



Department of the Air Force  
HQ AEDC (AFMC)  
Arnold AFB, TN 37389

## Safety, Health, and Environmental Standard

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**Title:** Ozone Depleting Substances (ODS)

**Standard No.:** E14

**Effective Date:** 06/13/2013

The provisions and requirements of this standard are mandatory for use by all AEDC personnel engaged in work tasks necessary to fulfill the AEDC mission. Please contact your safety, industrial health and/or environmental representative for clarification or questions regarding this standard.

There are no releasability restrictions on this publication.

Approved:

  
Contractor/ATA Director  
Safety, Health, and Environmental

  
Air Force Functional Chief  
Base Civil Engineer

## Record of Review/Revision

(Current revisions are highlighted in yellow and marked with a vertical line in the right margin.)

Date/POC	Description
10/22/12 Philip Sherrill	Updated Air Force office symbols throughout. Reformatted to be consistent with other SHE Standards. Added Motor Vehicle certification (Section 4.1.2). Added clarification of Source Support (Section 4.1.7) Removed requirement to remove valve from empty disposable cylinders (Section 4.4.1). Deleted references to base operating contractor-specific publications. Added NFAC Supplement
03/01/10 Philip Sherrill	Changed name of ODS database in Section 4.5.2. Removed requirement for semi-annual Title V reporting for Mission Support-Transportation since they have certified that they do not have any Class I or Class II ODSs in service.
02/17/09 Philip Sherrill	Updated Section 4.1.10 to require semiannual certification reporting. Changed annual reporting requirement to <i>semiannual</i> throughout document. Revisions are highlighted in yellow throughout.
03/01/08 Philip Sherrill	Minor wording and format changes. Specified responsibilities of <i>Source Support</i> and <i>Source Monitor</i> to provide annual and <i>semiannual</i> reports to 704 CES/CEA to demonstrate compliance with EPA requirements associated with the ODS source. Updated throughout to reflect <i>Environmental Flight (704 CES/CEV)</i> organizational change within the AEDC Civil Engineering Squadron to <i>Asset Management Flight (704 CES/CEA)</i> . Revisions are highlighted in yellow throughout.
03/01/07 Mike Hodges	Minor format changes. Added references to the <i>AEDC ODS Management Plan</i> ; updated Section 4.13, <i>Training/Certification</i> , to include annual ODS awareness training (EMS Target and Objective) and ODS HAZMART training as specified in the <i>ODS Management Plan</i> . Specified responsibilities of <i>source support</i> and <i>source monitor</i> to provide annual reports to 704 CES/CEA to demonstrate compliance with EPA requirements associated with the ODS source. Revisions are highlighted in yellow throughout.
12/15/05 Mike Hodges	Revised <i>Definitions</i> (Section 3.0) to define additional terms; changed <i>HazMart</i> to <i>HAZMART</i> and changed references to the <i>HazMart ODS Center</i> to <i>ODS HAZMART</i> for consistency with other Environmental documents (SHE E6, <i>Hazardous Materials Management</i> , and the <i>HazMat Distribution Plan for the AEDC HAZMART</i> ); Expanded Section 4.1.2 to provide additional information about EPA certifications for ODS technicians.
02/10/05 Mike Hodges	Revised terminology to align with AFI 32-7086 (01 Nov 2004), <i>Hazardous Materials Management</i> ; (Chapter 4) <i>Air Force Ozone Depleting Substance Program (ODSP)</i> . Added requirement for halon emission reduction training for technicians (Section 4.13.4). Added <i>Class II ODS Production Phase-out Timetable</i> to Annex B.
02/13/04 Mike Hodges	Updated organization structure to reflect new AEDC contractor effective 01 October 2003; general editing and format changes.
09/05/02 Letha McEntee	Added new self-reporting requirements to comply with the inclusion of ODSs under the Title V Air Permit. Divided roles/responsibilities into Source Manager, Source Monitor, and Source Support categories. Updated information regarding the ODS recordkeeping functions that were transferred to the Hazardous Materials Pharmacy. Added more detail to the responsibilities under Source Support HVAC and Pharmacy Personnel.



