#194-01

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE
5636 Southern Boulevard, Virginia Beach, Virginia 23462
(757) 518-2000 Fax (757) 518-2103
www.deq.virginia.gov

L. Preston Bryant, Jr
Secretary of Natural Resources

David K. Paylor
Director

Francis L. Daniel
Regional Director

September 20, 2006

Mr. D. R. Wagoner
Superintendent
Engineering/Maintenance
Dominion Terminal Associates
PO Box 967-A
Newport News, Virginia 23607

Location: Newport News
Registration No.: 60997
AFS Id. No.: 51-700-00074

Dear Mr. Wagoner:

Attached is an amendment to your new source review permit to construct and operate a coal, petroleum coke and limestone receiving and shipping facility in accordance with the provisions of the Virginia Regulations for the Control and Abatement of Air Pollution. This amended permit supersedes your permit dated September 13, 2004.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

The Department of Environmental Quality (DEQ) deemed the application complete on September 1, 2006 and has determined that the application meets the requirements of 9 VAC 5-80-1280 A for a minor amendment to a new source review permit.

This permit approval to construct and operate shall not relieve Dominion Terminal Associates of the responsibility to comply with all other local, state, and federal permit regulations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-200 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director
Department of Environmental Quality
PO Box 1105
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact Ms. Kelly M. Ryan at (757) 518-2155.

Sincerely,

Maria R. Nold
Deputy Regional Director

MRN/KMR/DTA_Sept2006_amd.doc

Attachments: Permit
Source Testing Report Format
Appendix A

cc: Director, OAPP (electronic file submission)
Manager, Data Analysis (electronic file submission)
Manager/Inspector, Air Compliance

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L. Preston Bryant, Jr
Secretary of Natural Resources

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Francis L. Daniel
Regional Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

This permit supersedes your permit dated September 13, 2004.

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

Dominion Terminal Associates
PO Box 967-A
Newport News, Virginia 23607
Registration No.: 60997
AFS Id. No.: 51-700-00074

is authorized to construct and operate

a coal, petroleum coke and limestone receiving,
storage and shipping facility

located at

Pier 11, Harbor Road
Newport News, Virginia

in accordance with the Conditions of this permit.

Approved on **September 20, 2006**.

Maria R. Nold, Deputy Regional Director

Permit consists of 10 pages.
Permit Conditions 1 to 39.

INTRODUCTION

1. This permit approval is based on the permit application dated August 17, 1981, October 15, 2002 and May 8, 2004 including amendment information dated August 25, 1981, October 19, 1989, April 22, 1992, December 11, 2002, July 13, 2004 and April 3, 2006. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.

   Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-10 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

   Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

   The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, § 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

PROCESS REQUIREMENTS

2. **Equipment List** - Equipment at this facility consists of the following:

Equipment to be constructed:			
Reference No.	**Equipment Description**	**Rated Capacity**	**Air Pollution Control(s)**
UL-1	Marine vessel grab unloader	2000 tons/hr	Enclosed grab
UL-2	Marine vessel grab unloader	2000 tons/hr	Enclosed grab
BH-1	Ship unload hopper	3400 tons/hr	Fabric filter (DC-2)
BH-2	Ship unload hopper	3400 tons/hr	Fabric filter (DC-3)
BC-14	Ship unload conveyor	6800 tons/hr	Fully enclosed
BC-15	Ship unload conveyor	6800 tons/hr	Fully enclosed
Equipment permitted prior to the date of this permit:			
RD-1	Tandem rotary rail car dumper	5800 tons/hr	Enclosed bldg. with water spray
BS-1	Surge silo	1000 tons	Fabric filter (DC-1)
BS-2	Surge silo	3800 tons	Fabric filter (DC-5)
BS-3	Surge silo	4100 tons	Fabric filter (DC-6)
BC-1 through BC-13	Various coal handling and storage conveyors	Largest belt 6800 tons/hr	All fully enclosed (except 4, 7 and 13 – yard belts)
S/R-1 & S/R-2	Two (2) rotary stacker/reclaimers	5900 tons/hr stacking, 6500 tons/hr reclaim	Wet suppression
S/R-3	Rotary reclaimer	6800 tons/hr reclaim only	Wet suppression
OS-1 through OS-4	Coal, coke and limestone storage piles	Up to 350,000 tons	Wet suppression system (computerized)
SL-1	Ship/barge loader	6800 tons/hr	Wet suppression, telescoping loading chutes

Specifications included in the permit under this Condition are for informational purposes only and do not form enforceable terms or conditions of the permit.
(9 VAC 5-80-1180 D 3)

3. **Emission Controls** - Particulate emissions from each marine vessel grab unloader (UL-1 and UL-2) shall be controlled by using closed grab buckets. The grab buckets shall be completely closed during movement of material from marine vessels to receiving hoppers.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

4. **Emission Controls** - Particulate emissions from each marine vessel unloading hopper (BH-1 and BH-2) shall be controlled by a fabric filter (DC-2 and DC-3). The fabric filters shall be provided with adequate access for inspection.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

5. **Emission Controls** - Particulate emissions from the enclosed rotary rail car dumper building (RD-1) shall be controlled by wet suppression, which, if necessary, shall include the use of a surfactant. The surfactant to water ratio shall be in accordance with the manufacturer's recommendations. The minimum amount of water applied shall be 130 gallons per tandem dump. Compliance shall be achieved if there are no visible emissions.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

6. **Emission Controls** - Particulate emissions from the transfer points and stacker/reclaimers (S/R-1, 2 and 3) shall be controlled by wet suppression as necessary and by wet suppression with surfactant as necessary. Continuous wetting is not mandatory.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

7. **Emission Controls** - Particulate emissions from the conveyor system shall be controlled by conveyor hoods and wind guards. Ground level reclaim conveyor belts shall be controlled by wet suppression as necessary.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

8. **Fugitive Dust Emission Controls** – Fugitive dust emissions from the storage piles shall be controlled by a wet suppression system capable of wetting the entire storage area. Wet suppression cycles shall be implemented in accordance with Appendix A. Each cycle shall consist of no less than 35,500 gallons of water and, with assistance from other equipment, attain 100 percent coverage of the storage area. The wet suppression system shall be provided with adequate access for inspection.
(9 VAC 5-50-90, 9 VAC 5-80-1180, and 9 VAC 5-50-260)

9. **Fugitive Dust Emission Controls** – All storage piles shall be truncated, stacker/reclaimers used to build flat top piles, and the top compacted to minimize fugitive emissions.
(9 VAC 5-50-90, 9 VAC 5-80-1180, and 9 VAC 5-50-260)

10. **Emission Controls** – Wet suppression shall be applied as necessary to all incoming loaded railcars located within facility boundaries if they are not to be dumped within 24 hours.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

11. **Emission Controls** – Work areas shall be monitored and wet suppression applied as necessary to control emissions while operating a piece of auxiliary handling equipment (e.g., front end loader, bulldozer, etc.). (9 VAC 5-80-1180 and 9 VAC 5-50-260)

12. **Emission Controls** – Wet suppression shall be utilized when operating a particular piece of handling equipment (e.g., a dumper, a conveyor, etc.), unless the use of such controls would cause a safety hazard or damage to the equipment from freezing.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

13. **Emission Controls** – Particulate emissions from each surge silo (BS-1, BS-2 and BS-3) shall be controlled by a fabric filter (DC-1, DC-5 and DC-6). The fabric filters shall be provided with adequate access for inspection.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

14. **Monitoring – Marine Vessel Unloading Hoppers** – Once per ship, within the initial 2 hours after unloading begins, the permittee shall observe the baghouse fan motor amperage for the marine vessel unloading hoppers (BH-1 and BH-2). An acceptable range shall be established that reflects good air pollution control practice. An observation outside the acceptable range shall indicate the need for corrective action. The permittee shall maintain a log of the date, time, location, name of person performing the observation, the motor amperage reading, whether or not visible emissions were detected, and any corrective actions taken, if necessary. These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 and 9 VAC 5-50-20)

15. **Monitoring – Fabric Filters** – Once per day, when in operation, the exhaust from each surge silo fabric filter (DC-1, DC-5 and DC-6) shall be observed by the permittee for a period of no less than one minute for the presence of visible emissions. If visible emissions are observed, the permittee shall perform corrective actions to eliminate the cause of the visible emissions. The permittee shall maintain a log of the date, time, location, name of person performing the observation, whether or not visible emissions were detected, and any corrective actions taken, if necessary. These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 D, 9 VAC 5-50-20 C, and 9 VAC 5-50-260)

16. **Monitoring – Fabric Filters** – Once per day, when in operation, the exhaust from each marine vessel unloading hopper fabric filter (DC-2 and DC-3) shall be observed by the permittee for a period of no less than one minute for the presence of visible emissions. If visible emissions are observed, the permittee shall perform corrective actions to eliminate the cause of the visible emissions. The permittee shall maintain a log of the date, time, location, name of person performing the observation, whether or not visible emissions were detected, and any corrective actions taken, if necessary. These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 D, 9 VAC 5-50-20 C, and 9 VAC 5-50-260)

