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Hanford Site Waste Minimization and Pollution Prevention Awareness Program Plan

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GLOSSARY

DEFINITIONS OF TERMS

Hazardous Substance - Any hazardous substance listed as a hazardous substance in the *Emergency Planning and Community Right-to-Know Act* and any further updates, and all ozone depleting compounds as defined by the *Montreal Protocol of October 1987* and any further updates of the Montreal Protocol.

Hazardous Waste - Those solid wastes that exhibit any of the characteristics of hazardous waste identified in 40 CFR 261, Subpart C (ignitable, corrosive, reactive, toxic), or that are listed in 40 CFR 261, Subpart D, "Lists of Hazardous Waste."

Pollution Prevention - The use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source. It includes practices that reduce the use of hazardous and nonhazardous materials, energy, water, or other resources as well as those that protect natural resources through conservation or more efficient use.

Recycling - Recycling techniques are characterized as use, reuse, and reclamation techniques (resource recovery). *Use or reuse* involves the return of a potential waste material either to the originating process as a substitute for an input material or to another process as an input material. *Reclamation* is the recovery of a useful or valuable material from a waste stream. Recycling allows potential waste materials to be put to a beneficial use instead of going to treatment, storage, or disposal.

Source Reduction - The elimination or reduction of waste generation at the source. Source reduction activities and techniques include substitution of less hazardous materials, process optimization or modification, technology changes and administrative changes such as inventory control, and housekeeping practices such as waste segregation. Source reduction results in reducing or eliminating the amount of potential waste material exiting from a process.

Treatment - Technological processes that reduce the volume, toxicity, or mobility of waste. Examples include, but are not limited to, incineration, vitrification, neutralization, chemical extraction, physical separation, and solidification/stabilization technologies.

Waste Minimization - Elimination or minimization of the generation of waste before treatment, storage, or disposal. Waste minimization is any source reduction or recycling activity that results in (1) reduction of total volume of waste, (2) reduction of toxicity of waste, or (3) both, as long as that reduction is consistent with the general goal of minimizing present and future threats to human health and the environment.

Waste Reduction - Reduction of the total amount of waste that is generated and disposed of by DOE operations through WMin/P2 and treatment activities.

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**HANFORD SITE WASTE MINIMIZATION AND
POLLUTION PREVENTION AWARENESS
PROGRAM PLAN**

I. INTRODUCTION/BACKGROUND

A. PURPOSE OF PLAN

This plan documents the development and implementation of the Hanford Site Waste Minimization/Pollution Prevention (WMin/P2) Program. The plan specifies activities and methods that will be employed to prevent pollution from entering all environmental media, to conserve resources and energy, and to reduce the quantity and toxicity of hazardous, radioactive, mixed, and sanitary waste generated at the Hanford Site. It is intended to satisfy the U.S. Department of Energy (DOE) and other legal requirements that are discussed in Paragraph C of this section. The Pollution Prevention Awareness Program required by DOE Order 5400.1 (DOE 1988a) is included in the Hanford WMin/P2 Program.

B. SCOPE OF PLAN

The Hanford Site WMin/P2 program is an organized, comprehensive, and continual effort to systematically reduce the quantity and toxicity of hazardous, radioactive, mixed, and sanitary wastes; conserve resources; and prevent or minimize pollutant releases to all environmental media from all Site activities.

The Hanford Site WMin/P2 program plan reflects national and DOE waste minimization and pollution prevention goals and policies, and represents an ongoing effort to make WMin/P2 part of the Site operating philosophy.

In accordance with these policies, a hierarchical approach to environmental management has been adopted and is applied to all types of polluting and waste generating activities. Pollution prevention and waste minimization through source reduction are first priority in the Hanford WMin/P2 program, followed by environmentally safe recycling. Treatment to reduce the quantity, toxicity, and/or mobility will be considered only when prevention or recycling are not possible or practical. Environmentally safe disposal is the last option.

Various WMin/P2 techniques will be implemented with the support of employee training and awareness programs to prevent pollution and reduce waste, and still meet requirements for quality, productivity, safety, and environmental compliance (Figure 1).

Early investments in WMin/P2 will help eliminate pollutant releases to the environment and help to reduce rising waste management costs for the

Figure 1. WMin/P2 Program Techniques.

storage, treatment, and disposal of waste. WMin/P2 will also minimize health risks to Hanford workers and the public, and provide the following additional benefits:

- Reduction of compliance costs
- Reduction of resource usage
- Improvement in efficiency of operations
- Reduction or elimination of inventories and releases of hazardous substances reportable under the "Emergency Planning and Community Right-to-Know Act" (*Superfund Amendments and Reauthorization Act of 1986*)
- Reduction of long-term civil and criminal liabilities under environmental laws.

This plan applies to all Hanford Site activities and operations. Requirements for Site contractors are directed by this document. This plan will be reviewed annually and revised as necessary. At a minimum, the plan will be updated every three years.

The plan has been distributed to affected employees and Site contractors, and the policy, goals, objectives, and strategy of the plan will be communicated to all Site employees.

C. LEGAL AND POLICY BACKGROUND

The regulatory and policy requirements for pollution prevention and waste minimization include, but are not limited to the following laws, regulations, Executive Orders, DOE Orders, and policies.

The Hazardous and Solid Waste Amendments of 1984 (HSWA) to the Resource Conservation and Recovery Act of 1976 (RCRA)

Requires generator certification that a waste minimization program is in place for hazardous waste. Also Requires identification of efforts to reduce volume and toxicity of waste.

The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)

Establishes reporting requirements for the use, storage, and onsite and offsite transfers of hazardous and toxic chemicals.

Clean Air Act Amendments (CAAA) of 1990

Establishes fleet vehicle emission standards; phases out production of Class I ozone-depleting substances by 1996; limits emissions of ozone-depleting substances during service, use, and disposal of equipment.

Federal Facility Compliance Act of 1992 (FFCA)	Requires national inventory of all mixed waste including description of waste minimization actions.
The Pollution Prevention Act of 1990	Establishes pollution prevention as first choice in environmental management; EPCRA reporting requirements expanded to include source reduction/recycling information; increased public access to WMin/P2 information.
Chapter 173-303 Washington Administrative Code, Dangerous Waste Regulations	Requires generator certification that a waste minimization program is in place for hazardous waste.
Executive Order 12843, <i>Procurement Requirements and Policies for Ozone-Depleting Substances</i> , April 1993	Requires Federal agencies to minimize and allow for phaseout of Class I and II ozone-depleting substances.
Executive Order 12856, <i>Federal Agency Compliance with Right-to-Know Laws and Pollution Prevention Requirements</i> , August 1993	Requires Federal agencies to establish a 50% reduction goal in toxic chemical releases, achievable by December 31, 1999; and to identify, request, allocate and report status on funding to implement pollution prevention requirements.
Executive Order 12873, <i>Federal Acquisition, Recycling and Waste Prevention</i> , October 1993	Promotes waste reduction through recycling and use of recycled products.
Executive Order 12902, <i>Energy Efficiency and Water Conservation at Federal Facilities</i> , March 1994	Requires Federal agencies to reduce energy consumption 30%, to increase energy efficiency 20% by 2005, and to implement water conservation measures.
DOE Order 5400.1	Requires a waste minimization program, a pollution prevention awareness program plan, annual waste reduction reports, and goals.
DOE Order 5820.2A	Requires waste minimization practices for management of radioactive waste.

RLID 5820.2A, "Radioactive Waste Management"

DOE-RL Directive for implementing DOE Order 5820.2A.

DOE Policy, "Environmental Protection Policy for Richland Operations," November 1990

Source reduction and recycling will be used to prevent the generation of contaminants, wastes, and other residual materials requiring disposal or release to the environment.

DOE Policy "Pollution Prevention Policy for Richland Operations," May 1994

Commitment to an effective waste minimization and pollution prevention program at Hanford, the 1994 WMin/P2 Crosscut Plan, and recent Executive Orders (Appendix A).

D. SITE DESCRIPTION AND MISSION

The Hanford Site consists of 1,450 km² of semi-arid land along the Columbia River in southeastern Washington. The DOE facilities are located throughout the Site and the city of Richland (Figure 2).

The Hanford Site was acquired by the federal government in 1943. For more than 20 years, Hanford Site facilities were dedicated primarily to the production of plutonium for national defense and management of the resulting wastes. In later years, programs at the Hanford Site were diversified to include research and development for advanced reactors, renewable energy technologies, waste disposal technologies, and cleanup of contamination from past practices.

