



EAST TENNESSEE STATE UNIVERSITY

Facilities Management

Policy Number: 700.01
Title: Refrigerant Management Plan
Implementation Date: June 2008
Last Audited: October 23, 2017
Last Revised: October 23, 2017

Introduction

The purpose of this refrigerant management compliance plan is to establish guidelines to be followed when equipment containing ozone depleting refrigerants are serviced or repaired in all ETSU facilities.

Overview

East Tennessee State University (ETSU) owns appliances and equipment that contain ozone-depleting refrigerants that are subject to the federal stratospheric ozone protection regulations. The Protection of Stratospheric Ozone: Refrigerant Recycling Final Rule can be read in its entirety at 40 CFR Part 82, U.S. EPA. As a result of the Clean Air Act requirements, the EPA has established a national recycling program for these substances when recovered during the servicing and disposal of refrigeration and air conditioning equipment.

Scope

This policy applies to all ETSU employees, outside contractors and their representatives, or any company representative hired by ETSU to provide refrigeration services or any outside trade workers who will be working on university property as it pertains to ozone depleting refrigerants.

Responsibilities of Facilities Management

- Must comply with EPA Section 608 National Recycling and Emission Reduction Program regulations.
 - Reference the following EPA web page:
 - <http://www.epa.gov/Ozone/title6/608/608fact.html>

- Leak repair and service provisions apply to connected-refrigerant-circuit with a circuit capacity of 50 pounds or more refrigerant.
- Service technicians are responsible to maintain their EPA Approved Testing Certification.
- Service technicians must perform refrigerant service only on appliances with refrigerants, recovery equipment, recycling equipment, and refrigerant cylinders for which they are certified.
- When handling appliances with refrigerants, recovery equipment, recycling equipment, and refrigerant cylinders, service technicians must have their "certification cards" at all times.
- Facilities must provide its technicians with good working recovery and recycling equipment as a tool for recovering or recycling refrigerants.
- When opening, servicing, repairing, and disposing of appliances with refrigerants, service technicians must have at least one self-contained recovery equipment or recycling equipment at all times.
- All appliances with refrigerants, recovery equipment, recycling equipment, and refrigerant cylinders shall be clean and leak free.
- The service technician is responsible to maintain all appliances with refrigerants, recovery equipment, recycling equipment, and refrigerant cylinders in good working condition.
- Preventive maintenance shall be performed on the appliances with refrigerants, recovery equipment, recycling equipment, and refrigerant cylinders as required.
- Oils extracted during service should be kept, marked and disposed of separate from other oils. Contact the Environmental Health & Safety Office for disposal of all wastes.
- Each refrigerant cylinder shall be marked for identification purposes.
- Refrigerants of different types shall not be mixed with one another.
- The Office of Environmental Health Safety will provide training on the requirements of this policy to all service technicians and supervisors who are involved with refrigerant services.
- The supervisors will make sure a copy of this policy is available to all service technicians who will perform refrigerant services.

EPA Technician Certification:

As per the Clean Air Act Amendments Section 608, the four types of certifications for stationary equipment are as follows:

Type of equipment serviced	Level of required certification
Small equipment (<5lbs)	Type I
High and very-high pressure equipment	Type II
Low pressure equipment	Type III
All types	Type IV Universal*

* Type IV Universal does not include automobile air conditioning systems.

For more details on technician certification refer to the following EPA web pages:

- <http://www.epa.gov/ozone/title6/608/608fact.html#techcert>
- <http://www.epa.gov/ozone/title6/608/technicians/index.html>

Evacuation Requirements:

Service technicians must evacuate air-conditioning and refrigeration appliances as per EPA Section 608 Refrigerant Recycling Rule.

Required Levels of Evacuation for Appliances (Except for Small Appliances, MVACs, and MVAC-like Appliances)

Type of appliance serviced	Inches of mercury vacuum using equipment manufactured*	
	Before Nov. 15, 1993	On or after Nov. 15, 1993
HCFC-22 appliance or isolated component of such appliance, normally containing less than 200 pounds of refrigerant.	0	0
HCFC-22 appliance or isolated component of such appliance, normally containing 200 pounds or more of refrigerant.	4	10
Other high-pressure appliance or isolated component of such appliance, normally containing less than 200 pounds of refrigerant (CFC-12, -500, -502, -114).	4	10
Other high-pressure appliance or isolated component of such appliance, normally containing 200 pounds or more of refrigerant (CFC-12, -500, -502, -114).	4	15
Very High Pressure Appliance (CFC-13, -503).	0	0
Low-Pressure Appliance (CFC-11, HCFC-123).	25	25mm Hg absolute

* Relative to standard atmospheric pressure of 29.9 inches of Hg.

