Beyond Waste Issue Paper

Permitting and Corrective Action

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Permitting and Corrective Action

Getting "Beyond Waste"

The Department of Ecology (Ecology) has embarked on a project to update the statewide solid and hazardous waste management plans. The aim of the Beyond Waste Project is to guide Washington in a new direction away from simply managing wastes and toward preventing wastes from being generated in the first place. The vision statement for Ecology's Beyond Waste Project is, ***"We can transition to a society that views waste as an inefficient use of resources and believes that many wastes can be eliminated. Eliminating wastes will contribute to social, economic, and environmental vitality."***

This is one of eight issue papers prepared by Ecology staff to help in the development of strategic plans to move Washington in a new direction, a direction that will take us beyond waste.

Introduction

This issue paper outlines activities Ecology conducts to carry out the permitting and corrective action requirements of the Resource Conservation & Recovery Act (RCRA) and Washington State's *Dangerous Waste Regulations* (Chapter 173-303 WAC). This paper addresses the following questions:

- What is working well in our current permitting and corrective action activities?
- What can we do better?
- What changes are needed in this area to move our state toward the Beyond Waste vision?; and
- How can we get there?

The current permitting and corrective action process relies on regulatory oversight and enforcement at treatment, storage and disposal (TSD) facilities. Facilities that treat, store, or dispose of dangerous wastes must obtain a permit for these activities. A permit is an authorization which allows a person to perform storage, treatment, recycling or disposal operations, and typically will include detailed requirements for units where wastes may be managed and specific conditions for facility operation. Corrective action is the process for cleanup of unauthorized releases to soil, water, and air at facilities that manage, or managed, dangerous wastes.

The short-term vision for permitting and corrective action is an extension of the current model. Current and short-term progress is measured against goals set for permitting and corrective action under the federal Government Performance Results Act (GPRA). By 2005, the expectations are that:

- Eighty percent of existing TSD facilities will have approved controls, such as permits or orders, in place to prevent releases of dangerous waste to air, soil, and groundwater;
- Ninety-five percent of high priority corrective action TSD facilities will control direct human exposure; and
- Seventy percent of high priority corrective action TSD facilities will control migration of contaminated groundwater.

These goals will be discussed in more detail later in this issue paper.

The short-term vision for permitting and corrective action at TSD facilities is directly affected by the business and regulatory framework, including receiving authorization to implement federal regulations. An efficient regulation adoption and authorization process, and the flexibility to use streamlined regulatory procedures can improve progress made on permitting and corrective action in the short-term. In the long-term, work accomplished by numerous other external drivers and societal changes (e.g., technology changes, reducing dangerous waste generation, using best management practices, using environmentally friendly products, etc.) will impact markets for management of dangerous wastes.

A mid-term vision is needed to provide a transition from the practicalities of today to the less tangible realities of the long-term vision. Permitting and corrective action are "end of the pipe" processes that deal with problems after they have occurred rather than preventing them. If existing sites have all been remediated and our society generates no waste in the future, and preventive best management practices for waste reduction and recycling at businesses are realized, then end of the pipe processes such as permitting and corrective action will no longer be necessary. Our success will then be linked to support and oversight of recycling and materials brokering.

The long-term vision for permitting and corrective action transcends the current TSD facility model. Through this vision, TSD's will mature into *Second Generation* TSD's that provide *treatment* (by reclaiming, reusing, or recovering for beneficial value), *stocking*, and *distribution* services. The *Second Generation TSD facility* concept aligns the protection and preservation of the environment for current and future generations with conservation of energy and resources. A societal and business transformation is needed in order to realize these goals and for this long-term vision to come to fruition.

The remediation of facilities where past activities have contaminated the environment can return large parcels of land to tax rolls for industrial and commercial activities that are sustainable and use best management practices. Remediated land can, in some cases, be converted to recreational parks or ecological preserves, especially when located near city centers, low-income neighborhoods, and waterfronts. While remediation and redevelopment of contaminated sites may be expensive and time-consuming, return of property to useful economic and ecological purposes may be one

of the best examples of how the long-term vision for permitting and corrective action agrees with the goals of Beyond Waste. Site remediation has the potential to improve the environment and the lives of many of Washington's citizens.

Achieving the short-term, mid-term, and long-term visions outlined in this paper also depends on having adequate staff and resources to complete necessary oversight and review of compliance, permitting, corrective action, and financial responsibility mechanisms.

Permitting

This section addresses the following questions:
1) What are the boundaries to the permitting process?
2) What are the permitting process assumptions?
3) What is the *status quo* with permitting?
4) Where is the permitting process headed?
5) What are the permitting process problems/challenges/barriers?
6) What changes are needed to move toward the Beyond Waste vision?
7) How can we get there?

What are the boundaries to the permitting process?

The permitting process is highly regulated and technical. Boundaries to the permitting process are covered in the following sections:
- Regulatory/authorization framework for permitting
- Contents of "final" and "interim status" permits

Types of treatment, storage, disposal (TSD) facilities:

- *Storage facilities* temporarily hold hazardous wastes until they can be treated, processed, or disposed. Containers and tanks are most commonly used to store waste, but containment buildings, impoundments and other units are also used.
- *Treatment facilities* use various processes (such as oxidation, neutralization, and stabilization) to alter the physical or chemical character or composition of hazardous wastes so they can be managed and disposed of more safely. *Recycling*, a subset of treatment, recovers materials or energy from wastes.
- *Disposal facilities* permanently reduce the amount of hazardous wastes and/or contain it. The most common types of disposal facilities are incinerators (waste volume reduction) and landfills (final containment). There are no incinerators or hazardous waste landfills in the state of Washington.

Regulatory/authorization framework for permitting

On January 31, 1986, the state of Washington received final authorization to implement its base hazardous waste program from the U.S. Environmental Protection Agency (EPA). Since that time, the Hazardous Waste and Toxics Reduction (HWTR) Program has received approval for subsequent authorization revisions. The Washington State Hazardous Waste Management Act, Chapter 70.105 of the Revised Code of Washington (RCW), and the *Dangerous Waste Regulations* promulgated under that law in Chapter 173-303 of the Washington Administrative Code (WAC), regulate the management of dangerous waste in Washington.

WAC 173-303-800 specifies that facilities that treat, store, or dispose of dangerous waste must obtain a permit for these activities. Facilities that were in existence before they were regulated by Chapter 173-303 WAC were eligible for interim status. Interim status allows the facility to continue operating while the facility and Ecology complete the process leading to a final permit decision. There are still facilities under interim status in Washington.

Ecology is authorized to require new facilities and existing facilities with interim status to submit a detailed Part B permit application for a final permit. The permit application must provide facility-specific design information on units that will manage wastes and operational information to demonstrate that regulatory requirements can be met. If Ecology determines that the application is sufficiently complete, Ecology is authorized to prepare a draft permit for public notice. The draft permit incorporates major portions of the permit application. The draft permit indicates Ecology's tentative decision to issue a final permit. This tentative decision is subject to public review and comment. Ecology considers all public comment before making its final decision on whether to issue a final permit to the facility.

