

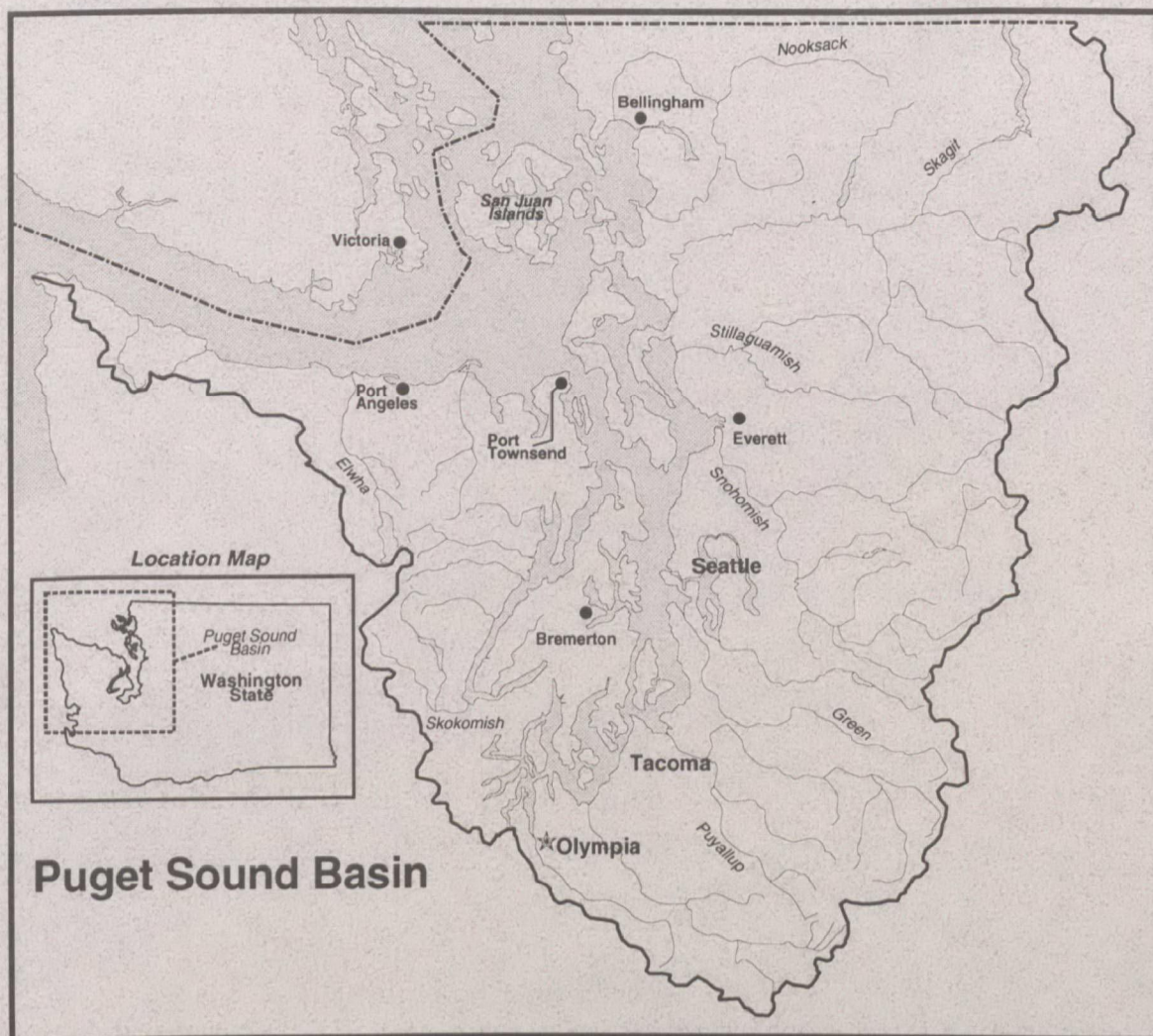


Protecting the Puget Sound Environment

Environmental Progress in the Puget Sound Basin

Seattle, Tacoma, Olympia, Bellingham, and Bremerton are all major cities located on Puget Sound. Puget Sound also encompasses Bainbridge Island and the San Juan Islands, the Tacoma Narrows and Hood Canal, where clam flats and crab pots are plentiful. The waters of Puget Sound are used for a variety of water sports and its shores support a number of active ports, beaches and recreational facilities. People living in the Puget Sound area consider the environment an important part of the high quality of life they enjoy and consider pollution to be of great concern. However, some business and industrial practices as well as urban and even rural land use practices have caused environmental pollution in Puget Sound.

This brochure will focus on hazardous and solid waste management and cleanups and how these cleanups impact the communities' current and future land use. It will briefly explain how the U.S. Environmental Protection Agency (EPA) is involved in these efforts, and where these efforts are making a difference in Puget Sound.



