22 March 2005

Mr. John J. Pomeroy
Senior Vice President & General Counsel
FM Global
743 Reynolds Road
Glocester, RI 02814

Dear Mr. Pomeroy:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your request for revisions to your minor source permit for the installation of air pollution control equipment and fuel burning equipment at your facility at 743 Reynolds Road in Glocester.

Enclosed is a revised minor source permit issued pursuant to our review (Approval Nos. 1722-1726).

I can be reached at 222-2808, extension 7011 if there are any questions.

Sincerely,

Douglas L. McVay
Associate Supervising Engineer
Office of Air Resources

cc: Norman A. Dudziak, Jr., P.E. - ESS

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS**
**DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**
**OFFICE OF AIR RESOURCES**

# MINOR SOURCE PERMIT

*FM GLOBAL*

**APPROVAL NOs. 1722-1726**

**Pursuant to the provisions of Air Pollution Control Regulation No. 9, this minor source permit is issued to:**

*FM Global*

**For the following:**

*Addition of Condition B.1.d and revisions to Conditions A.1.a, B.1.a, F.1.a, and I.4 to allow the occasional direct venting of fire research testing using one or two Fire Propagation Apparatuses and flashpoint testing per ASTM D 92 and D 93 to the atmosphere without the emission control system in operation; addition of Condition B.1.e to limit the amount of polyvinyl chloride (PVC) or similar material consumed in an E108 Test; and a revision to the emission limitation in Table 1 for Dioxins/Furans (2,3,7,8-TCDD equivalent).*

**Located at:** *743 Reynolds Road, Glocester*

**This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *FM Global* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.**

**Stephen Majkut, Chief**
**Office of Air Resources**

**Date of issuance**

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS**
**DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**
**OFFICE OF AIR RESOURCES**

**Permit Conditions and Emission Limitations**

**FM GLOBAL**

**APPROVAL NOs. 1722 – 1726**
(March 2005 revision)

A. Emission Limitations

1. Fire Research Building

a. Air contaminants generated from activities conducted in the Fire Research Building shall be captured, contained, and routed to an air pollution control system, consisting of an inlet quench chamber and a wet electrostatic precipitator (WESP), for treatment prior to discharge to the atmosphere, except as provided in Condition B.1.d.

b. The emission rate of particulate matter discharged to the atmosphere from each WESP flue shall not exceed 13.9 lbs/hr unless the concentration of particulate matter discharged to the atmosphere from each WESP flue is less than 0.04 grains per dry standard cubic foot.

2. Diesel Water Pump Engines

a. The following emission limitations are applicable to the three 370 HP water pump engines used to provide water for test and research fire suppression:

(1) Nitrogen oxides (as Nitrogen dioxide ($NO_2$))

The emission rate of nitrogen oxides discharged to the atmosphere from each engine shall not exceed 8.9 grams/bhp-hr or 7.2 lbs/hr, whichever is more stringent.

(2) Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from each engine shall not exceed 2.6 grams/bhp-hr or 2.1 lbs/hr, whichever is more stringent.

(3) Total Nonmethane Hydrocarbons (NMHC)

The emission rate of total nonmethane hydrocarbons discharged to the atmosphere from each engine shall not exceed 0.3 grams/bhp-hr or 0.25 lbs/hr, whichever is more stringent.

(4) Sulfur Dioxide ($SO_2$)

(a) All diesel fuel burned in each engine shall contain no more than 0.05 percent sulfur by weight.

(b) The emission rate of sulfur dioxide discharged to the atmosphere from each engine shall not exceed 0.13 lbs/hr.

(5) Particulate Matter (PM)

The emission rate of particulate matter discharged to the atmosphere from each engine shall not exceed 0.11 grams/bhp-hr or a maximum of 0.09 lbs/hr whichever is more stringent.

b. The following emission limitations are applicable to the 195 HP water pump engines used to provide water for test and research fire suppression:

(1) Nitrogen oxides (as Nitrogen dioxide ($NO_2$))

The emission rate of nitrogen oxides discharged to the atmosphere from the engine shall not exceed 7.0 grams/bhp-hr or 3.0 lbs/hr, whichever is more stringent.

(2) Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from the engine shall not exceed 8.6 grams/bhp-hr or 3.7 lbs/hr, whichever is more stringent.