If Ecology issues a final permit to a facility, its maximum duration is ten years. Although the permit expires after ten years, it can be renewed. If the applicant submits an application to renew the permit, but Ecology does not act on the renewal application, then the facility can continue to operate under the conditions of the expired permit.

Types of permits:

- *Interim status permits* are intended to be temporary unwritten permits for facilities in existence when the hazardous waste law or amendments to the law or regulations that affect it were passed or promulgated. A facility will be deemed to have interim status upon the filing of a Part A application that explains capacities and processes for waste management.
- *Final facility permits* are permits issued to new facilities or existing facilities operating under interim status that have asked or been required to fully comply with all siting, design, operating and closure/post-closure standards of the *Dangerous Waste Regulations*. Final facility permits may be required for TSD or certain recycling facilities and require the filing of Part A and Part B application forms.

- *Permits by rule* are paperless permits that allow operation of a facility if it meets the requirements of the regulatory provision for specialized types of dangerous waste practices/facilities. Most commonly; publicly owned treatment works, totally enclosed treatment facilities, and elementary neutralization and wastewater treatment units.

- *Emergency permits* are issued in the event that Ecology finds that an imminent and substantial endangerment to human health or the environment exists. Ecology may issue a temporary emergency permit to a facility to allow treatment, storage, or disposal of dangerous waste at a non-permitted facility, or at a facility covered by an effective permit that does not otherwise allow treatment, storage, or disposal of such dangerous waste.

- *Dangerous waste incinerator final facility permits for trial burns* authorize the owner or operator to incinerate waste so as to determine operational readiness and establish conditions in final facility permits for dangerous waste incinerators.

- *Land treatment demonstration permits* apply to the owner/operators of land treatment facilities who must demonstrate prior to the issuance of final facility permits that proposed treatments will be successful in applying or incorporating dangerous waste to land or soil.

- *Research development and demonstration permits* authorize innovative and experimental dangerous waste treatment technologies or processes for which permit standards for such experimental activities have not been promulgated.

A permit can be modified at any time during its duration. Permit modifications that could have a significant effect on the operation of the facility are subject to public review and comment.

Contents of "final" and "interim status" permits

Final facility and interim status permits apply to typical waste management activities. Other types of permits are for more specialized activities (See "Types of Permits" above).

In general, a final facility permit specifies the wastes a facility can receive and waste management activities it can conduct. The permit establishes detailed requirements, including:

- Design and construction standards for all units used for managing waste;
- Waste analysis requirements;
- Training for employees;
- Operational procedures for waste storage and treatment;

- Inspection, monitoring, record keeping, and reporting requirements;
- Measures for emergency preparedness and response;
- Facility closure and corrective action procedures and, if necessary, post-closure care; and
- Financial responsibility for liability (sudden and non-sudden accidents) and financial assurance for closure, and, if necessary, corrective action and post-closure care.

The final facility permit is quite specific and can be several pages long, incorporating major portions of the Part B permit application in binders as attachments to the permit.

Facilities having interim status are also restricted by a legally binding document (the Part A application) as to the waste they can receive and their waste management activities. However, interim status facilities do not have detailed requirements specified in a facility-specific permit. Instead, such facilities are required to operate as specified in relevant parts of the *Dangerous Waste Regulations*.

What are the permitting process assumptions?

It is assumed that TSD facilities will be needed to manage dangerous wastes in a manner that is protective of human health and the environment as long as these wastes continue to be generated. Ecology will continue to issue and modify permits for TSD facilities as long as it is the most effective way to ensure positive environmental results.

What is the *status quo* with permitting?

Status quo with the permitting process is covered in the following sections:

- Number and types of TSD facilities permitted
- Financial assurance
- Hazardous Waste Management Facilities Initiative
- GPRA permitting environmental indicators (EI's) and other performance measures; and
- Proposed standardized permit

Number and types of TSD facilities permitted

The following is a summary of the permitting status of TSD facilities regulated by the HWTR Program:[1]

- 8 facilities managing wastes under a current final permit
- 5 facilities managing wastes under an expired final permit

[1] See Attachment 1 for details. The information in this section does not include facilities regulated by EPA, Ecology's Nuclear Waste Program, or the Industrial Section of Ecology's Solid Waste and Financial Assistance Program. The numbers include facilities that have a final status permit, interim status permit, or that have applied for a final status permit and subsequently withdrew their application or were denied a final status permit by Ecology. The numbers do not include over 40 facilities that operated solely under interim status and did not file an application for final status, or were primarily hazardous waste generators and were listed as TSD facilities by Ecology or EPA in order to direct site cleanup.

- 3 facilities managing wastes under interim status
- 8 facilities not managing wastes, but going through closure, post-closure and/or corrective action under an expired final status permit
- 3 facilities not managing wastes, but going through closure, post-closure and/or corrective action under interim status

A facility can continue to operate under an expired permit if the owner or operator of the facility submits an application for permit renewal within 180 days of the permit's expiration date. Until Ecology processes their renewal application, these facilities are subject to the conditions of their expired permit. Although 13 facilities have expired permits in Washington, only five of those continue to manage waste. The other eight facilities have ceased management of dangerous waste but have remaining closure and corrective action obligations. These eight facilities are still considered to be TSD facilities, and their permits will be terminated after they fulfill their closure and corrective action requirements.

Currently, there are eight facilities managing wastes that do not have current final permits (i.e., either their permit has expired or they are still under interim status). Of these, four are "commercial facilities" and four are "captive facilities." (*Note*: Commercial facilities are those that receive wastes from off-site for profit. Captive facilities accept wastes only from the entity owning and operating the facility.) Ecology considers commercial facilities to be the highest priority for permitting, but has not assigned a high priority to the four commercial facilities referenced above for the following reasons:

- One is not currently receiving dangerous wastes and may be exempt from RCRA permitting regulations under proposed regulatory changes (Bay Zinc);
- One plans to discontinue managing waste by December 2003 and close (Burlington Environmental – Georgetown);
- One is a storage-only facility and does not treat wastes (Vopak); and
- One manages only a very small quantity of wastes from off-site generators that belong to the same company (Boeing Auburn).

Eleven facilities are not managing wastes but still have RCRA obligations to complete closure, and if necessary, corrective action and post-closure care. Eight of these have expired final permits and three are under interim status. Ecology is evaluating administrative options (e.g., permits, orders, etc.) that will be most effective and efficient to ensure closure and cleanup obligations are met.

Ecology is evaluating the best way to ensure human health and environmental safety at TSD facilities. Considerations include:

- Careful evaluation to determine which facilities need a permit to enhance environmental protection. Issuing and maintaining final facility permits result in high administrative costs to the public, and Ecology believes those costs must be justified by increased environmental protection at the facility. If issuing a permit is

not the best tool, Ecology prefers different approaches such as issuing a consent decree or an agreed order;
- Evaluation of administrative options that are the most effective and efficient way to ensure timely closure and cleanup at facilities;
- Use of increased compliance inspections, orders, and enforcement actions if they are warranted at facilities; and
- Permit staffing levels.

