Ames Procedural Requirements

APR 8800.3

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COMPLIANCE IS MANDATORY

Chapter 2 - Pollution Prevention and Affirmative Procurement Program Requirements

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2.1 Applicability

These procedures are applicable to all civil servants, contract employees, and tenant personnel of Ames Research Center, Moffett Federal Airfield and Crows Landing Flight Facility.

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2.2 Purpose

This chapter sets forth elements of the Ames Pollution Prevention Program and Ames specific procedures to implement NASA policy and guidance for complying with requirements of Executive Orders 14101 and 14148.

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2.3 Policy

It is the policy of Ames Research Center to:

1. Comply with all pertinent statutory and regulatory requirements and Executive Orders related to pollution prevention and affirmative procurement. Ames recognizes and will comply with applicable federal, state, and local regulations.
2. Consult about the best techniques and methods to promote source reduction and recycling and to promote procurement of products with recycled content, as appropriate, with federal, state, and local agencies including:

   - U.S. Office of the Federal Environmental Executive (OFEE)
   - U.S. Environmental Protection Agency (EPA)
   - U.S. General Services Administration (GSA)
   - California Department of Toxic Substances Control (DTSC)
   - Santa Clara County Health Department

3. Promote employee awareness of pollution prevention and affirmative procurement through training and active information dissemination.

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2.4 Authority

A. Emergency Planning and Community-Right-to-Know Act of 1986 (EPCRA) - Public Law 99 499: Superfund Amendments and Reauthorization Act (SARA), Title III, Sections 312 and 314.

B. Pollution Prevention Act of 1990 (42 U.S.C. 14101 et. seq.).

C. Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984 (42 U.S.C. 6002).

D. Executive Order 14101 of September 14, 1998, Greeting the Government through Waste Prevention, Recycling and, Federal Acquisition.

E. Executive Order 14148 of April 22, 2000, Greening the Government through leadership in Environment Management.

F. F. Hazardous Waste Source Reduction and Management Review Act of 1989 (Senate Bill 14), California Code of Regulations (CCR), Title 22, Sections 67100.4, 67100.5.

G. NASA Policy Directive 8500.1, NASA Environmental Management.

H. NASA Procedures and Guidelines, 8820.2, Pollution Prevention.

I. NASA Procedures and Guidelines, 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

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2.5 Responsibilities

2.5.1 Line Management and Contracting Officers Technical Representatives:

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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2.5.2 Environmental Services Office, Code QE:

1. Prepares annual Toxic Release Inventory (TRI) Report

    a. Makes threshold determinations for Centerwide TRI chemical use based on information reported by each Ames organization as required in Section 2.5.1.

    b. Reports release quantities to regulatory agencies as required by Section 314 of EPCRA.

2. Prepares and submits an annual source reduction and recycling progress report to NASA Headquarters, Code JE, and the EPA, as required.
3. Submits a record of recycled material purchases to the Office of Procurement via Code JE, NASA Headquarters.
4. Manages Ames Chemical Exchange, including maintaining the ACE inventory.
5. Reports recycling quantities to NASA Headquarters, Code JE, for the documents listed above based on the information submitted by each division, organization, or project. Sets annual goals.
6. Prepares Pollution Prevention and Hazardous Waste Minimization plans and reports as required by environmental regulations and NASA Headquarters.
7. Annually prepares and submits to NASA Headquarters a plan outlining the proceeds Ames expects to receive from solid waste recycling activities for the coming fiscal year, and the projects/items to be funded by these proceeds. Coordinate outreach efforts to promote and enforce affirmative procurement and recycling requirements.

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2.5.3 All Personnel:

1. Minimize hazardous and solid waste generation through source reduction and recycling, to the maximum extent practicable.
2. Purchase and use products which meet EPA's minimum recycled/recovered materials content guidelines.
3. Recycle cardboard and place in cardboard recycling bins. Do not place cardboard in solid waste bins.