(3) Total Nonmethane Hydrocarbons (NMHC)

The emission rate of total nonmethane hydrocarbons discharged to the atmosphere from the engine shall not exceed 1.0 grams/bhp-hr or 0.43 lbs/hr, whichever is more stringent.

(4) Sulfur Dioxide ($SO_2$)

(c) All diesel fuel burned in the engine shall contain no more than 0.05 percent sulfur by weight.

(d) The emission rate of sulfur dioxide discharged to the atmosphere from the engine shall not exceed 0.08 lbs/hr.

(5) Particulate Matter (PM)

The emission rate of particulate matter discharged to the atmosphere from the engine shall not exceed 0.4 grams/bhp-hr or a maximum of 0.17 lbs/hr whichever is more stringent.

3. Boilers

The following emission limitations are applicable to the three 8.54 MMBtu/hr boilers, located in the Warehouse and Maintenance Building.

a. Nitrogen Oxides (as nitrogen dioxide ($NO_2$))

The emission rate of nitrogen oxides discharged to the atmosphere from each boiler shall not exceed 0.13 lb per million Btu heat input or 1.12 lbs/hr, whichever is more stringent.

b. Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from each boiler shall not exceed 0.04 lbs per million Btu heat input or 0.31 lbs/hr, whichever is more stringent.

c. Sulfur Dioxide ($SO_2$)

(1) All fuel burned in each boiler shall contain no more than 0.05 percent sulfur by weight.

(2) The emission rate of sulfur dioxide discharged to the atmosphere from each boiler shall not exceed 0.44 lbs/hr.

d. Particulate Matter (PM)

The emission rate of particulate matter discharged to the atmosphere from each boiler shall not exceed 0.008 lbs per million Btu heat input or 0.07 lbs/hr, whichever is more stringent.

e. Total Nonmethane Hydrocarbons (NMHC)

The emission rate of total nonmethane hydrocarbons discharged to the atmosphere from each boiler shall not exceed 0.004 lbs per million Btu heat input or 0.03 lbs/hr, whichever is more stringent.

4. Facility-wide

a. Nitrogen oxides (as Nitrogen dioxide ($NO_2$))

The total quantity of nitrogen oxides (as nitrogen dioxide ($NO_2$)) discharged to the atmosphere from all operations at the facility shall not exceed 98,000 pounds for any consecutive 12-month period.

b. Particulate Matter (PM)

The total quantity of particulate matter discharged to the atmosphere from all operations at the facility shall not exceed 198,000 pounds for any consecutive 12-month period.

c. Sulfur Dioxide ($SO_2$)

(1) The total quantity of sulfur dioxide ($SO_2$) discharged to the atmosphere from all operations at the facility shall not exceed 198,000 pounds for any consecutive 12-month period.

(2) All distillate or diesel fuel burned in any pump engine, boiler, or emergency generator shall contain no more than 0.05 percent sulfur by weight.

d. Volatile Organic Compounds (VOC)

The total quantity of volatile organic compounds (VOCs) discharged to the atmosphere from all operations at the facility shall not exceed 98,000 pounds for any consecutive 12-month period.

e. Carbon Monoxide (CO)

The total quantity of carbon monoxide (CO) discharged to the atmosphere from all operations at the facility shall not exceed 198,000 pounds for any consecutive 12-month period.

f. Hazardous Air Pollutant (HAP)

The total quantity of HAP emissions discharged to the atmosphere from all operations, for the entire facility shall not exceed 1,500 pounds of any one HAP or 4,000 pounds of any combination of HAPs per calendar month based upon a 12 month rolling average.

g. The emissions of air contaminants discharged to the atmosphere from all operations at the facility shall not exceed the limitations shown in Table 1. The limitations shown in pounds per year are calculated on a 12-month rolling basis. These limitations were established to ensure that emissions from this facility do not exceed any of the acceptable ambient levels (AALs) listed in Air Pollution Control Regulation No. 22, or any calculated acceptable ambient level (CAAL).

5. Visible emissions from any stack at this facility shall not exceed 10% opacity except for a period or periods aggregating no more than three minutes in any one hour.