Managing Hazardous Waste

It became clear, in the mid-1970s, to Congress and the nation alike, that action had to be taken to ensure that hazardous wastes are properly managed. Two major federal laws govern proper management of wastes and discarded chemicals, as well as cleanup of spills and releases of these materials. These two laws are the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA, commonly called Superfund).

The goals set by RCRA are:

- To protect human health and the environment;
- To reduce waste and conserve energy and natural resources;
- To reduce or eliminate the generation of hazardous waste as expeditiously as possible; and
- To manage hazardous waste from "cradle to grave."

The RCRA program works in conjunction with owners and operators of facilities. There are three active programs under RCRA:

1. **Subtitle D** - States are encouraged to develop comprehensive plans to manage primarily nonhazardous solid wastes.
2. **Subtitle C** - Business and industry must establish a system for controlling hazardous waste from the "cradle to grave."
3. **Subtitle I** - Regulating certain underground storage tanks (UST) establishing performance standards for new tanks, requiring leak detection, prevention and corrective action at underground tank sites. This program protects drinking water and ensures explosion hazards are addressed quickly.

RCRA was enacted in 1976 to address a problem of enormous magnitude - how to safely manage and dispose of huge volumes of municipal and industrial waste generated nationwide. This problem arose through a combination of greatly increased industrial production and waste generation, and widespread mismanagement of toxic wastes. Through RCRA, a national policy was established:

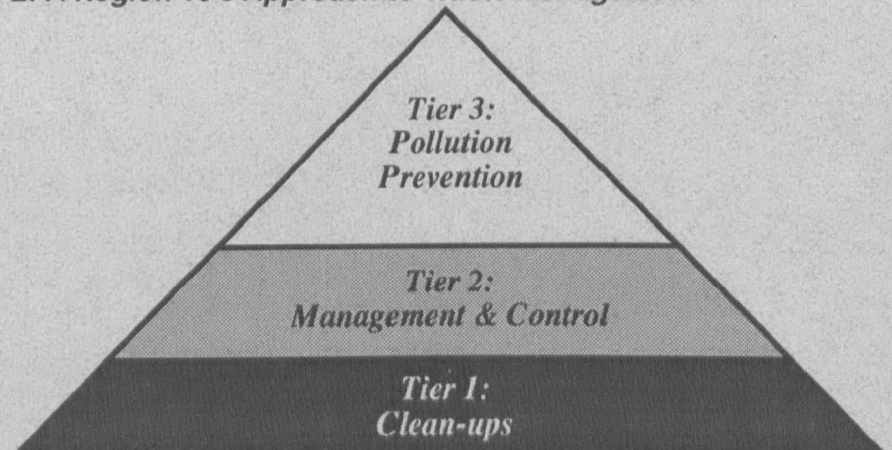
"that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste that is nevertheless generated should be treated, stored or disposed of so as to minimize the present and future threat to human health and the environment."

The hazardous waste, or Subtitle C, component of the RCRA program is applicable to

persons who generate, transport, or manage hazardous waste.

The Subtitle C program is based on a hierarchy of approaches to reducing the risk from hazardous or toxic wastes. Elements of this hierarchy include pollution prevention, waste management and control, and cleanup or corrective action to address releases of hazardous waste. EPA knows that the best way to manage risks from hazardous waste is not to generate it in the first place. Thus, pollution prevention is EPA's preferred tool to address waste management. For waste that must be generated, the Subtitle C program insures that the waste is responsibly managed. Finally, when spills or releases of hazardous waste do occur through accidents or mismanagement, the Subtitle C program can require owner/operators to clean up such releases.

EPA Region 10's Approach to Waste Management



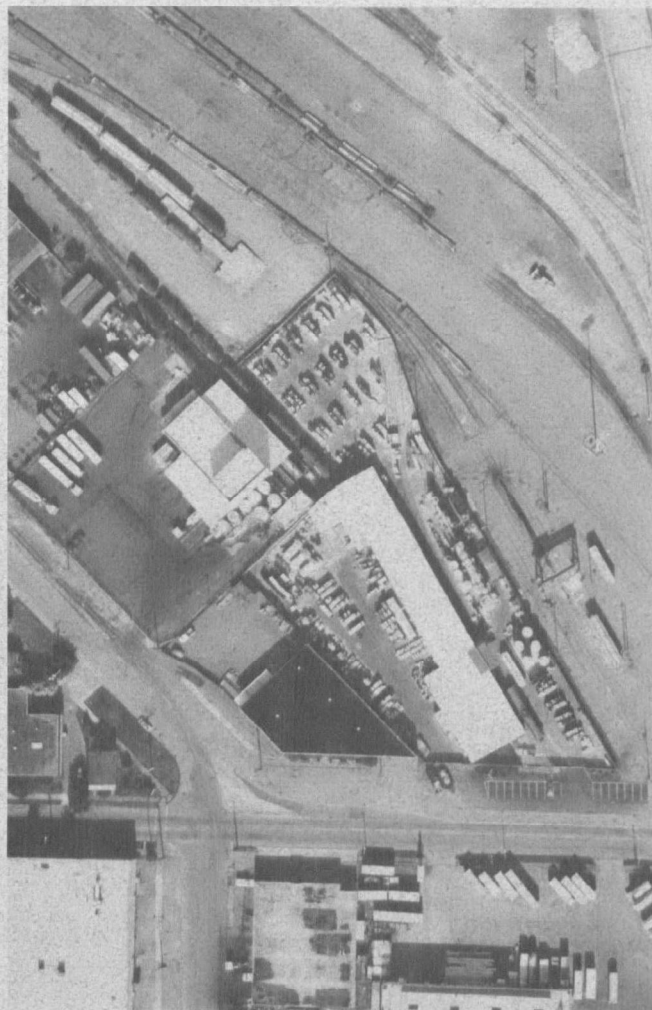
Protecting the Environment through Responsible Waste Management

