
United States Environmental  
Protection Agency  
Washington, D.C. 20460

WE HEREBY CONSENT to the entry of the Consent Decree in United States, et al. v. BP Exploration & Oil Co., et al., Civil No 2:96 CV 095 RL subject to the public notice and comment requirements of 28 C.F.R. § 50.7.

FOR THE STATE OF INDIANA:

Date: 1/3/01

*Fred R. Biesecker*

OFFICE OF THE GOVERNOR  
PRINTED NAME FRED R. BIESECKER  
Counsel

Date: 1/4/01

*Lori F. Kaplan*

LORI F. KAPLAN  
Commissioner  
Indiana Department of the Environmental  
Management

Approved as to form and legality:

Karen Freeman-Wilson  
Attorney General, State of Indiana

By: *[Signature]*  
Title: *Deputy Attorney General*

Office of the Attorney General  
Indiana Government Center  
5<sup>th</sup> Floor  
402 N. Washington Street  
Indianapolis, Indiana 46204



WE HEREBY CONSENT to the entry of the Consent Decree in United States, et al. v. BP Exploration & Oil Co., et al., Civil No. 2:96 CV 095 RL, subject to the public notice and comment requirements of 28 C.F.R. § 50.7.

FOR THE STATE OF OHIO:

BETTY D. MONTGOMERY  
ATTORNEY GENERAL OF OHIO

Date: 1/16/01



Bryan F. Zima  
Assistant Attorney General  
Office of the Attorney General  
Environmental Enforcement Section  
30 East Broad Street  
25<sup>th</sup> Floor  
Columbus, OH 43215

Counsel for Christopher Jones  
Director of Environmental Protection

WE HEREBY CONSENT to the entry of the Consent Decree in United States, et al. v. BP Exploration & Oil Co./et al., Civil No. 2:96cv04581, subject to the public notice and comment requirements of 28 C.F.R. § 50.7.

FOR THE NORTHWEST AIR POLLUTION AUTHORITY, WASHINGTON:

Date: Jan 10, 2001 Lynn Bellington

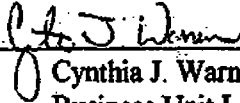
WE HEREBY CONSENT to the entry of the Consent Decree in United States, et al. v.

BP Exploration & Oil Co., et al., Civil No. \_\_\_\_\_, subject to the public notice and

comment requirements of 28 C.F.R. § 50.7.

FOR BP EXPLORATION & OIL CO., AMOCO OIL COMPANY, and ATLANTIC  
RICHFIELD COMPANY CORPORATION:

Date: January 11, 2001



Cynthia J. Warner  
Business Unit Leader  
Yorktown Refinery  
Amoco Oil Company

**APPENDIX A**  
**BP'S LIST OF HEATERS AND BOILERS**  
**(beginning next page)**

Mandan

Appendix A Listing of Heaters and Boilers > 40 MMBTU/Hr Firing Capacity  
 Baseline NOx Emissions  
 Existing and Likely NOx Control Equipment

Facility	Source	Unit	Actual NOx Emissions (lb/ton/yr)	Actual NOx Emissions (ton/yr)	State NOx Control (lb/ton/yr)
Mandan	CO FURNACE		0.26	68.0	
Mandan	BOILER 3		0.23	135.0	x
Mandan	BOILER 2		0.23	135.0	x
Mandan	BOILER 1		0.23	135.0	
Mandan	B-1	ALKY	0.10	25.0	
Mandan	H-501	ISOM	0.01	1.0	
Mandan	F-200	ULTRA	0.10	21.0	
Mandan	B-2	ALKY	0.10	14.0	

Key:

- x - Source likely to be controlled
- e - Source currently has NOx control equipment (ULNB and/or SCR)

Emission Data:

The methodology used to prepare the baseline data followed the principal of giving preference to CEMs data first, then stack test data, followed by emission factors, using the best data known to be available at the time.

**Appendix A Listing of Heaters and Boilers > 40 MMBTU/Hr Firing Capacity  
Baseline NOx Emissions  
Existing and Likely NOx Control Equipment**

Location	Source	Unit	Capacity (MMBTU/hr)	Annual Emissions (Tons/Year)	Status/NOx control Equipment
Salt Lake City	CO Boiler	FCU	0.13	51.3	
Salt Lake City	BOILER 3	UTIL	0.16	47.4	x
Salt Lake City	BOILER 4	UTIL	0.16	42.5	x
Salt Lake City	BOILER 5	UTIL	0.17	44.1	
Salt Lake City	BOILER 6	UTIL	0.18	50.3	
Salt Lake City	H-101	Crude	0.09	44.5	

**Key:**

- x - Source likely to be controlled
- e - Source currently has NOx control equipment (ULNB and/or SCR)

**Emission Data:**

The methodology used to prepare the baseline data followed the principal of giving preference to CEMs data first, then stack test data, followed by emission factors, using the best data known to be available at the time.

Texas City

Appendix A Listing of Heaters and Boilers > 40 NMBTU/Hr Firing Capacity  
Baseline NOx Emissions  
Existing and Likely NOx Control Equipment

Facility	Source	Unit	Baseline NOx Emissions (lb/hr)	NOx Emissions (lb/hr)	NOx Control Equipment
Texas City	UU3-3058A/B	UU3	0.07	26.9	x
Texas City	UU4-B405	UU4	0.19	53.2	x
Texas City	HU2-109A	HU4	0.07	16.5	
Texas City	HU2-109B	HU5	0.07	17.3	
Texas City	HU2-109C	HU8	0.14	32.0	
Texas City	PS3A-1018A	PS 3A	0.04	40.8	b
Texas City	PS3A-1018B	PS 3A	0.04	40.8	b
Texas City	HU2-101A A/B	HU2	0.04	123.4	k
Texas City	HU2-101B C/D	HU3	0.04	123.9	x
Texas City	PS4-B420 <sup>1</sup>	Power 4	0.82	1385.1	
Texas City	PS4-B420 <sup>2</sup>	Power 4	0.80	1263.6	k
Texas City	PS4-B430 <sup>1</sup>	Power 4	0.04	15.5	b
Texas City	PS3B-4018C	PS 2B	0.08	51.5	
Texas City	HU1-101B	HU1	0.09	77.2	x
Texas City	UU3-3068	UU3	0.05	59.3	
Texas City	AU2-B601 <sup>1</sup>	AU2	0.02	23.0	s
Texas City	UU4-B401B	UU4	0.25	239.1	
Texas City	PS3B-4018A	PS 3B	0.31	213.0	x
Texas City	PS3B-4018B	PS 3B	0.25	213.0	x
Texas City	UU4-B401A	UU4	0.13	83.0	x
Texas City	PS3A-4035	PS 3A	0.10	41.1	x
Texas City	UU3-3065 <sup>1</sup>	UU3	0.04	24.4	e
Texas City	AU2-B621A <sup>1</sup>	AU2	0.06	26.4	
Texas City	PS3B-4028E	PS 3B	0.10	30.9	x
Texas City	RHU-601B <sup>1</sup>	RHU	0.08	20.9	
Texas City	UU4-B402A	UU4	0.08	31.0	x
Texas City	PS3A-1028A	PS 3A	0.04	9.7	x
Texas City	PS3A-1028B	PS 3A	0.04	9.7	x
Texas City	AU2-B621B <sup>1</sup>	AU2	0.06	26.4	
Texas City	COKR-B201	Coker	0.09	28.2	
Texas City	COKR-B301	Coker	0.06	18.6	
Texas City	ALK3-F1001	Ally 3	0.07	24.9	
Texas City	RDU-601B	RDU	0.05	17.5	
Texas City	RHU-601B	RHU	0.08	15.2	
Texas City	RHU-602B	RHU	0.12	25.8	x
Texas City	UU3-3018A <sup>1</sup>	UU3	0.17	36.8	x
Texas City	UU3-3018B <sup>1</sup>	UU3	0.16	35.8	n
Texas City	UU3-3018C <sup>1</sup>	UU3	0.15	35.8	n
Texas City	UU3-3018D <sup>1</sup>	UU3	0.15	35.8	n

Texas City

Texas City	UU4-B402B	UU4	0.13	31.0	x
Texas City	UU4-B402C	UU4	0.13	31.0	x
Texas City	UU4-B403	UU4	0.08	23.5	
Texas City	ULC-103B	ULC	0.16	31.0	x
Texas City	ULC-104BA	ULC	0.15	44.3	x
Texas City	ULC-104BB	ULC	0.12	44.3	x
Texas City	UU3-302 BA	UU3	0.12	18.9	
Texas City	UU3-302BB	UU3	0.12	18.9	
Texas City	UU3-302BC	UU3	0.12	18.9	
Texas City	ULC-105BA	ULC	0.16	38.4	x
Texas City	ULC-105BB	ULC	0.16	38.4	x
Texas City	FCU2-BA-201	FCU2	0.13	39.2	
Texas City	ISOM-B110-1	Isom	0.09	21.6	
Texas City	ISOM-B201	Isom	0.19	34.2	x
Texas City	PS3B-402BA	PS 3B	0.39	76.5	x
Texas City	PS3B-402BB	PS 3B	0.35	76.5	x
Texas City	PS3B-402BC	PS 3B	0.39	76.5	x
Texas City	PS3B-402BD	PS 3B	0.60	76.5	x
Texas City	UU3-307B	UU3	0.04	9.0	e
Texas City	COKR-B101	Coker	0.07	19.4	
Texas City	DDU-B302	DDU	0.03	4.4	e
Texas City	ULC-100B	ULC	0.08	24.3	x
Texas City	ULC-101B	ULC	0.03	6.0	e
Texas City	ULC-102B	ULC	0.10	26.3	x
Texas City	DDU-B301	DDU	0.04	7.0	e
Texas City	COKR-B203	Coker	0.13	20.7	x
Texas City	UU3-303B	UU3	0.13	0.0	x
Texas City	DDU-101B	DDU	0.09	8.8	
Texas City	DDU-101B	DDU	0.07	8.6	
Texas City	UU4-B403	UU4	0.13	0.0	x
Texas City	UU3-304B	UU3	0.14	13.7	
Texas City	CFHU-101B	CFHU	0.09	8.6	
Texas City	CFHU-102B	CFHU	0.09	8.6	

Key:

- x - Source likely to be controlled
- e - Source currently has NOx control equipment (ULNB and/or SCR)

Emission Data:

The methodology used to prepare the baseline data followed the principal of giving preference to CEMs data first, then stack test data, followed by emission factors, using the best data known to be available at the time.



Appendix A Listing of Heaters and Boilers > 40 MMBTU/Hr Firing Capacity  
 Baseline NOx Emissions  
 Existing and Likely NOx Control Equipment

Location	Source	Unit	Baseline Emission Factor (lb/MMBTU)	Baseline Emissions (MMBTU/yr)	NOx Control Equipment
Toledo	CO BOILER	FCC	0.10	104.0	x
Toledo	RILEY	UTIL	0.28	135.0	
Toledo	REF 2	REFORM	0.13	141.9	
Toledo	REF 1 FUR	REFORM	0.26	137.2	
Toledo	POWER BOILER	UTIL	0.28	197.8	
Toledo	CRUDE 1	CRUDE	0.20	178.8	
Toledo	CV2 FUR	CRUDE	0.25	135.2	x
Toledo	COKER 3	COKER	0.05	20.5	
Toledo	H2	H2 PLANT	0.17	157.4	x
Toledo	ISO VAC	ISO	0.41	0.0	x
Toledo	VAC 1	VAC	0.08	20.0	
Toledo	ISO 2 STAB	ISO	0.41	131.1	x
Toledo	ISO 2 SPLIT	ISO	0.41	87.1	x
Toledo	FCC PREHEAT	FCC	0.09	5.8	
Toledo	ISO 2 FEED	ISO	0.10	20.1	
Toledo	COKER 1	COKER TANK	0.09	8.8	
Toledo	COKER 2	COKER	0.25	32.2	
Toledo	NAP TREAT	UTIL	0.10	15.8	
Toledo	BDHT	HYDRO	0.09	9.0	x
Toledo	ADHT	HYDRO	0.09	11.3	x

## Key:

- x - Source likely to be controlled
- e - Source currently has NOx control equipment (ULNB and/or SCR)

## Emission Data:

The methodology used to prepare the baseline data followed the principal of giving preference to CEMS data first, then stack test data, followed by emission factors, using the best data known to be available at the time.

Appendix A Listing of Heaters and Boilers > 40 MMBTU/Hr Firing Capacity  
 and/or NOx Emissions  
 Existing and Likely NOx Control Equipment

W

Unit	Model	Capacity	NOx Emission Factor	NOx Emissions	Control
Whiting	BOILER 1	3 SPB	0.52	4073.5	x
Whiting	BOILER 2	3 SPB	0.52	2608.1	x
Whiting	BOILER 3	3 SPB	0.52	4082.4	x
Whiting	BOILER 4	3 SPB	0.52	4104.8	x
Whiting	BOILER 6	3 SPB	0.52	428.4	x
Whiting	H-1CX	12PS	0.10	78.4	x
Whiting	B-561	HU	0.07	30.0	
Whiting	F-2	4UF	0.10	190.5	x
Whiting	BOILER 3	1 SPB	0.10	0.0	x
Whiting	BOILER 4	1 SPB	0.16	27.4	x
Whiting	BOILER 5	1 SPB	0.16	38.6	x
Whiting	BOILER 6	1 SPB	0.09	15.0	x
Whiting	BOILER 8	1 SPB	0.09	19.2	x
Whiting	BOILER 7	1 SPB	0.09	9.8	x
Whiting	H-1X, 11PS	11PS	0.17	97.0	x
Whiting	F-202A	ARU	0.27	218.3	x
Whiting	F-202B	ARU	0.27	234.9	x
Whiting	H-200	11PS	0.27	193.9	
Whiting	H-1A	12PS	0.27	110.3	x
Whiting	H-1B	12PS	0.27	885.4	x
Whiting	E-3	4UF	0.27	243.9	x
Whiting	BOILER 2	1 SPB	0.10	0.0	
Whiting	H-1	3UF	0.27	183.4	x
Whiting	H-1	BOU	0.27	200.5	x
Whiting	H-2	3UF	0.27	181.3	x
Whiting	H-300	11PS	0.14	47.0	
Whiting	H-3	12PS	0.27	107.3	x
Whiting	F-3A	4UF	0.27	154.0	
Whiting	F-3B	4UF	0.27	127.5	x
Whiting	F-4	4UF	0.27	155.7	
Whiting	H-10Y	12PS	0.27	38.2	
Whiting	H-1CS	12PS	0.27	0.0	
Whiting	F-5	4UF	0.10	17.7	
Whiting	F-101	CFU	0.05	8.1	
Whiting	F-1	4UF	0.10	16.5	
Whiting	F-801A	CFU	0.05	2.4	
Whiting	F-801B	CFU	0.05	2.4	
Whiting	WB-301	DDU	0.03	5.8	e
Whiting	WB-302	DDU	0.03	9.2	e
Whiting	F-102A	CRU	0.05	8.0	
Whiting	H-3, 11PS	11PS	0.10	13.3	
Whiting	F-7	4UF	0.10	12.8	
Whiting	H-101, 11PS	11PS	0.10	10.0	
Whiting	H-102, 11PS	11PS	0.10	20.6	
Whiting	H-103, 11PS	11PS	0.10	20.6	
Whiting	H-104, 11PS	11PS	0.10	20.7	
Whiting	F-4	4UF	0.10	18.5	
Whiting	H-2, 11PS	11PS	0.10	7.8	

Key:  
 x - Source likely to be controlled  
 e - Source currently has NOx control equipment (LNB and/or SCR)

Emission Data:  
 The methodology used to prepare the baseline data followed the principle of giving preference to CERMA data first, then stack test data, followed by emission factors, using the best data known to be available at the time.

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Yorktown

**Appendix A Listing of Heaters and Boilers > 40 MMBTU/Hr Firing Capacity  
Baseline NOx Emissions  
Existing and Likely NOx Control Equipment**

Refiner	Source	Unit	Annual NOx emissions (lb/yr)	Weighted Annual Emissions (lb/yr)	Status of NOx control equipment
Yorktown	B-101	CRUDE	0.10	94.7	x
Yorktown	BOILERS 1	UTIL	0.10	32.0	
Yorktown	BOILERS 2	UTIL	0.10	32.0	
Yorktown	BA-101	COKER	0.10	34.2	
Yorktown	F-302	ULTRA	0.07	12.7	
Yorktown	B-102	CRUDE	0.10	24.0	
Yorktown	F-303	ULTRA	0.10	19.6	
Yorktown	F-101	ULTRA	0.10	13.6	

**Key:**

- x - Source likely to be controlled
- a - Source currently has NOx control equipment (ULNB and/or SCR)

**Emission Data:**

The methodology used to prepare the baseline data followed the principal of giving preference to CEMs data first, then stack test data, followed by emission factors, using the best data known to be available at the time.

Carson

Appendix A Listing of Heaters and Boilers > 40 MMBTU/Hr Firing Capacity  
Baseline NOx Emissions  
Existing and Likely NOx Control Equipment

Source	Unit	Fuel	Actual NOx Emissions (lb/hr)	Weighted NOx Emissions (lb/hr)	Quality of NOx Control Equipment
Carson	D570 No. 1 Hydrogen Plant	Hydrogen	0.04	93.2	e
Carson	No 1 Crude Unit	#1 Crude	0.03	67.0	e
Carson	D1465 No. 2 Hydrogen Plant	Hydrogen	0.02	22.7	e
Carson	D535 No. 2 Reformer Reaction	#2 Reformer	0.05	33.3	
Carson	No. 51 Vacuum Heater	#51 Vac	0.01	14.2	e
Carson	D532 No. 1 Reformer Reaction	#1 Reformer	0.13	63.9	x
Carson	D629 HC Frac Reboiler	Hydrocrack	0.22	118.1	x
Carson	D1439 No. 3 reformer	#3 Reformer	0.06	16.7	
Carson	No. 21 Crude Heater	#2 Crude	0.05	20.6	
Carson	No. 4 Crude Heater	#52 Vac	0.20	83.5	x
Carson	D151 No 1 Coker West	#1 Coker	0.04	15.0	e
Carson	D153 No. 1 Coker East	#2 Coker	0.03	12.6	e
Carson	D155 No. 2 Coker	#4 Crude	0.19	74.2	x
Carson	No. 52 Vacuum Heater	#2 Crude	0.07	19.1	
Carson	No. 22 Crude Heater	Midbarrel	0.04	15.0	e
Carson	D250 FCU Preheater	Isom	0.05	10.7	
Carson	D421 Midbarrel Feed Heater	Fluid Feed HDS	0.22	40.2	x
Carson	D423 Fluid Feed HDS Heater	FCC	0.13	6.6	
Carson	D419 Midbarrell Reboiler	#1 Reformer	0.19	25.1	x
Carson	D538 No. 1 Reformer Desulf	#2 Reformer	0.04	6.0	e

Key:

- x - Source likely to be controlled
- e - Source currently has NOx control equipment (ULNB and/or SCR)

Emission Data:

The methodology used to prepare the baseline data followed the principal of giving preference to CEMs data first, then stack test data, followed by emission factors, using the best data known to be available at the time.

