

Ames Environmental Procedures and Guidelines Last Revised: Unspecified Redacted: 07/20/2004

Chapter 3 - Hazardous Materials Management (REDACTED)

3.1 Applicability

This instruction is applicable to all civil servant and contractor employees and tenant personnel at Ames Research Center (Ames), NASA Research Park Partners, and Crows Landing Flight Facility.

3.2 Purpose

This chapter prescribes the roles and responsibilities for the environmental management of hazardous materials.

3.3 Policy

It is the policy of Ames Research Center to:

1. Comply with all pertinent statutory and regulatory requirements and Executive Orders related to hazardous materials management. Ames recognizes and will comply with applicable Federal, state, and local regulations.
2. Consult about the best techniques and methods to manage hazardous materials, as appropriate, with Federal, state, and local agencies, including:
 - U.S. Environmental Protection Agency (EPA)
 - Occupational Safety and Health Administration (OSHA)
 - California Office of Emergency Services
 - Santa Clara County Department of Environmental and Hazardous Materials Compliance Division (Country)
 - Stanislaus County Environmental Health Department
3. Promote employee awareness of hazardous materials management through training and active information dissemination.
4. Inform the surrounding communities of the inventory of hazardous materials utilized and stored at Ames.

Note: Related occupational safety policies regarding hazardous materials management are contained in the Ames Safety Manual, AHB 1700.1, Chapter 13, Chemical Hygiene Program and Chapter 24, Chemical Hazard Communication Plan.

3.4 Authority

All relevant Federal, state, and local laws and regulations related to hazardous materials management, including but not limited to:

1. Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 U.S.C. 9601 et seq.), including the Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. 11001 et. seq.)
2. Executive Order 12088, amended by Executive Order 12580, Federal Compliance with Pollution Control Standards

3. Executive Order 13101 of 14 September 1998, promotion of Federal Government's use of recycled products and environmental preferable products and services
4. State and local laws and regulations related to hazardous material management:
 - California Code of Regulations, Title 19, Office of Emergency Services
 - California Code of Regulations, Title 23, Water
 - California Code of Regulations, Title 26, Toxics
 - California Health and Safety Code, Chapter 6.95
 - Santa Clara County Hazardous Material Storage Ordinance
 - Santa Clara County Toxic Gas Ordinance
5. NASA Policy Directive 8500.1, NASA Environmental Management
6. Environmental Excellence for the Twenty-First Century, NASA Strategy Document
7. Ames Policy Directive 8800.4, Ames Environmental Programs
8. Uniform Fire Code and National Fire Protection Association Standards

3.5 Responsibilities

3.5.1 Ames Hazardous Materials Users

1. Conduct operations, including required inspections and maintenance of inspection logs of use and storage areas, applicable monitoring records, and proper labeling, in compliance with all applicable regulations, requirements, and permit conditions.
2. Maintain and make available required records, as requested by the Environmental Services Office, Code QE (Environmental Office).
3. Maintain current file of material safety data sheets (MSDS).
4. Maintain an accurate Hazardous Materials Inventory Statement (HMIS), including above- and underground tanks and all compressed gases.
5. Update hazardous materials inventory when new chemicals are obtained and when storage areas are no longer used.
6. Input updated HMIS via Code QE website at least once per year by December 15, or earlier if requested or necessary (i.e., inventory changes or storage is relocated).
7. Participate and provide input in order to complete plans and reports on time.
8. Provide access and point of contact for inspections, assessments, and audits by the Environmental Office and regulatory agencies.
9. Implement corrective actions, if required.
10. Attend training, as required.
11. Maintain training records and provide copies to the Environmental Office of any applicable non-Ames training.
12. Inform the Environmental Office of changes in operations that affect storage and use of hazardous materials, 45 days prior to changes.
13. Maintain storage areas clean of debris and free of rainwater. Designate storage areas of either hazardous materials or hazardous wastes with posted emergency procedure signs and provide designated spill kits.
14. Report releases to Environmental Office and maintain spill log.
15. Close hazardous materials storage areas or equipment no longer in use in coordination with the Environmental Office.

