

I. INTRODUCTION

Refrigeration and air-conditioning appliances/equipment may contain chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerant. CFCs and HCFCs are ozone-depleting substances (ODS) that, if released to the environment, destroy the protective [ozone layer](#) above the earth. CFC and HCFC refrigerants are also potent greenhouse gases, contributing to [global climate change](#). As a result, EPA under the Clean Air Act has established a national recycling program for CFC and HCFC substances recovered during the servicing and disposal of refrigeration and air conditioning equipment.

Kennesaw State University (KSU) owns appliances and equipment that may contain ozone-depleting refrigerants and substitute refrigerants that are subject to the federal regulations. Examples of these type of equipment include: motor vehicle and motor vehicle-like air conditioners (MVAC and MVAC-like), central and room air conditioning units, refrigerators, freezers, chillers, drinking water coolers, dehumidifiers, research equipment, vending-machines, etc.

To ensure compliance with regulatory requirements, KSU has developed and will implement this Standard Operating Procedure (SOP) to serve as a guideline on servicing, repair, maintenance, and disposal of any appliance/equipment, both large and small, that contains ozone-depleting refrigerant. The SOP outlines key requirements which the university's employees, suppliers, contractors and the general campus community should adhere to, in order to ensure compliance with the federal and state regulations.

A. Scope

This procedure applies to all KSU employees, departments, contractors and appliance suppliers.

II. DEFINITION

A. Appliance

Any device which contains and uses a class I (CFC) or class II (HCFC) substance as a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer. EPA interprets this definition to include all air-conditioning and refrigeration equipment except that designed and used exclusively for military purposes.

1. Small appliance

Any product that is fully manufactured, charged, and hermetically sealed in a factory with five pounds or less of refrigerant: refrigerators and freezers designed for home use, room air conditioners (including window air conditioners and packaged terminal air conditioners), packaged terminal heat pumps, dehumidifiers, under-the-counter ice makers, vending machines, and drinking water coolers.

2. MVAC-like appliance

Mechanical vapor compression, open-drive compressor appliances used to cool the driver's or passenger's compartment of a non-road vehicle, including agricultural and construction vehicles. This definition excludes appliances using HCFC-22.

3. Opening

Any service, maintenance, or repair on an appliance that would release class I or class II refrigerant from the appliance to the atmosphere unless the refrigerant were recovered previously from the appliance.

4. Technician

Any person who performs maintenance, service, or repair that could reasonably be expected to release class I (CFC) or class II (HCFC) substances from appliances, except for MVACs, into the atmosphere. Technician also means any person performing disposal of appliances, except for small appliances, MVACs, and MVAC-like appliances that could be reasonably expected to release class I or class II refrigerants from appliances into the atmosphere.

III. PROCEDURES

A. Repair & Maintenance Services

No person should knowingly vent or otherwise release into the environment any CFC and HCFC refrigerant during maintenance, servicing, repairing or disposal of CFC/HCFC-containing appliances. There are significant fines and penalties for violation of this regulation.

Departments that employ their own Certified Technicians or hire outside contractors to conduct work on refrigerated appliances/equipment must develop and implement appropriate refrigerant management procedures, including recordkeeping provisions.

- Only properly Certified Technicians, employed by a KSU department or an outside contractor/service provider, are authorized to conduct any repair, service, maintenance, or other activity that could reasonably be expected to release refrigerants contained in appliances or equipment.
- All servicing, repair, and maintenance of refrigerant containing appliances and equipment must be coordinated through KSU department of Plant Operation.
- EPA recycling and recovery practices and certified recycling and recovery equipment must be used when appliances are opened for maintenance, service or repair, or disposal.
- Leaks in appliances/equipment that contain greater than 50 pounds of refrigerant such as building chillers and large commercial-like refrigeration equipment should be repaired in a timely manner.

B. Disposal

- All disposals of refrigerant containing appliances and equipment, including motor-vehicle air conditioners, must be coordinated through department of Environmental Health and Safety and Department of Plant Operations to ensure that the necessary procedures are followed and that required records are maintained.

1. Small Appliances

- Small appliances that are no longer wanted but are still in working condition should be disposed of, with the refrigerant charge in-tact, in accordance with KSU inventory management policies.
- Non-working small appliances can be disposed of as scrap metals to a recycler. However the refrigerant must be recovered before the final disposal.
- If the appliance is delivered to the recycler before recovery, the scrap metal dealer is responsible for recovery of the refrigerant prior to disposal. The scrap metal dealer may charge an additional fee for this service which will be the responsibility of the originating Departments to pay.
- Alternatively, a certified KSU technician can be called upon to recover the refrigerant prior to release of the appliance to the scrap metal dealer or landfill.
- A label and a completed form indicating that the refrigerant has been removed from the appliance should be affix to the appliance.
- Any person recovering refrigerant from small appliances for the purposes of disposal must use recovery equipment that meets EPA standards and must follow all applicable EPA requirements.

