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Part 232 Compliance Inspection Report Instructions
[FORM 232-9 (6-21-2011) INSTRUCTIONS]

DEC routinely reviews all **232-9 Compliance Inspection Reports** for compliance and enforcement purposes. Please read the following instructions for completing the report.

Before You Begin:

- **YOU MUST USE THE ORIGINAL, UNMODIFIED FORM 232-9 (6-21-2011) TO RECORD AND REPORT THE FINDINGS OF THE COMPLIANCE INSPECTION.**

- **INCOMPLETE AND/OR ILLEGIBLE INSPECTION REPORTS WILL BE REJECTED BY DEC REVIEWING ENGINEERS AND RETURNED TO THE REGISTERED COMPLIANCE INSPECTOR FOR RE-SUBMITTAL.**

- **Advise the dry-cleaning facility Owner/Manager to have all the information you need, organized and ready, in advance of your scheduled inspection. Needed information includes DEC facility registration records, building information, the previous year's Part 232-9 Inspection Report, all required Part 232 checklists, operation and maintenance logs and files, equipment manuals and specification documents.**

- **Advise the dry-cleaning owner that it would be advantageous to purchase a colorimetric tube sampling pump and regularly test the end-of-cycle Perc drum concentrations from all 4th generation dry cleaning machines to avoid penalties and ensure compliance with the requirements of Part 232. The Federal NESHAP already requires weekly drum testing for 4th generation machines at major Title V facilities (40 CFR 63.323(c)(3)). NOTE: Any active fugitive emission control system or door fan must be deactivated prior to sampling to determine compliance with Part 232.**

- **COMPLETENESS.** Complete all sections of the 232-9 form. ALL fields must contain an entry: mark "n/a" (not applicable) if a question does not apply or "Unknown" if the information is unknown. Write "Unavailable" if the Owner/Manager cannot produce the required information at the time of the inspection. Compliance Inspectors should submit only complete, final inspection reports.

- **LEGIBILITY.** All entries MUST be legible. The completed inspection report is an official certified document as submitted to DEC. If the inspector cannot generate a

legible report during the inspection, field notes should be taken on a draft 232-9 form and then transcribed using block printing or a typewriter to produce a legible document. Attach additional sheets if more space is needed to report findings and comments.

- **CERTIFICATION.** Both the Compliance Inspector and the Registered Compliance Inspectors (RCIs) must certify the inspection report. The Compliance Inspector must certify that all information he/she gathered is true, accurate and complete. The Registered Compliance Inspector must certify that he/she has reviewed all the gathered information that was prepared under his/her direct supervision and believes all information to be true, accurate and complete. RCI certified reports must be signed by the RCI through their original professional seal affixed on the right side of the Report Certification Section (SECTION J). Three signed copies must be submitted; one to the facility owner for facility records and public review, one to the DEC RAPCE for the compliance status determination and one to the Permitting & Compliance Section for auditing purposes.

Specific comments and instructions for filling out Form 232-9.

All data fields on the form must be completed although not all are discussed below.

PART 232 DRY CLEANING COMPLIANCE INSPECTION REPORT (Page 1):

DEC ID. The DEC ID number can be found at the top of the dry cleaning facility's Air Facility Registration (AFR), Air State Facility (ASF) permit or Air Title V (ATV) permit that is required to be kept on site.

If the facility owner doesn't have a registration or permit, describe the circumstances in the Inspection Summary in SECTION I. Write "PENDING" above the DEC ID number box if an application has been submitted to DEC. Write "MUST SUBMIT APPLICATION" above the DEC ID number box if the facility owner has not yet submitted a registration or permit application and have them contact the DEC Regional Air Pollution Control Engineer's office for assistance. Additionally, the Small Business Environmental Assistance Program (SBEAP) provides free and confidential assistance to small business at 1-800-200-2200.

Follow-up 30 day re-inspections. Check the appropriate box to indicate if this is a follow-up 30 day re-inspection. If the initial inspection reveals a leak or malfunction that cannot be repaired immediately, the leak or malfunction must be repaired within the time frames established in section 232.7 and re-inspected within 30 days.