Cherry Point

Appendix A Listing of Heaters and Boilers > 40 MMBTU/Hr Firing Capacity  
 Baseline NOx Emissions  
 Existing and Likely NOx Control Equipment

Location	Source	Unit	Baseline NOx Emissions (lb/MMBtu)	Annual NOx Emissions (tons/yr)	Control Equipment
Cherry Point	11-#1 Reformer Hrs	#1 Reformer	0.15	374.0	x
Cherry Point	10-Crude Heater	Crude Unit	0.20	466.0	
Cherry Point	21-#2 Reformer Heater	#2 Reformer	0.07	26.0	
Cherry Point	30- Utility Boiler #1	Utilities	0.53	188.0	x
Cherry Point	30- Utility Boiler #2	Utilities	0.53	198.0	x
Cherry Point	30- Utility Boiler #3	Utilities	0.53	182.0	x
Cherry Point	30- Utility Boiler #4	Utilities	0.07	27.0	
Cherry Point	14- Reforming Furnace Htr	Hydrogen Plant	0.10	96.0	
Cherry Point	14-Ref Furn #2 South	Hydrogen Plant	0.10	95.0	
Cherry Point	10-South Vacuum Htr	Crude Unit	0.17	127.0	
Cherry Point	12- N. Coker Htr	Coker	0.09	72.0	
Cherry Point	12- South Coker Htr	Coker	0.09	71.0	
Cherry Point	15-2nd Stg HC Frac Reboiler	Hydrocracker	0.35	166.0	x
Cherry Point	15-1st Stg HC Frac Reboiler	Hydrocracker	0.15	70.0	
Cherry Point	15-R1 Hydrocracker Reactor Htr	Hydrocracker	0.11	11.0	
Cherry Point	Unit 11 - NHDS Chg Htr	Naphtha HDS	0.11	26.0	
Cherry Point	Unit 11 - NHDS Stripper Reboiler	Naphtha HDS	0.11	12.0	
Cherry Point	15-R4 Hydrocracker Reactor Heater	Hydrocracker	0.11	19.0	
Cherry Point	10-N. Vacuum Htr	Crude Unit	0.08	14.0	
Cherry Point	13-OHDS Chg Htr	Diesel HDS	0.06	4.0	
Cherry Point	13-OHDS Stab Reboiler	Diesel HDS	0.06	13.0	

Key:

- x - Source likely to be controlled
- e - Source currently has NOx control equipment (ULNB and/or SCR)

Emission Data:

The methodology used to prepare the baseline data followed the principal of giving preference to CEMs data first, then stack test data, followed by emission factors, using the best data known to be available at the time.

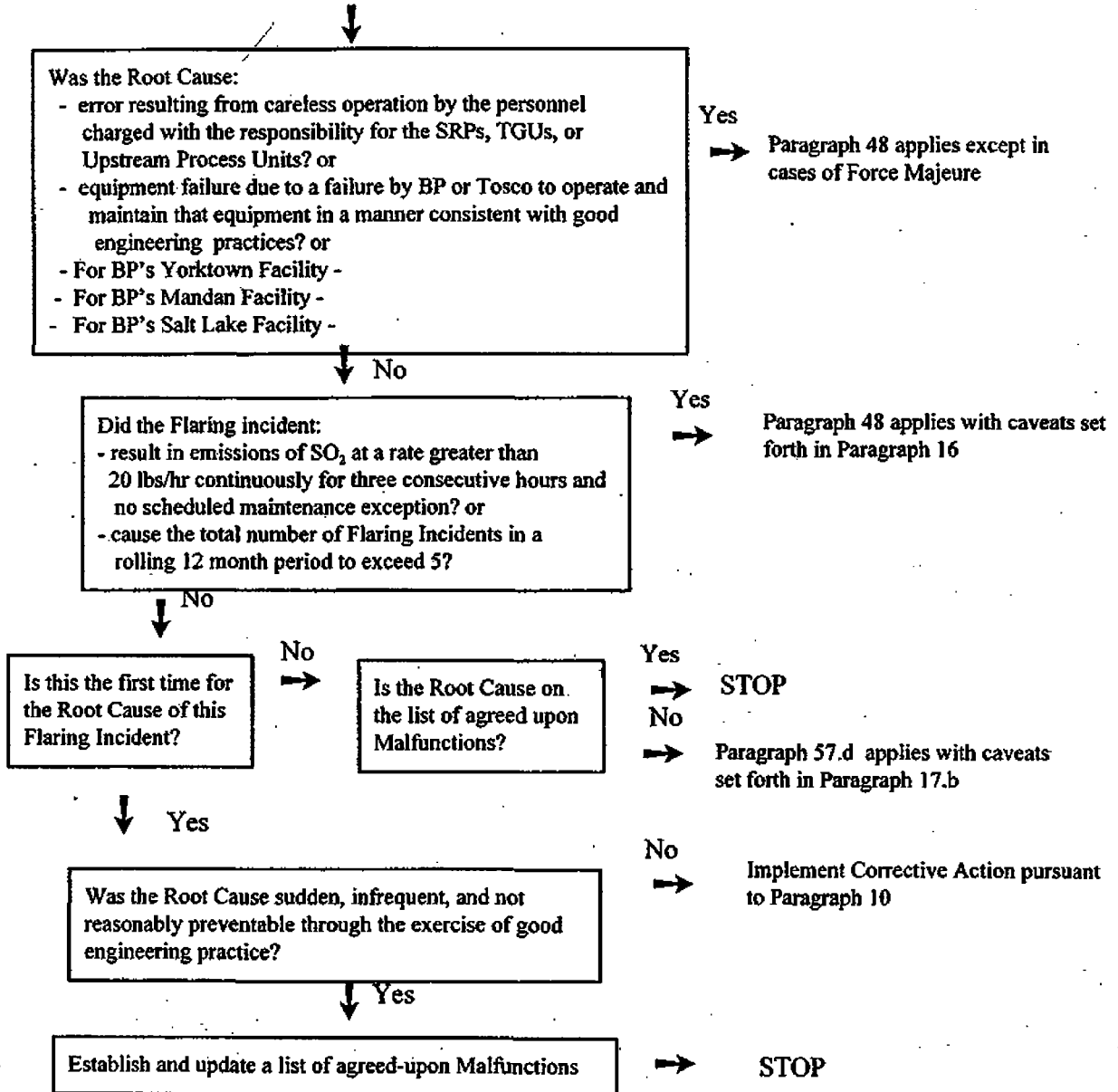
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**APPENDIX B**  
**[RESERVED]**

**APPENDIX C**  
**[RESERVED]**

**APPENDIX D**  
**(LOGIC DIAGRAM FOR PARAGRAPH 22)**

**ALL FLARING INCIDENTS**





**APPENDIX E**  
**PARAGRAPHS 14.D AND 16.A.v DESIGN AND OPERATING CRITERIA**

All air pollution control equipment designed pursuant to this appendix will be designed and built in accordance with accepted engineering practice and any regulatory requirements that may apply.

**I. Selective Catalytic Reduction (SCR)**

**A. Design Considerations**

**1. Catalyst**

- a. Type
- b. Size/Pitch
- c. Volume of Initial Charge
- d. Operating Life
- e. Periodic Mid-Run Replacement
- f. Complete Change Out Schedule

**2. Reactor**

- a. Reactor Volume
- b. Internal Configuration
- c. Location in Process Train
- d. Soot Blowers
- e. Pressure Drop

**3. Reductant Addition**

- a. Type (Anhydrous Ammonia, Aqueous Ammonia, or Urea)
- b. Reductant Addition Rates
- c. Diluent Type and Rate
- d. Flow Distribution Manifold
- e. Injection Grid / Nozzles

- i. Number
- ii. Size
- iii. Location
- iv. Controls
- g. Ammonia Slip

#### 4. Flue Gas Characteristics

- a. Inlet/Outlet NO<sub>x</sub> Concentration
- b. Flue Gas Volumetric Flow
- c. Inlet/Outlet Temperature Range
- d. Inlet/Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentrations
- e. Inlet/Outlet CO/H<sub>2</sub>O/O<sub>2</sub> Concentrations
- g. Inlet/Outlet Particulate/Ash Loading and Characteristics

#### 5. Efficiency

- a. Designed to Outlet NO<sub>x</sub> Concentration
- b. Designed to Efficiency

#### 6. Safety Considerations

### B. Operating Considerations

#### 1. Catalyst

- a. Periodic Mid-Run Replacement to Maintain Efficiency
- b. Complete Change Out

#### 2. Reactor

- a. Operation of Soot Blowers
- b. Pressure Drop

### 3. Reductant Addition

- a. Reductant Addition Rates
- b. Ammonia Slip

### 4. Flue Gas Characteristics

- a. Inlet/Outlet NO<sub>x</sub> Concentration
- b. Flue Gas Volumetric Flow
- c. Inlet/Outlet Temperature Range
- d. Inlet/Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentrations
- e. Inlet/Outlet CO/H<sub>2</sub>O/O<sub>2</sub> Concentrations
- g. Inlet/Outlet Particulate/Ash Loading and Characteristics

### 5. Efficiency

- a. Actual Outlet NO<sub>x</sub> Concentration
- b. Actual Removal Efficiency

### 6. Safety Considerations

## II. Selective Non-Catalytic Reduction

### A. Design Considerations

#### 1. Reductant Addition

- a. Type (Anhydrous Ammonia, Aqueous Ammonia, or Urea)
- b. Primary and Enhanced Reductant Addition Rates
- c. Diluent Type and Rate
- d. Flow Distribution Manifold
- e. Injection Grid / Nozzles
  - i. Number
  - ii. Size

iii. Location

iv. Controls

f. Ammonia Slip

**4. Flue Gas Characteristics**

a. Inlet/Outlet NO<sub>x</sub> Concentration

b. Flue Gas Volumetric Flow

c. Inlet/Outlet Temperature Range

d. Inlet/Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentrations

e. Inlet/Outlet CO/H<sub>2</sub>O/O<sub>2</sub> Concentrations

f. Inlet/Outlet Particulate/Ash Loading and Characteristics

**5. Efficiency**

a. Designed to Outlet NO<sub>x</sub> Concentration

b. Designed to Removal Efficiency

**6. Safety Considerations**

**B. Operating Considerations**

**1. Reductant Addition**

a. Reductant Addition Rates

b. Ammonia Slip

**2. Flue Gas Characteristics**

a. Inlet/Outlet NO<sub>x</sub> Concentration

b. Flue Gas Volumetric Flow

c. Inlet/Outlet Temperature Range

d. Inlet/Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentrations

- e. Inlet/Outlet CO/H<sub>2</sub>O/O<sub>2</sub> Concentrations
- f. Inlet/Outlet Particulate/Ash Loading and Characteristics

### 3. Efficiency

- a. Actual Outlet NO<sub>x</sub> Concentration
- b. Actual Removal Efficiency

### 6. Safety Considerations

## III. Wet Gas Scrubber

### A. Design Considerations

#### 1. Absorber Vessel

- a. Volume
- b. Dimensions
- c. Pressure Drop
- d. Internal Configuration
- e. Location in Process Train

#### 2. Scrubbing Liquor

- a. Type (Caustic or Lime)
- b. Scrubbing Liquor Blowdown/Makeup
- c. Scrubbing Liquor Circulation Rate
- d. Scrubbing Liquor pH

#### 3. Flue Gas Characteristics

- a. Inlet/Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentrations
- b. Flue Gas Volumetric Flow
- c. Inlet/Outlet Temperature Range

**d. Inlet/Outlet Particulate Loading and Characteristics**

**4. Efficiency**

- a. Designed to Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentration
- b. Designed to Removal Efficiency

**5. Safety Considerations**

**B. Operating Considerations**

**1. Scrubbing Liquor**

- a. Type (Caustic or Lime)
- b. Scrubbing Liquor/Caustic Blowdown/Makeup
- c. Scrubbing Liquor Circulation Rate
- d. Scrubbing Liquor pH

**2. Flue Gas Characteristics**

- a. Inlet/Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentrations
- b. Flue Gas Volumetric Flow
- c. Inlet/Outlet Temperature Range
- d. Inlet/Outlet Particulate Loading and Characteristics

**3. Efficiency**

- a. Actual Outlet SO<sub>2</sub>/SO<sub>3</sub> Concentration
- b. Actual Removal Efficiency

**4. Safety Considerations**

## APPENDIX F

### DETERMINING CATALYST ADDITIVE ADDITION RATES

#### **I. Low-NOx CO Promoter Usage for Carson FCCU, Texas City FCCU2 and FCCU3, and Whiting FCCU 500**

The routine usage of conventional CO promoter shall be optimized at the typical mix (i.e., based on historical usage) of conventional CO promoter activities, to minimize the usage, and eliminate over usage, of conventional CO promoter while retaining the basic effectiveness of CO promoter. Usage of low-NOx CO promoter shall replace usage of conventional CO promoter at the same rate as the established optimized rate of conventional CO promoter. The basic effectiveness of low-NOx CO promoter at the optimized rate shall be evaluated to determine whether the following basic criteria are met:

- Afterburn is controlled and regenerator temperature and CO levels are adequately maintained;
- Temperature excursions are brought under control adequately; and
- A measurable NOx reduction occurs.

If the low-NOx CO promoter cannot meet the basic criteria, its addition rate shall be increased up to a maximum of two times the optimized conventional CO promoter rate at the typical mix (i.e., based on historical usage) of conventional CO promoter activities. If at two times the optimized conventional CO promoter rate, the low-NOx CO promoter is not effective in meeting the basic criteria, the usage of the low-NOx CO promoter may be discontinued.

#### **II. NOx Adsorbing Catalyst Additive Addition Rates for Carson FCCU, Texas City FCCU1 and FCCU3, and Whiting FCCU 500**

Initial NOx adsorbing catalyst additive addition shall be 0.6 weight percent of total fresh catalyst addition rate (% additive to be determined on a monthly average basis). Once steady state has been achieved, the effect on NOx emissions of this rate shall be evaluated. NOx adsorbing catalyst additive addition shall be increased at increments of 0.2 weight percent of total fresh catalyst additions up to 2.0 weight percent, and, once steady state has been achieved for each increment, the effect on NOx emissions and annual cost shall be evaluated. If at any increment of NOx adsorbing catalyst addition, the total annualized cost-effectiveness of the NOx adsorbing catalyst additive used exceeds \$10,000 per ton of NOx removed, the NOx adsorbing catalyst additive addition rate used to determine the final emission limit shall remain at that level.

**III. SO<sub>2</sub> Adsorbing Catalyst Additive Addition Rates for Whiting FCCU 600, Yorktown FCCU, Carson FCCU, Texas City FCCU 2, Toledo FCCU**

For each FCCU required to use SO<sub>2</sub> adsorbing catalysts additive under Paragraphs 16.A. (interim limits) or 16.B. (final limits), the optimized addition rate for SO<sub>2</sub> adsorbing catalyst additive shall be as follows:

A. For Texas City FCCU 3, the lower of the following addition rates expressed as a monthly average:

- (1) the addition rate at which the FCCU meets 117 ppmvd SO<sub>2</sub> (at 0% O<sub>2</sub>) on a 365-day rolling average basis;
- (2) a maximum addition rate of 5.0% by weight of total fresh catalyst additions.

B. For Whiting FCU 500, the lower of the following addition rates expressed as a monthly average:

- (1) the addition rate at which the FCCU meets 117 ppmvd SO<sub>2</sub> (at 0% O<sub>2</sub>) on a 365-day rolling average basis;
- (2) a maximum addition rate of 7.5% by weight of total fresh catalyst additions.

C. For Carson FCCU, Texas City FCCU 2 and Toledo FCCU, the lower of the following addition rates expressed as a monthly average:

- (1) the addition rate at which the FCCU meets 25 ppmvd SO<sub>2</sub> (at 0% O<sub>2</sub>) on a 365-day rolling average basis in which case BP shall agree to accept a limit of 25 ppmvd SO<sub>2</sub> (at 0% O<sub>2</sub>) on a 365-day rolling average basis;
- (2) a maximum addition rate of 5.0% by weight of total fresh catalyst additions.

D. For Whiting FCU 600 and Yorktown FCCU, the minimum addition rate shall be the monthly average rate necessary to achieve an 80% reduction in uncontrolled SO<sub>2</sub> emissions (i.e., including the reduction achieved by any hydrotreating of the FCCU feed) on a 365-day rolling average basis. Notwithstanding the foregoing, the optimized SO<sub>2</sub> catalyst additive addition rate for Whiting FCU 600 and Yorktown FCCU shall be the lowest of the following addition rates expressed as a monthly average:



- (1) the addition rate at which the FCCU meets 25 ppmvd SO<sub>2</sub> (at 0% O<sub>2</sub>) on a 365-day rolling average basis in which case BP shall agree to accept a limit of 25 ppmvd SO<sub>2</sub> (at 0% O<sub>2</sub>) on a 365-day rolling average basis;
- (2) the addition rate at which BP demonstrates to EPA's satisfaction that increasing the addition rate by an additional 0.2% (by weight) of total fresh catalyst additions results in an incremental reduction of SO<sub>2</sub> of less than 2 lbs. SO<sub>2</sub> per pound of additive, but in no event less than 7.5% (by weight) of total fresh catalyst additions; or
- (3) a maximum addition rate of 10.0% by weight of total fresh catalyst additions, except that if the addition of SO<sub>2</sub> adsorbing catalyst additive at this maximum rate limits the FCCU feedstock processing rate or conversion capability in a manner that cannot be reasonably compensated for by the adjustment of other parameters, the maximum addition rate shall be reduced to a level at which the additive no longer interferes with the FCCU processing or conversion rate; provided, however, that in no case, shall the maximum addition rate be less than 7.5 weight percent.

E. For Mandan FCCU, the lower of the following addition rates expressed as a monthly average:

- (1) the addition rate at which the FCCU achieves a 50% reduction in uncontrolled SO<sub>2</sub> emissions; or
- (2) a maximum addition rate of 5.0% by weight of total fresh catalyst additions.

**APPENDIX G**

**ACID/SOUR WATER STRIPPER GAS FLARING DEVICES AND SRPS (AND ASSOCIATED COMPONENTS) CURRENTLY IN SERVICE**

**A. "Flaring Devices"**

1. Carson Refinery

- (a) The South Area Flare, designated by the South Coast Air Quality Management District as ID# C1302.
- (b) FCC Flare (Device ID #C1305)
- (c) Hydrocracker Flare (Device ID #C1308)

2. Cherry Point Refinery

- (a) the Low Pressure Flare, designated in the Refinery Washington State Emission report as emission point #17;
- (b) the High Pressure Flare designated in Refinery Washington State Emission report as emission point #18; and

3. Mandan Refinery

- (a) SRU Flare, designated by the North Dakota Department of Health (NDDH) as "Sulfur Recovery Unit Emergency Flare", source O
- (b) The Mandan CO Furnace, designated by the NDDH as "Heat Research CO Burning Crude Heater", source B

4. Salt Lake City Refinery

The Fuel Gas Desulfurization Unit/Sour Water Stripper (FGDU/SWS) flare, designated per Approval Order DAQE-008-00 by the State of Utah as PS#11

5. Texas City Refinery

- (a) SRU Torch No. 1, designated by the State of Texas in the permit as Emission Point Number (EPN) 381
- (b) SRU Torch No. 2, designated by the State of Texas in the permit as EPN 383

6. Whiting Refinery

The #2 SRU Flare designated by IDEM as permit #45-08-93-0575;

7. Yorktown Refinery

The Refinery main flare designated by the Virginia Department of Environmental Quality as Point No. 026;

**B. "Sulfur Recovery Plant" Components**

1. Carson Refinery

- (a) Process 13: Sulfur Recovery - System 1: Claus Sulfur Recovery Facility "A"
- (b) Process 13: Sulfur Recovery - System 2: Claus Sulfur Recovery Facility "B"
- (c) Process 13: Sulfur Recovery - System 3: Claus Sulfur Recovery Facility "C"
- (d) Process 13: Sulfur Recovery - System 4: Claus Sulfur Recovery Facility "D"
- (e) Process 13: Sulfur Recovery - System 5: Claus Tail Gas Treating Unit No. 2
- (f) Process 13: Sulfur Recovery - System 6: Thermal Oxidizers
- (g) Process 13: Sulfur Recovery - System 7: Claus Tail Gas Treating Unit;

2. **Cherry Point Refinery**

- (a) the Existing Sulfur Plant, composed of two trains, constructed under permit issued June 8, 1970 by the Northwest Air Pollution Authority;
- (b) the Existing Tail Gas Unit constructed under permit issued by Northwest Air Pollution Authority, on March 13, 1974; and
- (c) the Sulfur Incinerator, designated as emission point #16 in the Refinery Washington State Emission Report;

3. **Mandan Refinery**

The Claus Sulfur Recovery Unit installed pursuant to an August 1983 Permit to Construct issued by the North Dakota Department of Health;

4. For Salt Lake City Refinery, the Claus Sulfur Recovery Unit/Tail Gas Incinerator (SRU/TGI), (1 stack), designated per the Approval Order DAQE-008-00 by the State of Utah as PS #10;

5. **Texas City Refinery**

- (a) Claus Sulfur Recovery Units, designated A, B, C, and D
- (b) Scot Tail Gas Treatment Units, designated C and D
- (c) SRU Incinerators, designated C and D, vented to a single stack, designated by the State of Texas in the permit as Emission Point Number (EPN) 384;