RCRA is intended to protect the environment through responsible waste management. Although many RCRA requirements have to do with reporting, recordkeeping and planning, some have easy-to-see results. The following before-and-after photographs illustrate changes required by RCRA at a waste management facility. Things to look for include:

- Sufficient room between drums to allow access for routine inspection and leak detection.
- Access for emergency response, such as fire equipment, including requirements for traffic patterns.
- Cleanup of stains and spills. Requirements for facility maintenance, spill response, secondary containment and run-off control.
- Security and safety requirements, such as a fence around the entire facility.



Before Waste Management Changes.



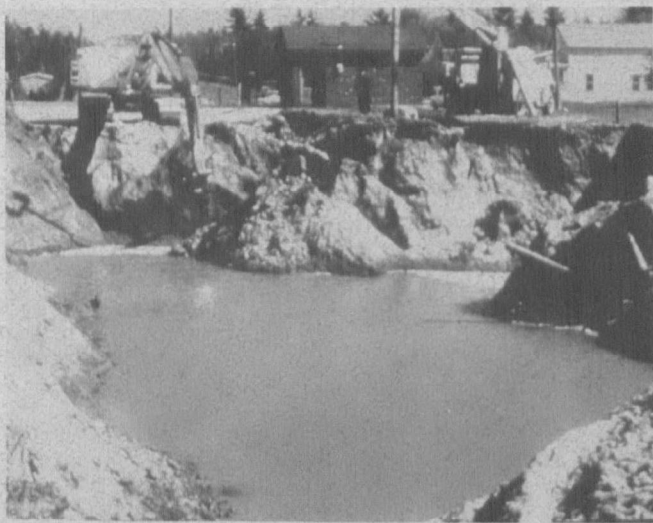
After Waste Management Changes.

The Underground Storage Tank Problem

Underground storage tanks, frequently found at service stations near residential neighborhoods, have proven to be an enormous environmental problem. As of 1990, there were about 1.4 million underground storage tanks nationwide, mostly storing petroleum products and retail motor fuels. In 1986, EPA estimated that these tanks were leaking at a rate of about 2.2 million gallons per day. These leaks can easily contaminate drinking water supplies; **as little as one gallon of gasoline can contaminate a million gallons of drinking water.** Most underground storage tank regulations are preventative in nature. They include requirements addressing:

- Design, construction and installation
- General safe operating practices
- Release detection and reporting system
- Cleanup and corrective action; and
- Closure and financial assurance

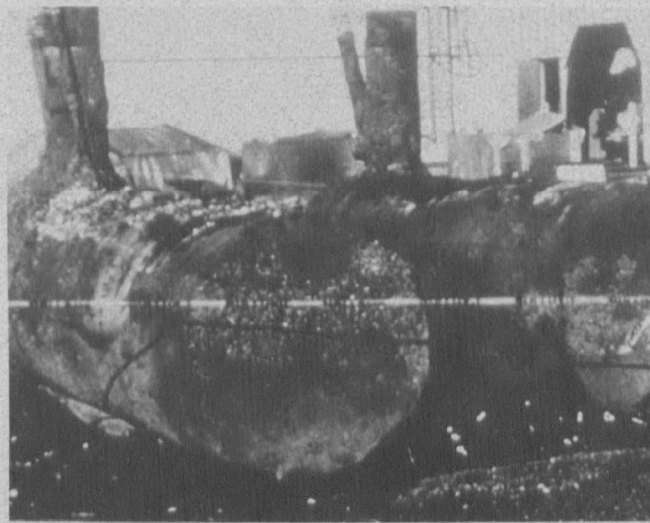
In the state of Washington, almost 39,000 underground storage tanks are registered, with at least 10% (3,696) having confirmed leaks. In the state of Washington, cleanup has been started at 3,339 sites and the cleanup has already been completed at about one-third of them (1,301). New leaks are being reported at a rate of over one per day.



