# WEST VIRGINIA
# SECRETARY OF STATE
KEN HECHLER
# ADMINISTRATIVE LAW DIVISION

Form #1

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OFFICE OF SECRETARY OF STATE

## NOTICE OF PUBLIC HEARING ON A PROPOSED RULE

AGENCY: WV Air Pollution Control Commission TITLE NUMBER: 45

RULE TYPE: Legislature ; CITE AUTHORITY W.V. Code §16-20-5

AMENDMENT TO AN EXISTING RULE: YES X NO ___

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 23

TITLE OF RULE BEING AMENDED: To Prevent and Control Air Pollution From the Emission of Volatile Organic Compounds from Bulk Gasoline Terminals

IF NO, SERIES NUMBER OF NEW RULE BEING PROPOSED: ___

TITLE OF RULE BEING PROPOSED: ___

DATE OF PUBLIC HEARING: June 5, 1990 TIME: 9:15 am

LOCATION OF PUBLIC HEARING: Office Building Conference Room
WV Air Pollution Control Commission
1558 Washington Street, East
Charleston, WV 25311

COMMENTS LIMITED TO: ORAL ___, WRITTEN ___, BOTH X

COMMENTS MAY ALSO BE MAILED TO THE FOLLOWING ADDRESS: Same

The Department requests that persons wishing to make comments at the hearing make an effort to submit written comments in order to facilitate the review of these comments.

The issues to be heard shall be limited to the proposed rule.

ATTACH A **BRIEF** SUMMARY OF YOUR PROPOSAL

Director

**[PROPOSED]**
**45CSR23**

**SUMMARY**

45CSR23 was promulgated by the commission on May 8, 1979 and became effective on October 27, 1979. The regulation provides a mechanism to control emissions of volatile organic compounds from the operation of bulk gasoline terminals and the appurtenant equipment necessary to load tank truck or trailer compartments. The regulation is being revised to address EPA's identified deficiencies and the requirement to provide a greater degree of equity and national consistency among all states and localities that received post-1987 ozone SIP calls. The areas affected were expanded to include additional counties that were identified as nonattainment of the ozone standards after 1979.

[PROPOSED]
45CSR23



# TITLE 45
# LEGISLATIVE RULES
# WEST VIRGINIA AIR POLLUTION CONTROL COMMISSION

## SERIES 23
## REGULATIONS TO PREVENT AND CONTROL AIR POLLUTION FROM THE EMISSION OF VOLATILE ORGANIC COMPOUNDS FROM BULK GASOLINE TERMINALS

Index.

[PROPOSED]
45CSR23

# TITLE 45
# LEGISLATIVE RULES
# WEST VIRGINIA AIR POLLUTION CONTROL COMMISSION

## SERIES 23
## REGULATIONS TO PREVENT AND CONTROL AIR POLLUTION FROM THE EMISSION OF VOLATILE ORGANIC COMPOUNDS FROM BULK GASOLINE TERMINALS

### §45-23-1. General.

1.1. Scope. — It is the intent of the commission that all persons engaged in the operation of bulk gasoline terminals and the appurtenant equipment necessary to load tank trucks or trailer compartments control the emission of volatile organic compounds through the application of reasonably available control technology.

1.2. Authority. — W.V. Code §16-20-5.

1.3. Filing Date. —

1.4. Effective Date. —

### §45-23-2. Area Affected.

This regulation applies to sources located in ~~West Virginia Air Quality Control Region IV (~~Putnam County, Kanawha County, ~~and~~ Valley Magisterial District of Fayette County~~)~~, Wood County, Cabell County, Wayne County, and Greenbrier County.

### §45-23-3. Definitions.

3.1. "Air Pollution", 'statutory air pollution' ~~shall have~~ has the meaning ascribed to it in article twenty, chapter sixteen of the ~~Code of West Virginia~~W.V. Code, as amended.

3.2. "Approved" ~~shall~~ means approved by the designated official of the West Virginia Air Pollution Control Commission.

3.3. "Bulk Gasoline Terminal" ~~shall~~ means a gasoline storage facility which receives gasoline from refineries primarily by, but not limited to, pipeline, ship or barge, and delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by tank truck; and has a daily through-put of more than 76,000 liters (20,000 gallons) of gasoline.

3.4. "Commission" ~~shall~~ means the West Virginia Air Pollution Control Commission.

3.5. "Condensate" ~~shall~~ means hydrocarbon liquid which condenses due to change in temperature and/or pressure and remains liquid at standard conditions.

3.6. "Construction" ~~shall~~ means commencement of onsite fabrication, erection, or installation of an emission source, air pollution control equipment, or a facility.