B. Operating Requirements

1. Fire Research Building

a. Fire research testing shall not be conducted unless one or both of the WESPs are operating, except as provided in Condition B.1.d.

b. Fire research testing materials may include all materials previously identified in the permit application, as well as new materials, provided that for any new test array that cannot be reasonably represented by test array calculations presented in the permit application, emission factors shall be prepared and kept on file at the facility and shall be made available to the Office of Air Resources upon request.

c. There will be no fire testing of pesticides, herbicides, ordnance, or condensed phase explosives.

d. Fire research testing using one or two Fire Propagation Apparatuses and flashpoint testing per ASTM D 92 and D 93 may be conducted while an induced draft fan is operated alone, without a WESP, provided that no other fire research testing is conducted at the same time. ASTM D 92 is "Test Method for Flash and Fire Points by Cleveland Open Cup Tester" and D 93 is "Test Methods for Flash-Point by Pensky-Martens Closed Cup Tester."

e. The test procedure ASTM E108, "Standard Test Methods for Fire Tests of Roof Coverings," conducted at the facility shall be limited to consuming a maximum of 20 pounds per test of polyvinyl chloride (PVC) or an equivalent weight of chlorine in another compound that contains chlorine.

2. Diesel Water Pump Engines

a. The owner/operator shall limit the total combined quantity of diesel fuel oil combusted in the four water pump engines used to provide water for test and research fire suppression to 52,359 gallons or less, for any consecutive

12-month period.

b. The owner/operator shall limit the total combined quantity of diesel fuel oil combusted in the four water pump engines used to provide water to the campus emergency fire suppression system to 1,316 gallons or less, for any consecutive 12-month period. This fuel use limitation shall not apply to fuel combusted during an actual emergency. Fuel combusted at those times shall be excluded from the total that is compared to the 1316 gallon limitation but shall be included when determining compliance with the facility wide emission limitations in Section A.4 of this permit.

3. Boilers

a. The maximum firing rate of each 8.54 MMBtu/hr boiler shall not exceed 61.0 gal/hr of No. 2 fuel oil.

b. The owner/operator shall limit the total combined quantity of No. 2 fuel oil combusted in the three boilers located in the Warehouse and Maintenance Building to 500,000 gallons or less for any consecutive 12-month period.

c. The owner/operator shall limit the No. 2 fuel oil combusted in the 0.9 MMBtu/hr boiler located in the Pressurized Enclosure Test (PET) Building to 18,000 gallons or less for any consecutive 12-month period.

4. Each of the emergency generators at the facility shall not operate more than 500 hours in any 12-month period. The generators shall be operated only to provide emergency electrical power in the event of a power outage or for maintenance purposes to assure that the generators are in working order.

5. The wind generator engine shall not operate more than 640 hours in any 12-month period.

C. Continuous Monitors

1. The following parameters shall be continuously monitored and recorded during operation of the air pollution control system for fire research testing:

a. The secondary voltage of each WESP;

b. The inlet temperature to each quench chamber;

c. The inlet temperature to each WESP;

d. The outlet temperature of each WESP.

2. The three boilers located in the Warehouse and Maintenance Building shall be equipped with non-resettable fuel flow meters to indicate, in cumulative gallons, the total gallons of fuel consumed in each boiler. As an alternative, a single fuel flow meter may be installed to monitor total fuel flow to all three boilers.

3. The three boilers located in the Warehouse and Maintenance building shall be equipped with one opacity monitor in the common exhaust stack. The continuous emission monitoring equipment shall be operated and maintained for opacity when at least one of the boilers is in operation.

4. Each of the eight water pump engines shall be equipped with non-resettable fuel flow meters to indicate, in cumulative gallons, the total gallons of fuel consumed in each engine. As an alternative, a single fuel flow meter may be installed to monitor total fuel flow to multiple engines that have equivalent pollutant emission rates (pounds of pollutant per gallon of fuel combusted).

5. The wind generator engine and each emergency generator shall be equipped with non-resettable elapsed time meters to indicate, in cumulative hours, the elapsed engine operating time.

6. The boiler located in the Pressurized Test Enclosure (PET) Building shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed burner motor operating time.