Until recently, permitting work was primarily done by staff in Ecology's headquarters office. Headquarters staff assigned to permitting have been reduced from a maximum of eight full time equivalents (FTEs) in 1992 to approximately two FTEs in 2002. As a result, there is less overall work occurring on permits, and a greater portion of permitting work is being done out of Ecology's regional offices in Lacey, Bellevue, Yakima, and Spokane. Regional office staffs doing permitting work are also compliance inspectors at the facilities. Because of resource limits, Ecology continually strives to identify the most effective and efficient approach for addressing environmental issues at these facilities.

Financial assurance

Financial responsibility is required of TSD facilities, except for federal facilities, to ensure that financial resources are available to properly close and/or to conduct corrective action and post-closure activities in the event of a bankruptcy or unwillingness of the owner or operator to pay for these activities. Laws and regulations also require that the owner or operator obtain coverage for unanticipated accidental (or sudden) events and in some cases slow-motion events like releases from tanks to groundwater or the soil (non-sudden events). The owner or operator or a third party such as Ecology makes claims for these resources when such events occur. The first type of financial responsibility is known as **financial assurance** requirements for closure and post-closure; the second type of financial responsibility is known as **liability** requirements. The financial mechanisms are known as "instruments" for carrying out these two sets of requirements.

See Table 1 for a list of instruments that can be used interchangeably for financial assurance or liability needs, although some are more commonly used and available depending on their cost and ease of establishment.

Table 1: List of Instruments for Financial Assurance or Liability Needs

Trust Funds
A trust fund is a financial instrument into which money is deposited and held in trust until it is needed. The trust fund functions like a savings account except that trust monies are legally committed for a specific purpose like closure. The trust is controlled by someone other than the person who pays into it (i.e., the trustee). The trust property is protected from the owner/operator's creditors. A trust fund is

different from other mechanisms because it is the only mechanism in which the owner/operator actually sets aside money in advance to cover closure/post-closure costs. Other mechanisms are mostly "third party" guarantees of payment.

Under current dangerous waste laws and regulations, trust funds can be partially funded, which means that the owner or operator can make payments over the years before closure or post-closure is to occur. A fully funded trust fund has the entire cost placed in trust at the time the trust fund is established.

Surety Bonds

A surety is an entity that agrees to answer for the debt or default of another. Two types of surety bonds can be used to demonstrate financial assurance for closure and post-closure care under hazardous waste regulations:

- Under a payment surety bond, the surety promises to fund a closure/post-closure trust fund if the owner/operator fails to fund the trust fund. The trust fund then operates in the manner described above for trust funds.
- Under a performance surety bond, the surety promises to either perform or pay for closure/post-closure care activities if the owner/operator fails to conduct the required activities.

Letters of Credit

A letter of credit is a formalized, written, line of credit extended from a bank to a client (e.g., an owner/operator). Dangerous waste letters of credit must be irrevocable (i.e., they may not be canceled prior to their expiration date), and must allow Ecology to draw on the credit according to the dangerous waste laws and regulations.

Funds drawn from a dangerous waste letter of credit must be deposited into the owner/operator's standby trust fund. The standby trust fund is needed to allow Ecology to control funds drawn from the letter of credit. If Ecology were to handle these funds directly, then Legislative appropriation would be necessary which would greatly slow down the payment of closure contractors.

Financial test and corporate guarantee

A *financial test* is a way for firms to use financial data to demonstrate that their financial strength is sufficiently strong, that the likelihood of bankruptcy is small, and that their assets are adequate to meet closure and cleanup obligations. If a firm passes the financial test, it is not required to obtain an alternative mechanism (e.g., surety bond, trust fund). It is often called "self-insurance" because no third party promises to pay for closure or post-closure in the event the owner/operator fails to do so. Also, the firm using the test is not required to set aside a reserve of funds.

A *corporate guarantee* is an agreement whereby a company agrees to take responsibility for an obligation (e.g., closure or post-closure care) that belongs to another company, usually a subsidiary. The dangerous waste corporate guarantee requires the guarantor to pass the same financial test that a corporation must demonstrate directly for the financial test described above.

Insurance

Insurance is a method of transferring risks by binding an insurer to indemnify the insured (such as a TSD facility) against a specified event in return for premiums. The specified event can be either for a contingent liability such as an accident or a non-contingent event such as closure, post-closure or known corrective actions.

Hazardous Waste Management Facilities Initiative

In 2000, the HWTR Program began an assessment of state and federal requirements that apply to hazardous waste management facilities, including recycling and used oil processing facilities. In a report to the Legislature in September 2002,[2] significant problems have been identified with off-site waste management facilities:

- *Major activities and waste streams at waste management facilities are not subject to financial responsibility requirements.* Financial requirements for hazardous waste facilities include coverage for third-party damages (pollution liability) and funds for facility closure/post-closure. These requirements are applied through permits. TSD facility permits do not, however, cover the whole facility. Substantial volumes of hazardous wastes or used oil may be accumulated and managed in units that are exempt from the financial responsibility requirements. The funds that are set aside by facility owners and operators fall short of paying for the full cost of closing a waste management facility.
- *Regulations and mechanisms addressing financial responsibility for TSD facilities are out-of-date or inadequate.* The main purpose of financial responsibility requirements is to assure that funds will be available to pay for the safe and orderly closure of facilities. This includes, for example, removing and properly disposing of wastes in tanks or containers, or decontaminating structures and equipment used to hold dangerous wastes. Gaps, confusion, and loopholes in existing regulations result in situations where such funds will be available only if the facility owner and operator is present and cooperative. Owners and operators are often absent, assets may be tied up in bankruptcy, or financial mechanisms are so complex that it is doubtful claims may be successfully filed and collected.
- *Limited ability exists to address potential environmental threats at recycling facilities and used oil processors.* Recyclers and used oil processors have broad latitude to change owners, operators, expand capacity, add waste streams, or change processes. No notification or review procedures are required to assure adequate environmental safeguards will be followed. Also, the state of Washington has no mechanism, short of a court order, to halt the continued shipment of wastes to a recycling facility or used oil processor that has long-standing, substantial compliance problems.
- *Potential customers and interested citizens have difficulty in obtaining information about facility permits, compliance, enforcement, closure, and cleanup.* The public information that is maintained by Ecology is specialized and may be difficult for an interested

[2] *Hazardous Waste Management Facilities in Washington State – Problems & Options*, Washington State Department of Ecology, September 2002, Publication Number 02-04-028.

citizen to understand. Detailed information about facilities is typically available only through appointments in person.

- *Resource levels are inadequate for current demands on Ecology's permitting and compliance programs for TSD facilities, recyclers, and used oil processors.*

During this assessment, Ecology worked with representatives of the hazardous waste management industry, hazardous waste recyclers, used oil processors, large and small business organizations, local government agencies, and environmental groups. The stakeholders agreed that there are serious problems with hazardous waste management facilities and steps need to be taken to address them. There appeared to be substantial agreement that financial assurance needs to be addressed, and improving access to public information through a web site is a good idea. There was no agreement, however, on what specific priorities or services Ecology should have or should provide to address the problems identified. In particular, there was no agreement on how and who should pay for the additional costs associated with the solutions.

