STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 ∘ Olympia, WA 98504-7600 ∘ 360-407-6000
711 for Washington Relay Service ∘ Persons with a speech disability can call 877-833-6341

July 7, 2010

Mr. Jeff Pitzer
Business Unit Leader
BP Cherry Point Refinery
4519 Grandview Road
Blaine, WA 98230

Dear Mr. Pitzer:

Regional Haze Best Available Retrofit Technology (BART) Determination

Best Available Retrofit Technology (BART) is required to reduce the regional haze impacts of emissions of your facility. The enclosed Order #7836 contains our BART determination for your facility including a schedule for compliance.

If you have questions or requests relating to this order, please contact Alan Newman at (360) 407-6810 or alan.newman@ecy.wa.gov.

Sincerely,

Jeff Johnston, Ph.D.
Manager, Science and Engineering Section
Air Quality Program

jj/te

Enclosure

By certified mail

cc: Mark Buford, NWCAA
Valerie Lagen, BP Cherry Point Refinery
Alan Newman, Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF AN ADMINISTRATIVE ORDER AGAINST: BP Cherry Point Refinery	ORDER NO. 7836

TO: Mr. Jeff Pitzer
BP Cherry Point Refinery
4519 Grandview Road
Blaine, WA 98230

This is an Administrative Order requiring your company to comply with WAC 173-400-151 by taking the actions which are described below. Chapter 70.94 RCW authorizes the Washington State Department of Ecology's Air Quality Program (Ecology) to issue Administrative Orders to require compliance with the requirements of Chapter 70.94 RCW and regulations issued to implement it.

Ecology has determined that portions of your facility are subject to the provisions of the federal and state visibility protection program (WAC 173-400-151 and 40 CFR Part 51, Subpart P). The rules require that the State determine what technologies and level of emission control constitutes Best Available Retrofit Technology (BART) for the eligible emission units at your facility. The rules also require the installation and use of those emission controls on the BART-eligible emission units. The emission controls are to be installed as expeditiously as possible, but in no event can the State allow them to start operation later than five years after the State's Regional Haze SIP amendment is approved by the United States Environmental Protection Agency (EPA).

FINDINGS

The BP Cherry Point Refinery operates an oil refinery near Blaine, Washington, that contains emission units that are subject to BART.

A. The BART-eligible emission units at the BP Cherry Point Refinery are:

   a. Process heaters and boilers:

      1. 30-1601, Boiler #1
      2. 30-1603, Boiler #3
      3. 10-1401, Crude Charge Heater
      4. 10-1451, South Vacuum Heater
      5. 11-1401, Naphtha HDS Charge Heater

6. 11-1402, Naphtha HDS Stripper Reboiler
7. 11-1403-1406, #1 Reformer Heaters
8. 12-1401-01, Coker Charge Heater (#1 North)
9. 12-1401-02, Coker Charge Heater (#2 South)
10. 13-1401, #1 Diesel HDS Charge Heater
11. 13-1402, #1 Diesel HDS Stabilizer Reboiler
12. 14-1401, Steam Reforming Furnace #1 – (North Hydrogen (H2) Plant)
13. 14-1402, Steam Reforming Furnace #2 – (South (H2) Plant)
14. 15-1401, R-1 HC Reactor Heater
15. 15-1402, R-4 HC Reactor Heater
16. 15-1451, 1st Stage HC Fractionator Reboiler
17. 15-1452, 2nd Stage HC Fractionator Reboiler

b. Other units:

1. 17, 19, SRU & TGU
2. 29.110, High Pressure Flare
3. 29-111, Low Pressure Flare
4. Green Coke Load Out

B. BART emission limitations for the BART-eligible emission units is a combination of:

a. Use of existing burners on process heaters and reboilers.

b. Continued use of the current refinery fuel gas sulfur scrubbing system for control of sulfur dioxide (SO_2) emissions.

c. Replacement of Boilers #1 and #3 with Boilers #6 and #7 as permitted in Prevention of Significant Deterioration (PSD) 07-01 and Order of Approval to Construct (OAC) #1001a.