Activities at the Hanford Site are supported by more than 16,000 employees who work for RL and four prime contractors. Westinghouse Hanford Company (WHC) is the management and operations (M&O) contractor and manages facility transition, waste, and design engineering and construction support of new projects for the Hanford Site. Pacific Northwest Laboratory (PNL) is the research and development (R&D) contractor with primary responsibility for technology development and environmental monitoring. The Hanford Environmental Health Foundation (HEHF) provides medical and occupational health services for the Site. Bechtel Hanford Incorporated (BHI) is the Site environmental restoration management contractor.

Waste generating Cognizant Secretarial Offices (CSO) present at the Hanford Site are Environmental Management (EM) and Energy Research (ER). The lead CSO for the Hanford Site is EM.

Figure 2. Location and Regional Map of the Hanford Site.

The U.S. Department of Energy (DOE) is establishing a new mission for Hanford including:

- Waste Management of stored defense wastes and the handling, storage, and disposal of radioactive, hazardous, mixed, or sanitary wastes from current operations.
- Environmental Restoration of approximately 1,100 inactive radioactive, hazardous, and mixed waste sites and about 100 surplus facilities.
- Research and Development in energy, health, safety, environmental sciences, molecular sciences, environmental restoration, waste management, and national security.
- Technology Development of new environmental restoration and waste management technologies, including site characterization and assessment methods; waste minimization, treatment, and remediation technology; and education outreach programs.

DOE has set a goal of cleaning up Hanford's waste sites and bringing its facilities into compliance with local, state, and federal environmental laws by 2028. In addition to supporting the environmental management mission, the DOE also is supporting space energy, isotope production, and other special initiatives in accomplishing their national objective.

In support of the Site's primary mission, the purpose of this plan is to respond to and comply with pollution prevention and waste minimization regulations, Executive Orders, and DOE Orders and policies.

II. POLICY

A. STATEMENT OF MANAGEMENT SUPPORT/COMMITMENT

The RL Manager and senior management are committed to preventing pollution and minimizing the generation of waste. Top management will provide adequate personnel, budget, training, and material on a continuing basis to ensure that the objectives of the WMin/P2 Program are met.

B. POLICY STATEMENT

The RL Manager has issued a written policy that establishes commitment to implementing the following: an effective WMin/P2 program at Hanford, the 1994 DOE Waste Minimization/Pollution Prevention (WMin/P2) Crosscut Plan, and all applicable Executive Orders. The policy is included in this plan as Appendix A.

C. CONTRACTOR WMIN/P2 PROGRAMS

Each contractor shall develop or maintain a WMin/P2 program. The program will be documented by a current WMin/P2 plan that follows the format and guidance established in this plan. Contractors will ensure that WMin/P2 plans are developed and implemented in accordance with Federal, state, and local environmental laws and regulations, DOE Orders, and the 1994 DOE WMin/P2 Crosscut Plan. Plans should be reviewed annually and be updated at least every three years. Contractors will develop internal guidance and instructions consistent with the 1994 Hanford WMin/P2 Awareness program plan, which will be included in their respective WMin/P2 plans. Contractors will also be responsible for administering WMin/P2 guidance, instructions, and procedures applicable to the operations of any subcontractors working onsite.

III. STRATEGY, OBJECTIVES, AND GOALS

A. STRATEGY

Each contractor shall develop and implement a WMin/P2 program that achieves program objectives identified in this plan. The foundation of this strategy will be to continually obtain accurate, current, and specific hazardous substance use data, waste stream generation data, and information on waste management costs for Hanford Site activities. This information will provide the baseline information needed to concentrate program resources and identify, evaluate, and implement cost-effective WMin/P2 opportunities and techniques. Those activities that will result in the highest safety, health, environmental, and economic returns on investment will be top priority for program personnel and resources. The essential strategy features of the Site and contractor programs are: (1) maintain an organization of management and staff personnel to develop and implement an effective program, (2) identify priority hazardous substances used and priority hazardous, radioactive, mixed, and sanitary waste streams generated, (3) identify WMin/P2 opportunities to be implemented, (4) implement cost-effective WMin/P2 technologies and initiatives, (5) communicate and train employees on WMin/P2 philosophy, and (6) track performance and measure program progress.

B. PROGRAM OBJECTIVES

The objectives of the Hanford Site WMin/P2 program are as follows:

- Foster a philosophy to prevent pollution and minimize waste while achieving Site strategic objectives.
- Promote the use of nonhazardous materials in Site activities to minimize the potential risks to human health and the environment.
- Prevent pollution and reduce or eliminate the generation of waste through input substitution, process modification, improved housekeeping, etc.

- Comply with Federal and state regulations and DOE requirements for waste minimization, waste reduction, and pollution prevention.
- Characterize pollutant releases and waste streams and develop a baseline of this data.
- Identify and implement WMin/P2 methods and technologies.
- Target for modification policies, procedures, or practices that may be WMin/P2 barriers.
- Clearly communicate WMin/P2 objectives and goals to all Site employees.
- Promote integration and coordination of waste generators and waste managers on WMin/P2 matters.
- Develop specific goals and schedules for WMin/P2 activities.
- Promote WMin/P2 incentives.
- Develop and implement employee pollution prevention awareness and occupational training programs.
- Collect and exchange WMin/P2 information through technology transfer, outreach, and educational networks.

C. GOALS

Interim numerical goals for minimizing radioactive, mixed, hazardous, and sanitary wastes and EPCRA toxic chemicals are provided in Appendix B. Because these goals are interim, Appendix B also includes a schedule for finalization of these goals by January 31, 1995. This schedule will allow for the development and aggregation of goals established by Hanford waste generating organizations. These goals will be based on goal setting guidance in Executive Order 12856, the 1994 DOE WMin/P2 Crosscut Plan (DOE 1994a), and DOE Guidance for Site WMin/P2 plans (DOE 1994b). The finalized goals will then be included in a revised Appendix B. Values will represent a percent reduction of the baseline value adjusted for changes in new operations and activities, Site stabilization, and restoration and remediation actions.

D. SCHEDULE OF ACTIVITIES

A detailed schedule of WMin/P2 activities is presented in Appendix C. It reflects the key Site WMin/P2 program elements identified in the 1994 DOE WMin/P2 Crosscut Plan. Each contractor shall develop its own schedule for completing WMin/P2 activities within its organization.

IV. ORGANIZATION AND STAFF RESPONSIBILITIES

The overall management responsibility for the Hanford Site resides with RL (Figure 3). The RL manager is responsible for leadership and direction of Site WMin/P2 efforts. The RL Office of Environmental Assurance, Permits, and Policy (EAP) is responsible for the overall Hanford Site WMin/P2 program and provides guidance and support to line management. A WMin/P2 program manager has been established in EAP who is responsible for the oversight and interface of WMin/P2 program activities. The manager is also responsible for reviewing and coordinating Site WMin/P2 efforts. The RL line management is responsible for ensuring the implementation of contractors' WMin/P2 programs.

Westinghouse Hanford Company (WHC), as the M&O contractor, has been assigned the lead role in coordinating the Hanford Site WMin/P2 program. In response to this assignment, WHC has established the Pollution Prevention organization. This organization meets regularly with RL and representatives from the other Hanford Site contractors. The main objective of Pollution Prevention is to support the coordination and implementation of the Hanford Site WMin/P2 program activities.

Each contractor shall develop an appropriate organization to administer the WMin/P2 program. The primary function of these WMin/P2 organizations is to implement the key elements of the sitewide and/or generator-specific program identified in the 1994 DOE WMin/P2 Crosscut Plan.

V. WMIN/P2 ACTIVITIES AND RESOURCE REQUIREMENTS

Resources for Hanford WMin/P2 activities will be provided by two Cognizant Secretarial Offices, EM and ER. A breakdown of program elements and resources requirements for FY 1994 through FY 1999 is provided as three tables in Appendix D. Table 1 provides budget information for key sitewide program elements. Tables 2 and 3 identify generator-specific resource requirements for EM and ER, respectively. Site waste generator funding data in tables 2 and 3 were extrapolated for the key generator-specific program elements.

The tables identify resources in the target and the planning case for the key program elements. The tables include target level resource requests that maintain the sitewide and generator-specific WMin/P2 program activities needed for minimum compliance with waste minimization and pollution prevention regulations and DOE Orders. The target level resource requests for the sitewide and generator-specific WMin/P2 programs will not support full implementation of the key program elements identified in the 1994 DOE WMin/P2 Crosscut plan or the activities needed to meet Site goals.

Figure 3. Hanford Site WMin/P2 Program Organizational Chart.

*All WMin/P2 activities EM funded at Hanford Site except PNL's WMin/P2 program, which is partially ER funded.