D. Fuel Oil Testing

1. Compliance with the fuel oil sulfur limit may be determined based on a certification from the fuel supplier. Fuel supplier certifications shall include the following information:

   a. The name of the fuel supplier;

   b. The sulfur content of the fuel from which the shipment came or the shipment itself;

   c. The location of the fuel when the sample was drawn for analysis to determine the sulfur content of the fuel, specifically including whether the fuel was sampled as delivered to FM Global or whether the sample was drawn from fuel in storage at the fuel supplier's facility or another location;

   d. The method used to determine the sulfur content of the fuel.

2. As an alternative to fuel supplier certification, the owner/operator may elect to sample the fuel prior to combustion. Sampling and analysis shall be conducted for the fuel in the initial tank of fuel to be fired in each boiler, generator, or engine and

after each new shipment of fuel is received. Samples shall be collected from the fuel tank immediately after the fuel tank is filled and before any fuel is combusted.

3. Each fuel supplier certification or each fuel oil analysis must demonstrate that the oil contains 0.05 percent sulfur by weight or less.

E. Emissions Testing

1. Within 180 days of commencing operation of test burns in the Fire Research Building controlled by the air emissions control device (WESP), air emissions testing shall be conducted at the WESP outlet. Emissions testing shall be conducted for sulfur dioxide, carbon monoxide, nonmethane hydrocarbons, nitrogen oxides, hydrochloric acid, and particulate matter.

2. An emission testing protocol shall be submitted to the Office of Air Resources for review and approval prior to the performance of any emissions tests. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any emissions test.

3. All test procedures used for emissions testing shall be approved by the Office of Air Resources prior to the performance of any emissions tests.

4. The owner/operator shall install any and all test ports or platforms necessary to conduct the required testing, provide safe access to any platforms, and provide the necessary utilities for sampling and testing equipment.

5. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitations.

6. A final report of the results of any compliance testing shall be submitted to the Office of Air Resources no later than 60 days following completion of testing.

7. All emissions testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable.

F. Record Keeping and Reporting

1. Fire Research Building

The owner/operator shall maintain the following records for fire research:

a. Daily records of testing operations, including the type and amount of material burned and the type and amount of ignition fuel burned, excluding propane. Propane used for testing purposes shall be measured and recorded

on a monthly basis using a non-resettable gas meter. Daily records of fire research testing conducted using a Fire Propagation Apparatus shall include the number of tests conducted while the WESP was operating and the number of tests conducted while the WESP was not operating.

b. Monthly summaries of the daily record keeping shall be prepared no later than 15 days after the end of each month to demonstrate compliance with the emission limitations of this permit.

c. The hours of operation of the WESP including start-up, shut down, and malfunctions.

d. A written description of any malfunctions of the WESP, including the time and date of the malfunction, the duration of the malfunction, and the corrective action taken.

2. Diesel Water Pump Engines

a. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the fuel used by the eight water pump engines during the previous 12 months based on the fuel flow monitoring conducted to comply with Condition C.4 of this permit.

b. The owner/operator shall notify the Office of Air Resources within 15 days whenever:

(1) The total combined quantity of diesel fuel oil combusted in the four water pump engines used to provide water for test and research fire suppression exceeds 52,359 gallons for any consecutive 12-month period; or,

(2) The total combined quantity of diesel fuel oil combusted in the four water pump engines used to provide water to the campus emergency fire suppression system exceeds 1,316 gallons for any consecutive 12-month period. Fuel combusted during an actual emergency shall be excluded from the total that is compared to the 1316 gallon limitation.

3. Boilers

a. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the total fuel used by the three boilers located in the Warehouse and Maintenance building during the previous 12 months.

b. The owner/operator shall notify the Office of Air Resources within 15 days whenever the total combined quantity of No. 2 fuel oil combusted in the three

boilers located in the Warehouse and Maintenance building exceeds 500,000 gallons for any consecutive 12-month period.

c. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the total fuel used by the boiler located in the Pressurized Enclosure Test (PET) Building during the previous 12 months.

d. The owner/operator shall notify the Office of Air Resources within 15 days whenever the quantity of No. 2 fuel oil combusted in the boiler located in the Pressurized Enclosure Test (PET) Building exceeds 18,000 gallons for any consecutive 12-month period.

