THE MANAGEMENT OF OZONE DEPLETING SUBSTANCES (Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs))	
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INTRODUCTION

POLICY

It is the policy of Wake Forest Baptist University Medical Center to reduce and manage the use of ozone depleting substances according to the requirements established in 40 CFR Part 82, Ozone Depleting Substances by the U.S. Environmental Protection Agency (EPA).

SCOPE

This policy applies to all campuses, facilities and buildings operated by Wake Forest University Baptist Medical Center. Additionally, the policy establishes the expectation of compliance for outside contractors and vendors who provide services and products which involve Ozone Depleting Substances (ODSs).

EXISTING CONDITIONS

1. WFUBMC does not maintain any fire suppression systems which use Halon.
2. Small appliances and equipment which contain refrigerant are delivered intact to the Forsyth County, North Carolina landfill for disposal and appropriate evacuation according to landfill regulations.

DEFINITIONS

Appliance - Any device, which contains and uses a Class I or Class II substance as a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller or freezer.

Certified Refrigerant Recovery or Recycling Equipment - Any equipment certified by an approved equipment testing organization to meet the EPA standards (40 CFR 82.158), or equipment manufactured before November 15, 1993 that meets EPA standards (40 CFR 82.158).

Ozone Depleting Substances (ODSs) - Chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and other halogenated chemicals that have been found to contribute to the depletion of the stratospheric ozone layer and are of worldwide environmental concern.

For a complete list of Class I and Class II controlled substances scheduled for phase-out by the EPA, click on the links below.

List of Class I Ozone Depleting Substances

List of Class II Ozone Depleting Substances

Sustainable leak - A release greater than 15 % over a year based on the calculation using the following formula.

Annual Leakage Rate (%)/year = ((lbs. leaked / total lbs.) (1 / Number of days since last charge)) 365 days / yr x 100

ROLES AND RESPONSIBILITIES

ENVIRONMENTAL HEALTH AND SAFETY

- Provide environmental compliance and technical assistance for operational units working with ODSs.
- Maintain awareness of current regulations and update this policy as appropriate.
- Maintain copies of appropriate records from WFUBMC Engineering regarding ODS-containing equipment, maintenance and technician training certification.
- Ensure that periodic assessments occur for the areas using or storing ozone depleting substances.

WFUBMC ENGINEERING

- Maintain an inventory of equipment that uses an ODS (charge greater than 50 lbs). Annually, submit **APPENDIX A - REFRIGERANT CONTAINER INVENTORY FORM**; **APPENDIX B - REFRIGERATION EQUIPMENT REPAIR/DISPOSAL FORM and APPENDIX C - REFRIGERATION EQUIPMENT INVENTORY AND LEAKAGE FORM** to Environmental, Health and Safety for inclusion in the Environmental Management System.
- Ensure that equipment owned and operated by WFUBMC for refrigerant recovery is certified and complies with EPA requirements by completing the EPA's Refrigerant Recovery and Recycling Device Acquisition Certification Form.
- Ensure and maintain that all technicians who perform maintenance, service, repair or disposal activities involving refrigerants be certified through an EPA approved training program.
- Track leak rates for all refrigeration equipment with more than 50 pounds of charge and maintain appropriate records.
- Ensure prompt repair of substantial leaks (> 15% per year) in air conditioning and refrigeration equipment with charges greater than 50 pounds;
- Prohibit venting and ensure proper evacuation of appliances using certified recovery equipment prior to maintenance, repair or disposal of equipment containing ODS.
- Maintain records of leak rates, certifications of recycling equipment, disposal of refrigerant and service records for equipment containing more than a 50-pound charge.
- Supervisors will be responsible for correcting the identified discrepancies from assessments conducted periodically by Environmental, Health and Safety or the Engineering Training Coordinator.

PURCHASING DEPARTMENT

- Ensure that purchase orders and annual contracts for outside vendors providing service on refrigeration equipment stipulate that both technicians and reclamation equipment be certified according to EPA requirements.
- Purchase orders and annual contracts shall stipulate that reclamation and recycling equipment used at WFUBMC shall meet the EPA certification requirements, and that reclaimers shall participate in third-party reclaimer certification programs.

PROCEDURES

1. A current inventory of all ODSs and usage will be maintained by WFUBMC Engineering using **APPENDIX A** - **REFRIGERANT CONTAINER INVENTORY FORM; APPENDIX B - REFRIGERATION EQUIPMENT REPAIR/DISPOSAL FORM** and **APPENDIX C - REFRIGERATION EQUIPMENT INVENTORY AND LEAKAGE FORM**.

