ATTACHMENT O

AA SYDCOL, LLC
AIR EMISSIONS STANDARDS
[40 CFR 270.14(a)]

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1.0 APPLICABILITY

RCRA regulations specify three levels of air emission controls for containers depending on the size of the container, the types of wastes managed, and how the wastes are managed. These control levels and the Facility's container management procedures are specified in this section.

2.0 CONTAINERS

2.1 Container Level 1 Standards (40 CFR 264.1086(c))

Sydcol will manage the following types of containers in accordance with Container Level 1 standards:

1. Containers with a design capacity greater than 0.1 m^3 (approximately 26 gallons) and less than or equal to 0.46 m^3 (approximately 119 gallons). Such containers may include, but are not limited to, 30-, 55-, and 80-gallon drums. Most drums managed by Sydcol are Level 1 containers.
2. Containers with a design capacity greater than 0.46 m^3 (approximately 119 gallons) that are not "in light material service" (LMS). Containers of this size are considered "bulk containers" by DOT and include, but are not limited to, intermediate bulk containers (tote tanks), tank trucks, railcars, and roll-off boxes. Containers of this size for which a determination regarding LMS status has not been made will be managed in accordance with Container Level 2 standards.

Generators of organic liquid hazardous waste will be required to characterize their waste for high vapor pressure organic compounds and indicate on the waste profile if the wastes subject to 40 CFR 264 Subpart CC standards for containers. In designating containers as being in light liquid service, Sydcol will review the profile for generator determination under 40 CFR 264 Subpart CC as well as generator list of constituents in the hazardous waste for compounds making up 20 percent or more of the waste stream with a high vapor pressure (greater than 0.3 kPa). A list of common organic compounds with a high vapor pressure is provided in Table 1.

In complying with Level 1 container standards, Sydcol will ensure that either Level 1 containers meet applicable DOT hazardous material packaging regulations or are equipped with a cover and closure device that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces (e.g., a lid on a drum, a suitably secured tarp on a roll-off box, or a bulk cargo container equipped with a screwtype cap).

2.2 Container Level 2 Standards (40 CFR 264.1086(d))

Sydcol will manage the following types of containers in accordance with Container Level 2 standards:

1. Containers with a design capacity greater than 0.46 m^3 (approximately 119 gallons) that are in LMS - Containers of this size are called "bulk containers" by USDOT and include, but are not limited to, intermediate bulk containers (tote tanks), tank trucks, railcars, and roll-off boxes.
2. Containers with a design capacity greater than 0.46 m^3 (approximately 119 gallons) for which a determination has not been made regarding their LMS status.

Sydcol will comply with Container Level 2 standards using one of the following control methods specified by 40 CFR 264.1086(d)(1):

Containers subject to Container Level 2 standards at Sydcol will meet applicable USDOT hazardous material packaging regulations, as allowed by 40 CFR 264.1086(d)(1)(i). Alternatively, Sydcol may choose to use a non-DOT specification packaging and perform organic vapor monitoring in accordance with EPA Method 21 referenced in 40 CFR Part 60, Appendix A-7, or use a container that has been demonstrated within the preceding 12 months to be vapor-tight by using EPA Method 27 referenced in 40 CFR Part 60, Appendix A-8.

2.3 Container Level 3 Standards (40 CFR 264.1086(e))

Containers with a design capacity greater than 0.1 m^3 (approximately 26 gallons) used for treatment of hazardous waste by a waste stabilization process are subject to Container Level 3 standards. Sydcol will not be treating hazardous wastes with waste stabilization processes at the Facility, therefore, Container Level 3 standards are not specified in this document.

3.0 CONTAINER MANAGEMENT PROCEDURES

Except for containers that are RCRA-empty (40 CFR 261.7(b)), containers handling hazardous wastes at the Facility will have covers and closure devices installed, secured, and maintained in the closed position. Five specific exceptions to the cover and closure device requirement are allowed by RCRA regulation:

1. A closure device or cover may be opened to add waste or other material to the container. If the container is filled in one continuous operation, the closure devices must be secured in the closed position and the cover reinstalled promptly upon completing the filling operation. If the container is filled in discrete quantities or batches, the closure devices must be promptly secured in the closed position and the covers installed upon either the container being filled to its final fill level or the completion of a batch loading after which no additional material will be added within 15 minutes. The container must similarly be closed if the person performing the loading operation leaves the immediate vicinity of the container or during the shutdown of the process generating the material being added to the container, whichever occurs first.