# Safety, Health, and Environmental Standard

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## OZONE DEPLETING SUBSTANCES (ODS)

### 1.0 INTRODUCTION/SCOPE/APPLICABILITY

Scientific evidence accumulated over more than two decades of study by the international research community has shown that human-produced Ozone Depleting Substances (ODSs) can significantly deplete or modify the earth's ozone layer in a manner that is likely to result in adverse effects on human health and the environment. ODSs contain various combinations of the chemical elements chlorine, fluorine, bromine, carbon, and hydrogen and are often described by the general term halocarbons. The compounds that contain only chlorine, fluorine, and carbon are called chlorofluorocarbons (CFCs). ODS compounds that contain hydrogen are called hydrochlorofluorocarbons (HCFCs), and are considered to be somewhat less destructive to atmospheric ozone. CFCs, HCFCs, carbon tetrachloride, and methyl chloroform are important human-produced ozone-depleting gases that are used in many applications including refrigeration, air conditioning, foam blowing, cleaning of electronics components, and as solvents. Another important group of human-produced halocarbons is the halons, which contain carbon, bromine, fluorine, and (in some cases) chlorine. Halons are mainly used as fire suppressants.

By international agreement (i.e. *The Montreal Protocol on Substances that Deplete the Ozone Layer*), all ODS production is to be phased out. Class I ODS production effectively ended on 31 December 1995 and Class II ODS production must cease by 1 January 2030. Class I ODSs are listed in Section 602 of the Clean Air Act (CAA) and include CFCs, halons, carbon tetrachloride, methyl chloroform and other chemicals with an ozone-depletion potential of 0.2 or higher. Class II ODSs are listed in section 602 of the CAA, and comprise all HCFCs which have an ozone-depletion potential of less than 0.2. Annex A provides a list of Class I ODSs, and Annex B provides a list of Class II ODSs.

Consumption, transportation, use, and disposal of ODSs are governed by the CAA sections 601-618 (*Title 42, United States Code, Sections 7671a - 7671q*); Title 40 Code of Federal Regulations (CFR) Part 82, *Protection of Stratospheric Ozone*; and Executive Order (EO) 13148, *Greening the Government through Leadership in Environmental Management*. The Air Force (AF) Ozone Depleting Substance Program (ODSP) manages the Air Force's continued reliance on ODSs to minimize the risks and costs of ODS usage, to minimize and eliminate ODS usage where possible, and to ensure compliance with applicable international agreements, federal laws, and regulations governing ODS usage.

AEDC is determined to protect human health and the environment by taking precautionary measures to control ODSs. This standard establishes requirements for proper handling and disposition of ODSs at AEDC. This standard applies to ODSs used for comfort cooling systems and process refrigeration systems, as well as ODSs used for fire suppressants and as cleaning agents.

This standard applies to all AEDC employees and subcontractors assigned to accomplish work at AEDC.

### 2.0 BASIC HAZARDS/HUMAN FACTORS

ODSs have been universally recognized as having the capability of depleting the earth's ozone layer. This depletion causes an increase in ultraviolet (UV)-B radiation. UV-B radiation has been linked to several forms of skin cancer, cataracts, possible suppression of the immune system, and pre-cancerous skin lesions. Increased UV-B radiation also causes ground level smog that may produce respiratory problems in certain individuals. Some scientists have also associated global warming with increased UV-B radiation. Due to these concerns, the Montreal Protocol (1987) outlined specific measures and timetables for reduction in manufacturing and importing ODSs. The United States implements the Montreal Protocol through Title VI of the CAA.

There are three applications of ODSs at AEDC:

- Refrigerants (CFCs and HCFCs)
- Fire suppressants (Halon 1211)
- Mission critical solvents [Carbon Tetrachloride and 1-1-1 Trichloroethane (TCA)]

### 3.0 DEFINITIONS

Appliance – Any device that contains and uses an Environmental Protection Agency (EPA) designated Class I (CFC) or Class II (HCFC) substance as a refrigerant, and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.

Base Operating Contractor – A base contractor directly accountable to the Air Force for the AEDC mission.

Chlorofluorocarbon (CFC) – Chemicals listed as a Class I ODS in Sections 608 and 609 of the Clean Air Act.

Clean Air Act (CAA) – Legislation relating to the reduction of smog and atmospheric pollution. Under this law, EPA sets limits on how much of a pollutant can be in the air anywhere in the United States.

de minimus release – The quantity of an ODS permissible to release when following the required practices set forth in 40 CFR 82.15, *Required Practices*.

Hydrochlorofluorocarbon (HCFC) - Chemicals listed as a Class II ODS in Sections 608 or 609 of the Clean Air Act.