6. **Whiting Refinery**

Three Claus trains; one Beavon Stretford tail gas treating unit commonly shared by the three Claus trains, and the standby incinerator; Designated by Indiana Department of Environmental Management as Permit # 45-08-93-0571

7. **Yorktown Refinery**

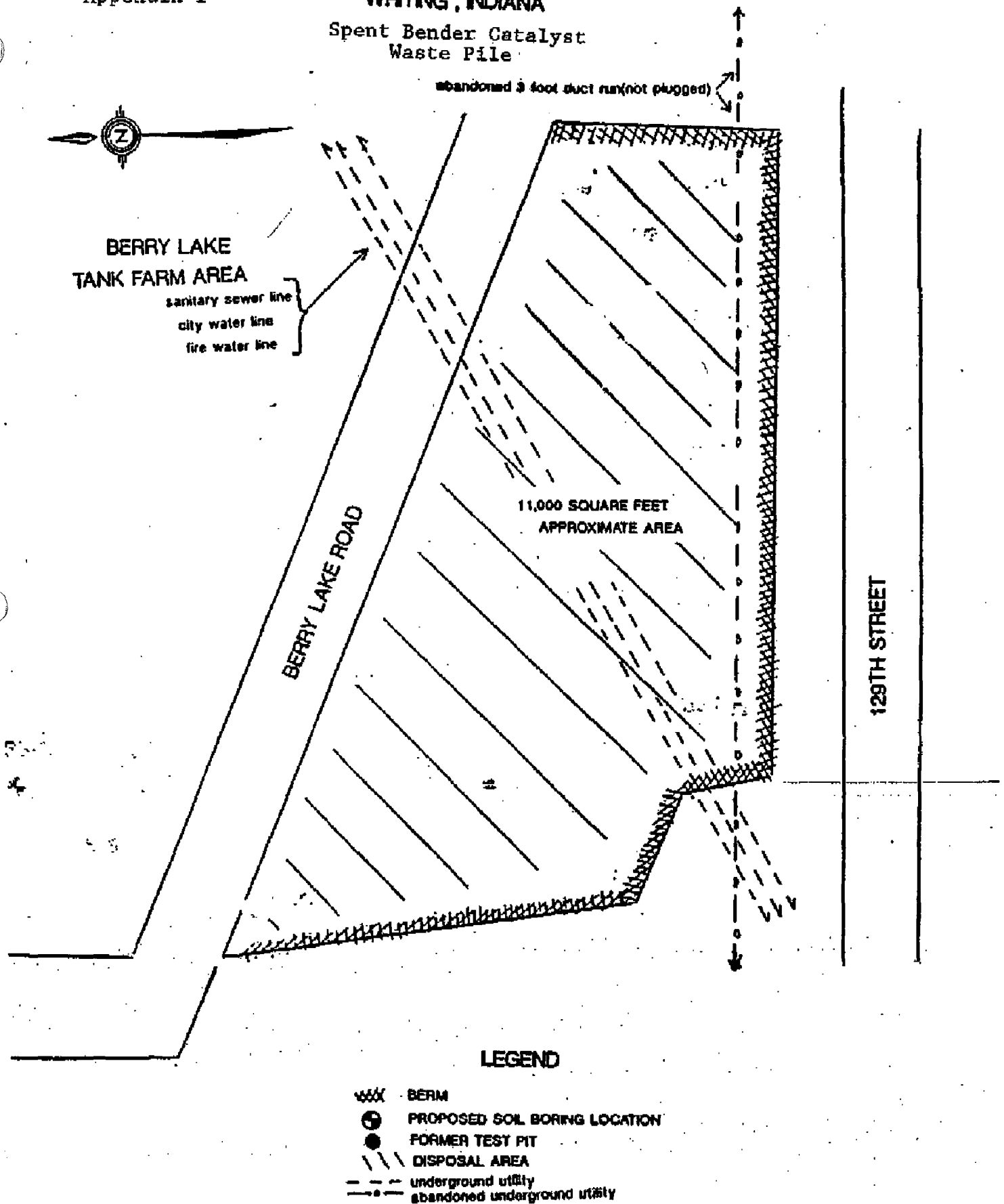
One Claus train designated by the Virginia Department of Environmental Quality as  
Point No. 007

**APPENDIX H**  
**SUSTAINABLE SKIP PERIOD MONITORING PROGRAM**

The following skip rules will apply in lieu of 40 C.F.R. § 63.168(d)(2) - (4) and 40 C.F.R. § 60.483-2(b)(2) - (3).

1. BP may move to less frequent monitoring on a unit-by-unit basis using the following criteria:
  - a. At process units that have less than 2 percent leaking valves for 2 consecutive months, the owner or operator shall monitor each valve once every quarter, beginning with the next quarter.
  - b. After 2 consecutive quarterly leak detection periods with the percent of leaking valves less than or equal to 1 percent, the owner or operator may elect to monitor each valve once every 2 quarters.
  - c. After 3 consecutive semi-annual leak detection periods with the percent of valves leaking less than or equal to 0.5 percent, the owner or operator may elect to monitor each valve once every 4 quarters.
  
2. BP must return to more frequent monitoring on a unit-by-unit basis using the following criteria:
  - a. If a process unit on a quarterly, semi-annual or annual monitoring schedule has a leak percentage greater than or equal to 2 percent in any single detection period, the owner or operator shall monitor each valve no less than every month, but can again elect to advance to less frequent monitoring pursuant to the schedule in 1, above.
  - b. If a process unit on a semi-annual or annual monitoring schedule has a leak percentage greater than or equal to 1 percent, but less than 2 percent in any single detection period, the owner or operator shall monitor each valve no less than quarterly, but can again elect to advance to less frequent monitoring pursuant to the schedule in 1, above.
  - c. If a process unit on an annual monitoring schedule has a leak percentage greater than or equal to 0.5 percent but less than 1 percent in any single detection period, the owner or operator shall monitor each valve no less than semi-annually, but can again elect to advance to less frequent monitoring pursuant to the schedule in 1, above.

AMOCO OIL REFINERY  
WHITING, INDIANA  
Spent Bender Catalyst  
Waste Pile



LEGEND

- XXXX BERM
- PROPOSED SOIL BORING LOCATION
- FORMER TEST PIT
- /// DISPOSAL AREA
- - - underground utility
- - - - - abandoned underground utility

## APPENDIX J

### WHITING REFINERY GOOD ENGINEERING PRACTICES TO INCREASE RELIABILITY OF EXISTING TGU

This appendix sets forth measures developed by BP to maximize reliability of the existing Tail Gas Unit ("TGU") with the objective of avoiding a planned shutdown of the TGU prior to the shut down necessary to tie in the supplemental TGU.

#### RELIABILITY OF EXISTING TGU

BP's Whiting Refinery has conducted Root Cause Failure Analyses ("RCFA") of past reliability problems encountered at the TGU. The primary failure mechanism is plugging of the T-502 Absorber Tower. Based on the RCFA process, BP has taken the following measures, which include both hardware changes and preventive maintenance practices:

1. Caustic Wash Procedures: Plugging in the T-502 absorber tower has historically resulted in loss of contacting performance in the absorber. Two root causes have been identified and addressed. First, the Whiting Refinery now implements hot, on-line caustic washing of the tower. Initially, the Refinery washed the tower approximately 12 times over a very short period of time. Now, as a preventive measure, the Refinery washes the tower approximately two times a week. This preventive maintenance has significantly reduced pressure drop across the tower and has improved contacting efficiency to near "start of run" performance.

Second, BP replaced the T-501 quench tower heat exchangers. A performance loss and high exit gas temperature had been contributing to the plugging in T-502.

2. Filter Press Solids Control: BP's Whiting Refinery has taken two steps to minimize the contribution of solids to the plugging of the T-502 reactor. First, the refinery has installed, and is in the process of starting up, a system for continuous liquid injection of Stretford catalyst to replace the bulk, solids addition system used historically. Second, the Refinery is experimenting with a system that filters the circulating solution to remove solids. The Refinery is also considering an alternative system designed to filter the sulfur froth prior to melting. This latter system would reduce the formation of solids.



IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF INDIANA  
HAMMOND DIVISION

UNITED STATES OF AMERICA, )  
 )  
Plaintiff, ) Civil No. 2:96 CV 095 RL  
 )  
and ) Judge Rudy Lozano  
 )  
THE STATE OF INDIANA, STATE OF OHIO, and )  
the NORTHWEST AIR POLLUTION AUTHORITY, )  
WASHINGTON, )  
 )  
Plaintiff-Intervenors, )  
 )  
v. )  
 )  
BP EXPLORATION & OIL CO., AMOCO OIL )  
COMPANY, and ATLANTIC RICHFIELD )  
COMPANY, )  
 )  
Defendants. )  
\_\_\_\_\_ )

**FIRST AMENDMENT TO CONSENT DECREE**

WHEREAS, the United States of America (hereinafter "the United States"); the State of Indiana, the State of Ohio, and the Northwest Pollution Control Authority of the State of Washington (hereinafter "Plaintiff-Intervenors"); and BP Exploration and Oil, Co., Amoco Oil Company, and Atlantic Richfield Company (hereinafter, collectively, "BP") are parties to a Consent Decree entered by this Court on August 29, 2001 (hereinafter "the Consent Decree"); and

WHEREAS, BP has agreed to sell and Tesoro Petroleum Corporation (hereinafter "Tesoro") has agreed to buy two of the refineries covered by that Consent Decree, to-wit: the Amoco Oil Company Refineries located at Mandan, North Dakota (hereinafter "the Mandan Refinery") and Salt Lake City, Utah (hereinafter "the Salt Lake City Refinery");

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WHEREAS, Tesoro has contractually agreed to assume the obligations of, and to be bound by the terms and conditions of, the Consent Decree as such obligations, terms and conditions relate to the Mandan Refinery and the Salt Lake City Refinery (hereinafter "the Transferred Refineries"); and

WHEREAS, the United States and Plaintiff-Intervenors agree that Tesoro has the financial and technical ability to assume the obligations and liabilities of the Consent Decree as they relate to the Transferred Refineries; and

WHEREAS, the United States, Plaintiff-Intervenors, BP and Tesoro desire to amend the Consent Decree to transfer to Tesoro the obligations, liabilities, rights and releases of the Consent Decree as it pertains to the Transferred Refineries and to release BP from its obligations and liabilities under the Consent Decree insofar as they relate to the Transferred Refineries;

WHEREAS, Paragraph 85 of the Consent Decree requires that this Amendment be approved by the Court before it is effective;

NOW THEREFORE, The United States, Plaintiff-Intervenors, BP and Tesoro hereby agree that, upon approval of this Amendment by the Court, the Consent Decree shall thereby be amended as follows:

1. Except as provided in Paragraph 2, of this Amendment, Tesoro Petroleum Corporation hereby assumes, and BP is hereby released from, all obligations and liabilities imposed by the Consent Decree on the Transferred Refineries, and the terms and conditions of the Consent Decree as they relate to the Transferred Refineries shall hereafter exclusively apply to, be binding upon, and be enforceable against Tesoro to the same extent as if Tesoro were specifically identified and/or named in those provisions of the Consent Decree.

2. Tesoro shall not be responsible for any portion of the Civil Penalty provided for in Section IX of the Consent Decree.

3. All references to "BP" in Subparagraphs 15. D., F., H, and I. shall be deemed to refer to "BP and Tesoro". All references to "BP" in Subparagraphs 15. G., K., and L shall be deemed to refer to "BP or Tesoro (as the case may be)". Subparagraph 15. J. does not apply to Tesoro.

4. Subparagraphs 15. A., B., C., and E. are hereby revised to read as follows:

A. BP shall install NOx emission control technology on certain specified heaters and boilers at its six refineries. Tesoro shall install NOx emission control technology on certain specified heaters and boilers at its two refineries. The heaters and boilers proposed for control by BP and Tesoro shall be selected in accordance with the requirements of this Paragraph.

B. i. BP shall select the heaters and boilers that shall be controlled at the Carson, Cherry Point, Texas City, Toledo, Whiting and Yorktown Refineries. The combined heat input capacity of the heaters and boilers selected by BP for future control, together with the heaters and boilers on which controls identified in Paragraph 15.D. have already been installed, must represent a minimum of 60.7% of the six refineries' heater and boiler heat input capacity in mmbTU for those heaters and boilers greater than 40 mmbTU/hr, which for purposes of the Consent Decree is represented to be approximately 36,605 mmbTU/hr across the six refineries. Further, not less than 30% of the heater and Boiler heat input capacity for heaters and boilers greater than 40 mmbTU/hr. at any individual refinery must be controlled in accordance with Paragraph 15.D.

ii. No later than January 18, 2005, BP shall complete installation of controls on heaters and boilers on at least 2/3 of the heat input capacity of the universe of the heaters and boilers to be controlled under Paragraph 15.B and 15.C, as amended herein. No later than January 18, 2005, BP shall propose a schedule for installation of the controls on the remaining heaters and boilers required to be controlled under Paragraph 15. B. i.

iii. Where BP affirmatively demonstrates to EPA's satisfaction that it is technically infeasible to install NOx controls for heaters/boilers to meet the 30% minimum requirement for any of its petroleum refineries, BP shall make up any shortfall by achieving NOx reductions corresponding to the shortfall from other sources at the refinery where the infeasibility was demonstrated, which may include external credit purchases in the same Air Quality Control Region.

C. i. Tesoro shall select the heaters and boilers that shall be controlled at the Mandan and Salt Lake City Refineries. The combined heat input capacity of the heaters and boilers selected by Tesoro for future control, together with the heaters and boilers on which controls identified in Paragraph 15.D. have already been installed, must represent a minimum of 35.8% of the two refineries' heater and boiler heat input capacity in mmBTU for those heaters and boilers greater than 40 mmBTU/hr, which for purposes of the Consent Decree is represented to be approximately 1,786 mmBTU/hr across the two refineries. Further, not less than 30% of the heater and boiler heat input capacity for heaters and boilers greater than 40 mmBTU/hr. at each individual refinery must be controlled in accordance with Paragraph 15.D.

ii. No later than January 18, 2005, Tesoro shall propose a schedule for installation of the controls on the heaters and boilers required to be controlled under Paragraph 15. C. i.

iii. Where Tesoro affirmatively demonstrates to EPA's satisfaction that it is technically infeasible to install NOx controls for heaters/boilers to meet the 30% minimum requirement for any of their petroleum refineries, Tesoro shall make up any shortfall by achieving NOx reductions corresponding to the shortfall from other sources at the refinery where the infeasibility was demonstrated, which may include external credit purchases in the same Air Quality Control Region.

E. i. Following installation of all controls required by Paragraph 15.C.i., BP shall demonstrate that the allowable emissions from the controlled heaters and boilers at the Carson, Cherry Point, Texas City, Toledo, Whiting and Yorktown Refineries satisfy the following inequality:

$$\sum_{i=1}^n (E_{\text{Final}})_i \leq \sum_{i=1}^n (E_{\text{Baseline}})_i - 9,384$$

Where:

$(E_{\text{Final}})_i$  = Permit allowable pounds of NOx per million Btu for heater or boiler i times the lower of permitted or maximum rated capacity in million Btu per hour for heater or boiler i;

and

$(E_{\text{Baseline}})_i$  = The ton per year actual emissions shown in Appendix A for controlled heater or boiler i.

ii. Following installation of all controls required by Paragraph 15.C.i., Tesoro shall demonstrate that the allowable emissions from the controlled heaters and boilers at the Mandan and Salt Lake City Refineries satisfy the following inequality:

$$\sum_{i=1}^n (E_{\text{Final}})_i \leq \sum_{i=1}^n (E_{\text{Baseline}})_i - 248$$

Where:

$(E_{\text{Final}})_i$  = Permit allowable pounds of NOx per million Btu for heater or boiler i times the lower of permitted or maximum rated capacity in million Btu per hour for heater or boiler i;

and

$(E_{\text{Baseline}})_i$  = The ton per year actual emissions shown in Appendix A for controlled heater or boiler i.

6. The references to "Paragraph 15.C." in Subparagraphs 15. D., F., G., H., and I. shall be deemed to refer to "Paragraphs 15. B. and C." as amended above.

7. The references to "Paragraph 15.C." in Subparagraph 15.L. shall be deemed to refer to "Paragraphs 15.B. or C. (as the case may be)" as amended above.

8. The references to "Paragraph 15.E." in Subparagraphs 15. D., H. and L. shall be deemed to refer to "Paragraphs 15.E.i. or 15.E.ii. (as the case may be)" as amended above.

9. Paragraph 82 is hereby amended to include the following information:

**As to Tesoro Petroleum Corporation:**

Mr. Robert L. Gronewold

Manager, Corporate Environmental Affairs -- Refining and Development  
Tesoro Petroleum Companies, Inc.  
3450 South 344<sup>th</sup> Way, Suite 100  
Auburn, WA 98001-5931

and

D. Jeffrey Haffner  
Attorney  
Tesoro Petroleum Companies, Inc.  
300 Concord Plaza Drive  
San Antonio, TX 78216-6999

10. The undersigned representatives are fully authorized to enter into the terms and conditions of this Amendment.

11. This Amendment may be executed in several counterparts, each of which will be considered an original.

**ORDER**

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:

ORDERED, ADJUDGED and DECREED that this Amendment to the Consent Decree is hereby approved and entered as a final order of this court.