3.7. "Control Device" ~~shall~~ means equipment (incinerator, adsorber, or the like) used to destroy or remove air pollutant(s) prior to discharge of vapor to the ambient air.

3.8. "Day" ~~shall~~ means a twenty-four (24)-hour period beginning at midnight.

3.9. "Director" ~~shall~~ means the director of the West Virginia Air Pollution Control Commission.

3.10. "Emission" ~~shall~~ means the release or discharge, whether directly or indirectly, of any air pollutant into the ambient air from any source.

3.11. "Facility" ~~shall~~ means any building, structure, installation, or combination thereof which contains a stationary source of air pollutants.

3.12. "Gasoline" ~~shall~~ means a petroleum distillate having a Reid vapor pressure of 27.6 kPa (four (4) pounds/square inch) or greater which is used as a fuel for internal combustion engines.

~~3.13. "Hydrocarbon" shall mean any organic compound of carbon and hydrogen only.~~

~~3.14. "Organic material" means a chemical compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.~~

~~3.15.~~3.13. "Owner or Operator" ~~shall~~ means any person who owns, leases, controls, operates or supervises a facility, an emission source, or air pollution control equipment.

~~3.16.~~3.14. "Person" ~~shall~~ means any and all persons, natural or artificial, including any municipal, public or private corporation organized or existing under the laws of this or any other state or country, and any firm, partnership, or association of whatever nature.

~~3.17.~~3.15. "Reasonably Available Control Technology" (also denoted as RACT) ~~shall~~ means the lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. It may require technology that has been applied to similar, but not necessarily identical, source categories.

~~3.18.~~3.16. "Reid Vapor Pressure" ~~shall~~ means the absolute pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases as determined by ~~American Society for Testing and Materials, Part seventeen (17), 1973, D 323 72 (Re approved 1977)~~ the test methods contained in 40CFR part 80, Appendix E, 54FR 11897 - 11903 (March 22, 1989; Volatility Regulations for Gasoline and Alcohol Blends Sold in Calender Years 1989 and Beyond; Final Rule).

~~3.19.~~3.17. "Standard Conditions" ~~shall~~ means a temperature of twenty (20) degrees C (68°F) and pressure of 760 millimeters of mercury (29.92 inches of mercury).

~~3.20.~~3.18. "Vapor Collection System" ~~shall~~ means a vapor transport system which uses direct displacement by the liquid loaded to force vapors from the tank into a vapor control system.

~~3.21.~~3.19. "Vapor Control System" ~~shall~~ means a system that prevents release to the atmosphere of volatile organic compounds~~material in the vapors displaced from a tank~~ emitted during the operation of any transfer, storage, or process equipment.

~~3.22.~~3.20. "Volatile Organic Compound" (also denoted as VOC) ~~shall mean any compound of carbon that has a vapor pressure greater than 0.1 millimeters of mercury at standard conditions excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. For the purpose of this regulation, methane shall not be considered a volatile organic compound.~~ means any organic compound which participates in atmospheric photochemical reaction. This includes any organic compound other than the following compounds: methane, ethane, methyl chloroform (1,1,1-trichloroethane), CFC-113 (trichlorotrifluoroethane), methylene chloride, CFC-11 (trichlorofluoromethane), CFC-12 (dichlorodifluoromethane), CFC-22 (chlorodifluoromethane), FC-23 (trifluoromethane), CFC-114 (dichlorotetrafluoroethane), CFC-115 (chloropentafluoroethane). These compounds have been determined to have negligible photochemical reactivity. For purposes of determining compliance with emission limits, VOC will be measured by the approved test methods. Where such a method also inadvertently measures compounds with negligible photochemical reactivity, an owner or operator may exclude these negligibly reactive compounds when determining compliance with an emissions standard.

**§45-23-4. Control and Prohibition of Emissions.**

4.1. No owner or operator of a bulk gasoline terminal subject to this regulation may cause, allow or permit mass emissions of volatile organic compounds from the loading of gasoline into any tank trucks or trailers to exceed 80 milligrams per liter of gasoline loaded.

4.2. The emission limit under ~~Sub~~section 4.1. of this regulation shall be achieved by:

(a) equipping the bulk gasoline terminal with a vapor control system, capable of complying with ~~Sub~~section 4.1. of this regulation, properly installed, in good working order, in operation and consisting of one of the following:

(1) an approved adsorption, absorption, compression or condensation system which processes and recovers vapors and gases from the equipment being controlled; or,

(2) ~~a~~an approved vapor collection system which directs all vapors to a fuel gas system~~;~~ or incinerator; and,

~~(3) an equally effective alternative control system approved by the commission; and,~~

(b) venting all displaced vapors and gases only to the vapor control system; and,

(c) providing a means to prevent liquid drainage from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected; and,

(d) equipping all loading and vapor lines with fittings which make vapor-tight connections which close automatically when disconnected.

