



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

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### COMMONWEALTH OF VIRGINIA OPERATING PERMIT

#### STATIONARY SOURCE PERMIT TO OPERATE

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

District of Columbia Department of Corrections  
1923 Vermont Ave., NW, Suite N-203  
Washington, DC 20001  
Registration No. 70028  
County-Plant No. 0059-0024

is authorized to operate

correctional facilities

located at

Lorton, Virginia

in accordance with the Conditions of this permit and all other applicable permits and regulations of the State Air Pollution Control Board.

Approved on 12/10/99

*Dennis H. Treacy*  
for  
Dennis H. Treacy  
Director

Permit consists of 8 pages.  
Permit Conditions 1 to 16.

PERMIT CONDITIONS - the regulatory reference and authority for the condition is listed in parentheses ( ) after each condition.

1. This permit establishes source-specific emission standards and/or other requirements to implement reasonably available control technology (RACT) as required by 9 VAC 5-40-300, 9 VAC 5-40-310 and 9 VAC 5-40-311 of the State Air Pollution Control Board's Regulations.  
(9 VAC 5-80-800 C.2.b of State Regulations)
2. Equipment subject to 9 VAC 5 Chapter 40, Article 4 and RACT requirements pursuant to Section 182 of the federal Clean Air Act consists of:
  - furniture repair shop operations utilizing VOC-bearing compounds
  - two #6-oil-fired Babcock & Wilcox boilers (B-1-1 and B-2-1) at the Central Plant, rated  $43.3 \times 10^6$  Btu/hr each
  - one #6-oil-fired Keeler CP boiler (B-3-1) at the Central Plant, rated  $23.5 \times 10^6$  Btu/hr
  - two coal-fired Keeler CP, S.S. boilers (B-4-1 and B-5-1) at the Central Plant, rated  $11.7 \times 10^6$  Btu/hr each
  - four coal-fired Keeler MKL, U.S. boilers (B-6-1, B-6-2, B-6-3 and B-6-4) at the Occoquan Plant, rated  $10.9 \times 10^6$  Btu/hr each
  - two Titusville boilers (B-7-1 and B-7-2) at the Youth Center plant, rated  $8.4 \times 10^6$  Btu/hr each
  - one Bigelow boiler (B-7-3) at the Youth Center plant, rated  $8.4 \times 10^6$  Btu/hr

Note: Codes in parentheses represent the "Unit Reference Number" in the Title V permit application dated April, 1998 and the permit to modify dated December 11, 1994

3. Volatile organic compound (VOC) emissions from the furniture repair shop shall be controlled by:
- a. All spray guns used in the Furniture Repair Shop to apply VOC-bearing materials shall be of the high volume, low pressure (HVLP) type.
  - b. The contact cement or any substitute used in the Furniture Repair Shop shall have no greater than 5.4 pounds of VOC per gallon.
  - c. The lacquer thinner or any substitute used in the Furniture Repair Shop shall have no greater than 5.1 pounds of VOC per gallon.
  - d. The stripping compound or any substitute used in the Furniture Repair Shop shall have no greater than 1.0 pounds of VOC per gallon.
  - e. The clear lacquer or any substitute used in the Furniture Repair Shop shall have no greater than 5.0 pounds of VOC per gallon.
  - f. The lacquer sealer or any substitute used in the Furniture Repair Shop shall have no greater than 5.0 pounds of VOC per gallon.
  - g. The Department of Corrections shall maintain a list of employees who have been instructed in how to handle and apply any of the VOC-bearing materials they might use, in a manner that minimizes the release of VOC. This list must be available for inspection by DEQ inspectors. The list may be amended at any time by a supervisor, so long as additions represent persons who have been given proper instruction. The training given to listed employees shall include, but not be limited to:
    - keeping covers on opened containers of paint, solvents, and other VOC materials; careful aiming of spray guns; clean-up of spillage; and, proper storage and disposal (or reuse) of VOC contaminated rags.
  - h. No one shall be allowed to handle or apply the VOC-bearing materials in the Furniture Repair Shop unless their name appears on the list required in

condition g. above. A supervisor shall certify daily in a logbook that this condition (h.) has been met.

- i. No container of VOC-bearing material shall be opened by anyone other than a supervisor unless granted prior authorization on the same day by a supervisor. All such authorizations shall be noted in a logbook.

