

(Adopted November 3, 1989)(Amended January 5, 1990)
(Amended May 13, 1994) (Amended September 13, 1996)

RULE 1176. VOC EMISSIONS FROM WASTEWATER SYSTEMS

(a) Purpose

This rule is intended to limit volatile organic compound (VOC) emissions from wastewater systems.

(b) Applicability

This rule applies to wastewater systems and associated control equipment located at petroleum refineries, on-shore oil production fields, off-shore oil production platforms, chemical plants, and industrial facilities.

(c) Definitions

For purposes of this rule, the following definitions apply:

- (1) CATCH BASIN is an open basin which serves as a single collection point for rainwater or stormwater run-off directly from ground surfaces.
- (2) AIR POLLUTION CONTROL (APC) DEVICE means air pollution control equipment which eliminates, reduces or controls the issuance of air contaminants.
- (3) BACKGROUND LEVEL is the ambient concentration of VOC in the air as measured pursuant to paragraph (h)(1).
- (4) CERTIFIED INSPECTOR is a person who has successfully completed a District approved fugitive emissions compliance inspection program and holds a current valid inspector certificate issued by the Executive Officer.
- (5) CERTIFIED INSTRUCTOR is a person who has successfully completed a District fugitive emissions compliance inspection program or any other program determined to be equivalent and approved by the Executive Officer and holds a current valid instructors certificate issued by the Executive Officer.
- (6) CHEMICAL PLANT is any facility engaged in producing chemicals, and/or manufacturing products by chemical processes. Any facility or operation that has 282 as the first three digits in its Standard Industrial Classification Code as defined in the Standard Industrial Classification Manual is included in this definition.

- (7) CLOSED VENT SYSTEM is a system that is not open to the atmosphere and that is composed of piping, ductwork, connections, and if necessary, flow-inducing devices that collect and transport gas or vapor from an emission source to an APC device or into gas recovery and/or combustion equipment. In that case, gas recovery and/or combustion equipment shall not be considered a closed vent system and is not subject to closed vent system standards.
- (8) DRAIN SYSTEM COMPONENT (DSC) is a process drain, manhole cover, junction box vent or other wastewater system vent, excluding closed vent systems. DSCs are categorized as follows:
- (A) NON-EMITTING DSC is a DSC which is controlled using a gas tight barrier between the sewer and the atmosphere that for the most recent six month period does not emit VOC emissions, or is a DSC which is uncontrolled that for the most recent 24 month period does not emit VOC emissions, as measured pursuant to paragraph (h)(1) in excess of 10 ppm above background level.
 - (B) LOW-EMITTING DSC is a DSC that has not emitted excess emissions for the most recent six month period or is effectively controlled pursuant to subparagraph (e)(7)(A).
 - (C) HIGH-EMITTING DSC is a DSC that has at least one excess emission in the most recent six months.
 - (D) REPEAT-EMITTING DSC is a petroleum refinery DSC that has emitted excess emissions at least three times during any consecutive 12 months, unless it has been effectively controlled pursuant to subparagraph (e)(7)(A).
- (9) DSC CONTROL is any control measure for a DSC which utilizes water seal controls, APC devices, hardpiping, or complete capping, plugging, or source elimination. Any other alternate control measure such as permanent source reduction may qualify as a DSC control, if approved in writing by the Executive Officer.
- (10) EXCESS EMISSIONS are VOC emissions measured pursuant to paragraph (h)(1) to be greater than 500 ppm above background levels.
- (11) FIXED COVER is any impermeable cover installed in a permanent stationary position.
- (12) FLOATING COVER is any impermeable cover which is in contact with a liquid surface at all times.