4.3. Sources subject to this regulation may not:

(a) allow gasoline to be discharged in sewers or stored in open containers or handled in any manner that would result in evaporation; nor,

(b) allow the pressure in the vapor collection system to exceed the tank truck or trailer pressure relief settings.

~~4.4. (a) Realizing that compliance with the provisions of this section may, in some cases, be technologically infeasible, the commission may, upon specific application by the owner or operator of a bulk gasoline terminal, grant exemptions from these~~

~~provisions. However, the petition must be submitted in writing in a manner approved by the director and must contain:~~

~~(1) a detailed description of the proposed alternative operational and/or equipment controls, the magnitude of volatile organic compound emission reduction which will be achieved, and the quantity and composition of volatile organic compounds which will be emitted if the alternative operational and/or equipment controls are instituted; and,~~

~~(2) a plan, which will be instituted in addition to the proposed alternative operational and/or equipment controls, to reduce volatile organic compound emissions from other source operations, not required under this regulation, such that aggregate volatile organic compound emissions from the facility will in no case be greater through application of the alternative control than would be permitted through conformance with Section four (4); and,~~

~~(3) a schedule for the installation and/or institution of the alternative operational and/or equipment controls.~~

~~(b) From time to time the commission shall review such exemptions to determine if they are still warranted. If the commission revises or terminates an exemption, the owner or operator of the affected bulk gasoline terminal shall be notified by certified mail. Such revision or terminations shall not become effective for at least ninety (90) days after the receipt of notification by the owner or operator.~~

4.4. If a source becomes subject to any requirement in this regulation because it exceeds an exemption level, the source shall continue to be subject to all applicable requirements, regardless of whether the source falls below the exemption level in the future.

**§45-23-5. Registration.**

5.1. Within thirty (30) days after the effective date of this regulation all persons owning and/or operating a bulk gasoline terminal subject to this regulation and not previously registered shall have registered such source(s) with the commission. The information required for registration shall be determined and provided in the manner specified by the director. Registration forms should be requested from the director by the owner or operator of such source(s).

5.2. The owner or operator of a bulk gasoline ~~office~~terminal that is under construction or on which construction is initiated within thirty (30) days after the effective date of this regulation shall register such source(s) with the commission.

**§45-23-6. Permits.**

After the effective date of this regulation, no person shall construct or modify any bulk gasoline terminal subject to this regulation without first obtaining a permit for such construction or modification. Applications for permits shall be made upon forms available from the director and shall be filed no less than ninety (90) days prior to the construction or modification. These forms shall include such information as in the judgment of the director will enable him to determine whether such source will be so designed as to operate in conformance with the provisions of this regulation and the ~~Code of West Virginia~~W.V. Code, and will not cause or contribute to the violation of air quality standards. Within ninety (90) days of the receipt of an application the director shall issue or deny such permit in accordance with the provisions of ~~Chapter Sixteen, Article Twenty, Section 11b~~ section eleven-b, article twenty, chapter sixteen of the ~~Code of West Virginia~~W.V. Code, as amended, and ~~Series 13~~ 45CSR13 ~~of this agency~~.

**§45-23-7. Reports and Testing.**

7.1. At such reasonable times as the director may designate, the owner or operator of any bulk gasoline terminal(s) may be required to conduct or have conducted tests to determine the compliance of such terminal(s) with the limitation of section 4 of this regulation. The director, or his duly authorized representative, may at his option witness or conduct such tests. Should the director exercise his option to conduct such tests, the owner or operator will provide all the necessary sampling connections and sampling ports to be located in such manner as the director may require, power or test equipment, and the required safety equipment to comply with generally accepted good safety practices.

7.2. For the purpose of determining the emissions from systems installed to control volatile organic compound vapors resulting from loading operations at bulk gasoline terminals, the following procedures shall be included:

(a) In aan approved manner~~--approved--by---the---director~~, direct measurements shall be made to determine the ~~hydrocarbon~~ mass of volatile organic compounds exhausted from the vapor control system.

(b) In aan approved manner~~-approved by the director~~, all possible sources of leaks shall be qualitatively checked to ensure that no uncontrolled vapors are emitted to the atmosphere.

7.3. For the purpose of determining the efficiency of a volatile organic compound emission control system, the following procedure shall be included:

(a) The material containing the volatile organic compounds shall be sampled and analyzed in aan approved manner~~-approved-by-the-director~~ such that the quantity of emissions that could result from the use of the material can be quantified.

(b) The efficiency of any capture system used to transport the volatile organic compound emissions from their point or origination to the control equipment

shall be computed using accepted engineering practices and in aan approved manner ~~approved by the director~~.