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2.5.4 Logisitics Branch, Code JFS:

1. Stocks items composed of the highest percentage of post consumer/recovered materials available per EPA's guideline standards and Section 2.9.3.
2. Supports phase out of Ozone Depleting Substances (ODSs) by stocking only items that are free of ODSs as required to comply with Section 2.12.2.
3. 3. Manages recycling program including cardboard recycling and aluminum, plastic and glass recycling.

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2.5.5 Plant Engineering Branch, Code JFP:

1. Implements Integrated Pest Management (IPM). IPM and Integrated Vegetation Management (IVM) programs are sustainable approaches to pest and vegetation management that combine biological, cultural, physical, and chemical tools to minimize economic, health and environmental risks.
2. Manages biodegradation of non-hazardous soils and the Center-wide composting operation.

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2.6 Definitions

Pilot Plant Scale: as a guiding device, trial apparatus or operation, and/or a site in which processes planned for full-scale operation are tested in advance to eliminate problems.

Pollution: any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment, including fugitive emissions. Release: any planned or unplanned release of toxic chemicals to the environment including air emissions, off-site transfers of chemicals, waste water discharges, underground injections of waste, and wastes disposed of in on-site landfills. Examples include shipments of hazardous wastes to treatment, storage, and disposal (TSD) facilities.

Requester: any individual that requests to make a purchase with government funds.

TRI Chemical: a chemical or chemical category listed in 40 CFR 372.65 as amended. Users of any of these chemicals are subject to TRI reporting requirements as delineated in Section 2.7 of this chapter.

Persistent Bioaccumulative Toxic (PBT) Chemicals: A chemical or chemical category of special concern due to its persistence in the environment and/or its accumulation in organisms, as listed in 40 CFR 372.28.

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2.7 Toxic Release Inventory Reporting

In accordance with Executive Order 14148 and EPCRA Section 314, Ames must annually report release of specified chemicals that were manufactured, processed or otherwise used in quantities which meet or exceed the applicable threshold quantities during each calendar year.

Ames will strive to meet or exceed the following goals:

- Reduce releases of TRI chemicals by 50 percent by 2000 compared to the baseline year of 1994;
- Further reduce releases of TRI chemicals by an additional 10 percent annually or by 40 percent overall by December 31, 2006 compared to the baseline year 2001;
- Reduce the use of certain target chemicals (as yet to be determined)by 35 percent overall by December 31, 2006 compared to the baseline year (the year in which the list is promulgated).

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2.7.1 External Reporting

The Environmental Services Office reports chemical release amounts for each chemical used in excess of the regulatory threshold annually to NASA Headquarters, Code JE, the Environmental Protection Agency (EPA), and the Department of Toxic Substance and Control (DTSC). Chemical use amounts for Ames will be determined from TRI reporting forms submitted as required in Section 2.7.2.

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2.7.2 Internal Reporting

Annually, by April 1, each division must report TRI chemical usage amounts exceeding the Ames internal threshold amount of 250 pounds to the Environmental Services Office, Code QE, using the TRI reporting form. This form is included as Appendix C and lists the TRI chemicals most likely to be used at the Center. A complete list of the TRI chemicals can be obtained from the Environmental Services Office. See Section 2.7.8 for specific examples of reportable uses at Ames.

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2.7.3 Regulatory Reporting Thresholds

The TRI regulatory reporting thresholds are as follows:

Chemicals manufactured or processed on site (except PBT chemicals)*	25,000 pounds
Chemicals otherwise used (except PBT chemicals)*	10,000 pounds

* PBT chemicals have significantly lower threshold amounts, ranging from 0.1grams to 100 pounds.

The thresholds apply to the total quantity of a given TRI chemical used in one year throughout the Center, not simply used at one location or by one organization. If the chemical is a constituent of a product, the threshold applies to the amount of the chemical in the product, not the entire product quantity.

If either of the above thresholds is exceeded for a listed TRI chemical, then Ames will be required to report the amount actually released (e.g., emitted to the air, shipped off-site). Generally the amount released will be a best engineering judgment unless records/monitoring provide otherwise.