Dated and entered this 2<sup>d</sup> day of Oct., 2001

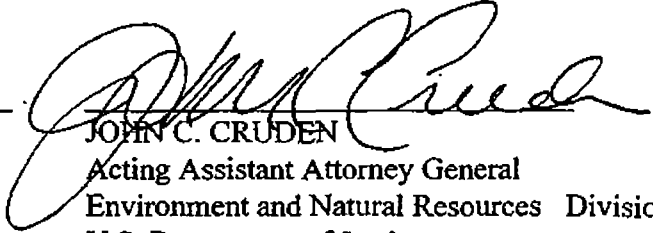
  
United States District Judge

WE HEREBY CONSENT to the foregoing Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

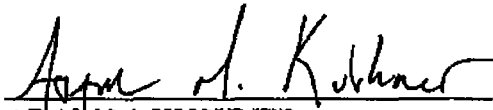
FOR PLAINTIFF THE UNITED STATES OF AMERICA

Date: \_\_\_\_\_

9/6/01



JOHN C. CRUDEN  
Acting Assistant Attorney General  
Environment and Natural Resources Division  
U.S. Department of Justice



ADAM M. KUSHNER  
Senior Counsel  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
(202) 514-4046

WE HEREBY CONSENT to the foregoing Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR DEFENDANTS BP EXPLORATION AND OIL CO., AMOCO OIL COMPANY,  
AND ATLANTIC RICHFIELD COMPANY

Date: 09/06/01


Neil R. Morris  
Neil R. Morris  
Manager, Mergers & Acquisitions



WE HEREBY CONSENT to the foregoing Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR TESORO PETROLEUM CORPORATION

Date: 09/06/01

  
James C. Reed, Jr.  
Executive Vice President, General Counsel  
and Secretary

WE HEREBY CONSENT to the foregoing Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF INDIANA

Date:

9/17/01


Charles J. Todd for

Charles J. Todd  
Chief Operating Officer  
Indiana Department of Environmental Management

WE HEREBY CONSENT to the foregoing Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF OHIO

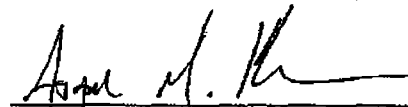
Date: 9/17/01

  
\_\_\_\_\_  
Bryan F. Zima  
Assistant Attorney General

WE HEREBY CONSENT to the foregoing Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE NORTHWEST AIR POLLUTION CONTROL AUTHORITY, A MUNICIPAL CORPORATION

Date: 9/17/01

  
Laughlan H. Clark, Esq., WSBA # 10996  
Visser, Zender & Thurston  
1700 D Street  
P.O. Box 5226  
Bellingham, WA 98227  
(360) 647-1500

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF INDIANA  
HAMMOND DIVISION

UNITED STATES OF AMERICA, )  
)  
Plaintiff, ) Civil No. 2:96 CV 095 RL  
)  
and ) Judge Rudy Lozano  
)  
THE STATE OF INDIANA, STATE OF OHIO, and )  
the NORTHWEST AIR POLLUTION AUTHORITY, )  
WASHINGTON, )  
)  
Plaintiff-Intervenors, )  
)  
v. )  
)  
BP EXPLORATION & OIL CO., ET AL. )  
)  
Defendants. )  
)  
)  
)  
)  
\_\_\_\_\_ )

**SECOND AMENDMENT TO CONSENT DECREE**

WHEREAS, the United States of America (hereinafter "the United States"); the State of Indiana, the State of Ohio, and the Northwest Pollution Control Authority of the State of Washington (hereinafter "Plaintiff-Intervenors"); and BP Exploration and Oil, Co., BP Products North America Inc., f/k/a Amoco Oil Company, and Atlantic Richfield Company (hereinafter, collectively, "BP") are parties to a Consent Decree entered by this Court on August 29, 2001 (hereinafter "the Consent Decree");

WHEREAS BP sold its Mandan and Salt Lake City Refineries to Tesoro Petroleum Corporation ("Tesoro") on September 6, 2001, and as a condition of that sale, Tesoro entered into the First Amendment To Consent Decree, which was approved and entered as a final order of the Court

on October 2, 2001, and which amendment modified the terms of the Consent Decree as provided therein (hereinafter "the First Amendment);

WHEREAS, BP has agreed to sell and Giant Yorktown, Inc., a Delaware corporation (hereinafter "Giant") has agreed to buy one of the refineries covered by that Consent Decree, to-wit: the BP Products North America Inc. f/k/a Amoco Oil Company Refinery located at Yorktown, Virginia (hereinafter "the Yorktown Refinery");

WHEREAS, Giant has contractually agreed to assume the obligations of, and to be bound by the terms and conditions of, the Consent Decree as such obligations, terms and conditions relate to the Yorktown Refinery; and

WHEREAS, the United States and Plaintiff-Intervenors agree, based on Giant's representations, that Giant has the financial and technical ability to assume the obligations and liabilities of the Consent Decree as they relate to the Yorktown Refinery; and

WHEREAS, the United States, Plaintiff-Intervenors, BP and Giant desire to amend the Consent Decree to transfer to Giant the obligations, liabilities, rights and releases of the Consent Decree as it pertains to the Yorktown Refinery and to release BP from its obligations and liabilities under the Consent Decree insofar as they relate to the Yorktown Refinery; and

WHEREAS, with respect to BP's Texas City, Texas Refinery, BP and the United States have identified and wish to correct an error in Paragraph 15 of the Consent Decree, which error does not affect any other Party to the Consent Decree; and

WHEREAS, each of the undersigned has reviewed and hereby consents to this Second Amendment; and

WHEREAS, Paragraph 85 of the Consent Decree requires that this Amendment be approved by the Court before it is effective;

NOW THEREFORE, the United States, Plaintiff-Intervenors, BP, Tesoro and Giant hereby agree that, upon approval of this Amendment by the Court, the Consent Decree shall thereby be amended as follows:

1. Except as provided in Paragraph 2 of this Amendment, Giant hereby assumes, and BP is hereby released from, all obligations and liabilities imposed by the Consent Decree on the Yorktown Refinery from the date lodging of the Consent Decree, and the terms and conditions of the Consent Decree as they relate to the Yorktown Refinery shall hereafter exclusively apply to, be binding upon, and be enforceable against Giant to the same extent as if Giant were specifically identified and/or named in those provisions of the Consent Decree from the date lodging of the Consent Decree.

2. Giant shall not be responsible for any portion of the civil penalty provided for in Section IX of the Consent Decree, which civil penalty the United States and Plaintiff-Intervenor State of Indiana hereby acknowledge has been paid in full.

3. Paragraph 3 of the First Amendment is hereby stricken and Paragraph 15 of the Consent Decree, as modified by Paragraph 4 of the First Amendment, is hereby further modified to read, in its entirety, as follows:

**15. NOx Emissions Reductions From Heaters and Boilers**

A. BP shall install NOx emission control technology on certain specified heaters and boilers at its Carson, Cherry Point, Texas City, Toledo and Whiting Refineries. Tesoro shall install NOx emission control technology on certain specified heaters and boilers at its Mandan and Salt Lake City Refineries. Giant shall install NOx emission control technology on certain specified heaters and boilers at its Yorktown Refinery. The heaters and boilers proposed for control by BP, Tesoro and Giant shall be selected in accordance with the requirements of this Paragraph.

B. i. BP shall select the heaters and boilers that shall be controlled at the Carson, Cherry Point, Texas City, Toledo and Whiting Refineries. The combined heat input capacity of the heaters and boilers selected by BP for future control, together with the heaters and boilers on which controls identified in Paragraph 15.E. have already been installed, must represent a minimum of 61.2 % of the five refineries' heater and boiler heat input capacity in mmBTU/hr for those heaters and boilers greater than 40 mmBTU/hr, which for purposes of the Consent Decree is represented to be approximately 38,216 mmBTU/hr across the five refineries. Further, not less than 30% of the heater and boiler heat input capacity for heaters and boilers greater than 40 mmBTU/hr at any individual refinery must be controlled in accordance with Paragraph 15.E. For purposes of this Paragraph, the phrase "heaters and boilers" shall include the turbines associated with sources PRS4-410 and PRS4-420 at BP's Texas City Refinery.

ii. No later than January 18, 2005, BP shall complete installation of controls on heaters and boilers at the Carson, Cherry Point, Texas City, Toledo and Whiting Refineries having a combined firing capacity of 16,238 mmBTU/hr heat input capacity. No later than January 18, 2005, BP shall propose a schedule for installation of the controls on the remaining heaters and boilers required to be controlled under Paragraph 15.B.i.

iii. Where BP affirmatively demonstrates to EPA's satisfaction that it is technically infeasible to install NOx controls for heaters/boilers to meet the 30% minimum requirement for any of its petroleum refineries, BP shall make up any shortfall by achieving NOx reductions corresponding to the shortfall from other sources at the refinery where the



infeasibility was demonstrated, which may include external credit purchases in the same Air Quality Control Region.

C. i. Tesoro shall select the heaters and boilers that shall be controlled at the Mandan and Salt Lake City Refineries. The combined heat input capacity of the heaters and boilers selected by Tesoro for future control, together with the heaters and boilers on which controls identified in Paragraph 15.E. have already been installed, must represent a minimum of 35.8% of the two refineries' heater and boiler heat input capacity in mmBTU for those heaters and boilers greater than 40 mmBTU/hr, which for purposes of the Consent Decree is represented to be approximately 1,786 mmBTU/hr across the two refineries. Further, not less than 30% of the heater and boiler heat input capacity for heaters and boilers greater than 40 mmBTU/hr at each individual refinery must be controlled in accordance with Paragraph 15.E.

ii. No later than January 18, 2005, Tesoro shall propose a schedule for installation of the controls on the heaters and boilers required to be controlled under Paragraph 15. C. i.

iii. Where Tesoro affirmatively demonstrates to EPA's satisfaction that it is technically infeasible to install NOx controls for heaters/boilers to meet the 30% minimum requirement for any of their petroleum refineries, Tesoro shall make up any shortfall by achieving NOx reductions corresponding to the shortfall from other sources at the refinery where the infeasibility was demonstrated, which may include external credit purchases in the same Air Quality Control Region.

D. i. Giant shall select the heaters and boilers that shall be controlled at the Yorktown Refinery. The combined heat input capacity of the heaters and boilers selected by

Giant for future control, together with the heaters and boilers on which controls identified in Paragraph 15.E. have already been installed, must represent a minimum of 33.3% of the Yorktown Refinery's heater and boiler heat input capacity in mmBTU for those heaters and boilers greater than 40 mmBTU/hr, which for purposes of the Consent Decree is represented to be approximately 935 mmBTU/hr.

ii. No later than January 18, 2005, Giant shall propose a schedule for installation of the controls on the heaters and boilers required to be controlled under Paragraph 15.D. i.

iii. Where Giant affirmatively demonstrates to EPA's satisfaction that it is technically infeasible to install NOx controls for heaters/boilers to meet the 33.3% minimum requirement, Giant shall make up any shortfall by achieving NOx reductions corresponding to the shortfall from other sources at the Yorktown Refinery, which may include external credit purchases in the same Air Quality Control Region.

E. BP, Tesoro and Giant shall select one or any combination of the following methods for control of NOx emissions from individual heaters or boilers selected by each company pursuant to Paragraphs 15. B., C. and D.:

- i. SCR or SNCR;
- ii. "current generation" or "next generation" ultra-low NOx burners;
- iii. other technologies which BP, Tesoro or Giant demonstrates to EPA's satisfaction;
- iv. permanent shutdown of heaters and boilers with revocation of all operating permits; or
- v. modification of operating permits to include federally enforceable requirements limiting operations to emergency situations (e.g. failure or inability of First Energy to supply steam to the Toledo Refinery; provided, however, that, any heater or boiler controlled under this provision shall not be counted toward satisfaction of the requirements of Paragraph 15. B., C. or D.,

but shall be counted in determining whether the requirements of Paragraph 15.F. are satisfied.

F. i. Following installation of all controls required by Paragraph 15.B.i., BP shall demonstrate that the allowable emissions from the controlled heaters and boilers at the Carson, Cherry Point, Texas City, Toledo and Whiting Refineries satisfy the following inequality:

$$\sum_{i=1}^n (E_{Final})_i \leq \sum_{i=1}^n (E_{Baseline})_i - 9,344$$

Where:

$(E_{Final})_i$  = Permit allowable pounds of NOx per million Btu for heater or boiler i times the lower of permitted or maximum rated capacity in million Btu per hour for heater or boiler i;

and

$(E_{Baseline})_i$  = The ton per year actual emissions shown in Appendix A for controlled heater or boiler i.

ii. Following installation of all controls required by Paragraph 15.C.i., Tesoro shall demonstrate that the allowable emissions from the controlled heaters and boilers at the Mandan and Salt Lake City Refineries satisfy the following inequality:

$$\sum_{i=1}^n (E_{Final})_i \leq \sum_{i=1}^n (E_{Baseline})_i - 248$$

Where:

$(E_{Final})_i$  = Permit allowable pounds of NOx per million Btu for heater or boiler i times the lower of permitted or maximum rated capacity in million Btu per hour for heater or boiler i;

and

$(E_{Baseline})_i$  = The ton per year actual emissions shown in Appendix A for controlled heater or boiler i.

iii. Following installation of all controls required by Paragraph 15.D.i., Giant shall demonstrate that the allowable emissions from the controlled heaters and boilers at the Yorktown Refinery satisfy the following inequality:

$$\sum_{i=1}^n (E_{\text{Final}})_i \leq \sum_{i=1}^n (E_{\text{Baseline}})_i - 40$$

Where:

$(E_{\text{Final}})_i$  = Permit allowable pounds of NOx per million Btu for heater or boiler  $i$  times the lower of permitted or maximum rated capacity in million Btu per hour for heater or boiler  $i$ ;

and

$(E_{\text{Baseline}})_i$  = The ton per year actual emissions shown in Appendix A for controlled heater or boiler  $i$ .

G. BP, Tesoro or Giant (as the case may be) shall receive a premium of 1.5 times the mmBTU/hr for each of the heaters and boilers for which it elects to install next generation ultra-low NOx burners to meet the applicable percent control requirements of Paragraphs 15.B., C. and D.

H. i. Appendix A to this Consent Decree provides the following information for each of the eight refineries subject to this Consent Decree: (a) a listing of all heaters and boilers with firing capacities greater than 40 mmBTU/hr; (b) the baseline actual emission rates in lbs/mmBTU and tons per year; and (c) BP's, initial identification of the heaters and boilers that are either already controlled or are likely to be controlled in accordance with Paragraphs 15. B, C. or D., as the case may be.

ii. Within ninety (90) days of the Date of Lodging, BP shall provide EPA with an updated version of Appendix A identifying the heaters and boilers that are expected to be controlled in calendar year 2001. To the extent known at the time, this update shall also include, for each heater or boiler expected to be controlled during calendar year 2001, the following information:

- a. The baseline actual emission rate in lbs/mmBTU, and the basis for that estimate,
- b. The actual firing rate used in the baseline calculation and the averaging period used to determine the firing rate;
- c. The proposed NOx emission control technology to be installed on each such heater or boiler;
- d. The projected allowable emission rate in lbs/mmBTU, tons per year, and the basis for that projection.

BP shall expeditiously begin installation of controls on the heaters and boilers identified in this update.

iii. On or before December 31, 2001 (December 31, 2002 for Giant), and on or before December 31 of each subsequent year until the relevant Company has installed all controls required by Paragraphs 15.B., C. or D., as applicable, BP, Tesoro and Giant shall each provide EPA with further updates of the portions of Appendix A applicable to the refineries owned by such Company ("the Annual Heater and Boiler Update Report). Each such Annual Heater and Boiler Update Report shall include the following:

- a. For each heater and boiler on which controls specified in Paragraph 15.E. have already been installed, the NOx emission control technology installed, the measures NOx emission rate in lbs/mmBTU, and the method by which that emission rate was determined;

- b. An identification of the additional heaters and boilers on which controls meeting the requirements of Paragraph 15.E. are expected to be installed in the next calendar year, and, insofar as known at the time the report is prepared, the proposed NOx emission control technology to be installed on each such heater and boiler, the projected emission rate in lbs/mmBTU, and the basis for that projection;
- c. The additional heaters and boilers on which controls are expected to be installed in the future years in order to meet the applicable requirements of Paragraph 15. B., C, or D., as applicable;
- d. A demonstration that control of the heaters and boilers identified pursuant to subparagraphs (a) – (c) above meet the applicable requirements of Paragraph 15. B., C, or D., as applicable; and
- e. An estimate of annual emissions, demonstrated through statistically significant random sampling, of the remaining heaters and boilers identified in the applicable portions of Appendix A that are not anticipated to be controlled pursuant to the requirements of this Paragraph.

I. Within ninety (90) days of the date of installation of each control technology for which BP, Tesoro or Giant seeks recognition under Paragraph 15.B., C. or D. as the case may be), BP, Tesoro or Giant (as the case may be) shall conduct an initial performance test for NOx and CO. In addition, BP shall install, operate, and calibrate a NOx CEMS on the thirty-two (32) largest heaters/boilers being controlled under this Paragraph that did not have NOx CEMS as of August 29, 2001; Tesoro shall install, operate, and calibrate a NOx CEMS on the two (2) largest heaters/boilers being controlled under this Paragraph that did not have

NOx CEMS as of August 29, 2001; and Giant shall install, operate, and calibrate a NOx CEMS on the one (1) largest heater/boiler being controlled under this Paragraph that did not have NOx CEMS as of August 29, 2001.

J. Upon installation of controls for which BP or Giant (as the case may be) seeks recognition under Paragraph 15. B. or D. on any boiler greater than 100 mmBTU/hr that is not equipped with a CEMS, BP and Giant shall monitor performance of those controls in accordance with the monitoring plan entitled "Heater and Boiler Monitoring Plan" submitted by BP on November 20, 2001 as finally approved by EPA. Upon installation of controls for which Tesoro seeks recognition under Paragraph 15. C. on any boiler greater than 100 mmBTU/hr that is not equipped with a CEMS, Tesoro shall monitor performance of those controls in accordance with the monitoring plan entitled "NOx Emission Reductions From Heaters and Boilers: Monitoring Plan" submitted by Tesoro on November 20, 2001, as finally approved by EPA. Nothing in this Paragraph shall be construed to preclude BP, Tesoro or Giant from seeking EPA approval of modifications to such monitoring plans, provided that any such modified plan shall include, at a minimum, excess air or combustion O<sub>2</sub>, air preheat temperature where applicable, and burner preventative maintenance monitoring.

K. BP shall demonstrate "next generation" ultra low-NOx burners so as to achieve 10 ppmvd (at 0% oxygen) NOx levels on Coker B-203 heater at the Texas City Facility. BP shall demonstrate next generation ultra low-NOx burners, as defined above, for a six (6) month demonstration period beginning no later than six (6) months after the Date of Lodging of the Consent Decree. BP shall operate the new burners to achieve the lowest feasible emissions of NOx. BP shall monitor performance of the heater with next generation technology by use of a CEMS, and shall report emissions results on a monthly basis no later

than thirty (30) days following the month in which the monitoring occurred. BP shall prepare a written evaluation of the next generation low-NOx burner demonstration, which shall include a discussion of effectiveness, economic and technical feasibility, and identification of the cost of installation. BP shall submit its report to EPA no later than sixty (60) days after completion of the six-month demonstration. BP shall not submit a claim of "Confidential Business Information" covering any aspect of the report, and acknowledges that the information in the report, and perhaps the report itself, will be made available for public distribution.

L. The requirements of this Paragraph do not exempt BP, Tesoro or Giant from complying with any and all Federal, state and local requirements which may require technology upgrade based on actions or activities occurring after the Date of Entry of the Consent Decree.

M. If BP or Tesoro proposes to transfer ownership of any refinery subject to Paragraphs 15. B. or C. and F. before the requirements of those paragraphs have been met, BP or Tesoro (as the case may be) shall notify EPA of that transfer and shall submit a proposed allocation to that refinery of its share of the control percentage and tonnage reduction requirements of those Paragraphs that will apply individually to that refinery after such transfer. EPA shall approve that allocation so long as it ensures that the overall requirements of applicable portions of Paragraphs 15. B. or C. and F. are satisfied.

4. Paragraph 82 of the Consent Decree is hereby amended to include the following information:

As to Giant:

Carl D. Shook



Executive Vice President  
Giant Industries, Inc.  
23733 North Scottsdale Road  
Scottsdale, AZ 85255

and

Kim B. Bullerdick  
Vice President and General Counsel  
Giant Industries, Inc.  
23733 North Scottsdale Road  
Scottsdale, AZ 85255

The undersigned representatives are fully authorized to enter into the terms and conditions of this Second Amendment. This Second Amendment may be executed in several counterparts, each of which will be considered an original.

**ORDER**

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:

ORDERED, ADJUDGED and DECREED that the foregoing Second Amendment to the Consent Decree is hereby approved and entered as a final order of this court.

Dated and entered this 7 day of June, 2002

  
United States District Judge

WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR PLAINTIFF THE UNITED STATES OF AMERICA

Date: 4.26.02

Tom Sansonetti  
THOMAS L. SANSONETTI  
Assistant Attorney General  
Environment and Natural Resources Division  
U.S. Department of Justice

Adam M. Kushner  
ADAM M. KUSHNER  
Senior Counsel  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
(202) 514-4046

~~WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.~~

~~FOR DEFENDANTS BP EXPLORATION AND OIL CO., AMOCO OIL COMPANY n/d/b/a BP PRODUCTS NORTH AMERICA INC., AND ATLANTIC RICHFIELD COMPANY~~


~~Date: \_\_\_\_\_  
Neil R. Morris~~

~~\_\_\_\_\_  
Manager, Mergers & Acquisitions~~

WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR DEFENDANTS BP EXPLORATION AND OIL CO., AMOCO OIL COMPANY  
n/d/b/a BP PRODUCTS NORTH AMERICA INC., AND ATLANTIC RICHFIELD  
COMPANY

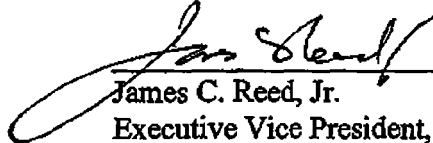
Date: \_\_\_\_\_

  
\_\_\_\_\_  
Neil R. Morris  
Manager, Mergers & Acquisitions

WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR TESORO PETROLEUM CORPORATION

Date: \_\_\_\_\_

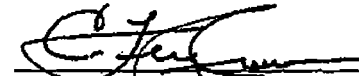
  
\_\_\_\_\_  
James C. Reed, Jr.  
Executive Vice President, General Counsel  
and Secretary

AJW

WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR Giant Yorktown, Inc.,


Date: 11/14/2002

  
~~Carl D. Shook~~  
C. LEROY CROW

WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF INDIANA

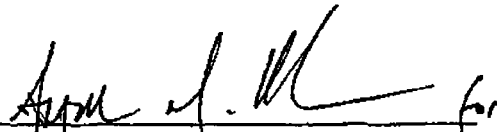
Date: 5-20-02

  
\_\_\_\_\_  
Charles J. Todd  
Chief Operating Officer  
Indiana Department of Environmental Management

WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF OHIO

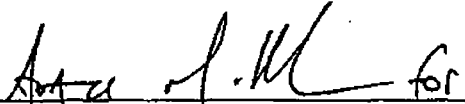
Date: 5-20-02

  
\_\_\_\_\_  
Brian F. Zima  
Assistant Attorney General

WE HEREBY CONSENT to the foregoing Second Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

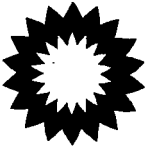
FOR THE NORTHWEST AIR POLLUTION CONTROL AUTHORITY OF THE STATE OF WASHINGTON

Date: 5-20-02

  
Laughlin H. Clark, Esq. WSBA # 10996  
Visser Zender & Thurson  
1700 D Street  
P. O. Box 5226  
Bellingham WA 98227  
(360) 647-1500



bp



James A. Nolan, Jr.  
Managing Attorney

**BP America Inc.**  
**BP Legal**  
MC 4 West; Cantera III  
4101 Winfield Road  
Warrenville, IL 60555  
630-821-2276  
Facsimile: 630-821-3406  
e-mail: nolanj@bp.com

April 25, 2003

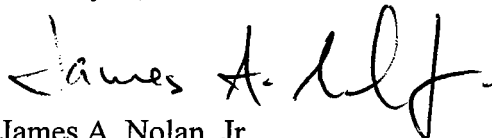
Re: United States, et.al. v. BP Exploration & Oil, et. al.  
Northern District of Indiana, Hammond Division  
Civil Action No. 2:96 CV 095 RL

To Parties on Attached Service List:

Pursuant to paragraph 83 of the referenced decree, I hereby notify the parties to the Decree that my address and phone number have changed as of March 31, 2003. My email address remains the same. Please direct all future correspondence to me at the following address:

James A. Nolan, Jr.  
Managing Attorney  
BP America Inc.  
4101 Winfield Road  
Cantera III, MC 4 West  
Warrenville, IL 60555

Thank you,



James A. Nolan, Jr.

