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**CONDUCT OF MAINTENANCE P 950
 Operations and Maintenance Manual**

TITLE: EPA COMPLIANCE FOR REFRIGERATION EQUIPMENT

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RECORD OF REVISIONS

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0	1/21/1999	Initial Issue
1	10/29/2003	Reformatting following O&M Criterion 101, "Writer's Guide", Rev 4.
		Addition of Section 6.3. Incorporation of Comments from PEER and POC/FM review cycles
2	02/11/2010	Technical review, update to address organizational changes, regulatory update

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CRITERION 408

EPA COMPLIANCE FOR REFRIGERATION EQUIPMENT

1.0 PURPOSE

The purpose of this Criterion is to establish the minimum requirements and best practices for Environmental Protection Agency (EPA) Compliance while maintaining, servicing, repairing, and disposing of refrigeration equipment at Los Alamos National Laboratory (LANL). Title VI of the Clean Air Act mandates the phased out elimination of ozone depleting substances (ODS) used as refrigerants and requires controls on operations, maintenance, service, repair and disposal to prevent the intentional venting of ODS and their substitutes to the atmosphere. This Criterion establishes the necessary practices to meet regulatory requirements.

This document addresses the requirements of P 315, *Conduct of Operations Manual*, and P 950, *Conduct of Maintenance*, by defining the minimum operations and maintenance criteria for structures, systems, and components that it covers. In addition, this document demonstrates compliance with DOE Order 450.1A, *Environmental Protection Program*. The criterion lists requirements that are based on codes, standards, contract commitments, lessons learned, or business case. It also lists recommendations based on industry practices, operational experience, or business case. Guidance for implementation of the requirements and recommendations is also provided.

2.0 SCOPE

The scope of this Criterion includes all LANL-owned equipment that contains refrigerant. This criterion does not apply to motor vehicle air conditioners.

3.0 ACRONYMS AND DEFINITIONS

3.1 Acronyms

AHJ	Authority Having Jurisdiction
CFC/HCFC	Chlorofluorocarbon / Hydrochlorofluorocarbon
CFR	Code of Federal Regulations
DOE	Department of Energy
EAQ	Ecology and Air Quality Group
ENV	Environmental Protection Division
EPA	Environmental Protection Agency
MM	Maintenance Manager
O&M	Operations and Maintenance
MVAC	Motor Vehicle Air Conditioner



ODS	Ozone Depleting Substance
PPE	Personal Protective Equipment
PP&PE	Personal Property and Programmatic Equipment
RP&IE	Real Property and Installed Equipment
SSC	Structures, Systems, and Components

3.2 Definitions

Appliance/Equipment. Any device which contains and uses a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.

Approved Equipment Testing Organization. Any organization, which has applied for and received approval from the EPA Administrator pursuant to 40 CFR 82.160 to test recycling and recovery equipment.

Certified Refrigerant Recovery or Recycling Equipment. Equipment manufactured before November 15, 1993, that meets EPA standards in 40 CFR 82.158(c), (e), or (g); equipment certified by an approved equipment testing organization to meet EPA's standards in 40 CFR 82.158(b), (d), or (f); or equipment certified pursuant to 40 CFR 82.36(a).

Class I Substance. The controlled substances listed in appendix A designated as Class I in 40 CFR 82, Stratospheric Ozone Protection, Subpart A, Production and Consumption Controls. Class I substances include chlorofluorocarbons (CFC-11, CFC-12 etc.), halons, hydrobromofluorocarbons, and any other substance designated by EPA at a later date.

Class II Substance. The controlled substances listed in appendix B designated as Class II in 40 CFR 82, Stratospheric Ozone Protection, Subpart A, Production and Consumption Controls. Class II substances include hydrochlorofluorocarbons (HCFC-22, HCFC-123, etc.) and any other substance designated by EPA at a later date.