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2.7.4 Internal Threshold

The Environmental Office has established an internal threshold for each division of 250 pounds per TRI chemical per year, to preclude having to track and report all quantities of toxic chemicals used. If a division uses less than 250 pounds of a given TRI chemical in one year, then it does not need to report for that chemical, unless otherwise notified in writing by the Environmental Office. Purchasing records are good sources for determining if a division has exceeded the usage threshold.

NOTE: When determining usage quantities, be sure to include products containing TRI chemicals at concentrations above the de minimis levels and not just pure chemical products.

The de minimis levels are 1% or 0.1% for carcinogens. There is no de minimis concentration level for PBT chemicals.

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2.7.5 Exemptions

To lessen the burden of tracking all uses and releases of TRI chemicals, NASA guidance allows for the following exemptions. Releases from the following do NOT need to be reported:

1. Emissions from mobile sources - includes emissions from motor vehicles, aircraft, the shuttle or rockets;
2. Releases from automobile exhaust;
3. Releases from ancillary vehicle fueling operations - (NOTE: aircraft fueling is not considered ancillary to the business or mission of NASA and is thus not exempt. Motor vehicle fueling at the Motor Pool is considered ancillary and thus is exempt.)
4. De minimis concentrations - activities that use mixtures containing TRI chemicals at concentrations less than 1% by weight or for carcinogens less than 0.1% by weight (note: the de minimis concentration is not applicable for PBT chemicals);
5. Articles - those items brought on-site that contain toxic chemicals and are used without releasing the chemical or are not significantly altered through on-site use. An example is sheet metal used to fabricate an item without producing fumes, dust, fines, or unrecycled metal scrap;
6. Uses - subcategories of exempt uses are:

    a. Structural component use - materials used to construct or repair a part of a facility;
    b. Routine janitorial/facility grounds maintenance use - products used for janitorial cleaning and grounds maintenance such as chlorine bleach, ammonia, fertilizer, and pesticides;
    c. Personal use - consumer products containing toxic chemicals used by employees such as cosmetics, drugs, and office supplies;
    d. Motor vehicle maintenance use - toxic chemicals used to maintain ancillary vehicles such as cars, trucks, and forklifts. The exemption covers all routine vehicle maintenance activities which use products that contain toxic chemicals including gasoline, diesel fuel, brake fluids, transmission fluids, oils, antifreeze, batteries, cleaning solutions, and paints.
    e. Laboratories - the exemption covers TRI chemicals used in activities directly engaged in R&D, quality control, and sampling and analysis (see Section 2.7.6 and 2.7.7). TRI chemicals used in shops and facilities operations activities, even though they support R&D, are not exempt.

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2.7.6 Exempt NASA laboratory activities

Releases of toxic chemicals from the following NASA laboratory activities are EXEMPT:

1. Traditional bench scale R&D work;

2. Testing components or engines on test stands or in test cells for development of new components or engines. Components or engines that are pilot plant scale or that will be installed on aircraft, rockets, or the shuttle are not exempt;
3. Testing components in wind tunnels that are smaller than pilot plant scale (i.e., a wind tunnel test that uses less than 1,000 pounds of a regulated chemical per year).

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2.7.7 Reportable NASA laboratory activities

Releases of toxic chemicals from the following NASA "laboratory" activities must be reported:

1. Pilot scale tests (i.e., tests that use greater than 1,000 pounds per year of a regulated chemical);
2. Tests of full scale models, or of parts that will be installed on rockets, aircraft, shuttle, etc.;
3. Photo developing;
4. Manufacturing components for other laboratories or NASA projects;
5. Maintenance operations that support research and development (R&D) facilities (e.g., maintenance of heating ventilation and air conditioning (HVAC) and wind tunnel cooling towers)

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2.7.8 Examples of Applicability

Examples of some known uses and applicable threshold amounts at Ames are given below:

Division	Product - Usage and TRI Constituents	Ames Internal Threshold (pounds)	Regulatory Reporting Threshold (pounds)
Aviation Management Office	JP-5, JP-8, JPTS - aircraft fuel transfer operations (benzene, ethylbenzene, toluene, xylenes) * (NASA Aircraft only)	250	25,000
Facilities and Logistics Management	Refrigerant - Plant Engineering Branch facilities HVAC/refrigeration system maintenance (CFC 11, 12, and 113)	250	10,000
Army/NASA Rotorcraft	Coolant - coolant/antifreeze used in aircraft maintenance activities (ethylene glycol)*	250	10,000
Aeronautics and Space Flight Hardware Development	Metals - metal plates, sheets, rods, etc. used by machine shops to manufacture products or specialty articles (e.g., models) for use in other	250	25,000

	laboratories (arsenic, antimony, cadmium, chromium, copper, lead, manganese, nickel, zinc, etc.)		
Documentation Development	Photochemicals - photo development processing by the Imaging Technology Group in [redacted] (formaldehyde, hydroquinone)	250	10,000
Aeronautics and Space Flight Hardware Development	Paints - shops and paint booths in [redacted] and [redacted] (VOCs)	250	10,000
*Ancillary vehicle maintenance activities are exempt			

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2.8 Affirmative Procurement

In accordance with Executive Orders 13101and 13148, Ames shall procure products that contain recycled and recovered content and that are environmentally preferable.

Ames will strive to meet or exceed the following goal:

- Achieve 100 percent compliance in affirmative procurement.

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2.8.1 Purchasing by Ames Employees

In accordance with Executive Order 14101 and NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products all purchases of the items listed in Section 2.8.2 shall meet the recovered materials content levels established by the EPA. Appendix D contains a detailed list of the designated items and the minimum recycled content levels. Individuals requesting these items through stores stock need not report their purchases.

Bankcard users must indicate anticipated purchases of EPA designated items on page 3 of the electronic purchase request form. The electronic purchase request will be routed to the Environmental Office automatically for approval. Contractors must meet all requirements for purchases of designated items as stipulated in Executive Order 14101 and NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

Purchasers of any EPA designated item which does not meet minimum recycled and/or recovered materials content must obtain a waiver from the Environmental Office prior to initiating the purchase request. The Request for Waiver must be approved by the Environmental Office prior to acquisition of any non-conforming item. These requirements apply to both government and contractor purchases, in accordance with NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

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2.8.2 EPA Guideline Standards for Recycled Material Purchases

The following items are designated by EPA as being available with recycled content. EPA's recommended recovered materials content levels are specified in Appendix D:

1. paper and paper products
2. non-paper office products
3. vehicular products
4. construction products
5. transportation products
6. park and recreation products
7. landscaping products
8. miscellaneous products

NOTE: Purchases of the above items though General Services Administration (GSA) Federal Supply Service's environmental products catalogs will automatically meet EPA's standards.

Purchases of affected products must meet or exceed EPA's minimum recommended recycled or recovered content levels. Purchasers of items which do not meet EPA minimum requirements must submit a Request for Waiver to the Environmental Services Office (Appendix K), in accordance with NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

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2.8.3 Stores Stock

The Logistics Branch shall:

1. stock and issue recycled copier paper to fill orders that do not specify virgin paper
2. use GSA Federal Supply Service to stock recycled products (e.g., paper, paper products, and office supplies) as much as possible.
3. stock remanufactured toner cartridges.

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2.9 Pollution Prevention Award Program

The Award Program is designed to solicit the creativity of all employees in developing techniques or operational changes that will reduce pollution. Employees working directly with the waste generating process are best suited for finding ways to reduce the waste, whether the process is in a machine shop, a mechanical equipment maintenance shop or a life sciences laboratory. A description of the Award Program including the procedure for submitting pollution prevention ideas is provided in Appendix E.

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2.10 Ames Chemical Exchange (ACE)

2.10.1 Introduction

The Ames Chemical Exchange (ACE) is a chemical redistribution program that promotes use of excess, unused, or unwanted chemicals. By using the ACE, organizations save money through avoided purchase and disposal costs. The ACE inventory lists available materials by chemical name and includes information such as quantities and manufacturers name, date manufactured, date in to ACE, expiration date (if applicable).

