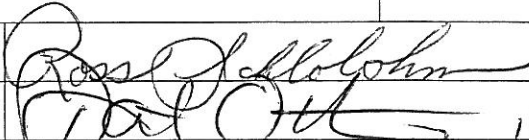
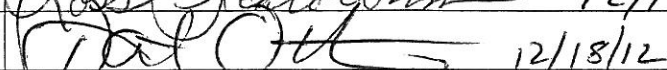


Standard Operating Procedure (SOP)

Refrigerant Management Program

SOP No.	MG-0011	Revision:	1.0
Department:	Maintenance	Date:	12/18/12
Dept. Head Approval:	 12/18/12		
Approval Director:	 12/18/12		

Purpose:

The purpose of this document is to ensure EPA regulations are being met with respect to refrigerant management

Responsibility:

Compliance with this procedure is the responsibility of the Refrigerant Technicians, Mechanical Systems Operation Manager, Director of Maintenance and the Director of Environmental Health Safety.

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Section I. Purpose and Scope

The purpose of the West Virginia University (WVU) Refrigerant Management Program (RMP) is to:

- Maximize the recycling of ozone depleting substances (ODS) and to minimize the release of ODS to the ambient air from the servicing, repairing, maintaining, and disposing of refrigeration appliances on its campus;
- Utilize certified technicians for the servicing, repairing, maintaining, and disposing of refrigeration appliances on its campus;
- Maintain proper records of refrigerant consumption, technician training, and recycling and recovery equipment certification;
- Ensure proper repairs are made for units with significant leak rates; and
- To ensure WVU is in full compliance with Section 608 of the Clean Air Act Amendments and the requirements of 40 CFR Part 82, Subpart F.
- To achieve the objectives stated above, WVU will require all employees and contractors whose job duties require the handling, ordering, repairing, servicing, maintaining, or disposing of refrigerant or refrigeration appliances to review and comply with this written program.

Section II. Definitions

For the purposes of WVU's RMP, the following definitions, as excerpted from 40 CFR Part 82.152, apply:

- Appliance - any device which contains and uses a class I or class II substance as a refrigerant, including any air conditioner, refrigerator, chiller, or freezer.
- Low-pressure appliance - an appliance that uses a refrigerant with a liquid phase saturation pressure below 45 psia at 104 °F. This definition includes but is not limited to appliances using R-11, R-123, and R-113.
- Medium-pressure appliance - an appliance that uses a refrigerant with a liquid phase saturation pressure between 45 psia and 170 psia at 104 °F. This definition includes but is not limited to appliances using R-114, R-124, R-12, R-401C, R-406A, and R-500.
- High-pressure appliance - an appliance that uses a refrigerant with a liquid phase saturation pressure between 170 psia and 355 psia at 104 °F. This definition includes but is not limited to appliances using R-401A, R-409A, R-401B, R-411A, R-22, R-411B, R-502, R-402B, R-408A, and R-402A.
- Very high-pressure appliance - an appliance that uses a refrigerant with a critical temperature below 104 °F or with a liquid phase saturation pressure above 355 psia at 104 °F. This definition includes but is not limited to appliances using R-13 or R-503.
- Certified refrigerant recovery or recycling equipment - equipment certified by an approved equipment testing organization to meet the standards in 40 CFR Part 82.158 (b) or (d), equipment certified pursuant to 40 CFR Part 82.36(a), or equipment manufactured before November 15, 1993, that meets the standards in 40 CFR Part 82.158 (c), (e), or (g).
- Disposal – The process leading to and including:
 - The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water;
 - (1) The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or
 - (2) The disassembly of any appliance for reuse of its component parts.
- Full charge - the amount of refrigerant required for normal operating characteristics and conditions of the appliance as determined by using one of the following four methods or a combination of one of the following four methods:
 - (1) The equipment manufacturers' determination of the correct full charge for the equipment;
 - (2) Determining the full charge by appropriate calculations based on component sizes, density of refrigerant, volume of piping, and all other relevant considerations;
 - (3) The use of actual measurements of the amount of refrigerant added or evacuated from the appliance; and/or
 - (4) The use of an established range based on the best available data, regarding the normal operating characteristics and conditions for the appliance, where the mid-point of the range will serve as the full charge, and where records are maintained in accordance with 40 CFR Part 82.166(q).