Since there is a lack of overall consensus from all the stakeholders, Ecology identified three possible options for the Legislature to consider:

1. Authorize Ecology to move ahead with a rule development process to define the scope of services needed to address the problems identified. This process, in consultation with stakeholders, would result in defining an adequate program and the resources to implement it. Under this option, Ecology would also be authorized to adopt TSD facility permit fees to pay for the package of services.
2. Direct Ecology to continue working with stakeholders to develop consensus on the scope of services and funding approach prior to authorizing rule development.
3. Since Ecology already has existing authority under the Hazardous Waste Management Act to address many of the problems, direct Ecology to undertake rule development to resolve immediate problems with financial assurance and address environmental threats at recyclers and used oil processors. This option may provide a legal basis for addressing some significant problems, but with no clear funding sources identified, practical implementation will not occur.

Of the approaches identified, Ecology felt it most appropriate to establish the authority to move ahead with developing the service package and methods to fund it (Option 1 above).

GPRA permitting environmental indicators (EIs) and other performance measures

Under the federal Government Performance and Results Act (GPRA), EPA has set goals for permitting at dangerous waste facilities. "By 2005, 80% of existing hazardous waste management facilities (based on the universe baseline of 1997) will have approved controls in place to prevent dangerous releases to air, soil, and ground water." Annual performance goals are set each fiscal year. Progress toward the 80% GPRA permitting goal is measured from accomplishments in the GPRA Operating Permit Baseline Universe and the GPRA Post-Closure Permitting Universe.

The GPRA Operating Permit Baseline includes only those hazardous waste facilities that had at least one unit that had or needed an operating permit as of October 1, 1997. This baseline universe excludes units that needed an operating permit prior to October 1, 1997, but the permits were subsequently terminated or expired and the unit(s) clean closed prior to October 1, 1997, or were in the closure workload at that time, or did not need a permit prior to or on October 1, 1997.

The GPRA Post-Closure Baseline includes any hazardous waste facilities that had at least one land disposal unit that ceased operating before October 1, 1997, and had not clean-closed or was not in the operating or closure workload.

Facilities can meet the goal by being permitted or by use of another administrative action such an agreed order or consent decree. If a facility is tracked as being under control, it may not have met all of its regulatory obligations, but it did meet the goal of having "approved controls in place to prevent dangerous releases to air, soil, and groundwater." In Washington, 23 facilities are in the GPRA Operating Permit Baseline Universe. Seventy percent of these facilities had approved controls in place in March 2002. There are 17 facilities in Washington's GPRA Post-Closure Permitting Universe; 59% have approved controls in place.

Proposed standardized permit

In October 2001, EPA proposed regulations for a standardized permit. The standardized permit would be a general permit for facilities that generate waste on-site in tanks, containers, and containment buildings. Under the standardized permit, facility owners and operators would certify compliance with generic design and operating conditions set on a national basis. The permitting agency would review the certifications submitted by facility owners and operators. The permitting agency would also be able to impose additional site-specific terms and conditions for corrective action or other purposes. EPA expects to publish a final standardized permit rule in the spring of 2003.

Where is the permitting process headed?

The short-term vision (5 years):

The short-term vision is to meet the 80% goal for GPRA permitting Environmental Indicators (EIs) through the use of the "Safe TSD Toolbox" to permit TSD facilities more efficiently or through the use of other administrative actions to ensure environmental protection. There may be increased oversight and compliance of recyclers and used oil processors as a result of the Hazardous Waste Management Facility Initiative. There may also be a fee mechanism in place that requires owners and operators of facilities to pay for the cost of Ecology's permitting and oversight activities. One of the expected outcomes of fees is that facilities will prepare and submit more complete and accurate permit applications and modifications in order to reduce the amount of time that Ecology must invest in reviewing poorly-prepared and incomplete applications.

During the "Safe TSD Toolbox" initiative in 1999, the HWTR Program revised the organizational structure for permitting work. Regional section managers are now responsible for assigning appropriate tools (e.g., complete a permit, use innovative tools, increase compliance inspections, orders, etc.) for TSD work at facilities within their regions. The headquarters section manager is responsible for managing the permitting staff (e.g., time allotted to each project, administrative and personnel issues, etc.), and the program management team is responsible for setting and/or approving statewide TSD priorities and approaches.

Twenty six proposals were identified during the Safe TSD Toolbox initiative. Seven of these were recommended to the management team of the HWTR Program:

1. Abandon the traditional "Notice of Deficiency (NOD)-based" permitting process where the permit applicant would submit an entire permit application for review and wait a long period for Ecology's comments. Continue to implement and improve the expedited permitting approach where the permit applicant submits sections of the permit application and receives timely feedback on that section before proceeding to the next section of the permit application. Meet with the permit applicant to discuss sections of the permit and resolve issues promptly, using notes of meetings and dialogue with the permit applicant to support the administrative record.
2. Focus efforts for individual permits on issues that are needed to ensure the facility operates safety and that provide for the greatest environmental protection.
3. Require HWTR Program management to develop clear directions on approaches to regulating TSD facilities.
4. Require HWTR Program management to assess and prioritize work needed statewide on facilities based on environmental need.
5. Develop a TSD support network to provide staff an opportunity to meet and resolve issues and prevent problems.
6. Require HWTR Program management to take an active role to gain more flexibility with permits and to address contentious issues with EPA.
7. Instead of permits issued jointly by Ecology and EPA, issue dual permits where each agency does permitting work separately.

The mid-term vision (10 to 15 years):

In discussing where permitting of TSD facilities might be in 10 to 15 years, we first need to define the long-term vision for this topic. The long-term vision is that almost all active TSD facilities will be transformed into materials brokers. Pollution prevention, lessened demand, and other efforts to avoid generation will narrow the amounts of dangerous and other wastes generated. Green manufacturing processes will be designed so that unavoidably generated wastes will be inherently recyclable. Recyclable materials will then replace, to the extent possible, raw materials that formerly had to be extracted from the earth, soil or the oceans.

In "back casting" from this long-term vision, present day TSD facilities must be looked at for the mid-term vision. We might think that 10 to 15 years in the future is a transitional stage, grounded in the practical realities of where permitting is today, but recognizing that stepping stones are very important is realizing a lofty long-term vision.

Over the past ten years, ten commercial TSD facilities in Washington have ceased business or are no longer operating. In 2002, only five commercial TSD facilities remain operating; one of which is closing within a year. The number of privately-owned commercial and captive TSD facilities continues to shrink and the cost to the state tax payers and generators for cleaning up and regulating unsuccessful business enterprises continues to increase. There will be increasing demand from the public and from business for the state to take the lead in providing safe, assured capacity for hazardous waste treatment and storage.

In this scenario, financial risk sharing could be achieved through a public/private partnership in the form of a non-profit entity chartered by the Washington State Legislature. The partnership would be governed by a board appointed by the Governor, with major interest groups, including the public, represented. The scope of the partnership would be broad, but engagement in environmental issues would be triggered only when the private waste management sector was unwilling or unable to serve that function effectively. The charter from the Legislature would allow partnerships for a wide variety of environmental issues including solid waste management, residuals management from air and water pollution control efforts, and sediments management. This broad set of responsibilities would ensure financial diversification that would maintain the viability of the partnership as the needs change for environmental services on behalf of the state.