ODS HAZMART – The functional area responsible for the storage, disposition, and control of all refrigerant cylinders and halon cylinders received from the supply warehouse. The ODS HAZMART is located in Building 1519.

Outside Contractor/Subcontractor – An organization employed by a contractor or the Air Force to do construction, maintenance, repair or other work at AEDC; also referred to as the construction contractor.

Ozone Depleting Substance (ODS) – Sometimes referred to as Ozone Depleting Chemicals (ODC), these are substances designated by the EPA and the Montreal Protocol as having potential to deplete atmospheric ozone levels. These chemicals are separated into two lists: fully halogenated chlorofluorocarbons (CFCs)—halons, carbon tetrachloride, and methyl chloroform—collectively referred to as Class I substances, and hydrochlorofluorocarbons (HCFCs), designated as Class II substances.

Resource Conservation and Recovery Act (RCRA) – The law that regulates the management of hazardous wastes.

Reclamation – The process of restoring recovered ODSs such that they meet the quality standards for new refrigerants. This process is typically done off site by a certified reclamation company that provides laboratory analysis to verify purity.

Recovery – The process of removing ODSs or refrigerants from a system.

Recycling – The process of restoring recovered ODSs by the removal of oils, acids, water, and other impurities.

Release – A discharge of a hazardous material or other contaminant into the environment.

Reportable Quantity (RQ) – The limit established by the *Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA), that mandates or requires reporting to the National Response Center (NRC) if exceeded.

Source – Any device or appliance that contains or uses an EPA designated Class I or Class II refrigerant, and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.

Source Manager – The AF process owner appointed by AEDC/CC as a manager and/or alternate manager responsible for air emissions of a stationary source.

Source Monitor – Government contractor personnel responsible for coordinating requirements with the Source Manager to ensure ODS HAZMART and ODS sources are operated in compliance with this AEDC Safety, Health, and Environmental (SHE) Standard (E14, *Ozone Depleting Substances*) and SHE Standard E8, *Air Quality Management*.

Source Support – The government contractor support person, lead person, or person assigned to maintain a certain ODS source or the ODS HAZMART on a regular basis.

Technician – Any person who provides refrigerant recovery, charging, or other maintenance service or repair that could have reasonable potential to cause a release of Class I or II ODSs into the atmosphere through those actions. EPA requires that all technicians working on refrigerant systems be certified.

## 4.0 REQUIREMENTS/RESPONSIBILITIES

### 4.1 Clean Air Act Requirements

- 4.1.1 All individuals who work with ODSs must be aware of the provisions of the CAA of 1990. The deliberate release of Class I or II ODSs to the environment in other than *de minimus* quantities is a violation of the CAA. Violations of the CAA can result in penalties of one to five years confinement and may include fines up to \$30,000 per day per violation. Penalties and fines can be assessed against companies and/or individuals. Ignorance of CAA requirements is not a reasonable defense.
- 4.1.2 The CAA requires that all technicians or other persons who work with ODS appliances and may have reasonable potential to cause a release of ODS refrigerants be certified by the EPA. There are different classes of EPA certification depending upon the type(s) of equipment involved; Type I, Type II, Type III, Universal and Motor Vehicle (MVAC). Type I certification allows work on small appliances (five pounds or less refrigerant), Type II certification allows work on high or extremely high pressure appliances, and Type III certification allows work on low pressure appliances. Universal certification allows work on all refrigeration appliances except motor vehicles. Proof of certification must be maintained onsite at the ODS HAZMART.
- 4.1.3 In addition to requiring EPA-certified technicians, the CAA also requires use of EPA-certified work practices and recovery, recycling, and/or reclamation equipment. Site use of certified equipment requires one-time registration with EPA. Copies of EPA equipment certifications are kept at the ODS HAZMART.
- 4.1.4 Modification of recovery/reclamation equipment is a violation of the CAA.
- 4.1.5 Repair of equipment with substantial annualized leak rates (greater than 15% for comfort cooling and greater than 35% for process refrigeration systems) is required under rules set forth in the CAA, *Title VI; 40 CFR Part 82*. These repair rules, commonly referred to as the EPA *required practices*, require repair of leaking ODS systems having greater than 50 pounds total refrigerant charge within 30 days of leak discovery. To verify that leak repairs hold, follow-up leak repair verification is required within 30 days of completion of the initial repair.
- 4.1.6 Only EPA-certified technicians are allowed to purchase Class I and Class II refrigerants.
- 4.1.7 The required records for refrigerant transactions, leak repairs, 30-day leak repair follow-up, salvaged equipment log, etc., must be properly maintained. Records are kept by the Source Support (HAZMART and Test Operations as defined in Sections 4.5 and 4.6) and must be retained for a minimum of three years.
- 4.1.8 Management of AEDC's ODS sources is regulated in the CAA Title V air permit. These ODS requirements are included in AEDC SHE Standard E8, *Air Quality Management*. An Air Force Source Manager and alternate, as well as a contractor Source Monitor and Source Support person, are positions that must be identified in order to be compliant with AFMC Standard Operating Procedures (SOP), Air Quality Stationary Source Management. A current listing of these individuals is provided in AEDC SHE Standard E8.
- 4.1.9 The Title V air permit requires self-reporting. Any noncompliant condition noted in the ODS management program must be reported in accordance with AEDC SHE Standard E8.
- 4.1.10 The Title V air permit requires semiannual certification of compliance pursuant to Section A19, *Title VI*. Annual certification must be reported in accordance with AEDC SHE Standard E8. (ODS sources do not require permitting; however, for certification purposes, ODS sources are treated the same as Title V permitted sources.)

