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Occupational Health Programs Manual – Chapter 14

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Chapter 14—Acquisition of Hazardous Chemicals and Materials

NOTE: The current version of this chapter is maintained and approved by the Safety and Health Division (SHeD). The last revision date of this chapter is August 2012. The current version is located on the Glenn Research Center intranet within the BMS Library. Approved by: Chief of Safety and Health Division.

1.0 PURPOSE

This chapter sets forth the policy and procedures for the acquisition of hazardous chemicals and materials, and describes the functions, responsibilities, and authority for the purchasing, processing, receiving, controlling, and shipping of hazardous chemicals and materials. These procedures are intended to provide for the acquisition of toxic, radioactive, flammable, corrosive, or otherwise hazardous chemicals and materials and for the initiation of proper review and approval considerations for their safe use. It is the Center's responsibility to see that all hazardous chemicals and materials are managed properly.

This chapter conforms to the Glenn Research Center (GRC) Environmental Management System (EMS) as defined in Glenn Procedural Requirements (GLPR) 8553.1D. This chapter supports the GRC Environmental Policy, which promotes pollution prevention, regulatory compliance, and continuous improvement.

2.0 APPLICABILITY

This chapter is applicable to all civil servant and contractor employees assigned to GRC Lewis Field and Plum Brook Station, and to any NASA-controlled, Government-owned facilities associated with GRC at Lewis Field and Plum Brook Station.

3.0 BACKGROUND

The Hazard Communication Standard 29 Code of Federal Regulations (CFR) 1910.1200 requires Material Safety Data Sheets (MSDSs) with chemicals and a list of all potential chemical hazards in each area. When acquiring hazardous chemicals, an MSDS is required to purchasing the potential chemical hazard. The information is entered into the Chemical Management System to provide a list of potential chemical hazards in each area. This information is then used to generate the information needed for the Emergency Planning and Community Right-to-Know Act (EPCRA) for the Superfund Amendments and Reauthorization Act (SARA) 311 and 312 reports, as referenced in Chapter 13 of the Environmental Programs Manual (EPM). By reviewing the hazardous chemical acquisition, we are aware of the materials at GRC and can plan accordingly to address any incident.

4.0 POLICY

It is GRC policy to support our missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. As part of the policy, procurement of hazardous chemicals shall assure the safe handling, receipt, control, and shipment of the hazardous chemicals in order to protect the requester, user, transporter, shipper, and the environment from any exposure to a hazardous chemical. Unless specifically stated otherwise in this document, acquisition of hazardous chemicals at GRC shall follow the recommendations of NASA Procedural Requirement (NPR) 1800.1 Chapter 4.7, Control of Hazardous Substances and Articles Acquisitions.

5.0 RESPONSIBILITIES

5.1 Initiator

- Ensures that all appropriate personal protective equipment (PPE) and apparel is available, enabling employees to work safely with the hazardous chemical and material.
- Ensures all safety and health requirements on the MSDS will be met (ref. NPR 1800.1 4.7.2.2.e)
- Reviews alternative chemicals and materials to determine if a less hazardous or more sustainable material can be used instead (ref NPR 1800.1 4.7.4.4.b)
- Purchases only the amount of hazardous chemical and material needed (ref NPR 1800.1 4. 7.4.4.b)

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- Ensures that employees who will be using the hazardous chemical and material have been properly training in the safe use and potential emergency scenarios associated with it.
- Ensures that appropriate storage is available before the hazardous chemical and material is received.
- For hazardous chemicals or materials that are ozone depleting substances (ODSs), ensures that the appropriate waiver is completed and included as part of the technical package attached to the purchase request (PR) (EEMO), Chapter 16, Stratospheric Ozone Protection).
- For hazardous chemicals or materials that are Occupational Safety and Health Administration (OSHA)-regulated (see the List of Highly Hazardous Chemicals, Toxics and Reactives (Mandatory), OSHA 1910.119 Appendix A), contact the Safety and Health Division (SHeD), industrial hygiene program lead to ensure that all regulatory requirements shall be met before the chemical is ordered.