As a regulatory agency, Ecology would maintain an arms-length relationship with the partnership and continue to regulate the activities of the partnership in every respect, the same as any other purely public or private facility.

The partnership would be entirely self-financed and have the authority to issue state-backed bonds to construct facilities. Repayment would be via the fees charged for services rendered. All facilities would be privately designed, constructed and operated, with ownership of the facility remaining with the partnership. Provisions to purchase the facility could be arranged if the commercial aspects of the service would ensure that future liabilities for cleaning up the sites were provided for. These arrangements for contracting for private contracts ensure that efficient services are provided without generating the need for public sector employees, as well as providing the partnership with the ability to replace under-performing contractors.

The States of Maryland, Connecticut, Delaware and Rhode Island and the territory of Puerto Rico have Boards that narrowly or more broadly fit the classification of public/private partnerships. (The provinces of Manitoba and British Columbia

experimented with Boards dedicated solely to hazardous waste management facilities, but both of these efforts were financially unsuccessful.)

The long-term vision (20 to 30 years):
The long-term vision is to transcend the current model and mature into a *Second Generation TSD Facility* or a *treatment* (to reclaim, reuse or recover for beneficial value); *stocking* and *distribution* facility. The *Second Generation TSD facility* would bring into alignment the protection and preservation of the environment for current and future generations with conservation of energy and resources. A societal and business transformation is needed in order to realize these goals and for this long-term vision to come to fruition.

Such a broad and fundamental change would be tantamount to achieving such a vision. The success of the long-term vision for permitting and corrective action is a direct function of societal changes. Specifically, these activities are "end of the pipe" processes. If existing sites have all been remediated and our society generates no waste in the future, and preventive best management practices for waste reduction and recycling at businesses are realized, then end of the pipe processes such as permitting and corrective action will no longer be necessary. Our success will then be linked to support and oversight of recycling and materials brokering.

Government leadership (especially political) and stakeholder buy-in are needed to ensure used materials are recovered according to their environmental value, including impacts caused by their initial extraction and processing. To achieve meaningful recovery, materials and energy must be assigned a true value based on sustainable environment principles rather than an incomplete value based on current economic conditions and principles.

Without government leadership, under current economic conditions many materials will not be recovered because doing so is not economically favorable. This is the case even if those materials have a large environmental cost, because that cost is largely hidden. Companies who wish to design and produce sustainable products are at an economic disadvantage to companies who make their products as cheaply as possible without regard for environmental costs. Therefore, public economic incentives, enlightened policies and, where necessary, government regulations and policies are needed to place a greater impetus on using environmentally sustainable and recoverable materials. Government leadership could:

- Develop and use design criteria that consider entire life cycle use of products;
- Establish mandatory material recovery quotas for various products;
- Assign environmental costs to various materials and energy sources with assurance that these will be a primary consideration when designing products and recovering materials; or
- Establish strong disincentives for using toxic materials.

Government assistance and oversight will be needed to:

- Develop regulations to ensure that recovery of materials from used products is accomplished so as not to adversely impact human health and the environment through worker exposure, emissions, discharges, or accidental releases;
- Ensure that sham recycling is avoided and financial assurance is provided in case of financial failure;
- Provide technical assistance and guidance;
- Encourage use of International Standards Organization (ISO) 14000 environmental standards;
- Facilitate material recovery programs between businesses and industries, through waste exchanges and other information sharing opportunities;
- Oversee, or perhaps share the risk for material recovery operations (See the 10-year vision); or
- Enforce mandatory quotas and other requirements such as disposal bans.

The Washington State Legislature, Ecology and other public agencies will need to prepare for this change of focus in roles and responsibilities to assist and oversee comprehensive material recovery efforts.

What are the permitting process problems/challenges/barriers?

- Lack of staff with permitting expertise; increased workload at headquarters and regional offices
- Problems with financial assurance

Lack of staff with permitting expertise; increased workload at headquarters and regional offices

Currently, ensuring that waste management facilities are well designed and safely operated is hampered by the limited Ecology staff available to work on permitting and compliance. This problem is aggravated by the following factors:

- Lack of a reliable and dedicated funding source to support necessary staff levels – work on TSD facilities competes with other Ecology priorities for limited staff;
- Need for experienced staff – a team of knowledgeable specialists is needed to address the wide breadth of technical and regulatory information at TSD facilities;
- Complexity of facility requirements – regulatory requirements are difficult to understand and implement, largely because they address complex issues and they have been changed and supplemented frequently over the past 20 years; integration of federal and state regulations, as well as the use of Washington State's Model Toxics Control Act cleanup regulation for corrective action, adds to the complexity of the process;
- Large and costly administrative burden required to complete permitting and compliance milestones – RCRA administrative processes are cumbersome and often contentious;

- Large and costly administrative burden to maintain final facility permits – frequent permit modifications are required to address changing business opportunities and conditions at facilities; and
- There are no penalties for owners and operators of TSD facilities when they change their mind about obtaining a final facility permit. Ecology staff worked on a permit for Boeing's Everett facility for four years. Boeing notified Ecology on the last day of the public comment period that it did not want the permit for the Everett facility.

Problems with financial assurance

See Table 2 for a list of problems associated with financial assurance.

What changes are needed to move toward the Beyond Waste vision?

The vision of the future for permitting is directly affected by the business and legal/regulatory framework, including authorization to implement federal regulations (e.g., an efficient regulation adoption process, flexibility to use streamlined regulatory procedures, etc.), and work accomplished by numerous other external drivers that directly affect the permitting and corrective action universe (e.g., technology changes, dangerous waste generation reduction, use of best management practices, usage of environmental friendly products, etc.). Achieving the vision also depends on having adequate resources to complete necessary compliance oversight, permitting, corrective action and financial assurance review.

Public and legislative support is a process driver that can restrict or enhance the scope of permitting activities.

Table 2: Problems with Financial Assurance

Problem: Outdated and unfinished regulations
Description: Most of the financial responsibility regulations were written in the early 1980's, when there was little experience with the nature of the business of running and maintaining facilities under the new *Dangerous Waste Regulations*. The TSD facility industry was young and the business opportunities were thought to be bright. Today there is little interest on the part of large corporations to own and operate commercial facilities, and it has been left to smaller entrepreneurs or foreign interests to run commercial TSD facilities. EPA has proposed financial responsibility regulations for corrective action three times, but never finalized them. They remain as "guidance" for the states implementing the federal program, which is full of legal pitfalls for our project managers. **Possible Solutions:** EPA and, if not EPA, then Ecology, should comprehensively revise the financial assurance regulations to fit the nature of the problems encountered over the past 20 years. This will help to ensure that such regulations protect the public health and the

environment by providing a sound financial underpinning in case of the private failure of the TSD facility owners or operators.