Commercial refrigeration means, for the purposes of §82.156(i), the refrigeration appliances utilized in the retail food and cold storage warehouse sectors. Retail food includes the refrigeration equipment found in supermarkets, convenience stores, restaurants and other food service establishments. Cold storage includes the equipment used to store meat, produce, dairy products, and other perishable goods. All of the equipment contains large refrigerant charges, typically over 75 pounds.

Disposal. The process leading to and including:

- The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water.
- The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or
- The disassembly of any appliance for reuse of its component parts.

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 refrigerant R-401A, R-409A, R-401B, R-411A, R-22, R-411B, R-502, R-402B, R-408A, and R-402A.

Industrial process refrigeration means, for the purposes of §82.156(i), complex customized appliances used in the chemical, pharmaceutical, petrochemical and manufacturing industries. These appliances are directly linked to the industrial process. This sector also includes industrial ice machines, appliances used directly in the generation of electricity, and ice rinks. Where one appliance is used for both industrial process refrigeration and other applications, it will be considered industrial process refrigeration equipment if 50 percent or more of its operating capacity is used for industrial process refrigeration.

Leak Rate. The rate at which an appliance is losing refrigerant, measured between refrigerant charges. The leak rate is expressed in terms of the percentage of the appliance's full charge that would be lost over a 12-month period if the current rate of loss were to continue over that period.

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.

Management Level (ML1, ML2, ML3, ML4). ML designation is used to grade the structures, systems, equipment, and components and associated activities based on their importance to the protection of the public, environment, and workers, security, and the Laboratory mission. See AP 341-502 for definitions of each ML level.

Motor Vehicle Air Conditioner (MVAC). 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 with a normal charge of 20 pounds or less of refrigerant used to cool the driver's or passenger's compartment of an off-road motor vehicle. This includes the air conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using HCFC-22 refrigerant.

Ozone Depleting Substance (ODS). Substances controlled under Title VI of the Clean Air Act Amendments, whether existing alone or in a mixture that contributes to stratospheric ozone depletion. These substances are divided into two classes, Class I and Class II, grouped according to their ozone-depleting potential. Note: Class I substances have a higher ozone-depleting potential than Class II substances and, therefore, will be phased out more quickly.

Person. Any individual or legal entity, including an individual, corporation, partnership, association, state, municipality, political subdivision of a state, Indian tribe, and any agency, department, or instrumentality of the United States, and any officer, agent, or employee thereof.

Small Appliance. Any appliance that is fully manufactured, charged, and hermetically sealed in a factory with 5 pounds or less of refrigerant: including but not limited to: refrigerators and freezers (designed for home use commercial, or consumer use), medical or industrial research refrigeration equipment, 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 ODS in a given refrigeration or air-conditioning end-use.

Suitable Replacement Refrigerant. A refrigerant that is acceptable under section 612 (c) of the Clean Air Act Amendments of 1990 and all regulations promulgated under that section, compatible with other materials with which it may come into contact and able to achieve the temperatures required for the affected industrial process in a technically feasible manner.

System mothballing. The intentional shutting down of a refrigeration appliance undertaken for an extended period of time by the owners or operators of that facility, where the refrigerant has been evacuated from the appliance or the affected isolated section of the appliance, at least to atmospheric pressure.

Technician. Any person who performs maintenance, service, or repair, that could be reasonably expected to release refrigerants from appliances, except for MVACs, into the atmosphere. 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 §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. Technician includes but is not limited to installers, contractor employees, in-house service personnel, and in some cases owners and/or operators.

Very High-Pressure Appliance. An appliance that uses a refrigerant with a critical temperature below 104° F. This definition includes but is not limited to equipment utilizing refrigerants R-13 or R-503.

4.0 RESPONSIBILITIES

4.1 MSS-Division Leader

Receives and approves or rejects, in conjunction with the AHJ, requests for variances from this criterion. Maintain the record of decision for all variance requests. (Note: Variances from regulatory requirements are not allowed.) Assign a contact for the refrigerant program that is accountable for ensuring that regulatory liabilities related to refrigerants are properly managed. Assign personnel to manage external subcontractors who perform refrigerant work.