(c) Samples of the volatile organic compound containing gas stream shall be taken simultaneously at the inlet and outlet of the emissions control device in aan approved manner ~~approved by the director~~.

(d) The total combustible carbon content of the samples shall be determined by aan approved method ~~approved by the director~~.

(e) The efficiency of the control device shall be expressed as a fraction of total combustible carbon content reduction achieved.

(f) The volatile organic compound mass emission rate shall be the sum of emissions from the control device, emissions not collected by the capture system and capture system losses.

7.4. ~~The director, or his duly authorized representative, may conduct such other tests as he may deem necessary to evaluate air pollution emissions other than those noted in Section 4.~~ Testing for vapor-tight conditions, as required in sections 4 and 7 of this regulation, shall be conducted as prescribed in Appendix B of the document "Control of Volatile Organic Compound Leaks From Gasoline Tank Trucks and Vapor Collection Systems", EPA - 450/2-78-051, OAQPS No. 1.2-119, December, 1978, which is incorporated by reference.

7.5. ~~The commission may publish, and from time to time revise, detailed test procedures and reporting instructions implementing the provisions of this regulation.~~ The test procedures to determine mass emission rate compliance as required in sections 4 and 7 of this regulation shall be as prescribed in Appendix A of the document "Control of Hydrocarbons From Tank Truck Gasoline Loading Terminals", EPA - 450/2-77-026, OAQPS No. 1.2-082, October, 1977, which is incorporated by reference.

7.6. The owner or operator of a bulk gasoline terminal shall maintain and make available to the commission any records which are determined by the director to be necessary to document the compliance of such terminal with the provisions of this regulation. Such records shall be kept for at least two years and include, but not be limited to the information required in this section.

**§45-23-8. Compliance Programs and Schedules.**

8.1. In the event that a bulk gasoline terminal subject to this regulation and in existence prior to the adoption of this regulation does not meet the limitations set forth in section 4 of this regulation, an acceptable program to fully comply with this regulation shall be developed and offered to the commission by the person responsible for the source. This program shall be submitted upon the request of, and within such time as shall be fixed by the commission. Once this program has been approved by the commission, the owner and/or operator of such installation shall not be in violation of this regulation so long as the approved or amended program is observed.

8.2. In the event that an owner or operator of such a source(s) of volatile organic compounds fails to submit a program or an acceptable program and schedule, the commission shall, by order, determine the compliance program and schedule.

**§45-23-9. Variance.**

If the provisions of section 4 of this regulation cannot be satisfied due to unavoidable malfunction of equipment, the director may permit the owner or operator of a bulk gasoline terminal subject to this regulation to continue to operate for periods not to exceed ten (10) days upon specific application to the director. Such application shall be made within twenty-four (24) hours of the equipment malfunction. In cases of major equipment failure, additional time periods may be granted by the commission provided a corrective program has been submitted by the owner or operator and approved by the commission.

**§45-23-10. Exemptions.**

Sources subject to this regulation whose emissions of volatile organic compounds are not more than 6.8 kilograms (fifteen (15) pounds) in any one (1) day, nor more than 1.4 kilograms (three (3) pounds) in any one (1) hour will be exempt from sections 4 through 9 of this regulation, provided the emission rates are determined and certified six (6) months after the effective date of this regulation in aan approved manner ~~approved by the director~~.

**§45-23-11. Inconsistency Between Regulations.**

In the event of any inconsistency between this regulation and any other regulation of the commission, the resolution of such inconsistency shall be resolved by the determination of the director and such determination shall be based upon the application of the more stringent provision, term, condition, method, rule or regulation.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/2-78-051
OAQPS No. 1.2-119
December 1978

Air

EPA

# Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems



CTG

APPENDIX B

GASOLINE VAPOR LEAK DETECTION PROCEDURE
BY COMBUSTIBLE GAS DETECTOR

1. PRINCIPLE

A combustible gas detector is used to indicate any incidence of leakage from gasoline truck tanks and vapor control systems. This qualitative monitoring procedure is an enforcement tool to confirm the continuing existence of leak-tight conditions.

2. APPLICABILITY

This method is applicable to determining the leak-tightness of gasoline truck tanks during loading without taking the truck tank out of service. The method is applicable only if the vapor control system does not create back-pressure in excess of the pressure limits of the truck tank compliance leak test. For vapor control systems, this method is applicable to determining leak-tightness at any time.

3. DEFINITIONS

3.1 Truck tank. Any container, including associated pipes and fittings, that is used for the transport of gasoline.

3.2 Truck tank vapor collection equipment. Any piping, hoses, and devices on the truck tank used to collect and route the gasoline vapors in the tank to the bulk terminal, bulk plant, or service station vapor control system.