2. A closure device or cover may be opened to remove waste from the container. If the waste is removed in discrete quantities or batches, the closure devices must be secured in the

closed position and cover installed promptly upon completion of a batch removal after which no additional material will be removed within 15 minutes, or the person performing the unloading leaves the immediate vicinity of the container, whichever comes first.

3. Opening a closure device or cover when access inside a container is needed to perform routine activities other than transfer of waste. Following completion of the activity, the closure device must be promptly secured in the closed position and the cover reinstalled.

4. Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to atmosphere during normal operations for the purpose of maintaining the container's internal pressure in accordance with the container's design specifications, such as during loading or diurnal temperature fluctuations (see 264.1086(c)(3)(iv) for details). The device must be designed to operate with no detectable organic emissions when closed.

5. Opening of a safety device to avoid unsafe conditions.

4.0 SCHEDULE FOR INSPECTION AND MONITORING

Containers are inspected upon arrival at the Facility to determine if they meet DOT specifications. In the event that a container does not meet DOT packaging requirements, waste stream data are reviewed to determine if the container is subject to Subpart CC regulations (e.g., the hazardous waste contains over 500 ppm VOC). If subject to Subpart CC, the container is inspected to determine if it meets Subpart CC Level 1 or Level 2 standards, as applicable.

Personnel performing the inspections have theoretical and practical training in the implementation of Subpart CC standards, including inspections, recordkeeping, and repair of containers. Subpart CC training is included in the review of the Clean Air Act in the Introduction to RCRA training session and during the training session on Container Management and Storage. An Inspection/Monitoring Log for containers that are subject to Subpart CC that do not meet DOT packaging requirements is maintained at the Facility. The log includes container volume, waste type, and type of control. The Inspection/Monitoring Log is provided as Appendix A.

Containers that are subject to Subpart CC standards will be inspected and monitored in accordance with the requirements of 40 CFR 264.1088, and the following schedule.

Containers managed under the Container Level 1 standards, or under the Container Level 2 standards meeting applicable DOT packaging requirements - Perform a visual inspection of these hazardous waste containers, including covers and closure devices. Check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. Confirm that the applicable control is effective in preventing emissions. Container monitoring is not required for DOT packaging requirements.

An initial visual inspection will be conducted on all containers received at the Facility on or before the date that the container is accepted consistent with Section 5.1 of this Attachment. If a defect is detected, the defect shall be noted in the Container Inspection Log (Appendix A) and Sydcol shall repair the defect in accordance with the requirements of Section 6.0 of this Attachment. A determination of acceptability will be made within 30 days of receipt of waste as described in the Facility's Process Information: Containers document included as Attachment D in Part B of the RCRA hazardous waste facility application.

Annual visual inspections consistent with Section 5.1 of this Attachment will also be performed for containers that remain at the Facility for one year or more. If a defect is detected, the defect shall be noted in the Container Inspection Log (Appendix A) and Sydcol shall repair the defect in accordance with the requirements of Section 6.0 of this Attachment. Containers of hazardous waste subject to land disposal restrictions under 40 CFR 268 may not be stored at the Facility for more than 1 year.

In the event a non-DOT specification packaging container with a design capacity greater than 0.46 m (approximately 119 gallons) is used to store hazardous waste subject to Subpart CC, Sydcol will either perform organic vapor monitoring in accordance with EPA Method 21 as specified by 40 CFR 264.1083(d) and 264.1086(g) upon acceptance or at the time waste is first placed in the container, or use a container that has been demonstrated within the preceding 12 months to be vapor-tight by using Method 27 of 40 CFR Part 60, Appendix A. A copy of EPA Method 21 is provided in Appendix C.

For Level 2 containers not meeting DOT packaging requirements, Sydcol will additionally perform an initial visual inspection at the time the containers are first accepted (i.e., prior to signing the manifest) at the time hazardous waste subject to Subpart CC is added to the container (or for containers generated on-site) and perform an annual visual inspection for containers that remain at the Facility for one year or more.

5.0 PROCEDURES FOR INSPECTION AND MONITORING

5.1 Inspection Procedures

Containers subject to Subpart CC and their covers and closure devices will be inspected as follows:

1. View the entire container, its cover, and closure devices (e.g., bungs, valves, caps, etc.) for evidence of any defect that could result in air pollutant emissions.
2. Defects include, but are not limited to, visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. In addition, visible vapor or liquid leakage may indicate a leak is present.