4.2 MSS- Maintenance Programs (MP)

Responsible for the administrative content, and for monitoring applicability and implementation status of this Criterion. MSS-MP will assist organizations that are not applying or meeting the implementation expectations contained herein or will elevate their concerns to the appropriate level of LANL management.

4.3 Facility Operations Director (FOD)

Responsible for implementation of this O&M Criterion for identified systems/equipment within their facility boundaries. Responsible for making repair or mothball decisions for refrigerant equipment under their control.

4.4 Group Leader

Responsible for operations and maintenance of those Personal Property and Programmatic Equipment (PP&PE) systems and equipment addressed by this document, which are under their jurisdiction.

Responsible for system performance analysis and subsequent replacement or refurbishment of assigned PP&PE.

Responsible for making repair or mothball decisions for refrigerant equipment under their control.

4.5 ENV-EAQ – Environmental Protection – Ecology and Air Quality

Responsible for all federal and state air quality compliance for refrigerants and halons as well as for LANL. Provide technical support to FODs, Group Leaders, and MSS. Maintain and assure compliance with the Title V air-operating permit with the State of New Mexico as well as DOE Order 450.1A. Is the technical subject matter expert for the EPA requirements of Criterion 408. Perform oversight of LANS and subcontractor operations for EPA compliance. Maintain institutional refrigerant record keeping, compliance, certification and regulatory interpretation. Maintain the Quality Plan and procedures for demonstrating regulatory compliance.

4.6 Operations Manager (OM)

Responsible to the FOD for implementing operation portions of this Criterion and for coordinating transfer of systems/equipment to the Maintenance Manager for maintenance activities. The OM with concurrence of the FOD will prioritize implementation within budget allocations.

4.7 Maintenance Manager (MM)

Responsible to the FOD and the MSS-Division Leader for implementing the maintenance portions of this Criterion and for coordinating the transfer of systems/equipment to the Operations Manager at the conclusion of maintenance activities. The MM with concurrence of the FOD will prioritize implementation within budget allocations.

4.8 Authority Having Jurisdiction (AHJ)

The AHJ (Point of Contact for the Mechanical Chapter of the LANL Engineering Manual) is responsible for providing a decision on specific mechanical and safety technical questions regarding the systems or equipment relevant to this criterion.

5.0 PRECAUTIONS AND LIMITATIONS

5.1 Precautions

This section is not intended to identify all applicable precautions necessary for implementation of this Criterion. However, all applicable precautions should be contained in the implementing procedure(s) or work control authorization documents. The following precautions are intended only to assist the author of a procedure or work control document in the identification of hazards and precautions that may not be immediately obvious.

- 5.1.1. Penalties and sanctions for Clean Air Act violations can be severe. In addition to fines and/or imprisonment, the EPA (Environmental Protection Agency) may exclude violating companies from receiving Federal Government contracts.
- 5.1.2. No person maintaining, servicing, repairing, or disposing of equipment may knowingly vent or otherwise release into the environment any refrigerant or substitute from such equipment, with the exception of the following substitutes in the following end-uses:
 - Ammonia in commercial or industrial process refrigeration or in absorption units;
 - Hydrocarbons in industrial process refrigeration (processing of hydrocarbons);
 - Chlorine in industrial process refrigeration (processing of chlorine and chlorine compounds);
 - Carbon dioxide in any application;
 - Nitrogen in any application; or
 - Water in any application.

- 5.1.3. The knowing release of a refrigerant or non-exempt substitute subsequent to its recovery from an appliance shall be considered a violation of this prohibition. De minimis releases associated with good faith attempts to recycle or recover refrigerants or non-exempt substitutes are not subject to this prohibition.
- 5.1.4. Ensure safe maintenance and operations with refrigerants by following applicable codes, standards, and regulations. ANSI/ASHRAE 15, Safety Code for Mechanical Refrigeration, and Material Safety Data Sheets (MSDS) are the principal sources of hazard information.

