

“Rehab the Lab” Technical Assistance Campaign

Executive Summary

July 2004

Science laboratories in middle and high schools provide invaluable hands-on opportunities for students to explore physical and biological sciences, and can spark interest towards many different careers. However, science laboratories can also contain unsafe chemicals and conditions that could ruin that hands-on experience. Increased government funding for science education during the mid-twentieth century resulted in extensive inventories of aging and potentially harmful chemicals in school laboratories. Technical assistance visits to laboratories significantly reduced risks to future scientists caused by unsafe conditions and high-risk chemicals.



The Thurston County Public Health and Social Services Department has inspected schools in the county for general safety since the 1970s. In 1996, hazardous waste and environmental health specialists from the Business Pollution Prevention Program went beyond general safety inspections by conducting a comprehensive hazardous waste inspection of school facilities, including laboratories.

In 2002-2003, the program conducted a school laboratory technical assistance campaign focused on chemical management, safety, purchasing, record keeping, and removal of high-risk chemicals in school laboratories. This project was modeled after the “Rehab the Lab” project developed by the Local Hazardous Waste Management Program in King County. County hazardous waste and environmental health specialists consulted with many individuals throughout the state who were working on similar efforts. Staff were also involved with the statewide “Rehab the Lab” committee, and collaborated to develop a laboratory inspection training video used in statewide workshops.

Specialists first coordinated with school representatives on the district level in an effort to ensure greater acceptance and implementation of the technical assistance recommendations. District superintendents gave permission for laboratory inspections, and district maintenance supervisors or safety coordinators acted as liaisons between specialists and individual science teachers within the district.

The non-regulatory nature of this project was different from other technical assistance campaigns conducted by the Business Pollution Prevention Program. Staff believed that more districts would participate in a non-regulatory campaign. However, they did use the requirements of the Thurston County Nonpoint Source Pollution Ordinance and a publication about school safety, authored by the Washington State Department of Health and the Office of the Superintendent of Public Instruction, to develop the inspection checklist.

Laboratory inspections focused on improvements in laboratory safety and long-term chemical management. Twenty-six labs received a comprehensive chemical and safety inspection, which included an evaluation of each individual chemical container. One goal of the inspections was to reduce the overall chemical inventory to a five-year supply. Higher risk chemicals, including old chemicals that were degraded and potentially unstable, and certain chemicals designated as excessively toxic, were removed. Approximately 3,900 pounds of chemicals were removed and

properly disposed. A special grant from the Washington State Department of Ecology covered disposal costs, and most wastes were delivered to HazoHouse (the county's moderate risk waste collection facility). Topics of each inspection included proper storage and chemical compatibility, safety equipment, and spill kits. In order to encourage long-term best management practices, specialists provided educational resources about less toxic chemical alternatives, small-scale chemistry experiments, and inventory control.

Results of the laboratory inspections found several areas where improvements were necessary. Science teachers needed to properly stock and maintain spill kits based on the types of chemicals used in the laboratory. Chemical storage was also an issue. In some cases, incompatible chemicals were found stored together even though proper storage areas were present. In addition, ventilation in storage and lab areas needed to be improved in some schools. Accumulation of chemicals was another common area to be addressed. Most of the laboratories had chemicals greater than five years old, or excessive quantities of certain chemical classes, such as oxidizers. There were also four instances where potentially unstable chemicals required special handling and disposal. However, it is important to note that science teachers generally do not have the extensive hazardous materials training that county specialists possess, and use limited district resources to manage chemical inventories.

Project coordinators worked with school representatives to address issues noted in each laboratory and conducted follow-up visits to verify implementation of easily remedied recommendations. Capital improvements, such as upgrades to storage and ventilation systems, were considered long-term management projects. At the conclusion of the initial visits, specialists noted 47 compliance issues to be addressed. Thirteen compliance issues remained when follow-up visits were completed. District representatives were asked to sign a "Pledge for Safe Classrooms," which outlined thirteen best management practices to prevent unsafe laboratory conditions and eliminate high-risk chemicals. Schools returning the pledge were presented with a Certificate of Environmental Achievement for their support of safe laboratories.

County staff reached several conclusions based on the initial laboratory visits. First, districts with a high turnover of science teachers were more likely to have unknown and inherited chemicals in chemical storage areas. Specialists also noted that districts with decentralized purchasing systems and multiple individuals ordering supplies had more issues to address. Storage of excessive quantities of chemicals was also common in laboratories. Unit price discounts and a flat hazardous materials shipping fee may have encouraged the purchase of bulk quantities.

Information from these visits will help schools maintain safer laboratory facilities. Specialists will accompany other environmental health staff during annual school safety inspections and send periodic newsletters or fact sheets to schools detailing new laboratory management issues or ideas for small-scale or "green chemistry" experiments. Specialists may also pre-schedule annual waste disposal appointments for schools at HazoHouse as a reminder to dispose of wastes.

Overall, this technical assistance campaign was well received and met the goals of the county Hazardous Waste Program. Customer service surveys indicated that the technical assistance was welcomed and valuable to schools. Participation within local school districts was high, and individual classrooms and laboratories are now safer because of the technical assistance and recommendations provided by county specialists.

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