17. **Monitoring – Process Equipment** – Once per day, when in operation, particulate emissions from the marine vessel grab unloaders (UL-1 and UL-2), the enclosed rotary rail car dumper building (RD-1) and the conveyor systems shall be observed by the permittee for a period of no less than one minute for the presence of visible emissions. If visible emissions are observed, the permittee shall perform corrective actions to eliminate the cause of the visible emissions. The permittee shall maintain a log of the date, time, location, name of person performing the observation, whether or not visible emissions were detected, and any corrective actions taken, if necessary. These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 D, 9 VAC 5-50-20 C, and 9 VAC 5-50-260)

18. **Wet Suppression System** – The wet suppression system for the storage piles shall be implemented as specified in Appendix A or by any other procedure as may be approved by the DEQ prior to use. Such approval shall be contingent on adequate documentation that any alternative procedure shall achieve at least as high an efficiency as Appendix A. This applies to all other dust control measures required by this permit. Request for changes in procedures shall be accompanied by an explanation of the proposed changes and the anticipated effect they shall have. These requests, if approved by the DEQ, shall be subject to a test and evaluation procedure prior to being accepted as permanent changes to the control procedures.
(9 VAC 5-50-260)

OPERATING LIMITATIONS

19. **Storage** – On a daily annual average basis, the maximum quantity of coal, petroleum coke and limestone (combined) in storage shall not exceed 1,100,000 tons, and at no time shall more than 1,400,000 tons of coal, petroleum coke and limestone (combined) be stored at the facility.
(9 VAC 5-80-1180)

20. **Throughput** - The throughput of coal/petroleum coke/limestone (combined), via rail and ship, shall not exceed 24,000,000 tons per year, calculated monthly as the sum of each consecutive 12-month period. No more than 10,000,000 tons per year of coal/petroleum coke/limestone (combined) shall be imported via ship. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
(9 VAC 5-80-1180)

EMISSION LIMITS

21. **Emission Limits** – Particulate emissions from the operation of the coal/petroleum coke/limestone receiving, storage and shipping facility shall not exceed the limits specified below:

Particulate Matter (PM)	54.0 tons/yr
PM-10	9.7 tons/yr

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition numbers 3-20.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

22. **Visible Emission Limit** – There shall be no detectable visible emissions from the enclosed rotary rail car dumper building (RD-1). Failure to meet this limitation due to the presence of water vapor shall not be a violation.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

23. **Visible Emission Limit** – There shall be no detectable visible emissions from any fabric filter exhaust stack (DC-1 – DC-6).
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

24. **Visible Emission Limit** - There shall be no detectable visible emissions from the conveyor belt transfer points. Failure to meet this limitation due to the presence of water vapor shall not be a violation.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

25. **Monitoring PM_{10}** – Dominion Terminal Associates shall install and operate a PM10 monitor at the Newport News Housing Authority Maintenance Building (180-J) to ascertain the ambient air quality in the area surrounding the coal/petroleum coke/limestone terminal. Operation shall be in accordance with Appendix J of 40 CFR Part 50.
(9 VAC 5-160-170)

26. **Control of Emissions** – The following actions are considered detrimental to the control of coal/petroleum coke/limestone emissions:
    a. Failure to stop any coal/petroleum coke/limestone movement operation when it becomes known that installed air pollution control systems are inoperative and would cause excess emissions.
    b. Failure to stop a coal/petroleum coke/limestone movement operation when it becomes known that the coal/petroleum coke/limestone handling equipment needed for that operation is malfunctioning or operating significantly below designated specifications.
    c. Failure of equipment operators to take immediate precautions to preclude fugitive dust emissions from the operation of bulldozers, front-end loaders, automobiles, or trucks (e.g., the use of water suppressant or limiting the speed of movement to below 10 miles per hour.)
    d. Failure of operational personnel to give precedence to designated personnel with the responsibility for controlling dust emissions.

    (9 VAC 5-80-1180 and 9 VAC 5-50-260)

RECORDS

27. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Director, Tidewater Regional Office. These records shall include, but are not limited to:

    a. Annual throughput of coal/petroleum coke/limestone (combined), via rail and ship, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

b. Annual throughput of imported coal/petroleum coke/limestone (combined), via ship, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

c. Records of visible emission observations for fabric filters (DC-1, DC-5 and DC-6) as required in Condition 15.

d. Records of visible emission observations for fabric filters (DC-2 and DC-3) as required in Condition 16.

e. Records of visible emission observations for the process equipment as required in Condition 17.

f. Records of baghouse fan motor amperage measurement observations for the marine vessel unloading hoppers (BH-1 and BH-2) as required in Condition 14.

g. Records of PM10 monitoring operations as required by Appendix J of 40 CFR Part 50.

h. Maximum daily quantity of coal/petroleum coke/limestone (combined) in storage.

i. Annual daily average of coal/petroleum coke/limestone (combined) in storage.

j. Records of dust control measures as required by Appendix A.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 and 9 VAC 5-50-50)

INITIAL COMPLIANCE DETERMINATION

28. **Visible Emissions Evaluation** – Initial performance tests of fugitive visible emissions shall be conducted by the permittee on each grab unloader (UL-1 and UL-2), conveyor transfer points and hopper (BH-1 and BH-2) used to unload vessels. There shall be no visible emissions or releases from the grab unloaders while materials are being transferred from the vessel to the hoppers or from the hoppers while receiving materials being transferred. Observations shall be made over six (6) consecutive unloading cycles. The details of the tests are to be arranged with the TRO Air Compliance Manager. The evaluation shall be performed to demonstrate compliance within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of the permitted facility. One copy of the test results shall be submitted to the TRO Air Compliance Manager within 45 days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-50-30, 9 VAC 5-80-1200, and 9 VAC 5-50-410)

NOTIFICATIONS

29. **Initial Notifications** - The permittee shall furnish written notification to the Tidewater Regional Office of:

a. The actual date on which construction of the marine unloading facilities commenced within 30 days after such date.

b. The anticipated start-up date of the marine unloading facilities postmarked not more than 60 days nor less than 30 days prior to such date.

c. The actual start-up date of the marine unloading facilities within 15 days after such date.

d. The anticipated date of the VEE performance tests of the marine unloading facilities postmarked at least 30 days prior to such date.

Copies of the written notification referenced in items a through d above are to be sent to:

Associate Director
Office of Air Enforcement (3AP10)
U. S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

(9 VAC 5-50-50 and 9 VAC 5-80-1180)

GENERAL CONDITIONS

30. **Permit Invalidation** – The portions of this permit regarding construction of the marine unloading facilities shall become invalid, unless an extension is granted by the DEQ, if:

    a. A program of continuous construction is not commenced within the latest of the following:

        i. 18 months from the date of this permit;

        ii. Nine months from the date that the last permit or other authorization was issued from any other governmental entity;

        iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or

    b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

    (9 VAC 5-80-1210)

31. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:

    a. Knowingly makes material misstatements in the permit application or any amendments to it;

    b. Fails to comply with the conditions of this permit;

    c. Fails to comply with any emission standards applicable to a permitted emission unit;

    d. Causes emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or

    e. Fails to operate in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.

    (9 VAC 5-80-1210 F)

32. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

    a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;

b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;

c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and

d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9 VAC 5-170-130 and 9 VAC 5-80-1180)

33. **Maintenance/Operating Procedures** – At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

During each shift, one designated person shall be responsible for compliance with the procedures of Appendix A. Actions required in support of these procedures shall take precedence over routine coal, petroleum coke and limestone handling procedures. The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices and process equipment which affect such emissions:

a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.

b. Maintain an inventory of spare parts.

c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.

d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
(9 VAC 5-50-20 E and 9 VAC 5-80-1180 D)

34. **Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.
(9 VAC 5-20-180 J and 9 VAC 5-80-1180 D)

35. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Director, Tidewater Regional Office of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone, telegraph or other electronic communication. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Director, Tidewater Regional Office.
(9 VAC 5-20-180 C and 9 VAC 5-80-1180)

36. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.
(9 VAC 5-20-180 I and 9 VAC 5-80-1180)

37. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Director, Tidewater Regional Office of the change of ownership within 30 days of the transfer.
(9 VAC 5-80-1240)

38. **Registration/Update** – Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to request by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact. The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, § 2.1-340 through 2.1-348 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.
(9 VAC 5-170-60 and 9 VAC 5-20-160)

39. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-80-1180)

SOURCE TESTING REPORT FORMAT

Report Cover
- Plant name and location
- Units tested at source (indicate Ref. No. used by source in permit or registration)
- Test Dates.
- Tester; name, address and report date

Certification
- Signed by team leader/certified observer (include certification date)
- Signed by responsible company official
- *Signed by reviewer

Copy of approved test protocol

Summary
- Reason for testing
- Test dates
- Identification of unit tested & the maximum rated capacity
- *For each emission unit, a table showing:
  - Operating rate
  - Test Methods
  - Pollutants tested
  - Test results for each run and the run average
  - Pollutant standard or limit
- Summarized process and control equipment data for each run and the average, as required by the test protocol
- A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
- Any other important information

Source Operation
- Description of process and control devices
- Process and control equipment flow diagram
- Sampling port location and dimensioned cross section Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

Test Results
- Detailed test results for each run
- *Sample calculations
- *Description of collected samples, to include audits when applicable

Appendix
- *Raw production data
- *Raw field data
- *Laboratory reports
- *Chain of custody records for lab samples
- *Calibration procedures and results
- Project participants and titles
- Observers' names (industry and agency)
- Related correspondence
- Standard procedures

* Not applicable to visible emission evaluations

APPENDIX A

This appendix is to be considered a part of the Department of Environmental Quality permit to operate the Dominion Terminal Associates (Dominion) coal/petroleum coke/limestone terminal. All procedures outlined in this appendix are enforceable as a condition of operating.