Dry Cleaning Facility name. The legal business (tax) name of the facility. If the business goes by another name, write down both names.

Location address. The street address where the facility is located.

Date facility began operation at this location. Enter the date the original shop owner first began to operate any perchloroethylene dry cleaning machine at this location.

Building use and types of tenants. Check the box describing the type of dry cleaner; stand-alone, mixed-use commercial or mixed-use residential. Also describe the location and types of other occupants adjacent to the dry cleaner.

Dry Cleaning Facility owner's name. Name of the person owning the dry-cleaning business and their telephone number. If owned by a corporation or other organization, enter that name and the name of the contact person.

Certified Owner/Manager's name. Record the name of the NYSDEC Certified Owner/Manager and the O/M Certificate number and expiration date.

Operator Names. Write down the names of all the employees who operate the dry cleaning machines and indicate if they are certified by the department. Include their names, certificate numbers and certificate expiration date exactly as they appear on their NYSDEC Operator Certificate. All dry cleaning machine operators must be certified by the department.

Compliance inspector's name. Enter the name of the individual actually performing the physical inspection: either the RCI or the CI. Write down the compliance inspector's name, telephone number, Owner/Managers Certificate number and expiration date exactly as they appear on the NYSDEC O/M Certificate.

UPON ENTERING FACILITY - BADGE SAMPLING (SECTION A).

Upon entering the Perc dry-cleaning facility the Compliance Inspector shall begin passive (badge) sampling. The badge shall be placed approximately midway between the dry-cleaning machine and the pressing station, away from any open windows or doors, at a height of 3 to 6 feet above the floor level. NYSDOH requires that this measurement be made within the BREATHING ZONE of the facility occupants. Some 232-9 inspection reports have been filed with the reported badge location outside of the 3 to 6 foot zone. **Such reports will be rejected and the RCI will be required to re-inspect the facility. The sample shall be taken outside of the room enclosure if possible.**

The sample shall be collected during the entire time that the inspection takes place and for a minimum of two hours and at least two dry-cleaning loads. The compliance inspector shall be present during the entire time the badge sample is collected.

Samples **MUST** be analyzed at a NYSDOH ELAP certified laboratory using NIOSH Method 1003. There are over 390 Commercial Labs with NYS DOH ELAP certification. They are listed at:

http://www.wadsworth.org/labcert/elap/comm.html

An original copy of the badge sample laboratory analysis MUST be attached to the Part 232 Dry Cleaning Compliance Inspection Report (Form 232-9) that is sent to the NYSDEC Regional Air Pollution Control Engineer. Copies of the laboratory analysis should be attached to the inspection reports that are sent to the facility owner and Permitting & Compliance Section.

Note the distance from the badge sampler to the dry-cleaning machine (or vapor barrier room, if a mixed-use facility) and the pressing station when you "describe sample location". Also note the distance to any open door, window, fresh air inlet or exhaust fan. The inspector may find that drawing a line sketch on the back of the 232-9 form helpful in recording this required information.

FACILITY - GENERAL INFORMATION (SECTION B).

Record the number of Perc dry cleaning machines. Also report the existence of any COIN-OPERATED Perc dry-cleaning machines in the shop regardless of whether they are claimed to be "in-service" or not.

Perc machine removal: Note on the inspection report any Perc machines removed from service since the last inspection date. Machines removed from service must be physically rendered inoperative by disconnecting the utilities (electric, steam, etc.). Upon the termination of operation of any Perc dry-cleaning machine, the owner of a Perc dry-cleaning facility should send a shutdown notification letter to the respective DEC regional office to the attention of the Regional Air Pollution Control Engineer. The Perc Dry Cleaning Facility Notice of Equipment Shutdown form (232-12)) can be found on the NYSDEC website (http://www.dec.ny.gov/docs/air_pdf/23212equipshutdown.pdf). If a Perc dry cleaning machine has not been removed from service but an Owner/Manger/Operator claims a machine is "unused" or "out-of-service" it still must be listed on the inspection report.