3.3 Vapor control system. Any piping, hoses, equipment, and devices at the bulk terminal, bulk plant, or service station, which is used to collect, store, and/or process gasoline vapors.

4. APPARATUS AND SPECIFICATIONS

4.1 Manometer. Liquid manometer, or equivalent, capable of measuring up to 6250 pascals (25 inches $H_2O$) gauge pressure with $\pm$25 pascals (0.1 inch $H_2O$) precision.

4.2 Combustible gas detector. A portable hydrocarbon gas analyzer with associated sampling line and probe.

4.2.1 Safety. Certified as safe for operation in explosive atmospheres.

4.2.2 Range. Minimum range of 0-100 percent of the lower explosive limit (LEL) as propane.

4.2.3 Probe diameter. Sampling probe internal diameter of 0.625 cm (1/4 inch).

4.2.4 Probe length. Probe sampling line of sufficient length for easy maneuverability during testing.

4.2.5 Response time. Response time for full-scale deflection of less than 8 seconds for detector with sampling line and probe attached.

5. TEST PROCEDURE

5.1 Pressure. Place a pressure tap in the terminal, plant, or service station vapor control system, as close as possible to the connection with the truck tank. Record the pressure periodically during testing.

5.2 Calibration. Calibrate the combustible gas detector with 2.2 percent propane by volume in air for 100 percent LEL response.

5.3 Monitoring procedure. During loading or unloading, check the periphery of all potential sources of leakage of the truck tank and of the terminal, plant, or service station vapor collection system with a combustible gas detector.

5.3.1 Probe distance. The probe inlet shall be 2.5 cm from the potential leak source.

5.3.2 Probe movement. Move the probe slowly (2.0 cm/second). If there is any meter deflection at a potential leak source, move the probe to locate the point of highest meter response.

5.3.3 Probe position. As much as possible, the probe inlet shall be positioned in the path of (parallel to) the vapor flow from a leak.

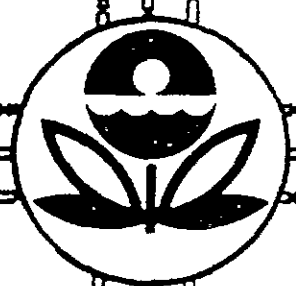
5.3.4 Wind. Attempt as much as possible to block the wind from the area being monitored.

5.4 Recording. Record the highest detector reading and location for each incidence of leakage.

EPA-450/2-77-026
October 1977
(OAQPS NO. 1.2-082)

GUIDELINE SERIES

# CONTROL OF HYDROCARBONS FROM TANK TRUCK GASOLINE LOADING TERMINALS



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Waste Management
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

APPENDIX A

## A.1 EMISSION TEST PROCEDURE FOR TANK TRUCK GASOLINE LOADING TERMINALS

Hydrocarbon mass emissions are determined directly using flow meters and hydrocarbon analysers. The volume of liquid gasoline dispensed is determined by calculation based on the metered quantity of gasoline at the loading rack. Test results are expressed in milligrams of hydrocarbons emitted per liter of gasoline transferred.

## A.2 APPLICABILITY

This method is applicable to determining hydrocarbon emission rates at tank truck gasoline loading terminals employing vapor balance collection systems and either continuous or intermittent vapor processing devices. This method is applicable to motor tank truck and trailer loading only.

## A.3 DEFINITIONS

### 3.1 Tank Truck Gasoline Terminal

A primary distribution point for delivering gasoline to bulk plants, service stations, and other distribution points, where the total gasoline throughput is greater than 76,000 liters/day.

### 3.2 Loading Rack

An aggregation or combination of gasoline loading equipment arranged so that all loading outlets in the combination can be connected to a tank truck or trailer parked in a specified loading space.

### 3.3 Vapor Balance Collection System

A vapor transport system which uses direct displacement by the liquid loaded to force vapors from the tank truck or trailer into the recovery system.

3.4 Continuous Vapor Processing Device

A hydrocarbon vapor control system that treats vapors from tank trucks or trailers on a demand basis without intermediate accumulation.

3.5 Intermittent Vapor Processing Device

A hydrocarbon vapor control system that employs an intermediate vapor holder to accumulate recovered vapors from tank trucks or trailers. The processing unit treats the accumulated vapors only during automatically controlled cycles.