- (13) INACCESSIBLE DSC is any DSC located over 15 feet above ground when access is required from the ground; or any component located over six feet away from a platform when access is required from a platform; or any component which would require the elevation of monitoring personnel higher than six feet above permanent support surfaces. Inaccessible DSCs do not include DSC vents and wastewater system associated vents, where the vent pipes are extended more than four feet in length.
- (14) INDUSTRIAL FACILITIES are those engaged in the production and distribution of natural gas, pipeline distribution or wholesale distribution of crude petroleum and petroleum products , as classified under the Standard Industrial Classification group numbers 492, or 461, respectively, of the Standard Industrial Classification Manual.
- (15) JUNCTION BOX is a structure with a manhole or access point to a wastewater sewer system lines.
- (16) NON-CONTACT WATER is any water which does not come into contact with wastewater.
- (17) OIL PRODUCTION FIELD is a facility at which crude petroleum production and handling are conducted, as defined in the Standard Industrial Classification Manual as Industry No. 1311, Crude Petroleum and Natural Gas.
- (18) PETROLEUM REFINERY is a facility that processes petroleum, as defined in the Standard Industrial Classification Manual as Industry No. 2911, Petroleum Refining.
- (19) PROCESS DRAIN is any opening (including covered or controlled openings) which is installed or used to receive or convey wastewater into the wastewater system.
- (20) SEPARATOR FOREBAY is that section of a gravity-type separator which receives the untreated wastewater from the preseparator flume and acts as a header which distributes the influent to the separator channels.
- (21) SEWER LINE is a lateral trunk line, branch line, ditch, channel, or other conduit used to convey wastewater.
- (22) SUMP is a surface impoundment or excavated depression in the ground, which is part of the wastewater system and used for storage of wastewater or separation of petroleum liquids, VOC containing liquids, water, and/or solids.
- (23) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102.

- (24) WASTEWATER is a water stream or other liquid waste stream generated in a manner which may contain petroleum liquid, emulsified oil, VOC, or other hydrocarbons.
- (25) WASTEWATER SEPARATOR is any device, used to separate petroleum liquids and/or VOC containing liquids from wastewater including such devices as separator forebays, clarifiers and tanks including dissolved air flotation tanks, induced gas flotation tanks and induced air flotation tanks.
- (26) WASTEWATER SYSTEM is any system which consists of one or more process drains, sewer lines, junction boxes, manholes, sumps, or wastewater separators, including all of their associated components, used to receive, convey, separate, treat, or process wastewater.
- (27) WATER SEAL CONTROL is a seal pot, p-leg trap, or other type of trap filled with any non-VOC containing liquid to create a liquid barrier between the sewer and the atmosphere.

(d) Identification Requirements

The facility operator shall comply with the following provisions:

- (1) Requirements for Facilities other than Petroleum Refineries:
Within 60 days of written request by the Executive Officer, submit a detailed schematic drawing identifying the location within the facility of all the components of the wastewater system and all associated APC devices. In lieu of identifying the locations of the DSCs on the schematic, the DSCs locations may be identified on a separate list attached to the schematic.
- (2) Requirements for Petroleum Refineries:
By June 30, 1997, submit to the District a compliance plan which shall include the following:
 - (A) A statement regarding which compliance option listed in either subparagraphs (e)(7)(A) or (e)(7)(B) has been chosen; and
 - (B) A detailed schematic drawing of the location of the wastewater system, within the facility. The schematic shall also include all of the APC devices associated with the wastewater system; and
 - (C) A complete DSC list identifying their total number, individual location and if controlled, the type of DSC control. The list shall also identify each DSC as either non-emitting, low-emitting, high-emitting, or repeat-emitting according to the initial monitoring

frequency in subparagraph (f)(1)(A). Historical monitoring data collected during the most recent 12 months may be used to categorize each DSC in lieu of subparagraph (f)(1)(A), except for uncontrolled non-emitting DSCs which shall be required to use the most recent 24 months of historical data. Any inaccessible DSC shall be identified for District’s verification and approval; and

- (D) Historical monitoring data and/or the monitoring data collected pursuant to subparagraph (f)(1)(A) used to categorize each DSC, and
- (E) An identification of the proposed methods of control, if necessary, for each junction box vent based on its emission characteristics; and
- (F) Any alternate DSC control which is not already identified in paragraph (c)(9) and the operator requests approval in advance by the Executive Officer for use as a DSC control. A complete description of the proposed DSC control and its specific applications shall be included.