5.2 Requestor

- Checks the availability from the Center’s inventories, such as stock or CHEMEX, before requesting the purchase of hazardous chemicals and materials. Consider using chemicals that are available for use at the Center before purchasing new chemicals.
- Consults with safety, environmental, industrial hygiene, health, chemical management, and security specialists to ensure that the request contains necessary supporting information. This information may include safe handling and user guides, MSDSs, and special handling precautions as directed by SHeD. Obtains pre-approval for hazardous chemicals and materials from SHeD chemical management.
- For Government purchases, prepares a complete, legible, and accurate technical package if needed, in conjunction with the PR. Prepares a PR using the GRC SAP Integrated Enterprise Management Program (IEMP). For all hazardous chemical purchases, the requestor shall select “NASA Hazardous PR” from the drop-down PR selection box in the “Create Purchase Requisition” screen of the IEMP. This identifies the requisition as a hazardous chemical purchase and shall route the requisition through the appropriate PR release strategy. The appropriate chemical name (preferably by CAS registration number or IUPAC nomenclature) shall be used in the short, text-descriptive line.
- Bank cards are not to be used for any chemical or hazardous material purchase unless prior authorization is obtained or special authorization is requested due to a justified urgency. Specific instructions shall be provided and a note shall be included in the “comments” field of the order log in P-Card citing the approval.
- Purchases of specialty gases in cylinders (including banks) and non-bulk cryogenic liquids in dewars will order using the Specialty Gas Management System (SGMS). SGMS will automatically route the order to SHeD for pre-approval before purchases can be made for specialty gases in cylinders and non-bulk cryogenic liquids in dewars.
- For contractor procurements, the contractor prepares a complete, legible, and accurate contractor PR. A copy of all MSDSs for hazardous chemicals or materials purchased by contractors at Lewis Field and Plum Brook Station shall be sent to SHeD. For a detail of processes used for contractors, please review 0.

5.3 SHeD

- Review for release all hazardous chemical and material NASA PRs and Bankcard orders, and evaluate the hazard potential of each hazardous chemical and material being purchased.
- Review all hazardous chemical and material MSDSs to ensure nothing unusual is required.
- Have the authority to deny acquisitions of hazardous chemicals and materials until potentially significant hazardous conditions are eliminated or controlled.
- Consult with the occupational and safety areas of SHeD, Environmental and Security when appropriate, to communicate information on hazardous chemicals and materials being ordered and coordinate any additional requirements needed to ensure the health and safety of the employees and property of GRC.
- Maintain the central MSDS files and post MSDSs on the Chemical Management System.

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- Provide technical advice for the safe use, handling, storage, and disposal of hazardous chemicals and materials.
- Provide information on GRC affirmative procurement (AP) initiative and on environmentally preferable products (EPPs) with recommendations for alternative chemicals for purchase when feasible.
- Maintain the NASA GRC Chemical Management System that tracks all chemical inventories.
- Notify the appropriate organization of any unusual circumstances.
- In conjunction with the appropriate organizational or contractor management, assure the safe use, handling, storage, and disposal of hazardous chemicals and materials.
- Coordinate any difficult or unusual circumstances that may arise in the handling of hazardous chemicals and materials with all appropriate parties. Assist in the development of a hazard analysis of procedures if required.
- Review hazardous chemical use work areas to ensure that all appropriate safety procedures and PPE are in place to minimize employee and property risk and that the hazardous chemicals and materials can be used safely in the designated area. Document any findings in the Facility Safety Inspection Records at least annually, audit or review the audit of purchase records to ensure all hazardous material acquisitions are reviewed and approved by competent persons. A competent person is a person who has acquired through training, qualification, or experience, the knowledge and skills to identify hazardous substances/articles being requested for acquisition, and the ability to manage those purchased and brought on the Center. Ensure all health and safety requirements are properly implemented prior to acquisition by reviewing Safety permits, and following the procedures documented in the following chapters: GRC Occupational Health Programs Manual, Chapter 20, Hazardous Communication (HazCom) Policy and HazCom Program, Chapter 21, Hazard Assessment/Exposure Assessment Program; and Glenn Safety Manual, Chapter 33, Job Hazard Analysis.

5.4 Procurement Division

- Reviews purchase requests for accuracy, justification, proper approvals, and executes contracts or purchase orders for acquisition of hazardous chemicals and materials. Designates on purchase orders that deliveries of hazardous chemicals and materials ordered through SAP shall be directed to the Chemical Control Facility at Lewis Field and the Shipping and Receiving (S&R) at Plum Brook Station for proper receiving inspection and bar coding for inventory tracking.