Record the number of alternative solvent ("other") dry cleaning machines and include the name of the alternative dry cleaning solvent (e.g., CO2, SB-32® (GreenEarth), Rynex 3®, Exxon DF-2000, SASOL LPA-142, Chevron Phillips EcoSolv, DPGnBE (Solvair process) and SolvonK4). Additionally, identify the alternative solvent machine type.

Note the number of dry-cleaning machines listed on the NYSDEC registration/permit. If the number has changed, the registration/permit records need to be updated. The facility Owner/Manager should then contact contact the appropriate DEC regional office for assistance.

Record the number of water based ("wet cleaning") dry-cleaning machines at the facility. Do not include in this total standard washing machines used for shirt laundry.

FACILITY - SAMPLING EQUIPMENT (SECTION C).

The Compliance Inspector may choose how leaks will be **detected**, and once detected, how they will be **quantified**. For example, the inspector may choose to locate leaks with a "beeper" and then to quantify the emissions with a PID.

End-of-cycle Perc drum concentrations from dry cleaning machines must be measured using a portable gas analyzer or colorimetric tube sampling pump.

PIDs are sensitive instruments that require periodic service. The UV Lamp window should be cleaned on a regular basis and PIDs must be calibrated prior to the inspection. The colorimetric tube sampling pump should be leak tested prior to sampling the end-of-cycle Perc concentrations.

FACILITY - RECORD KEEPING (SECTION D).

The Part 232 **Posting Notice** (sign) must be conspicuously displayed and **easily readable** to the public who enter the facility.
Ask for and confirm the existence of **equipment manuals**: missing manuals should be replaced by the facility owner/manager. If original manuals are not available from the machine manufacturer, the federal EPA has a "generic" manual which should be ordered and kept on site.

Checklists, Logs, etc.: Must be filled out according to the Part 232 regulatory schedule (weekly, every 6 months, etc.), be legible and be kept on-site. Records must completed by certified operators and be maintained on-site for five years. The inspector must confirm that all required logs are currently being kept, and must record the **initiation date** specified in the perc usage log on the inspection report. Verify that **no gaps** appear in the record keeping. Record any discrepancies from these requirements in the Inspection Summary in SECTION I.

DEC has been asked by facility owners and inspectors if missing past records should be re-created in anticipation of a compliance inspection. The answer is clearly "NO," since this would be a falsification of an official State document.

Dry-cleaning facility managers can obtain additional copies of any of the various required Part 232 Checklists and Log forms from the DEC website or at no cost by calling any DEC Air Resources program office.

FACILITY - MIXED-USE LOCATIONS (SECTION E).

Complete this section for mixed-use facilities only. All Perc dry cleaning machines must be installed in a Vapor Barrier Room (VBR) at mixed-use facilities (co-located residential or commercial). Facility files should contain records of vapor barrier construction, including documentation of the use of approved construction materials. These approved alternate vapor barrier materials include epoxy coatings, glass and a structural plastic; the use of chemically compatible sealants (caulks) are important. A copy of the vapor barrier installation notification letter sent to DEC should also be on file. If not, note it in the Inspection Summary and remind the facility manager of the regulation's notification requirements.

Prior to entering the Vapor Barrier Room, verify that the exhaust fan is running from outside the room and record its operational status in the report. When the exhaust fan is running, the room will be under negative pressure and the door can be cracked without exposing the inspector to the Perc air concentration inside the room. If the exhaust fan is not running, have the operator turn it on. If the fan is broken, it is recommended that you do not open the door without wearing respiratory protection. If you're wearing respiratory protection, or the fan is running, open the door a crack to measure the Perc air concentration inside the VBR. Use a beeper (alarm sounds around 25 ppm), or your photoionization detector (PID), to determine if the VBR concentration is less than 25 ppm just inside the cracked door. If the door concentration exceeds 25 ppm, the department recommends that you do not enter the VBR without wearing a NIOSH certified elastomeric half-face respirator with organic vapor cartridges. If the door concentration exceeds 100 ppm, the department recommends that you do not enter the vapor barrier room until the owner repairs the major leak.