(e) **Operation and Control Requirements**

The facility operator shall comply with the following provisions:

(1) **Wastewater System Emissions:**

Wastewater systems and closed vent systems, except sump and wastewater separator covers in compliance with clause (e)(2)(B)(vi), shall not emit VOC emissions measured pursuant to paragraph (h)(2) to be greater than 500 ppm above background levels according to the compliance dates in Table 1. The compliance date in Table 1 may be extended pursuant to subparagraphs (e)(2)(C) and (e)(5)(B).

Table 1	
EQUIPMENT	COMPLIANCE DATE
Separator forebays, clarifiers, dissolved air flotation tanks, induced gas flotation tanks, and induced air flotation tanks which are not controlled.	June 30, 1997
Sumps which are not controlled.	June 30, 1997
Junction box vents and manhole cover openings.	June 30, 1997
All other parts of the wastewater system not specifically listed above.	November 3, 1989

- (2) Sumps and Wastewater Separators :
- (A) Sumps and Wastewater Separators shall be provided with one of the following except as provided in subparagraph (e)(2)(C):
- (i) A floating cover equipped with seals.
 - (ii) A fixed cover, equipped with a closed vent system vented to an APC device as specified in paragraph (e)(6).
 - (iii) Any other alternate control measure which is demonstrated by the facility operator to be equivalent to, or more effective in reducing VOC emissions than the requirements of clauses (e)(2)(A)(i) or (e)(2)(A)(ii), and approved in writing by the Executive Officer.
- (B) Sump and Wastewater Separator Covers, both fixed and floating, shall meet all of the following requirements:
- (i) The cover material shall be impermeable to VOCs, and free from holes, tears, or openings.
 - (ii) Drains on covers shall be provided with a slotted membrane fabric cover, or equivalent, over at least 90 percent of the open area.
 - (iii) Gauging or sampling openings on the separator shall be covered. The covers shall be kept closed, with no visible gaps between the cover and the separator, except when the gauging or sampling device is actively being used.
 - (iv) Hatches on covers shall be kept closed and free of gaps, except when opened for active inspection, maintenance, sampling, or repair.
 - (v) The perimeter of a cover, except for a floating cover, shall form a seal free of gaps with the foundation to which it is attached.
 - (vi) A floating cover shall be designed and maintained so that the gap between the separator or sump wall and the seal does not exceed 1/8 inch for a cumulative length of 97 percent of the perimeter of the separator. No gap between the wall and the seal shall exceed 1/2 inch.
- (C) For initial modification of sumps, separator forebays, clarifiers, dissolved air flotation tanks, induced gas flotation tanks, or induced air flotation tanks to comply with subparagraphs (e)(2)(A)

and (e)(2)(B) which require a permit to construct, compliance with paragraph (e)(1) and subparagraphs (e)(2)(A) and (e)(2)(B) shall be achieved no later than six months after the District issues the initial permit to construct, provided that a complete application for a permit to construct is submitted to the District on or before November 13, 1996.

(3) Sewer lines:

(A) All sewer lines shall be completely enclosed so that no liquid surface is exposed to the atmosphere. The manhole cover shall remain fully closed, except when opened for active inspection, maintenance, sampling, or repair.

(B) By June 30, 1997, all openings in the sewer line manhole covers shall be completely sealed.

(4) Process drains:

Any new process drain installed after September 13, 1996, shall be equipped with water seal controls or any other alternative control measure which is demonstrated by the applicant to be equivalent, or more effective than water seal controls in reducing VOC emissions, as approved in writing by the Executive Officer.

(5) Junction boxes:

(A) Junction boxes shall be totally enclosed with a solid, gasketed, fixed cover or a manhole cover. Each fixed cover shall be allowed to have an open vent pipe no more than four inches in diameter and at least three feet in length. Each manhole cover on junction boxes shall be allowed to have openings totaling no more than 12 square inches. The manhole cover shall remain fully closed, except when opened for active inspection, maintenance, sampling, or repair.