Excavation Underway To Remove Leaking Underground Storage Tank

In Kitsap County a leak from an abandoned service station contaminated the well of a nearby resident and perhaps several others who will need to obtain alternative drinking water supplies if they are going to remain in their homes. The resident was given bottled water, and will continue to use bottled water until the situation is resolved. Arrangements are being made with the local water company to connect this resident to the nearest water main and the State must find a way to get the connection from the water main through a busy intersection and down the road to her house.

In the Queen Anne Hill district of Seattle no one would have suspected that a large apartment building situated next to a deli would be at risk of extreme explosion hazards! Unfortunately, the deli is located on the site of an old service station. When the station closed, eight underground storage tanks were allowed to remain in the ground, and one (or more) of those tanks were leaking. The leak went undetected, causing contamination so significant that when the gasoline vapors from the contaminated soil migrated into the basement of the apartment next door, the occupants had to be evacuated! A vapor extraction system is now in place to protect the residents in the apartment building from the explosion hazard, and all eight tanks were removed from the new deli property.



Leaking Underground Storage Tank Removed

Cleaning up Hazardous Waste

Although RCRA creates a framework for the proper management of hazardous and nonhazardous waste, it does not address the problems of hazardous waste encountered at inactive or abandoned sites or those resulting from spills that require emergency response. These problems are addressed by a second environmental protection law, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

In 1980, Congress passed CERCLA, which was amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). These two laws, commonly known as Superfund, provide EPA with the authority and resources to investigate and cleanup releases, or threatened releases, of hazardous substances. The Superfund amendments strengthened and expanded the cleanup program and focus on the need for emergency preparedness and community right-to-know.

Congress renewed the Superfund law for three more years as part of the October 1990 Budget Appropriations Bill. At the same time the funding authority was renewed for an additional four years. The Superfund law is currently waiting for reauthorization by Congress in 1994.

EPA's "enforcement first" policy encourages cleanup by responsible parties rather than using Superfund money. Under Superfund, certain parties are considered "Potentially Responsible Parties (PRPs)" for hazardous waste contamination. PRPs include:

- Current and past owners and operators;
- Persons who arrange for the disposal of, or transport of, hazardous substances; and
- Transporters who selected the site for hazardous material disposal.

EPA believes that through cooperative efforts business and industry meet site cleanup requirements just as well as the government does. Region 10's PRPs are now conducting 68% percent of new cleanup actions while 20% are being conducted by other federal agencies.

EPA is working cooperatively with business, local, state, tribal and federal government in implementing cleanup and prevention of hazardous waste sites in Region 10.

EPA encourages these parties to conduct investigations and cleanups under EPA oversight. In the RCRA program, business and industry modify the plant or facility operation to reduce the use of hazardous chemicals and to clean up any spills or to correct environmental damage caused by their past operating practices. Abandoned facilities are being cleaned up under Superfund.

This section explains how business, local, state, tribal and federal government along with EPA are successfully cleaning up hazardous waste in the Puget Sound region.

Business and Industry

Corrective Action at Reichhold Chemicals in Tacoma

Cleanup is underway at the Reichhold Chemical manufacturing facility in Tacoma, Washington. Several decades of manufacturing pentachlorophenol (a wood preservative) and other chemicals caused significant soil and groundwater contamination at this site. Portions of the contamination have left the site and have impacted land being transferred to the Puyallup Tribe as part of the 1988 Puyallup Land Settlement. The Tribe intends to use the affected property as part of their economic development activities once it is clean. Although all manufacturing activities at this site have ceased, cleanup activities are intended to return the facility property to beneficial industrial uses.

Work at this site has required close coordination among a variety of organizations, including EPA, the Washington Department of Ecology, the Port of Tacoma, the Puyallup Tribe, the Army Corps of Engineers, and the City of Tacoma.

Reichhold is using an innovative wastewater treatment technology and evaluating biotechnology options for soil that reduces the materials that must be disposed of off site. In addition, a groundwater cleanup system continues

Cleaning up Hazardous Waste

to operate and appears to be reducing contaminant levels. Reichhold is also exploring creative ways to re-use waste materials. Examples include reuse of concrete waste for aggregate, and recycling of waste wood and steel.

Ruston/North Tacoma Residential Cleanup

Arsenic and other metals related to the past operations of the Asarco Smelter are present in the soil and slag found in Ruston and North Tacoma. EPA is concerned about potential health effects from exposure to this contaminated soil and slag. It is unlikely that natural processes such as weathering or rain will reduce the amount of contamination in the soil. EPA developed a cleanup plan for the residential area and is working with Asarco to carry out the plan.

The plan focuses on removing and replacing contaminated residential soil that has arsenic and lead concentrations exceeding EPA's action level. In October 1993, Asarco began taking soil samples from properties in areas that EPA anticipates have arsenic and lead concentrations above the agency's action levels. In other areas, property owners will be allowed to request that their property be sampled. Where samples show that soil contamination exceeds EPA's action levels, Asarco will remove the soil and replace it with clean soil. Soil removal activities will begin in April 1994.