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2.10.2 Chemical Purchasing

To promote the use of available materials, employees purchasing chemicals shall:

1. Check the ACE Inventory for product availability.
2. Use chemicals stocked in ACE before purchasing new, if the ACE chemical(s) meet their specifications.
3. Retrieve items in the ACE by following the procedure in Section 2.10.3.
4. Order the smallest container size available and practicable for the intended use. Do not purchase larger volumes of chemicals for perceived economic value. Disposal costs of any unused material will invariably off-set any savings achieved by purchasing in bulk.

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2.10.3 Retrieving a Chemical

1. Scan the inventory and note which item(s) you want on Form RC (a copy is provided in Appendix G).
2. Submit the completed Form RC to the ACE Coordinator at [redacted]. Items will be delivered within 2 days from receipt of request to the location specified by the requester on Form RC.

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2.10.4 Donating a Chemical

1. Use Form A - Chemical Material/Waste Pickup Request - and check the box labeled "Reuse" under the column heading "Handling Instructions". (a copy of Form A is provided in Appendix G).
2. Submit completed forms to the ACE Coordinator at [redacted]. The items will be picked up and placed in the ACE inventory. The ACE coordinator will update the inventory according to the information submitted.

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2.10.5 Materials Considered Reusable

Characteristics of reusable chemicals that may be donated to ACE are:

1. Unopened laboratory reagents;
2. Original intact, sealable containers;
3. Solid materials which are pourable and not clumpy;
4. Liquids which are not solidified or do not exhibit abnormal phase separations;
5. Liquids that should be clear are clear;
6. Liquids do not show signs of crystallization or crusting.

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2.10.6 Disposal of Non-reusable Materials

Chemicals with no reuse potential can be disposed of by submitting Form A to the Environmental Office, according to the existing procedure (see Chapter 4, Hazardous Waste Management). Do not submit Form A, Hazardous waste pickup requests to the ACE Coordinator.

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2.11 Recycled/Recovered Materials Reporting

2.11.1 Introduction

Ames is committed to reducing the volume of hazardous and solid wastes generated annually, through source reduction and recycling. In addition, Ames is committed to purchasing products with recycled and/or recovered materials content, as specified in Section 2.8.

Ames will strive to meet the following goals:

- Divert 35 percent of solid waste away from landfills by CY 2010 compared with the CY 1997 baseline.

Reporting of recycled material quantities for Ames is required for the following purposes:

1. EPA biennial reporting for hazardous waste generators;
2. Annual recycling update questionnaire to NASA Headquarters;
3. Tracking progress towards established solid waste recycling goals;
4. Tracking progress towards hazardous waste minimization goals.

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2.11.2 Internal Reporting

1. Each division or branch that monitors a contractor that recycles waste must report recycling quantities to the Environmental Office using Form M (Appendix I).

2. Each division, branch, project, or group that recycles and/or recovers a material on-site, or sends the material(s) off-site for recycling as part of their operations (e.g., steel tanks sent to a facility that reclaims the steel), must report recycling data using Form M (Appendix H). This requirement covers materials not included in above.
3. Separate reporting is not required for materials recycled as a result of submitting a Form A - Chemical Material/Waste Pickup Request through the Environmental Office.
4. Annually, by January 31, completed Form Ms must be submitted at least for the preceding Fiscal Year to the P2 Coordinator at [redacted] and as requested.
5. The division has the ultimate responsibility for reporting recycling data. Reporting recycling activities benefits the division by demonstrating willingness and initiative for reducing waste and for contributing to NASA's waste minimization and recycling goals.

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2.11.3 Examples of Applicability

1. Examples of materials recycled at Ames through a service contractor for which quantities must be reported on Form M are:

Division/Branch	Material - Users
Facilities, Logistics and Management/Logistics	white paper, cardboard
Facilities, Logistics and Management/Logistics	scrap metal - vendor services scrap metal bins
Facilities and Logistics Management/Plant Engineering	wood - refuse contractor provides pickup service for this reusable material

2. Examples of materials recycled at Ames as part of operations:

Division/Branch	Material - Users
Aeronautics and Spaceflight Hardware Development/Developmental Machining and Electromechanical Instrumentation	coolant - recycled and re-used on-site
Systems Engineering/Facilities Engineering	steel - tanks from fuel tank removal projects that are shipped to steel reclamation yards

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2.12 Ozone Depleting Substances

In accordance with NASA policy (Appendix J) and Executive Order 13148 Ames shall eliminate all non-critical users of ozone deplete substances.