(B) For initial modification of junction boxes to comply with paragraph (e)(1), compliance shall be achieved no later than six months after the District issues the initial permit to construct for the DSC controls which require a permit to construct, provided that a complete application for a permit to construct is submitted to the District on or before June 30, 1997.

- (6) APC Devices shall meet one of the following requirements:
- (A) An APC device receiving vapors from a closed vent system shall achieve a control efficiency of 95 percent by weight or greater of VOC. An annual performance test shall be conducted to determine the APC device control efficiency according to the test method specified in paragraph (h)(3),
 - (B) The outlet of the APC device shall not emit VOC emissions measured pursuant to paragraphs (h)(1) or (h)(2) to be greater than 500 ppm above background. The frequency of monitoring shall be at least monthly, or
 - (C) Any APC device or other alternate system that collects vapors through a closed vent system and subsequently controls the vapors in a device, which has been issued a permit to construct or a permit to operate by the Executive Officer, and determined by the Executive Officer to provide an equivalent level of VOC emission controls as specified in subparagraphs (e)(6)(A) or (e)(6)(B).
- (7) Additional Requirements for DSCs at Petroleum Refineries:
Comply with the control requirements of either subparagraphs (e)(7)(A) or (e)(7)(B) according to the schedule specified in these subparagraphs.
- (A) Control of Repeat Emitting DSCs:
Within 60 days or longer, as approved by the Executive Officer, after a DSC becomes a repeat emitting DSC, effectively control the DSC by installing a DSC control, if previously uncontrolled, or a more efficient DSC control to eliminate excess emissions from the DSC.
 - (B) Control of All DSCs:
DSC controls shall be installed on all DSCs that are uncontrolled as of September 13, 1996, according to the following schedule:
 - (i) At least 25 percent of uncontrolled DSCs by December 31, 1997,
 - (ii) At least 50 percent of uncontrolled DSCs by December 31, 1998,
 - (iii) At least 75 percent of uncontrolled DSCs by December 31, 1999, and
 - (iv) 100 percent of uncontrolled DSCs by December 31, 2000.

(f) Inspection, Monitoring and Maintenance Requirements

The facility operator shall comply with the following provisions:

(1) Inspection and Monitoring Frequency:

Wastewater systems and closed vent system(s) shall be inspected and monitored according to the following monitoring frequency:

(A) For Petroleum Refineries Choosing Option (e)(7)(A):

Inspect and monitor wastewater separators, closed vent systems, and all DSCs monthly until the compliance plan is submitted pursuant to paragraph (d)(2). After the compliance plan is submitted:

(i) Inspect and monitor the wastewater system according to Table 2, or

(ii) After June 30, 1997, inspect and monitor the wastewater system according to Table 2, except that low-emitting DSCs may be monitored semi-annually, provided that:

(I) 0.5 percent or less of all DSCs, have emitted excess emissions as measured pursuant to paragraph (h)(1) for the most recent 12 month period, and

(II) The above is substantiated by documentation of the verified inspection and monitoring records, and submitted to the District for written approval by the Executive Officer.

The inspection and monitoring frequency, approved in clause (f)(1)(A)(ii), shall revert to clause (f)(1)(A)(i), should the facility operator's inspection records or District inspection show that greater than 0.5 percent of all DSCs have emitted excess emissions measured pursuant to paragraph (h)(1) in excess of the level specified in subclause (f)(1)(A)(ii)(I).

Table 2	
EQUIPMENT	FREQUENCY
Wastewater separator(s) and associated closed vent system(s)	Monthly
High-Emitting DSCs	Monthly
Low-Emitting DSCs	Quarterly
Non-Emitting DSCs	Semi-annually
Inaccessible DSCs	Annually

(B) Petroleum Refineries Choosing Option (e)(7)(B):

- (i) Inspect and monitor wastewater separators, closed vent systems, and all DSCs monthly until the compliance plan is submitted pursuant to paragraph (d)(2).
- (ii) After the compliance plan is submitted, inspect and monitor the wastewater system according to Table 3.