## A.4 SUMMARY OF THE METHOD

This method describes the test conditions and test procedures to be followed in determining the emissions from systems installed to control hydrocarbon vapors resulting from tank truck and trailer loading operations at bulk terminals. Under this procedure, direct measurements are made to calculate the hydrocarbon mass exhausted from the vapor processing equipment. All possible sources of leaks are qualitatively checked to insure that no unprocessed vapors are emitted to the atmosphere. The results are expressed in terms of mass hydrocarbons emitted per unit volume of gasoline transferred. Emissions are determined on a total hydrocarbon basis. If methane is present in the vapors returned from the tank trucks or trailers, provisions are included for conversion to a total non-methane hydrocarbon basis.

## A.5 TEST SCOPE AND CONDITIONS APPLICABLE TO TEST

5.1 Test Period

The elapsed time during which the test is performed shall not be less

than three 8-hour test repetitions.

5.2 Terminal Status During Test Period

The test procedure is designed to measure control system performance under conditions of normal operation. Normal operation will vary from terminal-to-terminal and from day-to-day. Therefore, no specific criteria can be set forth to define normal operation. The following guidelines are provided to assist in determining normal operation.

5.2.1 Closing of Loading Racks

During the test period, all loading racks shall be open for each product line which is controlled by the system under test. Simultaneous use of more than one loading rack shall occur to the extent that such use would normally occur.

5.2.2 Simultaneous use of more than one dispenser on each loading rack shall occur to the extent that such use would normally occur.

5.2.3 Dispensing rates shall be set at the maximum rate at which the equipment is designed to be operated. Automatic product dispensers are to be used according to normal operating practices.

5.3 Vapor Control System Status During Tests

Applicable operating parameters shall be monitored to demonstrate that the processing unit is operating at design levels. For intermittent vapor processing units employing a vapor holder, each test repetition shall include at least one fully automatic operation cycle of the vapor holder and processing device. Tank trucks shall be essentially leak free as determined by EPA Mobile Source Enforcement Division.

A.6 BASIC MEASUREMENTS AND EQUIPMENT REQUIRED

6.1 Basic measurements required for evaluation of emissions from gasoline bulk loading terminals are described below. The various sampling points

are numbered in Figure 1.

| Sample Point | Measurements Necessary |
|---|---|
| 1. Gasoline dispensers | - Amount dispensed |
| 2. Vapor Return Line | - Leak check all fittings |
| 3. Processing unit exhaust | - Temperature of vapors exhausted |
| | - Press. of vapors exhausted |
| | - Volume of vapors exhausted |
| | - HC concentration of vapors |
| | - Gas chromatograph analysis of HC* |
| | - Leak check all fittings and vents |

6.2 The equipment required for the basic measurements are listed below:

| Sample Point | Equipment and Specifications |
|---|---|
| 2 | 1 portable combustible gas detector, (0-100% LEL) |
| 3 | 1 flexible thermocouple with recorder |
| | 1 gas volume meter, appropriately sized for exhaust flow rate and range |
| | 1 total hydrocarbon analyzer with recorder; (FID or NDIR type, equipped to read out 0-10% by volume hydrocarbons as propane for vapor recovery processing device; or, 0-10,000 ppmv HC as propane for incineration processing devices) |
| | 1 portable combustible gas detector (0-100% LEL) |
| Miscellaneous | 1 barometer |
| | 1 GC/FID w/column to separate $C_1$ - $C_7$ alkanes** |

*Required if methane is present in recovered vapors

**Required if methane is present in recovered vapors or if incineration is the vapor processing technique.

A.7 TEST PROCEDURES

7.1 Preparation for testing includes:

7.1.1 Install an appropriately sized gas meter on the exhaust vent of the vapor processing device. A gas volume meter can be used at the exhaust of most vapor recovery processing devices. For those where size restrictions preclude the use of a volume meter; or when incineration is used for vapor processing, a gas flow rate meter (orifice, pitot tube annubar, etc.) is necessary. At the meter inlet, install a thermocouple with recorder. Install a tap at the volume meter outlet. Attach a sample line for a total hydrocarbon analyzer (0-10% as propane) to this tap. If the meter pressure is different than barometric pressure, install a second tap at the meter outlet and attach an appropriate manometer for pressure measurement. If methane analysis is required, install a third tap for connection to a constant volume sample pump/evacuated bag assembly.*

7.1.2 Calibrate and span all instruments as outlined in Section 9.

7.2 Measurements and data required for evaluating the system emissions include:

7.2.1 At the beginning and end of each test repetition, record the volume readings on each product dispenser on each loading rack served by the system under test.

7.2.2 At the beginning of each test repetition and each two hours thereafter, record the ambient temperature and the barometric pressure.

7.2.3 For intermittent processing units employing a vapor holder, the unit shall be manually started and allowed to process vapors in the holder until the lower automatic cut-off is reached. This cycle should be performed immediately prior to the beginning of the test repetition before reading in 7.2.1 are taken. No loading shall be in progress during this manual cycle.