JAN/ml

April 25, 2003

**CERTIFICATE OF SERVICE**

The undersigned certifies that a true and correct copy of Change of Address letter dated April 25, 2003, was served by enclosing same in envelopes properly addressed with postage fully prepaid, and by depositing said envelopes in a U.S. Post Office Mail Box on the 25th day of April, 2003; service was made in this manner upon the following person(s) at the accompanying address(es):

Director, Air Enforcement Division  
Office of Regulatory Enforcement  
U.S. Environmental Protection Agency  
Ariel Rios Building  
Mail Code 2242-A  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460-0001

Director, Air Enforcement Division  
U.S. Environmental Protection Agency  
c/o MATRIX Environmental & Geotechnical Services  
215 Ridgedale Ave.  
Florham Park, NJ 07932

Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611, Ben Franklin Station  
Washington, D.C. 2004-7611

United States Attorney  
Northern District of Indiana  
Assistant United States Attorney  
1001 Main Street  
Suite A  
Dyer, Indiana 46311

Felicia A. Robinson  
Assistant Commissioner  
Office of Enforcement  
Indiana Department of Environmental Management  
100 N. Senate  
P.O. Box 6015  
Indianapolis, IN 46206-6015

April 25, 2003

Steve Griffin, Esq.  
Assistant Attorney General  
Office of the Attorney General  
Indiana Government Center  
402 North Washington Street, 5th Floor  
Indianapolis, IN 46204

Valerie Lagen  
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Mt. Vernon, WA 98273-5202

Laughlan H. Clark  
Attorney for Northwest Air Pollution Authority  
Visser, Zender & Thurston  
1700 D Street  
P. O. Box 5226  
Bellingham, WA 98227

Joseph P. Koncelik  
Deputy Director of Legal Affairs  
Ohio Environmental Protection Agency  
122 South Front Street, Columbus, Ohio 43215

James Orlemann  
Division of Air Pollution Control  
Ohio Environmental Protection Agency  
122 South Front Street  
Columbus, OH 43215

Bryan F. Zima, Esq.  
Assistant Attorney General  
Office of the Attorney General  
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Columbus, OH 43215

Robert Weldzius  
Project Sunshine Program Manager  
BP Corporation  
215 Shuman Boulevard, W4  
Naperville, IL 60563

D. Jeffrey Haffner, Esq.  
Tesoro Petroleum Companies, Inc.  
300 Concord Plaza Drive  
San Antonio, TX 78216-6999

April 25, 2003

David Kirby, Esq.  
Giant Industries, Inc.  
23733 N. Scottsdale Rd.  
Scottsdale, AZ 85255

*Melody Lach*

---

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF INDIANA  
HAMMOND DIVISION

**FILED**

OCT 18 2004

At \_\_\_\_\_ M  
STEPHEN R. LUDWIG, Clerk  
U.S. DISTRICT COURT

UNITED STATES OF AMERICA, )  
 )  
Plaintiff, )  
 )  
And )  
 )  
THE STATE OF INDIANA, STATE OF OHIO, and )  
the NORTHWEST AIR POLLUTION AUTHORITY, )  
WASHINGTON, )  
 )  
Plaintiff- Intervenors, )  
 )  
v. )  
 )  
BP EXPLORATION & OIL Co., ET AL. )  
 )  
Defendants. )  
 )  
\_\_\_\_\_ )

Civil No. 2:96 CV 095 RL NORTHERN DISTRICT OF INDIANA

Judge Rudy Lozano

**THIRD AMENDMENT TO CONSENT DECREE**

WHEREAS, the United States of America (hereinafter "the United States"); the State of Indiana, the State of Ohio, and the Northwest Air Pollution Authority of the State of Washington (hereinafter "Plaintiff-Intervenors"); and BP Products North America Inc., successor in interest to BP Exploration and Oil, Co., Amoco Oil Company, and Atlantic Richfield Company (hereinafter "BP") are parties to a Consent Decree entered by this Court on August 29, 2001 (hereinafter "the Consent Decree");

WHEREAS, BP sold its Mandan and Salt Lake City Refineries to Tesoro Petroleum Corporation (hereinafter "Tesoro") on September 6, 2001, and as a condition of that sale, Tesoro entered into the First Amendment to Consent Decree, which was approved and

entered as a final order of the Court on October 2, 2001, and which amendment modified the terms of the consent Decree as provided (hereinafter "the First Amendment");

WHEREAS, BP sold its Yorktown Refinery to Giant Yorktown, Inc. (hereinafter "Giant") on May 14, 2002, and as a condition of that sale, Giant entered into the Second Amendment to Consent Decree, which was approved and entered as a final order of the Court on June 7, 2002, and which amendment modified the terms of the consent Decree as provided (hereinafter "the Second Amendment");

WHEREAS, BP has agreed to sell and Praxair, Inc., a Delaware corporation (hereinafter "Praxair") has agreed to buy certain existing hydrogen production equipment located at the BP Texas City, Texas Refinery more specifically described in Attachment 1 hereto (hereinafter referred to as HU-1);

WHEREAS, Paragraph 6 of the Consent Decree requires that BP condition any transfer, in whole or in part, of ownership of the refineries that are subject of the Consent Decree upon the execution by the transferee of a modification to the Consent Decree, making the terms and conditions of the Consent Decree that apply to such refinery applicable to the transferee:

WHEREAS, Praxair has contractually agreed to assume the obligations, rights and benefits, and to be bound by the terms and conditions of the Consent Decree as it applies to HU-1;

WHEREAS, HU-1 includes an existing process heater designated by the Texas Commission on Environmental Quality ("TCEQ") as emission point number 231, also referred to as HU1-101B;

WHEREAS, the United States and Plaintiff-Intervenors agree that Praxair has the financial and technical ability to assume the obligations and liabilities of the Consent Decree as they relate to HU-1;

WHEREAS, the United States, Plaintiff-Intervenors, BP and Praxair desire to amend the Consent Decree to release BP from all obligations and liabilities under the Consent Decree insofar as they relate to HU-1 and to transfer certain of those obligations to Praxair;

WHEREAS, since HU-1 is subject to TCEQ Air Quality Permit No. 19297, issued September 4, 2002, which mandates that HU-1 use either pipeline-quality natural gas or refinery fuel gas that complies with 40 C.F.R. Part 60 Subpart J (NSPS for Fuel Gas Combustion Units), the United States and the Plaintiff Intervenors agree that it is unnecessary to make the Consent Decree requirements related to sulfur emissions from heaters and boilers applicable to HU-1;

WHEREAS, BP and Praxair represent that HU-1 does not currently include any components that have the potential to leak volatile organic compounds or hazardous pollutants, as defined by 40 C.F.R. Part 60, Subpart GGG, and 40 C.F.R. Part 63, Subpart CC and that BP did not identify any of the components located within HU-1 as subject to LDAR during the audits required by Paragraph 20.C; and, therefore, is not currently subject to any federal Leak Detection and Repair (LDAR) program requirements and, as a result of such representation, the United States and the Plaintiff Intervenors agree that it is unnecessary to make the Consent Decree requirements of Paragraph 20 as they relate to enhanced LDAR applicable to HU-1;

WHEREAS, BP and Praxair represent that HU-1 has only one flare, which is not identified as a Flaring Device, as defined in the consent decree and as listed in Appendix G of the Consent Decree or any revisions of Appendix G; and based on that representation, the United

States and the Plaintiff-Intervenors agree that it is unnecessary to make the acid gas flaring incident requirements of the Consent Decree in Paragraph 22 applicable to HU-1;

WHEREAS, BP and Praxair represent that HU-1 does not include any waste streams or equipment subject to the Benzene NESHAP, 40 C.F.R. part 61, Subpart FF, and based on this representation, the United States and the Plaintiff-Intervenors agree that the enhanced Benzene NESHAP requirements of the Consent Decree in Paragraph 19 do not apply to HU-1;

WHEREAS, the provisions of this Amendment have no impact on any Party to the Consent Decree other than the signatories hereto; and

WHEREAS, Paragraph 85 of the Consent Decree requires that this Amendment be approved by the Court before it is effective;

NOW THEREFORE, upon approval of this Amendment by the Court, the Consent Decree shall be amended as follows:

1. Subparagraphs B.i. and F.i. of Paragraph 15 of the Consent Decree, as modified and restated by the Second Amendment To Consent Decree, are hereby further modified to read as follows:

\*\*\*\*\*

**15. NOx Emissions Reductions From Heaters and Boilers**

B. i. BP shall select the heaters and boilers that shall be controlled at the Carson, Cherry Point, Texas City, Toledo, and Whiting Refineries. The combined heat input capacity of the heaters and boilers selected by BP for future control, together with the heaters and boilers on which controls identified in Paragraph 15.E. have already been installed, must represent a minimum of 23,038 MMBtu of the five refineries' heaters and boilers greater than 40 MMBtu/hr. Further, not less than 30% of the heater and boiler



heat input capacity for heaters and boilers greater than 40 MMBtu/hr at any individual refinery must be controlled in accordance with Paragraph 15.E. For purposes of this Paragraph, the phrase "heaters and boilers" shall include the turbines associated with sources PRS4-410 and PRS4-420 at BP's Texas City Refinery.

\* \* \* \*

F. i. Following installation of all controls required by Paragraph 15.B.i., BP shall demonstrate that the allowable emissions from the controlled heaters and boilers at the Carson, Cherry Point, Texas City, Toledo and Whiting Refineries satisfy the following inequality:

$$\sum_{i=1}^n (E_{\text{Final}})_i = \sum_{i=1}^n (E_{\text{Baseline}})_i - 9,290$$

Where:

$(E_{\text{Final}})_i$  = Permit allowable pounds of NOx per million Btu for heater or boiler i times the lower of permitted or maximum rated capacity in million Btu per hour for heater or boiler i;

and

$(E_{\text{Baseline}})_i$  = The tons per year of actual emissions shown in Appendix A for controlled heater or boiler i.

2. New Subparagraph N of Paragraph 15 of the Consent Decree, as modified and restated by the Second Amendment To Consent Decree, is hereby added to read as follows:

\*\*\*\*\*

N.i. No later than December 31, 2008, Praxair shall either shut down the existing process heater designated by the Texas Commission on Environmental Quality ("TCEQ") as emission point number 231 (hereinafter "HU1-101B") or install SCR technology and a NOx continuous emission monitoring system on HU1-101B at the HU-1 Facility and limit NOx emissions from HU1-101B to no more than 0.015 lbs/MMBtu on an annual average. This emission limit equates to an allowable mass emissions rate of 23 tons per year given the design firing rate of 350 MMBtu/hr. For purposes of Paragraph 27 of the Consent Decree, the reduction in NOx emissions from HU1 down to 23 tons per year shall be considered to be a reduction required by the Consent Decree and shall not be used for purposes of netting or offset credits.

ii. Within ninety (90) days of the date of installation of the SCR technology on HU1-101B, Praxair shall conduct an initial performance test for NOx and CO.

iii. The requirements of this Paragraph do not exempt Praxair from complying with any and all Federal, state, and local requirements which may require technology upgrade based on actions or activities occurring after the Date of Entry of the Consent Decree.

iv. The requirements of this Paragraph shall apply to any and all successors in interest that own or operate HU-1. Effective from the Date of Entry of this Amendment to the Consent Decree until its termination, Praxair shall give written notice of the Consent Decree to any successors in interest prior to transfer of ownership or operation of HU-1 and shall provide a copy of the Consent Decree to any successor in interest. Praxair shall notify the United States in accordance with the notice provisions

set forth in Paragraph 82, of any successor in interest at least thirty (30) days prior to any such transfer.

v. If Praxair uses fuel gas which does not comply with 40 C.F.R. Part 60, Subpart J, at any time before the expiration of the Consent Decree, Praxair agrees to immediately comply with the requirements, including the limits, for the sulfur emissions as they relate to heaters and boilers applicable to HU-1 contained in Paragraph 17.

vi. If Praxair places any of the components contained within HU-1 into VOC service, as defined in 40 C.F.R. Part 60, Subpart GGG and/or 40 C.F.R. Part 63, Subpart CC, at any time before the expiration of the Consent Decree, Praxair agrees to immediately comply with the LDAR requirements contained in Paragraph 20 of the Consent Decree for components in VOC service.

3. Paragraph 26 of the Consent Decree, is hereby further modified to read as follows:

26. Operation

A. As soon as practicable following the Date of Lodging of the Consent Decree, but in no event later than twelve (12) months following the Date of Lodging, BP shall submit applications to incorporate the emissions limits and schedules set out in Paragraphs 14 – 18 and 21 of this Consent Decree into the minor or major new source review permits or other permits (other than Title V permits) which are federally enforceable and, upon issuance of such permits shall file any applications necessary to incorporate the requirements of those permits into the Facility's Title V permit. As soon as practicable, but in no event later than thirty (30) days after the establishment of any emission limitations under Paragraphs 14, 15, 16 and 21 of the Consent Decree, BP shall

submit applications to incorporate those incorporate the emissions limits into the minor or major new source review permits or other permits (other than Title V permits) which are federally enforceable and, upon issuance of such permits shall file any applications necessary to incorporate the requirements of those permits into the Facility's Title V permit. The parties agree that incorporation of the requirements of this Decree into Title V permits may be by "administrative amendment" under 40 C.F.R. 70.7(d) and analogous state Title V rules.

B. As soon as practicable following the Date of Lodging of the Third Amendment to Consent Decree, but in no event later than sixty (60) days following the Date of Lodging, Praxair shall submit applications to incorporate the following into its Title V permit:

i. HU-1 shall use only pipeline-quality natural gas or refinery fuel gas that complies with 40 C.F.R. Part 60 Subpart J (NSPS for Fuel Gas Combustion Units);

ii. HU-1 is subject to Special Condition 9 of Permit No. 19297, which contains a comprehensive LDAR program that will apply to any components in VOC service at HU-1, and that will include a 500-ppm leak definition, 15-day repair and other LDAR requirements for HU-1 as specified in Special Condition 9; and

iii. HU-1 has only one flare, which is subject to TCEQ Air Quality Permit restrictions limiting the materials burned in the flare to natural gas, low VOC content fuel gas, hydrogen, carbon monoxide, carbon dioxide, and methane; and HU-1 is subject to TCEQ rules governing episodic emissions under 30 Tex. Admin. Code Chapter 101 Subchapter F: Emissions Events and Scheduled Maintenance, Startup, and

Shutdown Activities, effective September 12, 2002, that requires for each flaring event a root cause evaluation, a detailed report, and corrective actions to minimize emissions and prevent future events.

4. Appendix A to the Consent Decree is hereby modified by deleting source HUI-101B from that Appendix.

5. From and after the effective date of this Third Amendment to the Consent Decree, BP is hereby released from all obligations and liabilities imposed by the Consent Decree on HU-1 that arise after the effective date of the Consent Decree.

6. Praxair shall not be responsible for any portion of the Civil Penalty provided for in Section IX of the Consent Decree.

7. Paragraph 82 is hereby amended to include the following information:

**Praxair, Inc.**

Murray Covello,  
Vice-President, Praxair Inc.,  
175 East Park Drive (PO Box 44),  
Tonawanda NY 14151  
Phone: 716-879-2690  
Fax: 716-879-2087  
E-Mail: murray\_covello@praxair.com

8. The undersigned representatives are fully authorized to enter into the terms and conditions of this Amendment.

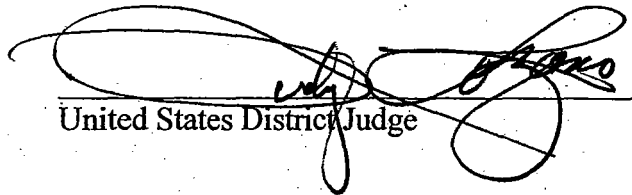
9. This Amendment may be executed in several counterparts, each of which will be considered an original.

**ORDER**

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:

ORDERED, ADJUDGED and DECREED that the foregoing Third Amendment to the Consent Decree is hereby approved and entered as a final order of this court.

Dated and entered this 25 day of Oct., 2004

  
United States District Judge

WE HEREBY CONSENT to the foregoing Third Amendment to the Consent Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR PLAINTIFF THE UNITED STATES OF AMERICA:

Date: 10/12/04

Tom Sansonetti /sj  
THOMAS L. SANSONETTI  
Assistant Attorney General  
Environment and Natural Resources Division  
U.S. Department of Justice

Date: 10/5/04

[Signature]  
ROBERT BROOK  
Senior Counsel  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
(202) 514-2738

FOR U.S. ENVIRONMENTAL PROTECTION AGENCY

Date: \_\_\_\_\_

Woody Skinner /sv  
Thomas V. Skinner  
Acting Assistant Administrator  
Office of Enforcement and Compliance Assurance  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave. N.W.  
Washington, DC 20460

WE HEREBY CONSENT to the foregoing Third Amendment to the Consent Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR DEFENDANTS BP EXPLORATION AND OIL CO., AMOCO OIL COMPANY n/d/b/a BP PRODUCTS NORTH AMERICA INC., AND ATLANTIC RICHFIELD COMPANY:

Date: Aug 31, 2004



P.E. Grower  
B.P. Products North America, Inc.



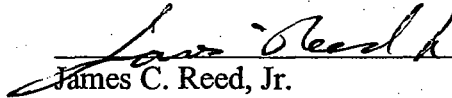
WE HEREBY CONSENT to the foregoing Third Amendment to the Consent

Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96

CV 095 RL on August 29, 2001.

FOR TESORO PETROLEUM CORPORATION

Date: October 4, 2004



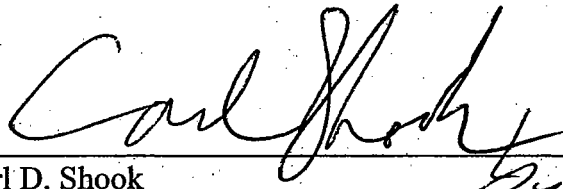
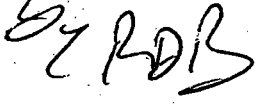
James C. Reed, Jr.  
Executive Vice President, General Counsel  
and Secretary

13

WE HEREBY CONSENT to the foregoing Third Amendment to the Consent Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR GIANT YORKTOWN, INC.