Table 3	
EQUIPMENT	FREQUENCY
Wastewater separator(s) and associated closed vent system(s).	Monthly
DSCs (Excluding Non-Emitting DSCs)	Quarterly
Non-Emitting DSCs	Semi-annually
Inaccessible DSCs	Annually

(C) For Oil Production Fields, Chemical Plants, and Industrial Facilities:

Effective September 13, 1996, inspect and monitor wastewater separator(s), associated closed vent system(s) and DSCs quarterly, except that non-emitting DSCs and inaccessible DSCs, may be inspected annually.

- (2) On or after July 1, 1997, or a later date as approved in writing by the Executive Officer, all inspections and monitoring required under paragraph (f)(1) shall be done by a certified inspector.
- (3) Wastewater systems with excess emissions or otherwise found in violation through either operator inspection or District inspection shall be repaired

or rectified within three calendar days of detection. The repaired or rectified component shall be reinspected by the facility operator between 24 hours to 48 hours for petroleum refineries and between 24 hours to 15 calendar days for other facilities after the repair or rectification to ensure that the repaired or rectified component is in compliance with this rule. The operator shall take all feasible steps to minimize emissions during the repair or replacement period.

(g) Recordkeeping, Reporting and Verification of Records Requirements

The facility operator shall comply with the following provisions:

(1) Recordkeeping:

(A) All records shall be maintained at the facility for a period of two years and made available to District staff upon request.

(B) Any operator using an APC device for a wastewater system as a means of complying with this rule, shall maintain records of system operation or maintenance which will demonstrate proper operation and compliance of the APC device during periods of emission producing activities.

(C) Inspection records for the wastewater system shall be made and documented as follows:

(i) The inspection record shall include and document all written or machine recorded operator inspections, VOC measurements including corresponding background levels, source tests, repairs, replacements, and reinspection records.

(ii) The inspection record shall include the date(s) they were taken.

(iii) The inspection record shall include the name and signature of the certified inspector(s). An electronic identification code may be used instead of a signature provided that the certified inspector verifies, in writing, that he or she has conducted the inspection and monitoring.

(2) Reporting requirements for refineries:

(A) Any change to the wastewater system or any other component required to be identified by paragraph (d)(2), shall be submitted to

the District within 60 calendar days after construction is completed.

(B) For facility operators complying with subparagraph (e)(7)(A), a quarterly report shall be submitted to the District in a format approved by the Executive Officer, within 30 calendar days after the end of each quarter. The report shall include all of the following:

- (i) The identification of all DSCs with recordings of excess emissions and the corresponding levels of emissions in ppm,
- (ii) The identification of repeat emitting drains including each record of excess emissions and subsequent repairs within the last 12 months before corrective actions,
- (iii) The corrective actions taken pursuant to subparagraph (e)(7)(A), and
- (iv) Each monitoring record after corrective actions until the report is submitted.

(C) For facility operators complying with subparagraph (e)(7)(B), semi-annual reports shall be submitted to the District, each within 30 days after the end of each six month period, showing:

- (i) Which DSCs identified in paragraph (d)(2) have been controlled and the type of control, until all DSCs are controlled, and
- (ii) All DSCs identified to have an excess emission.

(3) Verification of Records:

All inspection records and reports submitted to the District, shall be signed by the facility official with responsibility for operation of the equipment subject to this rule, to verify that the inspection(s) have been conducted by certified inspectors consistent with the requirements of this rule.

(4) Any inaccurate verification of inspection records shall constitute a violation of this rule.

(h) Test Methods

(1) EPA Reference Method 21:

Measurement of gaseous VOC concentration shall be conducted according to EPA Reference Method 21, using an appropriate analyzer calibrated

with methane, or any other method demonstrated by the applicant to be equivalent and approved in writing by the Executive Officers of the District, the California Air Resources Board (CARB), and the Regional Administrator of the United States Environmental Protection Agency (U.S. EPA), Region IX, or their designees. Background level shall be measured using the Method 21 procedure for determining local ambient concentration around the source.