*Described in Method 3, Federal Register, V36, n247, December 23, 1971.

7.2.4 For each cycle of the processing unit during each test repetition, record the processor start and stop time, the initial and final gas meter readings, and the average vapor temperature, pressure and hydrocarbon concentration. If a flow rate meter is used, record flow meter readouts continuously during the cycle. If required, extract a sample continuously during each cycle for chromatographic analysis for specific hydrocarbons.

7.2.5 For each tank truck or trailer loading during the test period, check all fittings and seals on the tanker compartments with the combustible gas detector. Record the maximum combustible gas reading for any incidents of leakage of hydrocarbon vapors. Explore the entire periphery of the potential leak source with the sample hose inlet 1 cm away from the interface.

7.2.6 During each test period, monitor all possible sources of leaks in the vapor collection and processing system with the combustible gas indicator. Record the location and combustible gas reading for any incidents of leakage.

7.2.7 For intermittent systems, the processing unit shall be manually started and allowed to process vapors in the holder until the lower automatic shut-off is reached at the end of each test repetition. Record the data in 7.2.4 for this manual cycle. No loading shall be in progress during this manual cycle.

## A.8 CALCULATIONS

### 8.1 Terminology

$T_a$ = Ambient temperature ($^oC$)

$P_b$ = Barometric pressure (mm Hg)

$L_t$ = Total volume of liquid dispensed from all controlled racks during the test period (liters)

$V_e$ = Volume of air-hydrocarbon mixture exhausted from the processing unit ($M^3$)

$V_{es}$ = Normalized volume of air-hydrocarbon mixture exhausted, $NM^3$ @ 20°C, 760 mmHg

$C_e$ = Volume fraction of hydrocarbons in exhausted mixture (volume % as $C_3H_{10}$/100, corrected for methane content if required

$T_e$ = Temperature at processing unit exhaust (°C)

$P_e$ = Pressure at processing unit exhaust (mm Hg abs)

$(M/L)_e$ = Mass of hydrocarbons exhausted from the processing unit per volume of liquid loaded, (mg/l)

8.2 Processing Unit Emissions

Calculate the following results for each period of processing unit operation:

8.2.1 Volume of air-hydrocarbon mixture exhausted from the processing unit:

$V_e = V_{ef} - V_{ei}$, or $(m^3)$

$V_e$ = totalized volume from flow rate and time records.

8.2.2 Normalized volume of exhausted mixture:

$$V_{es} = \frac{(0.3858\ ^{o}K/mmHg)\ VePe}{Tet\ 273.2} \qquad NM^3 @ 20^{o}C, 760\ mmHg$$

8.2.3 Mass of hydrocarbons exhausted from the processing unit:

$$Me = \left(1.833 \times 10^6\ \frac{mgC_3H_8}{NM^3C_3H_8}\right) \times V_{es}C_e \quad (mg)$$

8.3 Average Processing Unit Emissions

8.3.1 Average mass of hydrocarbons emitted per volume of gasoline loaded:

$$(M/L)_e = \frac{\Sigma M_e}{L_t} \qquad (mg/liter)$$

A.9 CALIBRATIONS

9.1 Flow Meters

Use standard methods and equipment which have been approved by the

Administrator to calibrate the gas meters.

9.2 Temperature Recording Instruments

Calibrate prior to the test period and following the test period using an ice bath ($0^{o}C$) and a known reference temperature source of about $35^{o}C$. Baily during the test period, use an accurate reference to measure the ambient temperature and compare the ambient temperature reading of all other instruments to this value.