- Initial verification test - leak tests that are conducted as soon as practicable after a repair is completed. An initial verification test, with regard to the leak repairs that require the evacuation of the appliance or portion of the appliance, means a test conducted prior to the replacement of the full refrigerant charge and before the appliance or portion of the appliance has reached operation at normal operating characteristics and conditions of temperature and pressure. An initial verification test with regard to repairs conducted without the evacuation of the refrigerant charge means a test conducted as soon as practicable after the conclusion of the repair work.
- Low-loss fitting - any device that is intended to establish a connection between hoses, appliances, or recovery or recycling machines and that is designed to close automatically or to be closed manually when disconnected, minimizing the release of refrigerant from hoses, appliances, and recovery or recycling machines.
- Major maintenance, service, or repair - any maintenance, service, or repair involving the removal of any or all of the following appliance components: compressor, condenser, evaporator, or auxiliary heat exchanger coil.
- Motor vehicle air conditioner (MVAC) - any appliance that is a motor vehicle air conditioner as defined in 40 CFR part 82, subpart B (i.e. mechanical vapor compression refrigeration equipment used to cool the driver's or passenger's compartment of any motor vehicle. This definition is not intended to encompass the hermetically sealed refrigeration systems used on motor vehicles for refrigerated cargo and the air conditioning systems on passenger buses using HCFC-22 refrigerant).
- MVAC-like appliance - mechanical vapor compression, open-drive compressor appliances used to cool the occupant's compartment of a non-road motor vehicle. This includes the air-conditioning equipment found on agricultural or construction vehicles.
- Opening an appliance - any service, maintenance, repair, or disposal of an appliance that would release refrigerant from the appliance to the atmosphere unless the refrigerant was recovered previously from the appliance. Connecting and disconnecting hoses and gauges to and from the appliance to measure pressures within the appliance and to add refrigerant to or recover refrigerant from the appliance shall not be considered "opening."
- Reclaim refrigerant - to reprocess refrigerant to at least the purity specified in appendix A to 40 CFR part 82, subpart F (based on ARI Standard 700-1993, Specifications for Fluorocarbon and Other Refrigerants) and to verify this purity using the analytical methodology prescribed in appendix A. In general, reclamation involves the use of processes or procedures available only at a reprocessing or manufacturing facility.
- Refrigerant - any substance consisting in part or whole of a class I or class II ozone-depleting substance that is used for heat transfer purposes and provides a cooling effect, or any substance used as a substitute for such a class I or class II substance by any user in a given end-use, except for the following substitutes in the following end-uses: (1) Ammonia in commercial or industrial process refrigeration or in absorption units; (2) Hydrocarbons in industrial process refrigeration (processing of hydrocarbons); (3) Chlorine in industrial process refrigeration (processing of chlorine and chlorine compounds); (4) Carbon dioxide in any application; (5) Nitrogen in any application; or (6) Water in any application.

- Refrigerant Technician - any person who performs maintenance, service, or repair, that could be reasonably expected to release refrigerants from appliances, into the atmosphere. Refrigerant Technician also means any person who performs disposal of appliances, except for small appliances, MVACs, and MVAC-like appliances that could be reasonably expected to release refrigerants from the appliances into the atmosphere. Performing maintenance, service, repair, or disposal could be reasonably expected to release refrigerants only if the activity is reasonably expected to violate the integrity of the refrigerant circuit. Activities reasonably expected to violate the integrity of the refrigerant circuit include activities such as attaching and detaching hoses and gauges to and from the appliance to add or remove refrigerant or to measure pressure and adding refrigerant to and removing refrigerant from the appliance. Activities such as painting the appliance, rewiring an external electrical circuit, replacing insulation on a length of pipe, or tightening nuts and bolts on the appliance are not reasonably expected to violate the integrity of the refrigerant circuit. Performing maintenance, service, repair, or disposal of appliances that have been evacuated pursuant to 40 CFR Part 82.156 could not be reasonably expected to release refrigerants from the appliance unless the maintenance, service, or repair consists of adding refrigerant to the appliance. Refrigerant Technician includes but is not limited to installers, contractor employees, in-house service personnel, and in some cases owners and/or operators.
- Self-contained recovery equipment - refrigerant recovery or recycling equipment that is capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance.
- Small appliance - any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with five (5) 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.
- Substitute - any chemical or product, whether existing or new, that is used by any person as an EPA approved replacement for a class I or II ozone-depleting substance in a given refrigeration or air conditioning end-use.
- TMA Systems Computerized Maintenance Management System (TMA) – a software program that uses a database to accurately track appliance information including refrigerant usage, leaks, disposal, annual leak rate calculations as required and service records.