Look carefully for any gaps, cracks or openings in the vapor barrier surfaces. There should be NONE. **Record any observed compromises - cracks, gaps, etc. - in the vapor barrier**. DEC is especially concerned that the floor be a continuous surface (membrane) and have no cracks, etc. All floor drains in the vapor barrier room **must** be completely sealed; DEC recommends that other drains within the vapor barrier room should be sealed. Record any deviations from the requirements on the form.

Part 232 does not require the installation of vapor barrier material under machines installed before May 15,1997 at mixed-use facilities. Nonetheless, the vapor barrier membrane on the floor of these older facilities should be as comprehensive as possible. Any accessible area under these machines must be coated with one of the approved vapor barrier materials. If not accessible, the

vapor barrier material should extend up to the base of the machine and be sealed to it. After May 15, 1997, anytime a machine is replaced with a new machine or lifted for maintenance or for any other reason, the vapor barrier surface under the machine must checked to make sure the floor has a continuous Perc impermeable surface. If not, the floor vapor barrier surface under the machine must be repaired or modified to make the floor impermeable to Perc. Record any observed deviations from these requirements in SECTION I.

Part 232 REQUIRES that vapor barrier room enclosure doors be CLOSED AT ALL TIMES except when a person is entering or exiting the room. Note confirmation of closed door on inspection form.

The vapor barrier room exhaust system (General Exhaust Ventilation System) must be completely separate from other facility ventilation systems and be operated at all times dry cleaning machine(s) are running. DEC recommends that this system be kept "on" as much as practical as it will exhaust any Perc vapors that escape the dry-cleaning system and will result in fewer potential problems and complaints in the long-run. Record the locations of the fresh air inlet(s) and outlet vent(s) inside the vapor barrier room. The "fresh air" inlet(s) MUST introduce **outside air** into the vapor barrier; note any discrepancies.

Measure and note the VBR dimensions and calculate and report the volume of the room enclosure. If the facility has been inspected before, much of this information may be available on a previous inspection report. If so, check the information for accuracy and make sure that there are no changes. Record current information on inspection form. Use a velometer or equivalent device for measuring the Vapor Barrier Room exhaust flow rate. Although such measurements should ideally be done in accordance with generally accepted engineering practices, they may be taken at the interior face of the exhaust vents for the purposes of this inspection. Note the measurement instrument. Calculate and record the air exchange rate to confirm it exceeds one air exchange every 5 minutes.

Describe where the Vapor Barrier Room exhaust system vents outside the building in relation to any building air intake vents, nearby windows or public access areas.

FACILITY - ADDITIONAL INFORMATION (SECTION F).

WASTE WATER MANAGEMENT – The method used by the facility to dispose of the dry-cleaning machine waste-water separator effluent is of great interest to DEC. Traditionally, this waste-water stream was treated on-site but DEC has recently determined that many treatment systems do not qualify for the "WWTU"exemption under the RCRA hazardous waste regulations and therefore would require a RCRA permit. This RCRA permit requirement effectively prohibits their use. Contact DEC (518-402-9543) for more information about this RCRA permit requirement.

Although a revision to Part 232 is necessary, this non-RCRA regulation currently allows the use of treatment systems utilizing physical separation (water separator) and double carbon filtration prior to either heat evaporation, misting (atomizing nozzle) or allowable direct sewer disposal of the carbon-filtered water. Part 232 requires that the separator/filtration units reduce the Perc concentration in the wastewater from about 150 ppm (parts per million) to less than 20 ppb (parts per billion). Unfortunately, the DEC has found only one unit which could meet this control requirement of the 23 units tested under ideal conditions.

The alternative to on-site treatment is for a facility to collect all the separator water in a drum as a Hazardous Waste and then to ship it to an approved facility using a licensed Hazardous Waste hauler. If this option is used by the facility, check the appropriate box on the inspection report.

Record the manufacturer's name, model name and number of all Waste-water Treatment Units on the Compliance Inspection Report. Use additional sheets if necessary.