### 4.2 Source Manager Responsibilities

The Source Manager is the Air Force, Army, or Navy person responsible for the assigned source. The Source Manager ensures that the ODS source is properly managed and operated in regulatory compliance. The Source Manager shall

- 4.2.1 Provide semiannual reports as required by the Title V air permit to AEDC/TSDCA to demonstrate compliance with EPA requirements associated with the ODS source. This information is used for certification to the AEDC Center Commander (AEDC/CC) on the compliance status of the ODS source.
- 4.2.2 Notify AEDC/CC and Base Operating Contractor Environmental within 24 hours of a noncompliant situation.

- 4.2.3 Ensure that the Source Monitor and Source Support personnel are properly trained.
- 4.2.4 Draft and implement a corrective action plan for all noncompliant conditions.
- 4.2.5 Identify requirements and budgets to obtain funds for heating, ventilating and air conditioning (HVAC) unit replacement as required.

#### 4.3 Source Monitor Responsibilities

The Source Monitor is the **base operating contractor** supervisor of the source. The Source Monitor coordinates with the Source Manager to ensure that the source is operated in compliance with provisions of the CAA. The Source Monitor shall

- 4.3.1 Ensure that the ODS management program is operated in compliance with *AFI 32-7086* and *40 CFR Part 82*.
- 4.3.2 Provide semiannual reports as required by the Title V air permit to the Source Manager to demonstrate compliance with EPA requirements associated with the ODS source.
- 4.3.3 Immediately notify the Source Manager of any condition of noncompliance.
- 4.3.4 Periodically review records to ensure that all required records are adequately and accurately maintained.

#### 4.4 Source Support – HVAC Refrigeration Systems

“Source Support – HVAC Refrigeration Systems” includes those **base operating contractor** individuals responsible for recovery, recycling, and repair of HVAC equipment; processing salvaged equipment; reporting; and recordkeeping/inventory as follows:

##### 4.4.1 Recovery/Recycling/Repair

- Store, handle, and process all Class I and II ODSs according to *40 CFR Part 82*.
- Ensure that EPA-certified technicians and recovery equipment are used for all refrigerant operations, including refrigerant recovery, service, repair, and maintenance. If recovery equipment is not labeled, ensure that proof of certification is maintained with the equipment.
- Repair and maintain air conditioning equipment or process refrigerant equipment using EPA-certified work practices as described in *40 CFR Part 82*.
- Identify and repair leaking systems containing over 50 pounds of refrigerant as soon as possible. EPA requires the leaking system to be repaired within 30 days of discovery or within 30 days of when the leak *should* have been discovered. EPA specifies this requirement for air comfort cooling systems leaking in excess of a 15% annualized rate and for process refrigeration systems (those used in testing operations) leaking in excess of a 35% annualized rate. If the system cannot be repaired to meet allowable leak rates, the EPA must be notified and a plan to retire or retrofit the unit within one year must be initiated using a WAMS work request. A copy of the plan must be kept at the site of the appliance. The retire/retrofit plan must be dated and all work under the plan completed within one year of the date of the plan.
- Repair and/or service work on halon fire suppressant systems will be contracted to EPA-certified **outside contractors**.
- Conduct a follow-up leak check within 30 days of repair for units that exceed annualized leak rates. Provide documentation of the follow-up leak check to the HAZMART Source Support personnel.
- Dispose of refrigerant contaminated wastes in accordance with RCRA regulations. Refer to *AEDC SHE Standard E18, Managing Wastes with Chemicals or Petroleum Products*.
- Dispose of disposable cylinders by placing a hole in the cylinder so it can not be reused.
- Ensure that all refrigeration equipment, especially small appliances, have a process stub or servicing aperture for the removal of refrigerant.