C. Treatment of Specific Units

a. Boilers #1 and #3 will be decommissioned by no later than March 27, 2010.

Additional information and analysis is available in the BART Determination Support Document for the BP Cherry Point Refinery, Blaine, Washington, prepared by the Washington State Department of Ecology, March 2009, and the Best Available Retrofit Technology Determination, BP Cherry Point Refinery, prepared by Geomatrix Consultants, March 2008.

YOU ARE ORDERED: To install and operate emission control equipment in accordance with the following conditions:

BART EMISSION LIMITATIONS

1. Particulate Matter Emissions

   1.1. PM_{10} emissions from Boilers #6 or #7 (each) shall not exceed 3.4 lb/hr on a calendar day average.

   1.2. For all other BART-eligible units, meet the emission limitations for particulate matter found in NWCAA's Regulation 455.1 given below.

      1.2.1. Emissions shall not exceed 0.10 grain/dscf (corrected to seven percent oxygen), except from all gaseous and distillate fuel burning equipment (the definition of fuel burning equipment does not include internal combustion engines), emissions shall not exceed 0.05 grain/dscf (0.11 g/m^3) corrected to seven percent oxygen.

   1.3. Compliance with the particulate emission limits above will be determined as follows:

      1.3.1. For Boilers #6 and #7, continuous compliance shall be demonstrated by an annual emissions test on each exhaust stack using 40 CFR 60 Appendix A Method 5 front half, and 40 CFR 51 Appendix M Method 202 for the back half, or an equivalent test method if approved in advance by Ecology. After three consecutive years of annual tests on each boiler stack have demonstrated compliance, testing of each boiler stack may be reduced to once every five years. If a test demonstrates noncompliance, a retest along with resumption of annual testing is required for the unit until three consecutive years demonstrate compliance.

      1.3.2. Burn only gaseous fuels.

      1.3.3. For all BART-eligible units, perform particulate emissions testing to determine compliance when requested in writing by NWCAA or Ecology. Particulate testing is performed using EPA Test Method 5 in 40 CFR Part 60 Appendix A and Method 202 in 40 CFR 51 Appendix M.

2. Nitrogen Dioxide (NO_X) Emissions

   2.1. Boilers #6 and #7

2.1.1. NO_X emissions shall not exceed the following emission limits:

2.1.1.1. During periods of normal operation, as defined as firing the boiler above 91 MMBtu HHV/hr (25 percent capacity), 9.0 ppm NO_X by volume, dry basis, corrected to three percent oxygen, based on a 1-hour average.

2.1.1.2. During periods of hot standby, as defined as firing the boiler below 18 MMBtu HHV/hr (five percent capacity), 40.0 ppm NO_X by volume, dry basis, corrected to three percent oxygen, based on a 1-hour average.

2.1.1.3. Operation of each boiler in transition mode, defined as a firing rate at or above 18 MMBtu HHV/hr (five percent capacity) to at or below 91 MMBtu HHV/hr (25 percent capacity), shall not exceed 100 hours per 12-month rolling period. Compliance shall be demonstrated by recording the number of hours operated in this firing range for each calendar month, and submitting the most recent 12-month cumulative total transition mode hours on monthly emission reports submitted to the NWCAA.

2.1.2. NO_X limits will apply and SCR will be operated at inlet temperatures above 500.0 degrees F.

2.1.3. Compliance with Condition 2.1.1 shall be determined by installing NO_X and oxygen continuous emission monitors (CEM) in each boiler stack. The CEM shall be calibrated, maintained, and operated in accordance with NWCAA Appendix A: Ambient Monitoring, Emission Testing, and Continuous Emission and Opacity Monitoring and 40 CFR Part 60 Appendices B and F.

2.2. South Vacuum Heater, Unit 10-1451

2.2.1. NO_X emissions shall not exceed 10.5 lb/hr based on a calendar day average.

2.2.2. Compliance with this condition shall be determined by a CEM installed, calibrated, maintained, and operated to measure NO_X and oxygen in the stack.