Additional questions: Perc contaminated lint and fuzz from filters must be disposed of as hazardous waste. Confirm this operational practice. Verify that all solvent containers and containers containing Perc contaminated items are kept covered and sealed. Verify that all parts of the dry cleaning system are closed. Many of the questions in this SECTION require information which should have been previously recorded on the various Part 232 O&M logs: confirm that facility staff answers are consistent with what is written on forms. Look at maintenance logs to ensure they are being kept up-to-date. Repair parts? The repair part inventory may be limited but it should contain replacement parts for the most common repairs (gaskets, filters, etc.). Check for existence of fire control equipment, (fire extinguisher) - is its inspection current? Note.

DRY CLEANING EQUIPMENT (SECTION G).

Complete SECTION G (page 5) for every Perc dry cleaning machine located at the facility. Obtain additional copies of SECTION G if the facility has multiple Perc dry-cleaning machines. Refer to the machine nameplate, manuals, checklists and equipment maintenance log for the information requested on the inspection report. If the machine has been modified or retrofitted, examine work orders, receipts and other available documents to glean information needed to fill out this section. **When the inspection is scheduled, the inspector should remind the facility owner/manager to have these and other necessary documents ready for review at the time of inspection.** If these documents are unavailable, note this on the 232-9 form.

Some dry cleaner machines may have ***door fans*** or ***fugitive emission control systems*** that are activated upon door opening after the dry cleaning cycle is complete. Door fans vent end-of-cycle Perc vapor drum emissions through a carbon adsorber to the outside air. Fugitive emission control systems are non-vented closed loop systems that control open door emissions by extending the deodorization cycle and recirculating the controlled vapors back into the drum. Door fans and fugitive emission control systems installed on 4th generation dry cleaning machines **must be deactivated prior to sampling** the end-of-cycle Perc drum concentration for determining compliance with Part 232.

Ask the dry-cleaning owner/manager if he/she regularly tests the end-of-cycle Perc drum concentration on all 4th generation Perc dry cleaning machines. This new requirement will be added to the revised Part 232 regulation. Testing a machine is the only way to ensure compliance with the drum concentration standard. The test can be conducted with a simple and relatively inexpensive colorimetric tube sampling pump.

Carbon adsorber and carbon canisters: these questions refer to the carbon units used for removing Perc from the clothes drum or vented air emissions. Do not complete these questions for any carbon units which are used for waste-water treatment or liquid Perc filtering/polishing. The first question applies to both "full size carbon adsorbers" used to control vented machines and to "integral carbon adsorbers" which are a part of a fourth generation's secondary control system. The second question mainly applies to disposable cartridges used in so-called "OSHA door fans. Both Part 232 O&M logs and Manufacturer's specifications should be examined. A

copy of this section must be completed for each carbon adsorber/carbon canister unit. Use additional copies if necessary.

DRY CLEANING EQUIPMENT TESTING (SECTION H).

Complete a separate SECTION H (pages 5 & 6) for every Perc dry cleaning machine located at the facility. Record all testing results in the inspection report. Obtain additional copies of SECTION H for multiple Perc dry-cleaning machines or to record more than two test runs for a machine. Testing must be conducted under normal operating conditions (Paragraph 232.13(b)(2)) and with the machine filled to a minimum of 80% of rated capacity. Under normal operating conditions, the department assumes the machine will be run using a fully automatic program, as recommended by the manufacturer. If any test run is conducted using any manual control, a written explanation must be provided in the Inspection Summary.

Each of the Leak Check items in this section must be inspected and checked for leaks during the appropriate part of the dry cleaning cycle (i.e., fill piping and pump during fill cycle; air ducts during drying cycle, etc.). If a leak is found, the leak concentration must be measured using EPA Method 21 (Type II: Section 8.3.2) and recorded on the form. Leak and fugitive measurements shall be taken approximately 1 cm from each listed source with the sampling probe moving about one inch per second.

Section 232.7 requires that the **entire dry-cleaning system** be inspected for leaks and not just the specific areas and items listed in SECTION H. Check for leaks using a halogenated hydrocarbon detector ("beeper") and/or Perc gas analyzer (flame ionization detector, photoionization detector, or infrared analyzer). A v*apor leak* is defined as a Perc vapor concentration exceeding 25 parts per million by volume (40 CFR Part 63.321 (subpart M)). Note any leaks from "any other areas" and record the measured concentration on the form. Be sure to check for leaks around the hazardous waste drums and the waste-water treatment unit (if so equipped).