##### 4.4.2 Processing Salvaged Equipment

- Recover refrigerant from air conditioning units, ice machines, and other appliances before disposal, using EPA-certified recovery equipment capable of obtaining specified vacuum levels.

- Maintain a record of refrigerant recovered from salvaged equipment.
- Prepare work requests for delivery of salvaged appliances to Warehouse 6. The work request must state that all refrigerants have been removed from the equipment.

#### 4.4.3 Reporting

- Provide semiannual reports as required by the Title V air permit to the Source Monitor to demonstrate compliance with EPA-required practices associated with the ODS source.
- Immediately report any condition of noncompliance to the Source Monitor.
- Immediately report all ODS releases to ODS HAZMART for leak rate calculation.

#### 4.4.4 Recordkeeping/Inventory

- Complete refrigeration transaction reports and 30-day follow-up verification forms.
- Maintain copies of technician certifications on file at the HAZMART.

### 4.5 Source Support – HAZMART

The Source Support – HAZMART includes those **base operating contractor** individuals responsible for ODS reporting and recordkeeping/inventory as follows:

#### 4.5.1 Reporting

- Provide semiannual reports as required by the Title V air permit to the Source Monitor to demonstrate compliance with recordkeeping requirements associated with the ODS source.
- Immediately report any condition of noncompliance to the Source Monitor.
- Immediately report all ODS releases exceeding the allowable annualized leak rate (15% for comfort cooling) to the AEDC Operations Center and the **Base Operating Contractor** Environmental Quality Office.
- Report ODS inventory levels to the Source Monitor and **Base Operating Contractor** Environmental Quality on a monthly basis.

#### 4.5.2 Recordkeeping/Inventory

- Store, inventory, and control stock and in-use refrigerant according to *40 CFR Part 82*.
- Enter all refrigerant transaction data into the *Refrigerant Compliance* database.
- Calculate the annualized leak for all leaking units that have a total charge in excess of 50 pounds.
- When an annualized leak rate exceeds the allowable limit, notify the HVAC Shop via **Work Asset Management (WAMS)** work request and email notification that leak repair and leak repair verification follow-up is required.
- Enter and track work requests to ensure that units with unacceptable annualized leak rates are repaired within 30 calendar days of leak discovery and that a leak repair verification follow-up is completed within 30 calendar days from the date the unit is repaired. Units that fail the 30-day leak repair verification follow-up must be immediately reported to the Source Monitor and the **Base Operating Contractor** Environmental Quality Office. Depending on circumstances, units that fail the leak repair verification follow-up may require immediate shut-down to avoid *out-of-compliance* situations and potential fines and penalties.
- Maintain a copy of the 30-day follow-up record in the building folder at the ODS HAZMART.
- Maintain a photocopy of technician certification records at the ODS HAZMART.
- Maintain the Refrigerant Compliance database.
- Maintain a record of all repairs and maintenance to systems containing Class I, Class II, or alternate refrigerants. Repair records shall be retained for a minimum period of three years and shall describe the work performed, the date work was completed, and the refrigerant type and amount added.

- Ensure that all refrigerant cylinders in inventory are labeled with appropriate warning labels in accordance with 40 CFR Part 82.