3. Note any visible evidence of any defect and the inspection date on the Inspection/Monitoring Log, provided in Appendix A.
4. Immediately report such observations to the Facility Manager for repair. Note the dates when repair begins and the date when repair is completed on the Inspection/Monitoring Log.

5.2 Monitoring Procedures

In addition to inspection requirements, Sydcol will monitor the container covers and closure devices of any non-DOT specification packaging with a design capacity greater than 119 gallons used to store hazardous waste subject to Subpart CC with a PID. Sydcol will use a RKI GX 6000 PID instrument (serial number 8Y3020239) with sensor calibration capability in the range of 0-6,000 ppm with a ±0.1 ppm resolution for the range 0-600 ppm and ±1.0 ppm resolution above 600 ppm.

The PID will first be inspected and calibrated the same day as the container monitoring consistent with manufacturer's instructions for instrument calibration. The instrument will be checked during each day of use for calibration drift consistent with instrument operating manual instructions. Sydcol will maintain record of instrument calibration and drift using the log sheet provided in Appendix B.

Following calibration, the background concentration will be determined using the procedures described in EPA Method 21. With the calibrated instrument running, traverse the instrument probe tip around the container cap seal and any other potential leak interfaces as close to the interface as possible. All potential leak interfaces should be monitored by the instrument probe. Monitoring will be conducted as follows:

1. Perform monitoring in accordance with the procedures specified in EPA Method 21 (see Appendix C) and 40 CFR 264.1083(d). Use an instrument that meets applicable EPA Method 21 criteria and calibrate the instrument before each day of use using the calibration gases specified by 40 CFR 264.1083(d)(5).
2. Determine the background level according to the procedures in EPA Method 21.
3. Ensure the container cover and closure devices are secured in the closed position prior to monitoring.
4. Traverse the instrument probe around the potential leak interface as close to the interface as possible, as required by EPA Method 21. Check each potential leak interface (i.e., a location where organic vapor leakage could occur) on the container, its cover, and associated closure devices, including but not limited to: the interface of the cover rim and container wall; the periphery of any opening on the container or container cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve.

5. Perform monitoring when the container is filled with a material having a volatile organic concentration representative of the range of volatile organic concentrations for the hazardous wastes expected to be managed in this type of container.
6. If the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level is less than 500 ppmv, then the container is considered to have no detectable organic emissions.
7. If the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level is equal to or greater than 500 ppmv, note this condition on the Inspection/Monitoring Log.
8. Immediately report such observations to the Facility Manager for repair. Note the dates when repair begins and the date when repair is completed on the Inspection/Monitoring Log.

6.0 REPAIRS

When a defect is detected by either a visual inspection or by leak detection monitoring, Sydcol will repair the container in the following manner:

1. The first attempt at repairing a container will be no later than 24 hours after the defect is detected.
2. Repair the container as soon as possible, but no later than 5 calendar days after detection of the defect.
3. If repair of the defect cannot be completed within 5 calendar days, then remove the hazardous waste from the container and do not use the container to manage hazardous waste until the defect is repaired. Note details on the Inspection/Monitoring Log.

7.0 RECORDKEEPING

Sydcol will record and maintain information described in this section consistent with 40 CFR 264.1089 recordkeeping criteria. Records will be maintained in the Facility operating record for a minimum of 3 years. As specified by 40 CFR 264.1086(c)(5), for containers with a capacity of approximately 119 gallons or greater that also do not meet applicable DOT packaging requirements, Sydcol will maintain a copy of the procedure used to determine that they are not in LMS when such a determination is performed. Sydcol will manage all such containers under the requirements for containers in LMS rather than performing the determination.

For containers exempted from Subpart CC because they manage only wastes with an average VOC concentration of less than 500 ppmw, or for which VOCs have been destroyed or removed, Sydcol will maintain the following records:

1. For wastes with an average VOC concentration of less than 500 ppmw, information used for each waste determination, including wastestream profile data from the generator, in the facility operating record filed onsite and/or available electronically. If analytical results are used, the date, time, and location of each sample will be recorded.
2. For wastes treated to remove volatile organics, the identification number of the incinerator, boiler, or industrial furnace in which the waste was treated.
3. For wastes that are exempt because they meet applicable organic treatment standards under the land disposal restrictions (LDR) (40 CFR 264.1082(c)(4)), Sydcol already maintains LDR notifications as required by 40 CFR 268.7. These records are not required by Subpart CC, but can be used to document these determinations.