Leaks discovered during a §232.16 Compliance Inspection should be repaired immediately if possible. If the leak(s) cannot be repaired during the time of the inspection, **a re-inspection must be scheduled within 30 days of the Compliance Inspection**. It is preferable that the re-inspection be conducted by the same inspector.

The last nine items listed under "PERFORM LEAK CHECK" are not part of the operators weekly leak inspection checklist. Each of these additional items **must be physically inspected and an individual Perc measurement must be taken at each location and recorded on the inspection form**. If a particular item does not exist at the facility, indicate "n/a" on the form. Incomplete Compliance Inspection reports will be returned to the RCI and the facility Owner/Manager by DEC.

Door Fans. Part 232 requires operators to test door fans and record the results on the Weekly Checklist For 3rd & 4th Generation Machines. Door fans must be installed on all 3rd generation dry cleaning machines. Determine the location where the operator normally takes this measurement. The sampling location should be at least 8 duct diameters downstream from the external carbon adsorber and 2 duct diameters upstream from any flow disturbance such as a bend or outlet. For rectangular ducts use an equivalent diameter "D" equal to 2LW/(L+W). If the operator is sampling from an incorrect location, inform the operator of the proper location and make a note of it in the Inspection Summary (SECTION I).

Measure and record the end-of-cycle maximum Perc concentration from the door fan exhaust at the proper location using a colorimetic tube sampling pump or a portable gas analyzer (e.g., PID). Sampling should be conducted immediately after opening the machine door and activating the door fan. If a portable gas analyzer is used, sampling should continue for about a minute to ensure that the maximum concentration is measured. Only one test run is required if the maximum measured Perc concentration doesn't exceed 20 ppm (Subparagraph 232.6(a)(3)(iii)).

Report the test load and refrigerated condenser outlet vapor temperature at the end of the final cool down cycle. Subparagraph 232.8(d)(2)(ii) requires that this value be 45°F or less. If the dry-cleaning machine uses a built-in temperature gauge, consult the machine manual for range and accuracy specifications.

Measure and record the inward velocity of the door fan at the center of the door opening and record the velocity, measuring instrument and outside location of the exhaust vent in report. Describe the outside location of the exhaust vent in relation to any building air intake vents, nearby windows or public access areas.

4th Generation Dry Cleaning Machines and 3rd Generation Machines retrofitted to Fourth. All fugitive emissions control systems and door fans must be deactivated prior to testing 4th generation Perc dry cleaning machines for determining compliance with the end-of-cycle drum concentration standard in subparagraph 232.6(a)(6)(ii). Although the DEC recommends fugitive emissions control systems for reducing worker exposure, *they must be deactivated prior to sampling the end-of-cycle drum concentration* (clause 232.13(b)(3)(ii)(c)) for the purpose of determining regulatory compliance. Use the following procedures to test a 4th generation dry cleaning machine:

1. If possible, have the operator deactivate any fugitive emissions control system or door fan prior to running the dry cleaning test load.

2. Run the dry cleaning test load.

3. Prepare the take the end-of-cycle measurement. The department recommends that you wear a NIOSH certified elastomeric half-face respirator with organic vapor cartridges.

   Wearing a respirator is recommended because of the potential instantaneous exposure to high Perc air concentrations. As a rule of thumb, the maximum Perc air concentration outside the drum that an inspector may inhale, when testing a 4th generation dry cleaning machine without respiratory protection, will be about 10 times less than the maximum Perc vapor concentration inside the drum. When wearing the recommended respirator with 90 percent control, the maximum Perc air concentration that an inspector may inhale will be about 100 times less than the maximum Perc vapor concentration inside the drum.

4. Proceed with step 7 if no fugitive emissions control system or door fan will be activated upon door opening.

5. Try to release the mechanical door lock without opening the machine door. *This can be done on some older machines.*

   a. If the door lock releases, proceed with step 6.

b. If you can't release the door lock, open the door a crack. This will activate any fugitive emissions control system or door fan that wasn't deactivated before the start of the run cycle. Immediately proceed with step 6 and shut off the power to the machine.