Dominion shall record the following parameters on an hourly basis:

Average hourly temperature (T) in degrees Fahrenheit

Average hourly relative humidity (RH)

Average hourly wind speed in miles per hour (WS)

Average hourly wind direction (DIR)

Hourly rain in inches

Hourly occurrence of fog (visibility of 4 miles or less)

Density of air ρ (lb/ft^3) from the equation $\rho = -0.0001478(T) + 0.0853$

Viscosity of air (1.68μ lb/ft-hr) from the following equations

$-24.88 < T \leq 32$	$1.68\mu = 0.0001207(T) + 0.0655479$
$32.00 < T \leq 64.40$	$1.68\mu = 0.0001493(T) + 0.0646353$
$64.40 < T \leq 104$	$1.68\mu = 0.0001344(T) + 0.0655899$

K as determined by the equation: $K = WS(T/RH)(\rho/\mu\ 1.68)$

Dominion shall use the data listed above for a computerized spreadsheet in a format as described below, maintaining the records to be submitted to the Board upon request.

The program outlined in Appendix A when properly programmed will provide for an hourly visual display (graph) which depicts the following:

a. CE_{unc} for the KT predicted: will change by the new hourly prediction of KT. At the end of the day will represent the potential uncontrolled coal and petroleum coke emissions experienced in the past 24 hours.

b. Slope of the uncontrolled intended movement with time for the PASS-1 system without controls: will change by the new hourly prediction of KT.

c. PASS-1 line, with hourly markings in proportion depicting the controlled to the hourly K, emission level attained when controls are applied. This line's slope and value will vary as suppression cycles are applied. The extension of this line depicts the near low end of the day value in $\mu g/m^3$, if no further cycles are applied and is the primary control medium. It generates from the uncontrolled slope line (b.).

d. PASS-0 line, depicting the controlled emissions level attained when controls are applied. This line's slope as in (c) will vary as suppression cycles are applied. The extension of this line depicts the near high end of the day value in $\mu g/m^3$, if no further cycles are applied. When, due to cycles, the PASS-0 line and the PASS-1 line are one and the same, their extension will be the end of the day value attained for coal and petroleum coke emissions in $\mu g/m^3$. It generates from the uncontrolled CE_{unc} line (a.).

e. PASS-0 (180) line, with hourly markings in proportions to the hourly K, depicting the controlled emission level when the wind direction is between 180° and 270°T. This line is activated by wind direction inputs and holds the last highest value during periods when the wind is out of quadrant. Its extension represents the near end of day value in $\mu g/m^3$ at station 180-J if no further cycles are applied. This line also generates from the uncontrolled CE_{unc} line (a.).

COLUMN 1

TM Records the hourly values for a 24 hour day, beginning with a 1 at 0100 hours and ending with a 24 at 2400 hours.

COLUMN 2

K Computes and records the hourly value of K as follows:

$$K = ((WS * TEMP) / RH) * (\rho/1.68\mu)$$

COLUMN 3

KD Computes and records the K factor adjusted for rain and freeze effects. KD is used to define the need for a cycle (C_i) administered by the computer controlled water suppression system. KD is computed as follows:

$$KD = K * F_{fr}$$

COLUMN 4

C_i Records the total number of cycles credited on the hour. A 20-minute suppression cycle (35,500 gallons of water) sprayed from the computer controlled water suppression system counts as one cycle as well as a rain event greater than or equal to 0.0225 inches. Rain greater than or equal to 0.01 inches but less than 0.0225 inches is counted as one C_i if the adjusted rain amount for the hour is less than the actual rain amount.

COLUMN 5

SYM Records the type of suppression cycle credited for the hour. Where:

A: represents an ASSURANCE CYCLE (one 20-minute spray cycle per hour from the computer controlled water suppression system).

F: represents a continuous cycle (three 20-minute spray cycles per hour) administered to recover from a freeze event.

R: represents a rain event credited as a cycle.

1: represents a DEMAND I cycle, where KD is greater than or equal to 10, but less than 15.

2: represents a DEMAND II cycle, where KD is greater than or equal to 15, but less than 30.

3: represents a DEMAND III cycle, where KD is greater than or equal to 30, but less than 45.

4: represents a DEMAND IV cycle, where KD is greater than or equal to 45.

COLUMN 6

$\sum C_i$ Records the total number of cycles credited since 0100 or the sum of COLUMN 4.

COLUMN 7

IR Records the amount of rain in inches for the hour as measured by the rain gauge.

Note: CIR, the total amount of rain credited for the hour is computed as follows:

CIR = IR if it is raining, but adds 0.0225 to IR if a DEMAND IV RBC is administered.

IRadj, the adjusted rain amount for the hour is also computed to include the effects of non-consecutive rains, where:

$IRadj = CIR_{n-1} / (HRS_{n-1} + 1)$ when $IR > 0$ and $HRS > 0$

$IRadj = SUMIR_{n-1} / (HRS_{n-1} + 1)$ when $IR > 0$, $SUMIR \geq 0.0225$; and $HRS = 0$

$IRadj = 0$ when $IR = 0$, and $SUMIR < 0.0225$

COLUMN 8

HRS Records the number of hours following a rainfall. HRS increases by one each hour after the rain ends, and continues to do so until another rain begins or until the effects of the rain are over ($F_r \geq 0.9$ or HRS = 48)

Note: If a DEMAND IV cycle is administered in order to recover from a freeze, HRS is initially set to 0.5 instead of 1.

HRS = 0		when $C_i = 3$ and $FIR_{n-1} = 0$ **or** $F_{frn-1} < 1$
HRS = 0		when IR > 0 and SUMIR > 0.0225
HRS = 0.5		when $C_i = 3$; $FIR_{n-1} > 0$;and $F_{frn-1} \geq 1$
$HRS = HRS_{n-1} + 1$		when IR > 0 and SUMIR ≤ 0.0225
	or	when IR = 0; SUMIR > 0.0225

Note: If TM = 24 and HRS < 48 and $F_r < 0.9$ then HRS and SUMIR are carried forward to the next day. If HRS = 48 or $F_r \geq 0.9$ the post rain effect has reached its limits. On the next hour, $F_r = 1$, HRS = 0, and SUMIR = 0.

COLUMN 9

SUMIR Computes and records the effective sum of the hourly rainfall as follows:

SUMIR = 0	when CIR = 0 and $SUMIR_{n-1} < 0.0225$
$SUMIR = SUMIR_{n-1}$	when CIR = 0 and $SUMIR_{n-1} \geq 0.0225$
SUMIR = CIR	when CIR > 0;$(IR + IR_{n-1}) < 0.0225$;and $F_{frn-1} = 1$
SUMIR = CIR	when CIR > 0; $(IR + IR_{n-1}) < 0.0225$ $F_{frn-1} < 1$; $CIR_{n-1} > 0$; and $C_i = 3$
$SUMIR = IR + SUMIR_{n-1}$	when CIR > 0'; $(IR + IR_{n-1}) < 0.0225$; $F_{frn-1} < 1$; $CIR_{n-1} > 0$; and $C_i < 3$
$SUMIR = IRadj_{n-1} + CIR$	when CIR > 0; $(IR + IR_{n-1}) < 0.0225$ $F_{frn-1} < 1$; $CIR_{n-1} = 0$;
$SUMIR = IRadj_{n-1} + CIR$	when CIR > 0; and $(IR + IR_{n-1}) \geq 0.0225$

Note: If $F_r = 1$ or HRS = 48 then SUMIR is set to zero the next hour.

COLUMN 10

F_r Computes and records the post rain recovery factor. F_r ranges from zero to one, with F_r set to zero during a rain. When $F_r \geq 0.9$, the effects of the rain are considered over, and F_r is set to one on the next hour. F_r is computed as follows:

$F_r = 0$	when CIR < 0.0225 and SUMIR ≥ 0.0225
$F_r = 1$	when CIR < 0.0225 and SUMIR < 0.0225
$F_r = 10^{(-215.66*24*SUMIR/(HRS*KT))}$	when CIR < 0.0225 and SUMIR < 0.0225

COLUMN 11

F_{fr} Computes and records the combined effects of rain and freeze, where $F_{fr} = F_r * F_f$.