8.0 REPORTING

A written report will be submitted to the ADEQ Hazardous Waste Unit within 15 calendar days of the time Sydcol becomes aware of each occurrence when hazardous waste subject to Subpart CC emission control requirements is placed in a container not in compliance with Subpart CC emission control standards. Each report will include the facility EPA identification number, facility name and address, a description of the noncompliance event and cause, the dates of noncompliance, and the actions taken to correct the noncompliance and prevent recurrence. The report will be signed and dated by an authorized representative of Sydcol.

TABLE 1

COMMON ORGANIC COMPOUNDS WITH VAPOR PRESSURE > 0.3 kPa

Table 1
Common Organic Compounds with Vapor Pressure > 0.3 kPa

Organic Constituent	Vapor Pressure (kPa)
Acetaldehyde	120
Acetic acid	2.1
Acetic acid anhydride	0.68
Acetone	30
Allyl alcohol	2.3
Allyl chloride	40
Aluminum nitrate, 10% solution in water	2.4
Aluminum sulphate, 10% solution in water	2.4
Amyl acetate	0.47
Aniline	0.09
Benzene	14
Bromine	28
Butyl acetate	1.5
Butyl alcohol, 1-butanol	0.93
Butyric acid n	48
Carbon disulphide	48
Carbon tetrachloride	15.3
Chloroform	26
Cyclohexanol	0.9
Cyclohexanone	0.67
Ethyl acetate	14
Ethyl alcohol	12.4

Organic Constituent	Vapor Pressure (kPa)
Ethyl glycol	0.7
Formic acid	5.7
Furfurol, 2-Furaldehyde	0.3
Heptane	6
Hexane	17.6
Isopropyl alcohol (rubbing alcohol)	4.4
Kerosene	0.7
Methyl acetate	28.8
Methyl alcohol, methanol	16.9
Methylene chloride, dichloromethane	58
Nitrobenzene	0.03
Nonane	0.6
Octane	1.9
Pentane	58
Phenol	0.05
Propanol	2.8
Propionic acid	0.47
Styrene	0.85
Tetrachloroethane	0.7
Tetrachloroethylene	2.5
Toluene	3.8
Trichloroethylene	9.2

APPENDICIES

APPENDIX A

CONTAINER INSPECTION/MONITORING LOG

Sydcol Waste Transfer Facility
Hazardous Waste Container Inspection Log

Container ID	HWMU	Inspector Name/ Initials	Inspection Date	Container Type	Volume (gal)	Contents	OVA Reading (ppm)	Defect (Y/N)	Comments

APPENDIX B

INSTRUMENT CALIBRATION LOG

AA Sydcol, LLC
Instrument Calibration Log

Equipment Identification	Equipment Type	Calibration Result - First Point	Calibration Result - Second Point	Notes	Technician Name	Technician Signature

APPENDIX C

METHOD 21 – DETERMINATION OF VOC LEAKS

While we have taken steps to ensure the accuracy of this Internet version of the document, it is not the official version. Please refer to the official version in the FR publication, which appears on the Government Printing Office's eCFR website:
(http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title40/40cfr60_main_02.tpl)

Method 21 - Determination of Volatile Organic Compound Leaks

1.0 Scope and Application

1.1 Analytes.

Analyte	CAS No.
Volatile Organic Compounds (VOC)	No CAS number assigned.

1.2 Scope. This method is applicable for the determination of VOC leaks from process equipment. These sources include, but are not limited to, valves, flanges and other connections, pumps and compressors, pressure relief devices, process drains, open-ended valves, pump and compressor seal system degassing vents, accumulator vessel vents, agitator seals, and access door seals.

1.3 Data Quality Objectives. Adherence to the requirements of this method will enhance the quality of the data obtained from air pollutant sampling methods.

2.0 Summary of Method

2.1 A portable instrument is used to detect VOC leaks from individual sources. The instrument detector type is not specified, but it must meet the specifications and performance criteria contained in Section 6.0. A leak definition concentration based on a reference compound is specified in each applicable regulation. This method is intended to locate and classify leaks only, and is not to be used as a direct measure of mass emission rate from individual sources.