3.5.2 Resident Agencies and NASA Partners Hazardous Materials Users

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3.5.3 Environmental Services Office, Code QE (Environmental Office)

1. Identify laws and regulations to which Ames must adhere.
2. Develop Ames policy to implement the identified laws and regulations.
3. Provide oversight and direction.
4. Provide training, as required.
5. Provide consultation, services, and support, including internal self-inspections.
6. Prepare and submit the Hazardous Material BEAPs and Closure Plans to the County for Ames Hazardous Materials Users.
7. Collect and complete the chemical inventories and submit the HMIS to the appropriate regulatory agency for Ames Hazardous Materials Users.
8. Report all releases to the appropriate regulatory agency.
9. Maintain permits, pay fees, and maintain records for a three-year period for Ames Hazardous Materials Users.
10. Conduct closure for hazardous materials storage areas or equipment no longer in use for Ames Hazardous Materials Users.
11. Conduct inspections of hazardous materials storage areas with County inspector and serve as liaison to the County.
12. Submit design drawings to the county for new and re-modeled hazardous materials storage facilities, pay plan review fee, and coordinate on-site inspection with County and NASA users.
13. Maintain BEAP web site for hazardous material BEAPs.

3.5.4 Safety Office, Code QH

1. Prepare and distribute non-hazardous materials BEAPs.
2. Inform Code QE of any new hazardous materials buildings.
3. Maintain non-hazardous materials BEAP website.

3.5.5 Line Management and Contracting Officers Technical Representatives

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3.6 Definitions

3.6.1 Acute

A sudden event, condition, or exposure; e.g., skin burns caused by a corrosive material or death caused by inhalation of a poisonous gas.

3.6.2 Acutely Hazardous Material

A substance that is listed on the Environmental Protection Agency (EPA) List of Extremely Hazardous Substances, 40 CFR, Part 355, Appendix A, or Santa Clara County Acutely Hazardous Materials List.

3.6.3 Bioaccumulative

A substance that accumulates and concentrates in ecosystems or organisms higher in the food chain.

3.6.4 Hazardous Material Building Emergency Action Plan (BEAP)

A plan required for facilities storing, handling, or dispensing hazardous materials that describes the chemicals stored and used, their locations, building hazards, escape routes, and emergency spill response procedures.

3.6.5 Carcinogenic

A substance that causes cancer and is listed as a known or suspected carcinogen by the EPA, International Agency for Research on Cancer, Occupational Safety and Health Administration, National Toxicology Program, or Proposition 65.

3.6.6 Chronic

A long-term event, condition, or exposure; e.g., cancer or liver damage caused by long-term exposure to low levels of contaminants.

3.6.7 Compatibility

The chemical characteristics of a material that determine other materials with which it may or may not be safely combined.

3.6.8 Corrosive

Any aqueous material with a pH of less than or equal to 2.0, or greater than or equal to 12.5, or that corrodes SAE steel at a rate of 0.25 inches per year at 130°F. Any nonaqueous material that, when mixed with an equivalent weight of water, produces a solution with a pH less than or equal to 2.0, or greater than or equal to 12.5, and that corrodes SAE steel at a rate of 0.25 inches per year at 130°F.

3.6.9 Extremely Hazardous Material

A substance or combination of substances that, if human exposure should occur, will likely result in death, disabling personal injury, or serious illness caused by the substance or combination of substances because of its quantity, concentration, or chemical characteristics. A list of these substances can be found in 40 CFR, Part 355, Appendix A, and is included as Appendix A to this chapter. This list of chemicals had been adopted by both the state and the county as their list of acutely hazardous or extremely hazardous materials.

3.6.10 Hazardous Material

As defined in Section 25501 of Chapter 6.95 of the California Health and Safety Code, any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler believes would be injurious to the health and safety of persons or harmful to the environment.

3.6.11 Hazardous Materials Inventory Statement (HMIS)

An annual report filed with Santa Clara County that delineates the type and quantity of hazardous material including wastes stored or handled at a particular site.

3.6.12 Ignitable

A liquid with a flashpoint of less than 60°C (140°F); a nonliquid capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes, and, when ignited, burns vigorously and persistently; any oxidizer; and any ignitable compressed gas.