4. Facility-wide

a. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of nitrogen oxides discharged to the atmosphere from all operations at the facility, for the previous 12-month period.

b. The owner/operator shall notify the Office of Air Resources whenever the total combined quantity of nitrogen oxides discharged to the atmosphere from all operations at the facility exceeds 98,000 pounds for any consecutive 12-month period.

c. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of particulate matter (PM) discharged to the atmosphere from all operations at the facility, for the previous 12-month period.

d. The owner/operator shall notify the Office of Air Resources whenever the total combined quantity of particulate matter discharged to the atmosphere from all operations at the facility exceeds 198,000 pounds for any consecutive 12-month period.

e. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of sulfur dioxide ($SO_2$) discharged to the atmosphere from all operations at the facility, for the previous 12-month period.

f. The owner/operator shall notify the Office of Air Resources whenever the total combined quantity of sulfur dioxide discharged to the atmosphere from all operations at the facility exceeds 198,000 pounds for any consecutive 12-month period.

g. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of volatile organic

compounds (VOC) discharged to the atmosphere from all operations at the facility, for the previous 12-month period.

h. The owner/operator shall notify the Office of Air Resources whenever the total combined quantity of volatile organic compounds discharged to the atmosphere from all operations at the facility exceeds 98,000 pounds for any consecutive 12-month period.

i. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of carbon monoxide (CO) discharged to the atmosphere from all operations at the facility, for the previous 12-month period.

j. The owner/operator shall notify the Office of Air Resources whenever the total combined quantity of carbon monoxide discharged to the atmosphere from all operations at the facility exceeds 198,000 pounds for any consecutive 12-month period.

5. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the hours of operation of each emergency generator and the wind generator engine during the previous 12 months.

6. The owner/operator shall notify the Office of Air Resources within 15 days, whenever:

   a. The hours of operation of any emergency generator exceeds 500 hours for any 12-month period; or,

   b. The hours of operation for the wind generator engine exceeds 640 hours in any 12-month period.

7. The owner/operator shall notify the Office of Air Resources, in writing, of the date of removal of the existing air pollution control system for fire research testing (Approval No. 225) no later than 15 days after such date.

8. The owner/operator shall notify the Office of Air Resources in writing of the anticipated date of the initial start-up of the new WESPs in the new Fire Research Building not more than 60 days nor less than 30 days prior to such date.

9. The owner/operator shall notify the Office of Air Resources in writing of the actual initial start-up of the new WESPs in the new Fire Research Building, no later than 15 days after such date.

10. The owner/operator shall notify the Office of Air Resources in writing of the actual initial start-up of the three 8.54 MMBtu/hr boilers, no later than 15 days after such date.

11. The owner/operator shall maintain copies of all fuel supplier certifications or fuel analyses and these copies shall be made accessible for review by the Office of Air Resources or its authorized representative and EPA. These records shall include a certified statement, signed by the owner/operator of the facility, that the records represent all of the fuel combusted at the facility.

12. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.

13. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:

    a. Change the representation of the facility in the application.

    b. Alter the applicability of any state or federal air pollution rules or regulations.

    c. Result in the violation of any terms or conditions of this permit.

    d. Qualify as a modification under APC Regulation No. 9.

    Such notification shall include:

    - Information describing the nature of the change.
    - Information describing the effect of the change on the emission of any air contaminant.
    - The scheduled completion date of the planned change.

    Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

14. The owner/operator shall notify the Office of Air Resources of any noncompliance with the terms of this permit, in writing, within 5 days of the occurrence.

15. All records required as a condition of this approval must be made available to the Office of Air Resources or its representative upon request. These records must be maintained for a minimum of five years after the date of each record.

G. Malfunctions

1. In the case of a malfunction of the air pollution control system, all reasonable measures shall be taken to assure resumption of the designed control efficiency as soon as possible. In the event that the malfunction of the air pollution control system

is expected or may reasonably be expected to continue for longer than 24 hours and if the owner or operator wishes to operate the source on which it is installed at any time beyond that period, the Director shall be petitioned for a variance under Section 23-23-15 of the General Laws of Rhode Island, as amended. Such petition shall include, but is not limited to, the following:

a. Identification of the specific air pollution control system and source on which it is installed;

b. The expected period of time that the air pollution control system will be malfunctioning or out of service;

c. The nature and quantity of air contaminants likely to be emitted during said period;

d. Measures that will be taken to minimize the length of said period;

e. The reasons that it would be impossible or impractical to cease the source operation during said period.

