University of Nebraska Lincoln

Safe Operating Procedure

(Revised 1/20)

AIR CONDITIONING & REFRIGERATION

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at http://ehs.unl.edu/)

Refrigerants are used throughout UNL in equipment such as refrigerators and freezers, central air conditioning systems (HVACs), ice machines, drinking water coolers, research equipment, vending machines, motor vehicle air conditioners, etc. When these units are serviced, there is a risk that refrigerant gas will be vented into the atmosphere.

The United States Environmental Protection Agency (U.S. EPA) has established regulations for the maintenance, service, and disposal of refrigerant containing equipment, including motor-vehicle air conditioners (MVACs). The regulations include EPA certification for personnel who work on these units and procedures to minimize refrigerant loss to the atmosphere and maximize recycling/recovery. While regulatory requirements are very detailed and extensive for U.S. EPA-certified technicians, reclaimers, and the recycling/recovery equipment they use, the impact to the general campus population is minimal. This SOP describes those few and simple procedures that all UNL Departments and employees must know to ensure regulatory compliance.

Do Not Vent Refrigerants
As of July 1, 1992 it is illegal to release refrigerants into the atmosphere.

Always Use Services of a Certified Technician
Refrigeration maintenance and repair involves understanding complex heating and cooling systems in machines and appliances. Refrigeration mechanics or technicians who handle and purchase refrigerants must be certified by passing a written exam. Organizations approved by the US EPA administer these exams. In addition to understanding how systems work, technicians must be knowledgeable about refrigerants, and any changes in applicable regulations.

All refrigerant related service, maintenance, or repair of any appliance/equipment must be performed by:

- EPA-certified technician employed by UNL such as Building Systems Maintenance (BSM) or Transportation Services (MVAC service) or;
- EPA-certified technician employed by an outside contractor/service provider.

Departments that employ their own EPA-certified technicians or hire outside contractors to conduct work on refrigerated appliances/equipment must develop and implement appropriate refrigerant management procedures, including recordkeeping provisions. If employing in-house staff, contact EHS for further guidance on refrigerant management procedures, records, and forms that can be used to document required records. All records must be kept for at least 3 years.

To request refrigeration-related service, contact the UNL Facilities Service Desk at 402-472-1550. To request any service work on MVACs, including off-road vehicles, contact

Transportation Services at 402-472-7937.

Ensure Timely Repair of Equipment ≥ 50 lbs

Leaks in appliances/equipment that normally contain 50 pounds or more of refrigerant are subject to timely repair. Examples of this type of equipment include building chillers and some very large, commercial-like, refrigeration equipment. Therefore, any suspected leak in such equipment must be reported to the FMP Service Desk as soon as possible (i.e., same day), assuming the department does not employ their own technicians or use the services of an outside contractor. In these cases, arrangements for timely leak repair must be made with the appropriate EPA-certified technician/contractor. Regarding leak rates, records that must be kept include:

- The calculated leak rate
- The method used to determine the leak rate and full charge
- The date a leak rate above the applicable allowable rate was discovered
- The location of leaks(s) to the extent determined to date
- The initial and follow-up verification tests at conclusion of any repair efforts
- Additional records must be kept if a system is retro-fitted, intended for retirement, or moth-balled. Consult EHS regarding these specific requirements.

Contact EHS immediately if the repair cannot be made within 30 days.

Disposal of Appliances/Equipment

- **Small Appliances**[1]: Small appliances that are no longer wanted but are still in working condition, with refrigerant charge in-tact, must be managed through UNL Inventory. The process for requesting pickup of surplus items inventory is described at the Inventory Surplus Warehouse website http://inventory.unl.edu/

  If the Inventory Surplus Warehouse does not want the appliance (i.e., it is non-working), it can be sent to the landfill or managed as scrap metal. Unless the receiving facility notifies otherwise, it is responsible for recovery of the refrigerant prior to disposal and may charge a small fee for this service.

  Alternatively, a service request can be initiated with UNL BSM to recover refrigerant prior to disposal of the small appliance at a scrap metal dealer or landfill. If refrigerant is recovered prior to delivery to the scrap metal dealer or landfill, the BSM EPA-certified technician must provide a certification to the recycling/disposal facility stating that the refrigerant has been removed.

- **MVACs** dispose only in coordination with UNL Transportation Services.

- **Other Appliances**: It is recommended that disposal of other refrigeration appliances/equipment are coordinated through UNL BSM to ensure that the necessary procedures are followed and required records are maintained.

[1] A small appliance is, by definition, limited to that which is fully manufactured, charged, and hermetically sealed in a factory with five (5) pounds or less of a refrigerant.