

Chemical Redistribution at the Pacific Northwest National Laboratory

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It's Time for a Change...

- ▶ Historically, chemical management at Pacific Northwest National Laboratory (PNNL) has been limited to inventory tracking and managing around fire loading limits within buildings.
- ▶ PNNL recognized the need to assess its current chemical management processes and costs. This was driven in part by:
 - ▶ PNNL's transition out of the 300 Area
 - ▶ Start Clean Stay Clean (SCSC) Clause in Contract
 - ▶ DOE attention on unwanted and unneeded materials and chemicals.
 - ▶ Life cycle management of materials and chemicals (assets).

Management Costs

- ▶ Management costs, including chemical lifecycle costs for procurement, receipt, delivery, inventory, waste and Environment Safety Health & Quality and Information Technology support were estimated at approximately \$10,751,000 per year (FY05).
- ▶ In the same time period, an estimated \$1,293,000 of chemicals were purchased or otherwise acquired.
- ▶ Costs were driven, in part, by:
 - multiple non-integrated data systems requiring quintuple data entry
 - researcher time sourcing supplies
 - the complexity of managing diverse processes and waste streams.

A New Chemical Management Strategy

- ▶ PNNL's Chemical Management Strategy establishes new management practices to meet the future needs of the Laboratory, including the construction of new facilities and support of the Office of Science Start Clean/Stay Clean and integrated asset management operating philosophies.
- ▶ The Laboratory's future vision is for chemicals to be a part of an integrated asset management system which allows us to efficiently and effectively manage and measure the performance of all aspects of the chemical management lifecycle, including: procurement, delivery/distribution, inventory, use, retention, collection, monitoring/reporting, treatment and disposal.

Supporting the Chemical Management Strategy

- ▶ Three key processes were initiated to support the Chemical Management Strategy.
 - Contract Chemical Management Services
 - Chemical Evaluation
 - Chemical Redistribution Program (ChemAgain)

Responsibilities

- ▶ **Safety & Health:** Provide CMS capability to identify and track candidate chemicals. Resolve any chemical safety issues encountered during process (e.g., identification of unstable chemical).
- ▶ **Chemical Owners:** Screen chemical inventory and identify candidates for redistribution. Provide funding for disposal of chemicals that are not redistributed.
- ▶ **Waste Management:** Lead the project. Provide field support services for management and processing of chemicals (e.g., interface with chemical owners, storage, labeling, and entry into IWMS). Move chemicals to the CRC.
- ▶ **P2 Coordinator:** Document and implement robust redistribution process for all candidate chemicals, including reporting, and database management.

Chemical Management Services

- ▶ PNNL is currently pursuing the outsourcing of chemical management services at two existing facilities.
- ▶ This includes planning, procurement, delivery, receiving, storage, data management and inventory control. The scope also includes facilitating utilization of the existing inventory available for redistribution.
- ▶ FY08 a chemical management services Request for Proposal was approved and issued.
- ▶ It is anticipated that this approach to managing chemicals will be expanded to all of the PNNL facilities once the systems have been tested and adjusted to meet our needs.

Chemical Evaluation

- ▶ Within the Chemical Management System, developed and implemented tools to aid in the evaluation process.
- ▶ 61,000 chemicals inventoried in the Chemical Management System were evaluated by chemical owners and associated with an active project, capability, or facility need.
- ▶ Chemicals not associated with a project, capability, or facility were offered for redistribution to others who may have a need for the material.

Chemical Redistribution Program (ChemAgain)

- ▶ In FY07, PNNL opened the Chemical Redistribution Center (CRC).
- ▶ Funding for the CRC is provided through Laboratory Directorates.
- ▶ Fire loading limits had to be negotiated with other facility users to ensure adequate limits were available to the CRC.
- ▶ Procedures had to be written or updated.
- ▶ Storage cabinets, desk, computer, printer, file cabinets, refrigerator, shelving, and other necessary supplies were donated by staff that otherwise would have been exceeded.
- ▶ Trained applicable staff.

Chemical Redistribution Chemical Redistribution Center



Chemical Redistribution Criteria

- ▶ After the completion of the evaluation, chemicals are collected by the Field Services Representative (FSR) to verify that they meet the following redistribution criteria.
 - Commercially obtained
 - In good condition
 - Labels are fully intact and legible
 - Container and lid is not cracked or broken
 - There are no drips, visible crusts, or sticky
 - The container doesn't have an offensive odor
 - Is in its original container (no secondary containers)
 - Unopened or opened but must contain a usable quantity
 - Doesn't require special handling (i.e., stored under gas, refrigeration, light sensitive, etc.)
 - Free of radioactive or chemical contamination
- ▶ Items not meeting the above criteria may be redistributed on a case-by-case basis.

Chemical Redistribution

Management of Redistribution Chemicals

- ▶ Chemicals are identified with a temporary label and information within CMS are verified by the FSR.
- ▶ Chemicals are entered into the Integrated Waste Management System (IWMS) as available for redistribution.
- ▶ Chemicals placed in the redistribution process are moved to the CRC and staged for redistribution.

Chemical Redistribution Storage

- ▶ Once in the CRC, items are stored on the shelf or in the appropriate cabinet and segregated by hazard class.