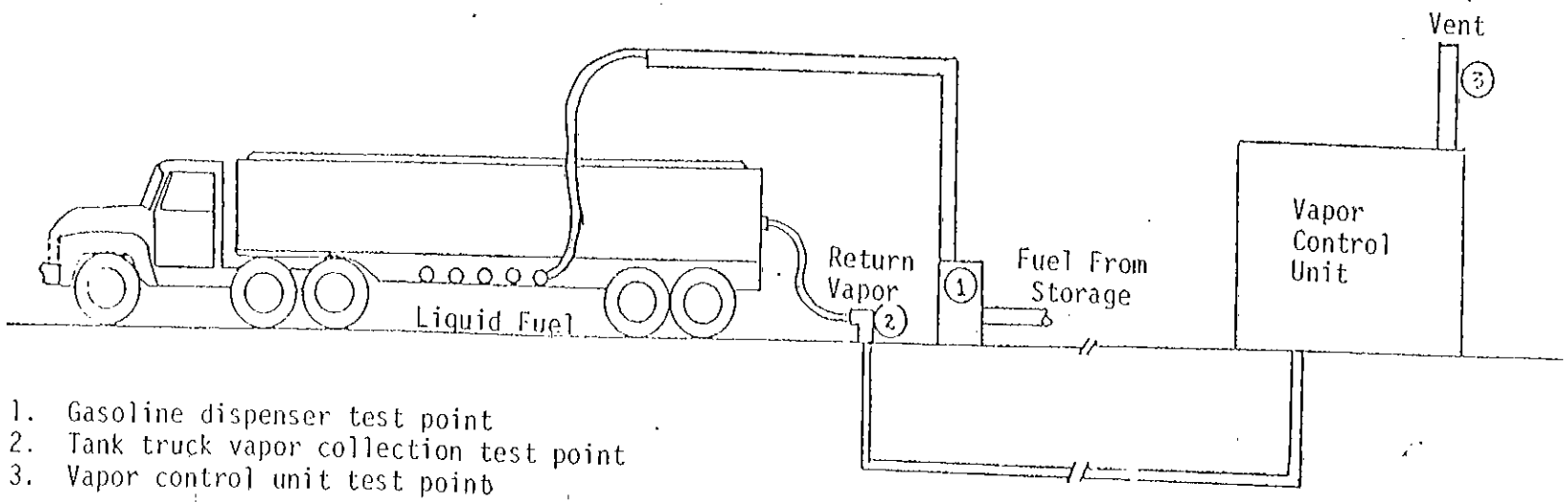
9.3 Total hydrocarbon analyzer

Follow the manufacturer's instructions concerning warm-up and adjustments. Prior to and immediately after the emission test, perform a comprehensive laboratory calibration on each analyzer used. Calibration gases should be propane in nitrogen prepared gravimetrically with mass quantities of approximately 100 percent propane. A calibration curve shall be provided using a minimum of five prepared standards in the range of concentrations expected during testing.

For each repetition, zero with zero gas (3 ppm C) and span with 70% propane for instruments used in the vapor return lines and with 10% propane for instruments used at the control device exhaust.

The zero and span procedure shall be performed at least once prior to the first test measurement, once during the middle of the run, and once following the final test measurement for each run.

Conditions in calibration gas cylinders must be kept such that condensation of propane does not occur. A safety factor of 2 for pressure and temperature is recommended.




1. Gasoline dispenser test point
2. Tank truck vapor collection test point
3. Vapor control unit test point

Figure A-1. Tank Truck Gasoline Loading Vapor Control Schematic

Table A-1 GASOLINE BULK TRANSFER TERMINAL DATA SHEET No.

Terminal Name: _____ Date: _____

Location: _____

Daily Ambient Data: (record every 2 hours)

| | Time | $T_a$ | $P_b$ |
|---|---|---|---|
| Start: | | | |
| | | | |
| | | | |
| | | | |
| End: | | | |

Schematic Diagram of Rack Layout

Dispenser Meter Readings

| Time Pump No. | Initial | Final | Time Pump No. | Initial | Final |
|---|---|---|---|---|---|
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GASOLINE BULK TRANSFER TERMINAL CONTROL SYSTEM DATA SHEET No. 2

Terminal Name: _____ Date: _____

Location: _____

Control Device Outlet

Gas meter readings Initial _____ Final _____

Time Test Start _____ Test End _____

Record the following for each processing unit operating cycle or emission period.

| Time | | Volume Reading | | Average | | |
|---|---|---|---|---|---|---|
| Start | Stop | Initial | Final | Temperature | Pressure | HC Concentration % as _____ |
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West Virginia

DEPARTMENT OF COMMERCE,
LABOR & ENVIRONMENTAL RESOURCES
OFFICE OF THE SECRETARY



State Capitol Charleston, West Virginia 25305 304/348-3255

April 2, 1990

Mr. Dale Farley
Secretary
West Virginia Air Pollution
Control Commission
1558 Washington Street, East
Charleston, WV 25311

Dear Mr. Farley:

Pursuant to the workplan that I previously filed with U. S. EPA - Region III to address nonattainment of the National Ambient Air Quality Standard for ozone, I hereby authorize the Air Pollution Control Commission to proceed with hearings and to propose amendments to the following legislative rules:

Regulation 21 (45CSR21) - "To Prevent and Control Air Pollution From the Emission of Volatile Organic Compounds From the Storage of Petroleum Liquids in Fixed Roof Tanks"

Regulation 23 (45CSR23) - "To Prevent and Control Air Pollution From the Emission of Volatile Organic Compounds From Bulk Gasoline Terminals"

Regulation 24 (45CSR24) - "To Prevent and Control Air Pollution From the Emission of Volatile Organic Compounds From Petroleum Refinery Sources".

Sincerely yours,

Leonard A. Harvey
Secretary

LAH/tlm