Problem: Accurate closure and postclosure costs

Description:

One of the key steps in providing effective financial assurance is to have accurate up-to-date closure and post-closure costs that would allow a third party to carry out these tasks in case of failure on the part of the TSD facility owner or operator. Without the use of standardized cost estimating methodology or data, Ecology staff is limited in review of cost information. In construction, cost estimating is a highly specialized task using sophisticated geographically specific tools to be sure the financial basis for projects is accurately calculated.

Possible Solutions:

Prod EPA to supply a model for Region 10, or contact a professional cost estimating firm in the state of Washington to determine what methodology or services they could supply.

Problem: Coverage

Description:

Current regulations have numerous exclusions for recycling facilities including typical oil and petroleum product recycling processes. With such activities unregulated, no financial responsibility regulations apply to them. Washington State has at least one example where the cleanup cost for such recycling facilities greatly overshadowed the costs of closing the part of the facility that managed waste under the *Dangerous Waste Regulations.*

Possible Solutions:

Expand the applicability of financial responsibility to facilities that recycle dangerous waste by narrowing the exclusions. Financial responsibility for facilities that manage non-hazardous industrial waste should also be looked at.

Problem: Too many instruments, too few facilities

Description:

Five separate financial instruments are available for a relatively small universe of regulated facilities (around 27). Review and knowledge of these five instruments as well as following the financial fortunes of the banks, corporations and institutions issuing them or responsible for these instruments is a large regulatory task. There has been inadequate attention paid to the needed resources and expertise devoted to the topic within Ecology and EPA.

Possible Solutions:

Limit the number of instruments a TSD facility owner or operator can choose from. Emphasize the fully-funded trust fund because it represents an easily available asset that must be made available as a condition of permitting. Trust institutions are listed nationally in terms of their strength, which is required in the current regulation.

Another solution is to make available the resources within Ecology or EPA to more fully monitor financial responsibility activity. Increasing the amount of federal technical assistance should also be a priority.

Problem: Enron and general collapse of credibility of the accounting and financial industry

Description:

The entire financial services industry, including accounting and investment firms, is currently in a state of disarray as a result of the excesses of the 1990's. Many corporate annual reports are being re-stated as a result of numerous "shell" games being played with assets and liabilities. This has implications for the use of the financial test and corporate test as a mechanism for our purposes.

Possible Solutions:

Disallow the use of the financial test and corporate guarantee. Prod EPA into using existing standards for the financial ratings of insurance companies, such as the Standard & Poor's CLASSIC ratings database. (See "***Too many instruments, too few facilities***" discussion directly above.)

How can we get there?

The necessary societal, governmental and business changes are key and instrumental to achieving success. In the near-term, streamlining the permitting process by reducing administrative burdens and hiring and training personnel to accomplish milestones leading to the Beyond Waste vision is a step toward progress. Often, a shift happens at a meticulously slow pace. The diligence and persistence of the compliance, permitting, and corrective action staff sowing the seeds of attitudinal change will mark the level of success of long-term vision goals.

Corrective Action

This section addresses the following questions:

1. What are the boundaries for corrective action?
2. What are the corrective action assumptions?
3. What is the *status quo* with corrective action?
4. Where is the corrective action process headed?
5. What are the corrective action process problems/challenges/barriers?
6. What changes are needed to move toward the Beyond Waste vision?
7. How can we get there?

What are the boundaries for corrective action?

Corrective action is a process used for cleanup at facilities that manage or managed regulated hazardous waste and whose unauthorized releases threaten air, land, or water. Human health or ecological impacts may result from such releases, which can occur during the active life of a TSD facility or during or after closure of the facility. Recycling facilities can also mismanage wastes/commodities in such a way as to require corrective action as well. Corrective action differs from cleanup under the national Superfund or Washington State's Model Toxics Control Act (MTCA). Corrective action has a narrow focus on TSD facilities rather than the broad applicability to industrial, commercial and institutional sources subject to cleanup under the Superfund/MTCA processes.[3]

In 1984, Congress passed the Hazardous and Solid Waste Amendments (HSWA) as part of RCRA reauthorization. A cornerstone requirement of HWSA is that all facilities seeking or required to have a RCRA permit (including a RCRA interim status permit) conduct corrective action for all releases of hazardous waste and hazardous constituents from all solid waste management units at the facility. At facilities seeking a final RCRA permit, corrective action and a schedule of compliance for corrective action must be specified in the permit.

Under the HSWA amendments, corrective action is required regardless of the time at which waste was managed in the unit and regardless of whether the unit was intended for the management of solid or hazardous waste. Financial assurance for such corrective action is required.

In 1994, under the Alternative Authorities Initiative, the state of Washington was authorized by EPA to use the state cleanup regulations, MTCA regulations (Chapter 173-340 WAC), to implement corrective action requirements at RCRA facilities.

Under the alternative authorization initiative, corrective action requirements may be fulfilled in two ways: by the conventional method (implementation of a RCRA order or permit), or by implementation of a MTCA action. In most cases, Ecology incorporates corrective action requirements imposed pursuant to MTCA into final facility permits by reference at the time of permit issuance. Corrective action for interim status facilities is usually conducted under an order or consent decree.

[3] See Figure 1 for a comparison of RCRA corrective action and CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) or Superfund remedial processes.

The correction action process usually includes the following steps:

1. *RCRA Facility Assessment (RFA)* – An RFA is an initial investigation of releases and potential releases at a facility. It involves an extensive file review of the history of the facility, plus a facility inspection. This assessment results in a report that discusses known and potential contamination at the facility and that recommends additional investigation and/or other corrective action that may be needed.

2. *RCRA Facility Investigation (RFI)* – This phase is a detailed facility-wide investigation and characterization of known and potential contamination. It usually involves soil and ground-water investigations and often involves analyses (e.g., modeling) to evaluate the movement of, and risks associated with, the contamination. During the RFI, sufficient information must be gathered about on-site contamination to determine the cleanup actions, including cleanup levels.

3. *Corrective Measures Study (CMS)* – The CMS is a study of potential approaches to address contamination at the facility. Several cleanup options are described and evaluated. The study recommends an approach to accomplish the cleanup.

4. *Corrective Measures Implementation (CMI)* – The final stage of the corrective action process during which the comprehensive cleanup and/or containment of contamination actually occurs.

What are the corrective action assumptions?

One assumption is that a remediated site is a site where contamination is contained and monitored; not necessarily a site where all contamination has been removed and the site returned to pristine, pre-industrial conditions.

A second, important assumption is that corrective action cleanups require that cleanup levels in soil, surface water, groundwater, and air are met at the applicable points of compliance. That is to say, to minimize potential migration of hazardous substances, active measures have been taken to prevent precipitation and runoff from coming into contact with contaminated soils. Measures have also been taken to prevent releases to soil, surface water, groundwater, and air. Certain mechanisms and activities are required to protect the integrity of the cleanup action, such as:

- *Institutional controls* are measures undertaken to limit or prohibit activities that interfere with the integrity of a cleanup action or may result in exposure to hazardous substances at a site. MTCA specifies circumstances where institutional

controls are required as part of a cleanup action (WAC 173-340-440). Institutional controls may also be required to establish a site-specific cleanup level for groundwater where it is not a current or potential source of drinking water or to ensure the continued protection of terrestrial ecological receptors (plants and animals). In most cases, the institutional controls must be recorded as part of a property deed to warn future property owners of the condition and to restrict activities or use of the property that could result in exposure to the contamination. Tenants must also be notified of these restrictions in any lease agreement.