6. Shut off the power with the switch on the front of the machine. This should deactivate any fugitive emissions control system or door fan.

7. Ask the operator to open the machine door slowly.

Opening the door too quickly may create a vacuum or a wake effect that will draw Perc vapors out of the drum and into your breathing space.

8. Immediately extend the PID sampling probe or sampling pump colorimetric tube towards the rear of the drum and into the vapor space above the clothes. Keep your head away from the drum door opening and be careful not to touch the tip of the probe or tube to the clothes as it may invalidate the test.

a. SAMPLING WITH A PID. Hold the probe inside the drum for about 30 seconds. Keep your head above the door opening. The PID should be configured to display and save the maximum instantaneous measured concentration: datalogging is recommended for later data retrieval. The LCD readout will climb until a maximum concentration is reached and then begin to drop off. After about 30 seconds, remove the PID and have the operator close the door of the dry cleaning machine. For Photovac 2020 PIDs, select MAX mode with a 15 second interval for datalogging.

b. SAMPLING WITH AN AIR SAMPLING PUMP: Hold the base of the air sampling pump outside the drum and keep your head above the opening. Use the appropriate colorimetric tube and number of pump strokes for a measurement range above 300 or 500 ppm to demonstrate compliance. For example, for the Gastec pump and colorimetric tube 133HA (300 to 900 ppm), use a one-half pump stroke for this 30 second test.

Time and record the duration of the entire dry cleaning cycle in minutes. Additionally observe and report the refrigerated condenser outlet vapor temperature at the end of the final cool down cycle. All testing results must be recorded and submitted to DEC. Only one test is required if the measured concentration doesn't exceed 300 ppm for machines installed on or after May 15, 1997 and 500 ppm for machines installed before May 15, 1997.
NOTE: Although only one test run may be required, the compliance inspector must be present at the facility for at least two machine loads. The badge sample (SECTION A) must be collected during the entire time that the inspection takes place and for a minimum of two hours and at least two dry-cleaning loads.

Dip tanks and drying cabinets. Determine if all dip tanks and drying cabinets are operating under negative pressure and record the information on the form. Measure and report the exhausted emissions concentration and the location of the outside exhaust vent.

INSPECTION SUMMARY (SECTION I).

The Registered Compliance Inspector must summarize and record all observed exceptions to Part 232 requirements on this page. **Use additional pages if necessary. Inspectors should write down all pertinent comments regarding what they have observed. IF IN DOUBT -- WRITE IT DOWN.**

The Compliance Inspectors task is to make impartial and factual observation of the conditions that exist at the facility at the time of the inspection. The RCI must then check and validate the information. Remember, the RCI does not "flunk" or "violate" a facility. It is the DEC's responsibility to review the reported observations made in the Compliance Inspection report (232-9) and take appropriate enforcement action if necessary and warranted.

REPORT CERTIFICATION (SECTION J).

The DEC is now requiring that both the Compliance Inspector and Registered Compliance Inspector certify the inspection report. The Compliance Inspector must certify that all information he/she gathered is true, accurate and complete. Whereas, the Registered Compliance Inspector must certify that he/she has reviewed all the gathered information, that is was prepared under his/her direct supervision and that he/she believes all information to be true, accurate and complete. The RCI must sign and certify the inspection report as both the Compliance Inspector and Registered Compliance Inspector if he/she conducted the actual inspection. Certified reports must be signed by the RCI through their original professional seal affixed on the right side of the Report Certification Section (SECTION J). Any false statements (6 NYCRR Part 200.3) made to the DEC are punishable as a class A misdemeanors under Section 210.45 of the Penal Law.

Any comments, corrections or suggestions on the content of this document should be directed to the following address:

New York State Department of Environmental Conservation
Division of Air Resources
Bureau of Stationary Sources
Attn: Part 232 Implementation Group
625 Broadway – Second Floor
Albany, New York 12233-3254
Phone: (518) 402-8403
FAX: (518) 402-9035

Attachment: EPA Method 21

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 for sampling not to exceed 6.4 mm (1/4 in) 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 warmup 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 warmup 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]