2. All containers containing ozone depleting substances must be labeled with the following warning statement.

   WARNING: contains [or Manufactured with, if applicable] [insert name of substance], a substance which harms public health and environment by destroying ozone in the upper atmosphere.

The warning statement will appear in a conspicuous place on the container. The warning statement will be in green lettering on a white background.

3. An EPA Refrigerant Recovery and Recycling Device Acquisition Certification Form must be completed for all acquired recovery or recycling equipment.

   - Equipment Manufactured After November 15, 1993

     Equipment used to recycle or recover ODS must be certified if the equipment was manufactured on, or after, November 15, 1993. Certified equipment can be identified by a label reading "This equipment has been certified by ARI/UL to meet EPA's minimum requirements for use." If the label cannot be found or read, lists of certified equipment may be obtained by contacting ARI (Air-Conditioning and Refrigeration Institute) at (703) 524-8800 and Underwriters Laboratory (UL) at (708) 272-8800 ext.42371.

   - Equipment Manufactured Before November 15, 1993

     Recovery/recycling equipment manufactured before November 15, 1993 may be grandfathered if it meets the standards detailed in 40 CFR 82.158.

4. No Ozone Depleting Substances (ODSs) will be knowingly released into the atmosphere while maintaining, servicing, repairing or disposing of air-conditioning or refrigeration equipment. Exceptions to this prohibition include releases of "de minimis" quantities of refrigerant; refrigerant emitted in the normal course of operation as opposed to during maintenance, service and repair; releases of CFCs and HCFCs that are not used as refrigerants; and small releases that result from purging hoses.

5. Cylinders must be stored in a safe manner, chained and in a secured location.

6. The cylinder/tank assembly will be retested and marked 5 years after the date of manufacturing. The retest must be performed subsequent every 5 years. The marking shall be in letters at least 6 mm high.

7. The tank assembly shall be marked to indicate the first retest date, which shall be 5 years after the date of manufacture. The marking shall indicate that retest must be performed

8. Service Practice Requirements
   All WFUMBC refrigeration technicians and all outside vendors who service refrigeration equipment are required to comply with the following:

   - Evacuation Requirements
     Air-conditioning and refrigeration equipment must be evacuated to EPA-required vacuum levels prior to opening equipment.

     Persons who simply add refrigerant (top-off) to appliances are not required to evacuate systems.

- Reclamation Requirement
  EPA has established that refrigerant recovered and/or recycled can be returned to the same system or other systems owned by the same person without restriction.

9. Tracking Leaks

   WFUBMC Engineering is required to maintain records indicating the quantity of refrigerant added to their equipment (with charges of greater than 50 pounds) during servicing and the maintenance procedures. **APPENDIX C – REFRIGERATION EQUIPMENT INVENTORY AND LEAKAGE FORM** will be utilized for tracking leaks. These records must be current and available for inspection.

   Based on the quantities of materials added to equipment, leak rates are to be calculated using the following equation.

   Annual Leakage Rate (%)/year = ((lbs. leaked / total lbs.) (1 / Number of days since last charge)) 365 days / yr x 100

   If a leak rate of 15% or greater is detected, the leak must be repaired within 30 days of discovery.

10. Technician Certification

    All technicians who service, repair, recover and/or dispose of regulated refrigerants at WFUBMC must be certified through an EPA-approved training program.

11. Outside Services

    All outside contractors who service or repair air-conditioning or refrigeration equipment shall be certified. Outside contractors must provide proof of the proper certifications as required.

12. Disposal Requirements

    - All central air-conditioning equipment, chillers and other major ODS-containing equipment must have the ODS recovered prior to dismantling. Documentation shall be maintained by the Engineering by completing **APPENDIX B - REFRIGERATION EQUIPMENT REPAIR/DISPOSAL FORM**
    - "Dirty" or unusable refrigerant is typically recovered to a separate container designated for that single ODSs . When that container is full it is disposed of through an authorized vendor. ODSs are not to be mixed.
    - Empty containers are recycled as scrap metal after removing the safety plug is removed and the label is defaced.

13. Recordkeeping

All records relating to ODS shall be maintained.