---> Arrows indicate information exchange channels

At the target resource level for FY 1995 through 1999, the sitewide WMin/P2 program (Table 1) will be able to coordinate the sitewide program, perform some program development, complete all required reports, maintain existing Site waste reduction initiatives, and provide for limited technical assistance to generator program development and implementation. The major activities funded at the target level for generator-specific programs (Table 2) will be regulatory and DOE reporting of WMin/P2 accomplishments, establishing goals, and preparing program plans. Some generator programs will continue to formally perform opportunity assessments and implement opportunities as priority and funding availability allow.

Hanford planning level requests contained in the tables are for full implementation of the Crosscut plan sitewide and generator-specific Wmin/PP program elements not fully funded at the target level. For the sitewide program (Table 1), planning level resource requests would support the key program elements, with an emphasis on technical assistance to Site generators for program development, opportunity assessments, and implementation of identified opportunities. Planning level resource requests for the generator-specific WMin/P2 programs (Tables 2 and 3) would support full implementation of key elements, also emphasizing program development, opportunity assessments, and implementation.

If target and planning case resource requirements identified in Appendix E, tables 1-3 are not provided for FY 1995 through FY 1999, the Hanford program will not be able to fully implement the key WMin/P2 sitewide and generator-specific program elements identified in the Crosscut plan. The sitewide and generator-specific programs will continue as they have in the past--with some WMin/P2 successes to report and many other potential benefits unrealized. At target funding levels, the results will be partial implementation of the key Crosscut plan sitewide and generator-specific WMin/P2 program elements and limited efforts in achieving Site WMin/P2 goals.

Appendix E contains a copy of the FY 1996 Task Description Document (TDD) supporting the majority of the site-wide program, broken down according to the key elements identified in the Crosscut plan. The Hanford WMin/P2 program will continue to establish separate, identifiable resource requirements for all Site and generator-specific WMin/P2 activities, broken down according to the key elements identified in the Crosscut plan.

VI. SITEWIDE ANALYSIS

This section of the plan identifies CSOs supporting Hanford WMin/P2 efforts and describes the implementation of priority Hanford WMin/P2 activities. It also contains an analysis of program strengths and weaknesses, identifying issues and problems related to the implementation of the Hanford WMin/P2 program.

Hanford is predominantly an EM-funded Site. Site WMin/P2 activities are funded by EM and ER. EM funds the sitewide program and all of the generator-

specific programs except for a portion of PNL's WMin/P2 program, which is funded through ER. A breakdown of WMin/P2 Hanford resources requested by EM and ER through the FY 96 planning and budgeting cycle is provided in Appendix E. An analysis of program activities and resource requirements is provided in section V of this plan.

A. PRIORITY ACTIVITIES

Priority Hanford WMin/P2 activities are the development and implementation of the key sitewide and generator-specific elements identified in the Crosscut plan, with an emphasis on the development of goals, schedules, and budgets to support opportunity assessments and implementation of WMin/P2 opportunities. During coordination of the sitewide program, the WMin/P2 program manager and the WHC Pollution Prevention organization will work with Site contractors and waste generators to see priority activities are performed and other key program elements are implemented. The program manager and WHC Pollution Prevention will also work to reduce program inefficiencies and deficiencies.

Having one CSO supporting the sitewide WMin/P2 program and all but a portion of one of the generator-specific WMin/P2 programs helps to eliminate overlap or deficiency of priority WMin/P2 program activities. Information exchange will be encouraged among Site generators and information networks will be established and maintained. The WMin/P2 program manager will also work to avoid duplication of effort through organizing and coordinating WMin/P2 activities according to the types of activities being performed at Hanford. Generator WMin/P2 programs will be organized by activities, such as, facility transition, decontamination and decommissioning, or laboratory operations.

B. PROGRAM ANALYSIS

Strengths of the Hanford program have led to several WMin/P2 accomplishments at the Site. Many of these accomplishments have been identified and implemented with limited resources. This can be credited to the significant grassroots efforts demonstrated during the history of the Hanford WMin/P2 program.

In many ways, the Hanford program is positioning itself for increased WMin/P2 accomplishments. Management support is increasing and programs are seeing the results of this support through increased funding for WMin/P2 activities. Some managers are even championing generator WMin/P2 programs in their facilities. Also, program development activities have taken place for the sitewide and generator-specific programs, establishing many of the necessary program elements needed to achieve significant WMin/P2 results. Awareness has also been increasing through quality training courses and through sharing and publicizing Hanford WMin/P2 techniques and accomplishments across the Site.

While many WMin/P2 technologies are being implemented at Hanford, there are further opportunities to be realized. Some of the weaknesses of the Hanford WMin/P2 program stem from the following issues and problems. Funding is a significant issue. The sitewide and many generator-specific programs have had limited resources for implementing fully functioning and effective programs. One reason for this has been inconsistent management support. Another is WMin/P2 activities beyond those needed for minimal regulatory and DOE compliance rank low in priority in the Hanford planning and budgeting process. Activities, such as opportunity assessments and implementation, often end up on a list of unfunded items. There have also been limited resources in the past for providing technical assistance to generator-specific programs for establishing baselines and meaningful goals, and identifying and implementing WMin/P2 opportunities. The Hanford WMin/P2 program manager will work with RL and Site contractor senior management to see WMin/P2 activities are given increased and consistent management support and increased funding priority at the Hanford Site.

Another area where improvement is needed is pollution prevention awareness. While awareness is increasing through the methods described above, the broader concept of pollution prevention in all media is not well understood or developed across the Site. Continuing to expose Site employees to WMin/P2 through training and sharing accomplishments, and through establishing WMin/P2 procedures in all work performed onsite will help to increase awareness.

VII. COST ACCOUNTING

A system shall be developed by each contractor that accounts for the "true cost" of waste that is generated by the company and permits meaningful reviews and audits to be conducted. The system shall consider the fixed and variable costs arising from (1) underutilization of raw materials found in the waste stream, (2) management of the wastes that are generated, (3) waste disposal, and (4) third-party liabilities if the waste is improperly disposed. Associated costs will include personnel, record keeping, transportation (including onsite movement), pollution control equipment, treatment, storage, disposal, liability, compliance, and oversight costs.

The costs derived from the cost accounting system will be included in proposals, planning, and budgeting. To the extent possible, departments and managers should be accountable for the "true" waste management costs for the wastes they generate.

VIII. POLLUTION PREVENTION OPPORTUNITY ASSESSMENTS

Pollution prevention opportunity assessments will be conducted as part of an ongoing program to identify, screen, and analyze options to prevent pollution and reduce waste generation. An opportunity assessment will

determine the amount of hazardous substance used, pollutants released, and waste generated. It will identify practices, processes, and methods that will promote the minimization of waste, the prevention of pollution, and conservation of energy and resources. Potential pollution prevention opportunities will be identified, evaluated, and prioritized according to the WMin/P2 program hierarchy and environmental, health, safety, and economic criteria. Once pollution prevention opportunities have been assessed, schedules will be developed for the implementation of opportunities at the Site.

In the past, opportunity assessments were performed on Site routine operations and activities, and opportunities. However, Hanford's new mission of environmental restoration has changed the nature of most activities being performed onsite. While routine maintenance activities still exist, the majority of waste generating activities at Hanford are discontinuous and project oriented. Opportunity assessment methodologies will be designed with flexibility for use on either routine or discontinuous activities.

The assessments will be conducted according to WMin/P2 principles identified in DOE guidance, EPA *Waste Minimization Opportunity Assessment Manual*, EPA *Guides to Pollution Prevention-Research and Educational Institutions* (EPA 1989; EPA 1990), and Washington State Department of Ecology *Pollution Prevention Planning Guidance Manual* (1993). Contractors may develop additional guidance for performing opportunity assessments on specific Hanford polluting or waste generating activities.

Assessments at the Site will be coordinated by a core team organized and led by the RL WMin/P2 Program manager. The core team will include the RL WMin/P2 Program manager and contractor WMin/P2 coordinators. The core team will draw upon RL and contractor line, staff, or subcontractor organizations for specialized expertise in coordinating Site assessments.

Opportunity assessments on polluting and waste generating activities are performed by teams of individuals selected for their process knowledge, purchasing and material inventory knowledge, regulatory, and opportunity assessment expertise. Individuals with expertise in other areas may be added to the team depending on the nature of the process being assessed.

IX. WMIN/P2 TECHNIQUES

The Hanford WMin/P2 program encompasses activities that reduce the quantity and toxicity of hazardous, radioactive, mixed, and sanitary wastes; conserve resources; and prevent or minimize pollutant releases to all environmental media from all Site activities. The program also includes recycling processes that use, reuse, or reclaim a material from a waste stream. Some activities commonly thought to be pollution prevention or waste minimization are actually treatment. The following activities are not considered pollution prevention

or waste minimization, but may be considered waste reduction, based on the specific situation and operation involved:

- Transferring hazardous constituents from one environmental medium to another
- Concentration conducted solely for reducing volume
- Dilution as a means of toxicity reduction, unless later recycling steps are involved.