5.2 Limitations

The intent of this Criterion is to identify the minimum requirements and recommendations for SSC operation and maintenance across the Laboratory. Each user is responsible for the identification and implementation of additional facility specific requirements and recommendations based on their authorization basis and unique equipment and conditions, (e.g., equipment history, manufacturer warranties, operating environment, vendor O&M requirements and guidance, etc.).

Nuclear facilities and moderate to high hazard non-nuclear facilities will typically have additional facility-specific requirements beyond those presented in this Criterion. Nuclear facilities shall implement the requirements of DOE Order 433.1A as the minimum programmatic requirements for a maintenance program. Additional requirements and recommendations for SSC operation and maintenance may be necessary to fully comply with the current DOE Order or the Code of Federal Regulations (CFR) identified above.

Nuclear facilities and certain high hazard facilities (e.g. high explosive operations) may have additional facility specific requirements beyond those presented in this Criterion which are contained in the Safety Analysis Report (SAR), Technical Safety Requirements (TSR), or facility safety plans, as applicable.

6.0 REQUIREMENTS

Minimum requirements for all users are specified in this section. Requested variances to these requirements shall be prepared and submitted to MSS-MP for review and approval. The MSS Division Leader approves or denies variances. The Criterion users are responsible for analysis of operational performance and SSC replacement or refurbishment based on this analysis. Laws, codes, contractual requirements, engineering judgment, safety matters, and operations and maintenance experience drive the requirements contained in this section.

6.1 Operations Requirements

- 6.1.1. EPA regulates the production, distribution, use, and disposal of refrigerants. LANL controls the availability and use of these substances to comply with EPA requirements. Refrigerants shall be purchased through the Compressed Gas Plant Facility (CGPF) and entered into the ChemLog System. Refrigerants shall be controlled so that they are available only to certified technicians. Refrigerants are considered government property and shall be disposed of in accordance with DOE Order 450.1A. This Order requires that property management policies and procedures preclude the disposal of ODS without prior coordination with the Department of Defense (DoD).

Basis: P101-14 Chemical Management

Basis: P101-34, Pressure, Vacuum and Cryogenic Systems

Basis: DOE Order 450.1A, Environmental Protection Program

- 6.1.2. Equipment owners shall develop an accurate inventory of equipment containing refrigerants. This inventory shall include the appliance identification number, refrigerant type (e.g., R-11, R-12, etc.), the full charge capacity of the system, and the appliance duty type (industrial process, comfort cooling, or commercial).

Use ENV-EAQ procedure [ENV-EAQ-311, Refrigeration Equipment Inventory](#) to perform refrigerant equipment inventory.

NOTE: ENV-EAQ maintains an inventory of equipment at LANL and maintains the institutional compliance database. Therefore, ENV-EAQ is a good resource to work with in maintaining a refrigerant inventory.

6.2 Maintenance Requirements

- 6.2.1. Only EPA certified and properly trained technicians can perform work on the refrigeration circuit of refrigeration equipment. ENV-EAQ maintains copies of LANL's MSS certified technicians. Additionally, technicians must also be trained to ENV-EAQ procedures before any work on refrigeration equipment at LANL is performed. .

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, re-wiring 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 an appliance that have been evacuated according to EPA requirements could not be reasonably expected to release refrigerants from the appliance unless the maintenance, service, or repair consists of adding refrigerant to the appliance.

6.2.2. Maintaining, servicing, repairing or disposing of refrigeration appliances must be performed and documented in accordance with 40 CFR 82 Subpart F. These requirements are contained in ENV-EAQ procedure [ENV-EAQ-312, Air Quality Requirements during Maintenance, Service, Repair, and Disposal of Refrigeration Appliances/Equipment](#).

Basis: 40 CFR82, Subpart F

6.2.3. EPA-certified recovery and/or recycling equipment, equipped with low-loss fittings, will be used to perform any refrigeration work that involves the evacuation of refrigerants. This ensures that emissions of refrigerants are as low as possible. All refrigerant recovery and/or recycling equipment must be certified by an EPA-approved testing organization if manufactured on or after November 15, 1993. Equipment manufactured before this date must meet EPA criteria.