(2) District Grab Sample Method:

Sampling and analysis shall be conducted according to the test methods contained in Attachment A, or any other procedure and method demonstrated by the applicant to be equivalent and approved in writing by the Executive Officers of the District, the CARB, and the Regional Administrator of the U.S. EPA, Region IX, or their designees.

(3) EPA Reference Method 25:

Measurement of control efficiency of an air pollution control device shall be conducted according to EPA Reference Method 25, District Test Method 25.1, or any other method demonstrated by the applicant to be equivalent and approved in writing by the Executive Officers of the District, the CARB, and the Regional Administrator of the U.S. EPA, Region IX, or their designees. Emissions determined to exceed any limits established by this rule through either of the referenced test methods in paragraph (h)(3) shall constitute a violation of this rule. Test procedures shall be performed in accordance with a protocol approved by the Executive Officer.

(i) Exemptions

Specified provisions of this rule shall not apply if the wastewater system meets the applicable criteria shown below. Any person seeking to qualify for any one of the following exemptions has the burden of proving its wastewater system meets the applicable specified criteria:

- (1) The provisions of subdivision (e) shall not apply to equipment which, if covered, would present unavoidable explosion or fire hazards, as approved in writing by the Executive Officer.
- (2) The provisions of paragraph (e)(1) shall not apply to process drains while receiving petroleum liquids and/or VOC containing liquids.

- (3) The provisions of paragraph (e)(1) and subparagraph (e)(2)(B) shall not apply to components which the facility operator has detected and recorded to be in violation or to emit excess emissions, prior to District discovery and which is repaired and reinspected pursuant to paragraph (f)(3). This exemption is limited to the period of time between recording and reinspection.
- (4) The provisions of paragraph (e)(6) and subparagraph (f)(1)(C) shall not apply to natural gas handling facilities which are primarily operated to receive and inject natural gas into the ground for underground storage and subsequent processing and distribution with at least 80 percent methane (by volume), and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the California Public Utilities Commission, provided that:
- (A) None of the wastewater separators, DSCs, closed vent systems and APC devices at the facility emit VOC emissions greater than 500 ppm as measured pursuant to paragraph (h)(2) at any time, and
- (B) The facility operator requests this exemption and provides inspection and monitoring records for the most recent two years, which demonstrates compliance with subparagraph (i)(4)(A), for the most recent two years, and the request is approved in writing by the Executive Officer.

This approval and exemption shall automatically expire should facility operator's subsequent inspection records or District inspection show that the facility does not comply with the requirements of subparagraph (i)(4)(A). If the exemption is lost due to non-compliance with subparagraph (i)(4)(A), the facility may reapply for an exemption pursuant to subparagraph (i)(4)(B)

- (5) All the provisions of this rule shall not apply to the following:
- (A) Components which present a safety hazard for inspection as documented and established in a previous safety manual or policy, or with the prior written approval of the Executive Officer except that these components shall be monitored for excess emissions when it is safe to do so. Upon detection, the excess emission shall be corrected as soon as the repairs or replacement can be carried out safely.