#### 4.6 Source Support – Test Operations

“Source Support – Test Operations” includes those **base operating contractor** individuals responsible for the daily operation of industrial process equipment. The Source Support is responsible for recovery, recycling, and repair of industrial process equipment; reporting; and recordkeeping/inventory as follows:

##### 4.6.1 Recovery/Recycling/Repair

- Store, handle, and process all Class I and Class II ODSs in accordance with 40 CFR Part 82.
- Ensure that cylinders are labeled with appropriate warning labels in accordance with 40 CFR Part 82.
- Ensure that EPA-certified technicians and recovery equipment are used for all refrigerant operations including refrigerant recovery, service, repair, and maintenance.
- Ensure that repair and maintenance of all process refrigeration equipment is carried out in accordance with 40 CFR Part 82.
- Identify and repair leaking systems containing over 50 pounds of refrigerant as soon as possible. EPA requires the leaking system to be repaired within 30 days of discovery, or within 30 days of when the leak *should* have been discovered. EPA specifies this requirement for air comfort cooling systems leaking in excess of a 15% annualized rate and for process refrigeration systems (those used in testing operations) leaking in excess of a 35% annualized rate. If the system cannot be repaired to meet allowable annualized leak rates, the EPA must be notified and a plan to retire or retrofit the unit within one year must be initiated **via WAMS** work request. A copy of the plan must be kept at the site of the appliance. The retire/retrofit plan must be dated and all work under the plan completed within one year of the date of the plan.
- Repair and/or service work on halon fire suppressant systems will be contracted to an off-site vendor.
- Ensure that 30-day follow-ups are completed for leaks that exceed the annualized leak rate.
- Dispose of refrigerant-contaminated oils and other refrigerant wastes in accordance with RCRA regulations. Refer to AEDC SHE Standard E18.

##### 4.6.2 Reporting

- Provide semiannual reports as required by the Title V air permit to the Source Monitor to demonstrate compliance with the required practices and recordkeeping requirements associated with the ODS source.
- Immediately report any condition of noncompliance to the Source Monitor.
- Immediately report ODS releases exceeding the allowable **annualized leak rate** (35% for industrial refrigeration systems) to the AEDC Operations Center and the **Base Operating Contractor** Environmental Quality Office.

##### 4.6.3 Recordkeeping/Inventory

- Store, inventory, and control stock and in-use refrigerant according to 40 CFR 82.
- Calculate annualized leak rates as required.
- Report quarterly ODS inventory levels to **Base Operating Contractor** Environmental Quality.
- Maintain a photocopy of technician certification records.
- Maintain records of repair and maintenance to all systems where the total refrigerant charge exceeds 50 pounds. These records must be retained for a minimum period of three years and must describe the work performed, the date work was completed, and the refrigerant type and amount added.

#### 4.7 **Asset Management Section (AEDC/TSDCA)**

- ##### 4.7.1
- Appoint an AF ODS program manager.



4.7.2 Perform an annual audit of the ODS program using the Environmental Compliance Assessment and Management Program (ECAMP).

4.7.3 Compile and review compliance certifications from the Source Manager for compliance certification to the AEDC Commander.

#### **4.8 Base Operating Contractor Environmental Quality (Compliance)**

4.8.1 Review and ensure that records used for compliance certifications are complete and accurate.

4.8.2 Provide consulting services to the Source Managers/alternates, Operators, Source Monitors, and Source Support to assist in maintaining compliance with EPA regulations.

4.8.3 Investigate ODS releases with system engineers or process supervisors to ensure that regulatory requirements have been met and to help prevent reoccurrences. Determine if a reportable quantity was exceeded, and recommend to AEDC/TSDCA whether or not EPA reporting is required.

4.8.4 Coordinate on purchases of Class I and Class II ODSs. Air Force Federal Acquisition Regulation Supplement (AFFARS) Subpart 5323, *Ozone-Depleting Substances*, outlines guidance for the procurement of items that contain or use ODSs. The AFFARS specifies the need for Senior Acquisition Official (SAO) approval before a contract, requiring the use of a Class I ODS in any manufacture, test, operation, or maintenance activity, can be executed or before a contract can establish any requirement that can only be met by the use of a Class I ODS.

4.8.5 Identify projects involving ODSs to AEDC/TSDCA.

#### **4.9 Base Operating Contractor Mission Support – Transportation**

4.9.1 Remove any leaking or suspected leaking motor vehicle air conditioner (MVAC) from service.

4.9.2 Ensure that all MVAC work is performed by EPA-certified subcontractors and/or technicians using EPA-certified equipment and procedures.

#### **4.10 Air Force and Base Operating Contractor Purchasing**

4.10.1 Ensure that only EPA-certified technicians are allowed to purchase Class I and Class II refrigerants.

4.10.2 Prohibit purchase of Class I ODSs without an established AF waiver.

4.10.3 Purchase non-ODS comfort cooling systems p AFI 32-7086, *Hazardous Materials Management*.

#### **4.11 Fire Protection**

4.11.1 Use only EPA-certified subcontractors to recover and recharge fire suppression systems containing halons.

4.11.2 Identify projects involving halon to AEDC/TSDCA.

4.11.3 Provide semiannual reports as required by the Title V air permit to the Source Monitor to demonstrate compliance with the required practices and reporting requirements associated with the halon ODS source.