Date: 10/4/04

  
\_\_\_\_\_  
Carl D. Shook  
Executive Vice President  


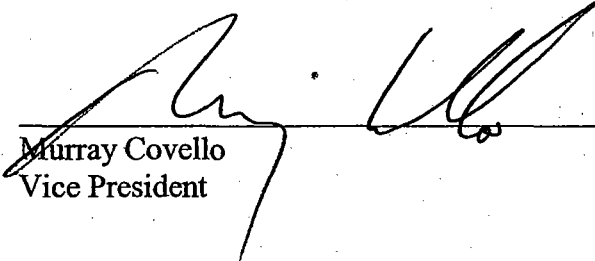
WE HEREBY CONSENT to the foregoing Third Amendment to the Consent

Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96

CV 095 RL on August 29, 2001.

FOR PRAXAIR, INC

Date: Sept 1 / 2004

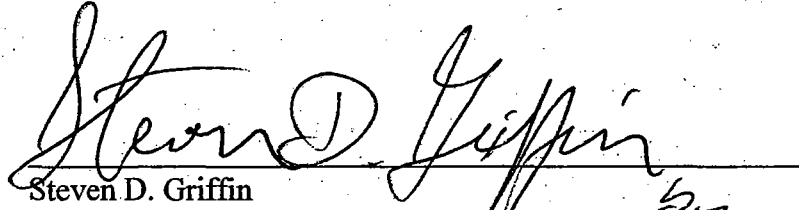
  
\_\_\_\_\_  
Murray Covello  
Vice President

WE HEREBY CONSENT to the foregoing Third Amendment to the Consent Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF INDIANA:

Date:

8/29/01

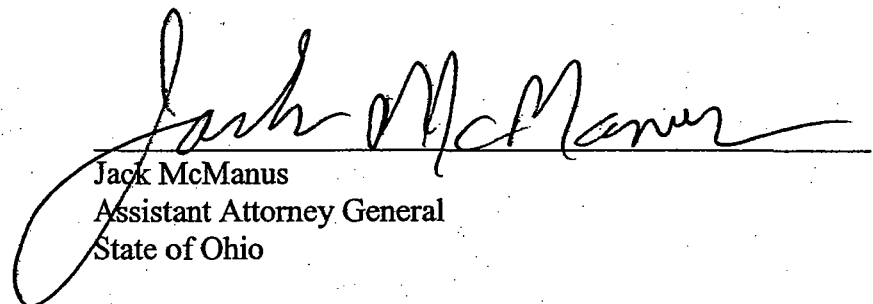
  
Steven D. Griffin  
Deputy Attorney General  
Indiana Attorney General's Office

by RDB

WE HEREBY CONSENT to the foregoing Third Amendment to the Consent Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF OHIO:

Date: 10/14/04

  
\_\_\_\_\_  
Jack McManus  
Assistant Attorney General  
State of Ohio

WE HEREBY CONSENT to the foregoing Third Amendment to the Consent

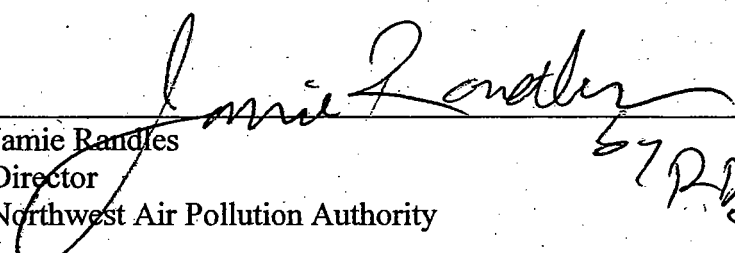
Decree entered in United States, et al., v. BP Exploration and Oil Co., et al., Civil No. 2:96

CV 095 RL on August 29, 2001.

FOR THE NORTHWEST AIR POLLUTION AUTHORITY OF THE STATE OF  
WASHINGTON:

Date:

10/27/04

  
\_\_\_\_\_  
Jamie Randles  
Director  
Northwest Air Pollution Authority

57 RDB

**Attachment 1  
To Third Amendment to Consent Decree**

**HU-1 Components**

ITEM NO.	DESCRIPTION
<i>VESSEL</i>	
103-D	Desulfurizer
104-D	Desulfurizer
105-D	High Temperature Shift Converter
106-D	Methanator
108-D	Low Temperature Shift Converter
101-E	CO <sub>2</sub> Absorber
102-E	CO <sub>2</sub> Stripper
104-F	375-psig Steam Drum
106-F & 102-B	Quench Chamber Secondary Reformer
107-F	Low Temperature Shift Knockout Drum
108-F	CO <sub>2</sub> Absorber Feed Knockout Drum
109-F	Absorber Overhead Knockout Drum
110-F	Solvent Storage Tank
111-F	CO <sub>2</sub> Stripper Overhead Accumulator
112-F	MDEA Sump
117-F	H <sub>2</sub> Product Knockout Drum
133-F	Fuel Gas Dry Drum
128-F	Ammonia Storage Drum
136-F	Natural Gas Knockout Drum
144-F	Process Condensate Deaerator
145-F	500 psig Steam Drum
147-F and 147-FL	Anhydrous Ammonia Day Tank with 325 kw Electric Heater
149-F	Emergency Plant Air Knockout Drum
102-L	Solvent Carbon Filter
103-LA/LB	Cartridge Filters
104-L	Driver Condensate Deaerator
107-L	Ammonia Vaporizer with 16.5 kw Electric Heater
106-L	Process Condensate Filter
108-L	Entrainment Separator
109-L	Driver Steam Knockout Drum
SU-2202	Cooling Tower Acid Day Tank
<i>REFORMER</i>	
101-B	Primary Reformer and Convection Sections
<i>PUMP</i>	
104-J	Process Condensate

ITEM NO.	DESCRIPTION
104-JA	Process Condensate (Spare)
105-J	Solvent Circulating Pump
105-JA	Solvent Circulating Pump (Spare)
106-J	CO <sub>2</sub> Stripper Reflux Pump
106-JA	CO <sub>2</sub> Stripper Reflux Pump (Spare)
107-J	Solvent Sump Pump
118-J	Reformer Furnace Fan
119-J	Boiler Feed Water Pump
119-JA	Boiler Feed Water Pump (Spare)
2201-JA	Cooling Water Circulation
2201-JB	Cooling Water Circulation
2201-JC	Cooling Water Circulation
<b>EXCHANGER</b>	
104-C	Secondary Reformer Wasteheater
105-C	Methanator Feed Preheater
107-CA/CB	CO <sub>2</sub> Stripper Reboiler
108-CA	CO <sub>2</sub> Absorber Feed Cooler
108-CB	CO <sub>2</sub> Absorber Feed Cooler
109-CA/CB	Solvent High Temperature Cooler
110-CA/CB	Solvent Low Temperature Cooler
111-C1A/C1B	CO <sub>2</sub> Stripper Feed/Bottoms Exchanger
111-C2A/C2B	CO <sub>2</sub> Stripper Feed/Bottoms Exchanger
112-C	CO <sub>2</sub> Stripper Steam Reboiler
114-C	CO <sub>2</sub> Stripper Overhead Condenser
115-C	Methanator Effluent Steam Generator
116-CA	Methanator Effluent BFW Preheater
116-CB	Methanator Effluent Water Cooler
137-C	Low Temperature Shift Effluent Cooler
138-C	High Temperature Shift Cooler
143-C	Secondary Reformer Wasteheater Exchanger
152-C	High Temperature Shift Converter Condensate Heater
153-C	Feed Gas Heater
<b>MISCELLANEOUS</b>	
Oxygen Scavenger System	Oxygen Scavenger Tank and 2 Pumps <sup>(1)</sup>
Analyzers and Shelters	H <sub>2</sub> Analyzer, Methane, CO and CO <sub>2</sub> Analyzer
HU-1 Switchgear Building	HU-1 Main Switchgear Building, Switchgear, Transformers A, B, C, D, G and MCC

(1) The Oxygen Scavenger System is property of Nalco and must be returned to Nalco if Praxair decides against using Nalco as a water treating or process chemical vendor.



**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the forgoing Third Amendment to Consent Decree was served on the 15<sup>th</sup> day of October, 2004, by the United States mail, postage prepaid, to the following:

William L. Patberg  
Shumaker, Loop & Kendrick  
North Courthouse Square  
1000 Jackson  
Toledo, OH 43624-1573

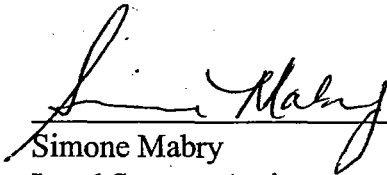
Clara Poffenberger  
Baker Botts  
1299 Pennsylvania Avenue, NW  
Washington, DC 20004

Jeff Haffner  
Tesoro Petroleum Corporation  
300 Concord Plaza Drive  
San Antonio, TX 78216-6999

Carl D. Shook  
Executive Vice President  
Giant Industries, Inc.  
23733 North Scottsdale Road  
Scottsdale, AZ 85255

Jack McManus  
Assistant Attorney General  
State Office Tower  
30 East Broad Street, 17<sup>th</sup> Floor  
Columbus, OH 43215

Steven D. Griffin  
Deputy Attorney General  
Indiana Attorney General's Office  
Indiana Government Central South  
302 West Washington Street  
Indianapolis, IN 46204

  
Simone Mabry  
Legal Support Assistant

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF INDIANA  
HAMMOND DIVISION**

UNITED STATES OF AMERICA,

Plaintiff,

and

THE STATE OF INDIANA, STATE OF OHIO, and  
the NORTHWEST AIR POLLUTION AUTHORITY,  
WASHINGTON,

Plaintiff-Intervenors,

v.

BP EXPLORATION & OIL CO., ET AL.

Defendants.

)  
) Civil No. 2:96 CV 095 RL

)  
) Judge Rudy Lozano

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**FOURTH AMENDMENT TO CONSENT DECREE**

WHEREAS the United States of America (hereinafter “the United States”); the State of Indiana, the State of Ohio, and the Northwest Pollution Control Authority of the State of Washington (hereinafter “Plaintiff-Intervenors”); and BP Products North America Inc. (successor to BP Exploration and Oil, Co., and Amoco Oil Company), and West Coast Products LLC (the owner of refining assets previously owned by Atlantic Richfield Company) (hereinafter, collectively, “BP”) are parties to a Consent Decree entered by this Court on August 29, 2001 (hereinafter “the Consent Decree”); and

WHEREAS BP sold its Mandan and Salt Lake City Refineries to Tesoro Petroleum Corporation (“Tesoro”) on September 6, 2001, and Tesoro assumed the obligations of the Consent Decree as they relate to the Mandan and Salt Lake City Refineries pursuant to the First Amendment To Consent Decree, which was approved and entered as a final order of the Court on October 2, 2001; and

WHEREAS BP sold its Yorktown Refinery to Giant Yorktown, Inc., ("Giant") on May 14, 2002, and Giant assumed the obligations of the Consent Decree as they relate to the Yorktown Refinery pursuant to the Second Amendment To Consent Decree, which was approved and entered as a final order of the Court on June 7, 2002; and

WHEREAS, BP sold a hydrogen plant located at its Texas City Refinery to Praxair on August 6, 2004 and Praxair assumed the obligations of the Consent Decree as they relate to that hydrogen plant pursuant to the Third Amendment To Consent Decree, which was approved and entered as a final order of the Court on October 25, 2004; and

WHEREAS Paragraphs 14 and 16 of the Consent Decree require BP to conduct demonstrations of various technologies for reducing emissions of sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) from the fluid catalytic cracking units (FCCUs) at the Carson, Texas City, Toledo and Whiting Facilities; and

WHEREAS these Paragraphs provide that EPA, in consultation with BP and the appropriate Plaintiff-Intervenor, will establish final long-term and short-term average SO<sub>2</sub> and NO<sub>x</sub> emission limits for each such FCCU; and

WHEREAS if BP disagrees with any emission limit established by EPA pursuant to Paragraphs 14 or 16, BP may contest that limit in a dispute resolution proceeding before this Court; and

WHEREAS the United States, BP, and the Plaintiff-Intervenors share an interest in reaching negotiated agreement on the levels at which final limits are to be set in order to avoid the costs and risks of potential disputes over the emission limits; and

WHEREAS the United States, BP and the Plaintiff-Intervenors agree that there is currently sufficient information available to establish mutually acceptable emission limits that are consistent with the purposes and intent of the Consent Decree for most of BP's FCCUs; and

WHEREAS the United States and BP, after extensive negotiations and thorough consideration of all available and relevant data and information, and of the terms and conditions

of the Consent Decree, have reached agreement on all but one of the final long-term and short-term SO<sub>2</sub> and NO<sub>x</sub> emission limits contemplated by the Decree for BP's FCCUs; and

WHEREAS prior to the effective date for the final long-term and short-term SO<sub>2</sub> and NO<sub>x</sub> emission limits contained in this Amendment, BP is required to continue to comply with the emission limits it proposed in its previously submitted demonstration reports, and expects in some cases to use emission-reducing catalyst additives at its FCCUs in amounts greater than required for interim compliance to assess alternative methods for meeting the final limits; and

WHEREAS EPA and Giant have agreed to lengthen the demonstration period for the Yorktown FCCU to gather additional emissions data; and

WHEREAS each of the Plaintiff-Intervenors concurs in the appropriateness of these final emission limits and has reviewed and hereby consents to this Amendment; and

WHEREAS the terms of this Amendment do not affect any rights of interests of Tesoro, or Praxair; and

WHEREAS Paragraph 85 of the Consent Decree requires that this Amendment be approved by the Court before it is effective;

NOW THEREFORE, the United States, Plaintiff-Intervenors, BP and Giant hereby agree that, upon approval of this Amendment by the Court, the Consent Decree shall be amended as follows:

**L. NO<sub>x</sub> controls (Paragraph 14):**

1. The heading of Paragraph 14.A. is amended to read as follows:

**"A. Emission Limits at Texas City FCCU 2 and Whiting FCU 600:"**

2. Paragraph 14.A.i, related to Texas City FCCU 2, is revised as follows:

a. Paragraph 14.A.i.a is deleted and marked "[Reserved]".

b. Paragraph 14.A.i.b is deleted and marked "[Reserved]".

c. Paragraph 14.A.i.c. is deleted and marked "[Reserved]".

d. Paragraph 14.A.i.d is revised to read as follows:

"d. Beginning no later than December 31, 2001, BP shall reduce NOx emissions from the Texas City Facility FCCU 2 by use of low-NOx combustion promoter (if and when CO promoter is used) and NOx adsorbing catalyst additive in accordance with Appendix F to achieve an interim concentration-based limit to be set in accordance with Paragraph 14.F.ii. BP will determine an optimized rate for the catalyst additives and demonstrate the performance of the catalyst additives at the optimized rate over a fifteen-month period. The fifteen-month optimization and demonstration at the optimized rate shall begin no later than December 31, 2001. The optimization shall be completed no later than June 30, 2002. Prior to beginning the demonstration, BP shall notify EPA of the optimized catalyst addition rate. During the demonstration, BP shall add catalyst additive according to the requirements of Paragraph 14.E of this Consent Decree. No later than the end of the third full month after the completion of the demonstration, BP shall report to EPA the results of the demonstration as specified in Paragraph 14.F of this Consent Decree. In its report, BP may propose an interim NOx emissions limit based on a 3-hour rolling average and a 365-day rolling average. From and after the date this report is submitted to EPA, BP shall comply with its proposed emissions limit until the effective date of the final limits in Paragraph 14.A.i.e. Beginning no later than June 30, 2001, BP shall use a NOx CEMS to monitor performance of FCCU 2 and to report compliance with the terms and conditions of the Consent Decree."

e. Paragraph 14.A.i.e is revised to read as follows:

"e. Beginning July 1, 2006, BP shall comply with a NOx emissions limit of 20 ppmvd at 0% O2 on a 365-day rolling average and 40 ppmvd at 0% O2 on a 7-day rolling average basis from the Texas City FCCU 2."

3. Paragraph 14.A.ii, related to Whiting FCU 600, is revised as follows:

a. Paragraph 14.A.ii.c is deleted except for the final two sentences thereof. As revised Paragraph 14.A.ii.c. reads as follows:

"c. Beginning no later than the turnaround in calendar year 2003, BP shall use a NOx CEMS to monitor performance of Whiting FCU 600 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable."

b. The following is added as a new subparagraph 14.A.ii.d:

"d. Beginning on the effective date of the Fourth Amendment to this Consent Decree, BP shall comply with a NOx emissions limit of 20 ppmvd at 0% O2 on a 365-day rolling average and 40 ppmvd at 0% O2 on a 7-day rolling average basis from the Whiting FCU 600."

4. Paragraph 14.B.iii, related to the Toledo FCCU, is revised as follows:

- a. The first two sentences are deleted and the following substituted in lieu thereof:

"BP will conclude a demonstration of the performance of the SNCR system by December 31, 2005."

- b. The fourth sentence is deleted and the following substituted in lieu thereof:

"By no later than the end of the third full month following the end of the demonstration period, BP shall report to EPA the results of the SNCR demonstration as specified in Paragraph 14.F. of this Consent Decree."

5. Paragraph 14.C.i, related to the Carson FCCU, is deleted and the following substituted in lieu thereof:

"i. Carson, California FCCU: Beginning on the effective date of the Fourth Amendment to this Consent Decree, BP shall comply with a NOx emissions limit of 20 ppmvd at 0% O2 on a 365-day rolling average and 60 ppmvd at 0% O2 on a 7-day rolling average basis from the Carson, California FCCU. Beginning no later than December 31, 2002, BP shall use a NOx CEMS to monitor performance of the Carson FCCU and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable."

6. Paragraph 14.C.ii, related to the Texas City FCCU 1, Texas City FCCU 3 and Whiting FCU 500 is deleted and the following substituted in lieu thereof:

"ii. Texas City FCCU 1, Texas City FCCU 3 and Whiting FCU 500:

a. Texas City FCCU 1:

(1) Beginning on the effective date of the Fourth Amendment of this Consent Decree, BP shall comply with a NOx emissions limit of 40 ppmvd at 0% O2 on a 365-day rolling average, and 80 ppmvd at 0% O2 on a 7-day rolling average basis from the Texas City Facility FCCU 1, except as provided in Paragraph 14.C.ii.a.(2) below.

(2) Alternative Operating Scenario For Hydrotreater Outages: The applicable 7-day NOx emission limits for the Texas City FCCU 1 shall apply during the period of a hydrotreater outage, except as provided in this subparagraph. By no later than three months prior to the first hydrotreater outage for which BP wishes to utilize the alternative operating scenario provided for in this subparagraph, BP shall submit for approval by EPA a plan for the operation of the Texas City FCCU 1 (including associated air pollution control equipment) during hydrotreater outages in a way that minimizes emissions as much as practicable. The plan shall, at a minimum, consider the use of low sulfur feed, storage of hydrotreated feed, and an increase in additive

addition rate. The applicable 7-day average NOx emission limits shall not apply during periods of FCCU feed hydrotreater outages provided that BP is in compliance with the plan and is maintaining and operating the FCCU in a manner consistent with good air pollution control practices. In addition, in the event that BP asserts that the basis for a specific Hydrotreater Outage is a shutdown (where no catalyst changeout occurs) required by ASME pressure vessel requirements or applicable state boiler requirements, BP shall submit a report to EPA that identifies the relevant requirements and justifies BP's decision to implement the shutdown during the selected time period."

(3) Beginning no later than the end of the 2003 turnaround for Texas City FCCU 1, BP shall use a NOx CEMS to monitor performance of FCCU 1 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

b. Texas City FCCU 3:

(1) BP shall begin adding NOx adsorbing catalyst in conjunction with low-NOx combustion promoter (if and when CO promoter is used) in accordance with Appendix F by no later than December 31, 2001. BP will determine the optimized rate for the catalyst additives and demonstrate the performance of the catalyst additives at the optimized rate over a fifteen month period to yield the lowest NOx concentration feasible at that optimized rate. The optimization and demonstration of the optimized catalyst addition rates shall begin no later than December 31, 2001. The optimization shall be completed no later than June 30, 2002. Prior to beginning the demonstration, BP shall notify EPA of the optimized additive addition rate. During the demonstration, BP shall add catalyst in accordance with the requirements of Paragraph 14. E of the Consent Decree. No later than the end of the third full month after the completion of the demonstration, BP shall report to EPA the results of the demonstration as required by Paragraph 14.F of this Consent Decree. In its report, BP may propose a NOx emissions limit based on a 3-hour rolling average and a 365-day rolling average. From and after the date its report is submitted to EPA, BP shall comply with its proposed emissions limits for the FCCU until the effective date of the final limits in Paragraph 14.C.ii.b.(2).