Section III. Responsibilities

Refrigerant Technician

The Refrigerant Technician will be responsible for compliance with Section 608 of the Clean Air Act Amendments, the requirements of 40 CFR Part 82, Subpart F, and the WVU Refrigerant Management Program.

The Refrigerant Technician will comply specifically with the following:

- Complete required records for all refrigerant related activities and update the information in TMA;
- Ensure recovery units meet evacuation requirements as detailed in USEPA regulations;
- Follow procedures to eliminate refrigerant contamination and mixing;
- Perform proper refrigerant recovery procedures as required;
- Perform initial leak tests using an acceptable method prior to charging refrigerant into a system;
- Perform annual leak audits on all equipment with greater than 50 pounds of refrigerant; and
- Notify their Operations Manager if a contractor is observed violating regulatory requirements.

The Mechanical Systems Operations Manager will have responsibility for following the WVU RMP, specifically the following:

- Ensure all technicians in their department follow the requirements of the RMP;
- Ensure entry of all data from refrigerant work done on campus in a timely manner into TMA;
- Report any violations of the RMP by technicians or contractors to the Director of Facilities Maintenance;
- Maintain refrigerant recovery equipment certification;
- Maintain, check, leak test and document recovery unit maintenance pursuant to manufacturer's recommendations and maintain records on Appendix B;
- Assure that anytime a new air conditioner or air conditioning system is installed on WVU property, ensure the information in accordance with 40 CFR Part 82, Subpart F for the equipment is entered in TMA.

Director of the Environmental Health Safety

The Director of the Environmental Health Safety (EHS) shall be responsible for the following:

- Auditing RMP periodically;
- Reviewing regulatory updates for changes; and
- Ensuring proper reporting to the Environmental Protection Agency.

Section IV. Best Management Practices

To meet the objectives set forth in Section I of this RMP, WVU and its contractors shall comply with the following best management practices:

- 1) When any work is conducted on a refrigerant containing appliance, WVU and its contractors will complete a Service Order (Appendix A) documenting all information pertaining to the work completed, including but not limited to the appliance serviced, type and amount of refrigerant collected/charged, results of leak tests, and date the work was performed.
- 2) Prior to the disposal of any appliance owned and/or operated by WVU, except small appliances, motor vehicle air conditioners (MVAC), and MVAC-like appliances, the unit and all associated piping shall be entirely evacuated to a certified recovery or recycling machine. WVU technicians or contractors opening appliances for repair or servicing will evacuate the entire unit or the part of the unit to be serviced to a certified recovery or recycling machine. A certified technician must verify that the correct level of evacuation has been reached. All appliances, except small appliances, motor vehicle air conditioners (MVAC), and MVAC-like appliances, must be evacuated to the following level prior to opening the device.

TABLE 1

REQUIRED LEVELS OF EVACUATION FOR WVU APPLIANCES
 [Except for small appliances, MVACs, and MVAC-like appliances]

Type of appliance	Inches of Hg vacuum (relative to standard atmospheric pressure of 29.9 inches Hg)	
	Using recovery or recycling equipment manufactured or imported before Nov. 15, 1993	Using recovery or recycling equipment manufactured or imported 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	25 mm Hg absolute

*Or isolated component of such an appliance.

Exceptions to evacuation levels:

Not to be performed after the completion of maintenance, service, or repair;
Due to leaks in the appliance, evacuation levels listed above are not attainable or would significantly contaminate the refrigerant being recovered.

3) Prior to disposal of appliances, WVU personnel and contractors shall evacuate to the levels included in the table above, unless due to leaks in the appliance such levels are not attainable or would significantly contaminate the refrigerant being recovered. In such cases, WVU personnel or contractors will:

- Isolate leaking from non-leaking components when possible;
- Evacuate non-leaking components to the levels listed in Table 1, Section IV;
- Evacuate leaking components to the lowest level attainable without significantly contaminating the refrigerant being recovered (such level shall not exceed 0 psig).