### **5.0 TRAINING/CERTIFICATION**

Training and education in proper refrigerant management practices and handling techniques are the most effective means to minimize accidental refrigerant emissions, prevent refrigerant contamination during handling, and to maintain compliance with EPA regulations.

5.1 The CAA requires that all persons who service, repair, and maintain refrigeration systems, or anyone who may reasonably be expected to cause the release of ODS refrigerants, be certified by the EPA.

5.2 All technicians who perform work tasks that could have potential to cause a release of Halon into the atmosphere must have received halon emission reduction training.

5.3 ODS HAZMART personnel shall have a working knowledge of the EPA's recordkeeping requirements for regulated refrigerants.

5.4 The employee's immediate supervisor is responsible for identifying the appropriate certification level per 40 CFR Part 82.

- 5.5 A copy of each certified employee's EPA certification documentation must be on file at the ODS HAZMART and in the contractor personnel office. PeopleSoft® training records are used to maintain records of annual refrigerant training.
- 5.6 Work area supervisors shall notify the Environmental Quality Office (454-4012) of any newly hired or newly EPA-certified ODS technicians and shall provide copies of the employees' certification to Environmental Quality.
- 5.7 Annual refrigerant awareness training, provided by Base Operating Contractor Environmental Quality, is required for all EPA- certified ODS Technicians and ODS HAZMART personnel.

**6.0 INSPECTIONS/AUDITS**

See paragraph 4.7.2.

**7.0 REFERENCES**

**7.1 AEDC SHE Standards and Publications**

A4, System Safety - requires the completion of a hazard analysis before performing work in certain areas or on certain equipment/processes.

B5, Confined Spaces – designates procedures to be used for working in confined spaces.

E6, Hazardous Material Management Program – specifies procedures for procurement and management of hazardous materials.

E8, Air Quality Management – establishes requirements for the implementation and management of regulated air pollution sources at AEDC.

E17, Oil and Hazardous Substances Spill Response – designates procedures for reporting releases of ODSs.

E18, Chemical and Petroleum Products Waste Management – specifies procedures for disposal of waste to include liquid/gaseous ODSs.

**7.2 Other Documents**

40 CFR 82 – Regulations developed by the EPA for promulgating the CAA of 1990. This section covers the phase-out of ODSs, labeling, recovery, and recycling, etc.

AEDC Ozone Depleting Substances and Refrigerant Management Plan

AEDC Title V Air Permit

AFI 32-7086, Hazardous Materials Management – Establishes procedures and standards that govern the management of hazardous materials throughout the Air Force.

AFMC Standard Operating Procedure for Air Quality Stationary Source Management

Clean Air Act of 1990 (CAA 1990) – Title VI of the act specifies requirements for Stratospheric Ozone Protection.

Executive Order No. 12843 – Specifies that the Federal government will comply with the CAA of 1990 to include procurement practices, substituting uses, replacing ODSs, etc.

Executive Order No. 13148 – Greening the Government through Leadership in Environmental Management

**8.0 ANNEXES**

A. Class I Ozone Depleting Substances

B. Class II Ozone Depleting Substances

**9.0 SUPPLEMENT**

NFAC A321-0801-XSP E14 Ozone Depleting Substances (ODS)

## ANNEX A

## CLASS I OZONE DEPLETING SUBSTANCES

Class I		
Group I	Group II	Group III
CFC-11	Halon 1211	CFC-13
CFC-12	Halon 1301	CFC-111
CFC-113	Halon 2402	CFC-112
CFC-114	All isomers of the above chemicals	CFC-211
CFC-115		CFC-212
All isomers of the above chemicals		CFC-213
		CFC-214
		CFC-215
		CFC-216
		CFC-217
		All isomers of the above chemicals

  

Group IV	Group V	Group VI
Carbon Tetrachloride	1,1,1-Trichloroethane (TCA) (methyl chloroform)	Methyl Bromide
	All isomers of TCA except 1,1,2-TCA	