IV. RECORD KEEPING

- Any KSU Department owning or operating appliances or equipment, containing refrigerant is responsible for maintaining all records associated with repair, servicing and maintenance of appliances and equipment, whether conducted by a certified KSU technician or an outside contractor.
- Any KSU department disposing of small appliances must maintain copies of signed statements from the appliance supplier (e.g. the original owner or disposal contractor) if the supplier indicates that he have removed the refrigerant from the appliance.
- All records must be kept for at least three years.
- EHS Department will periodically review the records to ensure compliance with regulations.

A. Appliances (Other than Large Appliances)

If a KSU department employs its own technicians to conduct work on appliances, other than appliances normally containing greater than 50 pounds of refrigerant the following is required.

- Names and copies of certifications of all Certified Technicians employed by the department.

- List of appliances (<50lbs) e.g., water coolers, household sized refrigerators, dehumidifiers, etc and types of refrigerant used (e.g., R-12, R-22, HCFC-134a, etc.).
- Names and contact information of refrigerant suppliers.
- Inventory of recovery or recovery/recycling equipment available, including:
 - Equipment identifier (i.e., make/model/serial number)
 - Its intended use (i.e., type of refrigerant)
 - Certification date or date of acquisition
 - Location
 - Capacity
- Appliance disposal procedures/methods.

B. Appliances/Equipment Containing more 50 Pounds of Refrigerant

If a KSU department employs its own technicians to conduct work on appliances and equipment, containing greater than 50 pounds of refrigerant, the Department is required to develop and implement procedures and records for all of the following.

Names and copies of certifications all Certified Technicians employed by the department.

- Inventory of appliances/equipment containing greater than 50 pounds of refrigerant, including:
 - Type of equipment (i.e., chiller)
 - Equipment identifier (i.e., make/model/serial number)
 - Location
 - Type of refrigerant used in the equipment (i.e., R-13, R-502, etc.)
 - Full charge and method used to determine full charge
- Maintenance logs documenting each service call and leak rate calculations. (In the case of use of outside service contractors, this must include the Certified Technician's name, certification number, and certification type).
- List of appliances/equipment that have been de-commissioned or taken out of service whether permanently or temporarily.
- Names and contact information of refrigerant suppliers.
- Inventory of recovery or recovery/recycling equipment available, including:
 - Equipment identifier (i.e., make/model/serial number)
 - Its intended use (i.e., type of refrigerant)
 - Certification date
 - Location
 - Capacity
- Description of holding cylinders, including last hydrostatic test date and storage location.
- Appliance disposal procedures/methods and documentation.

- Procedures for off-site reclamation of refrigerant, including facilities used, if applicable.

1. Outside contractor

Departments that solely use the services of an outside contractor are required to address the following items.

- Inventory of appliances/equipment containing greater than 50 pounds of refrigerant, including:
 - Type of equipment (i.e., chiller)
 - Equipment identifier (i.e., make/model/serial number)
 - Location
 - Type of refrigerant used in the equipment (i.e., R-13, R-502, etc.)
 - Full charge and method used to determine full charge
- Maintenance logs documenting:
 - Each service calls and leak rate calculations.
 - Outside service contractor's name, certified technician's name, certification number, and type.
- List of appliances/equipment that have been de-commissioned or taken out of service whether permanently or temporarily.
- Appliance disposal procedures/methods and documentation.

C. Motor Vehicle and Motor Vehicle-Like Air Conditioners

The following is required only if KSU technicians conduct work on MVAC or MVAC-like equipment. Nothing is required of departments that hire an outside contractor to conduct this type of work.

- Names and copies of certifications all Certified Technicians employed by the department.
- Inventory of equipment serviced including types of refrigerant used in equipment serviced (e.g., R-12, R-22).
- Maintenance logs documenting each work-order and maintenance/repair work conducted.
- Names and contact information of refrigerant suppliers (purchase orders).
- Inventory of refrigerants.
- Inventory of recovery or recovery/recycling equipment owned by the university including corresponding purchase order of the equipment.
- Procedures for and invoices of off-site reclamation of refrigerant, if applicable.

V. TRAINING

- Only properly Certified Technicians, whether employed by a KSU department or an outside contractor/service provider, are authorized to conduct any repair, service, maintenance, or other activity that could reasonably be expected to release refrigerants contained in appliances or equipment.

- Certification is provided only through EPA-approved technician certification training programs. Certification category depends on appliance size and refrigerant type.

VI. REPORTING

- EHS department must be notified immediately of any accidental release of refrigerant to the environment.