4) Prior to opening small appliances, WVU and its contractors will:

- Recover at least 80% of the refrigerant in the appliance when using recycling and recovery equipment manufactured before November 15, 1993; or
- Recover at least 90% of the refrigerant in the appliance when the compressor is operating or 80% of the refrigerant in the appliance when the compressor is not operating using recycling and recovery equipment manufactured on or after November 15, 1993; or
- Evacuate the small appliance to four inches of mercury vacuum.

5) WVU and its contractors will open MVAC-like appliances for service, maintenance, or repair only when properly operating certified recycling and recovery equipment.

6) All WVU technicians and contractors opening appliances except for small appliances and MVACs for maintenance, service, or repair will have a certified recycling and recovery device available.

7) WVU will not use system dependent recovery equipment with appliances containing a normal charge greater than fifteen pounds, unless such equipment is permanently attached to the device as a pump out unit.

8) WVU and its contractors shall use all recycling and recovery equipment in accordance with manufacturer's directions, unless such directions do not comply with the requirements of 40 CFR Part 82.

9) WVU personnel and/or contractors may return refrigerant to the appliance it was removed from or to another appliance under WVU ownership, without being recycled or reclaimed, unless the device is a MVAC or MVAC-like device.

- 10) When recovering refrigerant from MVAC and MVAC-like devices for disposal, WVU and its contract personnel will reduce system pressure to at or below 4 inches of mercury vacuum using certified recycling and recovery equipment.
- 11) When recovering refrigerant from small appliances for purposes of disposal of the appliance, WVU and its contract personnel will recover 90% of the refrigerant when the compressor is operating or 80% of the refrigerant when the compressor is not operating or evacuate the small appliance to four inches of mercury vacuum.
- 12) For any commercial refrigeration unit or industrial process refrigeration equipment containing 50 pounds or more of refrigerant, WVU or its contract personnel will make repairs if the appliance is leaking at a rate such that the loss of refrigerant will exceed 35% of the total charge during a 12-month period. Repairs will be made to reduce the leak rate to less than 35%. The current leak rate at time of discovery shall be pro-rated out to a 12-month period to determine if the 35% threshold is exceeded.
WVU and its contractors will make necessary repairs to any commercial refrigeration unit or industrial process refrigeration equipment exceeding the 35% leak rate within 30 days. If additional time is required due to part availability, WVU will request up to 120 days from the EPA.
Following any repairs to leaking refrigeration appliances or equipment, WVU and its contractors shall perform a verification test within 30 days of bringing the unit/appliance back on-line to confirm the repairs have reduced the leak rate to less than the 35% rate. The verification test will be conducted at normal operating conditions (pressure and temperature) and characteristics.
- 13) WVU and its contractors shall repair leaks in any appliance that is not a commercial refrigeration unit or industrial process refrigeration equipment, which normally contains greater than 50 pounds of refrigerant if the leak rate is greater than 15% of the total charge during a 12-month period. Repairs to such equipment must reduce the leak rate to less than 15% of the charge over a 12-month period. The current leak rate at time of discovery shall be pro-rated out to a 12month period to determine if the 15% threshold is exceeded.
- 14) For any unit exceeding the 35% and 15% leak rate outlined above that WVU chooses not to repair, a one-year retrofit or replacement plan will be prepared within 30 days of discovery of leak rates in excess of threshold. WVU will maintain this plan on-campus by the Facilities Maintenance. The retirement plan will be dated and all work will be completed within one year of the date or the equipment will be scraped.
- 15) Container Sign-Out/In Procedures
 - a. Sign log for refrigerant withdrawal from the Warehouse
 - b. Select correct refrigerant container for refrigerant to be recovered and service to be performed.
 - c. ALWAYS weigh Sign-Out or Sign-In container and record weight and other pertinent information on proper refrigerant management form in TMA.

d. To Sign-Out equipment, inspect equipment to be signed out to determine condition. If not in a usable condition, tag equipment as such and notify Operations Manager. If equipment is in usable condition, sign-out equipment on sign-out sheet. Include your name date and located to be used. To sign-in, reverse above procedure.