(2) Beginning July 1, 2007, BP shall comply with a NOx emissions limit of 20 ppmvd at 0% O2 on a 365-day rolling average and 40 ppmvd at 0% O2 on a 7-day rolling average basis from Texas City FCCU 3, if BP has installed an SCR on the FCCU. If BP has not installed an SCR on Texas City FCCU 3, beginning July 1, 2007, BP shall comply with a NOx emissions limit of 30 ppmvd at 0% O2 on a 365-day rolling average and 60 ppmvd at 0% O2 on a 7-day rolling average basis from the Texas City 3 FCCU.

(3) Alternate Operating Scenario: In lieu of complying with the applicable rolling 7-day average NOx emission limit in Paragraph 14.C.ii.b.(2), BP shall limit NOx emissions from the Texas City Facility's FCCU 3 to 120 ppmvd at 0% O2 during NOx control device outages that occur for reasons other than Startup, Shutdown or Malfunction of the NOx control device and that are necessary for one or more of the following reasons:

- (A) For an SCR: Replacement or cleaning of the SCR catalyst and/or maintenance of ductwork and other components of the SCR that was necessary to prevent or rectify a situation which:
  - (i) Was resulting in or was reasonably likely to result in non-compliance with applicable NOx emission limitations;
  - (ii) Was interfering or was reasonably likely to interfere with proper operation of the FCCU and/or other FCCU control equipment; or
  - (iii) Posed or was reasonably likely to pose a threat to the safety or health of employees or the public.
- (B) For NOx control device outages other than an SCR: Maintenance of any NOx control device (other than an SCR) that was necessary to prevent or rectify a situation which:
  - (i) Was resulting in or was reasonably likely to result in non-compliance with applicable NOx emission limitations;
  - (ii) Was interfering or was reasonably likely to interfere with proper operation of the FCCU and/or other FCCU control equipment; or
  - (iii) Posed or was reasonably likely to pose a threat to the safety or health of employees or the public.

(4) To qualify for the alternative 7-day average limit in Paragraph 14.C.ii.b.(3) above, BP must demonstrate to EPA's satisfaction, in a report submitted to EPA within 30 days of the end of the NOx control device outage, that:

- (A) The NOx control device outage was necessary for one or more of the reasons listed in Paragraph 14.C.ii.b.(3)(A) or (B), above; and
- (B) The total duration of outages covered by Paragraph 14.C.ii.b.(3) has not exceeded 30 days in the most recent rolling thirty (30) month period.

(5) Beginning no later than December 31, 2001, BP shall use a NOx CEMS to monitor performance of FCCU 3 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

c. Whiting FCU 500:

(1) BP shall begin adding NOx adsorbing catalyst in conjunction with low-NOx combustion promoter (if and when CO promoter is used) in accordance with Appendix F by no later than March 31, 2002. BP will determine the optimized rate for the catalyst additives and demonstrate the performance of the catalyst additives



at the optimized rate over a fifteen-month period to yield the lowest NOx concentration feasible at that optimized rate. The optimization and demonstration of the optimized catalyst addition rates shall begin no later than March 31, 2002. The optimization shall be completed by no later than September 30, 2002. Prior to beginning the demonstration, BP shall notify EPA of the optimized additive addition rate. During the demonstration, BP shall add catalyst in accordance with the requirements of Paragraph 14. E of the Consent Decree. No later than the end of the third full month after the completion of the demonstration, BP shall report to EPA the results of the demonstration as required by Paragraph 14.F of this Consent Decree. In its report, BP may propose a NOx emissions limit based on a 3-hour rolling average and a 365-day rolling average. From and after the date its report is submitted to EPA, BP shall comply with its proposed emissions limits for the FCU until the effective date of the final limits in Paragraph 14.C.ii.c.(2).

(2) Beginning July 1, 2006, BP shall comply with a NOx emissions limit of 40 ppmvd at 0% O2 on a 365-day rolling average and 80 ppmvd at 0% O2 on a 7-day rolling average basis from Whiting Facility's FCU 500.

(3) Alternate Operating Scenario: In lieu of complying with the applicable rolling 7-day average NOx emission limit in Paragraph 14.C.ii.c.(2), BP may elect to comply with the provisions of this subparagraph. BP may use conventional Pt-based combustion promoter on an intermittent basis, in such amounts as may be necessary to avoid unsafe operations of the FCU regenerator and to comply with CO emission limits. BP will undertake appropriate measures and/or adjust operating parameters with the goal of eliminating use of conventional Pt-based combustion promoter, but BP will not then be required to adjust operating parameters in a way that would limit conversion or processing rates. Within 30 days of any such use of conventional Pt-based combustion promoter, BP will submit a report to EPA documenting when and why it used the conventional Pt-based combustion promoter and the actions, if any, taken to return to the minimized level of use. During such usage, and for a period of up to 4 weeks following the end thereof, BP shall limit NOx emissions from the Whiting Facility's FCU 500 to 120 ppmvd at 0% O2 on a 7-day rolling average basis in lieu of complying with the 7-day average limit in Paragraph 14.C.ii.c.(2) above."

(4) Beginning no later than March 31, 2002, BP shall use a NOx CEMS to monitor performance of Whiting FCU 500 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable."

## **H. SO2 controls (Paragraph 16):**

1. The heading for Paragraph 16.A is amended to read as follows:

**"A. Installation of Wet Gas Scrubbers ("WGS") and Emission Limits:"**

2. Paragraph 16.A.i., related to the Whiting FCU 500 is revised as follows:

a. Paragraph 16.A.i.a is deleted and marked "[Reserved]".

b. Paragraph 16.A.i.b shall be deleted and marked "[Reserved]".

c. Paragraph 16.A.i.c is deleted except for the last two sentences thereof. As revised, Paragraph 16.A.i.c reads as follows:

"c. Beginning no later than September 30, 2001, BP shall use a SO<sub>2</sub> CEMS to monitor performance of Whiting FCU 500 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable."

d. Paragraph 16.A.i.d is revised to read as follows:

"d. Beginning no later than December 31, 2001, BP shall reduce SO<sub>2</sub> emissions from the Whiting FCU 500 by use of SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F. BP will demonstrate performance of the SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F over a 12-month period. The 12-month demonstration shall begin no later than December 31, 2001. No later than the end of the third full month after the completion of the 12-month demonstration, BP shall report to EPA the results of the demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall either agree to an interim SO<sub>2</sub> limit of 117 ppmvd (at 0% oxygen) on a 365-day rolling average basis or propose an alternative 365-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration and is consistent with the provisions of Paragraph 16.E.ii and Appendix F. From and after the date this report is submitted, BP shall comply with its proposed emission limit until the effective date of the final limits in Paragraph 16.A.i.e. At all times during the demonstration period, BP shall optimize the levels of catalyst addition rates according to the criteria identified in Paragraph 16.G, below."

e. Paragraph 16.A.i.e is revised to read as follows:

"e. Beginning July 1, 2006, BP shall comply with an SO<sub>2</sub> emissions limit of 25 ppmvd at 0% O<sub>2</sub> on a 365-day rolling average and 50 ppmvd at 0% O<sub>2</sub> on a 7-day rolling average basis from the Texas City FCCU 3."

3. Paragraph 16.A.ii.a. related to the Texas City FCCU 3 is revised as follows:

a. Paragraph 16.A.ii.a is deleted and marked "[Reserved]".

b. Paragraph 16.A.ii.b shall be deleted and marked "[Reserved]".

c. Paragraph 16.A.ii.c is deleted except for the last two sentences thereof. As revised,

Paragraph 16.A.ii.c. reads as follows:

“c. Beginning no later than June 30, 2001, BP shall use a SO<sub>2</sub> CEMS to monitor performance of Texas City FCCU 3 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.”

d. Paragraph 16.A.ii.d is revised to read as follows:

“d. Beginning no later than June 30, 2001, BP shall reduce SO<sub>2</sub> emissions from the Texas City FCCU 3 by use of SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F. BP will demonstrate performance of the SO<sub>2</sub> adsorbing catalyst additive at the addition rate determined in accordance with Appendix F over a 12-month period. The 12-month demonstration shall begin no later than June 30, 2001. No later than the end of the third full month after the completion of the 12-month demonstration, BP shall report to EPA the results of the demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall either agree to an interim SO<sub>2</sub> limit of 117 ppmvd (at 0% oxygen) on a 365-day rolling average basis or propose an alternative 365-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration and is consistent with the provisions of Paragraph 16.E.ii. and Appendix F. From and after the date this report is submitted, BP shall comply with its proposed emission limit until the effective date of the final limits in Paragraph 16.A.ii.e.. At all times during the demonstration period, BP shall optimize the levels of catalyst addition rates according to the criteria identified in Paragraph 16.G, below.”

e. Paragraph 16.A.ii.e is revised to read as follows:

“e. Beginning July 1, 2007, BP shall comply with an SO<sub>2</sub> emissions limit of 25 ppmvd at 0% O<sub>2</sub> on a 365-day rolling average and 50 ppmvd at 0% O<sub>2</sub> on a 7-day rolling average basis from the Texas City FCCU 3.”

4. Paragraph 16.B.ii related to the Yorktown FCCU and the Whiting FCU 600 is revised to read as follows:

“a. Yorktown FCCU: Giant shall initiate twelve-month demonstration of SO<sub>2</sub> adsorbing catalyst additive by no later than March 31, 2003 for Yorktown FCCU. Giant will demonstrate performance of the SO<sub>2</sub> adsorbing catalyst for the FCCU at the addition rate determined for each FCCU in accordance with Appendix F over a 12-month period. No later than sixty(60) days after the completion of the 12-month demonstration, Giant shall report to EPA the results of the demonstration as specified in Paragraph 16.E.ii. of this Consent Decree. In such report, Giant shall propose a 365-day rolling average concentration-based emission limit for the FCCU that is consistent with Paragraph 16.E.ii and the applicable provisions of Appendix F. In such report, Giant also shall propose a 7-day rolling average concentration-based SO<sub>2</sub> emission limit for the FCCU that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration for the FCCU and is consistent with the provisions of Paragraph 16.E.ii and Appendix F. From and after the date the

report is submitted, Giant shall comply with its proposed emission limit for the FCCU until EPA sets a final interim limit. At all times during the demonstration periods, Giant shall optimize the levels of catalyst addition rates according to Paragraph 16.D, below. Beginning no later than September 30, 2001, Giant shall use SO<sub>2</sub> CEMS to monitor performance of the FCCU and to report compliance with the terms and conditions of the Consent Decree. EPA will use the information provided by Giant in its reports, CEMS data collected during the demonstration, the information Giant is required to submit in Paragraph 16.E, and all other available and relevant information to establish representative SO<sub>2</sub> emission limits for the Yorktown FCCU in accordance with Paragraph 16.E.ii and Appendix F, provided however that these limits may not be more stringent than 25 ppmvd (at 0% O<sub>2</sub>) on a 365-day rolling average. Giant shall comply with the emissions limits set by EPA at the time such emissions limits are set by EPA, provided that if the emissions limit established by EPA for the FCCU is more stringent than the limit proposed by Giant for the FCCU, Giant shall comply with that more stringent limit no later than 45 days after receipt of notice thereof from EPA. If Giant disagrees with the more stringent emissions limit set by EPA, it shall invoke Dispute Resolution within the same forty-five (45) day period.

b. Whiting FCU 600: Beginning on July 1, 2006, BP shall comply with an SO<sub>2</sub> emissions limit of 50 ppmvd at 0% O<sub>2</sub> on a 365-day rolling average and 125 ppmvd at 0% O<sub>2</sub> on a 7-day rolling average basis from the Whiting FCU 600. Beginning no later than June 30, 2003, BP shall use a SO<sub>2</sub> CEMS to monitor performance of Whiting FCU 600 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable. “

5. Paragraph 16.B.iii related to the Carson FCCU, Texas City FCCU 2, and Toledo FCCU is deleted and the following substituted in lieu thereof:

“iii. Carson FCCU, Texas City FCCU 2, and Toledo FCCU:

a. Carson FCCU: Beginning on the effective date of The Fourth Amendment to this Consent Decree, BP shall comply with an SO<sub>2</sub> emissions limit of 50 ppmvd at 0% O<sub>2</sub> on a 365-day rolling average and 150 ppmvd at 0% O<sub>2</sub> on a 7-day rolling average basis from the Carson FCCU. Beginning no later than June 30, 2001, BP shall use a SO<sub>2</sub> CEMS to monitor performance of Carson FCCU and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon as practicable.

b. Texas City FCCU 2: Beginning on the effective date of the Fourth Amendment to this Consent Decree, BP shall comply with an SO<sub>2</sub> emissions limit of 126 ppmvd at 0% O<sub>2</sub> on a 365-day rolling average and 250 ppmvd at 0% O<sub>2</sub> on a 7-day rolling average basis from the Texas City FCCU 2. Beginning no later than September 30, 2001, BP shall use a SO<sub>2</sub> CEMS to monitor performance of Texas City FCCU 2 and to report compliance with the terms and conditions of the Consent Decree. All CEMS data collected by BP during the effective life of the Consent Decree shall be made available to EPA upon demand as soon

as practicable.

c. Toledo FCCU

(1) Beginning no later than June 30, 2001, BP shall use SO<sub>2</sub> CEMS to monitor performance of Toledo FCCU and to report compliance with the terms and conditions of the Consent Decree.

(2) BP shall initiate a 12-month demonstration of SO<sub>2</sub> adsorbing catalyst additive in accordance with Appendix F and in conjunction with continued hydrotreatment of FCCU feed at existing levels by no later than June 30, 2001. BP will demonstrate performance of the combination of FCCU feed hydrotreatment and SO<sub>2</sub> adsorbing catalyst additive at the addition rate determined in accordance with Appendix F over a 12-month period. No later than the end of the third full month after the completion of the 12-month demonstration, BP shall report to EPA the results of that demonstration as specified in Paragraph 16.E. of this Consent Decree. In such report, BP shall propose a 365-day rolling average concentration-based emission limit for Toledo FCCU that is consistent with Paragraph 16.E.ii and the applicable provisions of Appendix F. In such report, BP also shall propose a 7-day rolling average concentration-based SO<sub>2</sub> emission limit that is based on the performance of the SO<sub>2</sub> adsorbing catalyst additive during the demonstration for Toledo FCCU and is consistent with the provisions of Paragraph 16.E.ii and Appendix F. From and after the date the report is submitted, BP shall comply with its proposed emission limit for Toledo FCCU until the effective date of the limits in Paragraph 16.B.iii.c.(3).

(3) Beginning July 1, 2006, BP shall comply with an SO<sub>2</sub> emissions limit of 160 ppmvd at 0% O<sub>2</sub> on a 365-day rolling average and 260 ppmvd at 0% O<sub>2</sub> on a 7-day rolling average basis from the Toledo FCCU."

6. Paragraph 16.B.iv, related to the Texas City FCCU 1, is deleted and the following substituted in lieu thereof:

"iv. Texas City FCCU 1:

a. Beginning on the effective date of the Fourth Amendment to this Consent Decree, BP shall comply with an SO<sub>2</sub> emissions limit of 50 ppmvd at 0% O<sub>2</sub> on a 365-day rolling average and 150 ppmvd at 0% O<sub>2</sub> on a 7-day rolling average basis from the Texas City Facility's FCCU 1, except as provided in Paragraph 16.B.iv.b. below.

b. Alternative Operating Scenario For Hydrotreater Outages: The applicable 7-day SO<sub>2</sub> emission limits for the Texas City FCCU 1 shall apply during the period of a hydrotreater outage, except as provided in this subsection. By no later than three months prior to the first hydrotreater outage for which BP wishes to utilize the alternative operating scenario provided for in this subparagraph, BP shall submit for approval by EPA a plan for the operation of the Texas City FCCU 1 (including associated air pollution control equipment) during hydrotreater outages in a way that

minimizes emissions as much as practicable. The plan shall, at a minimum, consider the use of low sulfur feed, storage of hydrotreated feed, and an increase in additive addition rate. The applicable 7-day average SO<sub>2</sub> emission limits shall not apply during periods of FCCU feed hydrotreater outages provided that BP is in compliance with the plan and is maintaining and operating the FCCU in a manner consistent with good air pollution control practices. In addition, in the event that BP asserts that the basis for a specific Hydrotreater Outage is a shutdown (where no catalyst changeout occurs) required by ASME pressure vessel requirements or applicable state boiler requirements, BP shall submit a report to EPA that identifies the relevant requirements and justifies BP's decision to implement the shutdown during the selected time period.

c. BP shall use an SO<sub>2</sub> CEMS to monitor performance of Texas City FCCU 1 and to report compliance with the terms and conditions of the Consent Decree."

### III. Additional Amendments:

1. The following new paragraph 16A is added between Paragraphs 16 and 17:

"16A. Additional Provisions Related To SO<sub>2</sub> and NO<sub>x</sub> Emission Limits For BP's FCCUs: Startup, Shutdown or Malfunction: Emissions during periods of Startup, Shutdown or Malfunction shall not be considered in determining compliance with the 7-day rolling average emissions limits set out in Paragraph 14 (in the case of NO<sub>x</sub>) and Paragraph 16 (in the case of SO<sub>2</sub>), provided that during such periods BP implements good air pollution control practices for minimizing SO<sub>2</sub> and/or NO<sub>x</sub> emissions, as applicable. For purposes of these limits, the phrase "affected facility" as used in the definitions of "Startup" and "Shutdown" in Paragraphs 13. II. and GG of the Consent Decree shall mean each FCCU for which a final emissions limit has been established."

2. Paragraph 39.D is revised to read as follows:

"D. For failure to meet the emission limits proposed by BP (final or interim) or established by EPA (final or interim) for NO<sub>x</sub> and CO pursuant to Paragraph 14, per day, per unit: \$2500 for each calendar day on which the specified rolling average exceeds the applicable limit. Stipulated penalties shall not start to accrue with respect to a final NO<sub>x</sub> emission limit until there is noncompliance with that emission limit for five percent (5%) or more of the applicable FCCU's operating time during any calendar quarter."

3. Paragraph 41.D is revised to read as follows:

"D. For failure to meet emission limits proposed by BP (final or interim) or established by EPA (final or interim) pursuant to Paragraph 16, per day, per unit: \$3000 for each calendar day on which the specified rolling average exceeds the applicable limit. Stipulated penalties shall not start to accrue with respect to a final

SO2 emission limit until there is noncompliance with that emission limit for five percent (5%) or more of the applicable FCCU's operating time during any calendar quarter."

The undersigned representatives are fully authorized to enter into the terms and conditions of this Fourth Amendment. This Fourth Amendment may be executed in several counterparts, each of which will be considered an original.

**ORDER**

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:

ORDERED, ADJUDGED and DECREED that the foregoing Fourth Amendment to the Consent Decree is hereby approved and entered as a final order of this court.


Dated and entered this 7 day of Oct, 2005

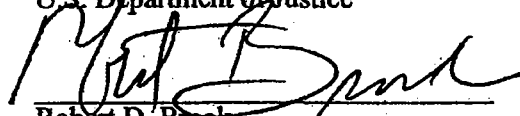
s/Rudy Lozano  
United States District Judge

WE HEREBY CONSENT to the foregoing Fourth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR PLAINTIFF THE UNITED STATES OF AMERICA

Date: 7/11/05

  
Kelly A. Johnson  
Acting Assistant Attorney General  
Environment and Natural Resources Division  
U.S. Department of Justice

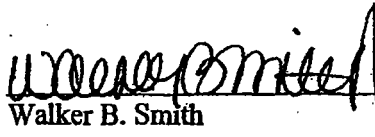
  
Robert D. Brook  
Assistant Section Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044  
(202) 514-2738



WE HEREBY CONSENT to the foregoing Fourth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR U.S. ENVIRONMENTAL PROTECTION AGENCY

Date: 6/10/05

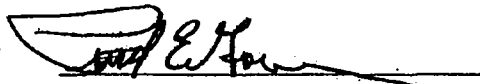
  
Walker B. Smith

Director  
Office of Civil Enforcement  
Office of Enforcement and Compliance Assurance  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

WE HEREBY CONSENT to the foregoing Fourth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR DEFENDANTS BP PRODUCTS NORTH AMERICA INC. (SUCCESSOR TO BP EXPLORATION AND OIL, CO., AMOCO OIL COMPANY), AND WEST COAST PRODUCTS LLC (THE OWNER OF REFINING ASSETS PREVIOUSLY OWNED BY ATLANTIC RICHFIELD COMPANY)


Date: June 15, 2005

A handwritten signature in black ink, appearing to be "E. H. ...", written over a horizontal line.