5.5 Logistics and Technical Information Division (at Plum Brook Station, SSC Shipping and Receiving (S&R) Personnel)

- Inspects all packages containing hazardous chemicals and materials for breakage or leakage and reports any leaking packages by calling 911 (from an internal phone at either Lewis Field or Plum Brook Station).
- Receives package against the purchase order.
- Sends MSDSs to the requestor and SHed chemical management when received.
- Ensures that the packages of hazardous chemicals and materials are delivered safely to the requestor.
- Prepares the appropriate paperwork and hazardous material shipping documents to ship hazardous chemicals and materials that are to be returned to the supplier from Lewis Field. Responsible for proper packaging, labeling, and shipping of any hazardous chemical from Lewis Field.

Report any discrepancies or unusual shipping papers to SHed Chemical Management.

5.6 Building Managers and Supervisors

- Maintain awareness of all potentially hazardous activities within their assigned facilities that require the safe use, handling, storage, and disposal of hazardous chemicals and materials and hazardous wastes.

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6.0 REQUIREMENTS

Executive Order 13423 requires that the Center (a) reduce the quantity of toxic and hazardous chemicals and materials acquired, used or disposed, (b) increase diversion of solid waste as appropriate, and (c) maintain cost-effective waste prevention and recycling programs in its facilities. Also, Executive Order 13514 requires that the Center (e) promote pollution prevention and eliminate waste by (v) reducing and minimizing the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of; and (viii) increasing agency use of acceptable alternative chemicals and materials and processing in keeping with the agency's procurement policies. The acquisition of hazardous chemicals and materials can affect this requirement directly. Therefore, the GRC requirements for acquisition of hazardous chemicals and materials have been defined to accomplish the goals of the policy.

6.1 Purchasing Goals

Chemical Management System: Maintain updated MSDS for current revisions and an updated inventory to assist requestor in having the option of using available chemicals.

Procurement: Expand purchases of environmentally sound goods and services, including bio-based products as described in the objectives of EPM, Chapter 9, Green Procurement.

Pollution prevention: Reduce use of chemicals and toxic materials and purchase lower risk chemicals and toxic materials from top priority list.

Toxics: Reduce the purchase and use of hazardous and toxic chemicals.

6.1 - The SHeD verification procedure to ensure compliance with the requirements listed in this section shall be accomplished by reviewing all new hazardous chemical and material orders during pre-approval and then archiving such information.

6.2 Storage

Order only enough hazardous chemicals or materials to accommodate the project. The Chemical Control Facilities are not able to accommodate storage of materials. When ordering, ensure that the facility can safely store the amount of material ordered until the material is used.

6.2 - The SHeD verification procedure to ensure compliance with the requirements listed in this section shall be accomplished by reviewing the chemical storage areas during a Facility Safety Inspection.

6.3 Free Samples

A hazardous chemical arriving at the Center without notification or preparation creates unnecessary health, safety, and environmental hazards. Therefore, all chemical, whether purchased or provided at no cost from a supplier, shall have pre-approval through Chemical Management by completing a Hazardous Material Sample(s) Acquisition Form C-153.

6.3 - The SHeD verification procedure to ensure compliance with the requirements listed in this section shall be accomplished by reviewing and filing all Hazardous Material Samples(s) Acquisition C-Form C-153 forms.

6.4 Agency Exchange

Hazardous chemicals and materials can be received and shipped from other Centers or Agencies. If there is no cost associated with the exchange, all hazardous chemicals and materials shall have pre-approval through Chemical Management by completing a Hazardous Material Sample(s) Acquisition Form C-153.

6.4 - The SHeD verification procedure to ensure compliance with the requirements listed in this section shall be accomplished by reviewing and filing all shipping papers and e-mails received from other Centers or Agencies.

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6.5 University Exchange/Visiting Faculty

It has been common practice for visiting college/university and high school faculty and students to freely exchange hazardous chemicals and materials from the university/school to the Center to do work. This practice has created a myriad of chemical management issues and health, safety, and environmental hazards and liabilities. All hazardous chemicals and materials shall have pre-approval through Chemical Management by completing a Hazardous Material Sample(s) Acquisition Form C-153, to allow the movement of material from the school to the Center.

6.5 - The SHed verification procedure to ensure compliance with the requirements listed in this section shall be accomplished by reviewing and filing all shipping papers and e-mails received from visiting college/university and high school faculty and students.

6.6 Delivery

All hazardous chemicals and materials are delivered to the Chemical Control Facility at Lewis Field, and the S&R facility at Plum Brook Station. This requirement also applies to all hazardous chemicals and materials including free samples. Exceptions shall be approved by chemical management prior to the hazardous chemical arriving on the Center property. Prior to delivery, the hazardous chemicals and materials will be bar-coded. Violations of the delivery requirement will receive a findings report which will summarize the inventory discrepancies and describe best practices and opportunities for improvement. Repeated violations will result in a Corrective and Preventive Action Report (CPAR) issued.