- Sites using engineered containment systems, such as liners, covers, or underground slurry walls, may be required to establish *financial assurance*, such as posting a bond or other financial instrument to guarantee that the containment system is maintained as long as contamination is present at the site.

- *Confirmational monitoring* must be conducted at the site to verify the long-term effectiveness of the cleanup action once cleanup standards and other performance standards have been attained.

- Where institutional controls or financial assurances are required, or if certain other conditions exist, Ecology will conduct a *periodic review* of the site every five years to ensure the continued protection of human health and the environment. Ecology publishes a notice of any periodic review in the Site Register and provides an opportunity for public review and comment.

Another assumption is that no new contaminated TSD facilities will be discovered or created. New contaminated sites are still reported to the Department of Ecology every year according to the "State of Cleanup" report prepared by Ecology's Toxics Cleanup Program (http://www.ecy.wa.gov/biolio/0209043.html) but, these sites are most frequently real-estate redevelopment sites, and not TSD facilities.

What is our *status quo* with corrective action?

- Number of TSD facilities conducting corrective action
- GPRA corrective action environmental indicators (EI's)
- Other performance measures

Number of TSD facilities conducting corrective action

Of the 116 corrective action sites in the state of Washington, Ecology is actively directing corrective action for 19 "high priority" facilities, while EPA Region 10 is directing 8 high priority facilities. In addition, Ecology is also directing corrective action for 14 medium priority facilities while EPA is directing another 13 medium

priority facilities. The remaining 61 facilities are sites whose threat to human health and the environment is low.

GPRA corrective action environmental indicators (EI's)

Under the federal Government Performance and Results Act (GPRA), EPA has set 2005 goals for corrective action at dangerous waste facilities. Annual performance goals are set each fiscal year. Washington is measuring the intermediate success of our corrective action program against the GPRA goals. The program is monitoring intermediate progress by tracking two environmental indicators (EI's) for human exposure and groundwater. The Human Exposures EI (CA 725) asks whether current human exposures are under control. Human exposures can be considered under control if adequately protective controls are in place to prevent unacceptable exposures (i.e., pathways between human and contamination are cut). The Groundwater EI (CA 750) asks whether migration of contaminated groundwater is under control. By 2005, 95% of existing hazardous waste management facilities (based on the universe baseline of 1997) are expected to have human exposures under control. For the Groundwater EI, 70% of existing facilities are expected to have migration of contaminated groundwater under control.

There are 19 high priority facilities in Washington's baseline universe. By the end of 2001, nine of these facilities had achieved the Human Exposure EI, and three had achieved the Groundwater EI. In 2005, projections are that all 19 facilities will achieve the Human Exposures EI and 16 will achieve the Groundwater EI.

Other performance measures

Ecology has developed a performance measure to assess corrective action progress at TSD facilities in Washington from the beginning to the end of the corrective action process.[4] It accounts for incremental and ongoing progress being made at the sites. Ecology uses this measure to assess ongoing corrective action progress, to discuss progress with interested parties and to aid in workload planning.

Based on that measure, the following information is provided:

- Of the 19 high priority sites managed by Ecology, 58% have completed the corrective action process, and on average, these high priority sites are in the corrective measures study (CMS) step of corrective action.
- Ecology expects corrective action to be completed at all 19 high priority sites by 2011.
- Of the 14 medium priority sites managed by Ecology, 41% have completed the corrective action process, and on average, these medium priority sites are in the RCRA facility investigation (RFI) step of corrective action.

[4] EPA and Ecology use environmental indicators to assess progress at corrective action sites in preventing acute and immediate impacts to human health and the environment. An EI is more a measure of interim progress to stabilize the site and prevent the contamination from spreading than a measure of remediation.

- Ecology expects corrective action to be completed at all 14 medium priority sites by 2032.[5]

Table 3: Performance Measures for High and Medium GPRA Corrective Action Sites (March 2002)
The percentages are a measure of the progress in completing corrective action at all "high priority" and "medium priority" sites.

	2000 (01/00 to 12/00)	2001A (01/01 to 08/01)	2001B (09/01 to 03/02)	2002A (04/02 to 10/02)
High Priority GPRA Sites	47%	52%	55%	58%
Medium Priority GPRA Sites	36%	38%	36%	41%

What don't we know?
- The impact of Hazardous Waste Management Facility Initiative on the number of facilities needing corrective action
- Whether contaminated sites can be prevented and whether more contamination will be found at TSD facilities

Where is the corrective action process headed?

5 years: GPRA corrective action environmental indicator goals are met
15 years: High priority sites are remediated
30 years: All corrective action sites are remediated; no TSD facilities with new contamination

What are the corrective action process problems/challenges/barriers?

- Re-authorization issue with new MTCA regulation; administrative burden of transferring facilities from EPA to Ecology
- Problems with financial responsibility for corrective action

Re-authorization issue with new MTCA regulation; administrative burden of transferring facilities from EPA to Ecology
Gaining authorization to implement corrective action requirements has been a time and resource intensive effort for Ecology. Ecology spent approximately three years working with EPA Region 10 to receive authorization to use the MTCA cleanup regulations to implement corrective action at TSD facilities in the state of Washington. Much of this effort was spent to make EPA comfortable with limited use of orders and consent decrees issued under the Model Toxics Control Act at facilities subject to corrective action. In the end, Ecology was never able to actually receive authorization to separately use these MTCA

[5] For more information and background, the reader is encourage to access the Ecology Publication, Publication #01-04-031, "Annual Progress Report on the Corrective Action Program in Washington State," December 2001. It can also be accessed by electronic means at: http://www.ecy.wa.gov/pubs/0104031.pdf

orders for corrective action in lieu of permits and, instead, is still required to incorporate these orders by reference into state dangerous waste permits.

The authorization process has prevented Ecology from adopting regulations that would streamline the post-closure process. In 1999, Ecology did not adopt regulations allowing the use of alternative administration mechanisms (i.e., MTCA orders and consent decrees) instead of permits to impose post-closure care requirements for interim status facilities because the effort to obtain authorization from EPA Region 10 would be greater than the efficiencies achieved from the new regulation. EPA Region 10 indicated that the MTCA cleanup regulations would need to be reviewed again to allow authorization for alternative mechanisms for post-closure, despite the fact that the regulations were reviewed in detail during the alternative authorization process in 1994.

In 1999 and 2001, EPA headquarters announced a series of innovations for corrective action that championed, among other tools, the use of state cleanup authorities to conduct RCRA corrective action. The RCRA Cleanup Reforms emphasized results in cleaning up releases at TSD facilities, where unnecessary process and procedural steps would be eliminated in order to move facilities toward the long-term goal of final facility cleanup. This includes not requiring a permit to conduct corrective action at non-active TSD facilities; corrective action would be conducted under an order or consent decree in these cases. Despite the reforms announced by EPA headquarters, EPA Region 10 appears to have limited ability to allow such flexibility when addressing corrective action in the state of Washington because the reforms have been issued as guidance and not as regulation, which means that EPA and Ecology might be sued if the agencies did not follow regulations. EPA, however, has been receptive to drafting a streamlined permit for corrective action at non-operating facilities.