3.0 Definitions

3.1 *Calibration gas* means the VOC compound used to adjust the instrument meter reading to a known value. The calibration gas is usually the reference compound at a known concentration approximately equal to the leak definition concentration.

3.2 *Calibration precision* means the degree of agreement between measurements of the same known value, expressed as the relative percentage of the average difference between the meter readings and the known concentration to the known concentration.

3.3 *Leak definition concentration* means the local VOC concentration at the surface of a leak source that indicates that a VOC emission (leak) is present. The leak definition is an instrument meter reading based on a reference compound.

3.4 *No detectable emission* means a local VOC concentration at the surface of a leak source, adjusted for local VOC ambient concentration, that is less than 2.5 percent of the specified leak definition concentration. that indicates that a VOC emission (leak) is not present.

3.5 *Reference compound* means the VOC species selected as the instrument calibration basis for specification of the leak definition concentration. (For example, if a leak definition concentration is 10,000 ppm as methane, then any source emission that results in a local concentration that yields a meter reading of 10,000 on an instrument meter calibrated with methane would be classified as a leak. In this example, the leak definition concentration is 10,000 ppm and the reference compound is methane.)

3.6 *Response factor* means the ratio of the known concentration of a VOC compound to the observed meter reading when measured using an instrument calibrated with the reference compound specified in the applicable regulation.

3.7 *Response time* means the time interval from a step change in VOC concentration at the input of the sampling system to the time at which 90 percent of the corresponding final value is reached as displayed on the instrument readout meter.

4.0 Interferences[Reserved]

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to performing this test method.

5.2 Hazardous Pollutants. Several of the compounds, leaks of which may be determined by this method, may be irritating or corrosive to tissues (*e.g.*, heptane) or may be toxic (*e.g.*, benzene, methyl alcohol). Nearly all are fire hazards. Compounds in emissions should be determined through familiarity with the source. Appropriate precautions can be found in reference documents, such as reference No. 4 in Section 16.0.

6.0 Equipment and Supplies

A VOC monitoring instrument meeting the following specifications is required:

6.1 The VOC instrument detector shall respond to the compounds being processed. Detector types that may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.

6.2 The instrument shall be capable of measuring the leak definition concentration specified in the regulation.

6.3 The scale of the instrument meter shall be readable to ±2.5 percent of the specified leak definition concentration.

6.4 The instrument shall be equipped with an electrically driven pump to ensure that a sample is provided to the detector at a constant flow rate. The nominal sample flow rate, as measured at the sample probe tip, shall be 0.10 to 3.0 l/min (0.004 to 0.1 ft^3 /min) when the probe is fitted with a glass wool plug or filter that may be used to prevent plugging of the instrument.

6.5 The instrument shall be equipped with a probe or probe extension or sampling not to exceed 6.4 mm (1/4in) in outside diameter, with a single end opening for admission of sample.

6.6 The instrument shall be intrinsically safe for operation in explosive atmospheres as defined by the National Electrical Code by the National Fire Prevention Association or other applicable regulatory code for operation in any explosive atmospheres that may be encountered in its use. The instrument shall, at a minimum, be intrinsically safe for Class 1, Division 1 conditions, and/or Class 2, Division 1 conditions, as appropriate, as defined by the example code. The instrument shall not be operated with any safety device, such as an exhaust flame arrestor, removed.

7.0 Reagents and Standards

7.1 Two gas mixtures are required for instrument calibration and performance evaluation:

7.1.1 Zero Gas. Air, less than 10 parts per million by volume (ppmv) VOC.

7.1.2 Calibration Gas. For each organic species that is to be measured during individual source surveys, obtain or prepare a known standard in air at a concentration approximately equal to the applicable leak definition specified in the regulation.

7.2 Cylinder Gases. If cylinder calibration gas mixtures are used, they must be analyzed and certified by the manufacturer to be within 2 percent accuracy, and a shelf life must be specified. Cylinder standards must be either reanalyzed or replaced at the end of the specified shelf life.

7.3 Prepared Gases. Calibration gases may be prepared by the user according to any accepted gaseous preparation procedure that will yield a mixture accurate to within 2 percent. Prepared standards must be replaced each day of use unless it is demonstrated that degradation does not occur during storage.

7.4 Mixtures with non-Reference Compound Gases. Calibrations may be performed using a compound other than the reference compound. In this case, a conversion factor must be determined for the alternative compound such that the resulting meter readings during source surveys can be converted to reference compound results.