If the activity will make the material more amenable to disposal (e.g., reduce volume or toxicity before storage or disposal) then the waste is being treated, not minimized.

As stated in Section I, the Hanford Site uses a hierarchy of methods placing primary importance on source reduction efforts to prevent pollution and eliminate or reduce the generation of waste. Potential pollutants and wastes that cannot be eliminated or minimized will be evaluated for recycle (i.e., used, reused, or reclaimed). Treatment to reduce the quantity, toxicity, and/or mobility will be considered only when prevention or recycling are not possible or practical. Environmentally safe disposal is the last option.

The following techniques will be employed at the Hanford Site to prevent pollution and minimize the generation of waste.

A. INVENTORY MANAGEMENT

Current methods to control the types and quantities of materials purchased and used will be reviewed. Where necessary, inventory control techniques will be revised or expanded to reduce inventory size of hazardous chemicals, size of containers, and amount of chemicals, while increasing inventory turnover. Specifically, inventory control techniques will be used to reduce waste resulting from excess or out-of-date chemicals and hazardous substances. Excess chemicals that are still viable product will be handled through the excess chemical program. Material control shall also be revised or expanded to reduce raw material and finished product loss and damage during handling, production, and storage. The inventory management techniques shall be applied to waste material as well as to raw materials and finished products.

The review of inventory management techniques includes studying (1) how existing inventory management procedures can be applied more effectively, (2) whether new techniques should be added to or substituted for current procedures, (3) the need for review and evaluation approval procedures for the purchase of materials, (4) the need for additional employee training in the principles and need for inventory management, (5) review and revision of procurement specifications that limit purchase of environmentally sound products, and (6) increasing the purchase of recycled products. Specific procurement control activities are included in Section XI.

B. DESIGN GUIDELINE FOR NEW AND MODIFIED FACILITIES

A design guideline has been developed to assist engineers in incorporating WMin/P2 into Hanford facilities (WHC 1994). The guideline will be used in the design of new facilities and in the design of major modifications to existing facilities. This will be an important method used to achieve source reduction at Hanford.

C. PROCEDURES

Existing procedures for Site activities will be examined to determine whether the elimination or revision of procedures can contribute to the reduction of waste. This will include incorporating WMin/P2 into all appropriate onsite work procedures. Procurement and recyclable purchasing procedural changes will be made by Site contractors in accordance with recent Executive Order requirements to reduce ozone-depleting substances and to increase the use of recycled products. Each contractor shall also review procedures for control and purchase of hazardous substances to determine whether less harmful materials may be used. All other applicable procedures will be reviewed and revised to include WMin/P2. The revision and review of procedures for WMin/P2 opportunities will be fully documented and incorporated as part of Hanford employee training programs.

D. MAINTENANCE PROGRAM

The equipment maintenance program is periodically reviewed to determine whether improvements in corrective and preventive maintenance can reduce equipment failures that generate waste. The methods for maintenance cost tracking and preventive maintenance scheduling and monitoring will be examined.

Maintenance procedures will be reviewed to determine which are contributing to the production of waste in the form of process materials, scrap, and cleanup residue. The need for revising operational procedures and modifying equipment, and the need for source segregation and recovery will be determined.

E. MATERIAL SUBSTITUTION AND EQUIPMENT MODIFICATION

The Site waste generating activities are periodically examined for replacement, reformulation, reduction, or elimination of hazardous or other raw materials. WMin/P2 will be considered in the installation of new equipment and the modification of existing equipment. When appropriate, the design criteria and specifications for new or modified facilities will favor the use of recovered materials.

F. RECYCLING AND REUSE

The recovery of wastes is considered in the WMin/P2 program for legacy and newly generated waste. Opportunities for reclamation and reuse of waste materials will be explored whenever feasible. Decontamination of tools,

equipment, and materials for reuse or recycle will be used to the extent practicable to minimize the amount of waste for disposal.

Impediments to recycling, whether regulatory or procedural, will be pursued to enable generators to recycle whenever possible. The lack of a "below-regulatory-concern" value has been recognized as an impediment to the reusing and recycling of materials and waste generated inside radiation zones.

G. SEGREGATION

When waste is generated, proper handling, containerization, and segregation techniques will be employed to minimize contamination resulting in the generation of unnecessary waste.

H. WORK PLANNING

Pre-job planning will be completed to determine what materials and/or equipment are needed to perform all other required work onsite. One objective of planning is to prevent pollution and/or minimize the amount of potential waste that may be generated to within reasonable limits and to use only what is absolutely necessary to accomplish the work. This will be done to prevent mixing of materials or waste types.

X. TRAINING, AWARENESS, INCENTIVES

A. POLLUTION PREVENTION AWARENESS

A successful WMin/P2 program requires employee commitment. By educating employees in the principles and benefits of WMin/P2, solutions to current and potential environmental management problems can be found. WMin/P2 has been incorporated into the Environmental Awareness Program (EAP). The broad objective of the EAP is to educate Site employees in all environmental aspects of activities occurring at Hanford, in their community, and in their home. The EAP meets the Pollution Prevention Awareness Program requirements of DOE Order 5400.1 (DOE 1988a). Specific objectives of the EAP are as follows:

- Make employees aware of general environmental activities and hazards at the Site and pollution prevention program requirements, goals, and accomplishments
- Inform employees of specific environmental issues
- Train employees on their responsibilities in pollution prevention
- Recognize employees for efforts to improve environmental conditions through pollution prevention

- Encourage employees to participate in pollution prevention
- Publicize success stories.

The Pollution Prevention Awareness Program consists of four elements: (1) pollution prevention awareness campaign, (2) awards and recognition, (3) information exchange, and (4) training. Each contractor shall define a pollution prevention awareness program that addresses these elements.

B. POLLUTION PREVENTION AWARENESS CAMPAIGN

The EAP has an Environmental Awareness Council that was developed for RL by WHC to promote environmental awareness among RL employees, contractor employees, and within the community. Each contractor is represented on the council.

The Environmental Awareness Council will make extensive use of Site newsletters, seminars, bulletin boards, signs, and slogans to enhance employee awareness of and participation in pollution prevention at the Site.

C. AWARDS AND RECOGNITION

Individual and team pollution prevention achievements are recognized through special employee programs dedicated to cost savings, thanks, and great ideas.

D. INFORMATION EXCHANGE

An important element of the WMin/P2 program is the exchange of technical ideas. Activities to accomplish this are discussed in Section XIII.

E. TRAINING

WMin/P2 training is provided for all personnel at the Site. The goal of the training program is to make each employee aware of WMin/P2 and its impact on the Site and the environment. All training courses will be revised and updated as needed in response to new regulatory requirements, new procedures, or revisions of existing procedures.

General Employee and Hazardous Waste Training

General WMin/P2 principles are presented to all employees on an annual basis in the Hanford General Employee Training course (02006A). Generator-specific WMin/P2 training is provided annually in the RCRA Hazardous Waste Operations (031110) training course. This course is required for all contractors who work in any of the onsite treatment, storage, and disposal (TSD) units. Training on the regulatory and Site WMin/P2 requirements has been included in the Hazardous Waste Shipment Certification class (2006S), Generator Hazard Safety Training (2006G), Core Waste Management (035100 and 035110), and Waste Management Administration (035120 and 035130).

WMin/P2 topics that are covered in these courses include:

- Acknowledgment by DOE that Federal and state environmental laws apply to DOE sites
- Economics (cost of disposal, reduced feed stock costs, and improved operating efficiency)
- Employee responsibilities (compliance with the Hanford WMin/P2 program, planning and practicing WMin/P2 techniques, and complying with WMin/P2 strategies incorporated in standard operating procedures)
- Environment (ways to protect and improve the quality of the environment)
- Recycling (distillation, filtration, smelting, reuse-chemical exchanges, and utilizing existing recycling programs)
- Reduction of dangerous and extremely hazardous waste production
- Regulatory concerns defined by state laws (WAC 173-303, *Dangerous Waste Regulations*)
- Regulatory considerations brought up by Federal laws (HSWA and *Pollution Prevention Act, 1990*)
- Required WMin/P2 plans and progress reports
- Source reduction (purchasing controls, product substitution, improved housekeeping, process or procedure changes, production changes, inventory control, waste segregation, and work planning).

WMin/P2 training will also be conducted as part of the quality assurance procedures qualification process. As part of quality assurance, certain employees are required to be trained and examined on their knowledge of Site operating procedures before performing work. WMin/P2 will be incorporated into operating, administrative, and waste procedures requiring documentation using data sheets or forms.