16) Disposing Refrigerant Appliances, Equipment, Oils, and Parts

- a. Using EPA certified recycling and recovery unit WVU and its contractors will attach proper recovery equipment to appliance/container making sure that all connections are tight, and then remove refrigerant from appliance to the evacuation levels as listed in Table 1 of Section IV, transferring refrigerant to a DOT certified cylinder.
- b. Record amount of refrigerant recovered on appropriate forms and turn in to operations manager at the end of day for recordkeeping.
- c. Recover or drain oil in the system and deposit it in a certified oil containment vessel or drum.
- d. When recovery is complete, remove recovery equipment and render the appliance/container unusable by puncturing or cutting it in half and label appliance to be disposed of with appropriate label providing information as follows:

<u>CERTIFICATE OF REMOVAL</u>
THE REFRIGERANT (CFC's/HCFC's) FROM THIS UNIT HAVE BEEN PROPERLY REMOVED IN ACCORDANCE WITH THE 1990 CLEAN AIR ACT AMENDMENT REQUIREMENTS.
Date: _____
Refrigerant Type: _____
Technician/Contractor: _____
Phone Number: _____

e. Place appliance/container in proper waste stream. The HVAC scrap metal recycling area is located in back of the Facilities Management Building.

17). Procedures for Leak Testing Appliances

A.) High or Very High Pressure Appliances:

- 1. Visual inspection of entire system.
 - a. oil trace
 - b. broken lines or fittings
 - c. liquid indicator/moisture sight glass
 - d. heavy frost or ice on components
 - e. temperature readings or indications
 - f. general run conditions

2. Audible

- a. listen for leaks or abnormal run conditions

3. Touch

- a. check temperature of lines
- b. feel for oil on valves or refrigerant lines

4. Leak test

- a. halide torch
- b. soap bubbles
- c. electronic
- d. audible
- e. visual
- f. dye

If a leak is determined to be present:

1. Install charging manifold on refrigerant system. (Install on both high and low side of system, if possible.)
2. Isolate portion of system where leak is determined, if possible. If not possible, recover refrigerant from entire system into DOT certified cylinder to evacuation levels specified in Table 1 in Section IV.
3. Repair leak per refrigerant safe practices.
4. Re-charge the system with trace R-22 and nitrogen to 5 – 30 lbs. and leak test the entire system. If no leaks are found, pressurize to, at, or above refrigerant pressure for refrigerant used; e.g. 90 lbs. to 130 lbs. for R-12.
If no leaks are found, move to triple vacuum procedure in accordance with evacuation levels specified in Table 1 in Section IV, using micron gauge on third evacuation.

If repair is not effective, repeat Step 3.

If repair is effective, re-charge to proper operation conditions.

Document all required refrigerant management forms and turn in to supervisor by the end of the work day.

B.) Low Pressure Appliances:

Follow appliance manufacturer's written operations and maintenance procedures.

18) Procedure for Rapid Response to Venting/Leaking of Refrigerant

- a. Receive call from Zone Maintenance Operations Manager or Radio Dispatch during normal working hours. PRIORITY ONE.
- b. Respond to location of reported leak.
- c. DO A LIFE SAFETY CHECK! If life safety is an issue, call EHS or 911.
- d. SECURE AREA! Allow no one to enter area or building.
Wait for the proper authorities to arrive. Turn scene over to proper authorities.
- e. If life safety is not an issue, determine source of leak. Shut down system. Isolate leak if possible.
- f. Recover refrigerant following proper procedures and evacuation levels.
- g. Determine repair necessary.
- h. Repair appliance and conduct leak test.

19) Safe Handling of Refrigerants

CAUTION

Liquid refrigerant can cause frostbite if skin contact occurs. Be aware that the refrigerant/oil being removed from a system may contain contaminants. These contaminants may be harmful to breathe or harmful if they come into contact with the skin. Always provide fresh, clean air when working in enclosed areas. Avoid breathing vapors. Always wear safety glasses and gloves (cold resistant for pressurized refrigerant and rubber for F-11 and R-113). Avoid contact with clothing.