3.6.13 Material Safety Data Sheet (MSDS)

Documentation prepared by the manufacturer or distributor of a hazardous material that describes the product and its use; identifies and describes hazardous ingredients; describes the

material's physical and chemical characteristics; explains any special hazards (such as fire, explosion, polymerization), health hazards, the reactivity of the product, precautions for safe handling and use, and any necessary control measures to minimize exposure.

3.6.14 Organics

Typically refers to a carbon-containing compound, for example, solvents and petroleum hydrocarbons.

3.6.15 Oxidizers

Material that promotes combustion of other materials, for example, organic peroxides and perchlorates.

3.6.16 Reactive

Any material that is normally unstable and readily undergoes violent change without detonation; reacts violently with water, forms potentially explosive mixtures with water, or generates toxic gases, vapors, or fumes when mixed with water; is capable of detonation or explosion if subjected to an initiator or heat; or contains cyanide or sulfide, which generates toxic gases when exposed to pH conditions above 2.0 and below 12.5.

3.6.17 Secondary Containment

An impermeable, chemically compatible container (e.g., bermed pad, tray, or overpack drum) that contains spills and leaks from primary containers and meets the volume requirements of Section 3.9.1.

3.6.18 Segregation

The separation of chemically incompatible materials by physical barriers or distance.

3.6.19 Teratogenic

Capable of causing defects in fetuses.

3.6.20 Threshold Planning Quantity

The quantity for an extremely hazardous substance as defined in 40 CFR, Part 355, Appendix A (included as Appendix A to this chapter).

3.6.21 Toxic Gas Ordinance

The Santa Clara County Toxic Gas Ordinance No. NS-517.44 regulates gases that have an established Level of Concern (LOC). A Level of Concern is the maximum concentration of a substance in air that will not cause serious health effects in the majority of the population when exposed to the substance for a relatively short period of time. The LOC is equal to 0.1 of the Immediately Dangerous to Life and Health (IDLH) level (for substances with an established IDLH).

The Ordinance also regulates any material that is shipped in a compressed gas cylinder; that becomes or acts as a gas upon release at normal temperature and pressure (70° F and 760 mm Hg); or that is used or handled as a gas. Refer to Chapter 23, Toxic Gas Management, for more information.

3.7 Affected Operations

Any operation or individual using, handling, or storing hazardous materials. Examples of affected operations include photo processing, solvent cleaning, construction projects, vehicle and equipment maintenance, coating application, and laboratory research.

A hazardous material may be liquid, solid, or gaseous. Examples of some hazardous materials include flammable solids, oils, paints, and solvents. Hazardous materials become hazardous

waste when they become obsolete or outdated, are left over as waste after use in a process or on a project, and have no further use. Refer to Chapter 2.0, Pollution Prevention Program Requirements, for pollution prevention program requirements and Chapter 4.0, Hazardous Waste Management, for detailed definitions of hazardous waste and descriptions of hazardous waste management requirements.

3.8 General Requirements

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3.9 Specific Requirements

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3.10 Metrics

- a. Percent compliance with federal, state, and local hazardous materials storage regulations.
Goal: number of violations / inspection = 0
- b. Percent of findings corrected within 30 days.
Goal: 100% of inspection findings corrected within the 30 days given by the County.
- c. Percent of personnel working with hazardous materials who have received pertinent training.
Goal: Training is kept current for 100% of employees working with hazardous materials.
- d. Percent of BEAPs updated within 1 year from 1st revision.
Goal: 100% of BEAPs updated at least once per year.

3.11 Sources of Additional Information or Assistance

Building Emergency Action Plans (<http://q.arc.nasa.gov/qe/compl/beap/>)
Environmental Office (Code QE, REDACTED, <http://q.arc.nasa.gov/qe/>)

3.12 Appendices

3.12.1 Appendix A: Extremely Hazardous Materials List

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3.12.2 Appendix B: Environmental Self-Inspection Form

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3.12.3 Appendix C: Chemical Compatibility Matrix

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3.12.4 Appendix D: Uniform Marking Guidelines for Hazardous Materials and Hazardous Waste

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