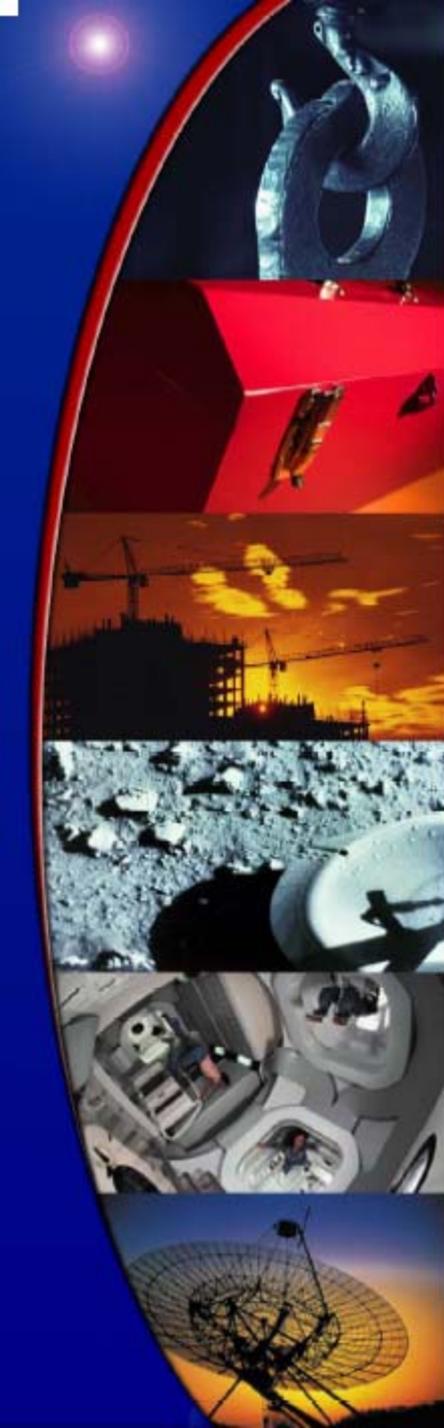


NASA GODDARD SPACE FLIGHT CENTER (GSFC)

ENVIRONMENTAL SUCCESS STORIES



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NASA's GSFC Waste Minimization Goals

- Sustainable use of natural resources;
- Reduction of wastes through source reduction and recycling;
- Identifying and mitigating the waste impacts of program and project activities.

General Mission Statement

- To develop a method to encourage and educate Center employees and management on the importance of waste prevention/reduction and recycling at the Center. To sponsor the initiation of new programs, and projects.

Cost-Saving Techniques

- One of the Center's goals is finding out ways of saving money on environmental issues.
- Cost-saving techniques when conducting environmental remediation is a key component to effective policy goals (Ex. Mercury Spill).

Mercury Spill

- The **Space Environment Simulator (SES)** is a three-story high thermal-vacuum chamber located in Building 10 that features an 8.2 meter diameter by 12.2 meter high vacuum chamber capable of simulating temperature and vacuum conditions for virtually any launch or orbital environment condition. Shroud temperatures within the chamber can be controlled to $-180\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$

Mercury Spill

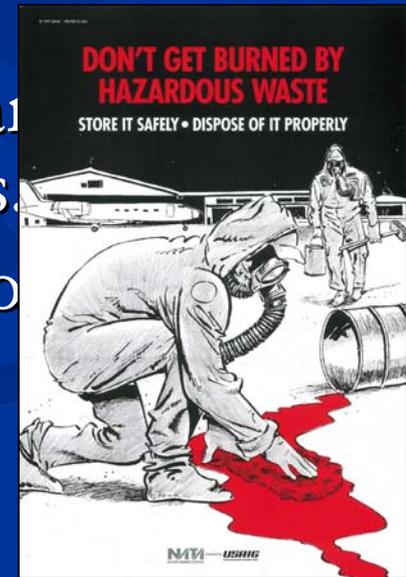
The image shows the interior of a chamber with a metallic, textured wall. The wall is marked with numerous red spots, likely indicating areas of concern or contamination. A small, rectangular sign is affixed to the wall on the left side. The floor is a smooth, light-colored surface. On the right side, there is a large, rectangular vented door with horizontal slats. The overall scene suggests a controlled environment where a spill has occurred.

Workers found mercury under and in fiber glass insulation and around chamber air ducts. Also found localized within the chamber and basement floor.



24 hours Maryland Department of the Environment Spill report

- On July 6, 2006 while conducting asbestos remediation in Building 10, workers found mercury suspected of coming from many broken manometers and ARC lamps used to heat the SES chamber.
- Air vapor testing in asbestos confinement area confirmed no detectable Hg concentrations.
- NASA Goddard Environmental Contractor closed off the area and collected about 150 bags of contaminated material.



Economical Benefits

- In dealing with the site, GSFC hired a contractor to cleanup the mercury using a mercury vacuum and compact the bags into 20 drums.
- The disposal price for each drum was \$1,250. Compacting reduced the total numbers of drums from 60 drums to 20 drums, saving the government approximately \$48,000 (Contractor costs, compact equipment).
- As a result of the incident, the Goddard Hazardous Waste Minimization Team developed the goal to eliminate all unnecessary uses of mercury and reduce exposure to potential releases.

Results

- The Team developed a survey on the application and use of mercury on Center.
- After an exhaustive inventory, the Team found a greater than expected amount of mercury containing equipment.
- New ways are being developed for better communication of hazardous waste and remediation efforts (Mercury Awareness training).

GODDARD WASTE REDUCTION PRIORITIES

- Goddard has made waste minimization a major component of its overall Environmental Management System.
- GSFC establishment of cross-center teams will help manage its potential impacts on the natural environment at Goddard and improve environmental behavior in the workplace.
- Moreover, it can refocus the organization's attention beyond mere compliance and build toward eco-friendly environmental and economic performance.
- As these teams evolve, members will discover new opportunities to prevent, rather than simply manage pollution, and to reduce wasteful uses of resources, in effect saving money while improving the environment.