8.0 Sample Collection, Preservation, Storage, and Transport

8.1 Instrument Performance Evaluation. Assemble and start up the instrument according to the manufacturer's instructions for recommended warm-up period and preliminary adjustments.

8.1.1 Response Factor. A response factor must be determined for each compound that is to be measured, either by testing or from reference sources. The response factor tests are required before placing the analyzer into service, but do not have to be repeated at subsequent intervals.

8.1.1.1 Calibrate the instrument with the reference compound as specified in the applicable regulation. Introduce the calibration gas mixture to the analyzer and record the observed meter reading. Introduce zero gas until a stable reading is obtained. Make a total of three measurements by alternating between the calibration gas and zero gas. Calculate the response factor for each repetition and the average response factor.

8.1.1.2 The instrument response factors for each of the individual VOC to be measured shall be less than 10 unless otherwise specified in the applicable regulation. When no instrument is available that meets this specification when calibrated with the reference VOC specified in the applicable regulation, the available instrument may be calibrated with one of the VOC to be measured, or any other VOC, so long as the instrument then has a response factor of less than 10 for each of the individual VOC to be measured.

8.1.1.3 Alternatively, if response factors have been published for the compounds of interest for the instrument or detector type, the response factor determination is not required, and existing results may be referenced. Examples of published response factors for flame ionization and catalytic oxidation detectors are included in References 1–3 of Section 17.0.

8.1.2 Calibration Precision. The calibration precision test must be completed prior to placing the analyzer into service and at subsequent 3-month intervals or at the next use, whichever is later.

8.1.2.1 Make a total of three measurements by alternately using zero gas and the specified calibration gas. Record the meter readings. Calculate the average algebraic difference between the meter readings and the known value. Divide this average difference by the known calibration value and multiply by 100 to express the resulting calibration precision as a percentage.

8.1.2.2 The calibration precision shall be equal to or less than 10 percent of the calibration gas value.

8.1.3 Response Time. The response time test is required before placing the instrument into service. If a modification to the sample pumping system or flow configuration is made that would change the response time, a new test is required before further use.

8.1.3.1 Introduce zero gas into the instrument sample probe. When the meter reading has stabilized, switch quickly to the specified calibration gas. After switching, measure the time required to attain 90 percent of the final stable reading. Perform this test sequence three times and record the results. Calculate the average response time.

8.1.3.2 The instrument response time shall be equal to or less than 30 seconds. The instrument pump, dilution probe (if any), sample probe, and probe filter that will be used during testing shall all be in place during the response time determination.

8.2 Instrument Calibration. Calibrate the VOC monitoring instrument according to Section 10.0.

8.3 Individual Source Surveys.

8.3.1 Type I—Leak Definition Based on Concentration. Place the probe inlet at the surface of the component interface where leakage could occur. Move the probe along the interface periphery while observing the instrument readout. If an increased meter reading is observed, slowly sample the interface where leakage is indicated until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately two times the instrument response time. If the maximum observed meter reading is greater than the leak definition in the applicable regulation, record and report the results as specified in the regulation reporting requirements. Examples of the application of this general technique to specific equipment types are:

8.3.1.1 Valves. The most common source of leaks from valves is the seal between the stem and housing. Place the probe at the interface where the stem exits the packing gland and sample the stem circumference. Also, place the probe at the interface of the packing gland take-up flange seat and sample

the periphery. In addition, survey valve housings of multipart assembly at the surface of all interfaces where a leak could occur.

8.3.1.2 Flanges and Other Connections. For welded flanges, place the probe at the outer edge of the flange-gasket interface and sample the circumference of the flange. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.

8.3.1.3 Pumps and Compressors. Conduct a circumferential traverse at the outer surface of the pump or compressor shaft and seal interface. If the source is a rotating shaft, position the probe inlet within 1 cm of the shaft-seal interface for the survey. If the housing configuration prevents a complete traverse of the shaft periphery, sample all accessible portions. Sample all other joints on the pump or compressor housing where leakage could occur.

8.3.1.4 Pressure Relief Devices. The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere.

8.3.1.5 Process Drains. For open drains, place the probe inlet at approximately the center of the area open to the atmosphere. For covered drains, place the probe at the surface of the cover interface and conduct a peripheral traverse.