For more details on evacuation requirements refer to the following EPA web pages: <http://www.epa.gov/ozone/title6/608/608fact.html#servreqs>

Refrigerant Leaks

Pursuant to EPA Section 608, appliances with refrigerant charges of greater than 50 pounds are required to be repaired when leaks in the equipment would result in the loss of more than a certain percentage of the appliance's charge over a year. For the commercial and industrial process refrigeration sectors, leaks must be repaired when the appliance leaks at a rate that would release 35 percent or more of the charge over a year. For all other sectors, including comfort cooling, leaks must be repaired when the appliance leaks at a rate that would release 15 percent or more of the charge over a year. Preventive maintenance shall be performed to test for leak integrity.

Leaks must be repaired within 30 days of discovery. If Facilities develops a one-year retrofit or retirement plan for the leaking unit, then the 30 days repair requirement is waived. Industrial process refrigeration appliances requiring an industrial process shutdown qualify for 120 days to repair a leak.

For more details on refrigerant leaks refer to the following EPA web pages:

- <http://www.epa.gov/ozone/title6/608/608fact.html#leaks>
- <http://www.epa.gov/ozone/title6/608/leak.html>

Safe Disposal

All appliances with refrigerants, recovery equipment, recycling equipment, and refrigerant cylinders must be disposed of as per the "Safe Disposal Requirements of EPA Section 608". Refrigerants must be removed from equipment and appliances prior to disposal. Once refrigerants are removed from the appliances for disposal, the service technician must spray paint "EMPTY" on the appliance so the Recycling Department can confirm that any appliances designated for scrap metal recycling are empty and approved for metal recycling.

For more details on safe disposal refer to the following EPA web page:

- <http://www.epa.gov/ozone/title6/608/608fact.html#disposal>

Labeling

As per Air Conditioning and Refrigeration Institute Guidelines, all refrigerant containers of class I or class II substances must be labeled:

"WARNING: Contains CFC/HCFC, a substance which harms public health and environment by destroying ozone in the upper atmosphere."

Recordkeeping

- **Facility Management Personnel:**
 - Maintenance Supervisors must keep detailed technical information on every appliance which contains 50 or more pounds of refrigerants that is maintained and serviced by the Facilities.
 - Technicians must keep a copy of their proof of certification at Facilities.
 - Technicians must document type of service, the date of service, and the quantity of refrigerant added on the Work Order Form. The Work Order Form must also be signed and dated by the technician(s) performing the work.
 - If appliances with refrigerants, recovery equipment, recycling equipment, and refrigerant cylinders are not functioning or are not in good working condition or need to be repaired, it is the responsibility of the technician to report it on the Work Order Form.
 - The Manager of Maintenance & Scheduling will submit all completed Work Order Forms to Environmental Health & Safety on a monthly basis.
 - The Maintenance Supervisor has the responsibility to complete all applicable sections of the Refrigeration Equipment Recovery & Disposal Log (Attachment A) for each work order completed. Attachment B must be submitted to Environmental Health & Safety on a monthly basis.
 - For disposal of appliances (even if the disposal is performed by a non-ETSU entity or person), it is the responsibility of the Maintenance Supervisor to document disposal details (i.e. refrigerant recovered, appliance to be disposed of, etc.) on the Refrigeration Equipment Recovery & Disposal Log.
 - The Maintenance Supervisor must document records of refrigerant purchased documenting the name of the seller, date of purchase, and the type and quantity of refrigerant purchased. A copy of this information must be attached to their monthly report.
 - The Maintenance Supervisor must keep records of all materials sent for reclamation documenting the names and addresses of the reclaimer, and the quantity of material sent to them for reclamation. A copy of this information must be attached to their monthly report.
 - Maintenance Supervisors must maintain documentation (i.e. service records) on leak repair and leak rate calculations. Leak repairs must be documented on the Work Order Form.
 - Maintenance Supervisors must provide documentation to the Office of Environmental Health & Safety when new recycling or recovery equipment is purchased.

- Environmental Health & Safety will provide equipment information to the EPA Regional Office when Facilities has acquired (built, bought, or leased) recovery or recycling equipment.
- Facilities Management will keep a copy of each technician's proof of certification.
- All required records will be maintained for three years.

Contact Persons

- Associate Director of Environmental Health and Safety
- Environmental Compliance Manager
- Health and Safety Specialist

Approved by: _____
William Brady Rasnick, Jr., Associate Vice President,
Facilities Management

Date Approved: _____

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Attachment A

REFRIGERATION EQUIPMENT RECOVERY & DISPOSAL LOG

Tank #	Freon Type	Date	Technician	Weight Include tank	Lbs Used	Lbs Recovered	Bldg/ Room	Equipment (also note if equip. was disposed of)	Serial Number of Equip.	Freon Recycling (Note date and reclamation company exchanged cylinder with)