- Only fill containers which are currently DOT approved for fluorocarbon refrigerants.
- Always inspect the container for pressure rating and latest hydrostatic test date.
- Be sure to thoroughly check each container for dents, gouges, bulges, cuts, or any other imperfections which may render it unsafe to hold refrigerant for storage or transportation.
- Do not fill a container which does not have a current hydrostatic date. Do not risk filling a container which appears unsafe or may leak.
- Always use a scale when filling any container. Do not overfill.
- Make sure all connections are made tight before transferring refrigerants into containers. Also, make sure all closures are made tight on the container immediately after filling.
- Document all required EPA refrigerant management information on proper refrigerant management forms and turn in to Operations Manager by the end of the workday.

Section V. Recycling and Recovery Equipment

WVU and its contractors will comply with EPA's certification program for refrigerant recovery and recycling equipment. Under this program, EPA requires that manufacturers or importers of refrigerant recovery and recycling equipment manufactured on or after November 15, 1993, have their equipment tested by an EPA-approved testing organization to ensure that it meets EPA requirements. All WVU equipment intended for use with air-conditioning and refrigeration appliances has been tested under EPA requirements based upon the ARI 740 test protocol (i.e., EPA Appendices B and B1 to 40 CFR 82 subpart F). All WVU recycling and recovery equipment used with small appliances has been tested under EPA Appendix C or alternatively under requirements based upon the ARI 740 test protocol (i.e., Appendices B and B1 to 40 CFR 82 subpart F).

Attachment B of this RMP contains a current inventory of WVU's certified recycling and recovery equipment in use. All outside contractors engaged in any HVAC work that requires evacuation of refrigerant are required to sign a Contractor Agreement form (Appendix C) acknowledging compliance with the WVU Refrigerant Management Program and verifying that all recycling and recovery equipment used for equipment on the WVU campus has been certified.

The recovery efficiency standards required by EPA vary depending on the size and type of air-conditioning or refrigeration equipment being serviced. For recovery and recycling equipment intended for use with air-conditioning and refrigeration equipment besides small appliances, these standards are the same as those in the second column of Table 1 in Section IV of this RMP. Recovery equipment intended for use with small appliances must be able to recover 90 percent of the refrigerant in the small appliance when the small appliance compressor is operating and 80 percent of the refrigerant in the small appliance when the compressor is not operating.

Section VI. Technician Certification/Training

Any WVU technician or outside contractor that performs repair, maintenance, service, or disposal to any appliance that could reasonably be expected to have the potential to release refrigerants to the ambient air must be an EPA approved certified technician prior to conducting such work. Further, prior to repairing, maintaining, disposing, or servicing motor vehicle air conditioners, all WVU employees or contractors shall be certified technician.

For the purpose of WVU’s refrigerant management program, a technician is someone who:

- Attaches and detaches hoses and/or gauges to an appliance for the purpose of measuring internal pressure of the appliance;
- Adds or removes refrigerant from an appliance;
- Conducts any other activity that may compromise the integrity of the small appliance and MVAC-like appliances.
- HVAC apprentice technicians are exempt from these certification requirements provided the apprentice is supervised at all times by a certified technician whenever maintaining, servicing, repairing, or disposing an appliance.

A current inventory of WVU’s certified technicians is maintained by the Mechanical Systems Operations Manager and a copy of their refrigerant licenses is kept on file.

The inventory of certified technicians identifies what type of certification each technician holds as designated by the EPA:

Type I	for servicing small appliances;
Type II	for servicing or disposing of high-pressure or very high-pressure appliances, except small appliances and MVACs;
Type III	for servicing or disposing of low-pressure appliances;
Universal	for servicing all types of equipment.

All WVU certified technicians have taken and passed an EPA-approved test administered by an EPA-approved certifying organization, the results of which are maintained on file.

Section VII. Recordkeeping

- 1) All WVU and contractor technicians will complete service orders and maintain records indicating the amount of refrigerant that has been added to all appliances (including units with less than 50 pounds of refrigerant). The Mechanical Systems Operations Manager will maintain copies of all service orders for at least six years.