State and Local Government

State and local governments are actively working towards protection and cleanup at sites along the Puget Sound. The following sites are just a few examples.

Harbor Island Cleanup Plan

EPA and the Washington Department of Ecology share the responsibility for ensuring cleaning up of Seattle's Harbor Island, a Superfund site at the head of the Duwamish River in Elliott Bay. The Washington Department of Ecology manages the cleanup of the petroleum tanks farms. EPA is

responsible for the soils, groundwater, and sediments around the Island. This site was contaminated by industrial activities on the Island which included a lead smelter, shipyards, scrap metal recycling, and petroleum tank farms.

In September 1993, EPA selected the cleanup plan for most of the soil and groundwater contamination.

The selected cleanup action is consistent with the Port of Seattle's plan to expand its container cargo shipping operations on Harbor Island. Marine sediments around Harbor Island have also been contaminated by industrial activities on the Island. Affected sediments include a traditional fishing area of the Suquamish and Muckleshoot Indians. EPA intends to select a cleanup action for the Harbor Island sediments in early 1995. The Tribes and other natural resource trustees are helping EPA develop and evaluate cleanup alternatives which will restore the marine habitat and create an area where young salmon can feed without being exposed to contamination.

Tacoma Landfill

In December 1992, as part of the agreement to clean up the Tacoma Landfill, the City of Tacoma began extracting and treating groundwater contaminated by the landfill. EPA, the Washington Department of Ecology, and the Puyallup Tribe are concerned that the extraction of groundwater could reduce flows in nearby Leach Creek, a waterway that supports runs of salmon from Puget Sound. During the summer of 1993, the City of Tacoma installed and began operating an augmentation well to provide additional water to the creek. In January 1994, the city agreed to continue operating a well until the issue of potential low creek flows is permanently resolved. The City of Tacoma has also begun a recycling program and built a new recycling facility at the landfill as part of their cleanup agreement.

Cleaning up Hazardous Waste

Federal Government

EPA and other federal government agencies are involved in environmental protection of Puget Sound either by paying for cleanups when there is no one else to pay or by correcting and preventing environmental damage caused through past practices at the government owned facilities.

Wyckoff/Eagle Harbor Cleanup Actions

Contaminated bottom sediments in Eagle Harbor at Bainbridge Island have been of great concern to public health officials for some time now. Starting at the turn of the century, decades of shipyard practices and creosote treatment of wood at shoreside facilities led to contamination of soil and groundwater, as well as sediments. Studies in the mid 1980's showed high rates of tumors in English Sole from the harbor and contamination of fish and shellfish. Since then, signs have been posted advising people not to eat seafood from this traditional Suquamish Indian Tribe fishing area.

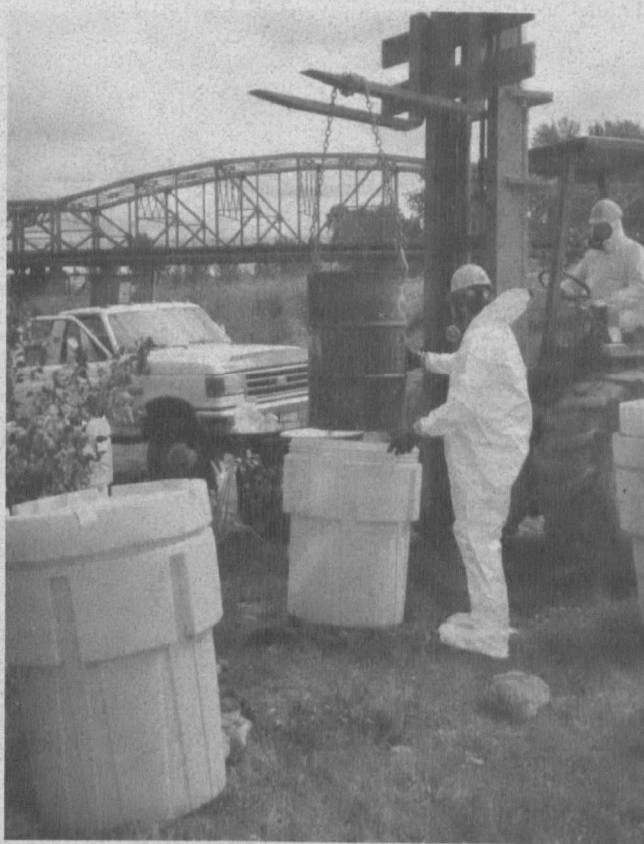
EPA's study of the sediment contamination began in 1987, and a proposed cleanup plan was issued in 1991. Cleanup of the most heavily contaminated sediments started in mid-September 1993. Over a six-month period, daily bargeloads of clean, sandy sediments were placed in contaminated areas of Eagle Harbor to isolate the contamination and provide clean habitat for sea life. Over 275,000 cubic yards of this material were used to build up a capping layer about three feet thick over a 54-acre area. The clean materials came from the Snohomish River as part of a dredging project to keep the river channel open for ship navigation. Combining project goals this way allowed beneficial use of the dredged materials and provided capping materials for the cleanup at a significant cost savings.