(9 VAC 5-40-300 of State Regulations)

4. Compliance with the requirements in the conditions above for the furniture repair shop operations shall be demonstrated by:

- a. The high volume, low pressure (HVLP) spray guns shall be labeled, so that Department of Corrections personnel and DEQ inspectors can easily identify them as HVLP spray guns.
- b. The Department of Corrections shall maintain two daily logbooks regarding VOC use at the Furniture Repair Shop. One logbook shall show daily usage and remaining inventory of chemicals. It shall also contain notes, check-offs, initials, etc., as needed to comply with the logbook entries required in Conditions 3.h. and 3.i. Violations observed with respect to any of the conditions above shall also be noted there. The other logbook shall show the type and number of pieces on which work was done each day. Each logbook shall be available to DEQ inspectors upon request.

(9 VAC 5-80-850 of State Regulations)

5. The emissions controls and limitations of the State Air Pollution Control Board permit to modify that was issued on December 19, 1994 were determined to represent the required best available control technology, and therefore, for emissions of nitrogen oxides ( $\text{NO}_x$ ) are no less stringent than RACT. Consequently, for the purposes of this permit the nitrogen oxides ( $\text{NO}_x$ ) emissions from the four Keeler MKL, U.S. boilers (B-6-1, B-6-2, B-6-3 and B-6-4) at the Occoquan Plant shall be controlled by the already implemented replacement of those boilers with four Cleaver Brooks Model D-42 boilers (B-

9-1, B-9-2, B-9-3 and B-9-4) rated at  $26.95 \times 10^6$  Btu/hr heat input and equipped with flue gas recirculation (FGR), and the emissions of  $\text{NO}_x$  (as  $\text{NO}_2$ ) of the replacement boilers shall not exceed, averaged over 3 hours:

0.03 lbs/ $10^6$  Btu heat input, when firing natural gas;

0.06 lbs/ $10^6$  Btu heat input, when firing #2 fuel oil;

0.3 lbs/ $10^6$  Btu heat input, when firing #6 fuel oil;

and consumption of #6 fuel oil shall not exceed 188,912 gallons per 12-months period, calculated monthly, for all four boilers combined.

(9 VAC 5-40-310 and 9 VAC 5-40-311 of State Regulations)

6. For the following units,  $\text{NO}_x$  RACT shall be the performance of an annual evaluation and adjustment of the combustion process as to appropriately minimize the formation of  $\text{NO}_x$  emissions:

- two Babcock & Wilcox boilers (B-1-1 and B-2-1) at the Central Plant, rated  $43.3 \times 10^6$  Btu/hr each

The annual evaluation and adjustment shall utilize a combustion analyzer and include, at a minimum, the following:

- a. Development of a plan providing the schedule and procedure for the annual evaluation and adjustment. The plan shall be approved by DEQ and updated as necessary.
- b. Inspection, adjustment, and cleaning or replacement of fuel-burning equipment appurtenances, including the burners, flue gas recirculation equipment (if it exists), and moving parts necessary for proper operation of the fuel-burning equipment as specified by the manufacturer.
- c. Inspection of the flame characteristics and appropriate adjustments to the flame as necessary to minimize all types of emissions.
- d. Inspection of the air-to-fuel ratio control system and adjustments necessary to ensure proper calibration and operation of the device as specified by the manufacturer.
- e. Documentation of each evaluation and adjustment conducted on the combustion process. This documentation shall include, at a minimum: (a) the date of the evaluation and

adjustment; (b) identity of service company and technicians; and, (c) final NO<sub>x</sub>, CO, and excess oxygen emission rates at no less than three representative firing rates specified in the approved annual evaluation plan and the type of combustion analyzer used to determine these emissions.

(9 VAC 5-40-310 and 9 VAC 5-40-311 of State Regulations)

7. For each emission unit subject to Condition 6., the unit shall be operated and maintained in accordance with the manufacturer's specifications and good air pollution control practices. A copy of all relevant operation, maintenance, and specification documentation as provided by the manufacturer for each unit and device shall be maintained on the premises of the facility. Each unit shall be operated and maintained in adherence with this documentation to the degree appropriate and practicable with the intention of minimizing NO<sub>x</sub> emissions.