2. The owner/operator may seek to establish that a malfunction of any air pollution control system that would result in noncompliance with any of the terms of this permit or any other applicable air pollution control rules and regulations was due to unavoidable increases in emissions attributable to the malfunction. To do so, the owner/operator must demonstrate to the Office of Air Resources that:

a. The malfunction was not attributable to improperly designed air pollution control equipment, lack of preventative maintenance, careless or improper operation, or operator error;

b. The malfunction was not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

c. Repairs necessary to bring the air pollution control system back to operating at its design control efficiency were performed in an expeditious fashion. Off-shift labor and overtime should be utilized, to the extent practicable, to ensure that such repairs were completed as expeditiously as practicable. Any parts or material needed should be shipped overnight where possible or practical.

d. All possible steps were taken to minimize emissions during the period of time that the repairs were performed.

e. Emissions during the period of time that the repairs were performed will not:

(1) Cause an increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by Air Pollution

Control Regulation No. 22 and any Calculated Acceptable Ambient Levels; and

(2) Cause or contribute to air pollution in violation of any applicable state or national ambient air quality standard.

f. The reasons that it would be impossible or impractical to cease the source operation during said period.

This demonstration must be provided to the Office of Air Resources, in writing, within two working days of the time when the malfunction occurred and contain a description of the malfunction, any steps taken to minimize emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish that noncompliance was due to unavoidable increases in emissions attributable to the malfunction.

H. Gasoline Storage Tank

The following requirements are applicable to the 1,500-gallon gasoline storage tank.

1. Operating Requirements

a. No person may transfer or cause or allow the transfer of gasoline from any delivery vessel into the gasoline tank unless it is equipped with a submerged fill pipe and the vapors displaced from the tank during filling are processed by a vapor control system in accordance with Condition H.1.b.

b. The vapor control system required by Condition H.1.a shall include:

(1) A vapor tight line from the tank to the delivery vessel and a system that will ensure that vapors will be transferred from the tank to the delivery vessel to include the following systems:

(a) Installation of a pressure-vacuum (PV) vent valve. PV valve relief settings must be 3±0.5 inches of water column pressure and 8±2 inches water column vacuum, unless otherwise specified in the applicable CARB certification for the Stage II system.

(b) The vapor tight line from the tank to the delivery vessel must be equipped with interlocking connections which will prevent fuel delivery unless the vapor line is connected.

c. The permittee shall repair, replace or modify any worn out or malfunctioning component or element of design.

d. The permittee shall maintain gauges, meters or other specified equipment in proper working order.

e. No person, owner, operator or employee shall dispense or allow the dispensing of gasoline from a stationary storage vessel into any motor vehicle fuel tank unless that gasoline dispenser is equipped with a properly operating Stage II vapor collection and control system certified by the California Resources Board and that system has been determined to be installed correctly according to the tests specified in condition H.2.c.

f. The permittee shall comply with the following conditions:

(1) The Stage II vapor collection and control system must be certified by the California Air Resources Board (CARB) as having a minimum control efficiency of 95 percent by weight. All hoses in the system must be coaxial. The system may include aftermarket parts, provided that those parts have been certified by CARB.

(2) All Stage II systems installed after 7 February 2001 must be certified according to CARB Vapor Recovery Certification Procedure CP-201, for underground storage tanks, or CP-205, for aboveground storage tanks, as adopted 12 April 1996, or by applicable certification procedures adopted by CARB subsequent to that date.

(3) All Stage II vapor and vent piping shall be made of a nonmetallic rigid type material unless the CARB certification for that Stage II system specifies that another type of piping may be used.

(4) At all times, at least one person must be employed at the facility who has attended a Stage II training session which has been approved by the Director and by EPA.

(5) Conspicuously post operating instructions for dispensing gasoline using the vapor collection and control system on the front of each gasoline-dispensing pump. Such instructions must include a warning not to attempt continued refueling after initial automatic shutoff. Instructions shall also include the telephone number of the Department and a request that inoperative control devices be reported.

