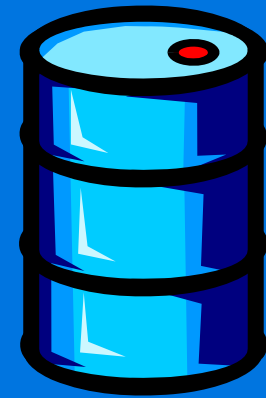
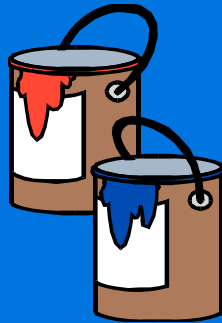
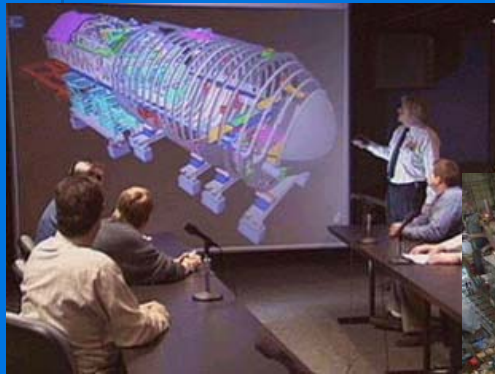


Chemical Risk Reduction



Donna Elks, Manager of Environmental Resources

Electric Boat Corporation



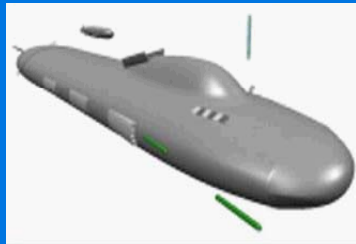
Engineering
& Design



Construction



Sea Trials
& Test



Advanced
Development



Life-Cycle Support

FACT

- EB occupies more than 75 buildings, encompassing more than 90 acres, and employs approximately 8,000 very talented people.
- EB's Procurement Department purchases more than 8,000 types of hazardous materials used to build the boat as well as for maintenance.
- These materials include, but not limited to: paints, glues, adhesives, caustics, petroleum products, weld rods, resins, metals, solvents, coolants, greases, grit, bar stock, metal, batteries, coatings, flux, printing supplies, etc.

DILEMMA

- How does a company “avoid the risks” regarding the use of the many hazardous materials required to manufacture their product...
 - Minimize the amounts of hazardous materials into their Site?
 - Ensure that these hazardous materials meet OSHA, EPA, State permit and regulatory requirements?
 - Track all the required MSDSs?
 - Ensure that the materials meet the companies needs?
 - Avoid the use of “unallowable” hazardous materials
 - Avoid obtaining materials that serve the same purpose as existing materials, minimizing disposal of excess materials

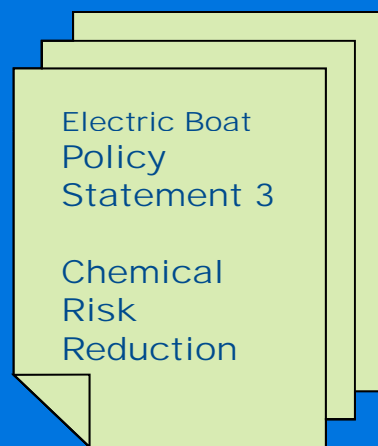
STRATEGY

- Chemical Risk Control Committee:
 - Environmental, Safety, IH, Procurement, Fire Dept., Engineering, Operations, Maintenance, Receiving
- Written Policy : “Chemical Risk Reduction”
- Implement an electronic system for all MSDS for employees to access (+ 12,000 (archived 35,000))
- Establish part numbers for all Hazmat
- Set goals
 - Communicate the program
 - Make it easy
 - Monitor and enforce

Chemical Risk Reduction Program

Purpose:

- Establishes a written company procedure to ensure the control of all hazardous materials BEFORE they are either purchased, received as samples or generated at Electric Boat.



Chemical Risk Reduction Program

Purpose:

- Reduces and avoids risk to personnel and to the environment.
- Provides for a review of applicable PPE, monitoring requirements, etc.
- Opportunity to review and “phase-out” certain chemicals.



Chemical Risk Reduction Program

Before **ANY NEW** hazardous material (*even samples*) is procured or received at Electric Boat, a review process **MUST** be conducted by:

- Industrial Hygiene
- Environmental Resources
- Other impacted departments

» Fire Dept, Materials Management, Engineering, etc.



Chemical Risk Reduction Program

The program includes a
“Prohibited/Restricted Materials List”:
Hazardous materials prohibited from
use or whose use is strictly controlled.



Prohibited/Restricted Material List

- Asbestos (IH)
- Benzene (IH)
- Formaldehyde (IH)
- 4,4-Methylene Bis (2-chloroaniline) (MBOCA) (IH)
- Mercury (IH)
- Tributyl-tin (IH)
- Cadmium (IH)
- Methylene chloride (IH)
- Carbon tetrachloride (IH)
- Trichloroethylene (IH)
- **Tetrachloroethylene** (Perchloroethylene) (IH)
- Polychlorinated Biphenyls (PCBs) (IH, ERM)
- 1,1,1-Trichloroethane (methyl chloroform) (ERM)
- 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) (ERM)
- Crystalline silica (quartz) (IH)
- Lead (IH)
- Arsenic (IH)
- Beryllium (IH)
- Vinyl chloride (IH)
- 4,4-Methylene dianiline (MDA) (IH)
- Ethyleneimine (IH)
- **Toluene diisocyanate (IH)**

Process

1. “Interested party” submits the Hazardous Material Request form and MSDS to Industrial Hygiene (IH).
2. IH reviews the information for OSHA related information, then establishes an MSDS number in the electronic data base for all MSDS’s as well as appropriate HMIS information.
3. IH forwards the information to Environmental (ERM) for review (waste stream info, Title V, NESHAPS, SARA, Tier II, NPDES, stormwater concerns, etc.).

Process

4. ERM forwards the form to other appropriate Engineering Depts. as well as Fire Dept. for their review and comments.
5. “Interested party” receives confirmation or disapproval and reasons via phone. Paperwork is maintained in a database by IH.
6. Part numbers are established and required for all hazardous materials.

Chemical Risk Reduction Program

Questions

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Our Environmental Management System is the way in which we do our job to protect the environment...

EB's Environmental Policy addresses our:

Commitment to the environment

Compliance with environmental rules and regulations

Continual improvement and

Prevention of Pollution