2.2.3. Each monitor shall meet the appropriate sections of NWCAA Section 366 and NWCAA Appendix A.

2.2.4. Hourly emission rates for NO_X shall be recorded. On-site documentation shall be kept showing the method of calculating the mass emission rate.

2.2.5. Report data in monthly monitoring report.

2.3. Coker Charge Heater (#1 North), 12-1401-01

2.3.1. NO_X emissions shall not exceed 15.2 lb/hr and 66 tons per year.

2.3.2. Compliance shall be determined by biennial performance tests on one of two identical heaters (#2 North or #2 South) using 40 CFR 60 Appendix A Method 7A or 7E.

2.4. Coker Charge Heater (#2 South), 12-1401-02

2.4.1. NO_X emissions shall not exceed 15.2 lb/hr and 66 tons per year.

2.4.2. Compliance shall be determined by biennial performance tests on one of two identical heaters using 40 CFR 60 Appendix A Method 7A or 7E.

2.5. Number 1 Diesel HDS Charge Heater, 13-1401 and Diesel HDS Stabilizer Reboiler, 13-1402

2.5.1. NO_X emissions from the #1 Diesel Hydrotreater Charge Heater shall not exceed 0.040 lb/MMBtu (higher heating value), or if this emission limit is exceeded, 1.9 lb/hr.

2.5.2. NO_X emissions from the Stabilizer Reboiler Heater shall not exceed 26 ppmv (dry basis corrected to seven percent O_2) based on a 24-hour rolling average. If this concentration is exceeded, a secondary limit to demonstrate compliance is 2.2 lb/hr based on a 24-hour rolling average.

2.5.2.1. Ongoing compliance with this condition shall be determined by a continuous emission monitor (CEM) installed, calibrated, maintained, and operated to measure NO_X and O_2 in the stack by no later than December 1, 2008. Each monitor shall meet the appropriate specifications of 40 CFR 60 Appendices B and F, NWCAA Section 367, and NWCAA Appendix A.

2.6. R-1 HC Reactor Heater, 15-1401

2.6.1. Nitrogen oxides (NO_X) from the Hydrocracker R-1 Heater shall not exceed the following emission limits:

2.6.1.1. 26 ppm by volume, dry basis, corrected to seven percent oxygen, based on a 24-hour rolling average. Or, if this concentration based limit is exceeded, the following mass emission rate limit shall be used to demonstrate compliance.

2.6.1.2. 3.6 lb/hr based on a 24-hour rolling average.

2.6.2. Biennial source testing shall be completed within two months of the anniversary date of the initial test. The test shall be performed under representative operating conditions and at a heater firing rate that corresponds to the operating condition of the Hydrocracker Unit on the scheduled test day. The test shall be conducted in accordance with USEPA Reference Method 7E, NWCAA Regulation Section 367, and NWCAA Appendix A.

2.6.3. NO_X emissions shall be continuously monitored by a certified continuous emission monitoring system (CEMS) for nitrogen oxides and oxygen. The CEMS shall be installed, calibrated, maintained, and operated in accordance with appropriate specifications of 40 CFR 60 Appendices B and F, NWCAA Section 367, and NWCAA Appendix A.

2.6.4. An operating and maintenance manual that contains O&M information on the ultra-low NO_X burners shall be maintained on site.

2.7. 1st Stage HC Fractionator Reboiler, 15-1451

2.7.1. NO_X emissions from the boiler stack shall not exceed 0.07 lb/MMBtu monthly average, or 56.2 tons per calendar year.

2.7.2. A continuous emission monitor or equivalent method approved by the NWCAA shall be used to measure nitrogen oxide emissions.

2.7.3. An operating and maintenance manual that contains O&M information on the low NO_X burners shall be maintained on site.

2.8. 2nd Stage HC Fractionator Reboiler, 15-1452

2.8.1. Emission of NO_X from the heater stack shall not exceed 0.07 lb/MMBtu based on a 24-hour average and shall not exceed 56.2 tpy on a calendar year rolling average.