F_f (the post freeze effect) is calculated as follows:

$F_f = ((SUMKF * FHRS)/(FIR * 106)) * 4.02917 + 0.305$	when FIR > 0 and SUMKF > 0
$F_f = 1$	when FIR = 0 or SUMKF = 0

SUMKF (the sum of the freeze shear) is calculated by summing the K values beginning when the temperature reaches 29°F until $F_r \leq 0.1$ or until continuous cycles are administered.

FIR (the potential freeze water) is calculated as follows:

FIR = SUMKF/19200	when FIR_{n-1} = 0;SUMIR = 0;FHRS = 8; and SUMKF > 0
FIR = FIR_{n-1}	when FIR_{n-1} = 0; SUMIR = 0; FHRS ≠ 8 and SUMKF > 0
or	when FIR_{n-1} > 10; F_r = 1; and SUMIR + $SUMIR_{n-1}$ ≤ FIR_{n-1}
FIR = SUMIR	for all other conditions

FHRS (the potential freeze hours) is calculated as follows:

FHRS = 0	when SUMIR = 0 and SUMKF = 0
FHRS = HRS	when SUMIR > 0 and SUMKF = 0
FHRS = HRS	when SUMKF > 0; TEMP > 34°F; and F_r < 0.1
FHRS = FHRS + 1	when SUMKF > 0; and TEMP ≤ 34°F **or** $F_r \geq 0.1$

COLUMN 12

KT Computes and records the predicted sum of K at the end of the day as follows:

$KT_n = K_1 + K_2 + K_3 + \ldots K_n + K_n(24\text{-}TM)$

EXAMPLE:	TM	K
	1	10
	2	10
	3	20

$KT_3 = 10 + 10 + 20 + 20(24\text{-}3) = 460$

COLUMN 13

H_{vi} Computes and records the estimated amount of dust entering the HVS during the hour as follows:

$H_{vi} = Ksum * Sl * F_{fr}$

where:

Ksum is the sum of the K values within the current cycle set.

Sl is the slope of the sumH_{vi} line for the current cycle set, and is computed as follows:

At TM = 1

$Sl = sb$ when $C_i = 0$

where sb(base slope) = CE_{unt}/KT

$Sl = sb * (1\text{-}eff)$ when $C_i > 0$

For all other times (n):

$Sl = Sl_{cin\text{-}1} * (1\text{-}eff)_n$

where $Sl_{ci\text{-}1}$ is the last value of Sl in the previous C_i sequence $Sl_{ci\text{-}1}$ = sb prior to any cycles.

(1-eff) term calculates the efficiency of the last cycle administered and is calculated as follows:

Equation A:

$(1\text{-}eff)_a = (1\text{-}(36.657299 * 10^{(-0.00189215 * Ksum)}/100))C_{seq}$

Equation B:

$(1\text{-}eff)_b = (1\text{-}((-0.0146913 * Ksum + 14.65059)/100))C_{seq}$

Equation A can be used to calculate the efficiencies when KT < 288 otherwise use Equation B until $slope_{n\text{-}1} * (1\text{-}eff)_b \leq$ sp(shift point)

where sp = 0.6256838 - 0.0008297 * KT

then switch to Equation A.

Note: At the beginning of the day, (1-eff) = 1 until a cycle occurs. If a cycle is credited at time 1 (cycle performed at TM 0000) then the equation for (1-eff) changes as follows: KT replaces Ksum, and the calculation is multiplied by C_{seq} instead of raised to its power. The slope then remains constant until another cycle/cycles are administered.

C_{seq} is the cycle sequence for the current cycle set.

where: $C_{seq} = 0$	when $C_i = 0$
$C_{seq} = C_{seqn-1}$	when $C_{in} = C_{in-1}$
$C_{seq} = 0.5$	when $C_{in} > C_{in-1}$; $F_{fr} > 1$; and $C_i = 1$
$C_{seq} = 1$	when $C_i = 1$ or 3
$C_{seq} = 2$	when $C_i = 2$

EXAMPLE: KT(at TM = 4) = 368.60 i.e. ≥ 288

sb = 0.40804

sp = 0.31986

TM	K	RBC	Ksum	(1-eff)	C_{seq}	Sl	F_{fr}	H_{vi}
1	20.10	0	20.10	1.0	0	0.408	1.0	8.2024
2	17.00	0	37.10	1.0	0	0.408	1.0	15.1398
3	16.50	1	16.50	0.85592	1	0.349	1.0	15.7631
4	15.00	1	31.50	0.85592	1	0.350	1.0	11.0307

COLUMN 14

$\sum H_{vi}$ Computes and records the sum of the coal and petroleum coke dust in the HVS (Hi Vol Sampler) to the hour as follows:

$$\sum H_{vi} = H_{vi} + \sum H_{vicin-1}$$

where $\sum H_{vicin-1}$ is the last value of $\sum H_{vi}$ in the previous cycle sequence.

EXAMPLE: Using the values from the previous example:

TM	$\sum H_{vicin-1}$	$\sum H_{vi}$
1	0.0	8.2024
2	0.0	15.1398
3	15.1398	20.9029
4	15.1398	26.1705

COLUMN 15

HVT Computes and records the projected amount of dust on the HVS filter at the end of the day if no further cycles were administered.

$$HVT = \sum H_{vi} + KL * Sl * (1\text{-}eff)$$

where $KL = KT - sum(K_1 + K_2 + \ldots K_n)$

(1-eff) is the same as COLUMN 14 except that KL is used in the expression instead of Ksum.

COLUMN 16

TEMP Records the temperature in degrees Fahrenheit.

COLUMN 17

RH Records the relative humidity (percent)

COLUMN 18

WD Records the wind direction (degrees)

COLUMN 19

WS Records the wind speed (mi/hr)

COLUMN 20

$\#C_c$ Records the number of suppression cycles credited for hour. The suppression cycles are only credited when the wind is blowing within the 180 to 270 degree quadrant.

COLUMN 21

$\sum HVIc$ Computes and records the sum of the dust in the HiVol accumulated when the wind is blowing within the 180 to 270 degree quadrant.

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENHRONMENTAL QUALITY
TIDEWATER R-EGIONAL OFFICE
L. Preston Bryant, Jr 5636 Southem Boulevard, Virginia Beach, Virginia 23462 D avid K. Paylor
Secretary of NatLLral Resources (757) 518-2000 Fax (757) 518-2103 Director
wv,wdecl.virgirlia.gov
Francis L Daniel
Regional Director

September 20, 2006

Mr. D. R. Wagoner
Superintendent
Engineering/Maintenance
Dominion Tenninal Associates
PO Box 967-A
Newport News, Virginia 23607

Location: Newport News
Registration No.: 60997
AFS Id. No.: 51-700-00074

Dear Mr. Wagoner:

Attached is aii ainendment to your new source review pen-nit to construct and operate a coal, petroleum coke and limestone receiving and shipping facility in accordance with the prov isions of the Virginia Regulations for the Control and Abatement of Air Pollution. This amended perm it supersedes your permit dated September 13, 2004.

This pen-nit contains legally enforceable conditions. Failure to comply may r esult in a Notice of Violation and/or civil charges. Please read all perrnit conditions carefull .

The Department of Environmental Quality (DEQ) deemed the application complete on September 1, 2006 and has deten-nined that the application meets the requirements of 9 VAC 5-80-1280 A for a minor amendment to a new source review pem-iit.

This pen-nit approval to construct and operate shall not relieve Dominion Term inal Associates of the responsibility to comply with all other local, state, and federal permit regul ations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a peti tion with the Board within 30 days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-20 0 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ m ade the decision. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days fr
om the date you
actually received this permit or the date on which it was mailed to you, which
ever occurred first, within which
to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director
Department of Environniental Quality
PO Box 1105
Richmond, VA 23218

If this pennit was delivered to you by mail, three days are added to the thirt
y-day period in which to file an
appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virgi
nia for information on the
required content of the Notice of Appeal and for additional requirements govem
ing appeals from decisions of
administrative agencies.

If you have any questions coneeming this pel-iiiit, please contact Ms. Kelly M
. Ryan at (757) 518-2155.

Sincerely, 7

Mar-ia R. Nold
Deputy Reigional Director

MRN[KMRJDTA_Sept2OO6-ai-nd.doc

Attachments: Pennit
Source Testing Report Fon-nat
Appendix A

cc: Director, OAPP (electronic file submission)
Manager, Data Analysis (electronic file submission)
Manager/Inspector, Air Compliance

COMMONWEALTH of VIRGINIA

DEPARTMENT OF EN11RONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
L. Preston Bryant, Jr 5636 Southem Boulevard, Virginia Beach, Virginia 23462 D avid K. Pavlor
Secretary of Natural Resources (.757) 518-2000 Fax (757.) 518-21 103 Director wwwdeq.virginia.gov
Francis L. Daniel
Regional Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

This pennit supersedes your pennit dated September 13, 2004.

In compliance with the Federal Clean Air Act and the Coninionwealth of Virgini a Regulations for the
Control and Abatement of Air Pollution,

Dominion Ten-ninal Associates
PO Box 967-A
Newport News, Virginia 23607
Registration No.: 60997
AFS Id. No.: 51-700-00074

is authorized to construct and operate

a coal, petroleum coke and limestone receiving,
storage and shipping facility

located at

Pier I 1, Harbor Road
Newport News, Virginia

in accordance with the Conditions of this permit.