6.6 - The SHed verification procedure to ensure compliance with the requirements listed in this section shall be accomplished by reviewing all new chemical and hazardous material orders during pre-approval and then archiving such information.

7.0 RECORDS

Maintained in the IEMP:

- Purchase requests
- Purchase orders
- Specialty Gas Management System
- Chemical receiving

Maintained by SHed:

- Material Safety Data Sheets
- Chemical inventory (at Plum Brook Station, SSC personnel)
- Facility inspection records
- Safety permits

8.0 REFERENCES

Document number	Document Name
GLM-QS-1700.1	NASA Glenn Safety Manual, Chapter 5, Oxygen
GLM-QS-1700.1	NASA Glenn Safety Manual, Chapter 6, Hydrogen
GLM-QS-1700.1	NASA Glenn Safety Manual, Chapter 15, Personal Protective Equipment
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chapter 2, Asbestos
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chapter 4, Respiratory Protection Program
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chapter 5, Lead

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GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chapter 6, Elemental Mercury
GLM-QS-1800.1	NASA Occupational Health Programs Manual, Chapter 13, Laser Safety Program
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chapter 19, Synthetic Inorganic Fiber Program
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chapter 23, Nanomaterials Health and Safety
GLM-QS-8500.1	NASA Glenn Environmental Programs Manual, Chapter 5, Management of Hazardous Materials and Waste for Reuse, Recycling, or Disposal
GLM-QS-8500.1	NASA Glenn Environmental Programs Manual, Chapter 6, Pollution Prevention and Sustainability Plan
GLM-QS-8500.1	NASA Glenn Environmental Programs Manual, Chapter 9, Green Procurement
GLM-QS-8500.1	NASA Glenn Environmental Programs Manual, Chapter 13, Emergency Planning and Community Right-to-Know
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chapter 20, Hazard Communication Policy
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, HAZCOM Program
GLM-QS-1800.1	NASA Glenn Environmental Occupational Health Manual, Chapter 25, Chemical Hygiene Policy
GLM-QS-1800.1	NASA Glenn Occupational Health Programs Manual, Chemical Hygiene Plan
GLM-QS-8500.1	NASA Glenn Environmental Programs Manual, Chapter 16, Stratospheric Ozone Protection
Federal Standard 313A	Material Safety Data Sheets, Preparation and Submission of NSS 1740.7, Safety
Public Law 94-469	Toxic Substances Control, A Standard for Handlers of Hazardous Materials
Title 29 CFR 1910 Subpart Z	Toxic and Hazardous Substances Title 29 CFR 1910.1200, Hazard Communication
Title 29 CFR 1960	Basic Program Elements for Federal Occupational Safety and Health
Title 40 CFR 355	Emergency Planning and Notification
Title 40 CFR 370	Hazardous Chemical Reporting; Community Right-to-Know
Title 40 CFR 372	Toxic Chemical Release Reporting; Community Right-to-Know
Title 40 CFR 260-265	Protection of the Environment
Title 49 CFR 100-177	Hazardous Materials Regulations
Executive Order 13423	Strengthening Federal Environmental, Energy, and Transportation Management, January 26, 2007
Executive Order 13514	Federal Leadership in Environmental, Energy and Economic Performance, October 8, 2009
NPR 1800.1 Chapter 4.7	Control of Hazardous Substances and Articles Acquisitions

APPENDIX A.—DEFINITIONS AND ACRONYMS

Affirmative procurement (AP)

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Code of Federal Regulations (CFR)

Corrective and Preventive Action Report (CPAR)

Emergency Planning and Community Right-to-Know Act (EPCRA)

Environmental Management System (EMS)

Environmentally preferable product (EPP)

Environmental Programs Manual (EPM)

Glenn Procedural Requirements (GLPR)

Glenn Research Center (GRC)

Hazardous chemical.—Any chemical that is a physical hazard or a health hazard.

Hazardous communication.—(HAZCom)

Health hazard.—A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term “health hazard” includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A of the Hazard Communication Standard (29 CFR 1910.1200) provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B of the Hazardous Communication Standard describes the criteria to be used to determine whether or not a chemical is to be considered hazardous.