This project was monitored by EPA and the U.S. Army Corps of Engineers to ensure proper sediment distribution and to minimize or prevent water quality and navigation impacts. Underwater cameras used to monitor and photograph the clean sediment cap show worms and other sea life in and on the new material, indicating that the process of establishing a healthy marine community has already begun.

In addition to the harbor cleanup, EPA is continuing cleanup work at the former Wyckoff wood treating facility. EPA's comprehensive study of the site is underway, and treatment of contaminated groundwater continues. Meanwhile, EPA is moving forward with excavation and disposal of contaminated sludge and oily wastes buried at the Wyckoff facility or stored in tanks.

Puyallup Drums Emergency Response

EPA often responds to emergency situations. One such situation occurred on May 6, 1993, when EPA Region 10 received a report that there were drums leaking a chemical substance on the banks of the Puyallup River in the Gog-le-hi-te wetlands within the Puyallup Indian Reservation in Tacoma. After reviewing the site and coordinating state, Tribe, and Bureau of Indian Affairs representatives, the EPA emergency response team stabilized and removed four drums and a yard of contaminated soils which were staged at the Reservation on the next day.



Puyallup Drums Emergency Response Team

Cleaning up Hazardous Waste

Federal Government (continued)

Puyallup Drums (continued)

From the labels on the drums, manufacturers were contacted and material safety data sheets were received by fax. Field tests confirmed that chemical and costly lab analyses were not necessary. One of the manufacturers in Oklahoma was willing to transport one drum and recycle it. This reduced costly waste transportation and disposal costs. The remaining drums and soils were economically disposed of through the fuels program which uses applicable waste as an alternate energy source, again reducing the cost of disposal.

Naval Air Station, Whidbey Island

Naval Air Station, Whidbey Island has won numerous awards for environmental quality, recycling, natural resources conservation, and pollution prevention. For example, a biologist employed by the base worked to preserve an on-base heron rookery, restore wetlands, and create and preserve habitat for a wide range of bird and animal life.

Naval Air Station, Whidbey Island has also had to address hazardous waste contamination. Past disposal practices that were considered acceptable at the time, resulted in contamination of the soil, sediments, and groundwater at Naval Air Station Whidbey Island. After early sampling, the Navy acted immediately and began planning for an early action cleanup resulting in over a year of saved time.

To expand community participation in cleanup decisions, the Department of the Navy is implementing Restoration Advisory Boards at Navy installations involved in environmental restoration under Superfund. Naval Air Station, Whidbey Island was chosen by the Chief of Naval Operations to serve as a pilot installation to expand and modify the existing Technical Review Committee into a Restoration Advisory Board.

Restoration Advisory Board - On July 2, 1993, President Clinton announced a five-part program to speed the economic recovery of communities where military bases are slated for cleanup or are slated to close. A key element of the President's plan is to improve public involvement

opportunities in the base environmental cleanup program, including establishing a Restoration Advisory Board. The Restoration Advisory Board is an advisory body designed to act as a focal point for the exchange of information between the Navy and the local community. It will enable early and continuous exchange of information and concerns between the affected community and the cleanup teams.

This newly formed board will provide a forum to allow additional public members to serve with the existing trustees from federal and state agencies.

Puget Sound Naval Station, Sand Point

At the Puget Sound Naval Station, Sand Point, a Restoration Advisory Board has been formed to get more public involvement in the site cleanup process. The city of Seattle and the Muckleshoot Tribe are currently in the process of negotiating a reuse plan for the Navy's property after base closure. The final reuse plan will likely include a combination of housing, open space, and educational and business facilities.

Port Hadlock, Indian Island

Port Hadlock is a U.S. Navy facility on Indian Island, located in Puget Sound, just south of Port Townsend. Much of the island is undeveloped and forested. The views from its many miles of shoreline are inspirational, and wildlife is in abundance. Many deer roam the island, including the uncommon pinto deer. Bald eagles circle above the trees. Sea otters, blue herons, and seals are other wildlife that can be seen.

Activities are currently underway at three sites to remove hazardous waste. The activities will remove contaminants that threaten the environment. The plan includes digging up the contamination and taking it to an off-site landfill for disposal.

Due to the environmentally sensitive nature of the locations of the contamination, native vegetation is being carefully removed and stored and will be replaced at the sites upon cleanup completion. Indian Island is a place well worthy of environmental protection.

Economic Development and Cleanup

The Superfund program has not always looked at future land use as part of decision-making for cleanup action. However, cooperation with tribes and local, state, and federal government is occurring to make environmental protection compatible with future land use.