Basis: 40 CFR82, Subpart F

6.2.4. To ensure refrigerant emissions are kept as low as possible, repairs will be made to refrigeration systems when leaks exceed EPA trigger levels. LANL-owned refrigeration equipment containing 50 or more pounds of refrigerant must have leaks repaired when:

- Annual leak rate exceeds 15% of full charge capacity for comfort cooling appliances.
- Annual leak rate exceeds 35% of full charge capacity for industrial process and commercial cooling appliances.

Note: LANL does not own industrial process equipment. Therefore, the 15% annual leak rate is applicable.

6.2.5. Leaks must be repaired within 30 days for comfort/commercial cooling, and 120 days for industrial process cooling when an industrial process shutdown must occur.

6.2.6. If leaks cannot be repaired, a dated retrofit / retirement plan must be developed. This plan must be in place within 30 days of discovering the leak and the system must be retired / retrofitted within one year.

6.2.7. With prior EPA approval, additional time may be available to repair leaks or to retire/retrofit systems. Contact ENV-EAQ for further guidance.

6.2.8. Additionally, DOE Order 450.1A states that DOE sites shall replace leaking equipment when leak repair is no longer cost-effective or where it is life-cycle cost-effective to replace the equipment.

6.2.9. LANL will mothball systems when repairs cannot be completed within the required EPA timeframe and the intentional shutting down of the system will not adversely affect the mission. The decision to mothball or to request additional time for repairs will be made by the equipment owners with input from ENV-EAQ and the refrigeration technicians.

 <p>Los Alamos NATIONAL LABORATORY EST. 1943</p>	<p><i>Conduct of Maintenance (P 950)</i> Operations and Maintenance Manual EPA Compliance for Refrigeration Equipment</p>	<p>Criterion 408, R2 Page 12 of 15</p>
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6.2.10. New and/or replacement refrigerants must be on EPA's list of acceptable substitutes for their intended use. EPA maintains a list of acceptable refrigerants on their web site at: <http://www.epa.gov/ozone/snap/index.html>

Basis: 40 CFR 82 Subpart F

6.2.11. Records of accidental refrigerant releases must be maintained:

The form contained in [ENV-EAQ-312](#) is used to document accidental releases

Basis: 40 CFR 82 Subpart F

6.2.12. When organizations other than the MSS, perform work on LANL refrigeration appliances/equipment, the source records shall be faxed to ENV-EAQ.

6.3 General Requirement

6.3.1. In addition to complying with federal and state requirements, LANL is also responsible for complying with the requirements of DOE Orders that are included in the LANL Prime Contract. DOE Order 450.1A has requirements that address the refrigeration program. The applicable requirements are:

- Disseminate information to maximize the use of safe alternatives to ODS in DOE's efforts to phase out ODS uses (ENV-EAQ has primary responsibility for this action)
- Ensure property management policies and procedures preclude the Department's disposal of ODS without prior coordination with the DoD (ENV-EAQ and the MSS contact for the refrigerant program have primary responsibility for this action)
- Ensure the use of ODS in new equipment and facilities is eliminated
- Ensure the use of ODS in existing equipment is phased out as the existing equipment reaches its expected service life, and the maintenance of equipment is conducted to prevent or fix leaks
- Replace leaking equipment when leak repair is no longer cost effective or where it is life-cycle cost-effective to replace the equipment
- Coordinate within DOE and DoD before disposal of ODS removed or reclaimed from equipment (including disposal as part of a contract, trade, or donation). For situations in which the recovered ODS is a critical requirement for DoD missions, the DOE facility transfers the ODS to DoD at DoD expense

6.3.2. Additionally, EPA added a new Subpart to 40 CFR 82, which bans the sale or distribution of air-conditioning and refrigeration appliances containing HCFC-22, HCFC-142B, or blends containing one or both of these substances effective January 1, 2010. In addition, EPA is banning the sale or distribution of air-conditioning and refrigeration appliances components that are pre-charged with these refrigerants. These prohibitions apply only to appliances manufactured on or after January 1, 2010.