(9 VAC 5-80-850 of State Regulations)

8. For each emission unit subject to Condition 6., a record of each fuel shipment, including certified fuel type and quantity as provided by the supplier shall be maintained. For natural gas-fired units, a monthly record of fuel usage shall be maintained. These records shall be available on site for inspection by the DEQ and shall be current for the most recent three years.

(9 VAC 5-80-900 of State Regulations)

9. For the following units, NO<sub>x</sub> RACT shall be the operation and maintenance of the unit in accordance with manufacturer's specifications and good air pollution control practices:

- one Keeler CP boiler (B-3-1) at the Central Plant, rated 23.5 x 10<sup>6</sup> Btu/hr
- two Keeler CP, S.S. boilers (B-4-1 and B-5-1) rated 11.7 x 10<sup>6</sup> Btu/hr each
- two Titusville boilers (B-7-1 and B-7-2) at the Youth Center plant, rated 8.4 x 10<sup>6</sup> Btu/hr each
- one Bigelow boiler (B-7-3) at the Youth Center plant, rated 8.4 x 10<sup>6</sup> Btu/hr

A copy of all relevant operation, maintenance, and specification documentation as provided by the manufacturer

for each unit and device shall be maintained on the premises of the facility. Each unit shall be operated and maintained in adherence with that documentation to the degree appropriate and practicable with the intention of minimizing NO<sub>x</sub> emissions.

(9 VAC 5-40-310 and 9 VAC 5-40-311 of State Regulations)

10. Exempted from the requirements of 9 VAC 5 Chapter 40, Article 4 for both volatile organic compounds (VOC) and nitrogen oxides (NO<sub>x</sub>) are the following:
  - a. Process operations with a process weight rate capacity less than 100 pounds per hour;
  - b. Any combustion unit using solid fuel with a maximum heat input of less than 350,000 Btu per hour;
  - c. Any combustion unit using liquid fuel with a maximum heat input of less than 1,000,000 Btu per hour;
  - d. Any combustion unit using gaseous fuel with a maximum heat input of less than 10,000,000 Btu per hour.

(9 VAC 5-40-240 of State Regulations)
11. At all times, including periods of startup, shutdown and malfunction, all units or processes, including those exempted by Condition 10., shall be maintained and operated to the extent possible in a manner consistent with good air pollution control practice of minimizing emissions.  

(9 VAC 5-20-180 of State Regulations)
12. If a unit subject to maintenance requirements of this permit is reported in writing to the DEQ Regional Compliance Manager as having been shut down, subject to verification by DEQ inspectors, the maintenance requirements shall be waived during the inactive period. The unit may not be reactivated without the permittee first demonstrating to the satisfaction of DEQ that the maintenance procedures have been re-instituted and if an annual evaluation is required, that such an evaluation has been performed within the past 12 months.
13. The permittee shall maintain the following records and documents to demonstrate compliance with this permit:
  - a. For units subject to Condition 6., the annual evaluation and adjustment plan required by Item a. and the final

report documentation required by Item e. for each annual evaluation and adjustment.

- b. The records of fuel type, quantity, and nitrogen content as specified in Condition 8.
- c. The manufacturer's documentation for operation and maintenance and specifications as required by Conditions 7. and 9.
- d. Sufficient documentation to support claims that units on site are exempted under Condition 10.

The format of such records shall be arranged with the Regional Compliance Manager. These records shall be available on site for inspection by the DEQ and shall be current for the most recent three years.

(9 VAC 5-80-900 of State Regulations)

- 14. Methods for demonstrating and reporting compliance with the conditions of this permit, including the periodic demonstration of compliance with the emission limits of this permit shall be incorporated in the federal operating ("Title V") permit for this facility. The records necessary to meet these requirements shall be as described in the federal operating permit and shall be retained by the permittee for a minimum of five years from the time that the relevant data was collected.  
(9 VAC 5-80-110)

- 15. In the event of any change in control of ownership of the permitted source, the permittee shall notify the succeeding owner of the existence of this permit by letter and send a copy of that letter to the Regional Compliance Manager.  
(9 VAC 5-80-940 of State Regulations)

- 16. A copy of this permit shall be maintained on the premises of the facility to which it applies.  
(9 VAC 5-80-860 of State Regulations)