WE HEREBY CONSENT to the foregoing Fourth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF INDIANA

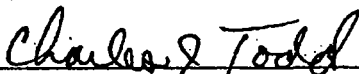
Date: JUNE 1, 2005

  
\_\_\_\_\_  
THOMAS W. EASTERLY  
Commissioner  
Indiana Department of Environmental  
Management

Approved as to form and legality:

STEVE CARTER  
Indiana Attorney General

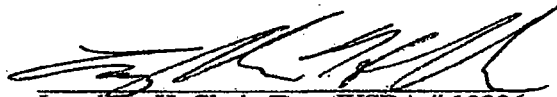
Date: 6-17-05

  
\_\_\_\_\_  
CHARLES J. TODD  
Chief Operating Officer  
Office of the Attorney General  
Indiana Government Center South  
5<sup>th</sup> Floor  
302 West Washington Street  
Indianapolis, IN 46204

WE HEREBY CONSENT to the foregoing Fourth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE NORTHWEST CLEAN AIR AGENCY (f/k/a NORTHWEST AIR POLLUTION AUTHORITY) OF THE STATE OF WASHINGTON

Date: 6/20/05

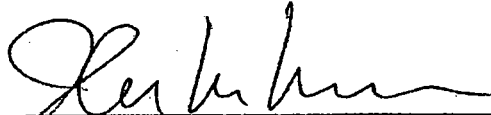


Laughlan H. Clark, Esq. WSBA # 10996  
Zender Thurston, P.S.  
1700 D Street  
P. O. Box 5226  
Bellingham WA 98227  
(360) 647-1500

WE HEREBY CONSENT to the foregoing Fourth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE STATE OF OHIO

Date: 5/25/05

  
\_\_\_\_\_  
John K. McManus  
Assistant Attorney General

**WE HEREBY CONSENT to the foregoing Fourth Amendment to the Consent**

**Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96**

**CV 095 RL on August 29, 2001.**

**FOR DEFENDANT GIANT YORKTOWN, INC.,**

Date: July 8, 2005



**Carl D. Shook  
Executive Vice President**

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF INDIANA  
HAMMOND DIVISION

UNITED STATES OF AMERICA, )  
 )  
Plaintiff, ) Civil No. 2:96 CV 095 RL  
 )  
and ) Judge Rudy Lozano  
 )  
THE STATE OF INDIANA, STATE OF OHIO, and )  
the NORTHWEST AIR POLLUTION )  
AUTHORITY, WASHINGTON, )  
 )  
Plaintiff-Intervenors, )  
 )  
v. )  
 )  
BP EXPLORATION & OIL CO., ET AL. )  
 )  
Defendants. )  
\_\_\_\_\_ )

**FIFTH AMENDMENT TO CONSENT DECREE**

WHEREAS, the United States of America (hereinafter "the United States"); the State of Indiana, the State of Ohio, and the Northwest Pollution Control Authority of the State of Washington (hereinafter "Plaintiff-Intervenors"); and BP Products North America Inc. (successor to BP Exploration and Oil, Co., and Amoco Oil Company), and West Coast Products LLC (the owner of refining assets previously owned by Atlantic Richfield Company) (hereinafter, collectively, "BP") are parties to a Consent Decree entered by this Court on August 29, 2001 (hereinafter "the Consent Decree"); and

WHEREAS BP sold its Mandan and Salt Lake City Refineries to Tesoro Petroleum Corporation (now known as Tesoro Corporation) ("Tesoro") on September 6, 2001, and Tesoro assumed the obligations of the Consent Decree as they relate to the Mandan and Salt Lake City

Refineries pursuant to the First Amendment To Consent Decree, which was approved and entered as a final order of the Court on October 2, 2001; and

WHEREAS, BP sold its Yorktown refinery to Giant Yorktown, Inc., ("Giant") on May 14, 2002, and Giant assumed the obligations of the Consent Decree as they relate to the Yorktown Refinery pursuant to the Second Amendment of the Consent Decree, which was approved and entered as a final order of the Court on June 7, 2002; and

WHEREAS, BP sold a hydrogen plant located at its Texas City Refinery to Praxair on August 6, 2004 and Praxair assumed the obligations of the Consent Decree as they relate to that hydrogen plant pursuant to the Third Amendment of the Consent Decree, which was approved and entered as a final order of the Court on October 25, 2004; and

WHEREAS a Fourth Amendment to the Consent Decree was entered by the Court on June 20, 2005, that, inter alia, established final SO<sub>2</sub> and NO<sub>x</sub> emission limits for a number of FCCUs owned and operated by BP; and

WHEREAS, the United States and Tesoro have reached agreement on final SO<sub>2</sub> limits for the Mandan Refinery; and

WHEREAS, as a part of this agreement, the United States and Tesoro have further agreed to modify the terms of the Consent Decree to: (a) require Tesoro to install certain NO<sub>x</sub> controls on the Mandan FCCU/CO Furnace; (b) allow Tesoro to burn limited quantities of fuel oil in the Mandan CO Furnace (subject to the SO<sub>2</sub> emission limits hereby established and the NO<sub>x</sub> emission limits to be established in the future pursuant to this Amendment); and (c) allow Tesoro to direct sour water stripper gas to an ammonium sulfide concentration unit as an alternative to directing such gas to the SRU as currently required by the Consent Decree; and



WHEREAS, the United States, Tesoro, and each of the Plaintiff-Intervenors agree that amending the Consent Decree to incorporate the foregoing agreements is in the public interest; and

WHEREAS the terms of this Amendment do not affect any rights of interests of BP, Giant or Praxair; and

WHEREAS, Paragraph 85 of the Consent Decree requires that this Amendment be approved by the Court before it is effective;

NOW THEREFORE, the United States, Plaintiff-Intervenors and Tesoro hereby agree that, upon approval of this Amendment by the Court, the Consent Decree shall be amended as follows:

1. Paragraph 14 of the Consent Decree is amended by adding the following new subparagraph I at the end thereof:

**"I. Installation of Selective Non-Catalytic Reduction ("SNCR") – Mandan Refinery:**

A. Beginning no later than March 1, 2007, Tesoro shall use a NOx CEMS to monitor performance of the Mandan Refinery FCCU/CO Furnace and to report compliance with the terms and conditions of the Consent Decree.

B. Tesoro shall install and begin operation of an SNCR system on the Mandan Refinery FCCU/CO Furnace no later than the scheduled major maintenance turnaround of the FCCU/CO Furnace next following the effective date of the Fifth Amendment to the Consent Decree (currently scheduled for 2009, but no later than December 31, 2010). The SNCR system shall be designed and installed in accordance with good engineering practice to reduce NOx emissions as much as feasible.

C. Tesoro will demonstrate the performance of the SNCR over an eighteen (18) month period. The demonstration shall begin on the earlier of: (i) the date the Mandan Refinery FCCU and CO Furnace achieve normal operations following the turnaround during which the SNCR is installed or (ii) 180 days after the restart of the FCCU/CO Furnace following that turnaround. During the demonstration, Tesoro shall optimize the performance of the SNCR system and shall consider the effect of the operating considerations identified in Appendix E to the Consent Decree. No later than 90 days after the end of the 18 month demonstration period, Tesoro shall report to EPA the results of the 18-month demonstration as specified in Paragraph 14.F. of

this Consent Decree, with the exception that inlet NOx and O2 concentrations to the SNCR will not be recorded or reported. In this report, Tesoro may propose final 7-day rolling and 365-day rolling average NOx emission limits for the Mandan Refinery FCCU/CO Furnace and shall comply with such limit until EPA establishes the final 7-day rolling and 365-day rolling average limits. EPA will use the information in the demonstration report, CEMS data collected during the demonstration, the information identified in Paragraph 14.F., and all other available and relevant information to establish a the final 7-day and 365-day rolling average NOx emission limits for the Mandan Refinery FCCU/CO Furnace in accordance with Paragraph 14.F.ii.. In no event shall the final 365-day emission limit established by EPA require more than a 60% reduction in NOx emissions as compared to the average 365-day rolling average continuous monitoring results prior to the turnaround during which the SNCR is installed.

D. Tesoro shall comply with the emission limit set by EPA at the time such emission limit is set by EPA, provided that if the emission limit set by EPA is more stringent than the limit proposed by Tesoro, Tesoro shall comply with the more stringent limit no later than 45 days after receipt of notice thereof from EPA. If Tesoro disagrees with the more stringent limit set by EPA, it shall invoke dispute resolution within the same forty-five (45) day period.

2. Paragraph 16 of the Consent Decree is amended by revising subparagraph G as follows:

"G. All CEMS installed and operated pursuant to this agreement will be installed, certified, calibrated, maintained, and operated in accordance with the applicable requirements of 40 C.F.R. §§ 60.11, 60.13 and Part 60 Appendix F, with the exception of the SO<sub>2</sub> CEMS on the Mandan CO Furnace, which shall be allowed a Relative Accuracy of ± 5.0 ppm compared to the reference method. These CEMS will be used to demonstrate compliance with emission limits.

3. Paragraph 17.A.i is amended by:

- a. deleting the word "and" from the end of subparagraph b. thereof;
- b. revising subparagraph c thereof to read as follows:
  - "c. in connection with firing acid soluble oil at the Alkylation unit; and"
- c. adding the following new subparagraph d. to the end thereof:
  - "d. up to a daily average of seven (7) barrels per hour in the CO Furnace."

4. Paragraph 29.E is amended to read as follows:

"On or before June 1,2001, at Mandan, BP shall reduce emissions of NOx-by 435-tpy by routing its sour water stripper gas from the CO boiler to the SRU and/or the ammonium sulfide concentration unit, as described in Appendix A of this Fifth Amendment."

5. The following new paragraphs 33A and 33B are added between Paragraphs 33 and 34:

**“33A. Emissions Data.** For the Mandan Facility and Salt Lake Facility, in the quarterly report that is due on July 30 of each year, Tesoro shall provide a summary of annual emissions data at the Covered Refinery for the prior calendar year. The summary shall include:

- i) Estimation (in tons per year) of NO<sub>x</sub>, SO<sub>2</sub>, CO and PM emissions for all heaters and boilers;
- ii) Estimation (in tons per year) of NO<sub>x</sub>, SO<sub>2</sub>, CO and PM emissions from each FCCU;
- iii) Estimation (in tons per year) of SO<sub>2</sub> emissions from each Sulfur Recovery Plants;
- iv) Estimation (in tons per year) of SO<sub>2</sub> emissions from each flare; and
- v) The basis for each estimate required in this subparagraph (i.e. stack tests, CEMS, PEMS, etc.) and an explanation of methodology used to calculate the tons per year emitted.

**33B. Exceedances of Emission Limits.** For the Mandan Facility and Salt Lake Facility, in each quarterly report, Tesoro shall identify each exceedance of an emission limit required or established by this Consent Decree that occurred during the calendar quarter covered by that report and, for any emission unit subject to a limit required or established by this Consent Decree that is monitored by a CEMS or PEMS, any periods of CEMS or PEMS downtime that occurred during the prior calendar quarter. For each exceedance and/or each period of CEMS or PEMS downtime, Tesoro shall include the following information:

- i) For emissions units monitored with CEMS or PEMS:
  - (1) the duration of the exceedance(s) and/or CEMS or PEMS downtime expressed as a percentage of operating time in a calendar quarter; and
  - (2) identification of each applicable rolling average period in which Tesoro exceeded the limit and/or in which CEMS or PEMS downtime occurred, the date and time

of the CEMS or PEMS downtime (if applicable), average emissions during the averaging period, and any identifiable cause of the exceedance (including startup, shutdown or malfunction) and/or CEMS or PEMS downtime; and

ii) For emissions units monitored through stack testing:

- (1) a summary of the results of stack test; and
- (2) a copy of the stack test report."

The undersigned representatives are fully authorized to enter into the terms and conditions of this Fifth Amendment. This Fifth Amendment may be executed in several counterparts, each of which will be considered an original.

#### ORDER

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:

ORDERED, ADJUDGED and DECREED that the foregoing Fifth Amendment to the Consent Decree is hereby approved and entered as a final order of this court.

Dated and entered this 22<sup>ND</sup> day of Feb, 2007.

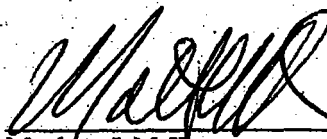
/s/ Rudy LOZANO  
United States District Judge

WE HEREBY CONSENT to the foregoing Fifth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

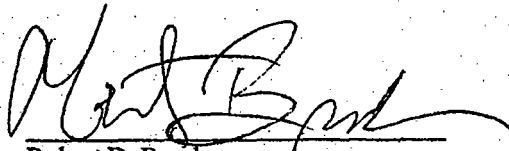
FOR PLAINTIFF THE UNITED STATES OF AMERICA

Date:

2/15/07



Matthew J. McKeown  
Acting Assistant Attorney General  
Environment and Natural Resources Division  
U.S. Department of Justice

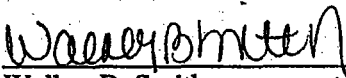


Robert D. Brook  
Assistant Section Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044  
(202) 514-2738

WE HEREBY CONSENT to the foregoing Fifth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Date: \_\_\_\_\_



Walker B. Smith

Director

Office of Civil Enforcement

Office of Enforcement and Compliance Assurance

U.S. Environmental Protection Agency

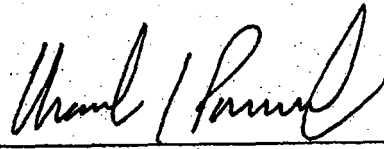

Ariel Rios Building

1200 Pennsylvania Ave., N.W.

Washington, D.C. 20460

WE HEREBY CONSENT to the foregoing Fifth Amendment to the Consent Decree entered in *United States, et al., v. BP Exploration and Oil Co., et al.*, Civil No. 2:96 CV 095 RL on August 29, 2001.

FOR TESORO CORPORATION:

Date: February 5, 2007  

Charles S. Parrish  
Senior Vice President, General Counsel  
and Secretary

## Appendix A

### Supplemental Environmental Project Process Change

The Ammonium Sulfide Concentrate Unit (ASD unit) will convert the sour water stripper overhead gas to ammonium sulfide solution. A simplified process flow diagram for the ASD unit is included as Figure One. The sour water overhead stream (process stream #2) contains significant concentrations of ammonia and reduced sulfur species. The sour water stripper gas will be reacted in an absorber tower with water (process stream #5) and anhydrous ammonia (process stream #4) to produce concentrated ammonium sulfide (process stream #6). The concentrated ammonium sulfide product will be shipped offsite for further processing into a finished fertilizer product.

The ASD unit will also provide short-term redundant sulfur management capacity for the entire refinery during periods when the refinery's sulfur recovery plant (SRP) is offline. Refinery acid gas (process stream #1) will be processed in a manner identical to the sour water stripper gas.

Under normal operations the ASD unit will have one point source of air emissions. The vendor supplying this technology (Tessenderlo Kerley, Inc (TKI)) has estimated the potential ammonia and hydrogen sulfide emissions from the pressure control valve at the top of the absorber tower (process stream #16). That pressure control valve will vent to the SRP incinerator during normal operations. TKI estimates that there will be no emissions of ammonia and that the emissions of hydrogen sulfide will total approximately 0.5 pounds/hour. Incremental NO<sub>x</sub> emissions from the incinerator will be about zero pounds/hour (basis: NO<sub>x</sub> as NO); similarly the incinerator's incremental SO<sub>2</sub> emissions would also be approximately 1.0 pounds/hour.

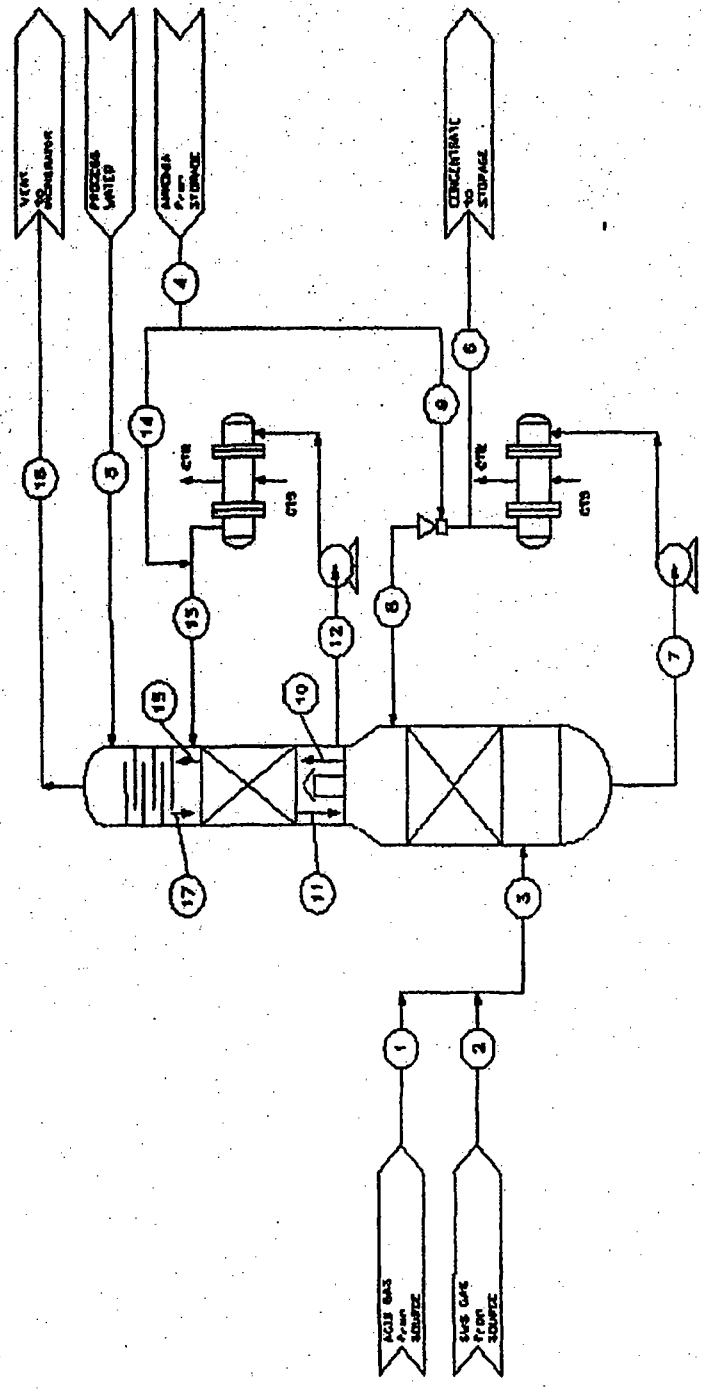
In the event of ASD unit shutdown, Tesoro will take the following actions:

- For short term outages, the Sour Water Stripper will be shutdown, and sour water will be stored in tankage designed for that purpose.
- For shutdowns that exceed the refinery's sour water storage capability, Tesoro will restart the Sour Water Stripper and direct the overhead vapors to the SRP until such time that the ASD unit can be returned to service.

In the event of ASD unit over pressure malfunction, the unit may relieve as designed to the refinery flare. If the over pressure malfunction cannot be resolved within a reasonable time, Tesoro will initiate the shutdown procedure described above. ASD unit venting to the SRP incinerator and refinery flare will be evaluated against the Flaring Incident criteria defined in this Consent Decree. Should a Flaring Incident occur, the event will be subject to the Root Cause analysis subject to Acid Gas Flaring incident requirements of this consent decree.



FIGURE ONE -ASD UNIT SIMPLIFIED PROCESS FLOW DIAGRAM



CERTIFICATE OF SERVICE

I hereby certify that on February 22, 2007, a copy of Plaintiff United States' Fifth Amendment to Consent Decree was duly served upon the following parties by United States mail, postage prepaid, to the following:

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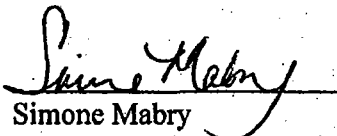
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