- A copy of the Certification by Owner to EPA regarding Refrigerant Recovery/Recycling Device Acquisition shall be maintained for all designated equipment.
- Refrigeration Technicians are required to keep a copy of their certification and provide a copy to their supervisor.
- For equipment containing 50 or more pounds of refrigerant, all service records must be maintained and quantity of refrigerant added must be tracked Using **APPENDIX C – REFRIGERATION EQUIPMENT INVENTORY AND LEAKAGE FORM.**
- Inventory of the ozone depleting substance containers utilized in each zone using **APPENDIX A - REFRIGERANT CONTAINER INVENTORY FORM.**
- Periodic Assessments will be documented utilizing the Environmental Management System.

14. Reduction Goals

WFUBMC will reduce its use and releases of the target chemicals through a variety of techniques. These include:

- Replace CFC equipment with non-CFC equipment.
- Convert CFC equipment to non-CFC alternatives, when feasible.
- Maintain existing equipment and repair any leaks detected.
- Ensure only certified technicians work on CFC equipment.

15. Review

Ozone Depleting Substances (Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)) program will be reviewing annually by Engineering and Environmental Health and Safety.

APPENDIX A - REFRIGERANT CONTAINER INVENTORY FORM

Date of Purchase:_____

Type of Refrigerant:_____

Original Weight:_____

Container I.D. Number:_____

Date	Pre-weight	Post-weight	Amount used	Complete Repair Form	Initials

***Note: Attach Copy of Purchase Receipt to this form**

APPENDIX B - REFRIGERATION EQUIPMENT REPAIR/DISPOSAL FORM

Location:_____ Date:_____

Equipment Number:_____ Technician:_____

Refrigerant Container ID Number:_____

Problem:
Repairs:

Size of the System
(tons):_____

Total Charge in the System (pounds):_____

Type of Refrigerant:_____

Type of Recovery System used:_____

Amount of Refrigerant Recovered:_____

Amount of Refrigerant Recycled:_____

Amount of Refrigerant to be Reclaimed (by others):_____

Amount of New Refrigerant Added:_____

Other Methods Used to Prevent Release of Refrigerant:_____

_____

Please Attach All Related Parts and Service Invoices

APPENDIX C – REFRIGERATION EQUIPMENT INVENTORY AND LEAKAGE FORM

For Type II (High Pressure) and Type III (Low Pressure)
machines with greater than 50 Lbs. refrigerant

Building:_____ Chiller ID:_____

Chiller Manufacturer:_____

Model Number:_____ Serial Number:_____

Capacity:_____Tons Refrigerant Amount:_____Lbs.

Type Refrigerant:_____

DATE	SERVICE PROVIDER	REFRIGERANT ADDED (LBS.)	ANNUAL LEAKAGE RATE (%)	REPAIRS MADE Y/N AND COMMENTS

Repairs must be made if annual leakage rate exceeds 15%.

Annual Leakage Rate (%)/year = (lbs. leaked / total lbs.) (1 / Number of days since last charge) 365 days / yr x 100

APPENDIX D – LIST OF REFRIGERANT RECOVERY OR RECYCLING EQUIPMENT

Name of Device (s) Manufacturer	Model Number	Manufacturer	Year	Serial Number (if any)	Certified (yes or no)	Location
Amprobe	RG5000	Promax	1998	9851019	YES	Zone F
Amprobe	RG5410HP	Promax	2001	0033084	YES	Zone A
Carrier Total Claim	12RA001100	Carrier	1992	1792J	YES	Zone A
Appion	G5TWIN	Appion, Inc.	2011	F10G1172	Yes	Zone P
Fluorotech	3500	Fluorotech, Inc.	1999	42622	YES	Zone 1
Appion	G5TWIN	Appion, Inc.	1999	A07G21467	YES	Zone 1
Amprobe	RG3305	Promax	1995	RG03505955610	YES	Zone 1
National Refrigerator Products	LV1C	National Refrigerator Products	NA	N95A00749	YES	Zone 2
Fluorotech	3000H	Fluorotech, Inc.	1998	36010	YES	Zone 4
Appion	G5TWIN	Appion, Inc.	2007	A07G21467	YES	Zone 4
Appion	G5TWIN	Appion, Inc.	2004	01051587	YES	Zone 4
Appion	G1 Single	Appion	2010	E10S0503	YES	Zone 4
Appion	G1 Single	Appion	2010	B10S0555	YES	Zone 4
Appion	G1 Single	Appion	2010	E10S0129	YES	Zone 4
Appion	G5TWIN	Appion, Inc.	NA	C08G45904	YES	Zone 5
Fluorotech	3500	Fluorotech, Inc.	1999	44751	YES	Zone 5
Amprobe	RG5000	Promax	NA	991363	YES	Zone 5