8.3.1.6 Open-ended Lines or Valves. Place the probe inlet at approximately the center of the opening to the atmosphere.

8.3.1.7 Seal System Degassing Vents and Accumulator Vents. Place the probe inlet at approximately the center of the opening to the atmosphere.

8.3.1.8 Access door seals. Place the probe inlet at the surface of the door seal interface and conduct a peripheral traverse.

8.3.2 Type II—"No Detectable Emission". Determine the local ambient VOC concentration around the source by moving the probe randomly upwind and downwind at a distance of one to two meters from the source. If an interference exists with this determination due to a nearby emission or leak, the local ambient concentration may be determined at distances closer to the source, but in no case shall the distance be less than 25 centimeters. Then move the probe inlet to the surface of the source and determine the concentration as outlined in Section 8.3.1. The difference between these concentrations determines whether there are no detectable emissions. Record and report the results as specified by the regulation. For those cases where the regulation requires a specific device installation, or that specified vents be ducted or piped to a control device, the existence of these conditions shall be visually confirmed. When the regulation also requires that no detectable emissions exist, visual observations and sampling surveys are required. Examples of this technique are:

8.3.2.1 Pump or Compressor Seals. If applicable, determine the type of shaft seal. Perform a survey of the local area ambient VOC concentration and determine if detectable emissions exist as described in Section 8.3.2.

8.3.2.2 Seal System Degassing Vents, Accumulator Vessel Vents, Pressure Relief Devices. If applicable, observe whether or not the applicable ducting or piping exists. Also, determine if any sources exist in the ducting or piping where emissions could occur upstream of the control device. If the required ducting or piping exists and there are no sources where the emissions could be vented to the atmosphere upstream of

the control device, then it is presumed that no detectable emissions are present. If there are sources in the ducting or piping where emissions could be vented or sources where leaks could occur, the sampling surveys described in Section 8.3.2 shall be used to determine if detectable emissions exist.

8.3.3 Alternative Screening Procedure.

8.3.3.1 A screening procedure based on the formation of bubbles in a soap solution that is sprayed on a potential leak source may be used for those sources that do not have continuously moving parts, that do not have surface temperatures greater than the boiling point or less than the freezing point of the soap solution, that do not have open areas to the atmosphere that the soap solution cannot bridge, or that do not exhibit evidence of liquid leakage. Sources that have these conditions present must be surveyed using the instrument technique of Section 8.3.1 or 8.3.2.

8.3.3.2 Spray a soap solution over all potential leak sources. The soap solution may be a commercially available leak detection solution or may be prepared using concentrated detergent and water. A pressure sprayer or squeeze bottle may be used to dispense the solution. Observe the potential leak sites to determine if any bubbles are formed. If no bubbles are observed, the source is presumed to have no detectable emissions or leaks as applicable. If any bubbles are observed, the instrument techniques of Section 8.3.1 or 8.3.2 shall be used to determine if a leak exists, or if the source has detectable emissions, as applicable.

9.0 Quality Control

Section	**Quality control measure**	**Effect**
8.1.2	Instrument calibration precision check	Ensure precision and accuracy, respectively, of instrument response to standard.
10.0	Instrument calibration	

10.0 Calibration and Standardization

10.1 Calibrate the VOC monitoring instrument as follows. After the appropriate warm-up period and zero internal calibration procedure, introduce the calibration gas into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value.

Note: If the meter readout cannot be adjusted to the proper value, a malfunction of the analyzer is indicated and corrective actions are necessary before use.

11.0 Analytical Procedures[Reserved]

12.0 Data Analyses and Calculations[Reserved]

13.0 Method Performance[Reserved]

14.0 Pollution Prevention[Reserved]

15.0 Waste Management[Reserved]

16.0 References

1. Dubose, D.A., and G.E. Harris. Response Factors of VOC Analyzers at a Meter Reading of 10,000 ppmv for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2–81051. September 1981.

2. Brown, G.E., *et al.* Response Factors of VOC Analyzers Calibrated with Methane for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2–81–022. May 1981.

3. DuBose, D.A. *et al.* Response of Portable VOC Analyzers to Chemical Mixtures. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2–81–110. September 1981.

4. Handbook of Hazardous Materials: Fire, Safety, Health. Alliance of American Insurers. Schaumberg, IL. 1983.

17.0 Tables, Diagrams, Flowcharts, and Validation Data[Reserved]