XI. TRACKING AND REPORTING SYSTEMS

Tracking systems developed under this program will be designed to identify WMin/P2 opportunities and to facilitate reporting WMin/P2 data and accomplishments to the DOE, Environmental Protection Agency (EPA), and Washington State Department of Ecology (Ecology). The program will in every way possible use existing databases to meet programmatic needs and to streamline Site and waste generator reporting methodologies.

A. WASTE TRACKING SYSTEM

Each prime contractor shall develop a tracking system to identify waste generation data and WMin/P2 opportunities in order to provide essential feedback to successfully guide future efforts. The system shall identify program resource requirements and report cost benefits realized from implementation of WMin/P2 projects. The data collected by the system will be used for internal reporting and to meet external reporting requirements discussed in Paragraph C of this section.

The system shall track waste from point of generation to point of final disposition (cradle to grave). The system shall also permit the tracking of hazardous substances from the point of Site entry to final disposition to comply with environmental regulations and reporting requirements. The system should collect data on input material, material usage, type of waste, volume, hazardous constituents, generating system, generation date, waste management costs, and other relevant information. A method should also be developed to trace materials that are being recycled or reclaimed and volumes of wastes eliminated because of WMin/P2 efforts. Contractors are encouraged to modify or share existing tracking systems to meet this requirement, as appropriate.

B. PROCUREMENT CONTROL SYSTEM

Each contractor shall develop a procurement control system for implementing recent Executive Order requirements for the purchase of recycled products, the elimination of ozone-depleting substances, and for tracking hazardous substance purchases and use. The tracking system described in Paragraph A of this section may be used to track hazardous substances.

C. PROGRAM ACTIVITY TRACKING

Each contractor shall develop a system to provide feedback on the progress of their WMin/P2 program, including the results of WMin/P2 technologies and other implemented options.

D. FEDERAL AND STATE REPORTING REQUIREMENTS

Tracking systems developed under this program shall be designed to facilitate reporting WMin/P2 data and accomplishments to the DOE, EPA, and Ecology.

XII. QUALITY ASSURANCE

A. QUALITY ASSURANCE PROGRAM

DOE and contractor management, with support from Quality Assurance (QA) organizations, are responsible for implementing quality sitewide and generator-specific WMin/P2 programs. Management is responsible for ensuring WMin/P2 activities are effectively conducted and documented in accordance with

DOE Directive 5700.6C and QA Programs. Independent assessments of sitewide and generator-specific WMin/P2 programs will be conducted to measure program quality and effectiveness. The organization performing independent assessments shall have sufficient authority and freedom from the line organizations to carry out its responsibilities. Persons conducting independent assessments shall be technically qualified and knowledgeable in the areas assessed.

B. QUALITY ASSURANCE TRAINING

Contractor QA training programs shall be revised to include WMin/P2 policies, procedures, and documentation.

XIII. INFORMATION EXCHANGE, OUTREACH, AND PUBLIC INVOLVEMENT

Communicating pollution prevention successes and information to employees and the community through outreach and public involvement will assist in establishing public confidence and trust, increase awareness of environmental issues, and promote the reduction of waste. The Hanford WMin/P2 program will participate in the organizing of activities such as Earth Day and the local schools' Ambassadors program, and also publish information externally to help increase awareness and public trust. Additionally, public and stakeholder participation will be sought for applicable projects and program elements to encourage community involvement and develop a broad base of input and understanding of relevant pollution prevention issues.

All program staff are encouraged to make regular use of the DOE Energy Pollution Prevention Information Clearinghouse (EPIC) and the EPA Pollution Prevention Information Exchange System (PIES). RL will foster participation in business, education, and government forums that are designed to provide technical assistance and exchange WMin/P2 information. The RL WMin/P2 Program manager and contractor representatives will attend DOE workshops and other forums or conferences when possible. Also, frequent onsite meetings will be held to promote information exchange.

XIV. TECHNOLOGY TRANSFER

Technology Transfer is part of the Hanford mission. That mission is to conduct technology transfer in accordance with the Secretary of Energy Notice (SEN 30A-92). The core requirement of the technology transfer contract clause (I-109) is implementation of the National Competitiveness Technology Transfer Act of 1989 (Public Law 101-189). Activities involving technology transfer should be referred to contractor technology transfer organizations. These organizations are directed to coordinate all available technology transfer mechanisms including management of intellectual property, negotiating licenses, entering into Cooperative Research and Development Agreements

(CRADA) and forming partnerships with private-sector business for commercialization of Hanford technologies to optimize support for both the Hanford cleanup mission and local and regional economic development.

Technology Transfer also supports the Hanford cleanup mission by identifying and acquiring state-of-the-art technologies, and those requiring additional development, to meet specific cleanup challenges. Opportunities for transfer of technologies specific to WMin/P2 programs may develop from information exchange systems, workshops, or topical conferences. Direct exchanges of technologies among facilities may be acceptable but the technology transfer organizations should be consulted to ensure proper handling of intellectual property.

XV. RESEARCH AND DEVELOPMENT

Proposals for research and development (R&D) are expected to arise from the pollution prevention opportunity assessment process described in Section VIII. Some options may require development work before being implemented. The assessments may also identify process inefficiencies that offer the potential for significant waste reduction, but specific process modifications may require R&D work before implementation can be scheduled. Budget requests should include support for appropriate R&D. Specific proposals for R&D work will be coordinated through RL and DOE-Headquarters (HQ) to ensure effective allocation of resources.

XVI. PROGRAM EVALUATION

The WMin/P2 program will be evaluated periodically. All major activities will be reviewed. The evaluation will document program achievements and identify potential areas for improvement. Achievements and milestones in the program will be a part of the contractors' performance evaluation and determination of award fees.

The following success criteria are available to aid in the demonstration of effective WMin/P2 efforts.

- Reduced amount of hazardous waste and toxic chemical releases
- Reduced amount of pollutants released and waste generated
- Reduced waste management costs
- Improved regulatory compliance
- Reduced health risks

- Increased production efficiency
- Reduced accident risk
- Improved public relations.

Each contractor shall evaluate its program periodically and report findings to RL. The report shall contain current-year data, performance trends, forecasts, and measures used to gauge the performance of WMin/P2 activities. The evaluation report will be used to establish future WMin/P2 goals and program objectives. The report will also be used to determine changes to this plan.

XVII. REFERENCES

- DOE 1988a, "General Environmental Protection Program," DOE Order 5400.1, U.S. Department of Energy, Washington, D.C.
- DOE 1988b, "Radioactive Waste Management," DOE Order 5820.2A, U.S. Department of Energy, Washington, D.C.
- DOE, 1994a, *Waste Minimization/Pollution Prevention Crosscut Plan*, U.S. Department of Energy, Washington, D.C.
- DOE, 1994b, *Guidance for Preparation of Site Waste Minimization and Pollution Prevention Awareness Plans*, U.S. Department of Energy, Washington, D.C.
- Ecology 1993, "Pollution Prevention Planning Guidance Manual for Chapter 173-307 Washington Administrative Code, Washington State Department of Ecology, Olympia, Washington.
- Ecology, EPA, and DOE 1990, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.
- EPA 1989, *Waste Minimization Opportunity Assessment Manual*, EPA/625/7-88/003, U.S. Environmental Protection Agency, Washington, D.C.
- EPA 1990, *EPA Guides to Pollution Prevention-Research and Educational Institutions*, EPA/625/7-90/010, U.S. Environmental Protection Agency, Washington, D.C.
- Omnibus Reconciliation Act of 1990*, Section 6601, "Pollution Prevention Act of 1990," U.S. Environmental Protection Agency, Washington, D.C.
- Resource Conservation and Recovery Act of 1976*, as amended, Public Law 94-580, 90 Stat. 2795, 42 USC 6901 et seq.
- "Solid Wastes," 40 CFR Subchapter I (1989), U.S. Environmental Protection Agency, Washington, D.C.
- Emergency Planning and Community Right-to-Know Act*, Public Law 99-499, 100 Stat. 1613, 42 USC 11001 et seq.
- WHC, 1994, *Orientation to Pollution Prevention for Facility Design*, WHC-MR-0456 Westinghouse Hanford Company, Richland, Washington

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APPENDIX A

**U.S. DEPARTMENT OF ENERGY-RICHLAND OPERATIONS OFFICE
POLLUTION PREVENTION POLICY**

DOE/RL-91-31, Rev. 1

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ANNOUNCEMENT

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

RL No.: 94-83

Issued: MAY 6 1994

To: All RL and Contractor Employees

Subject: POLLUTION PREVENTION POLICY

On August 3, 1993, the President signed Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements." The issuance of this Executive Order and others enumerated below represents a major initiative on the part of the President to proclaim the Federal Government's role as the national leader in pollution prevention. I, too, am firmly committed to ensuring incorporation of all departmental and national pollution prevention goals in the daily conduct of our business.