2.8.2. Report NO_X emissions based on firing rates on a calendar month basis within 30 days after the end of the previous month.

2.8.3. Conduct periodic source testing once every five years within three months of the anniversary of the initial test. Follow 40 CFR 60 Appendix A Method 20.

2.8.4. An operating and maintenance manual that contains O&M information on the low NO_X burners shall be maintained on site.

2.9. No nitrogen dioxide emission limitations are applicable to the following units:

2.9.1. Crude Charge Heater Unit 10-1401, the Naphtha HDS Charge Heater Unit 11-1401.

2.9.2. Naphtha HDS Stripper Reboiler Unit 11-1402.

2.9.3. Number 1 Reformer Heaters 11-1403-1406.

2.9.4. Steam Reforming Furnace #1 (North Hydrogen (H_2)) Plant Unit 14-1401.

2.9.5. Steam Reforming Furnace #2 (South H_2 Plant) Unit 14-1402.

2.9.6. R-4 HC Reactor Heater, Unit 15-1402.

3. Sulfur Dioxide Emissions

3.1. For Boilers #6 and #7

3.1.1. SO_2 emissions from Boilers #6 or #7 (each) shall not exceed 39.3 lb/hr based on a 1-hour average.

3.1.2. SO_2 emissions from Boilers #6 or #7 (each) shall not exceed 59.6 tons per year.

3.1.3. Compliance with Condition 3.1 shall be demonstrated by:

3.1.3.1. Test once per calendar month for total sulfur in the boiler fuel using ASTM Test Method D-5504 or another method approved by Ecology. A minimum of three samples, taken at least an hour apart, shall be run per quarterly test.

3.1.3.2. Monitor fuel H_2S content using a CEMS that continuously monitors and records the concentration (dry basis) of H_2S in the fuel gas.

3.1.3.3. As an alternative to Conditions 3.1.3.1 and 3.1.3.2, BP may monitor using a CEMS that measure and records SO_2 emissions from the Boilers #6 and #7 exhaust stacks and meets the requirements contained in 40 CFR, Part 60, Appendix B, Performance Specification 2 and 40 CFR Part 60, Appendix F, Quality Assurance Procedures.

3.2. Coker Charge Heaters #1 North and #1 South

3.2.1. SO_2 emissions shall not exceed 14.9 lb/hr and 66 tons per year per heater.

3.2.2. Compliance shall be determined by biennial performance tests on one of two identical heaters using 40 CFR 60 Method 6 or 6C or Fuel Gas Analysis using Method 11 or 15.

3.3. Plant-wide refinery fuel gas requirements

3.3.1. All units shall meet the emissions limitations for fuel gas contained in the NWCAA's RO #28 dated May 15, 2002.

3.3.1.1. Fuel gas is limited to a composition of H_2S<230 mg/dscm (0.10 gr/dscf). Equivalent to 162 ppm H_2S, 3-hour rolling average.

3.3.2. Operate CEM for H_2S concentration at the fuel feed line in accordance with NWCAA 367 and Appendix A – "Ambient Monitoring, Emission Testing, and Continuous Emission and Opacity Monitoring," 40 CFR 60 Subpart J and 40 CFR 60 Appendices B and F.

3.3.3. Periods of excess emissions that shall be determined and reported are defined as follows. All rolling 3-hour periods during which the average concentration of H_2S as measured by the H_2S continuous monitoring system under §60.105(a)(4) exceeds 162 ppmv.

3.3.4. Report average H_2S content (3-hour rolling average) in monthly report.

4. All Other BART Units

4.1. SRU and TGU

4.1.1. Sulfur dioxide emissions from TGU stacks 1 and 2 shall not exceed any of the following emission limits:

4.1.1.1. 250 (2.50×10^2) ppm by volume, dry basis, corrected to zero percent oxygen, based on a 12-hour rolling average. The 12-hour rolling average shall be calculated based on corrected hourly averages for the 12 most recent, consecutive clock hours.