(6) Maintain the Stage II vapor collection and control system in proper operating condition as specified by the manufacturer and free of defects that would impair the effectiveness of the system, as defined by the state inspection criteria.

(7) Visually inspect all aboveground parts of the Stage II vapor collection and control system once a week. Such an inspection must, at a minimum, include checking for: missing components; slits and tears in nozzle boots; face cone defects; flattened, kinked or torn hoses; and faceplate defects which hinder contact with the fill inlet area.

(8) Remove from service any dispenser if:

(a) Any part of the Stage II vapor collection and control system associated with that dispenser fails a compliance test conducted by or ordered by the Department or is found to be defective during a Department inspection, or

(b) Any part of the Stage II vapor collection and control system associated with that dispenser is not operating properly, or

(c) Any part of the Stage II vapor collection and control system associated with that dispenser is found to be defective during visual inspection performed in accordance with condition H.1.g.(7).

If the defect is in a single hose or nozzle on a multiproduct dispenser, only the nozzle associated with the defect must be removed from service.

Any dispenser removed from service on the basis of test results shall be kept out of service until it has been demonstrated by retesting that the dispenser is in compliance. Any dispenser removed from service in accordance with any other provision of this subsection shall be kept out of service until all defective or missing parts of the Stage II vapor collection and control system associated with the dispenser have been repaired or replaced.

2. Testing Requirements

a. Stage I compliance test methods to be used will follow Appendix B - Gasoline Vapor Leak Detection Procedures by Combustible Gas Detector, which is detailed in the EPA document entitled Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems, EPA-450/2-78-051, OAQPS No. 1.2-119.

b. The compliance test method will be used to determine if a vapor-tight condition exists in the line from the gasoline tank to the delivery vessel during gasoline transfer.

c. The following tests must be conducted on the Stage II vapor collection and control system within 60 days of issuance of this permit:

(1) A Leak Test

(2) A Liquid Blockage Test; and

(3) A Vapor Space Tie Test.

(4) A Ten Gallon per Minute Test.

(5) For vacuum assist Stage II systems, an Air to Liquid Ratio (A/L) Test, which must be performed on every nozzle on the Stage II system. If more than one product is dispensed through a single nozzle, A/L testing must be performed on that nozzle for each product dispensed; and

(6) All additional tests specified in the CARB certification applicable to that Stage II system

The permittee shall notify the Office of the date that these tests will be conducted at least seven (7) days in advance of testing.

d. The function of all Stage II vapor collection and control systems shall be retested prior to operation of the system after any major system modification. Testing shall include all tests listed in Condition H.2.c. A major system modification is considered to be the occurrence of any one of the following:

(1) A modification which would cause the facility to be a substantially modified gasoline dispensing facility, as defined in Air Pollution Control Regulation No. 11,

(2) The repair or replacement of any part of an underground piping system attached to a stationary storage tank equipped with a Stage II system, excluding repairs which occur without excavation, or

(3) The change from one certified Stage II system configuration to another.

e. The function of all Stage II vapor collection and control systems shall be retested periodically according to the following schedule:

(1) A Leak test, a Vapor Space Tie Test, and a Ten Gallon per Minute Test shall be performed annually;

(2) A Liquid Blockage Test shall be performed once every three years on every nozzle on the Stage II system;

(3) An Air to Liquid Ratio Test shall be performed annually on all vacuum assist systems; and

(4) All other tests required in the CARB certification applicable to that Stage II system shall be performed according to the frequency specified in that certification.

f. The Department may require a retest of the system any time that an inspection indicates that the vapor collection control system may not be functioning properly.

g. The permittee shall notify the Office of the date that testing will be conducted at least seven (7) days in advance of testing and shall certify to the Department in writing within fifteen (15) days of the test that testing has been completed. Such certification shall be signed by the owner or operator of the facility and shall include the date of installation of the Stage II vapor collection and control system and the results of the tests required in this section. Test results shall be signed and certified as accurate by the person who conducted the test.

h. Leak, Liquid Blockage and Vapor Space Tie Tests performed pursuant to the requirements of this section shall use the methodology specified in EPA's Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling of Gasoline Dispensing Facilities, Volumes 1 and II, November 1991. Ten Gallon Per Minute Tests, Air to Liquid Ratio Tests, and any additional tests required by the applicable CARB certification shall be performed using the current CARB methodology for those tests, unless otherwise specified by the Director.