Group VII
HBFC-22B1
All isomers of the above chemical

## ANNEX B

### CLASS II OZONE DEPLETING SUBSTANCES

Class II		
HCFC-21	HCFC-142b	HCFC-234
HCFC-22	HCFC-221	HCFC-235
HCFC-31	HCFC-222	HCFC-241
HCFC-121	HCFC-223	HCFC-242
HCFC-122	HCFC-224	HCFC-243
HCFC-123	HCFC-225ca	HCFC-244
HCFC-124	HCFC-225cb	HCFC-251
HCFC-131	HCFC-226	HCFC-252
HCFC-132b	HCFC-231	HCFC-253
HCFC-133a	HCFC-232	HCFC-261
HCFC-141b	HCFC-233	HCFC-262
		HCFC-271
All isomers of the above chemicals		

### Class II ODS Production Phase-out Timetable

Date	Class II ODS Production Reduction from 1996 Base-Level
01 January 2004	35%
01 January 2010	65%
01 January 2015	90%
01 January 2020	99.5%
01 January 2030	100% (all class II ODS production must cease)

# A321-0801-XSP E14 Ozone Depleting Substances (ODS)

This supplement has been approved for the NFAC Site.

**Review:** This supplement will be reviewed and updated using the same cycle as the AEDC Safety Standard E14-Ozone Depleting Substances (ODS)

**References:** AEDC Safety Standard E14-Ozone Depleting Substances at the AEDC NFAC Site.

**Scope:**

Scientific evidence accumulated over more than two decades of study by the international research community has shown that human-produced Ozone Depleting Substances (ODSs) can significantly deplete or modify the earth's ozone layer in a manner that is likely to result in adverse effects on human health and the environment. ODSs contain various combinations of the chemical elements chlorine, fluorine, bromine, carbon, and hydrogen and are often described by the general term halocarbons. The compounds that contain only chlorine, fluorine, and carbon are called chlorofluorocarbons (CFCs). ODS compounds that contain hydrogen are called hydrochlorofluorocarbons (HCFCs), and are considered to be somewhat less destructive to atmospheric ozone. CFCs, HCFCs, carbon tetrachloride, and methyl chloroform are important human-produced ozone-depleting gases that are used in many applications including refrigeration, air conditioning, foam blowing, cleaning of electronics components, and as solvents. Another important group of human-produced halocarbons is the Halons, which contain carbon, bromine, fluorine, and (in some cases) chlorine. Halons are mainly used as fire suppressants.

By international agreement (i.e. *The Montreal Protocol on Substances that Deplete the Ozone Layer*), all ODS production is to be phased out. Class I ODS production effectively ended on 31 December 1995 and Class II ODS production must cease by 1 January 2030. Class I ODSs are listed in Section 602 of the Clean Air Act (CAA) and include CFCs, Halons, carbon tetrachloride, methyl chloroform and other chemicals with an ozone-depletion potential of 0.2 or higher. Class II ODSs are listed in section 602 of the CAA, and comprise all HCFCs which have an ozone-depletion potential of less than 0.2. Annex A provides a list of Class I ODSs, and Annex B provides a list of Class II ODSs.

Consumption, transportation, use, and disposal of ODSs are governed by the CAA sections 601-618 (*Title 42, United States Code, Sections 7671a - 7671q*); Title 40 Code of Federal Regulations (CFR) Part 82, *Protection of Stratospheric Ozone*; and Executive Order (EO) 13148, *Greening the Government through Leadership in Environmental Management*. The Air Force (AF) Ozone Depleting Substance Program (ODSP) manages the Air Force's continued reliance on ODSs to minimize the risks and costs of ODS usage, to minimize and eliminate ODS usage where possible, and to ensure compliance with applicable international agreements, federal laws, and regulations governing ODS usage.

This supplement applies to ODSs used for comfort cooling systems and process refrigeration systems, as well as ODSs used for fire suppressants and as cleaning agents.

This supplement applies to all personnel conducting operations, maintenance, testing and support at NFAC, NASA AMES.

**NFAC Worksite Application:**

NFAC will follow the AEDC SHE Standard E14 Ozone Depleting Substances (ODS).

I. NFAC Site Management shall:

1. Ensure all employees, Customers, and Vendors comply with this supplement.

II. NFAC Safety Engineer

1. Ensure that no ODS are allowed on site unless necessary for specialized test
2. Ensure proper recordkeeping and reporting requirements are followed in compliance with NASA Ames local requirements to accurately report usage to regulatory agencies.