Pursuant to requirements set forth in Executive Order 12856, it is the policy of the U.S. Department of Energy, Richland Operations Office (RL), to manage all Hanford Site facilities and operational activities in a manner that will reduce the generation of wastes and eliminate or minimize pollutants released to environmental media. To execute this policy, RL and Hanford Site contractor personnel shall incorporate waste minimization and pollution prevention performance measures and goals into all programmatic and operational activities including, but not limited to, the design, construction, and operation of new facilities, new product acquisition, the decontamination and decommissioning of surplus facilities and other waste generating activities including site environmental restoration and remediation work.

As a part of the implementation process, RL and Hanford Site contractors will follow the four-point priority system instituted by the Pollution Prevention Act of 1990. Additionally, Executive Order 12856 directs that voluntary goals be set to reduce total releases and the offsite transfer of Toxic Chemical Release Inventory chemicals reported under the Emergency Planning and Community Right-to-Know Act (EPCRA). RL and Hanford Site contractors will develop plans and goals to eliminate or reduce unnecessary acquisition of products containing extremely hazardous substances or toxic chemicals and to delineate progress in reaching these goals in yearly progress reports to my Office of Environmental Assurance, Permits, and Policy.

05-06-94

-2-

RL and Hanford Site contractors will also comply with Executive Order 12873, issued October 21, 1993, which requires federal agencies to expand waste prevention and recycling programs, implement affirmative procurement programs for recycled and energy efficient materials including the procurement of other environmentally preferable products and services.

RL and Hanford Site contractors will implement Executive Order 12843, issued April 21, 1993, which requires federal agencies to minimize and allow for phaseout of Class I and II ozone-depleting substances.

In conclusion, RL and Hanford Site contractors will establish performance measures and goals in accordance with these Executive Orders and consistent with previous pollution prevention and waste minimization requirements contained in the 1993 Department of Energy Waste Minimization/Pollution Prevention Crosscut Plan, the Pollution Prevention Act of 1990, the Resource Conservation and Recovery Act (RCRA), 40 Code of Federal Regulations Part 264, the Washington Administrative Code Chapters 173-303 and 173-307, and DOE Orders 5400.1 and 5820.2A.

Recognizing that pollution prevention will be strengthened in the future through the U.S. Environmental Protection Agency, the State of Washington, DOE Headquarters waste minimization guidance, and DOE Orders, we must try harder to achieve leadership in this discipline. Pollution prevention must become an integral part of the way work is performed at the Hanford Site. Your contribution is necessary for achievement of environmental excellence at Hanford.

I have assigned the responsibility of ensuring compliance with this policy to the Office of Environmental Assurance, Permits, and Policy. An implementing procedure will follow. Please contact Ellen Dagan, Manager of the Pollution Prevention Program, on 376-3811 if you have questions or need further information.

John D. Wagoner
Manager

Distribution
"D"

APPENDIX B

**HANFORD SITE POLLUTION PREVENTION PROGRAM
INTERIM QUANTITATIVE GOALS**

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HANFORD SITE POLLUTION PREVENTION PROGRAM INTERIM QUANTITATIVE GOALS*

WASTE/POLLUTANT CATEGORY	1993 BASELINE	\$ % REDUCTION DEC 31, 1999 ***	% WASTE RECYCLED ****
EPCRA TRI Chemicals:			
Chlorine (Use)	20,390 Kg	100%**	
Radioactive:			
HLW	NA	NA	
TRU	131.10 m ³	50%	
LLW	3130.78 m ³	25%	1%
Mixed:			
TRU-M	5.44 m ³	50%	
LLW-M	S - 461.22 m ³ L - 5859 m ³	S - 20% L - 15%	
TSCA-M	NA	NA	
Hazardous:			
RCRA	386,340 Kg	25%*	10%
State	72,920 Kg	10%*	10%
TSCA regulated	139,190 Kg	75%*	
		* Source reduction	
Sanitary	8,436,000 Kg	5%	25%

*, **, ***, **** See next page for assumptions

APPENDIX B (continued)

* All goals based on current levels of activity

** Based on a feasibility study to determine if reduction of chlorine potable water treatment can be replaced by another system

*** Values represent a % reduction of the baseline value adjusted for changes in new processes and activities, and in Site stabilization and remediation actions

**** Waste generation will not be reduced under recycling. New recycling activities are credited under source reduction

SCHEDULE FOR FINALIZATION OF HANFORD SITE WMIN/P2 GOALS

9/30/94 Goal setting methodology established for onsite waste generators

1/15/95 Waste generator goals established and submitted to WHC
Pollution Prevention organization

1/31/95 Waste generator goals finalized and aggregated into Site
goals and submitted to DOE-HQ

APPENDIX C

**DETAILED SCHEDULE FOR WASTE MINIMIZATION/POLLUTION PREVENTION
PROGRAM ACTIVITIES**

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Detailed Schedule for WMin/P2 Program Activities.		
Key Elements	Responsibility	Schedule
ORGANIZATION AND INFRASTRUCTURE <ul style="list-style-type: none"> • WMin/P2 Program Manager • HQ/Ops Office Interface • Integrate/Monitor Gen. Program • Participate in DOE Program • WMin/P2 Coordinator Network 	DOE DOE DOE/Contractors DOE/Contractors DOE/Contractors	Established Ongoing Ongoing Ongoing Established
PROGRAM DEVELOPMENT <ul style="list-style-type: none"> • WMin/P2 Site Plan Revision • WMin/P2 Site Policy • Objectives and Goals • Activity Schedule • Budget • Personnel • Operating Procedures • Quality Assurance 	DOE DOE DOE/Contractors DOE/Contractors DOE/Contractors DOE/Contractors DOE/Contractors DOE/Contractors	5/97 Established Annually Annually Ongoing Ongoing Ongoing Ongoing
EMPLOYEE INVOLVEMENT <ul style="list-style-type: none"> • General Employee Training • Awareness • Awards and Recognition • Employee Evaluation 	DOE/Contractors DOE/Contractors DOE/Contractors DOE/Contractors	Established Ongoing Ongoing Ongoing
TRACKING <ul style="list-style-type: none"> • Material Inventory • Waste Tracking • Cost Accounting 	Contractors Contractors Contractors	Established Established TBD
REPORTING <ul style="list-style-type: none"> • Compliance Reporting • Reports to HQ 	DOE/Contractors DOE/WHC	Annual & Biennial Annual
SITE-WIDE WASTE REDUCTION <ul style="list-style-type: none"> • Toxics Reduction • Material Substitution • Material Exchange • Recycling/Reuse • Affirmative Procurement 	Contractors Contractors Contractors Contractors Contractors	Ongoing Ongoing Ongoing Ongoing Ongoing
TECHNICAL ASSISTANCE <ul style="list-style-type: none"> • Goal Setting • Baseline Determination • Opportunity Assessment • Support • Model Programs 	DOE/Contractors Contractors Contractors Contractors	Annual Ongoing Ongoing TBD

Key Elements	Responsibility	Schedule
INFORMATION/TECHNOLOGY EXCHANGE <ul style="list-style-type: none"> • Seminars, Workshops, Meetings • WMin/P2 Coordinator Meetings • Information Clearinghouse • Outreach and Public Relations 	DOE/Contractors DOE DOE/Contractors DOE/Contractors	TBD TBD Ongoing Ongoing
PROGRAM EVALUATION <ul style="list-style-type: none"> • Employee Participation • Waste Reduction Performance • Program Implementation Status 	DOE/Contractors DOE/Contractors DOE/Contractors	TBD Annual Ongoing

APPENDIX D

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Table 1

**HANFORD SITE WASTE MINIMIZATION/POLLUTION PREVENTION
PROGRAMMATIC ELEMENT RESOURCE SUMMARIZATION**

KEY SITEWIDE PROGRAM ELEMENT	ENVIRONMENTAL MANAGEMENT (EM) FUNDING LEVEL (\$K)					
	1994	1995	1996	1997	1998	1999
Organization and Infrastructure	16 *2	51 (70)	55 (70)	55 (70)	92 (36)	95 (36)
Program Development	347	51	58	65	57	60
Employee Involvement	96	90	90	90	93	95
Tracking	*175	34 (35)	34 (17)	34 (17)	37 (17)	51 (17)
Reporting	74	135	135	135	138	165
Site-Wide Waste Reduction	378 *137	412 (134)	412 (67)	412 (67)	415 (67)	479
Technical Assistance	183 *400	130 (405)	130 (527)	135 (548)	349 (316)	318 (316)
Information and Technology Exchange	*8	17 (17)	20 (34)	20 (34)	57	60 (30)
Program Evaluation		8	10	15	23	25
TOTALS: Target Planning/HQ Combined	1094 *714 1808	928 (695) 1623	944 (715) 1659	961 (736) 1697	1261 (475) 1736	1348 (429) 1777