- 2) For a period of at least 6 years, WVU will maintain and possess the following records on-site for units containing more than 50 lbs. of Class I or Class II refrigerant:
 - Leak rate,
 - Method used to determine the leak rate and full charge,
 - Date a leak rate of greater than the allowable annual leak rate was discovered,
 - The location of leak (s) to the extent determined to date,
 - Any repair work that has been completed thus far and the date that work was completed, and
 - Dates and types of all initial and follow-up verification tests performed and the test results for all initial and follow-up verification tests must be maintained and submitted to EPA within 30 days after conducting each test where record keeping and reporting is required.

- 3) The TMA software program will track appliance information including refrigerant usage, leaks, disposal, and service records.
- 4) An inventory of Refrigerant Equipment is maintained by the Mechanical Systems Operation Manager by utilizing TMA.
- 5) WVU will maintain an inventory of all refrigerant equipment purchases, including type, amount, date, and supplier information. This information is maintained in TMA and is entered by the Warehouse.
- 6) Copies of the EPA certification for each recycling and recovery unit will be maintained on file in the Mechanical Systems Shop.

APPENDIX A: Service Order

Print information clearly

DATE: _____

SERVICED BY: _____

COMPANY: _____

FACILITY: _____

EQUIPMENT NUMBER: _____

LOCATION: _____

MANUFACTURER: _____

MODEL: _____

SERIAL NUMBER: _____

VOLTS/PH/HZ: _____

CHARGE: _____ lbs _____ oz

REFRIGERANT TYPE: _____

LUBRICANT: _____

DUTY TYPE: _____

CAPACITY (BTU/Tons): _____

Installed Date : _____

Disposal Date: _____

Appliance Notes:

Upgrade Notes:

Technicians Signature: _____

Certification #: _____

CERTIFICATION LEVEL:

Level I II III Universal

COMPLIANCE SHEET:

(Initial appropriate line)

1 New installation _____

2 Unit Relocation _____

3 Unit being removed/discarded _____

4 Servicing Equipment _____

REFRIGERANT:

ADD

REMOVE

Quantity _____ lbs _____ oz _____ lbs _____ oz

Condition: New

Recovered

Reclaimed

Recycled

Recovered

Cylinder ID: _____

Recover/recycle Unit: _____

VENTING:

Unintentional Vent: _____ lbs _____ oz

or De Minimis: OK

Notes:

LEAKS:

Leak Tested _____ Leak Found _____

Leak Isolated _____ Leak Repaired _____

Annual Leak Rate Calculation Result: _____ Date: _____

Notes:

OTHER:

Vacuum _____ inches Meets EPA req's: yes _____ no _____

Check Charge _____ Minor Maintenance _____

Dispose of unit _____ Major Maintenance _____

Remove From Service _____ Upgrades Installed _____

APPENDIX B: Inventory of Certified Recycling and Recovery Equipment

Unit No.	Manufacturer	Serial No.	Unit Type	Vacuum	Purchase Date	Assigned To

APPENDIX C: Contractor Agreement

I, _____, do hereby acknowledge that all of our service technicians have received training on venting, recovery, recycling, and replacement of chlorofluorocarbons (CFCs), hydro chlorofluorocarbons (HCFCs), and other refrigerants used in air conditioning and refrigerant systems, units, and small appliances, and have taken and passed an EPA-approved test appropriate for the equipment that they service and/or dispose of.

I agree that all of our service technicians will follow procedures for servicing, repairing, and disposing of any and all refrigerant-containing devices, units, and systems as outlined by company policy and federal, state, and local laws and regulations now in effect or hereinafter enacted which pertain to the Federal Clean Air Act of 1990.

I am aware of the significant harm to the earth's atmosphere caused by venting refrigerants into the air. We agree not to willfully vent refrigerants into the air under any circumstances.

I understand that our organization will be held responsible and liable if I or any of our service technicians willfully violate the Federal Clean Air Act of 1990 regarding venting of refrigerants and that we are liable for any and all fines associated with violations. Any unintentional venting will be documented in accordance with company policy.

I understand that if we willfully violate the Clean Air Act of 1990, we will fully protect, indemnify, hold harmless, and defend West Virginia University from and against any and all liability regarding the handling, venting, and/or disposal of any and all refrigerants.

We also agree to provide a copy of the Federal Certification numbers for all our service technicians. Should any certifications be revoked, we will notify West Virginia University immediately.

Signed _____ Date _____

Printed Name _____

Company Name _____

Technician Name _____ Certification No. _____