Approved on September 20, 2006.

Mari@A. Nold, Deputy Regional Director

Permit consists of 1 0 pages.
Pennit Conditions I to 39.

INTRODUCTION

I This pennit approval is based on the pem-iit application dated August 17, 19 8 1, October 15, 2002 and May 8, 2004 including ameiidment infortnation dated August 25, 1981, October 19, 1 989, April 22, 1992, December 11, 2002, July 13, 2004 and April 3, 2006. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quali ty may require a pen-nit. Failure to obtain such a pennit prior to construction may result in enforcement action.

Words or terms used in this permit shall liave meanings as provided in 9 VAC 5 -1 0-1 0 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollu tion. The regulatory reference or authority for each condition is listed in parentheses (after eac h condition.

Annual requirements to fulfill legal obligations to iiiaintain current station ary source emissions data will necessitate a prompt response by the pennittee to requests by the DEQ or the B oard for information to include, as appropriate: process and production data; changes in control equip ment; aiid operating schedules. Sucli requests for information from the DEQ will either be in writ ing or by personal contact.

The availability of infon-nation submitted to the DEQ or the Board will be gov emed by applicable provisions of the Freedom of Infomiation Act, 2.2-3 700 through 2.2-3 714 of the Code of Virginia, I 0. I - 1314 (addressing infon-nation provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Poll-ution Control Board Regulations. Information provided to feder al officials is subject to appropriate federal law and regulations goveming confidentiality of such infor mation.

PROCESS REQUIREMENTS
2. Equipment List - Equipment at this facility consists of the following:

Equipment to be constructed:
Reference No. Eauiiiment Description Rated Capacity Air Pollution Control(s)
UT__ 1 Marin _ZOOO tons/hr Enclosed grab
UL-2 Marine vessel grab unloader 2000 tons/hr Enclosed grab
BH- I Ship unload hopper 3400 tons/hr Fabric filter (DC-2)
BH-2 Ship unload hopper 3400 tons/hr Fabric filter (DC-3)
BC- 14 Sh' nload conveyor 6800 tons/hr Fully enclosed
'1' u 'c"n
BC-15 __t__Z_h_ip Moaad @conye`yor@@ 6800 tons/hr Fully enclosed
Equipment permitted p ior to the date of this permit:
RD- I Tandem rotary rail car dumper 5800 tons/hr Enclosed bldg. with water spr ay
BS- 1 Surge silo 1000 tons Fabric filter (DC-1)
BS-2 Surge silo 3800 tons Fabric filter (DC-5)
BS-3 Surge silo 41 00 tons Fabric filter (DC-6)
BC- I through B C- 1 3 Various coal handli-ng and storage Largest belt 6800 to ns/hr All fully enclosed (except 4, 7 conv ors and 13 - yard belts)
S/R- I & S/R-2 Two (2) rotary stacker/reclaimers 5900 tons/hr stacking, Wet su

ppression
6500 tons/hr reclaim
S/R-3 Rotary reclaimer 6800 tons/hr reclaim only Wet suppression
OS- I through OS-4 Coal, coke and limestone storage Up to 350,000 tons Wet sup
pression system
piles (comput rized)
SL-1 Ship/barge loader 6800 tons/hr Wet suppression, telescoping
loading chutes

Specifications included in the pen-nit under this Condition are for infon-nati onal purposes only and do not
fonn enforceable terms or conditions of the permit.
(9 VAC 5-80-1180 D 3)

3. Emission Controls - Particulate emissions from each marine vessel grab unlo ader (UL- I and UL-2) shall be
controlled by using closed grab buckets. The grab buckets shall be completely closed during movement of
material from marine vessels to receiving hoppers.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

4. Emission Controls - Particulate emissions from each marine vessel unloading bopper (BH-1 and BH-2)
sball be controlled by a fabric filter (DC-2 and DC-3). The fabric filters sh all be provided with adequate
access for inspection.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

5. Emission Controls - Particulate emissions from the enclosed rotary rail car dumper building (RD-1) shall
be controlled by wet suppression, which, if necessary, shall include the use o f a surfactaiit. The surfactant to
water ratio shall be in accordance with the manufacturer's recommendations. T he minimum amount of
water applied shall be 130 gallons per tandem dump. Compliance shall be acbie ved if there are no visible
emissions.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

6. Emission Controls - Particulate emissions from the transfer points and stac ker/reclaimers (S/R-1, 2 and 3)
shall be controlled by wet suppression as necessar-y and by wet suppression wi th surfactant as necessary.
Continuous wetting is not mandatory.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

7. Emission Controls - Particulate emissions from the conveyor system shall be controlled by conveyor lioods
and wind guards. Ground level reclaim conveyor belts shall be controlled by w et suppression as necessary.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

8. Fugitive Dust Em-ission Controls - Fugitive dust emissions from the storage piles shall be controlled by a
wet suppression system capable of wetting the entire storage area. Wet suppre ssion cycles shall be
implemented in accordance with Appendix A. Each cycle shall consist of no less than 35,500 gallons of
water and, with assistance from other equipment, attain I 00 percent coverage of the storage area. The wet
suppression system shall be provided witb adequate access for inspection.
(9 VAC 5-50-90, 9 VAC 5-80-1180, and 9 VAC 5-50-260)

9. Fugitive Dust Em-ission Controls - All storage piles shall be tr-uncated, s tacker/reclaimers used to build flat
top piles, and the top compacted to minimize fugitive emissions.
(9 VAC 5-50-90,9 VAC 5-80-1180, and 9 VAC 5-50-260)

10. Emission Controls - Wet suppression shall be applied as necessary to all i ncoming loaded railears located

within facility boundaries if they are not to be dumped within 24 hours. (9 VAC 5-80-1180 and 9 VAC 5-50-260)

I 1. Emission Controls - Work areas shall be monitored and wet suppression app lied as necessary to control emissions while operating a piece of auxiliary handling equipment (e.g., front end loader, bulldozer, etc.).
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

12. Emission Controls - Wet suppression shall be utilized when operating a par ticular piece of handling equipi-nent (e.g., a dui-nper, a conveyor, etc.), unless the use of such contr ols would cause a safety hazard or damage to the equipment from freezing.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

13. Emission Controls - Particulate emissions from each surge silo (BS-1, BS-2 and BS-3) shall be controlled by a fabric filter (DC-1, DC-5 and DC-6). The fabric filters shall be provide d with adequate access for inspection.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

14. Monitoring - Marine Vessel Unloading Hoppers - Once per ship, within the i nitial 2 hours after unloadiiig begins, the permittee shall observe the baghouse fan motor amperage for the marine vessel unloading hoppers (BH-1 and BH-2). An acceptable range shall be established t hat reflects good air pollution control practice. An observation outside the acceptable range shall indicate the need for corrective action. The permittee shall maintain a log of the date, time, location, name of person performing the observation, the niotor amperage reading, whether or not visible emissions wer e detected, and any corrective actioiis taken, if necessary. These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 and 9 VAC 5-50-20)

15. Monitoi-ing - Fabric Filters - Once per day, when in operation, the exhaus t from each surge silo fabr-ic filter (DC-1, DC-5 and DC-6) sball be observed by the permittee for a pen'od o f no less than one minute for the presence of visible emissions. If visible emissions are obser-ved, the pe nnittee shall perfonn corrective actions to eliminate the cause of the visible emissions. The pemiittee shall maiiiitain a log of the date, time, location, naiiie of person perfon-ning the observation, whether or not visible emissions were detected, and any corrective actions taken, if necessary. These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 D, 9 VAC 5-50-20 C, and 9 VAC 5-50-260)

16. Monitoring - Fabric Filters - Once per day, when in operation, the exhaust from each marine vessel unloading hopper fabric filter (DC-2 and DC-3) shall be observed by the pen-ni ttee for a period of no less than one minute for the presence of visible emissions. If visible emissions a re observed, the pennittee shall perfonn corrective actions to elii-ninate the cause of the visible emissions. The permittee shall maintain a log of the date, time, location, name of person perfonning the observation, wh

ether or not visible emissions
were detected, and any corrective actions taken, if necessary. These records shall be available for inspection
by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 D, 9 VAC 5-50-20 C, and 9 VAC 5-50-260)

17. Monitoring - Process Equipment - Once per day, when in operation, particul ate emissions from the marine vessel grab unloaders (UL- 1 and UL-2), the enclosed rotary rail car du niper building (RD- 1) and the conveyor systems shall be observed by the pen-nittee for a period of no less t han one minute for the presence of visible emissions. If visible emissions are observed, the permittee shall perfonn corrective actions to eliminate the cause of the visible emissioiis. The permittee shall maintain a log of the date, time, location, name of person performing the observation, whether or not visible ei-nissions were detected, and any corrective actions taken, if necessary. These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-1180 D, 9 VAC 5-50-20 C, and 9 VAC 5-50-260)