4.1.1.2. 1500 (1.50×10^3) ppm by volume, dry basis, corrected to zero percent oxygen, based on a 1-hour average.

4.1.1.3. Compliance with this condition shall be determined by a continuous emission monitor (CEM) installed, calibrated, maintained, and operated to measure sulfur dioxide and oxygen in each TGU stack. Each monitor shall meet the appropriate specifications of 40 CFR 60 Appendices B and F, NWCAA Regulation Section 367, and NWCAA Appendix A.

4.1.1.4. Total tons of sulfur dioxide emitted from the sulfur recovery unit shall not exceed 135 tons based on each consecutive 12-month rolling period. The most recent 12-month rolling total shall be reported to the NWCAA on each monthly emissions report.

SCHEDULE FOR COMPLIANCE

5. For all requirements in Conditions 1, 2, 3 and 4, compliance is required upon the effective date of this Order.

MONITORING AND RECORDKEEPING REQUIREMENTS

6. Sulfur Dioxide Emissions

6.1. The monthly total sulfur test results required by Condition 3.1.3.1 shall be submitted to NWCAA and Ecology upon request.

6.2. SO_2 performance tests required by Conditions 3.2.2 shall be submitted to NWCAA and Ecology upon request.

6.3. Operate CEMS measuring H_2S concentration in accordance with NWCAA 367 and NWCAA Appendix A, 40 CFR 60 Subpart J, and 40 CFR 60 Appendices B and F.

6.4. CEMS data including daily average H_2S concentrations of the refinery fuel gas shall be recorded and retained at the facility available for review by NWCAA or Ecology inspectors.

OTHER REQUIREMENTS

7. Boilers #1 and #3 shall be decommissioned by no later than March 27, 2010. The Northwest Clean Air Agency (NWCAA) shall be notified in writing of the decommissioning date of each boiler. Notifications shall be postmarked no later than 15 days after each decommissioning event.

8. BP may request this compliance Order be rescinded after all of the following occur:

   8.1. All BART units at the plant have continuously complied with the emissions limitations in Conditions 1 through 4 for a period of three years.

   8.2. The emission limitations in this Order have been incorporated into one or more enforceable orders or permits issued under the criteria of RCW 70.94.152 or 70.94.153 and NWCAA regulations implementing these provisions.

   8.3. The emission limitations in the enforceable orders or permits have been incorporated into the Air Operating Permit issued by NWCAA to BP.

9. Issuance of this order indicates requirements of Order 5069 have been complied with.

Within 20 days of receipt of this Order, you may request a delay in the submittal date. Any such request must be accompanied by a written justification for the delay.

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

You have a right to appeal this Order. To appeal you must:

- File your appeal with the Pollution Control Hearing Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.

- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

If you appeal, you must:

- Include a copy of this document with your Notice of Appeal.
- Serve and file your appeal in paper form; electronic copies are not accepted.

To file your appeal with the Pollution Control Hearing Board:

Mail appeal to:

The Pollution Control Hearings Board
P.O. Box 40903
Olympia, WA 98504-0903

OR

Deliver your appeal in person to:

The Pollution Control Hearings Board
4224–6th Avenue SE Rowe Six, Bldg 2
Lacey, WA 98503

To serve your appeal on the Department of Ecology:

Mail appeal to:

Department of Ecology
Appeals Coordinator
P.O. Box 47608
Olympia, WA 98504-7608

OR

Deliver your appeal in person to:

Department of Ecology
Appeals Coordinator
300 Desmond Drive SE
Lacey, WA 98503

And send a copy of your appeal packet to:

Alan Newman
Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

For additional information, go to the Environmental Hearings Office website at http://www.eho.wa.gov.

To find laws and agency rules, go to the Washington State Legislature website at http://www1.leg.wa.gov/CodeReviser.

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with Chapter 43.21B RCW.

DATED this 7 day of July, 2010 at Olympia, Washington.

Jeff Johnston, Ph.D.
Manager, Science and Engineering Section
Department of Ecology
Air Quality Program