Integrated Enterprise Management Program (IEMP)

Material Safety Data Sheet (MSDS)

NASA Procedural Requirement (NPR)

Occupational Health and Safety Administration (OSHA)

Occupational Health Programs Manual (OHPM)

Ozone depleting substance (ODS)

Personal protective equipment (PPE)

Physical hazard.—A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water-reactive.

Purchase request (PR)

Safety and Mission Assurance Directorate (SMAD)

Safety and Health Division (SHeD)

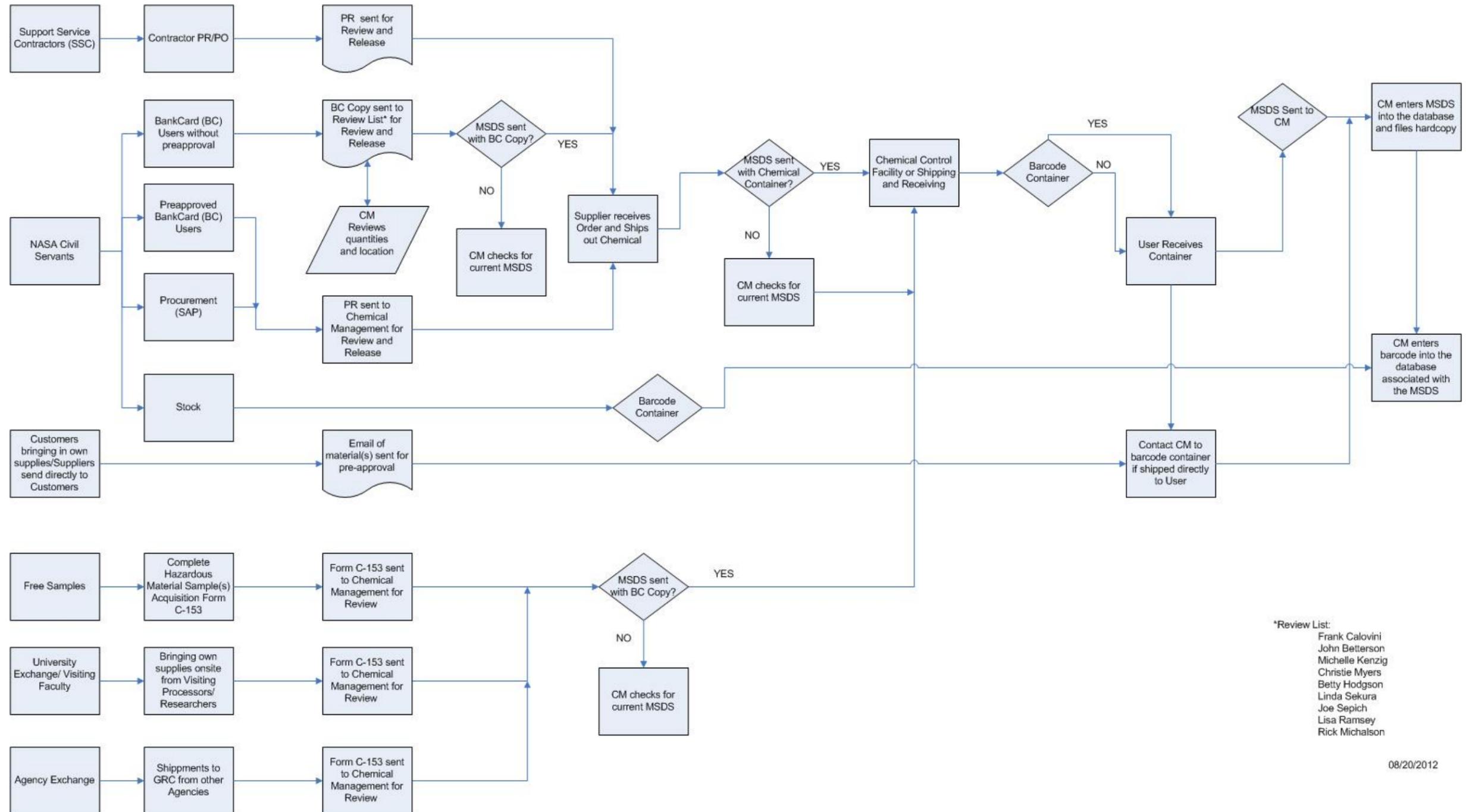
Specialty Gas Management System (SGMS)

Superfund Amendments and Reauthorization Act (SARA)

Support service contractor (SSC)

Shipping and Receiving (S&R)

FIGURE B.1 - ROUTES TO OBTAIN CHEMICALS AT NASA Glenn Research Center



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