7.0 RECOMMENDED AND GOOD PRACTICES

The information provided in this section is recommended based on acceptable industry practices and should be implemented by each user based on the unique application and operating history of the subject systems/equipment.

7.1 Operations Recommendations

- 7.1.1. Obtain type IV (Universal) certification for maintenance personnel. This allows service for all types of equipment.
- 7.1.2. FODs and their designees responsible for Maintenance and Operations of refrigeration equipment should be familiar with [ENV-EAQ-311](#) and [ENV-EAQ-312](#).
- 7.1.3. Contact ENV-EAQ for any questions regarding regulatory compliance.

7.2 Maintenance Recommendations

- 7.2.1. Repair all leaks on all refrigeration equipment and replace equipment when the leak repair is no longer cost effective.
- 7.2.2. Institute preventive maintenance programs on refrigeration equipment
- 7.2.3. Work with MSS and ENV-EAQ regarding the maintenance service, repair, or disposal of refrigeration equipment

Basis: 40 CFR 82 Subpart F

Basis: DOE Order 450.1A

8.0 GUIDANCE

8.1 Operations Guidance

[ENV-EAQ-311, "Refrigeration Equipment Inventory"](#) provides guidance and the form for establishing and documenting an inventory of refrigeration equipment

8.2 Maintenance Guidance

[ENV-EAQ-312, Air Quality Requirements During Maintenance, Service Repair, and Disposal of Refrigeration Appliances](#) provides guidance and regulatory requirements for maintenance programs, for refrigeration equipment.

9.0 REQUIRED DOCUMENTATION

Maintenance History, Refrigerant Appliance/Equipment Inventories and equipment disposal records shall be maintained, as a minimum, according to the parameters listed in the Table 9-1 below:

Table 9-1 Documentation Parameters

MAINTENANCE HISTORY DOCUMENTATION PARAMETERS				
PARAMETER	ML 1	ML 2	ML 3	ML 4
Refrigerant Equipment/Appliance Inventory	X	X	X	X
Refrigerant Equipment Service Records	X	X	X	X
Refrigeration Appliance Salvage/Disposal Log	X	X	X	X

Basis: Documentation of the parameters listed in Table 9-1 above satisfies the requirements of P 950, Section 3.5.15 which states, "A maintenance history and trending program is maintained to document data, provide historical information for maintenance planning, and support maintenance and performance trending of facility systems and components".

NOTE: [ENV-EAQ-311](#) and [ENV-EAQ-312](#) provide instructions on filling out the forms.

10.0 REFERENCES

The following references, and associated revisions, were used in the development of this document.

- 10.1 P 315, Conduct of Operations Manual
- 10.2 P 950, Conduct of Maintenance
- 10.3 ENV-EAQ-311, Refrigeration Equipment Inventory
- 10.4 ENV-EAQ-312, Addressing Air Quality Requirements during Maintenance, Service, Repair, and Disposal of Refrigeration Appliances
- 10.5 P101-14 Chemical Management
- 10.6 P101-34, Pressure, Vacuum and Cryogenic Systems
- 10.7 AP-341-502, Management Level Determination
- 10.8 40 CFR 82 Subpart F, Environmental Protection; Protection of Stratospheric Ozone, Recycling and Emissions Reduction
- 10.9 DOE Order 450.1A, Environmental Protection Program.
- 10.10 PD 400, Environmental Protection

 <p>Los Alamos NATIONAL LABORATORY EST. 1947</p>	<p><i>Conduct of Maintenance (P 950)</i> Operations and Maintenance Manual EPA Compliance for Refrigeration Equipment</p>	<p>Criterion 408, R2 Page 15 of 15</p>
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11.0 APPENDICES

None