- (B) Wastewater separator pressure-vacuum valves when open, due to a vacuum produced within the wastewater system.
- (C) Spill containments for tanks.
- (D) Open pipe channels designed for spill containment.
- (E) Tanks subject to Rule 463.
- (F) Valves, fittings, pumps, compressors, pressure relief devices, diaphragms, hatches, site-glasses, and meters which are subject to or exempt from the requirements of Rule 1173.
- (G) Equipment, including catch basins, that exclusively receive, hold, or discharge rainwater, stormwater runoff, or non-contact water.
- (H) Well cellars used in emergencies at oil production fields, if clean-up procedures are implemented within 24 hours after each emergency occurrence and completed within ten (10) calendar days.
- (I) Sampling junction boxes of the wastewater system prior to discharge into the municipal sewer lines and which are designated as the legal sample point on the facility's industrial wastewater permit.
- (J) Wastewater system(s), if the VOC content of each liquid stream entering each sump and/or wastewater separator does not exceed at all times 5 mg per liter, as determined by EPA Test Method 8240 or any other method demonstrated by the applicant to be equivalent and approved in writing by the Executive Officers of the District, the CARB, and the Regional Administrator of the U.S.-EPA, Region IX, or their designees. Samples of the liquid stream shall be collected from each inlet to the sump and/or wastewater separator. A safe sampling site or sampling port to meet the requirements of this subparagraph shall be installed upon request of the Executive Officer. The sampling site or port shall be installed within two weeks after request by the Executive Officer or by any other date as approved by the Executive Officer.
- (K) Biological wastewater treatment units and their downstream equipment in a secondary treatment system that is installed and operated to meet the National Pollutant Discharge Elimination System (NPDES) discharge requirements if the VOC content of each liquid stream entering the secondary treatment system does

not exceed at all times 5 mg per liter, as determined by EPA Test Method 8240 or any other method demonstrated by the applicant to be equivalent and approved in writing by the Executive Officers of the District, the CARB, and the Regional Administrator of the U.S.-EPA, Region IX, or their designees. Samples of the liquid stream shall be collected from each inlet to the sump and/or wastewater separator. A safe sampling site or sampling port to meet the requirements of this subparagraph shall be installed upon request of the Executive Officer. The sampling site or port shall be installed within two weeks after request by the Executive Officer or by any other date as approved by the Executive Officer.

- (L) Sanitary sewers and sanitary sewer systems not processing wastewater.

ATTACHMENT A**District Grab Sample Method**

The grab sample procedure and method of analysis shall be according to the following:

1. Sampling Apparatus

The sampling system shall consist of at a minimum:

- a. A 3 liter volume type 316 stainless steel tank.
- b. A valve for leak tight shut off.
- c. Two vacuum gauges which can measure 0 inch Hg to 30 inches of Hg.
- d. A glass rotameter which can accurately measure a flowrate of 1 liter per minute and larger.
- e. A one-eighth inch diameter Teflon connector.
- f. An inlet probe, and metallic fittings.

The dead space volume in the sample line shall be kept to a minimum. All metallic components including the gauges shall be constructed of stainless steel. A type 304 stainless steel tank may be allowed provided there are no acids in the sample. Refer to Figure 1 for a schematic diagram of the sampling apparatus. The glass rotameter shall be calibrated once every three months.

2. Sample Tank Evacuation and Leak Check

The evacuation and leak check of the sample tank shall be performed according to the corresponding section of EPA Method 25.

3. Leak Check the Sampling Line

- 3.1. The sampling line shall be leak checked at the site before and after sampling using the following procedure:
 - a. Cap the inlet probe.
 - b. Open the shut off valve slowly and briefly to allow 1 inch of Hg of vacuum in the line.
 - c. Close the valve immediately.
 - d. The sampling line is leak free if there is no change in vacuum for one minute.
- 3.2. As an alternative, the sampling line may be leak checked before and after sampling using the following procedure:
 - a. Insert one end of a vacuum gauge at the inlet probe.
 - b. Cap or seal the other end of the vacuum gauge attached to the probe.
 - c. Follow procedures 3.1.b. through 3.1.d.

4. Sampling

- a. Purge the sample line.
- b. Record the vacuum prior to sampling.
- c. Use the section on "Individual Source Surveys" of EPA Reference Method 21 to take samples with the inlet probe of the sampling apparatus.

- d. The rotameter shall be level to the horizon.
- e. Open the shut off valve slowly.
- f. Adjust the rotameter to a constant 1 liter per minute flowrate. Maintain this constant flowrate throughout sampling.
- g. Close the shut off valve when the vacuum has dropped to between 5-10 inches of Hg.
- h. Record the vacuum after sampling is completed.

5. Analysis of Sampling

The sample shall be analyzed according to the applicable analytical gaseous sections of EPA Method 25, or District Test Method 25.1.