18. Wet Suppression System - The wet suppression system for the storage piles shall be implemented as specified in Appendix A or by any otber procedure as may be approved by the DE Q prior to use. Such approval shall be contingent on adequate documentation that any altemative pro cedure shall achieve at least as high an efficiency as Appendix A. This applies to all other dust control me asures required by this pennit.
Request for changes in procedures shall be accompanied by an explanation of th e proposed changes and the anticipated effect they shall have. These requests, if approved by the DEQ, s hall be subject to a test and evaluatioii procedure prior to being accepted as pennanent changes to the cont rol procedures.
(9 VAC 5-50-260)

OPERATING LIMITATIONS

19. Storage - On a daily annual average basis, the maximum quantity of coal, p etroleum coke and limestone (combined) in storage shall not exceed 1, I 00,000 tons, and at no time shall niore than 1,400,000 tons of coal, petroleum coke and limestone (combined) be stored at the facility.
(9 VAC 5-80-1 1 80)

20. Throughput - The throughput of coal/petroleuin coke/liniestone (combined), via rail and ship, shall not exceed 1-4,000,000 tons per year, calculated moiithly as the sum of each conse cutive 12-month period. No more than I 0,000,000 tons per year of coal/petroleuni coke/limestone (combine d) shall be imported via ship. Compliance for the consee-utive 12-month pen'od shall be demonstrated m onthly by adding the total for the most recently completed calendar month to the individual monthly total s for the preceding 1 1 months.
(9 VAC 5-80-1180)

EMISSION LIMITS

21. Emission Limits - Particulate emissions from the operation of the coal/pet roleum coke/limestone receiving, storage and shipping facility shall not exceed the limits specified below:

Particulate Matter (PM) 54.0 tons/yr
PM-10 9.7 tons/yr

These emissions are derived from the estimated overall emission contribution f
rom operating limits.
Exceedance of the operating limits may be considered credible evidence of the
exceedance of emission
limits. Compliance with these emission limits may be determined as stated in
Condition numbers 3-20.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

22. Visible Emission Limit - There sball be no detectable visible emissions fr om the enclosed rotary rail car
dumper building (RD-1). Failure to meet this limitation due to the presence o f water vapor shall not be a
violation.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

23. Visible Emission Limit - There shall be no detectable visible emissiotis f rom aiiy fabric filter exhaust stack
(DC-1 - DC-6).
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

24. Visible Emission Limit - There shall be no detectable visible emissions fr om the conveyor belt transfer
points. Failure to meet this limitation due to the presence of water vapor sh all not be a violation.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

25. Monitoring PMIO - Dominion Tenninal Associates shall install and operate a PMI 0 monitor at the
Newport News Housing A-uthority Maintenance Building (I 80-J) to ascertain the ambient air quality in the
area surrounding the coal/petroleum coke/limestone tei-minal. Operation shall be in accordance with
Appendix J of 40 CFR Part 50.
(9 VAC 5-160-170)

26. Control of Emissions - The followiiig actions are coiisidered detn'niental to the control of coal/petroleul-n
coke/limestone emissions:
a. Failure to stop any coal/petrole-um coke/limestone movement operation when it becomes known that
installed air pollution control systems are inoperative and would cause excess emissions.
b. Failure to stop a coal/petroleum coke/liniestone movement operation when it becomes known that the
coal/petroleum coke/limestone handling equipment needed for that operation is malfuiietioning or
operatiiig significantly below designated specifications.
c. Failure of equipment operators to take ii-nmediate precautions to preclude fugitive d-ust emissions from
the operation of bulldozers, front-end loaders, automobiles, or trucks (e.g., the use of water suppressant
or limiting the speed of movement to below IO miles per hour.)
d. Failure of operational personnel to give precedence to designated personnel with the responsibility for
controlling dust emissions.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

RECORDS

27. On Site Records - The permittee shall maintain records of emission data an d operating parameters as
necessary to demonstrate compliance with this permit. The content and format of such records shall be
arranged with the Director, Tidewater Regional Office. These records shall in clude, but are not limited to:
a. Annual throughput of coal/petroleum coke/limestone (combined), via rail and ship, calculated monthly
as the sum of each consecutive 12-month period. Compliance for the consecutiv e 12-month period shall

be demonstrated monthly by adding the total for the most recently completed ca
lendar month to the
individual monthly totals for the preceding I I months.

b. Annual throughput of imported coal/petroleui-n coke/limestone (combined), v ia ship, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutiv e 12-i-nonth pen'od shall be demonstrated monthly by adding the total for the most recently completed ca lendar month to the individual monthly totals for the preceding I I months.
c. Records of visible emission observations for fabric filters (DC-1, DC-5 and DC-6) as required in Condition 15.
d. Records of visible emission observations for fabric filters (DC-2 and DC-3) as required in Condition 16.
e. Records of visible emission observations for the process equipment as requi red in Condition 17.
f. Records of bagbouse fan motor amperage measurement observations for the mar ine vessel unloading hoppers (BH- I and BH-2) as required in Condition 14.
g. Records of PMIO monitoring operations as required by Appendix J of 40 CFR P art 50.
h. Maximum daily quantity of coal/petroleum coke/limestone (combined) in stora ge.
1.Annual daily average of coal/petroleum coke/limestone (combined) in storage.

j. Records of dust control measures as required by Appendix A.

These records shall be available for inspection by the DEQ and shall be curren t for the most recent five years.
(9 VAC 5-80-1 1 80 and 9 VAC 5-50-50)

INITIAL COMPLIANCE DETERMINATION

28. Visible Emissions Evaluation - Initial perfon-nance tests of fugitive visi ble emissions shall be conducted by the perrnittee on each grab unloader (UL-1 and UL-2), conveyor transfer poi nts and hopper (BH- I and BH-2) used to unload vessels. There shall be no visible emissions or releases from the grab unloaders while materials are being transferred from the vessel to the hoppers or from the hop pers while receiving matefials being transferred. Observations shall be made over six (6) consecutive unload ing cycles. The details of the tests are to be arranged with the TRO Air Compliance Manager. The evaluation shall be performed to demonstrate compliance within 60 days after achieving the maximum production r ate but in no event later than 180 days after start-up of the pennitted facility. One copy of the test results shall be submitted to the TRO Air Compliance Manager within 45 days after test completion and shall conf orm to the test report format enclosed with this pennit.
(9 VAC 5-50-30, 9 VAC 5-80-1200, and 9 VAC 5-50-41 0)

NOTIFICATIONS

29. Initial Notifications - The permittee shall fumish written notification to the Tidewater Regional Office of:
a. The actual date on which construction of the marine unloading facilities co mmenced within 30 days after such date.

b. The anticipated start-up date of the marine unloading facilities postmarked not more than 60 days nor less than 30 days prior to such date.
c. The actual start-up date of the marine unloading facilities within 15 days after such date.

d. The anticipated date of the VEE perfonnance tests of the marine unloading f acilities postmarked at least
30 days prior to such date.
Copies of the written notification referenced in items a thro-ugh d above are to be sent to:
Associate Director
Office of Air Enforcement (3AP IO)
U. S. Environ-mental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029
(9 VAC 5-50-50 and 9 VAC 5-80-1180)

GENERAL CONDITIONS

30. Permit Invalidation - The portions of this pen-nit regarding construction of the marine unloading facilities
sball become invalid, unless an extension is granted by the DEQ, if-.

a. A prograi-n of continuous construction is not commenced within the latest o f the following:
i. 18 i-nontbs from the date of this permit;
ii. Nine months from the date that the last permit or otlier authorization was issued from any other
govemmental entity;
iii. Nine montbs from the date of the last resolution of any litigation concem ing any such permits or
authorization; or
b. A program of construction is discontinued for a period of 18 months or more , or is not completed witbin
a reasonable tinie, except for a DEQ approved period between phases of a phase d construction project.
(9 VAC 5-80-1210)

3 1. Perniit Suspension/Revocation - This pen-nit may be suspended or revoked if the pennittee:
a. Knowingly makes material misstatements in the pem-iit application or any am endments to it;
b. Fails to comply with the conditions of this pennit;
c. Fails to comply with any emission standards applicable to a pertnitted emis sion unit;
d. Causes emissions from the stationary source which result in violations of, or interfere with the
attainment and maintenance of, any ambient air quality standard; or
e. Fails to operate in confonnance with any applicable control strategy, inclu ding any emission standards
or emission limitations, in the State Implementation Plan in effect at the tim e an application for this
permit is submitted.
(9 VAC 5-80-1210 F)

32. Right of Entry - The pen-nittee shall allow authorized local, state, and f ederal representatives, upon the
presentation of credentials:
a. To enter upon the permittee's premises on which the facility is located or in which any records are
required to be kept under the terms and conditions of this permit;

b. To have access to and copy at reasonable tii-nes any records required to be kept uiider the teniis and conditions of this permit or the State Air Pollution Control Board Regulations ;

c. To inspect at reasonable times any facility, equipment, or process subject to the terrns and conditions of this pen-nit or the State Air Pollution Control Board Regulations; and
d. To sample or test at reasonable times.
For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothin- contained herein shall make an inspection time unreasonable during an emergency.
(9 VAC 5-170-130 and 9 VAC 5-80-1180)

33. Maintenance/Operating Procedures - At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source., including associated air pollution colitrol equipment, in a maiiner consistent with good air pollution control practices for i-ninimizing emissions.