Target case

* Direct HQ funding

() Planning case

Table 2

**WASTE GENERATOR-SPECIFIC POLLUTION PREVENTION/WASTE MINIMIZATION
KEY PROGRAM ELEMENTS RESOURCE SUMMARIZATION***

KEY GENERATOR-SPECIFIC PROGRAM ELEMENT	EM PROGRAM FUNDING LEVEL (\$K)					
FISCAL YEAR	1994	1995	1996	1997	1998	1999
Organization and Infrastructure	174	183	199 (26)**	210 (33)	221 (30)	237 (35)
Facility Program Development	199	213	233 (49)	236 (61)	242 (61)	250 (66)
Sitewide Program Participation	354	425	454 (74)	480 (79)	497 (78)	505 (80)
Facility Training	243	238	224 (69)	225 (76)	217 (73)	223 (75)
Opportunity Assessments	365	441	476 (432)	464 (405)	464 (360)	458 (333)
Opportunity Implementation	1000	2219	802 (2183)	837 (3213)	842 (3246)	857 (2585)
Design Considerations	211	212	219 (19)	220 (30)	216 (30)	233 (33)
Program Evaluation	37	37	50 (7)	56 (9)	56 (9)	61 (9)
TOTALS Target (Planning)	2583	3968	2657 (2859)	2728 (3906)	2755 (3889)	2824 (3216)

* Site waste generator funding data was extrapolated for the key program elements

** (Planning Case)

Table 3

**WASTE GENERATOR-SPECIFIC POLLUTION PREVENTION/WASTE MINIMIZATION
KEY PROGRAM ELEMENTS RESOURCE SUMMARIZATION* Continued**

KEY GENERATOR-SPECIFIC PROGRAM ELEMENT	ENERGY RESEARCH (ER) PROGRAM FUNDING LEVEL (\$K)					
FISCAL YEAR	1994	1995	1996	1997	1998	1999
Organization and Infrastructure	0	50	66	70	72	75
Facility Program Development	0	50	75	75	80	85
Sitewide Program Participation	0	198	218	220	225	230
Facility Training	0	25	30	35	35	35
Opportunity Assessments	0	100	120	122	124	126
Opportunity Implementation	0	50	100	125	150	175
Design Considerations	0	0	0	0	0	0
Program Evaluation	0	25	30	32	35	38
TOTAL	0	498	639	650	721	764

* Site waste generator funding data was extrapolated for the key program elements

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APPENDIX E

EM SITEWIDE WMIN/P2 PROGRAM TASK DESCRIPTION DOCUMENT

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E-T010

OFFICE OF WASTE MANAGEMENT
TASK DESCRIPTION DOCUMENT

INTRODUCTION AND CROSS-REFERENCE INFORMATION

OPERATIONS OFFICE: RL ADS ID: 7332 ADS SUF: 0 SUBACTIVITY: WA

SUBACTIVITY TITLE: POLLUTION PREVENTION

INSTALLATION: HANFORD

CATEGORY: WM

DEFENSE/NON-DEFENSE:

VERSION DATE: 5/12/93

PROGRAM: EM

PRINT DATE: 5/19/94

COST INFORMATION:

LINE ITEM NO: N/A

TPC: 0

TEC: 0

DESCRIPTION: WASTE MINIMIZATION

DECREMENT CASE (\$ IN THOUSANDS)

B&R
OE EW3110020
TOTAL
DIRECT FTEFY1996
TOTAL
566
566
5

TARGET CASE (\$ IN THOUSANDS)

	FY1994	FY1995	FY1996	FY1996	FY1996	FY1997	FY1998	FY1999	FY2000
B&R	RL	BUD	LEGAL	ESH	TOTAL				
OE EW3110020	0	550	566		566	583	883	970	867
TOTAL	0	550	566	0	566	583	883	970	867
DIRECT FTE	0	5	5	0	5	5	7	8	7

PLANNING CASE (\$ IN THOUSANDS)

	FY1994	FY1995	FY1996	FY1996	FY1996	FY1997	FY1998	FY1999	FY2000
B&R	RL	BUD	LEGAL	ESH	TOTAL				
OE EW3110020	0	550	1280		1280	1319	1358	1399	1441
TOTAL	0	550	1280	0	1280	1319	1358	1399	1441
DIRECT FTE	0	5	11	0	11	11	11	11	11

SCOPE INFORMATION
-----**TECHNICAL SCOPE NARRATIVE:**

The Pollution Prevention (formerly Waste Minimization) Program is organized to meet Federal, state, and DOE regulations, policies, and reporting requirements; and to develop a Hanford sitewide pollution prevention (P2) program. The P2 program team works to remove barriers to pollution prevention, develop sitewide programmatic elements that encourage and facilitate pollution prevention, collect information and prepare reports, and assist site facilities in the implementation of P2.

RL has designated WHC as the Hanford Site P2 lead and RL point of coordination for all other site contractors. WHC will coordinate P2 onsite according to the key elements for the sitewide and generator-specific programs identified in the 1994 DOE Waste Minimization/Pollution Prevention (WMin/PP) Crosscut Plan.

The key program elements for a sitewide P2 program include:

- Organization and Infrastructure
- Program Development
- Employee Involvement
- Tracking
- Reporting
- Sitewide Waste Reduction
- Technical Assistance
- Information and Technology Exchange
- Program Evaluation

The funding profile associated with each program element is detailed in the Task Narratives below.

RELATED ACTIVITIES NARRATIVE:

This subactivity is related to all ADSs which support Pollution Prevention. In prior years Pollution Prevention workscope is covered in ADS 7330 - subactivity HH.

KEY ASSUMPTIONS:

Environmental regulations and requirements will continue to evolve, which will result in a greater demand on resources.

ACTIVITY BY PRIORITY:

Workscope is all Priority 2, specifically ensuring compliance with environmental laws and the Tri-Party Agreement.

CAPITAL EQUIPMENT TITLES WITH DOLLARS OVER 25K

ADS ID: 7332

ADS SUF: 0

SUB ACT: WA

TASKS COMPLETED TO DATE:

Prior year Pollution Prevention tasks are shown on ADS 7330.

ADS ID: 7332

ADS SUF: 0

SUB ACT: WA

SCHEDULE INFORMATION

FY 1994 MILESTONES:

MILESTONE ID	TITLE	PLANNING	TARGET
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CURRENT YEAR (FY 1994) TASK NARRATIVE:

Pollution Prevention activities are funded in ADS 7330.

FY 1995 MILESTONES:

MILESTONE ID	TITLE	PLANNING	TARGET
7332-00-0030	SUBMIT ANNUAL WASTE MINIMIZATION REPORT TO RL	3/15/95	3/15/95

BUDGET YEAR (FY 1995) TASK NARRATIVE:

Based on an assessment of required workscope and projected outyear funding levels, the workscope identified in this ADS assumes a redistribution of Richland's FY 1995 Congressional Budget request. The delta change from the President's budget is \$(267K), resulting in a new total of \$550K. These adjustments may require a FY 1995 budget amendment.