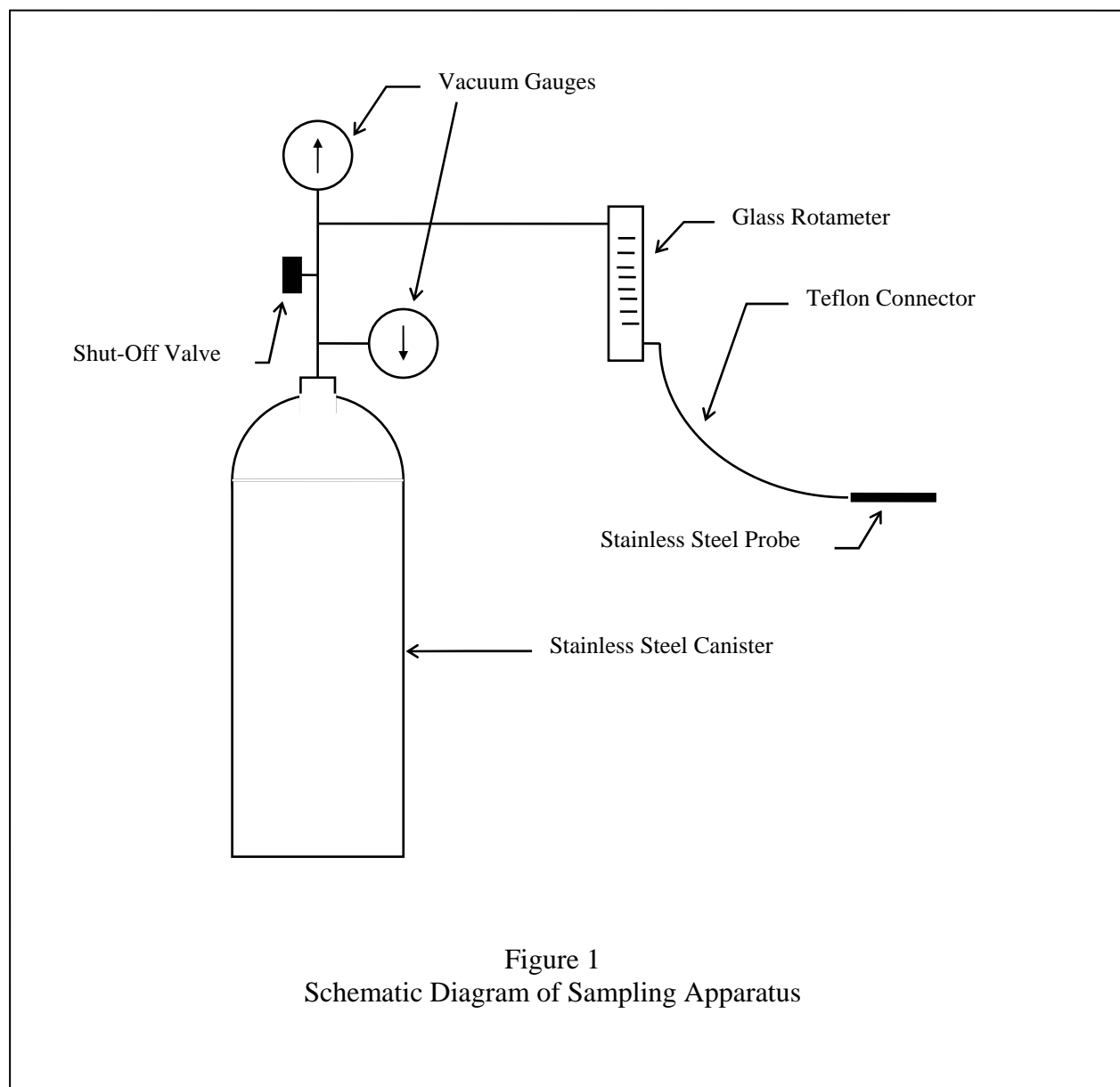


Figure 1
Schematic Diagram of Sampling Apparatus