Asarco Tacoma Smelter

Asarco is making an extensive effort to determine the appropriate future use of their Tacoma smelter property after cleanup of contamination. During the smelter operations from the late 1800s until the smelter shut down in 1986, first lead, and then, copper smelting contaminated the bay and the surrounding community with metals. The initial smelter cleanup includes demolition of the smelter stack and other structures. While the demolition continues, Asarco, in cooperation with the City of Tacoma, the Town of Ruston, and the Metropolitan Park District, has hired land use planners to develop land use proposals and present them to the public. All levels of government and the public have been invited to make recommendations. EPA will consider these land use plans as it works with Asarco to design an environmental cleanup plan for the smelter site.

Sitcum Waterway

In October 1993, the Port of Tacoma began dredging contaminated sediments in Sitcum Waterway as part of the cleanup of Tacoma's

Commencement Bay. The waterway, which is utilized by the Port, has been contaminated by industrial activities, including unloading of ore. At EPA's suggestion, the Port is using the dredged sediments as part of the planned filling of the Milwaukee Waterway to expand the Port's container handling and storage capacity. Because existing wetlands will be lost, the Port is restoring 33 acres of habitat in the vicinity of the Bay to benefit salmon and wildlife. The Sitcum cleanup demonstrates that environmental protection can be successfully integrated with economic expansion.

Puyallup Land Settlement

In February 1994, the Port of Tacoma finished cleaning up six properties within the Commencement Bay area. These properties are being transferred to the Puyallup Tribe under a 1988 Land Settlement Agreement. All cleanups were done in a manner that will allow the Tribe to develop these properties. For example, contaminated materials that were found at one property were consolidated and covered with asphalt. With minimal restrictions, the Tribe will be able to construct buildings over the capped area. At another property, cleanup was completed in an expeditious manner, and the Tribe has already built a marina there. The Tribe is operating the Chinook Landing Marina in an environmentally sound manner. Specifically, boat repairs are not allowed at the marina and a sewage pump was installed to prevent sewage dumping.



Chinook Landing Marina

Pollution Prevention

Pollution Prevention is both a stand-alone program at EPA and also a concept and goal that permeates all of the EPA programs. Pollution Prevention is permitting facilities to continue working safely while using hazardous materials; and to prevent future Superfund sites.

EPA Region 10 is actively exploring new and innovative ways of promoting pollution prevention at hazardous waste sites in the Puget Sound area. In addition to traditional enforcement and mandatory regulatory tools, EPA is working in partnership with facilities to develop effective pollution prevention programs. EPA encourages facilities to look beyond traditional regulatory requirements, and to make pollution prevention an important part of doing business.

Specific goals of EPA's activities include:

- Educating facilities about essential elements of effective pollution prevention programs;
- Helping facilities understand their waste-generating processes and organizational structure; and
- Identifying the many direct and indirect benefits of pollution prevention.

As an example of these partnership activities, EPA has conducted a series of pollution prevention "Program-in-Place" surveys at large industrial and manufacturing facilities in the Puget Sound area. These surveys were voluntary, and non-regulatory in nature. Each served as a joint learning experience for EPA and the facilities. With assistance from nationally recognized experts, EPA spent 2-3 days with each facility examining existing pollution prevention activities, problems that were encountered, and ways to improve the effectiveness of these programs. From these visits, summary reports were prepared to assist each facility as they develop or refine their pollution prevention programs, and integrate pollution prevention into their daily business. These surveys have also assisted EPA in identifying regulatory impediments that facilities have encountered during pollution prevention activities.

Essential Elements of Pollution Prevention Programs:

- Top management support
- Description of wastes generated by industrial practices
- Periodic assessments of efforts to reduce waste
- A cost distribution system
- Technology transfer
- Program evaluation

Benefits to Business and Industry of Pollution Prevention:

- Reduces the risk of criminal and civil liability
- Reduces operating and waste management costs
- Improves employee morale and participation
- Enhances a company's public image
- Protects public and worker health, and the environment

Pollution Prevention Activities

Waste Busters - President's Environmental Youth Award

The Waste Busters of Tillicum Middle School in Bellevue, Washington, were one of ten national winners to be recognized at the President's Environmental Youth Awards ceremony which was held in January 1994, in Washington, D.C. The environmental youth awards program has been ongoing since EPA was formed in 1971.

Nineteen Tillicum Middle School students formed the leadership advisory group who were responsible for implementing and maintaining the school's waste reduction and recycling programs. The group had two areas of responsibility. The first was to educate fellow students and their community. The second responsibility was to implement and maintain a school waste reduction and recycling program and to perform the actual collecting of the recyclable materials from around the school.