3. Recordkeeping Requirements

a. The following records for the Stage II system shall be maintained and made available for inspection by representatives of the Department or the EPA on request:

(1) Dates and results of weekly visual inspections as required in condition H.1.g.(7),

(2) Date that any gasoline dispenser is removed from operation in compliance with the requirements specified in condition H.1.g.(8) and date that dispenser is returned to service,

(3) Identification of parts of the Stage II vapor collection and control system that are repaired or replaced, and dates of such replacements,

(4) Identification of any tests performed and the dates and results of such tests, and

(5) Proof of attendance and completion of training, as specified in condition H.1.g.(4) for each employee who has received Stage II training. Such documentation shall be maintained as long as the employee continues to be employed by the facility.

b. The following records for the Stage I system shall be maintained and made available for inspection by representatives of the Department or the EPA on request:

(1) the scheduled date for maintenance or the date a malfunction was detected, and

(2) the date the maintenance was performed or the malfunction corrected, and

(3) records of daily throughput quantities.

I. Other Permit Conditions

1. To the extent consistent with the requirements of this approval and applicable federal and state laws, the facility shall be designed, constructed and operated in accordance with the representation of the facility in the permit application.

2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution, or examining any records required to be maintained by the Office of Air Resources.

3. At all times, including periods of startup, shutdown, and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources, which may include, but is not limited to monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

4. There shall be no bypassing of the air pollution control equipment at any time, except as provided in Condition B.1.d.

5. Construction access and circulation routes shall be provided a temporary crushed gravel or pavement surface.

6. All construction related travel routes, exposed or excavated areas, shall be watered down as frequently as necessary to minimize dust.

7. Construction vehicles transporting loose aggregate shall be covered with a tarpaulin or similar dust resistant membrane.

8. Construction vehicle operating speeds shall be controlled to minimize generation of dust.

9. All construction related open storage areas and/or piles of soil, aggregates or any other dust producing material shall be covered or watered down as necessary to prevent generation of dust.

10. Any spillage from construction trucks or other construction equipment on any public street shall be removed promptly.

11. The Office of Air Resources may reopen and revise this permit if it determines that:

    a. a material mistake was made in establishing the operating restrictions; or,

    b. inaccurate emission factors were used in establishing the operating restrictions; or,

    c. emission factors have changed as a result of stack testing or emissions monitoring.

12. Approval No. 225 issued on 5 March 1976 for the installation of an air pollution control system for fire research testing shall be revoked upon receipt of notification of the removal of system.

Table 1. Emissions Limitations for Hazardous Air Pollutants (HAPs)

| Pollutant | Limitation | | |
|---|---|---|---|
| | pounds/hour | pounds/day | pounds/year |
| Any individual HAP | -- | -- | 18,000 |
| All HAPs combined | -- | -- | 48,000 |
| Antimony | -- | -- | 2000 |
| Arsenic | -- | -- | 1.6 |
| Benzene | -- | -- | 886 |
| Biphenyl | -- | 15 | 3300 |
| 1,3-Butadiene | -- | -- | 33 |
| Ethyl benzene | -- | 2000 | -- |
| HCl | 21 | 550 | -- |
| Lead | -- | 0.004 | 1.46 |
| Nickel | -- | -- | 16 |
| Phenol | -- | 100 | -- |
| Styrene | -- | -- | 18,000 |
| Toluene | -- | 4000 | 18,000 |
| Dioxins/Furans (2,3,7,8-TCDD equivalent) | -- | -- | 7.4E-05 |
| Formaldehyde | 0.16 | -- | 660 |
| Acetaldehyde | 10 | -- | 2000 |
| PAHs | | | |
| Total carcinogenic PAHs (Benzo(a)pyrene equivalent) | -- | -- | 7.5 |
| Acenaphthene | -- | 400 | -- |
| Anthracene | -- | 2000 | -- |
| Fluoranthene | -- | 200 | -- |
| Fluorene | -- | 200 | -- |
| Pyrene | -- | 200 | -- |
| Other non-carcinogenic PAHs (Pyrene equivalent) | -- | 200 | -- |