A revised version of the MTCA cleanup regulation became effective in 2001. With decreasing staff resources to deal with permitting and corrective action, the HWTR Program lacks the resources to deal with a lengthy, involved reauthorization process with EPA Region 10.

Problems with financial responsibility for corrective action

Like financial assurance for closure and post-closure activities, the law requires that owners and operators of TSD facilities undergoing corrective action also be covered by financial mechanisms to cover the cost of corrective action activities in case of bankruptcy. However, sudden and non-sudden liability coverage is not required for corrective action, unlike for closure activities.

Other ways in which corrective action financial assurance differs from closure and post-closure financial assurance:

- Regulations for financial assurance have not been finalized at the federal level; therefore, proposed regulations are to be used as guidance by states implementing federal programs, and
- Cost estimates for corrective action are only available when remediation methods have been selected. As detailed elsewhere in this chapter, this step is done only after extensive studies have been performed.

Unlike closure and post-closure costs, corrective action costs can be calculated only after remedial investigation studies are performed and a remedial action method is selected. Such studies take years and the public is at risk for costly cleanup to be jeopardized by TSD facility owner or operator insolvency. Liability coverage for corrective action is not currently required, nor is financial assurance required until the later stages of cleanup.

Possible solutions: Require financial assurance for corrective action early in the cleanup process. Set default levels of coverage depending on the facility type:
-- $10 million for land related activities
-- $5 million for non-land related activities

What changes are needed to move toward the Beyond Waste vision?

- Educate the public about the costs of remediation
- Ensure TSD facilities assume full responsibility for the problems they create
- More technical assistance from EPA on financial assurance, including cost modeling for financial assurance, closure, and post-closure
- Upfront requirements for TSD facilities
- Statutory authority to regulate or permit hazardous substances/materials (i.e., Second Generation TSD Facilities)
- Alternative funding mechanism(s) to implement an adequate assistance, permit and compliance program by Ecology
- Authorization for private/public partnerships

How can we get there?

- Reduce administrative burdens
- Increase regulatory flexibility, including use of orders instead of permits to conduct corrective action
- Agree on a reasonable level of cleanup
- Encourage voluntary cleanup
- Meetings with TSD facilities engaged in corrective action; dialogue with public and environmentalists
- Improve requirements for financial assurance

Appendix 1

Permits for Hazardous Waste Facilities – October 2002

NOTE: These lists include facilities that currently have a final status (Part B) permit, interim status (Part A) permit, or applied for a final status permit and subsequently withdrew their application or were denied a final status permit by Ecology. The lists do not include over 40 facilities that operated solely under interim status and did not file an application for final status, or were primarily hazardous waste generators and were listed as TSD facilities by Ecology or EPA in order to direct site cleanup (i.e., undiscovered land disposal facility).

Facilities that have received a final permit (permit may be expired)

1.	Applied Process Engineering Lab. (RD&D), Richland	12/15/98
2.	*Allied Technology Group, Richland*[1]	7/7/99
3.	Bay Zinc, Yakima	11/8/88 (expired)
4.	Boeing, Auburn	7/24/87 (expired)
5.	Bonneville Power Administration, Ross Complex	3/15/01
6.	*BP Amoco, Blaine*[2]	3/31/87 (expired)
7.	BSB/Hytek, Kent (post-closure permit)	11/8/88 (expired)
8.	Burlington Environmental - Georgetown, Seattle	8/5/91 (expired)
9.	Burlington Environmental - Kent	8/28/98
10.	Burlington Environmental, Tacoma	4/23/99
11.	Burlington Environmental - Terminal 91, Seattle	8/26/92 (expired)
12.	Burlington Environmental, Washougal	9/18/92 (expired)
13.	*Department of Energy/Westinghouse/Battelle, Hanford*[1]	8/29/94
14.	Emerald Services, formerly Sol-Pro, Tacoma	4/23/99
15.	Noveon (Kalama Chemical), Kalama	7/10/01
16.	Pioneer Americas (Occidental Chemical), Tacoma	10/13/88 (expired)
17.	*Phillips 66/Tosco, Ferndale*[2]	3/31/89 (expired)
18.	Reichhold Chemical, Tacoma	11/8/88 (expired)
19.	*Shell Products US (previously Equilon), Anacortes*[2]	11/8/88 (expired)
20.	*Tesoro, Anacortes*[2]	11/8/88 (expired)
21.	Vopak, Kent	11/4/91 (expired)
22.	Washington Chemical, Spokane	6/30/84 (revoked 5/6/94)
23.	Washington State University, Pullman	6/30/84 (expired)

[1]Facility oversight under the Nuclear Waste Program
[2]Facility oversight under the Solid Waste and Financial Assistance Program's (SWFAP) Industrial Section

Categories of facilities with final status permits:
Managing wastes under current permit - 1, 2, 5, 9, 10, 13, 14, 15
Managing wastes under expired permits – 3, 4, 8, 17, 21
Not managing wastes, going through closure, post- closure, and/or corrective action under expired permits - 6, 7, 11, 12, 16, 18, 19, 20
Facility closed, permit expired - 23
Facility closed, permit terminated - 22

Facilities with interim status (excluding facilities with oversight under the Nuclear Waste Program)

1. CleanCare
2. Goldendale Aluminum, Goldendale
3. Intalco Aluminum, Ferndale
4. Lehigh Cement, Metaline Falls
5. Reflex Recycling, Tacoma
6. US Army, Fort Lewis
7. USN NUWC Keyport, Keyport

Categories of interim status facilities:
Managing wastes - 2, 6, 7
Not managing wastes - going through closure, post-closure, and/or corrective action - 3, 4, 5
Not managing wastes - facility bankrupt and cleanup is referred to Ecology's Toxics Cleanup Program, interim status will be terminated - 1

Facilities that had applications denied, facility closed

Cameron, Yakima	5/31/97
Ross Electric, Chehalis	1/07/00
Toxgon/Penberthy	3/25/91

Facilities that withdrew permit applications

1. Boeing, Everett Plant, Everett
2. Boeing Space Center, Kent
3. Boeing - Plant 2, Seattle
4. Boeing - Renton, Renton
5. Cominco American (Johnson Matthey), Spokane
6. Kaiser Aluminum, Trentwood
7. Northwest Alloys, Addy
8. Northwest EnviroService, Seattle
9. Safety-Kleen, Auburn
10. Safety-Kleen, Lynnwood
11. Safety-Kleen, Pasco
12. Safety-Kleen, Spokane
13. US Army Yakima Training Center, Yakima
14. USAF Fairchild AFB, Spokane

Proposed facilities that decided not to go forward:

1. ECOS, Lind
2. ESC (Grant County landfill), Vantage
3. ESC (Grant County) incinerator, Vantage
4. Recontek, Richland