Some accomplishments of the Waste Busters were the use of plastic reusable cups and reusable lunch

bags at the school, reuse of cardboard boxes for storage and making key chain tags out of melted aluminum cans. The students have designed and built two prototype washable aluminum pizza boxes, and now are waiting to see if a local pizza restaurant will decide to use these boxes.

Waste Wi\$e

Waste Wi\$e is a national EPA challenge program for commercial waste reduction, recycling, buying/manufacturing recycled products. The Washington Retail Association received a grant to promote the program and offer technical assistance through their Preferred Packaging Procurement Guidelines project. The program not only offers technical assistance to business but provides quarterly workshops, newsletters and success stories. There are 43 companies to date that have endorsed the Guidelines. Some of these endorsers are Nordstrom, Sears, Wal-Mart, Albertsons, and Safeway. These companies represent over 750 retail locations in the Northwest.



Tillicum Middle School Waste Busters

Solid Waste Management

Solid Waste Program

The Municipal Solid Waste Program, RCRA Subtitle D, is a major component of integrated waste management. Under this law local, state and tribal governments have been given the responsibility to manage their own solid waste programs. Special emphasis has been placed on working with tribal governments within Region 10 to advance solid waste management capacity on Native American lands.

The Solid Waste Program provides technical support and project funding that enhance the integrated waste management hierarchy. This hierarchy is composed of solid waste reduction, reuse, recycling, composting, landfilling or combustion. Parts of the program set federal standards for landfills, conduct research and development, long-range planning and assist with market development of recycled content products. The following programs are supported by EPA Region 10:

Ecodrive Training/Curriculum

Under a grant from EPA, the Washington Department of Ecology is conducting an education and outreach program on automobile solid and hazardous waste reduction.

This program has access to students enrolled in public and private drivers education classes, as well as students enrolled in automotive shop classes. The curriculum increases awareness of solid and hazardous waste issues associated with vehicle use. It also presents ways to reduce the impacts of used oil, tires, antifreeze, metals, batteries and energy use. The program is also looking at ways to reach the public on these issues when drivers renew their licenses.

Packaging Waste Reduction

Under a grant from EPA, the Washington Citizens for Recycling Foundation conducts packaging waste analysis and technical outreach to the commercial sector. There is a continuation of technical support for waste reduction projects with Starbucks, PACAAR, Thriftway, and the Food Pavilion.

Circuit Rider

A little over a year ago EPA established a Tribal Solid Waste Specialist (Circuit Rider) position for Washington, Oregon and Idaho. The Circuit Rider is a person who travels to Indian reservations to talk and listen on behalf of the EPA solid waste program. Some of the activities include:

- Field liaison for tribal solid waste and related issues;
- Training;
- Assisting tribes in evaluating their solid waste needs and options and encouraging them to begin developing an integrated solid waste management plan;
- Encouraging recycling/reduction/composting;
- Encouraging tribes to give thought to their own hazardous waste issues, through discussion and dissemination of information and the enhancement of inter-governmental relations as a tool for solving environmental problems.

The Circuit Rider helps tribes find opportunities within the world as it is (the existing cultural structures) to implement good resource management practices.

Solid Waste Management

Solid Waste Network at Work at Neah Bay

Region 10's Solid Waste Program is responding to the motivation for new, more effective ways of doing business. Today, Washington tribes are faced with the need to modernize their solid waste programs and meet new municipal landfill standards. They can find help through an inter-agency program called the Solid Waste Network.

EPA, Bureau of Indian Affairs and the Indian Health Service share responsibilities in assisting tribes in reaching compliance with municipal landfill standards. In addition, the Department of Housing and Urban Development assists tribes with housing-related solid waste allowances and administers community development programs for tribes. Consequently, EPA took the initiative to bring together the talents and resources of these federal agencies in a joint effort to offer tribes a more streamlined agency approach for solid waste technical assistance.

The Network is currently working in a team effort with members of the Makah Tribe at Neah Bay. Together, the Makah staff and the Network have taken steps to develop a solid waste management plan, generate public participation in solid waste decision-making, and initiate an engineering assessment of landfill closure options and costs for those options. The remote location of the Makah reservation coupled with unique landfill characteristics, has made this Network project a challenge for all concerned.

Glass Information System

The Clean Washington Center, a division of the Washington Department of Trade and Economic Development, conducts research and enhances markets for recycled glass through a grant from EPA. Recycled glass is crushed into cullet which is used to make new glass bottles. However, most glass bottles contain only 30% recycled cullet so additional uses must be developed to avoid landfilling glass that has been collected. Some of the new uses and markets resulting from this research include: gravel substitute in the construction of sidewalks, roadbases and foundations; fiberglass; sandblasting; septic filtration systems; water drainage and glass bricks.

For More Information

If you would like more information on EPA programs or other information in this brochure please call toll free on weekdays from 8 a.m to 4:30 p.m. at:

**1 (800) 424-4EPA or you may write
Environmental Protection Agency
1200 Sixth Avenue, Seattle, WA 98101**