Ames eliminated purchases of ozone depleting substances for non-critical use by 1995. Ames will

strive to meet or exceed the following goal:

- Eliminate the non-critical use of Class I ozone depleting substances by 2010.

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2.12.1 Introduction

Under Section 604 of the Clean Air Act, as amended in 1990, Class I ozone depleting substances (ODSs) such as chlorinated solvents, cleaners, and refrigerants were scheduled to be phased out through production and import bans effective January 1, 1996.

Federal Agencies are required by Executive Order 13148 to minimize the purchase and use of ODSs consistent with Clean Air Act requirements.

A complete listing of ODSs regulated under the Clean Air Act is published in 58 FR 65080-65082 and is included as Appendix I.

The 1990 "NASA Policy on Use of Chlorofluorocarbon (CFC) and Halon Compounds" established the requirement that each Center eliminate the use of Class I ODSs in all but mission-critical applications. Mission-critical applications have been identified by the Environmental Office. Any new use of a Class I ODS must be approved by NASA Headquarters, Code JE, through the Ames Environmental Office. A copy of this policy has been included in Appendix J.

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2.12.2 Purchasing and Contract Specifications

Divisions requesting to purchase ODSs or products that may contain ODSs shall:

1. Ensure that employees and contractors do not purchase or specify for purchase products that contain ozone depleting substances, unless no alternatives are available. All proposed purchases of ODSs or equipment which use ODSs must be approved by the Environmental Office. Approval will only be granted for those applications which are mission-critical and have NASA Headquarters approval.
2. Specify in contracts a requirement for the use of acceptable alternatives to ODSs, when applicable.
3. Consult Appendix H and product literature from the manufacturer (e.g., Material Safety Data Sheet (MSDSs)) to determine if products to be purchased contain regulated substances, for complying with the above.

   Requesters are encouraged to consult the list of substitutes for Class I ODSs developed under EPA's SNAP (Significant New Alternatives Policy) Program. The SNAP list and vendor lists for purchasing alternatives to ODS containing products are available from the EPA's SNAP web site at http://www.epa.gov/docs/ozone/title6/snap/snap.html.

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2.12.3 Class I Substitutes

Types of products for which substitutes have been identified under the SNAP program are:

1. adhesives, coatings, and inks
2. aerosol propellants
3. fire suppression streaming agents
4. fire suppression total flooding agents
5. polyurethane foams and sheet
6. refrigerants
7. solvent cleaners
8. sterilants

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2.12.4 Annually ODS Usage Reporting

Ames must submit an ODS report to NASA Headquarters, Code JE, each year.

Users of Class I and Class II ozone depleting substances must provide the following information for each Class I and Class II ODS used or stored each calendar year to the P2 Coordinator by August 1, and as requested:

1. Quantity stored
2. Total quantity used
3. Percent recycled
4. Percent recovered
5. Type of use (solvent, cleaner, coolant, lubricant, fire, suppression, other)
6. For any ODS purchase during the calendar year, provide the quantity purchased (in pounds), container type (bulk, cylinder, drum, other) and cost

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2.13 Metrics

a. Percent reduction in annual TRI releases.
Goals: Reduce releases of TRI chemicals by 50% by 2000 compared to the baseline year of 1994; Further reduce releases of TRI chemicals by an additional 10% annually, or by 40% overall by December 31, 2006 compared to the baseline year of 2001.

b. Percent reduction in use of 15 target chemicals (TBD).
Goals: Reduce the use of certain target chemicals by 35% overall by December 31, 2006 compared to the baseline year (the year in which the list is promulgated).

c. Percent of solid waste diverted from landfills annually.
Goal: Divert 35% of solid waste away from landfills by CY 2010 compared with the CY 1997 baseline.

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