TARGET LEVEL FUNDING: \$550K

\$550K - Provides for a Hanford sitewide P2 program according to elements identified in the WMin/PP Crosscut Plan:

(1) Organization and Infrastructure 51K

Support to RL in coordination of sitewide P2 program strategy, guidance, performance measures, and data calls for special projects

Establish Site coordination networks for P2

Limited participation in DOE Complex-wide program development

(2) Program Development 51K

Modify/improve tools and guides developed in FY 94 (Model P20A and guidance)

Revise guidance for preparing generator P2 plans

Assist program managers in establishing separate, identifiable P2 funding, broken down according to key program elements

Integrate activities, goals, and budgets

(3) Employee Involvement 90K

Pollution Prevention Opportunity Assessment (P20A) training

Awareness and publicity through displays, P2 accomplishments book, Hanford REACH, and other education materials

Employee incentive/recognition programs

(4) Tracking 34K
P2OAs and implementation

Performance measures and goals

(5) Reporting 135K
Complete and submit: WAC 173-307 Pollution Prevention Plan report, DOE Annual Waste Generation and Waste Minimization report, Affirmative Procurement progress report, ODS report, 1995 Dangerous Waste Pilot Report, input for SARA 313 and LDR reports, and other standard data calls

(6) Sitewide Waste Reduction 34K
Hazardous Materials Reduction Initiative - maintain database

Support for waste reduction/implementation

Support for reduction of ozone-depleting substances

(7) Technical Assistance 130K
Provide limited Site assistance for compliance with Executive Orders 12843, 12856, 12870, and 12902; P2OAs, goal setting, opportunity implementation, and other generator-specific program development and implementation

(8) Information and Technology Exchange 17K
Participation in public outreach programs

Input to DOE information exchange network/participate in DOE and industry-sponsored conference and symposia

(9) Program Evaluation 8K
Assess employee participation

Assess program implementation status and evaluate performance against goals

PLANNING LEVEL INCREMENT: \$695K
\$695K - Provides incremental funding for the following additional activities:

(1) Organization and Infrastructure 70K
Full participation in DOE Complex-wide program development

Assist in the establishment and monitoring of generator P2 programs, committees, and P2OA teams

Develop and present monthly Sr mgt P2 program status reports

(2) Program Development 17K
Coordination of P2 into Hanford operating procedures

Incorporate DOE quality assurance objectives and methods (DOE Order 5700.6C) into P2 activities

(4) Tracking 52K
Modify hazardous materials tracking database to electronically ID material use

Summary level tracking of Site and WHC savings from P2

Waste cost avoidance model

(6) Sitewide Waste Reduction 134K
P2 in design of new or modified facilities

Hazardous Materials Reduction Initiative (HMRI) field support Tracking

(7) Technical Assistance 405K
Full Site assistance for compliance with: Executive Orders 12843, 12856, 12873, and 12902; P2OAs, goal setting, baselining, opportunity implementation, and other generator-specific program development and implementation

Hanford goal setting approach

(8) Information and technology exchange 17K
Pursue P2 technology transfer initiatives

FY 1996 MILESTONES:

MILESTONE ID	TITLE	PLANNING	TARGET
7332-00-0035	SUBMIT ANNUAL WASTE MINIMIZATION REPORT TO RL	3/15/96	3/15/96

PLANNING YEAR (FY 1996) TASK NARRATIVE:
DECREMENT AND TARGET LEVEL FUNDING: \$566K
\$566K - Provides for a Hanford sitewide P2 program according to elements identified in the WMin/PP Crosscut Plan:

(1) Organization and Infrastructure 55K
Support to DOE-RL in coordination of sitewide P2 program strategy, guidance, performance measures, and data calls for special projects

Establish Site coordination networks for P2

Limited participation in DOE Complex-wide program development

(2) Program Development 58K
Assist program managers in establishing separate, identifiable P2 funding, broken down according to key program elements

Integrate activities, goals, and budgets

Development of any new initiatives identified in FY 95

(3) Employee Involvement 90K
Pollution Prevention Opportunity Assessment (P2OA) training

Awareness and communication through displays, P2 accomplishments book, Hanford REACH, and other education materials

Employee incentive/recognition programs

(4) Tracking 34K
P2OAs and implementation

Performance measures and goals

(5) Reporting 135K
Complete and submit: EPA Biennial WMin report, WAC 173-307 Pollution Prevention Plan report, DOE Annual Waste Generation and Waste Minimization report, Affirmative Procurement progress report, ODS report, 1995 Dangerous Waste Pilot Report, input for SARA 313 and LDR reports, and other standard data calls

(6) Sitewide Waste Reduction 34K
Hazardous Materials Reduction Initiative - maintain database

Support for waste reduction/implementation

Support for reduction of ozone-depleting substances

(7) Technical Assistance 130K
Provide limited Site assistance for compliance with Executive Orders 12843, 12856, 12870, and 12902; P2OAs, goal setting, opportunity implementation, and other generator-specific program development and implementation

(8) Information and Technology Exchange 20K
Participation in public outreach programs

Input to DOE information exchange network/participate in DOE and industry-sponsored conference and symposia

(9) Program Evaluation 10K
Assess employee participation

Assess program implementation status and evaluate performance against goals

PLANNING LEVEL INCREMENT: \$715K
\$715K - Provides incremental funding for the following additional activities:

(1) Organization and Infrastructure 70K
Continue in the establishment of generator P2 committees and P2OA teams

Develop and present monthly Sr mgt P2 program status reports

(4) Tracking 17K
Summary level tracking of Site and WHC savings from P2

(6) Sitewide Initiatives 67K
Hazardous Materials Reduction Initiative (HMRI) Field Support

(7) Technical Assistance 527K
Full site assistance for compliance with: Executive Orders 12843, 12856, 12873, and 12902; P2OAs, opportunity implementation, and other generator-

specific program development and implementation

P2 in design of new or modified facilities

Waste cost avoidance model

Hanford goal setting approach

(8) Information and technology exchange 34K

Pursue P2 technology transfer initiatives onsite and offsite

FY 1997-FY 2000 MILESTONES:

MILESTONE ID	TITLE	PLANNING	TARGET
7332-00-0005	SUBMIT ANNUAL WASTE MINIMIZATION REPORT TO RL	3/15/97	3/15/97
7332-00-0010	SUBMIT ANNUAL WASTE MINIMIZATION REPORT TO RL	3/15/98	3/15/98
7332-00-0015	SUBMIT ANNUAL WASTE MINIMIZATION REPORT TO RL	3/15/99	3/15/99
7332-00-0020	SUBMIT ANNUAL WASTE MINIMIZATION REPORT TO RL	3/15/00	3/15/00

OUTYEAR (FY 1997-2000) TASK NARRATIVE:

TARGET LEVEL FUNDING:

Continue implementation of a Hanford sitewide pollution prevention program according to Crosscut plan elements:

- (1) Organization and Infrastructure
- (2) Program Development
- (3) Employee Involvement
- (4) Tracking
- (5) Reporting
- (6) Sitewide Waste Reduction
- (7) Technical Assistance
- (8) Information and Technology Exchange
- (9) Program Evaluation

\$283K is allotted in FY 98 to partially fund incremental items identified in FY 1996:

Develop and present monthly Sr mgt P2 program status reports 34K

Full Site assistance for compliance with: Executive Orders 12843, 12856, 12873, and 12902; P2OAs, opportunity implementation, and other generator-specific program development and implementation 211K

Pursue P2 technology transfer initiatives onsite and offsite 34K

PLANNING LEVEL INCREMENTS:

Additional funding is required in the outyears to fund the remaining items from FY96 and continuation of hazardous materials reduction activities, including review of all purchase requisitions and recommendation of nonhazardous substitutes, and establishment of a substitute database.

DRIVERS AND IMPACTS INFORMATION

REGULATORY DRIVERS:

Regulatory drivers for Pollution Prevention include: WAC 173-307, WAC 173-303, DOE Orders 5820.2A, 5400.1, 5400.3, 5700.6C, Hazardous Solid Waste Amendments to RCRA, Pollution Prevention Act of 1990, Tri-Party Agreement, Hanford Site Part B Permit, Executive Orders 12780, 12856, 12873 and 12843, 12902, Emergency Planning and Community Right to know Act, Federal Facility Compliance Act, Clean Air Act Amendments of 1990.

REGULATORY KEY ISSUES:

Decrement and Target funding levels do not support the additional resources required for program development and implementation in FY 95 and beyond. Program implementation will involve extensive field work and field support, not only to WHC operated facilities but also with other contractors; much more than is currently being provided by the P2 organization. Additionally, recent Executive Orders (E.O.s) 12843, 12856, 12873, and 12902 have placed increased emphasis on P2 and established the following: phaseout of Class I and II ozone depleting substances; a goal for 50 percent reduction of toxic chemicals by December 31, 1999; affirmative procurement practice for products made from recycled materials; and goals for reduced energy consumption efficiency, and water conservation. These E.O.s have all been issued since April 1993 and additional regulatory and DOE WMin/P2 requirements are expected to be issued. Without additional funds, the P2 organization will be able to provide only minimal support and guidance to site program coordination, development, and implementation. Benefits of waste reduction, cost savings, and reduced future liability will not be realized if activities are not funded. Key elements of the sitewide and generator-specific WMin/P2 program will not be fully implemented and goals will not be achieved. Also, Toxic Chemical Release reduction initiatives and the identification, requesting, allocating, reporting of funding for pollution prevention and waste minimization activities may not occur if these activities are not funded. Compliance with DOE directives and current and future regulatory requirements will not be achieved without additional funding.

COMP/PROG BENEFITS AT PLANNING LEVEL:

Pollution Prevention Program implementation is fully supported.

CONCERNS AT PLANNING LEVEL:

None

REQUIRED TECHNICAL DEVELOPMENT:

Technical development will be identified as P2OAs are performed on waste generating activities.

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