During each shift, one designated person shall be responsible for compliance with the procedures of Appendix A. Actions required in support of these procedures sball take precedence over routine coal, petroleum coke and limestone handling procedures. The pen-nittee shall take the following measures in order to minimize the duration aiid frequency of excess eniissions, with respect to air pollution control equipment, moniton'ng devices and process equipment which affect such emissions:
a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.

b. Maintaiii an inventory of spare pai-ts.
c. liave available written operatitig procedures for equipnient. These procedures shall be based oti the manufacturer's recommendatiotis, at a minimum.
d. Train operators in the proper operation of all such equipment and familiar-ize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.
Records of maintenance and training shall be maintained on site for a per-iod of five years and shall be made available to DEQ personnel upon request.
(9 VAC 5-50-20 E and 9 VAC 5-80-1180 D)

34. Record of Malfunctions - The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name

of person generating the record.
(9 VAC 5-20-180 J and 9 VAC 5-80-11 80 D)

35. Notification for Facility or Control Equipment Malfunction - The pen-nitte e shall fumish notification to the Director, Tidewater Regional Office of malfunctions of the affected facili ty or related air pollution control equipment that may cause excess emissions for more than one hour, by f acsimile transmission, telepbone, telegrapb or other electronic communication. Such notification sha ll be made as soon as practicable but no later than four daytime business hours after the malfunctio n is discovered. The pennittee shall provide a written statement giving all pertinent facts, including the es timated duration of the breakdown, within two weeks of discovery of the malfunction. When the conditi on causing the failure or malfunction has been corrected and the equipment is again in operation, the pe n-nittee shall notify the Director, Tidewater Regional Office.
(9 VAC 5-20-180 C and 9 VAC 5-80-1180)

36. Violation of Ambient Air Quality Standard - The pennittee shall, upon requ est of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating an y primary ambient air quality standard and shall Dot return to normal operation until such time as the ambie nt air quality standard will not be violated.
(9 VAC 5-20-1801 and 9 VAC 5-80-1180)

37. Change of Ownership - In the case of a transfer of ownership of a stationa ry source, the new owner shall abide by any current pemiit issued to the previous owner. The new owner shall notify the Director, Tidewater Regional Office of the change of ownership within 30 days of the tra nsfer.
(9 VAC 5-80-1240)

38. Registration[Update - Annual requirements to fulfill legal obligations t o maintain current stationary source emissions data will necessitate a prompt response by the permittee to request by the DEQ or the Board for infori-nation to include, as appropriate: process and production data; changes in control equipment; aiid operating schedules. Such requests for infoniiation from the DEQ will either be in writing or by personal contact. The availability of infon-nation submitted to the DEQ or the Board w ill be govemed by applicable provisions of the Freedom of Information Act, 2.1-340 through 2.1-348 of the Code of Virginia, 10.1-1314 (addressing infon-nation provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federa l officials is subject to appropriate federal law and regulations goveming confidentiality of such infon -nation.
(9 VAC 5-170-60 and 9 VAC 5-20-160)

39. Permit Copy - The pennittee shall keep a copy of this pennit on the premis es of the facility to Nvhich it applies.
(9 VAC 5-80-1180)

SOURCE TESTING REPORT FORMAT

Report Cover
Plant name and location
Units tested at source (indicate Ref No. used by source in pen-nit or registra tion)
Test Dates.
Tester; name, address and report date

Certification
Signed by team leader/certified observer (include certification date)
Sigiied by responsible coinpany official
*Signed by reviewer

Copy of approved test protocol

Sumn-iary
Reason for testing
Test dates
Identification of unit tested & the maximum rated capacity
*For each emission unit, a table showing:
Operating rate
Test Methods
Pollutants tested
Test results for each run and the run average
Pollutant standard or limit
Sun-u-nan'zed process and control equipment data for each run and the average, as required by the test
protocol
A statement that test was conducted in accordance with the test protocol or id entification &
discussion of deviations, includiiig the likely impact on results
Any other important infonnation

Source Operation
Descn'ption of process and control devices
Process and control equipment flow diagram
Sampling port location and dimensioned cross section Attached protocol include s: sketch of stack
(elevation view) showing sampling port locations, upstream and downstream flow disturbances and
their distances from ports; and a sketch of stack (plan view) showing sai-npli ng ports, ducts entering
the stack and stack diameter or dimensions

Test Results
Detailed test results for each run
*Sarnple calculations
*Description of collected samples, to include audits when applicable

Appendix
*Raw production data
*Raw field data
*Laboratory reports
*Chain of custody records for lab samples
*Calibration procedures and results
Project participants and titles
Observers' names (industry and agency)
Related correspondence
Standard procedures

Not applicable to visible emission evaluations

APPENDIX A

This appendix is to be considered a part of the Department of Enviromnental Quality pennit to operate
the Dominion Terminal Associates (Dominion) coal/petroleum coke/limestone tenninal. All procedures
outlined in this appendix are enforceable as a condition of operating.

Dominion shall record the following parameters on anhourly basis:

Average hourly temperature (T) in degrees Fahrenheit

Average hourly relative humidity (RH)

Average hourly wind speed in miles per hour (WS)

Average hourly wind direction (DIR)

Hourly rain in inches

Hourly occurrence of fog (visibility of 4 miles or less)

Density of air p (lb/ft) from the equation p = -0.0001478(T) + 0.0853

Viscosity of air (1.68@t lb/ft-hr) from the following equations

-24.88 < T < 32 1.68p = 0.0001207(T) + 0.0655479
32.00 < T < 64.40 1.68g = 0.0001493(T) + 0.0646353
64.40 < T < 104 1.68@t = 0.0001344(T) + 0.0655899

K as deten-nined by the equation: K = WS(T/RH) (p/g 1.68)

Dominion shall use the data listed above for a computetized spreadsheet in a format as described below,
maintaining the records to be submitted to the Board upon request.

The program outlined in Appendix A when properly programmed will provide for an hourly visual
display (graph) which depicts the following:

a. CEu, for the KT predicted: will change by the new hourly prediction of KT. At the end of the day will

represent the potential uncontrolled coal and petroleum coke emissions experienced in the past 24 hours.

b. Slo-Pe of the uncontrolled intended movement with time for the PAS S- 1 system without controls: will

change by the new hourly prediction of KT.

c. PASS-1 line, with hourly markings in proportion depicting the controlled to the hourly K, emission level

attained when controls are applie . This line's slope and value will vary as s uppression cycles are applied.
3
The extension of this line depicts the near low end of the day value in @tg/m, if no further cycles are applied

and is the primary control medium. It generates ftom the uncontrolled slope l ine (b.).

d. PASS-0 line, depicting the controlled emissions level attained when control s are applied. This line's slope

as in (c) will vary as suppression cycles are applied. The extension of this line depicts the near high en of
3 -0 line and the
the day value in @tg/m ,if no further cycles are applied. When, due to cycles, the PASS

PASS-1 line are oiie and the sanie, their extension will be the end of the day value attained for coal and

-nissions i 3 line (a.).
petroleum coke ei n @Lg/m . It generates from the uncontrolled CE,,n,.

e. PASS-0 (I 80) line, with hourly markings in proportions to the hourly K, de picting the controlled emission

level when the wind direction is between 180' and 270'T. This line is activat ed by wind direction itiputs

aiid holds the last highest value during periods when the wind is out of quadr ant. Its extension represents

the iiear end of day value in @Lg/rn3at station 180-J if no further cycles are applied. This line also generates

froi-n the uncontrolled CE,,,,, line (a.).

COL UAIN 1
TM Records the hourly values for a 24 hour day, beginning with a I at 0100 hou rs and ending with a 24 at

2400 hours.

COL UMN 2
K Computes and records the hourly value of K as follows:

K = ((WS * TEMP) / RH) * (p/1.68g)

COLUMN 3
KD Computes and records the K factor adjusted for rain and freeze effects. KD is used to define the need

for a cycle (Q) administered by the computer controlled water suppression system. KD is computed as follows:

KD = K * Ffr

COL UMN 4
ci Records the total number of cycles credited on the hour. A 20-minute suppre ssion cycle (35,500 gallons

of water) sprayed from the computer controlled water suppression system counts as one cycle as well as

a rain event greater than or equal to 0.0225 incbes. Rain greater than or equ al to 0.01 inches but less

than 0.0225 inches is counted as one Ci if the adjusted rain amount for the ho ur is less than the actual

rain amount.

COLUMN5
SYM Records the type of suppression cycle credited for the hour. Where:

A: represents an ASSURANCE CYCLE (one 20-minute spray cycle per hour from the computer

controlled water suppression system).

F: represents a continuous cycle (three 20-minute spray cycles per hour) admin istered to recover from a

freeze event.

R: represents a rain event credited as a cycle.

I : represeiits a DEMAND I cycle, wliere KD is greater than or equal to I 0, b ut less than 15.

2: represents a DEMAND 11 cycle, where KD is greater than or equal to 15, but less than 30.