Chemical Redistribution

Onsite Redistribution of Chemicals

- ▶ In FY08 the chemical redistribution was integrated into the electronic chemical procurement request system to encourage the use of existing inventory.
 - Upon ordering a chemical, the system will alert the purchaser if the chemical is available for redistribution.
 - A link is also available in CMS which will list the entire CRC inventory.
- ▶ The CRC Lead is notified of the request and makes the necessary transportation plans and updates all databases.
- ▶ Chemicals are transported via Materials of Trade (MOT) or by approved DOT requirements.

Chemical Redistribution

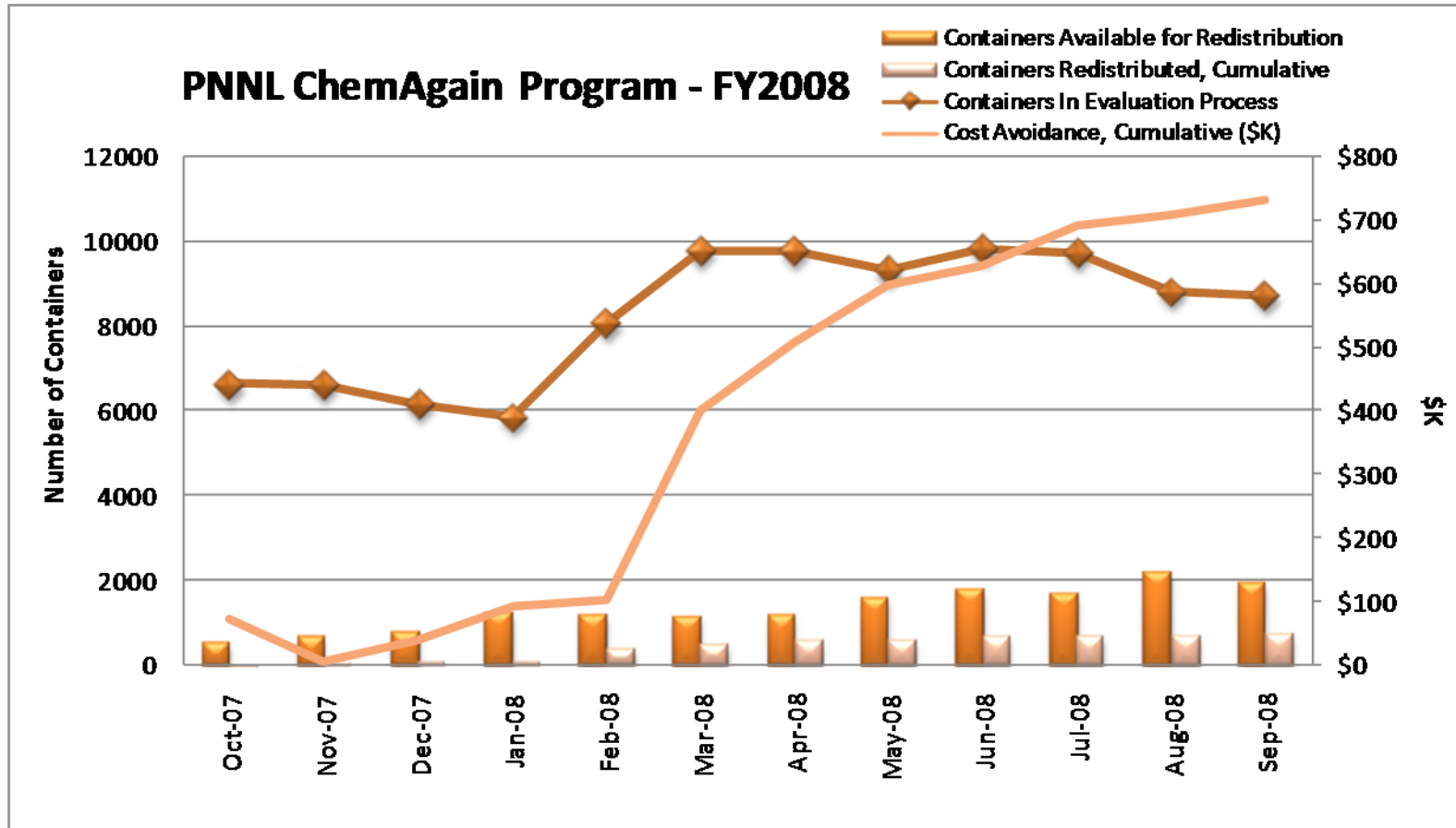
Offsite Redistribution of Chemicals

- ▶ Chemicals are awarded on a first-come, first-serve basis in the following order: PNWD staff, DOE Complex, northwest colleges and universities, and Community Reuse Organization.
- ▶ Outside organizations are contacted to inquire about their chemical needs. An inventory of chemicals meeting their criteria is returned to them for review.
- ▶ Redistribution of any chemicals must be approved by DOE.

Chemical Redistribution CRC Inventory Evaluation

- ▶ Quarterly each chemical in the CRC is evaluated to determine if a chemical shall continue to be retained based on the following criteria.
 - Quantity on hand
 - Time in the CRC
 - FUA limit
 - Use patterns at the Laboratory
 - Replacement cost
- ▶ If it has been determined that the chemical no longer meets the redistribution criteria then it is declared waste and the 90 day clock will begin.

Chemical Redistribution Success



QUESTIONS?



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