3: represents a DEMAND III cycle, whcre KD is greater than or eq-ual to 30, bu t less than 45.

4: represeiits a DEMAND IV cycle, where KD is greater than or equal to 45.

COL UMN 6
Y-Ci Records the total number of cycles credited since 0 1 00 or the sum of CO LUMN 4.

COLUAIN 7
IR Records the amount of rain in inches for the hour as measured by the rain g auge.

Note: CIR, the total ainount of rain credited for the hour is computed as foll ows:

CIR = IR if it is raining, but adds 0.0225 to IR if a DEMAND IV RBC is adminis tered.

IRadj, the adjusted rain amount for the hour is also computed to include the e ffects of non-consecutive

rains, where:

IRadj = CIR,1 / (HRS,1 + 1) when IR > 0 and HRS > 0

IRadj = SUMIR,,_1 / (HRSn-I + 1) when IR > 0, SUMIR @! 0.0225; and HRS = 0

IRadj = 0 when IR = 0, and SUMIR < 0.0225

COL UAIN 8
HRS Records the number of liours following a rainfall. HRS increases by one ea ch hour after the rain eiids,

and continues to do so until another rain begins or until the effects of the r ain are over (F, > 0.9 or HRS

= 48)

Note: If a DEMAND IV cycle is administered in order to recover from a fi-eeze, HRS is initially set to

0.5 instead of 1.

HRS=O wlicii Ci = 3 and FIR,,-, = 0 or Ff,_1 < I

HRS = 0 when IR > 0 and S-LJMIR > 0.0225

HRS = 0.5 when Ci @ 3; FIR,-, > O;and Ffn-I > I

HRS = HRS.-I + I when IR > 0 and SUMIR < 0.0225

or wlieii IR = 0; SUMIR > 0.0225

Note: If TM = 24 and HRS < 48 and F, < 0.9 theii HRS and SUMIR are carried for ward to the next

day. If HRS = 48 or Fr > 0.9 the post rain effect has reached its limits. On t he next hour, Fr 1, HRS

0, and SUMIR = 0.

COLUMN 9
SUMIR Computes and records the effective sum of the hourly rainfall as follows :

SUMIR = 0 when CIR = 0 and SUMIR,_1 < 0.0225

SUMIR = SUMIR,1_1 when CIR = 0 aiid SUMIR,,_1 > 0.0225

SUMIR = CIR when CIR > 0;(IR + IR,,-,) < 0.0225;and Ffm-l = I

SUMIR = CIR when CIR > 0; (IR + IR,_j) < 0.0225 Ff,_1 < 1;

CIR.-I > 0; aiid Ci = 3

SUMIR = IR + SUMIR,,_1 wben CIR > 0'; (IR + IR,,-,) < 0.0225;

Ffm-l < 1; CIR,_1 > 0; and Ci < 3

SUMIR = IRadj,,-, + CIR when CIR > 0; (IR + IRn-1) < 0.0225 Ff@,_j < 1;

CIRn-I = 0;
SUMIR = IRadj,,-, + CIR when CIR > 0; and (IR + IRn-1) > 0.0225

Note: If F, = I or HRS = 48 then SUMIR is set to zero the next hour.

COL UA4_N IO
F, Computes and records the post rain recovery factor. F, ranges from zero to one, with Fr set to zero

during a rain. When F, > 0.9, the effects of the rain are considered over, an d F, is set to one on the next

hour. Fr is computed as follows:

Fr = 0 when CIR < 0.0225 and SUMIR > 0.0225

F,= I when CIR < 0.0225 and SUMIR < 0.0225

Fr @ 10 (-215.66*24*SUM1k(HRS*KT)) when CIR < 0.0225 and SUMIR < 0.0225

COLUMN H
Ffr Computes and records the combined effects of rain and freeze, where Ff, = Fr * Ff.

Ff (the post freeze effect) is calculated as follows:
Ff = ((SUMKF * FHRS)/(FTR * 106)) * 4.02917 + 0.305 when FIR > 0 and SUMK-F > 0

Ff @ I when FIR = 0 or SUMKF = 0

SUMKF (the sum of the freeze shear) is calculated by summing the K values begi nning when the

temperature reaclies 29'F until F, < 0. I or until continuous cycles are admin istered.

FIR (tlie potential freeze water) is calculated as follows:

FIR = SUMKF/19200 when FIRn-I = O;SUMIR O;FHRS = 8; and SUMKF > 0

FIR = FIRn-I when FIR,, = 0; SUMIR 0; FHRS # 8 and SUMKF > 0

or when FIRn-I > 10; F, = I and SUMIR + SUMIR,1_1 < FIRn-I

FIR = SUMIR for all other conditions

FHRS (the potential freeze hours) is calculated as follows:

FHRS = 0 when SUMIR = 0 and SUMKF = 0

FHRS = HRS when SUMIR > 0 and SUMK-F = 0

FHRS = HRS when SUMKF > 0; TEMP > 34'F; and F, < 0. 1

FHRS @ FHRS + I when SUMKF > 0; and TEMP < 34'F or F, > 0. I

COLUMN12
KT Computes and records the predicted sum of K at the end of the day as follow
s:

KT, = K, + K,@ + K3 + - . . K,, + Kr,(24-TM)

EXAMPLE: TM K

I 10

2 10

3 20

KT3 = 10 + 10 + 1-0 + 20(24-3) = 460

COL UAIN 13
H,,i Computes aiid records the estimated amount of dust enterin the HVS during
the hour as follows:
9
H,j = Ksum * Si * Fft

where:

Ksum is the sum of the K values within the current cycle set.

SI is the slope of the sumHvi line for the current cycle set, and is computed
as follows:

At TM= I

SI = sb when Ci = 0

where sb(base slope) = CE,,,t/KT

SI = sb * (I-eff) when Ci > 0

For all other times (n):

Sl = Sl,ffi-l * (I -efOn

where Slci-l is the last value of SI in the previous Ci sequence Slci-l = sb p
rior to any cycles.

(I -eff) ten-n calculates the efficiency of the last cycle administered and is
calculated as follows:

Equation A:

(I -eff),, = (I -(3 6.657299 *lo(-0.011119211 * Ksu-)/ I 00))C"

Equation B:

G-efflb = (1-((-0.0146913 * Ksum + 14.65059)/100))C,,q
Equation A can be used to calculate the efficiencies when KT < 288 otherwise u
se Equation B until

SIOPen-I * (I -eff)b < sp(shift point)

Nvhere sp = 0.6256838 - 0.0008297 * KT

then switch to Equation A.

Note: At the beginning of the day, (I -eff) @ I until a cycle occurs. If a cy cle is credited at time I

(cycle perfonned at TM 0000) then the equation for (I -eft) changes as follows : KT replaces Ksum,

and the calculation is multiplied by C,eq instead of raised to its power. The slope then rei-nains

constant until another cycle/cycles are administered.

Cseq is the cycle sequence for the current cycle set.

where: C,,q = 0 when Ci = 0

Cseq = Cseqn-I when Cin = Cin-I

Cseq = 0.5 wlien Ci,, > Ci,-]; Ffr > 1; and Ci 1

cseq = I when Ci = I or 3

Cseq @ 2 when Ci = 2

EXAMPLE: KT(at TM = 4) = 368.60 i.e. > 288

sb = 0.40804

sp = 0.31986

TM K RBC Ksum (I -efo cseq Si Ffr H,,i

1 20.10 0 20.10 1.0 0 0.408 1.0 8.2024

2 17.00 0 37.10 1.0 0 0.408 1.0 15.1398

3 16.50 1 16.50 0.85592 1 0.349 1.0 15.7631

4 15.00 1 31.50 0.85592 1 0.350 1.0 11.0307

COLUMN 14
JH,j Computes and records the sum of the coal and petroleum coke dust in the H VS (Hi Vol Sampler) to the

hour as follows:

Y-Hvi @ Hvi + Y-Hvicin-I

where Y_Hvidn-l is the last value of JH,j in the previous cycle sequence.

EXAMPLE: Using the values from the previous example:

TM lHvicin-I Y-Hvi

I 0.0 8.2024

2 0.0 15.1398

3 15.1398 20.9029

4 15.1398 26.1705

COLUMN15
HVT Computes and records the projected amount of dust on the HVS filter at the end of the day if no further

cycles were administered.

HVT = IH,i + KL * St (I -efO

where KL = KT - sum(Ki + K2 + ... K,)

(I -efo is the same as COLUNfN 14 except that KL is used in the expression instead of Ksum.

COLUMN16
TEMP Records the temperature in degrees Fahrenheit.

COLUMN17
RH Records the relative humidity (percent)

COLUMN18
WD Records the wind direction (degrees)

COLUMN19
WS Records the wind speed (mi/hr)

COL UMN 2 0
#C,@ Records the number of suppression cycles credited for hour. The suppressioii cycles are only credited

when the wind is blowing witbin the 180 to 270 degree quadrant.

COL UXfN 21
Y-HVIc Computes and records the sum of the dust in the HiVol accumulated when the wind is blowing

within the 180 to 270 degree quadrant.